

**TOSHIBA**  
Leading Innovation >>>

*Carrier*  
turn to the experts™ 

# INTEGRATED HEATING SYSTEMS

**CATALOGUE 2012 - 2013**







**AHI Carrier Fzc**  
Business Territory Network

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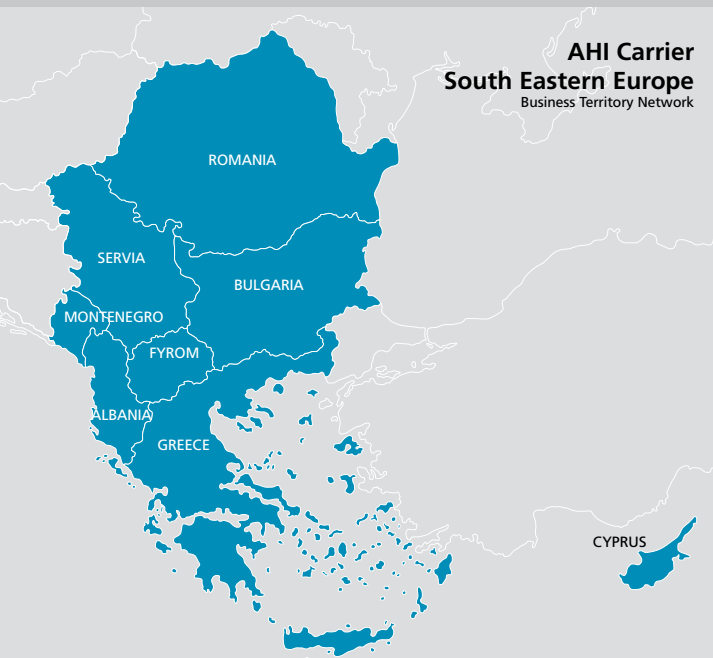
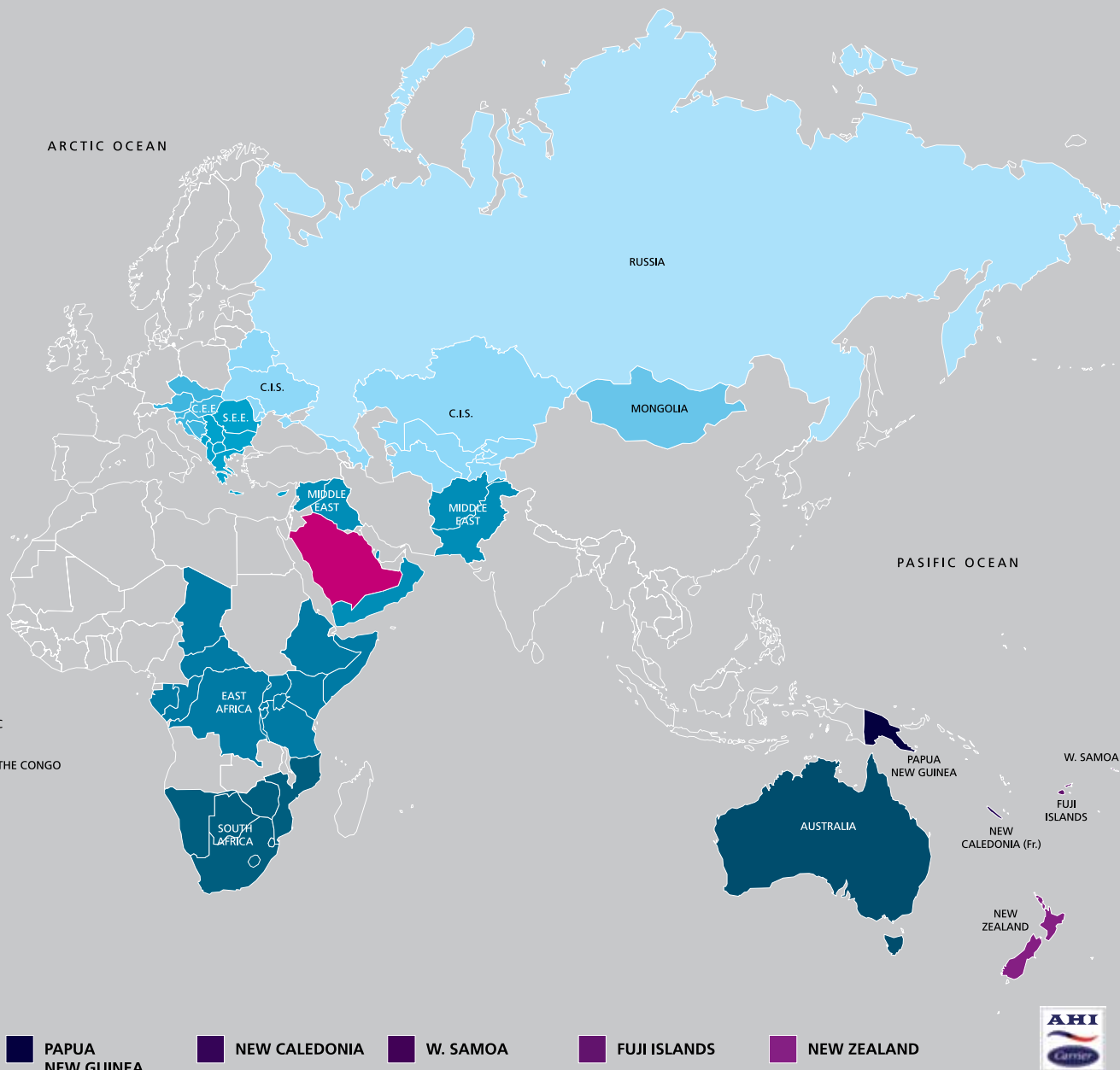
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NEW GUINEA**

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**AHI Carrier**  
**South Eastern Europe**  
Business Territory Network

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## COMPANY PROFILE

Dating back to 1952, **Carrier** was the first air-conditioning company in Greece. In 1996, **Carrier Hellas Air-Conditioning S.A.** was established as a subsidiary of UTC with distribution and after sales services rights for Carrier, Toshiba & Totaline air-conditioning brands in Greece. Simultaneously, Carrier expanded its distribution rights to the Balkan area with offices in Romania & Bulgaria. In 2009, the company was renamed to **Carrier South Eastern Europe Air-Conditioning S.A.** signifying the distribution rights in Greece, Cyprus and the Balkan region.

The first Semester of 2011, Carrier entered into an agreement to transfer its HVAC distribution and after-sales support operations in Greece, Cyprus & the Balkans to its existing AHI Carrier FZC joint venture. The company was renamed to **AHI Carrier South Eastern Europe Air-Conditioning S.A.** and continues to provide customers with high quality Carrier and Toshiba HVAC solutions, supported by dedicated after-sales service technicians and the Totaline parts and supply network.

We are a company of ideas committed to applying cutting edge research and development techniques to create solutions that improve the environment and enhance human comfort.

The quality and efficiency of our products and services represent a commitment to consolidating our leading position in the market. We supply long-lasting, efficient products whose performance exceeds our customers' expectations.

We are committed to excellence in customer satisfaction. We listen to our customers and respond to their diverse needs by delivering exceptional products and services.

### **Our Mission**

To be our customers' first choice for air-conditioning, heating and refrigeration solutions in our region.

### **Our Purpose**

To create comfortable environment regardless of the climate by providing solutions that maintain exceptional indoor air quality.

# About AHI Carrier

THE LARGEST CARRIER JOINT VENTURE HVAC DISTRIBUTION COMPANY OUTSIDE USA

AHI is part of Darwish Bin Ahmed Group, U.A.E. founded in 1964. DBA Group is engaged in the following “core” business activities through a large, diversified investment and property portfolio, wholly owned companies, partnerships, agency agreements and joint ventures.

- Civil Engineering
- Real Estate & Hospitality
- International Representation of Major Manufacturers
- Business Investments
- **Joint Venture with Carrier Corporation**

AHI Carrier formerly known as Air-conditioning & Heating International (AHI) became a Carrier Joint Venture Company on December 18th, 2008. The partnership between Carrier and AHI dates back to December 1997 when the first agreement was signed for distribution of Carrier products in Russia and all of CIS countries (12 countries).

In 1999, Carrier & Toshiba Air-conditioning entered into a Joint Venture and as a consequence the Toshiba range of air-conditioning products were added for distribution in our territories. Success came early and in 2000 Carrier rewarded us by expanding our distribution rights to East and Central Africa (15 countries).

Since the creation of “AHI Carrier” Joint Venture, more countries have been added to include Middle East, Central and South Eastern Europe, Australia, New Zealand and South Africa (42 countries).

The most critical factor contributing AHI’s successful track record of profitable growth has been its commitment to service – and this commitment will become increasingly important in the future.

AHI Carrier runs TOTALINE stores in Australia, New Zealand & Middle East where more such stores are being added. TOTALINE stocks and sells a full range of HVACR parts, consumables & tools for residential and commercial applications.

AHI Carrier now distributes Carrier & Toshiba HVAC products in 63 & 50 countries respectively across 4 continents.

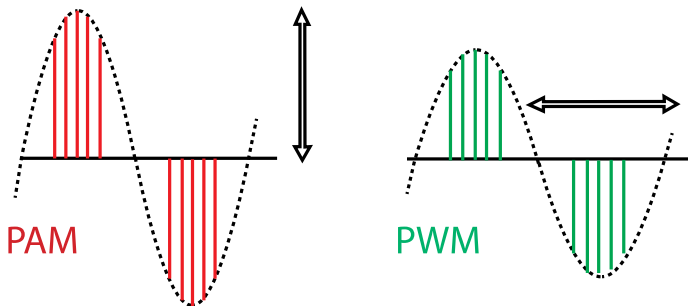


# THE HEATING AND COOLING SYSTEMS OF THE FUTURE!

The increase of CO<sub>2</sub> and other green house gases is a key concern. Following the European commitment of reducing 20% of the emissions by 2020, energy waste from residential space heating and domestic hot water have been identified as the possible reduction targets.

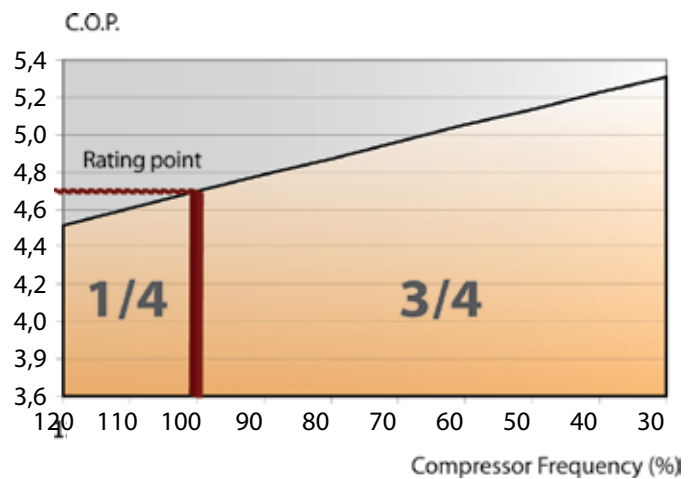
Air-to-water heat pumps are considered as renewable energy technology compared to heating systems dependent on fossil fuel or non efficient electrical heating. They are now considered as ideal solutions for space heating and domestic hot water.

Residential heat production by means of gas, oil or electricity contribute to raise the CO<sub>2</sub> emissions level in the atmosphere. In addition these traditional heating systems are less efficient and therefore the energy running costs increase.



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

This new technology enables greater energy savings and the use of Carrier & Toshiba high efficiency heat pump units ensure long term reliability. Our engineers in recent years have developed and patented innovative cutting edge solutions and components like the twin rotary compressor and the IPDU inverter which has led to the achievement of great energy savings and high efficiency.



## 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 & Toshiba inverter technology has one of the highest efficiency ratios.



*Energy-efficiency class A in under-floor heating applications.*

The products have 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



## KEY FEATURES

- DC Twin rotary inverter compressor 20% to 120% with booster heating
- R410a or R407C, depending on the model
- Max LWT 65°C down to -10°C OAT, depending on the model
- Heating mode available from -20°C to +30°C

### Real inverter system designed for heating:

- Communication between indoor and outdoor to manage Hz
- Inverter controls designed to deal with high thermal inertia emitters
- System controlled on LWT to terminal unit to better cope with UFH thermal inertia



### Toshiba Carrier DC-inverter compressors

Twin-rotary for the larger sizes, for improved reliability, smooth and vibrations-free operation, from 20 up to 120% of their nominal capacity.

### Toshiba Carrier inverter IPDU

Our exclusive hybrid inverter technology, combining PAM & PWM for maximum power at high rpm and unmatched efficiency at low and mid rpms.



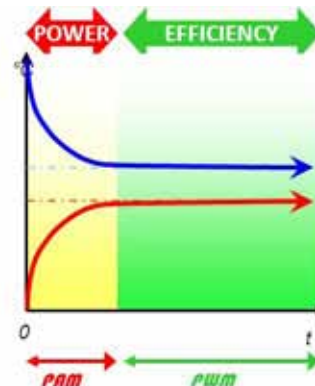
## CDU DC Twin rotary inverter technology Inverter IPDU

### PAM (Power Amplitude Modulation)

The PAM ensures maximum power for the prompt achievement of the set temperature.

### PWM (Power Width Modulation)

The PWM ensures maximum power efficiency, once the temperature has stabilized.

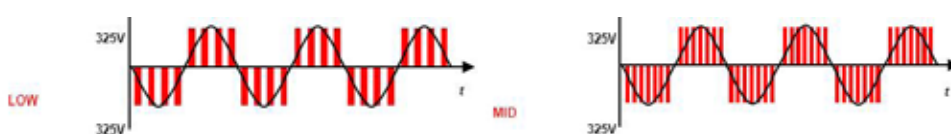


### PWM (Pulse Width Modulation)

The PWM driver generates a pseudo 3-phase alternate current by combining rectangular-shaped current pulses, having a fixed voltage of 325 Volts. This driver accurately and efficiently controls the compressor revolution (rpm) by adjusting the frequency (Hertz) of the 325V waves and their power factor.

Although the PWM is the most efficient inverter-driver technology, its maximum power output reaches its limit, when the power factor ratio of the rectangular waves comes near to 100%.

PWM is engaged when the unit operates at low and mid capacities. But when maximum capacity is required, Toshiba Carrier inverters have a second card to play.



### PAM (Pulse Amplitude Modulation)

To overcome the PWM output limitation, Toshiba Carrier inverter offers the PAM driver, which takes over the control of the compressor revolution when maximum capacity is required.

The PAM driver adjusts the compressor revolution by varying the voltage of the rectangular-shaped electric pulses, their frequency and power factor.







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## The heating and cooling systems of the future!

Toshiba Estia air-to-water heat pumps, are the ideal solution to increase energy efficiency (COP), using air as a main source of energy. This is an all-in-one system designed to deliver the right temperature for space heating, for domestic sanitary hot water and with the additional advantage of offering air-conditioning in the warmer seasons.

Toshiba air-to-water heat pump systems can manage two independent zones. This solution enables the delivery of water to diverse emitters at different temperature levels up to 55 °C.

### KEY FEATURES

- World-leading energy efficiency - COP of 4.66 (11kW model)
- Easy to install
- Environment conscious
- One system, multiple Solutions
- The right temperature at the right time

#### Outdoor unit

Inverter technology and the DC twin rotary compressor. Estia heat pumps operate with the reliable and safe R-410A refrigerant.



#### Hydro unit

The high efficiency plate heat exchanger receives the optimum quantity of refrigerant to produce hot water at low or medium temperature (20-55 °C), or cold water (10-20 °C). A back-up heater (3, 6 or 9 kW options) further supports the operation for extreme conditions.



#### Domestic hot water tank

The Estia tank is a compact stainless steel insulated tank producing domestic hot water for sanitary use. The performance of the overall system is also maximized thanks to the integrated coaxial heat exchanger which uses hot water produced by the heat pump (whenever energy efficient and possible).



## Physical data

## Performance data

Outdoor unit Hydro unit combination	HWS- HWS-	Single Phase Units			Three Phase Units		
		803H-E 803XWH**E	1103H-E 1403XWH**E	1403H-E 1403XWH**E	1103H8-E 1403XWH**E	1403H8-E 1403XWH**E	1603H8-E 1403XWH**E
Heating Power *- (Nominal / Maximum)		8,00 / 8,78	11,20 / 14,97	14,00 / 17,08	11,20 / 14,82	14,00 / 16,12	16,00 / 17,03
Power input - (Nominal / Maximum)		1,82 / 2,07	2,35 / 3,23	3,11 / 3,94	2,39 / 3,24	3,21 / 3,77	3,72 / 4,05
COP		4,40 / 4,25	4,77 / 4,63	4,50 / 4,34	4,69 / 4,57	4,36 / 4,28	4,30 / 4,20
Cooling Power *- (Nominal / Maximum)		6,00 / 8,18	10,00 / 13,29	11,00 / 14,47	10,00 / 12,66	11,00 / 14,07	13,00 / 16,20
Power input - (Nominal / Maximum)		1,42 / 2,26	2,35 / 3,70	2,65 / 4,29	2,14 / 3,15	2,43 / 3,74	3,08 / 4,80
EER		4,23 / 3,62	4,26 / 3,59	4,15 / 3,37	4,67 / 4,02	4,53 / 3,77	4,22 / 3,38
Heating Power **- (Nominal / Maximum)	kW	8,00 / 8,34	11,20 / 14,30	14,00 / 15,02	11,20 / 14,16	14,00 / 15,34	16,00 / 16,11
Power input - (Nominal / Maximum)	kW	2,40 / 2,46	2,95 / 3,88	3,95 / 4,25	3,19 / 3,88	4,12 / 4,42	4,88 / 4,76
COP	W/W	3,33 / 3,39	3,80 / 3,69	3,54 / 3,53	3,51 / 3,65	3,40 / 3,47	3,28 / 3,39
Cooling Power **- (Nominal / Maximum)	kW	6,00	10,00	11,00	10,00	11,00	13,00
Power input - (Nominal / Maximum)	kW	2,13	3,52	4,08	3,52	4,08	4,80
EER	W/W	2,82	2,84	2,70	2,84	2,70	2,71

\* HEATING POWER : 35°C / 30°C @ 7°C AND COOLING POWER : 18°C / 23°C @ 35°C  
 \*\* HEATING POWER : 45°C / 40°C @ 7°C AND COOLING POWER : 7°C / 12°C @ 35°C

## Physical data - Outdoor Units

Outdoor unit	HWS-	Single Phase Units			Three Phase Units		
		803H-E	1103H-E	1403H-E	1103H8-E	1403H8-E	1603H8-E
Power supply	V-ph-Hz	220/230-1-50			380/400-3N-50		
Dimensions (HxWxD)	mm	890x900x320	1340x900x320	1340x900x320	1340x900x320	1340x900x320	1340x900x320
Weight	kg	63	93	93	93	93	93
Sound pressure Level	dB(A)	49	49	51	50	51	52
Operating range in space heating	°C	-20 + 25					
Operating range Domestic hot water	°C	-20 + 43					
Operating range in cooling	°C	10 + 43					
Minimum pipe length	m	5					
Maximum pipe length	m	30					
Maximum height difference	m	30					
Chargeless pipe length	m	30					
Compressor type		DC Twin rotary					
Refrigerant		R410A					
Flare connections (gas-liquid)		5/8" - 3/8"					

## Physical data - Hydro Units

Hydro unit	HWS-	803XWHM3-E	803XWHT6-E	803XWHT9-E	1403XWHM3-E	1403XWHT6-E	1403XWHT9-E
To be used with size		80	80	80	110-140-160	110-140-160	110-140-160
Electric back up heater capacity	kW	3	6	9	3	6	9
Electric back up heater supply	V-ph-Hz	220/230-1-50	380/400-3N-50	380/400-3N-50	220/230-1-50	380/400-3N-50	380/400-3N-50
Leaving water temperature	°C	20 - 55°C			20 - 55°C		
	°C	10 - 25°C			10 - 25°C		
Sound pressure level	dB(A)	29					
Dimensions (HxWxD)	mm	925 x 525 x 355					
Weight	kg	54					

## Physical data - Hot Water Tank

Domestic hot water tank	HWS-	1501CSHM3-E	2101CSHM3-E	3001CSHM3-E
Water volume	lt	150	210	300
Height / Diameter	mm	1090 / 550	1474 / 550	2040 / 550
Weight	kg	31	41	60
Material		Stainless steel		
Max water temperature	°C	75		
Electric heater	kW	2,75		
Power supply	V-ph-Hz	220/230-1-50		

# TOSHIBA



60°C



## Hot water and comfortable ambient temperature all year round

The new reversible XP Energy air-to-water split system heat pumps with built-in inverter technology were designed for residential and light commercial applications. They offer excellent energy efficiency rates, exceptionally quiet operation and meet the most stringent operating temperature demands.

The units integrate the latest technological innovations: ozone-friendly refrigerant R-410A, DC inverter win-rotary compressors, low-noise fan and microprocessor control.

The 80AW/38AW systems were specifically designed for ease-of-installation and service and underline Carrier's reputation for highest product quality and reliability.

## Features

- Eight sizes with nominal heating capacities from 5 to 11.5 kW and nominal cooling capacities from 4.2 to 9.0 kW.
- DC inverter twin-rotary compressors with Pulse Amplitude Modulation (PAM) and Pulse Width Modulation (PWM) for enhanced reliability, low energy consumption and smooth vibration-free operation under all operating conditions.
- Variable-speed fans with an innovative patented fan blade shape ensure improved air distribution at exceptionally low noise levels.
- Heating and Cooling of up to two independent thermal zones.
- Leaving water temperature up to 60°C.
- Temperature and humidity control.
- Time scheduling.

## Physical data

System	Heating only				Heating and cooling				
Indoor unit (hydronic module)	80AW1-H	80AW1-H	80AW2-H	80AW2-H	80AW1-X	80AW1-X	80AW2-X 80AWT-X	80AW2-X 80AWT-X	
Outdoor unit (heat pump)	38AW 050H7	38AW 065H7	38AW 090H7	38AW 115H7	38AW 050H7	38AW 065H7	38AW 090H7	38AW 115H7	
Nominal heating capacity*	kW	5.0	6.5	9.1	11.5	5.0	6.5	9.1	11.5
Minimum heating capacity*	kW	1.5	1.3	3.6	3.5	1.5	1.3	3.6	3.5
Maximum heating capacity*	kW	5.9	7.8	11.1	13.8	5.9	7.8	11.1	13.86
Nominal power input*	kW	1.22	1.59	2.17	2.81	1.22	1.59	2.17	2.81
COP*	kW/kW	4.10	4.10	4.20	4.10	4.10	4.10	4.20	4.10
Energy class (heating)	A	A	A	A	A	A	A	A	A
Nominal cooling capacity**	-	-	-	-	4.2	5.6	7.9	9.0	
Minimum cooling capacity**	kW	-	-	-	1.6	2.0	3.9	4.1	
Maximum cooling capacity**	kW	-	-	-	6.6	7.3	9.5	12.1	
Nominal power input**	kW	-	-	-	1.16	1.53	1.94	2.37	
EER**	kW/kW	-	-	-	3.65	3.65	4.05	3.80	
Energy class (cooling)	-	-	-	-	A	A	A	A	

\* The nominal heating capacity is in accordance with EN 14511, water temperature 35°C/30°C, air temperature 7°C/6°C

\*\* The nominal cooling capacity is in accordance with EN 14511, water temperature 18°C/23°C, air temperature 35°C

Indoor unit (general)	80AW1	80AWT	80AW2
Number of comfort zones	1	1	2
Nominal water flow rate	l/s (l/h)	0.24 (860)	0.31 (1118)
Minimum water flow rate	l/s (l/h)	0.19 (688)	0.25 (894)
Maximum water flow rate	l/s (l/h)	0.29 (1032)	0.37 (1342)
Sound power level, cooling	dB(A)	27	27
Sound power level, heating	dB(A)	27	27
Dimensions, H x L x D	mm	770 x 580 x 350	1050 x 660 x 570
Operating weight	kg	40	80
Power supply	V-ph-Hz	230-1-50	230-1-50
Recommended main fuse size	A	16	25

Note: The power connection is on the indoor unit. The electric heater element (if used) can be equipped with a separate power supply.

Indoor unit for 38AW 050H7 and 38AW 065H7	80AW100H	80AW102H	80AW104H	80AW100X	80AW102X	80AW104X
Number of comfort zones	1	1	1	1	1	1
Electric heater element	kW	0	1 x 2	2 x 2	0	1 x 2
Heating only	Yes	Yes	Yes	No	No	No
Heating and cooling	No	No	No	Yes	Yes	Yes
Connection of back-up boiler	No	No	No	No	No	No
Power supply	V-ph-Hz	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50

Indoor unit for 38AW 090H7 and 38AW 115H7	80AWT00X	80AWT04X	280AW200H	80AW204H	80AW206H	80AW200X	80AW204X	80AW206X
Number of comfort zones	1	1	2	2	2	2	2	2
Electric heater element	kW	0	2 x 2	0	2 x 2	2 x 3	0	2 x 2
Heating only	No	No	Yes	Yes	Yes	No	No	No
Heating and cooling	Yes	Yes	No	No	No	Yes	Yes	Yes
Connection of back-up boiler	No	No	Yes	No	No	Yes	No	No
Power supply	V-ph-Hz	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50

Outdoor unit	38AW 050H7	38AW 065H7	38AW 090H7	38AW 115H7
Compressor type	DC twin-rotary	DC twin-rotary	DC twin-rotary	DC twin-rotary
Inverter type	PAM + PWM	PAM + PWM	PAM + PWM	PAM + PWM
Refrigerant	R-410A	R-410A	R-410A	R-410A
Maximum pipe length	m	50	30	70
Maximum height difference	m	30	30	30
Pre-charged length	m	20	20	30
Air flow	l/s (m <sup>3</sup> /h)	728 (2620)	783 (2820)	1658 (5970)
Sound power level, heating	dB(A)	64	68	69
Sound pressure level, heating***	dB(A)	44	48	49
Sound power level, cooling	dB(A)	64	65	68
Sound pressure level, cooling***	dB(A)	44	45	48
Dimensions, H x L x D	mm	690 x 900 x 320	820 x 900 x 320	1360 x 900 x 320
Operating weight	kg	49	51	88
Pipe connections	in	1/4 - 1/2	3/8 - 5/8	3/8 - 5/8
Power supply	V-ph-Hz	230-1-50	230-1-50	230-1-50

\*\*\* Sound pressure levels are given for a distance of 4 m from the unit.



turn to the experts 

# AIR-TO-WATER HEAT PUMP SPLIT SYSTEM

80AW/38AW

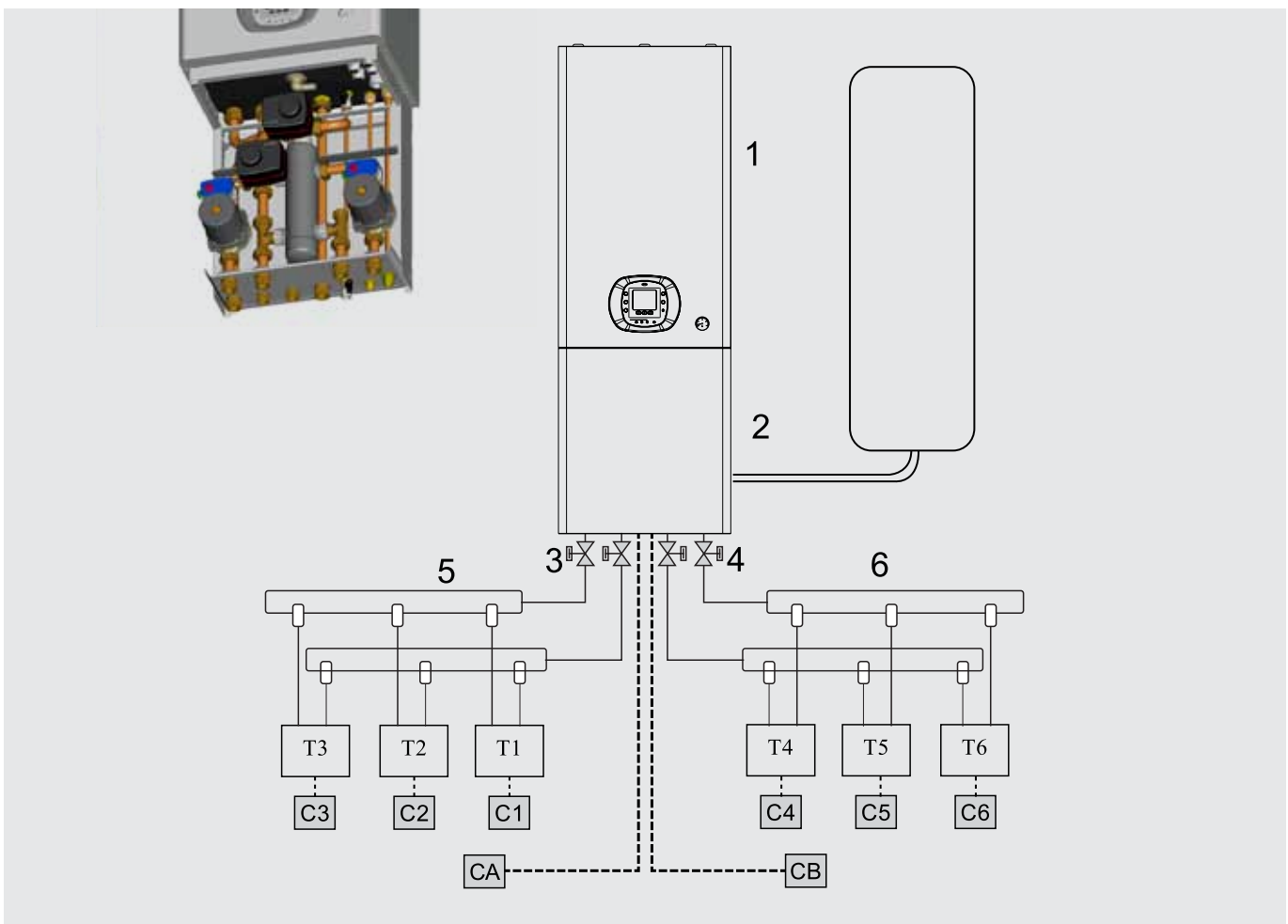
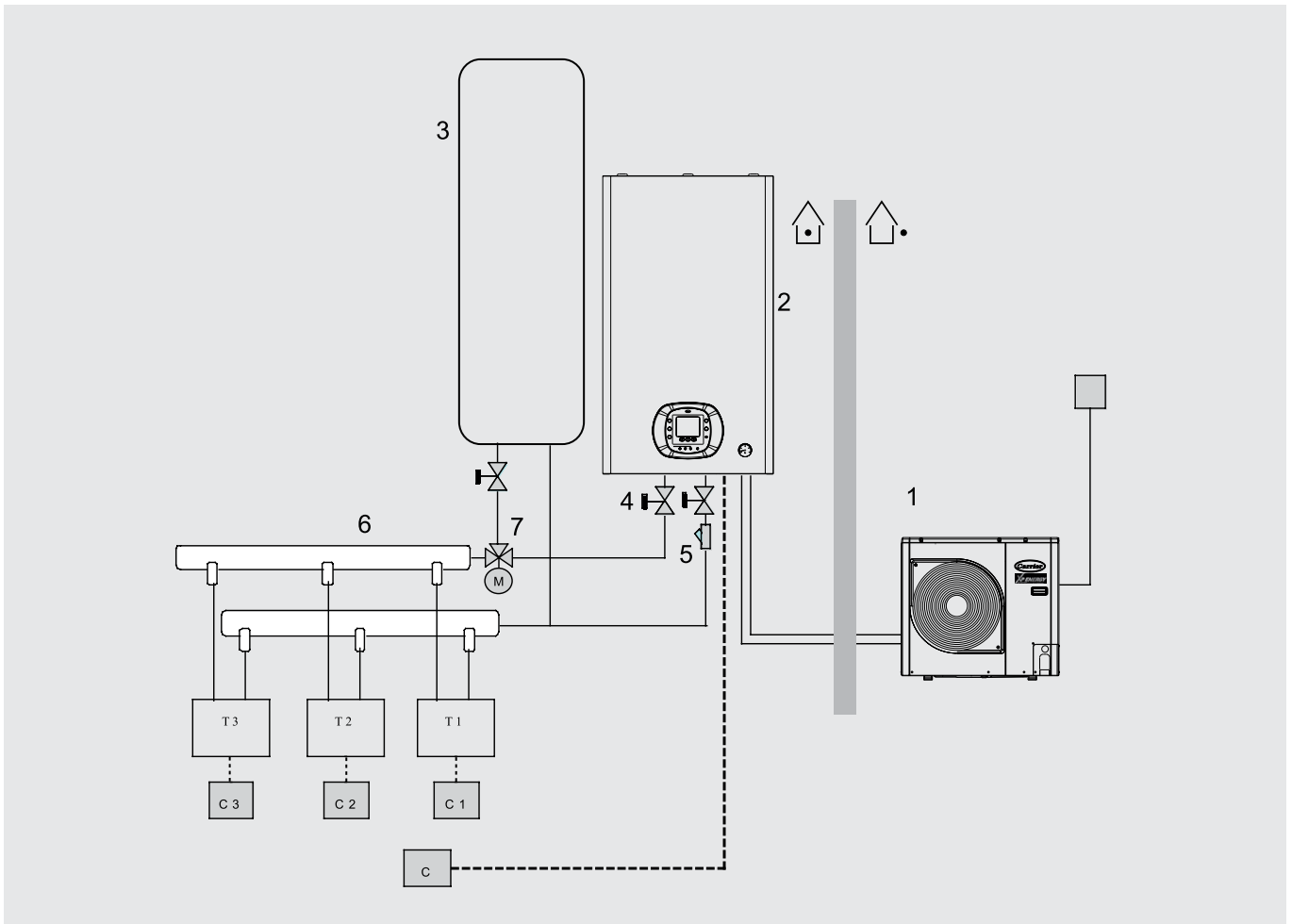


## Two-zone kit

The new design facilitates the installation process and makes two independent comfort zones easy to control. This kit includes a hydronic disconnection collector, the necessary circulating pumps and modulating valves. Installed together with the domestic hot water tank, the two-zone kit can integrate all accessories, such as the diverting valve and T-connection.

## Domestic Hot Water Tank

		60STS 020E03	60STD 020E03	60STS 030E03	60STD 030E03
Water tank size	l	212	212	291	291
Number of coils		1	2	1	2
Electric heater back-up	kW	3,3, single phase	3,3, single phase	3,3, single phase	3,3, single phase
Voltage	V	230 ± 10%	230 ± 10%	230 ± 10%	230 ± 10%
Operating temperature range	°C	5 to 95	5 to 95	5 to 95	5 to 95
Operating pressure DHW module	bar	0 to 10	0 to 10	0 to 10	0 to 10
Operating pressure heat exchangers	bar	0 to 6	0 to 6	0 to 6	0 to 6
Ambient operating temperature range	°C	5 to 45 °C	5 to 45 °C	5 to 45 °C	5 to 45 °C
Storage temperature range	°C	-20 to +75 °C	-20 to +75 °C	-20 to +75 °C	-20 to +75 °C
Lower heat exchanger	m <sup>2</sup>	1,2	1,2	1,5	1,5
Upper heat exchanger	m <sup>2</sup>		0,5		1,1
Diameter	mm	600	600	600	600
Height	mm	1215	1215	1615	1615



60°C



## More than a heat pump. Compact, reliable and efficient

The new reversible AquaSnap PLUS air-to-water heat pumps with built-in inverter technology were designed for residential and light commercial applications. They offer excellent energy efficiency values, exceptionally quiet operation and meet the most stringent operating temperature demands.

The units integrate the latest technological innovations: ozone-friendly refrigerant R410A, DC inverter twin-rotary compressors, low-noise fan and microprocessor control.

## Features

- Two versions with or without hydronic module in five sizes with nominal cooling capacities from 3 to 16 kW and nominal heating capacities from 4 to 14.5 kW.
- AquaSnap PLUS air-to-water heat pumps with built-in inverter technology were designed for residential and light commercial applications. They offer excellent energy efficiency values, exceptionally quiet operation and meet the most stringent operating temperature demands.
- Leaving water temperature up to 60°C for domestic hot water applications, making hot water readily available.
- Temperature & humidity control.
- Time scheduling.



## Physical data

30AW		004	006	008	012	015
<b>Data at Eurovent LCP/A/CHF conditions*</b>						
Nominal heating capacity	kW	4.1	5.8	7.2	11.9	14.5
Power input	kW	1.01	1.37	1.82	3.01	3.57
COP	kW/kW	4.05	4.24	3.95	3.94	4.06
<b>Nominal cooling capacity</b>						
Power input	kW	4.9	7.0	7.8	13.5	16.0
Power input	kW	1.21	1.92	1.98	3.68	4.20
EER	kW/kW	4.05	3.66	3.95	3.67	3.81
<b>Data at Eurovent LCP/A/AC conditions**</b>						
Nominal heating capacity	kW	3.9	5.8	7.4	12.9	14.0
Power input	kW	1.22	1.90	2.32	4.26	4.36
COP	kW/kW	3.2	3.06	3.18	3.03	3.21
<b>Nominal cooling capacity</b>						
Power input	kW	3.3	4.7	5.8	10.2	13.0
Power input	kW	1.13	1.60	1.97	3.46	4.47
EER	kW/kW	2.91	2.95	2.95	2.96	2.91
ESEER part-load performance	kW/kW	4.5	4.6	4.4	4.3	4.4
Operating weight, unit with/without hydronic module	kg	59/56	61/58	71/68	105/99	130/124
Refrigerant		R-410	R-410A	R-410A	R-410A	R-410A
Compressor	DC twin-rotary with PMV expansion valve					
Fans	Propeller fans					
Quantity/diameter	mm	1/495	1/495	1/495	2/495	2/495

\* Standard Eurovent LCP/A/CHF conditions in cooling mode: water heat exchanger entering/leaving water temp. 23°C/18°C, outside air temp. 35°C, water heat exchanger fouling factor 0 m<sup>2</sup> K/W.

Standard Eurovent LCP/A/CHF conditions in heating mode: water heat exchanger entering/leaving water temp. 30°C/35°C, outside air temp. 7°C db/6°C wb, water heat exchanger fouling factor 0 m<sup>2</sup> K/W.

\*\* Standard Eurovent LCP/A/AC conditions in cooling mode: water heat exchanger entering/leaving water temp. 12°C/7°C, outside air temp. 35°C, water heat exchanger fouling factor 0 m<sup>2</sup> K/W.

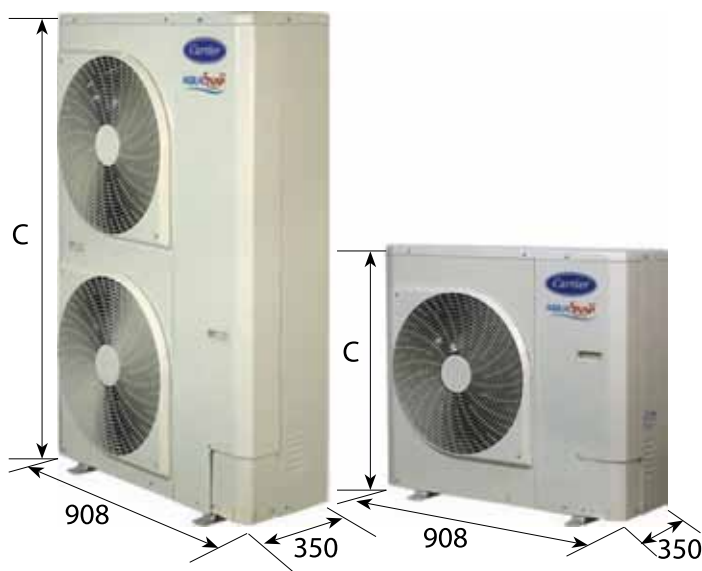
Standard Eurovent LCP/A/AC conditions in heating mode: water heat exchanger entering/leaving water temp. 40°C/45°C, outside air temp. 7°C db/6°C wb, water heat exchanger fouling factor 0 m<sup>2</sup> K/W.

## Electrical data

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

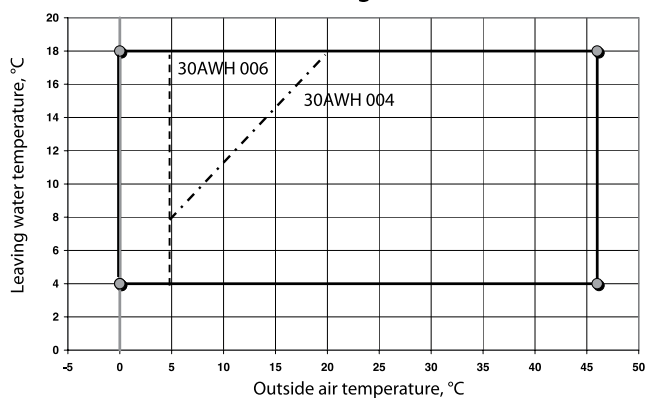
## Dimensions, mm

	004	006	008	012	015
Height C	821	821	821	1363	1363

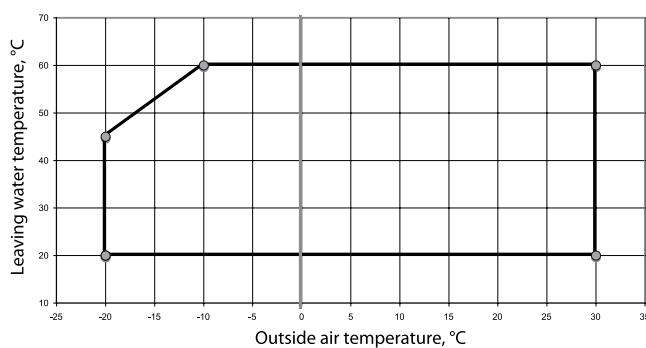


## Operating range

Cooling mode



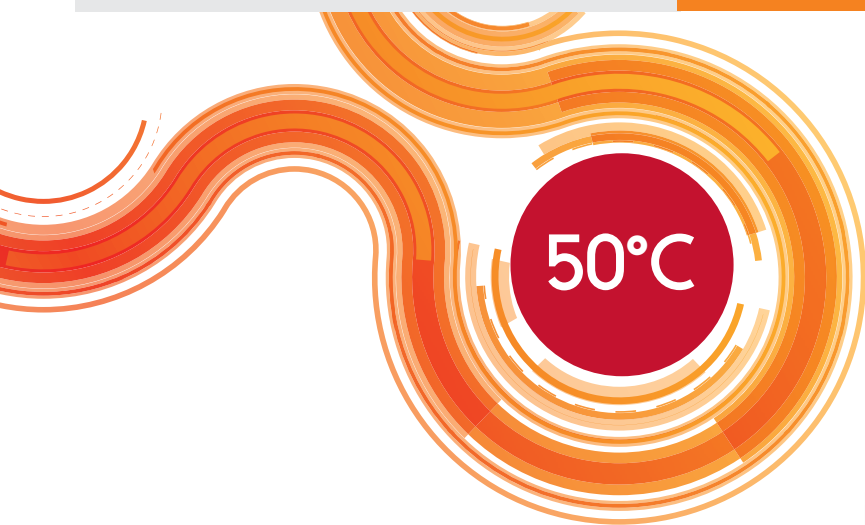
Heating mode



**INVERTER**  
Technology



turn to the experts™



### Fast installation – enhanced performance

With its complete factory wiring, easy handling features, factory-installed options and intuitive interface, setting up the Aquasnap® air-cooled chiller is fast and straightforward. Thanks to its low profile and small footprint, it can be installed virtually anywhere, making it the ideal choice for smaller offices, hotels and shops.

### Features

- The units are equipped with a hydronic module integrated into the unit chassis, limiting the installation to straight-forward operations like connection of the power supply and the water supply and return piping.
- Low-noise scroll compressors with low vibration level.
- Vertical air heat exchanger coils with protection grilles on anti-vibration mountings.
- Low-noise fans, now even quieter. Rigid fan installation for reduced start-up noise.
- Systematic operation test before shipment and quick-test function for step-by-step verification of the instruments, electrical components and motors.
- Exceptionally high energy efficiency at part load - all units are A rated in both cooling and heating mode.
- Leak-tight refrigerant circuit.
- Corrosion resistance tests, accelerated ageing test on compressor piping and fan supports and transport simulation test on a vibrating table in the laboratory.

## Physical data

30RQ		017	021	026	033
Data at Eurovent LCP/A/AC conditions*					
Nominal cooling capacity, standard unit	kW	16.2	20.4	27.0	33.1
Nominal heating capacity, standard unit	kW	16.8	21.4	29.6	33.0
Power input, cooling/heating	kW	4.92/5.2	6.3/6.41	8.62/9.05	9.84/10.13
EER (cooling)/COP (heating)	kW/kW	3.29/3.24	3.24/3.35	3.13/3.27	3.36/3.26
ESEER part-load performance, cooling	kW/kW	3.77	3.60	3.52	3.77
Operating weight**					
Standard unit (with/without hydronic module)	kg	206/191	223/208	280/262	295/277
Refrigerant		R-410A			
Compressor		One hermetic scroll compressor			
Control		Pro-Dialog+			
Fans		Two twin-speed axial fans		One twin-speed axial fan	
Air flow	l/s	2217	1978	3530	3530
Water heat exchanger		Plate heat exchanger			
Air heat exchanger		Copper tubes and aluminium fins			
Unit with hydronic module*		One single-speed pump, screen filter, expansion tank, flow switch, pressure gauge, automatic air purge valve, safety valve			
Power input*	kW	0.54	0.59	0.99	1.10
Nominal operating current*	A	1.30	1.40	2.40	2.60

\* Standard Eurovent LCP/A/AC conditions in cooling mode: water heat exchanger entering/leaving water temp. 12°C/7°C, outside air temp. 35°C, water heat exchanger fouling factor 0 m<sup>2</sup>/K/W.

\*\* Standard Eurovent LCP/A/AC conditions in heating mode: water heat exchanger entering/leaving water temp. 40°C/45°C, outside air temp. 7°C db/6°C wb, water heat exchanger fouling factor 0 m<sup>2</sup>/K/W.

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

## Electrical data

30RQ		017	021	026	033
Power circuit					
Nominal power supply	V-ph-Hz	400-3-50 ± 10%			
Control circuit supply		24 V via internal transformer			
Maximum start-up current (Un)*	A	75	95	118	118
Maximum operating power input**	kW	7.8	9.1	11	13.8
Nominal unit operating current draw***	A	8	12	16	17

\* Maximum instantaneous start-up current (locked rotor current of the compressor).

\*\* Power input, compressors and fans, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400 V (data given on the unit nameplate).

\*\*\* Standardised Eurovent conditions: water heat exchanger entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

## Dimensions, mm

	A	B	C
30RQ 017-021	1136	584	1579
30RQ 026-033	1002	824	1790

Please refer to the specific product literature for the service clearances required.

30RQ 017-021

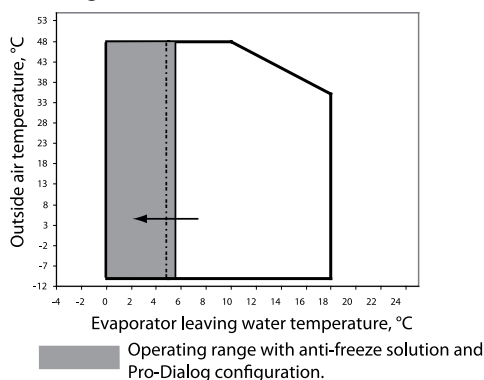


30RQ 026-033

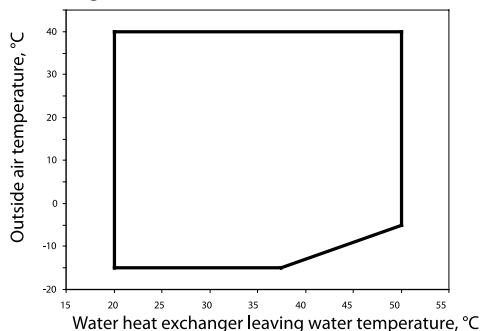


## Operating range

### Cooling mode



### Heating mode



turn to the experts™



**50°C**



## Heating and cooling solutions you can count on

A unit that integrates the latest technological innovations: ozone-friendly refrigerant R-410A, scroll compressors, low-noise fans and auto-adaptive microprocessor control.

## Features

- The units are equipped with a hydronic module integrated into the unit chassis, limiting the installation to straight-forward operations like connection of the power supply, the water supply and return piping and the air distribution ducting.
- Low-noise scroll compressors with low vibration level.
- Vertical condenser coils with protection grilles on anti-vibration mountings.
- Easy duct connection and fans with 80 Pa available pressure.
- Maintenance-free scroll compressors and fast diagnosis of possible incidents and their history via the Pro-Dialog+ control reduce maintenance costs.
- Leak-tight refrigerant circuit.
- Corrosion resistance tests, accelerated ageing test on compressor piping and fan supports and transport simulation test on a vibrating table in the laboratory.

## Physical data

30RQY		017	021	026	033
<b>Data at Eurovent CP/A/AC conditions*</b>					
<b>Nominal cooling capacity, standard unit</b>	kW	15.0	19.2	27.3	32.6
Power input	kW	5.52	7.06	9.03	10.22
EER	kW/kW	2.72	2.72	3.03	3.19
ESEER part-load performance	kW/kW	3.41	3.24	3.87	3.97
<b>Nominal heating capacity, standard unit</b>					
Power input	kW	16.9	20.3	28.5	31.1
Power input	kW	6.02	7.23	10.16	11.08
COP	kW/kW	2.81	2.81	2.81	2.81
<b>Operating weight**</b>					
Standard unit (with hydronic module)	kg	226	243	280	295
Standard unit (without hydronic module)	kg	211	228	262	277
<b>Refrigerant</b>		R-410A			
<b>Compressor</b>		One scroll compressor			
<b>Control</b>		Pro-Dialog+			
<b>Fans</b>		Two twin-speed centrifugal fans, backward-curved blades		One twin-speed axial fan	
Air flow	l/s	1640	1640	3472	3472
<b>Evaporator</b>		One plate heat exchanger			
<b>Condenser</b>		Copper tubes and aluminium fins			
<b>Unit with hydronic module*</b>					
Power input*	kW	0.54	0.59	0.99	1.20
Nominal operating current*	A	1.30	1.40	2.40	2.60

\* 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, water heat exchanger fouling factor 0 m<sup>2</sup>K/W. 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, water heat exchanger fouling factor 0 m<sup>2</sup>K/W.

\*\* Maximum unit operating current at maximum unit power input and 400 V (values given on the unit nameplate).

## Electrical data

30RQY		017	021	026	033
<b>Power circuit</b>					
Nominal power supply	V-ph-Hz	400-3-50 ± 10%			
<b>Control circuit supply</b>					
		24 V via internal transformer			
<b>Maximum start-up current (Un)*</b>	A	75	95	118	118
<b>Maximum operating power input**</b>	kW	8.0	9.3	11.2	14.0
<b>Nominal unit operating current draw***</b>	A	13	16	20	24

\* Maximum instantaneous start-up current (locked rotor current of the compressor).

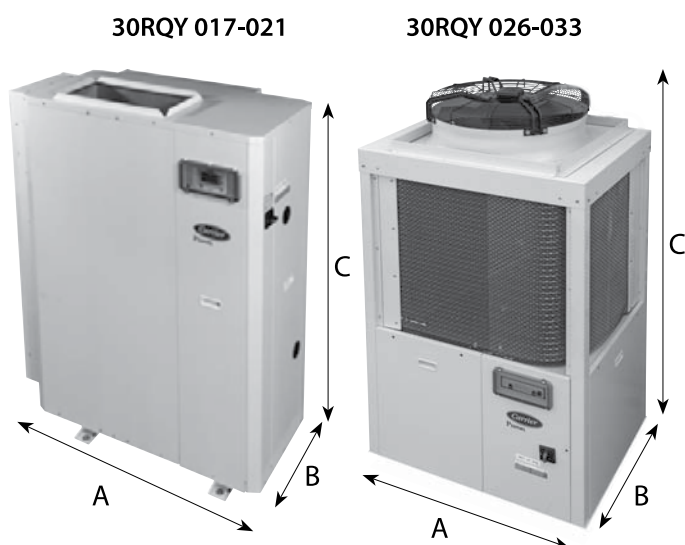
\*\* Power input, compressors and fans, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400 V (data given on the unit nameplate).

\*\*\* Standardised Eurovent conditions: water heat exchanger entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

## Dimensions, mm

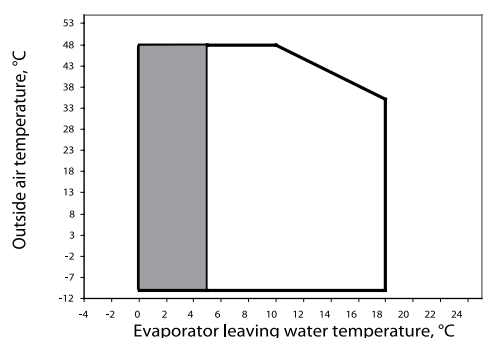
	A	B	C
30RQY 017-021	1135	584	1608
30RQY 026-033	1002	824	1829

Please refer to the specific product literature for the service clearances required.



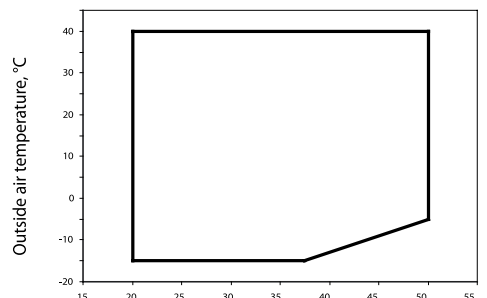
## Operating range

## Cooling mode



Operating range with anti-freeze solution and Pro-Dialog configuration.

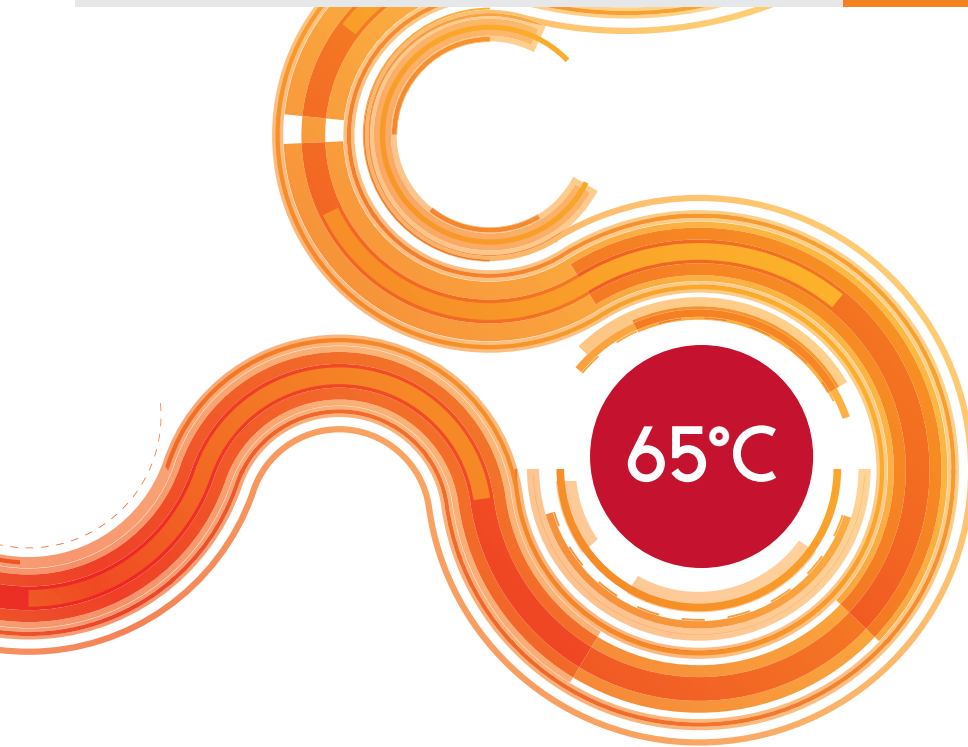
## Heating mode



Water heat exchanger leaving water temperature, °C



turn to the experts



**AQUASNAP**  
Heating



## High Temperature Heating

High temperature air to water heat pumps with integrated hydronic module for leaving water temperature up to 65°C.

- Scroll compressors with vapour injection
- Low-noise fans made of a composite material
- Auto-adaptative microprocessor control
- Electronic expansion valve
- Multi-speed pump

## Features

- Energy savings  
The 61AF range is certified to the Eurovent energy efficiency class A with a coefficient of performance (COP) of over 4. This complies with the COP required by the Ecolabel certification.
- Ease-of-installation  
The high-temperature Aquasnap heat pumps incorporate a hydronic module with a multi-speed pump, as standard.
- Easy integration  
The low noise levels of the 61AF heat pump and its very compact chassis reduce the noise disturbance from the unit.
- Application flexibility  
The operating range allows outside temperatures down to -20°C and leaving water temperatures up to 65°C .

\* Built in OAT compensation curves.

## Physical data

61AF		014-7	014-9	019
<b>Nominal heating capacity*</b>	kW	14.0	14.0	19.8
Power input	kW	4.4	4.2	6.0
Coefficient of performance (COP)	kW/kW	3.2	3.3	3.3
Eurovent class, heating		A	A	A
<b>Nominal heating capacity**</b>	kW	14.0	14.0	19.8
Power input	kW	3.4	3.4	4.8
Coefficient of performance (COP)	kW/kW	4.1	4.1	4.1
Eurovent class, heating		A	A	A
<b>Operating weight***</b>				
Standard unit without hydronic module	kg	159	159	206
Standard unit with hydronic module option	kg	169	169	216
<b>Compressor</b>		One, hermetic scroll, 48.3 r/s		
<b>Refrigerant***</b>		R-407C		
<b>Condenser</b>		Direct-expansion plate heat exchanger		
<b>Fan</b>		Axial		
Quantity		2	2	2
Air flow	l/s	2050	2050	2000
<b>Evaporator</b>		Grooved copper tubes and aluminium fins		

\* Standardised Eurovent conditions: entering/leaving condenser water temperature = 40°C/45°C, outside air temperature db/wb = 7°C/6°C.

\*\* Standardised Eurovent conditions: entering/leaving condenser water temperature = 30°C/35°C, outside air temperature db/wb = 7°C/6°C.

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

## Electrical data

61AF - Standard unit		Without pump			With pump		
		014-7	014-9	019	014-7	014-9	019
<b>Power circuit</b>							
Nominal power supply	V-ph-Hz	230-1-50 ±10%	400-3-50 ±10%	400-3-50 ±10%	230-1-50 ±10%	400-3-50 ±10%	400-3-50 ±10%
<b>Control circuit supply</b>		24 V, via internal transformer					
<b>Maximum start-up current (Un)*</b>							
Standard unit	A	-	66	102	-	67	104
Unit with electronic starter option	A	47	-	-	48	-	-
<b>Unit power factor at maximum capacity**</b>		0.82	0.82	0.82	0.82	0.82	0.82
<b>Maximum unit power input**</b>	kW	6.41	5.90	8.80	6.62	6.10	9.20
<b>Nominal unit current draw***</b>	A	22.9	7.9	12.4	23.7	7.9	12.4
<b>Maximum unit current draw (Un)****</b>	A	30.7	10.8	16.0	31.5	10.8	16.0

\* Maximum instantaneous start-up current at operating limit values (maximum operating current of the pump + fan current + locked rotor current of the compressor).

\*\* Power input, compressors and fan, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400 V (data given on the unit nameplate).

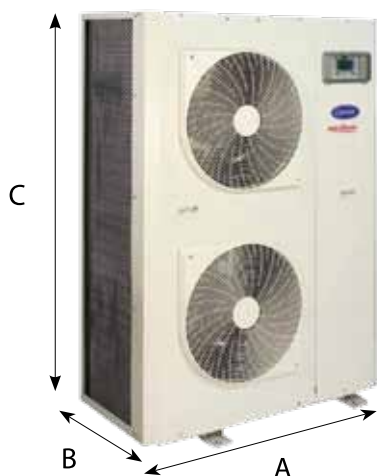
\*\*\* Standardised Eurovent conditions: condenser entering/leaving water temperature 40°C/45°C, outside air temperature 7°C.

\*\*\*\* Maximum unit operating current at maximum unit power input and 400 V (values given on the unit nameplate).

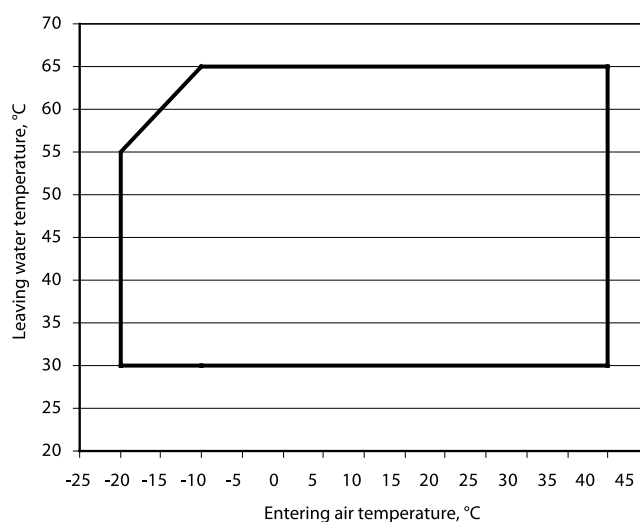
## Dimensions, mm

61AF	014-7	014-9	019
Length A	1103	1103	1135
Width B	333	333	559
Height C	1278	1278	1579

Please refer to the specific product literature for the service clearances required.



## Operating range



turn to the experts 



## High Temperature Heating

The new generation of high-temperature heat pumps incorporates the latest technological features:

- Scroll compressors with vapour injection
- Low-noise fans made of a composite material
- Auto-adaptative microprocessor control
- Electronic expansion valve
- Multi-speed pump

## Features

- Low noise levels and a very compact chassis reduce the noise disturbance from the unit.
- The operating range allows outside temperatures down to -20°C and leaving water temperatures up to 65°C. Intelligent unit control permits unit operation in extreme conditions, minimising unit shut-down times.
- Systematic factory run test before shipment and quick-test function for verification of instruments, electrical components and motors.
- Condenser with pre-treated fins (option).
- Ductable version.
- Low noise level (option).
- Soft starter (option).
- Heating system control (option).
- Twinning – lead-lag kit (accessory).



## Physical data

61AF		022	030	035	045	055	075	105	
<b>Nominal heating capacity*</b>	kW	20.8	25.7	32.2	43.6	52.2	66.7	102.0	
Power input	kW	5.8	7.3	9.2	11.8	14	19.4	28.1	
Coefficient of performance (COP)	kW/kW	3.6	3.5	3.5	3.7	3.7	3.4	3.6	
Eurovent class, heating		A	A	A	A	A	A	A	
<b>Nominal heating capacity**</b>	kW	21.2	26.1	32.8	43.8	52.8	64.7	102.0	
Power input	kW	4.9	6.1	7.8	9.9	11.9	16.1	23.6	
Coefficient of performance (COP)	kW/kW	4.3	4.3	4.2	4.4	4.4	4.0	4.3	
Eurovent class, heating		A	A	A	A	A	B	A	
<b>Operating weight***</b>									
Standard unit without hydronic module	kg	343	396	421	509	533	900	1020	
Standard unit with hydronic module opti	kg	349	403	436	524	549	926	1046	
<b>Compressor</b>		One, hermetic scroll 48.3 r/s					Two, hermetic scroll 48.3 r/s		
<b>Condenser</b>		Direct-expansion plate heat exchanger							
<b>Fan</b>		Axial with rotating shroud, Flying Bird IV							
Quantity		1	1	1	1	1	2	2	
Air flow	l/s	3800	3800	3800	3800	3800	7600	7600	
<b>Evaporator</b>		Grooved copper tubes and aluminium fins							
<b>Refrigerant***</b>		R-407C							

\* Standardised Eurovent conditions: entering/leaving condenser water temperature = 40°C/45°C, outside air temperature db/wb = 7°C/6°C.

\*\* Standardised Eurovent conditions: entering/leaving condenser water temperature = 30°C/35°C, outside air temperature db/wb = 7°C/6°C.

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

## Electrical data

61AF-Standard unit (without hydronic module)		022	030	035	045	055	075	105
<b>Power circuit</b>								
Nominal power supply	V-ph-Hz	400-3-50 ± 10%						
<b>Control circuit supply</b>		24 V, via internal transformer						
<b>Maximum start-up current (Un)*</b>								
Standard unit	A	104.6	102.6	131.0	171.0	191.0	154.5	221.5
Unit with electronic starter option	A	56.1	55.1	70.0	90.8	101.2	101.5	142.5
<b>Unit power factor at maximum capacity**</b>		0.82						
<b>Maximum unit power input**</b>	kW	8.7	11.6	12.9	14.6	16.8	25.8	33.7
<b>Nominal unit current draw***</b>	A	14.3	16.9	20.2	23.2	27.9	39.7	55.1
<b>Maximum unit current draw (Un)****</b>	A	16.1	21.3	24.1	27.1	31.1	47.5	61.5

\* Maximum instantaneous start-up current at operating limit values (maximum operating current of the compressor + fan current + locked rotor current of the compressor).

\*\* Power input, compressors and fan, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400 V (data given on the unit nameplate).

\*\*\* Standardised Eurovent conditions: condenser entering/leaving water temperature 40°C/45°C, outside air temperature 7°C.

\*\*\*\* Maximum unit operating current at maximum unit power input and 400 V (values given on the unit nameplate).

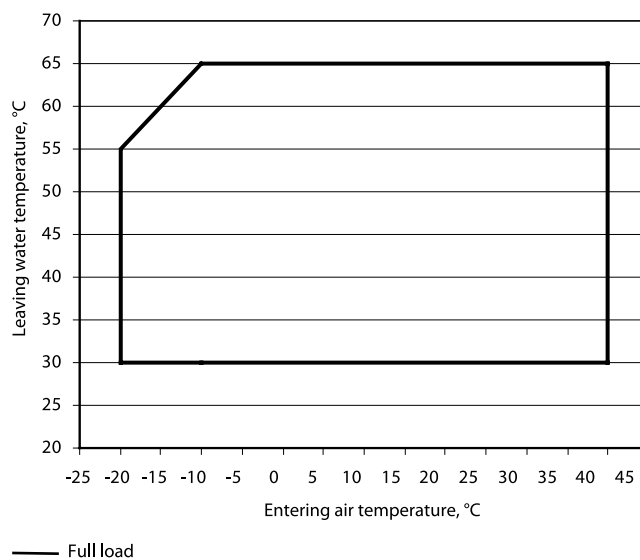
## Dimensions, mm

61AF	022	030	035	045	055	075	105
Length A	1110	1110	1110	1114	1114	2273	2273
Width B	1327	1327	1327	2100	2100	2100	2100

Please refer to the specific product literature for the service clearances required.



## Operating range





## High Performance in Heating

- High leaving water temperature of 65°C without supplementary heating
- Underground water: COP from 4.19 to 5.49
- Bore holes: COP 3.03 to 4.28
- Design to stringent quality standards such as 2005/32/EC «ecodesign» or 2002/96/CE «ROHS»

## Features

- R410A optimized Scroll compressor for each application.
- Large High efficiency evaporator.
- Improved control with EXV & sensors.
- RBS/RQS field proven display.
- High Resistant grade material for very hot water application.
- Modular design for compactness & weight reduction.
- Control compatible with large heating applications.
- Electronic flow switch.
- Zero tool for unit accessibility.
- 1 Screw type only.
- All components accessible and easy dismantable.
- Modularity for Water connexion (back or top [option]).

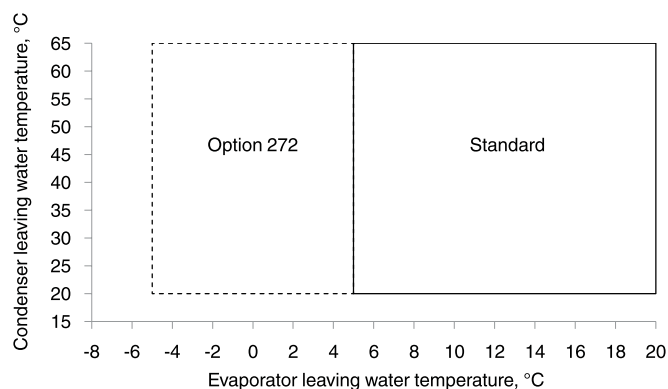
## Physical data

61WG		020	025	030	035	040	045	050	060	070	080	090
Heating capacity*	kW	29.0	34.4	38.3	44.2	50.2	57.2	68.6	78.2	88.4	100	117
Power input	kW	5.3	6.5	7.4	8.4	9.4	10.8	12.5	14.6	16.2	19.0	21.9
Coefficient of performance (COP)	kW/kW	5.42	5.29	5.20	5.29	5.34	5.32	5.49	5.36	5.46	5.28	5.33
Eurovent class, heating		A	A	A	A	A	A	A	A	A	A	A
Cooling capacity	kW	23.7	28.0	31.0	36.0	40.9	46.6	56.2	63.8	72.4	81.3	94.9
EER	kW/kW	4.43	4.30	4.21	4.30	4.35	4.33	4.50	4.37	4.47	4.29	4.34
Heating capacity**	kW	21.7	25.7	29.4	34.1	37.7	42.1	50.4	56.7	67.1	74.6	87.0
Power input	kW	5.1	6.0	6.9	8.0	8.8	9.9	11.9	13.3	15.7	17.4	20.3
Coefficient of performance (COP)	kW/kW	4.24	4.26	4.28	4.27	4.27	4.25	4.25	4.27	4.26	4.28	4.29
Cooling capacity	kW	16.6	19.8	22.6	26.2	29.0	32.3	38.7	43.5	51.5	57.3	66.9
EER	kW/kW	3.25	3.27	3.29	3.28	3.28	3.26	3.26	3.28	3.27	3.29	3.30
Nominal heating capacity***	kW	27.7	33.1	36.7	42.7	48.7	54.8	66.4	75.7	84.2	95.3	109.0
Power input	kW	6.4	7.6	8.8	10.0	11.3	12.6	14.7	17.5	19.3	22.3	25.3
Coefficient of performance (COP)	kW/kW	4.35	4.34	4.19	4.27	4.32	4.36	4.51	4.32	4.35	4.27	4.31
Eurovent class, heating		B	B	B	B	B	B	A	B	B	B	B
Cooling capacity	kW	21.4	25.5	28.0	32.8	37.5	42.3	51.8	58.3	65.0	73.2	83.9
EER	kW/kW	3.36	3.35	3.20	3.28	3.33	3.37	3.52	3.33	3.36	3.28	3.32
Heating capacity****	kW	26.1	31.1	34.2	40.0	43.8	49.8	62.0	71.5	77.2	86.3	98.6
Power input	kW	8.3	10.0	11.4	13.0	14.5	16.0	19.7	22.6	24.8	28.2	31.8
Coefficient of performance (COP)	kW/kW	3.12	3.12	3.01	3.08	3.03	3.11	3.15	3.16	3.12	3.06	3.10
Cooling capacity	kW	17.8	21.3	23.0	27.2	29.5	33.9	42.5	49.1	52.7	58.4	67.1
EER	kW/kW	2.13	2.13	2.02	2.09	2.03	2.12	2.15	2.17	2.13	2.07	2.11
Sound levels*****												
Sound power level, standard unit	dB(A)	67.0	68.5	69.0	69.3	70.0	70.1	71.5	72.0	72.0	73.0	73.4
Operating weight	kg	191	200	200	207	212	220	386	392	403	413	441
Dimensions, standard unit*****												
Width	mm	600	600	600	600	600	600	880	880	880	880	880
Depth	mm	1044	1044	1044	1044	1044	1044	1474	1474	1474	1474	1474
Height	mm	901	901	901	901	901	901	901	901	901	901	901

Note: All performances are net values as specified by EN14511-3 2011.

- \* Conditions in heating mode: evaporator water entering/leaving temp. = 10°C/7°C, condenser water entering/leaving temp. = 30°C/35°C, evaporator and condenser fouling factor = 0
- \*\* Conditions in heating mode: evaporator water entering/leaving temp. = 0°C/-3°C, condenser water entering/leaving temp. = 30°C/35°C, evaporator and condenser fouling factor = 0
- \*\*\* Conditions in heating mode: evaporator water entering/leaving temp. = 10°C/7°C, condenser water entering/leaving temp. = 40°C/45°C, evaporator and condenser fouling factor = 0
- \*\*\*\* Conditions in heating mode: evaporator water entering/leaving temp. = 10°C/7°C, condenser water entering/leaving temp. = 55°C/65°C, evaporator and condenser fouling factor = 0
- \*\*\*\*\* Accordance with ISO 9614-1, measured in a free field. The sound levels only apply to units without options
- \*\*\*\*\* The dimensions shown are for the standard unit. For other unit types please refer to the dimensional drawings

## Operating range, 61WG



- 61WG standard unit
- - - 61WG unit with option 272 (brine to water)
- Option 272: Condenser-side high-temperature water production, with glycol solution on the evaporator side



# HYDRONIC FAN COIL SOLUTIONS

A solution designed for optimized performance

Hydronic systems offer a reliable, flexible and ecological solution to meet the demands of the heating, ventilation and air-conditioning markets. All solutions allow cooling, heating, fresh air intake and controls to satisfy the needs of our customers.

The final choice of one of the system components, the fan coil, very much depends on the application and the installation site.

Carrier can rely on extensive technological and product experience and know-how. We offer customers a large number of solutions to satisfy all of their needs and suit all possible applications: in the room, in the ceiling, above a false ceiling, in a plant room ... and others.

## RESIDENTIAL APPLICATIONS

Heat pump systems are often considered as the most suitable solution, offering both air conditioning and heating. At European level, permanent research for economic and ecological comfort has already resulted in new hydronic solutions with under-floor heating and cooling.

In the most demanding applications fan coils complete the system to offer a true air-conditioning solution.

Today the most frequent solutions are:

- floor-mounted solutions for individual houses –easy to install in refurbishment projects, using existing central heating pipes. Enhanced comfort without a lot of work.
- ductable solutions for apartments, utilising false ceilings in the entrance hall.
- high-wall solutions, using the space above doors that is otherwise lost.

The ductable unit may well become the solution of the future, if the building concept takes the application limits of this solution into consideration.

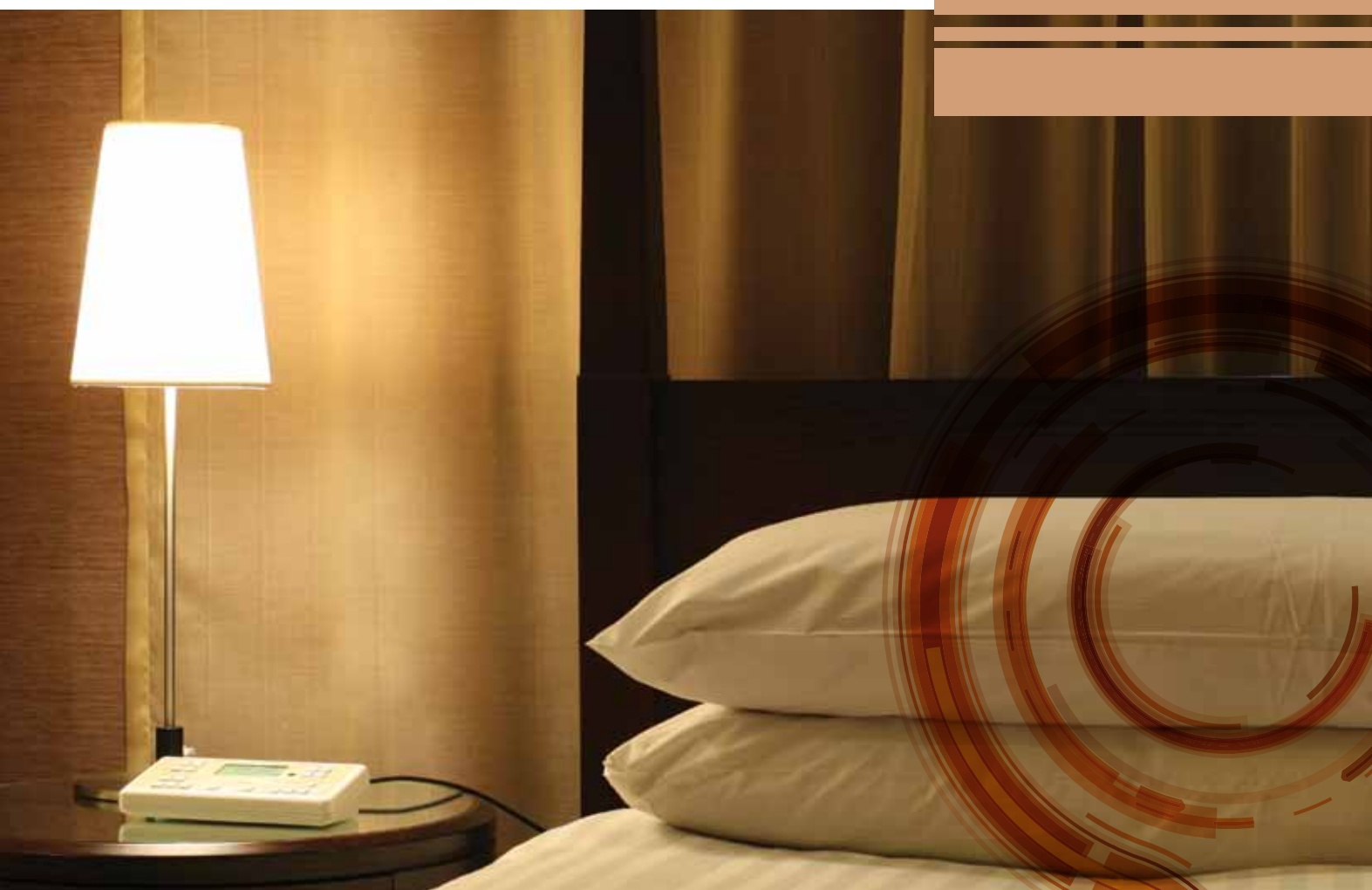
## LODGING (HOTELS, HOSPITALS)

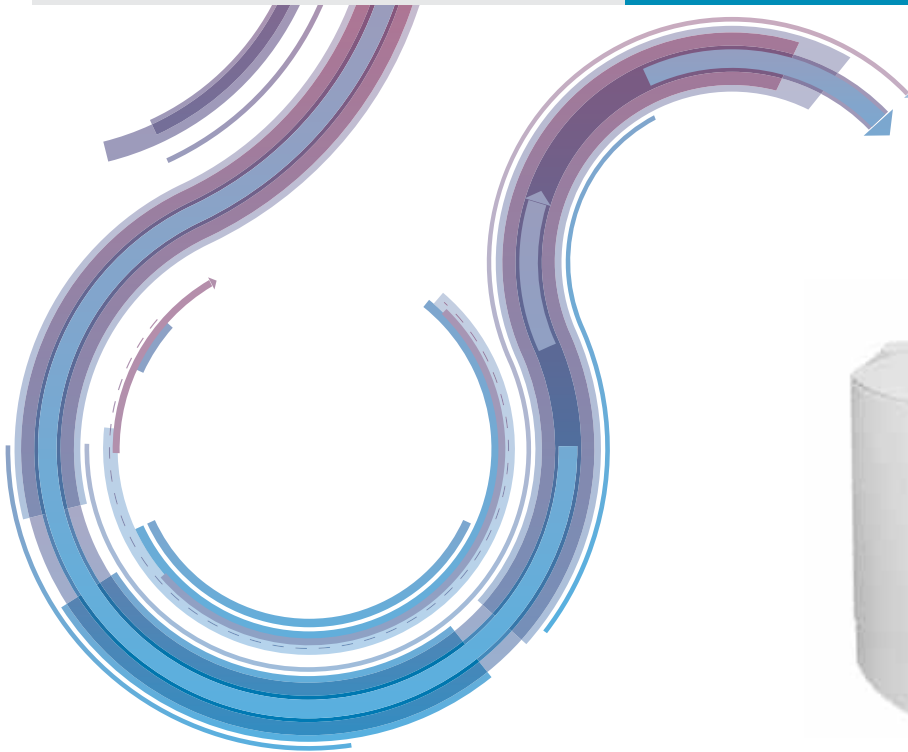
In hotels, customer comfort is increasingly important and air-conditioning is essential. At the same time construction cost must be minimized to offer customers a favourable quality/price ratio. The trend is towards modularity of the rooms, as well as the air-conditioning system installed. The most frequent choices for this approach:

- ductable solutions, using false ceilings in entrance halls and room corridors for new buildings.
- floor-mounted solutions for refurbishment projects.

For either of these two systems, areas such as large open spaces, dining rooms, receptions and conference halls that have other requirements, often use the cassette solution.

The choice depends on many different criteria, and therefore Carrier has a variety of products in order to choose the best fan coil solution for your application.





## The New Generation. Elegance, Performance, Comfort

The new generation 42N\_S and 42N\_E product ranges combine aesthetic and attractive design with versatility to satisfy any application need, from large office buildings or hotels to shops and residential applications.

Variable-speed LEC motors reduce the fan coil unit power consumption by 50% to 70%. This option meets the building energy regulation objectives. LEC motors include autoadaptive control of the air flow from 0 to 100% to match individual comfort levels in both cooling and heating mode.

## Features

- The range now includes eleven sizes, with air flows from 35 to 422 l/s (126 to 1520 m<sup>3</sup>/h).
- The Idrofan offers an ultra-lownoise option for applications where a low noise level is the most important selection parameter.
- The new Idrofan is available with two types of fans, a tangential fan for the smallest sizes and a centrifugal fan for all other sizes.
- The 42N\_S is available with a new-generation three- or five-speed AC motor.
- The 42N\_E is available with a variable speed low energy consumption EC motor.
- The flexibility of the plastic-moulded unit drain pan allows the same unit to be installed in a vertical or horizontal position without the need for a dedicated accessory.

42N_S																																						
Fan type		15					20					26					30					42					45					65						
Fan speed		5	4	3	2	1	5	4	3	2	1	3	2	1	5	4	3	2	1	3	2	1	5	4	3	2	1	3	2	1	5	4	3	2	1	3	2	1
Fan speed No.	l/s	35	56	69	84	97	59	80	92	107	128	93	149	196	97	126	153	182	207	147	222	268	146	185	224	277	333	237	331	422	237	331	422					
	m3/h	125	200	250	300	350	215	285	330	385	460	335	536	706	350	455	550	655	745	531	798	965	525	665	805	995	1195	853	1191	1519	853	1191	1519					
COIL TYPE		2-PIPE					2-PIPE					2-PIPE					2-PIPE					2-PIPE					2-PIPE											
Total cooling capacity	kW	0,83	1,07	1,19	1,34	1,49	1,39	1,81	2,08	2,34	2,54	2,10	3,00	3,60	2,07	2,54	3,01	3,46	3,70	3,00	4,00	4,50	2,60	3,37	3,98	4,74	5,45	3,90	5,45	6,35	3,90	5,45	6,35					
Sensible cooling capacity	kW	0,70	0,93	1,03	1,19	1,31	1,03	1,42	1,60	1,85	2,03	1,65	2,35	2,90	1,40	1,96	2,35	2,84	3,10	2,35	3,30	3,85	2,12	2,78	3,30	3,98	4,55	3,20	4,60	5,10	3,20	4,60	5,10					
Heating capacity	kW	1,14	1,42	1,66	1,89	2,09	1,70	2,10	2,54	2,87	3,18	2,56	3,68	4,38	2,86	3,54	4,18	4,80	5,29	4,05	5,55	6,40	4,00	5,05	5,90	6,90	8,08	6,10	8,00	9,50	6,10	8,00	9,50					
Power Input (fan)	W	16	17	19	23	30	29	30	31	34	36	45	55	65	42	44	46	50	57	45	75	100	69	77	83	92	128	90	125	165	90	125	165					
Sound power	dB(A)	28	37	42	47	51	29	36	42	46	50	44	54	61	36	42	47	51	54	47	57	62	41	47	53	57	62	54	62	68	54	62	68					
Sound pressure*	dB(A)	19	28	33	38	42	20	27	33	37	41	35	45	52	27	33	38	42	45	38	48	53	32	38	44	48	53	45	53	59	45	53	59					
NR value*		15	24	28	34	39	14	23	29	33	36	31	40	48	22	29	33	37	40	31	44	49	28	34	40	43	48	40	49	54	40	49	54					
HORIZONTAL CONCEALED																																						
Length	mm	518					518					518					518					519					518					518						
Width	mm	599					799					799					999					999					1199					1199						
Height	mm	220					220					220					220					220					220					220						
Weight	kg	13					15					15					16					16					28					28						
VERTICAL CONSOLE WITH CABINET																																						
Length	mm	830					1030					1030					1230					1230					1430					1430						
Width	mm	220					220					220					220					220					220					220						
Height (with 100 mm feet)	mm	657					657					657					657					657					657					657						
Weight	kg	17					19					19					22					22					35					35						

42N_E																									
Fan type		19					29					39					49								
Fan speed	%	20	40	60	80	100	20	40	60	80	100	20	40	60	80	100	20	40	60	80	100				
Fan speed No.	l/s	35	56	69	84	97	59	80	92	107	128	97	126	153	182	207	146	185	224	277	333	237	331	422	
	m3/h	125	200	250	300	350	215	285	330	385	460	350	455	550	655	745	525	665	805	995	1195	853	1191	1519	
COIL TYPE		2-PIPE					2-PIPE					2-PIPE					2-PIPE								
Total cooling capacity	kW	0,83	1,07	1,19	1,34	1,49	1,39	1,81	2,08	2,34	2,54	2,07	2,54	3,01	3,46	3,70	2,60	3,37	3,98	4,74	5,45	3,90	5,45	6,35	
Sensible cooling capacity	kW	0,70	0,93	1,03	1,19	1,31	1,03	1,42	1,60	1,85	2,03	1,40	1,96	2,35	2,84	3,10	2,12	2,78	3,30	3,98	4,55	3,20	4,60	5,10	
Heating capacity	kW	1,14	1,42	1,66	1,89	2,09	1,70	2,10	2,54	2,87	3,18	2,86	3,54	4,18	4,80	5,29	4,00	5,05	5,90	6,90	8,08	6,10	8,00	9,50	
Power Input (fan)	W	3	4	7	10	14	3	5	7	10	15	5	9	15	23	35	8	14	25	39	65	14	25	39	65
Sound power	dB(A)	28	37	42	47	51	29	38	42	46	50	36	42	47	51	54	41	47	53	57	62	54	62	68	
Sound pressure*	dB(A)	19	28	33	38	42	20	29	33	37	41	27	33	38	42	45	32	38	44	48	53	45	53	59	
NR value*		15	24	28	34	39	14	24	29	33	36	22	29	33	37	40	28	34	40	43	48	40	49	54	
HORIZONTAL CONCEALED																									
Length	mm	518					518					518					518								
Width	mm	599					799					799					999								
Height	mm	220					220					220					220								
Weight	kg	13					15					15					15								
VERTICAL CONSOLE WITH CABINET																									
Length	mm	830					1030					1030					1030								
Width	mm	220					220					220					220								
Height (with 100 mm feet)	mm	657					657					657					657								
Weight	kg	17					19					19					19								



turn to the experts



## 42GW Air Treatment Solution

The Idrofan 42GW offers a wide range of options dedicated to performance and to providing solutions finely adapted to your needs.

Energy consumption is reduced by 50 to 70 percent through variable speed LEC motors which continuously adjust the power providing an airflow adapted to the space. The switch to lower power modes results in a reduction in energy consumption.

### Features

- The Carrier hydronic cassette is available in six sizes suitable for a wide range of applications, with air flows from 100 to 443 l/s (360 to 1600 m<sup>3</sup>/h). The Idrofan cassette offers an ultra-low-noise solution for applications where a low noise level is the most important selection parameter.
- The low-profile 42GW is light and easy to install. The small chassis fits neatly with standard ceiling tiles and is simple to install wherever it is needed.
- Four-way air distribution gives individual comfort while for localised control each diffuser may be adjusted or even shut down completely.
- Integrated, factory-mounted cooling and heating coils, two-pipe or two-pipe with electric heater, and four-pipe applications.
- The elegant air inlet grille blends aesthetically with any room decor.
- The 42GW\_AC is available with a new-generation threespeed AC motor. The 42GW\_LEC is available with avariable-speed Low Energy Consumption EC motor.



## 42DW False Ceiling In The Space

The Carrier 42DW fan coil units offer reliable, economical cooling and heating for light and medium commercial and residential applications.

### Features

- Six sizes with two-pipe, two-pipe plus electric heater or four-pipe coils, with an air low range from 100 to 470 l/s, a cooling capacity range from 1.5 to 10 kW, and a heating capacity range from 1.2 to 12 kW.
- Low sound level.
- Minimised size, using a U-shape coil and low height of 300 mm.
- Cassette chilled-water fan coil system designed for installation in false ceilings with an all-in-one air distribution grille integrated in the ceiling panel.
- Easy maintenance with direct access from below to all main components.



42GW																			
		200/209			300/309			400/409			500/509			600/609			700/709		
		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Fan Speed (AC)	V	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10	2	6	10
Fan Speed (LEC)	l/s	100	125	183	89	140	204	298	173	249	147	199	272	139	229	321	166	299	443
	m <sup>3</sup> /h	360	450	660	320	505	735	575	625	900	530	720	980	500	825	1160	600	1080	1600
Total cooling capacity	kW	1,55	1,80	2,40	1,90	2,90	4,00	2,85	3,50	4,70	3,40	4,50	6,30	3,70	5,50	7,20	4,05	6,60	9,60
Sensible cooling capacity	kW	1,31	1,49	2,01	1,41	2,20	3,10	2,10	2,70	3,70	2,70	3,60	4,80	2,70	4,10	5,50	3,00	4,85	7,35
Heating capacity	kW	2,20	2,50	3,20	2,50	4,00	5,00	3,70	4,60	6,20	4,50	6,00	8,11	4,60	7,40	10,00	5,20	9,30	13,00
Power Input	W	7	10	23	7	14	33	13	23	57	7	12	25	9	23	46	11	40	115
Sound power	dB(A)	32	37	47	32	44	52	42	48	57	34	40	47	37	46	53	40	52	61
Sound pressure*	dB(A)	23	28	38	23	35	43	33	39	48	25	31	38	28	37	44	31	43	52
NR value		18	23	33	18	30	38	28	34	43	20	26	33	23	32	39	26	38	47
Eurovent Energy Class FCEER (AC)			D			C			D			C			C			D	
Eurovent Energy Class FCCOP (AC)			D			C			D			C			C			D	
Eurovent Energy Class FCEER (LEC)			A			A			B			A			A			A	
Eurovent Energy Class FCCOP (LEC)			A			A			B			A			A			A	
<b>DIMENSIONS (unit)</b>																			
Height	mm		298			298			298			298			298			298	
Length	mm		575			575			575			825			825			825	
Width	mm		575			575			575			825			825			825	
Weight	kg		15			16,5			16,5			37			29,6			39,6	
<b>DIMENSIONS (grille)</b>																			
Height	mm		30			30			30			30			30			30	
Length	mm		720			720			720			960			960			960	
Width	mm		720			720			720			960			960			960	
Weight	kg		2,5			2,5			2,5			5			5			5	

42DW																	
		42DWC07				42DWC09				42DWC012				42DWC016			
		L	M	H	SH	L	M	H	SH	L	M	H	SH	L	M	H	SH
Fan type	l/s	220	251	261	273	253	303	348	372	475	562	625	668	598	655	691	726
	m <sup>3</sup> /h	793	903	941	983	910	1090	1251	1338	1710	2024	2250	2403	2154	2359	2489	2614
Total cooling capacity	kW	4,39	5,51	5,7	5,88	5,89	6,82	7,68	8,05	9,27	10,33	11,04	11,6	11,98	12,72	13,43	13,71
Sensible cooling capacity	kW	3,88	4,32	4,49	4,66	4,54	5,32	6,03	6,37	7,5	8,52	9,17	9,68	9,35	10,02	10,64	10,53
Heating capacity	kW	6,53	7,29	7,64	7,78	7,95	9,31	10,46	11,02	13	14,78	16,12	16,58	17,35	18,71	18,91	19,76
Power Input	W	85	95	100	105	125	165	180	195	265	310	335	360	370	410	430	450
Sound power	dB(A)	55	57	58	59	56	60	64	65	62	66	68	70	68	70	72	73
Sound pressure*	dB(A)	38	40	41	42	39	43	47	48	45	49	51	53	51	53	55	56
NR value		35	37	38	39	35	40	44	45	41	45	48	50	48	49	51	52
<b>DIMENSIONS (unit)</b>																	
Height	mm		285				285				285				285		
Length	mm		925				925				1325				1325		
Depth	mm		750				750				750				750		
Weight (w/o electric heater)	kg		35				37				48				53		
Weight (with electric heater)	kg		39				41				53				58		



turn to the experts

# PANEL RADIATOR

## The line which reaches the 21'st Century in panel radiator

Carrier steel panel radiators provide the possibility of a wide selection of radiators to choose from which have dimensions most suitable to the heating requirements of the environment and the architectural and decorative designs with models produced in:

- 6 different heights between 300-900 mm
- 21 different lengths between 400-1.800 mm with an increment of 100 mm
- 2.000-3.000 mm with an increment of 200 mm

They are coated in white colour (RAL 9010) as standard.

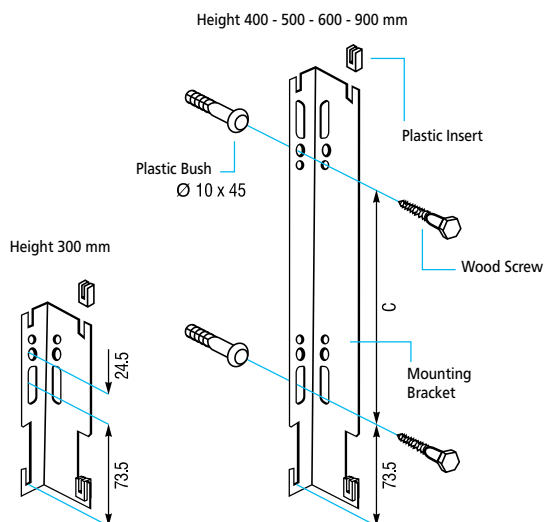
Coating can be ordered in desired colours for special cumulative orders.

### Multiple adaptations:

Carrier steel panel radiators, with their perfect designs and up-to-date production technology, are the excellent choice for use in multi-story buildings in which high operation pressure is required. The various alternative sizes available and their compactness also make them suitable for smaller spaces.

Carrier steel panel radiators can also be supplied with compact valve ensuring piping connection from the bottom side. This type of radiator provides savings in heating costs, when equipped with a thermostatic regulator.

### MOUNTING BRACKET DIMENSIONS

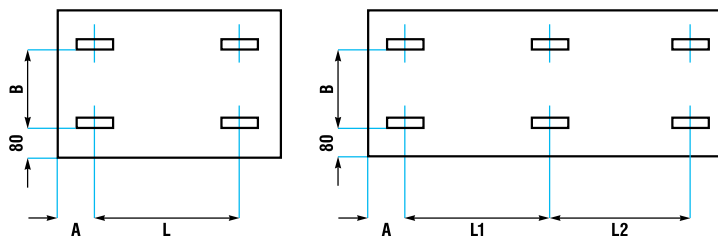


All the dimensions are given in mm.

RADIATOR HEIGHT	C
400	92.5
500	192.5
600	292.5
900	592.5

The mounting bracket can be installed either on the wide or the narrow side, depending on the installation requirements.

### SUSPENSION BRACKET DIMENSIONS



For lengths between 400-1700 mm.

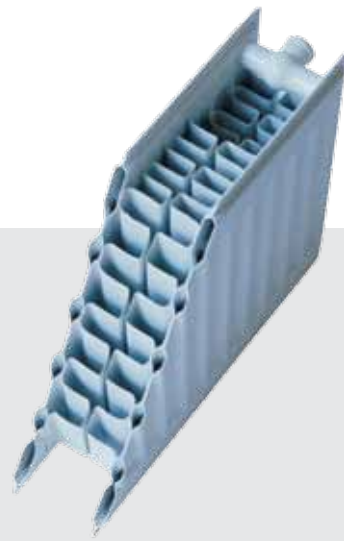
TYPE	A
10-20-21-22-33	100
11	116.5

L = Radiator Length - 2xA

RADIATOR HEIGHT	B
300	115
400	215
500	315
600	415
900	715

For lengths between 1800-3000 mm.

	TYPE 10-20-21-22-23			
	L1	L2	L1	L2
1800	800	800	766.5	800
1900	866.5	833.5	866.5	800
2000	900	900	866.5	900
2200	1000	1000	966.5	1000
2400	1100	1100	1066.5	1100
2600	1200	1200	1166.5	1200
2800	1300	1300	1266.5	1300
3000	1400	1400	1366.5	1400



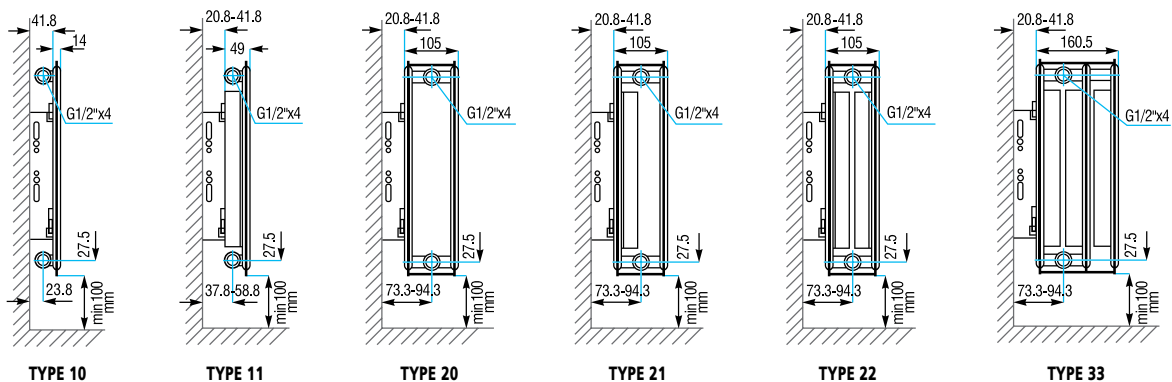
### PANEL RADIATORS HEAT OUTPUT (kcal/h)

TYPE HEIGHT (mm) LENGTH (mm)	TYPE 11					TYPE 22					TYPE 33				
	300	400	500	600	900	300	400	500	600	900	300	400	500	600	900
400	238	304	370	433	612	452	574	693	812	1154	650	833	1007	1173	1600
500	298	381	462	541	765	565	717	867	1015	1442	813	1041	1259	1465	2000
600	358	457	555	649	918	679	861	1041	1218	1731	975	1250	1511	1759	2401
700	417	533	647	758	1072	791	1004	1213	1421	2019	1138	1458	1763	2052	2801
800	476	610	740	866	1225	905	1147	1387	1624	2308	1300	1666	2015	2345	3201
900	537	685	832	974	1378	1017	1291	1561	1827	2596	1463	1874	2267	2638	3602
1000	596	762	924	1083	1531	1131	1434	1734	2030	2885	1625	2082	2518	2932	4002
1100	655	838	1017	1191	1684	1244	1577	1907	2233	3173	1788	2290	2770	3225	4401
1200	716	914	1109	1299	1837	1357	1721	2080	2436	3462	1950	2499	3022	3518	4801
1300	775	990	1201	1408	1990	1470	1864	2254	2638	3750	2113	2707	3274	3812	5202
1400	834	1066	1293	1515	2143	1583	2008	2428	2841	4039	2276	2915	3526	4104	5602
1600	954	1219	1478	1732	2449	1809	2294	2774	3247	4616	2601	3332	4029	4690	6403
1800	1072	1371	1663	1949	2755	2036	2582	3121	3653	5194	2926	3748	4533	5277	7203
2000	1192	1523	1848	2165	3062	2262	2868	3468	4059	5771	3251	4165	5037	5863	8003
2200	1312	1675	2033	2382	3368	2488	3155	3815	4465	6348	3576	4581	5540	6450	8803
2400	1430	1828	2218	2598	3674	2714	3442	4162	4871	6925	3901	4997	6044	7036	9604
2600	1550	1980	2402	2816	3980	2940	3728	4508	5276	7500	4226	5414	6548	7624	10404
2800	1668	2132	2586	3030	4286	3166	4016	4856	5682	8078	4552	5830	7052	8208	11204
3000	1788	2286	2772	3249	4593	3393	4302	5202	6090	8655	4875	6246	7554	8796	12006

Ex stock units

Panel radiators heat output tested by DIN EN 4704, and tested under below conditions : 90/70°C water temperature and 20°C room temperature.

### MOUNTING PANEL DIMENSIONS



turn to the experts™

# UNDERFLOOR HEATING



Underfloor heating is a reliable and effective heating method combining a warm and comfortable environment and economical operation. In this system, **warm water at 35-45°C circulates inside a pipe system embedded in the floor of the space, turning the floor itself into a heating unit.** Heat is transmitted by radiation from the floor to the heated space, from the lower levels to the higher ones, throughout the entire space without any strong currents forming. The desired layering of the temperature is thus achieved, which means that the temperature reaches 18-20°C at the height of the head.

Using pipes that run through the entire surface of the space for heating ensures the basic requirements of modern life, which means comfortable and healthy living in warm coziness. Aesthetics without restrictions in the modern home and environmentally friendly, which one can enjoy easily **saving energy and expenses, thanks to underfloor heating!**



**The most important advantages one enjoys after installing underfloor heating are:**

- **Thermal comfort and a healthy living environment** thanks to the uniform distribution of the heat which does not dry the air.
- **Saving energy** due to reduced thermal losses and operation at lower temperatures (35°C – 45°C). At the same time, due to reduced operating and maintenance costs, the installation cost is amortized in the short-term.
- **Total utilization of interior spaces** and freedom in their layout resulting in appealing architectural layouts.
- **Safer heating** without the hot surfaces of the heating units.
- **Capacity of combined operation** with periodically heated spaces through fan coils or heating units.
- **Environmentally friendly** with the capability of using alternative and renewable energy sources such as solar or geothermal energy and the air-to-water pump.
- **Cooling option** with the addition of the appropriate mechanism for producing cold water (cooler, heat pump).

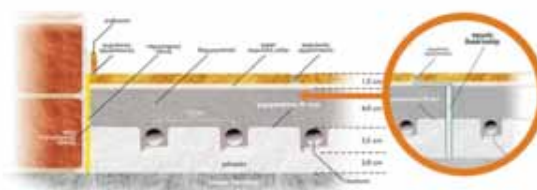


AHI CARRIER supplies a **17 X 2.0mm** pipe for use in underfloor heating, in compliance with all European specifications, certified by the largest European and American institutes. The pipe is manufactured from special type polyethylene, suitable for high temperatures that meet and exceed the temperature requirements of the underfloor heating, and has oxygen barrier that protects the installation's metal parts. It is especially flexible, something which facilitates installation during the layering of the circuits.

The pipes are installed on a castellated panel made of expanded polystyrene with vapour barrier, with special arrangement on its surface (plugs). The panel offers heat insulation, sound insulation and humidity insulation from the plaster coating and ensures that the pipe is perfectly supported and it is covered by the plaster coating. Item dimensions are 1350 x 750 mm<sup>2</sup> and the total height (plug + base) is 4.5cm.

A perimeter wall insulation is installed around the perimeter between the panel and the wall, made of polyethylene foam 8mm thick and 150mm high. It has nylon film on the lower part of its front and a special fixing adhesive strip on the back.

**A special joint section** is placed at predetermined points, selected during our study, and on the lower cases of the building's internal doors so that they can accommodate the heated floor's contractions and expansions.



## Underfloor Heating - Autonomy of Spaces-Compensator

The underfloor heating system provides us with the option of controlling the temperature of each room independently, as best suits our needs!

For complete control, we must have:

- **Space thermostat**, which reacts to temperature changes with up to 0.1°C accuracy, and we thus achieve the desired space temperature.
- **Thermoelectric actuators which** are connected through the distributor with the corresponding thermostat and open or close the underfloor heating circuits. We can connect up to four thermoelectric actuators with one space thermostat. In this way we achieve independency in all the areas of a house and as a result more economical operation and selection of different temperatures in each heating space.
- The **communication base – distributor** which is controlled by the thermostats and is connected to the thermoelectric actuators on the manifold to open and close the circuits depending on the desired temperature in each space.
- **Circulator activator** which starts or stops the circulator with the required time delay when the thermostats give start and stop heating commands to the thermoelectric actuators.
- An intelligent and flexible solution for cases when we wish to install separate thermostats at a later date to control the desired temperature in each space without the need of installing communication cables, is the **wireless thermostat communication system**. Thermostats operate as transmitters and the base as receiver, giving commands to the thermoelectric actuators on the manifold to open and close the circuits without the use of wires.
- **Compensator systems** are available for automating the control of the operation of underfloor heating. A compensator recognizes ambient temperature with a sensor and interacts with the three-way mixing valve and the heating circulator. In this way we prevent the system's inertia according to the environment's temperature changes, achieving more economic operation of the heating.

# UNDERFLOOR HEATING AHI - CARRIER

## Como floor Oxygen Barrier plastic pipe

Plastic pipe manufactured from special type polyethylene resistant to high temperatures with oxygen barrier. The production and the quality control of the pipe are in accordance with European Standard EN ISO 22391 and German standard DIN 16833. The physical and mechanical properties of the pipe are certified by German Institute SKZ, certificate number A 401. The oxygen barrier is certified by German Institute MPA – NRW according to standard DIN 4726. The pipe's cross section for the underfloor system is 17 x 2 mm.

<b>Item No</b>	770521720
<b>External Diameter</b>	Ø 17 Oxygen barrier
<b>Wall Thickness</b>	2,00
<b>MTS/ROLL</b>	200

## Manifold group

The manifold is the “heart” of the installation. A bar type manifold of nickel-plated brass, without connections, nominal diameter 1" with 3/4" threading (Eurocone). The flow manifold bears Allen bolts or a flow meter for regulation of circuit flow, while the return manifold includes thermoelectric actuator valves enabling the fitting of thermoelectric actuators which receive commands from the thermostats of each space and enable independent operation of the respective circuits of each space.

In order to achieve optimum regulation of the heating system, we propose special in-flow and return couplings with attached thermometers.

<b>Item No</b>	<b>Outlets</b>
589344400023	2 outlets x 1" x 3/4
589344400033	3 outlets x 1" x 3/4
589344400043	4 outlets x 1" x 3/4
589344400053	5 outlets x 1" x 3/4
589344400063	6 outlets x 1" x 3/4
589344400073	7 outlets x 1" x 3/4
589344400083	8 outlets x 1" x 3/4
589344400093	9 outlets x 1" x 3/4
589344400103	10 outlets x 1" x 3/4
589344400113	11 outlets x 1" x 3/4
589344400123	12 outlets x 1" x 3/4

## Metal panel

Metal panel, suitable for wall mounting, constructed from galvanized steel, 1mm in width, painted with electrostatic paint. It is adjusted to a height of up to 815mm. Bears an adjustable removable frame for protection from the plaster, which sets the panel depth from 115 to 165mm.

<b>Item No</b>	<b>Dimension</b>	<b>Pack</b>
670094069	40 x 69 x 11,5	1
670096069	60 x 69 x 11,5	1
670097569	75 x 69 x 11,5	1
670099069	90 x 69 x 11,5	1
670091069	100 x 69 x 11,5	1



### Castellated Panel

Item No	Dimension	Pack
670060001	1350 x 750 x 45	14.175 m <sup>2</sup>
670060130	30 mm	8,40 m <sup>2</sup>

Manufactured of expanded polystyrene with polyethylene film and special arrangement on its surface (plugs). The panel offers heat insulation, sound insulation and humidity insulation from the plaster coating. It ensures that the pipe is perfectly supported and covered by the plaster coating. It allows that the layering distances of circuits are observed at a 7.5cm and 15cm step. Item dimensions are 1350 x 750 mm<sup>2</sup> and they are available in boxes of 14.. The panel's compressive strength is 150kPa according to EN 826. The total height of the panel (plub + base) is 4.5cm. The thermal conductivity factor is 0.034 w/mK and thermal resistance is 0.4m<sup>2</sup>k/W.



### Perimeter wall insulation

Item No	Dimension	Pack
670060002	150 x 8	50

Manufactured from polyethylene foam 8mm thick and 150mm high. It has nylon film on the lower part of its front and a special fixing adhesive strip on the back.



### Brass fittings

Item No	Dimension	Pack
587823400172	Ø 17 x 2,0	200
670150011	1" x 1"	80
670163434	3/4" x 3/4"	100
670130000	30 mm	480

Brass fittings are available for the entire range of materials, for the integrated installation of the group. Among them: Connecting coupling Ø17x2 - "(Eurocone), terminal 'T's, automatic daerators, filling valves as well as special couplings for installing thermometers at returns and the central intake.



### Concrete hyper-plasticizer

Item No	Description	Pack
670000003	Plasticizer	Tank 20 kg

Improves the thermal concrete mix, increasing strength, watertightness and plasticity. This results in easier pumping and pouring



### Valve electromotor with temperature preset function



This is installed on the three-way mix valve where, with the aid of a sensor, the desired feed water temperature is set (15-70°C). We are also able to adjust the time intervals (recommended time: 30 sec) at which the sensor commands the electromotor to balance the feed water temperature.

Item No	Description
670900201	1" - WILO Star RS 25/6
670900204	1 1/4" - WILO Star RSG 25/8
670900001	1" - WILO Star RS 25/6
670900004	1 1/4" - WILO Star RSG 25/8
670900101	1" - WILO Star RS 25/6
670900103	1" - WILO Star RSG 25/8
670900105	3-way mixing valve
670900106	3-way mixing valve with climatic controller

### Contact sensor hydrostat



This interrupts the circulator's operation when the water temperature exceeds the maximum desired setting.

Item No	Description
670910002	Digital water temperature controller
670220060	Dip in sensor
670220061	Ambient sensor
670220062	Contact sensor
670150020	Copper 100mm (1/2")
670150021	Nickel 40mm (1/2")

### Thermoelectric actuators



Thermoelectric actuators are connected through a communication base with the corresponding thermostat and open or close the underfloor heating circuits. In this way we can achieve independency in the areas of a house and as a result more economical operation and selection of different temperatures in each heating space.

Item No	Description
670050000001	24 V
670050000002	230 V

### Communication base - distribution



It is controlled by the thermostats and is connected to the thermoelectric actuators on the manifold to open and close the circuits depending on the desired temperature in each space.

Item No	Description
670180007	Receiver 230V with pump module
670180000	Transformer receiver for 24V



### Circulator activator

Item No	Description
670230000	24V PL 4000
670230001	230V PL 2000

This starts or stops the circulator with the required time delay when the thermostats give start and stop heating commands to the thermoelectric actuators.



### Wireless thermostat communication system

Item No	Description
670170001	Wireless thermostat for heating-cooling
670170002	Wireless receiver 6/13
670170003	Wireless receiver with pump module and heating-cooling module

Thermostats operate as transmitters and the base as receiver, giving commands to the thermoelectric actuators on the manifold to open and close the circuits without the use of wires. This is an intelligent and flexible solution for cases when we wish to install at a later date separate thermostats to control the desired temperature in each space without the need to install communication cables.



### Compensator

Item No	Description
670220010	D10
670220011	D20

Recognizes ambient temperature with a sensor and interacts with the three-way mixing valve and the heating circulator. In this way we prevent the system's inertia according to the environment's temperature changes, achieving more economic operation of the heating.



### Thermostat

Item No	Description
670500001	Heating-Cooling Thermostat (24V)

The thermostat, which reacts to temperature changes with up to 0.1oC accuracy, we achieve the desired space temperature. This way we achieve a tenfold increase of temperature accuracy compared to common thermostats.



# UNDERFLOOR HEATING BY UPONOR

## Uponor PE-Xa pipes



PE-Xa pipe with an oxygen diffusion barrier manufactured from peroxide cross-linked polyethylene (PE-Xa) using the Engel method complying with e.g. prENISO 15875 "Plastics piping systems for hot and cold water installations - Cross-linked polyethylene" with an oxygen diffusion barrier of EVOH (ethyl vinyl alcohol). Uponor pipes fulfil the requirements for oxygen diffusion resistance as per DIN 4726. Malfunction temperature 95°C. Design pressure 8,8 bar (at 70°C).

<b>Item No</b>	1034535
<b>d (mm)</b>	17
<b>s (mm)</b>	2.0
<b>l (mm)</b>	120
<b>V (mm)</b>	0.13
<b>Description</b>	Uponor pe PE-Xa Q&E pipe 17x2.0 / 120 m coil
<b>unit</b>	120 m

## Uponor MLCP white in coils



Diffusion-tight multi-layer composite pipe (PE-RT - adhesive - longitudinally welded aluminium - adhesive - PE-RT) for distribution conduits, rising mains and connection lines for plumbing, radiator connection and fancoil connection. Fire classification cation E according to DIN EN 13501-1. Pipe end caps as hygienic seal according EN 806.

Resistance of temperature:

Tap water: The maximum permanent operating temperature exists between 0°C and 70°C at a maximum permanent operating pressure of 10 bars. The short-term malfunction temperature is 95°C of a maximum of 100 hours in the operating lifetime.

Heating: The maximum permanent operating temperature is 80°C at a maximum permanent operating pressure of 10 bars. The short-term malfunction temperature is 95°C of a maximum of 150 hours in the operating time per year.

<b>Item No</b>	1013371
<b>d (mm)</b>	16
<b>s (mm)</b>	2.0
<b>l (mm)</b>	200
<b>Description</b>	Uponor MLCP 16x2 white in coils 200m
<b>unit</b>	200 m

## Uponor plastic manifold basic kit



For Uponor modular plastic manifold including brackets, flat at sealing screw connection pieces with swivel nut, thermometer and end pieces with air vent, filling and draining tap and a by-pass.

<b>Item No</b>	1009209
<b>l (mm)</b>	150
<b>Description</b>	Uponor Plastic manifold Basic kit G1"
<b>unit</b>	1 set

### Uponor modular plastic manifold with balancing screw

<b>Item No</b>	1030582
<b>outlets [-]</b>	6
<b>l (mm)</b>	300
<b>Description</b>	Uponor modular plastic manifold with balancing screw, 3 way
<b>unit</b>	1 pcs

Pack includes supply and return manifolds made of fibreglass reinforced polyamid. Heating loop connections 3/4 MT euro-cone compatible with Uponor compression adapters. Spacing of individual outlets 50 mm. Manifolds can be joined to make the required number of ports. Uponor actuators can be mounted on the return manifold. In each flow manifold there are balancing valves for adjusting the supply in each loop.  
 Max. operating temperature: 60°C  
 Max. operating pressure: 6 bar.



### Uponor modular plastic manifold with flow meter

<b>Item No</b>	1030584
<b>outlets [-]</b>	4
<b>l (mm)</b>	200
<b>Description</b>	Uponor modular plastic manifold with flow meter, 4 way
<b>unit</b>	1 pcs

Pack includes supply and return manifolds made of fibreglass reinforced polyamid. Heating loop connections 3/4 MT euro-cone compatible with Uponor compression adapters. Spacing of individual outlets 50 mm. Manifolds can be joined to make the required number of ports. Uponor actuators can be mounted on the return manifold. Supply manifold with adjustable and shut-off inserts (flow meter inspection window with scale of 0 – 4 l/min) for flow adjustment of individual heating loops.  
 Max. operating temperature: 60°C  
 Max. operating pressure: 6 bar.



### Uponor Provario single segment kit

<b>Item No</b>	1042420
<b>MT ["]</b>	G 3/4
<b>Description</b>	Uponor plastic manifold single segment set with balancing screw
<b>unit</b>	1 set

For Uponor plastic manifold with balancing screw for additional heating loop extension. Supply segment with regulating valve, return segment with thermostat upper section incl. cap for locking. Made of fibreglass reinforced polyamid.  
 Max. operating temperature: 60°C  
 Max. operating pressure: 6 bar.



### Uponor plastic manifold single segment set



For Uponor modular plastic manifold with topmeter for additional heating loop extension. Supply segment with adjustable and shut-off inserts (topmeter inspection window with scale of 0 – 4 l/min) for flow adjustment of individual heating loops. Return segment with thermostat upper section incl. cap for locking. Made of fibreglass reinforced polyamid. Max. operating temperature: 60°C Max. operating pressure: 6 bar.

<b>Item No</b>	1042471
<b>MT [“]</b>	G 3/4
<b>Description</b>	Uponor plastic manifold single segment set with flow meter
<b>unit</b>	1 set

### Uponor plastic manifold connection valve kit



For the hydraulic balancing and shut-off of the Uponor plastic manifold, consisting of:

- G 1/Rp 1 inlet control valve for the hydraulic balancing and independent shut-off of the manifold, including hand wheel and display for settings / closing  
kvs value: 5.4 m<sup>3</sup>/h
- G 1/Rp 1 return valve for the shut-off of the manifold, including hand wheel and display for closing; adaptable for Uponor plastic manifold actuators.  
kvs value: 6.4 m<sup>3</sup>/h

In conjunction with Uponor plastic manifold actuators, the kvs value is 4.8 m<sup>3</sup>/h. The connecting valve can be used to control individual zones. Material: Housing made in brass, hand wheels made in polyamide Max. testy pressure: 10 bar (water)

<b>Item No</b>	1005100
<b>l (mm)</b>	80
<b>h1 (mm)</b>	50
<b>z (mm)</b>	45
<b>MT [“]</b>	G1
<b>FT [“]</b>	Rp 1
<b>A/F (mm)</b>	38
<b>Description</b>	Uponor plastic manifold connection valve G-1/ Rp 1

### Uponor actuator 230 V



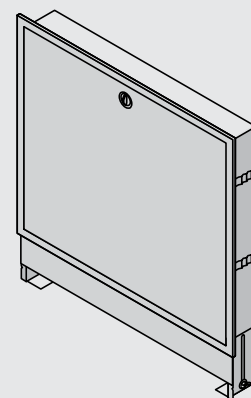
230 V, with open/closed indicator, suitable for use with Uponor plastic manifolds. Closes when idle. With all-round shower protection (IP 54). Suitable for operation at ambient temperature of up to 60°C. Threaded connector M 30 x 1.5 mm MT. Height: 54 mm.

<b>Item No</b>	1005605
<b>MT [-]</b>	30 X 1.5
<b>d (mm)</b>	40
<b>h (mm)</b>	54
<b>OV (V)</b>	230
<b>P (W)</b>	< 3
<b>Description</b>	Uponor actuator 230V for plastic manifold, 30 x 1.5 MT
<b>unit</b>	1 pcs

### Manifold cabinet concealed version

<b>Item No</b>	1046992
<b>w (mm)</b>	710
<b>h (mm)</b>	820 - 910
<b>Description</b>	Uponor cabinet concealed version, UFH2 width 710mm, colour white
<b>unit</b>	1 pcs

For attachment of Uponor manifolds, Uponor controller and Uponor pump control stations on universal rail fixation incl. fixation set. Made of galvanized steel. All visible parts are powder coated in white colour (RAL 9010).  
 Cabinet width (with frame): 555-950mm  
 Cabinet installation depth: 120-180mm  
 Cabinet installation high: 820-910mm



### Uponor installation panel 14-16 / 11

<b>Item No</b>	1000020
<b>outlets [-]</b>	4
<b>l (mm)</b>	200
<b>Description</b>	Uponor modular plastic manifold with flow meter, 4 way
<b>unit</b>	1 pcs

For cement and self-levelling cement screeds; allows for right-angled or diagonal pipe installation at 6 plus 4 different pipe installation based on actual room geometry with minimum cut-offs thanks to sophisticated system technology; allows for fast and easy installation of the hard/soft PS rigid foam panels with overlapping foil edges. Meets the requirements for standard impact noise insulation (DIN 4109), thermal insulation (DIN EN1264), fire safety (DIN 4102) B2 and heat output (DIN EN 1264), irrespective of the pipe spacing; the height and distance of the sturdy pipe holders (DIN EN 1264) are fixed to prevent shifting of the pipes; the overlapping application foil acts as a damp-proofing course and eliminates sound bridges (DIN 18560); protects the environment thanks to use of environmentally friendly PS. Properties subject to continuous RAL quality monitoring.

Pipe spacing with right-angle installation:

RA 5.5 - 11 - 16.5 - 22 - 27.5 - 33 cm

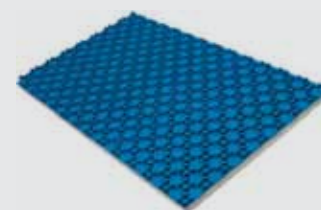
Pipe spacing with diagonal installation:

RA 7.5 - 15 - 22.5 - 30 cm Type: 11 mm, for universal use in residential and commercial buildings up to 30 kN/m<sup>2</sup> EPS 040 DE0 (100kPa)

Dimensions: 1447 x 900 mm

Plate thickness: 29 mm

Application range: up to 30 kN/m<sup>2</sup>



### Uponor PE pattern foil 0.25mm



0,25 mm-thick foil with printed on pattern 100 x 100 mm for laying over existing heat/sound insulation and fixation of clamp tracks. Prevents screed from flowing down into the insulating layer.

Dimensions: 100 m x 1.03 m

<b>Item No</b>	1000015
<b>l (m)</b>	100
<b>w (m)</b>	1.03
<b>s (mm)</b>	0.25
<b>Description</b>	Uponor PE pattern foil 0.25mm thickness for clamp track fixation
<b>unit</b>	103 m <sup>2</sup>

### Uponor edging strip 150x10



For installation between screed and adjacent building parts for floor constructions according to DIN 18560 and DIN EN 1264; with multiple tear perforation, laminated PE foil, self-adhesive sealing strips, particularly suitable for self-levelling screeds; bottom side adhesive for attachment to wall and exact installation in wall corners

Material: Closed-cell polyethylene PE-LD

Building material class: B2

Colour: blue

<b>Item No</b>	1000080
<b>h (mm)</b>	150
<b>s (mm)</b>	10
<b>l (m)</b>	50
<b>color (-)</b>	blue
<b>Description</b>	Uponor edging strip 150x10 in length of 50 m
<b>unit</b>	200 m

### Uponor thermostat display T-75 radio



Designed as a wireless single room temperature sensor, measuring the perceived room temperature and transmitting the values to the wireless base unit or wireless control module, with display showing the set and measured room temperature, consisting of:

Housing with

- Temperature programming buttons
- Control electronics

Signal range: max. 30 m

Signal frequency: 868 MHz

Power supply: Alkaline battery, service life approx. 5 years, size AAA

Transmission power: approx. 1 mW

Set temperature range: 5 - 30 °C

Colour: pure white (near RAL 9010) or silver (near RAL 9006)

<b>Item No</b>	1000502
<b>l (mm)</b>	124
<b>w (mm)</b>	66
<b>h (mm)</b>	16
<b>color (-)</b>	white
<b>Description</b>	Uponor thermostat display T-75 radio white
<b>unit</b>	1 pcs

## Uponor controller with interface C-56+I-76 radio

<b>Item No</b>	1045562
<b>OV (V)</b>	230
<b>P (W)</b>	1
<b>EP/a (W)</b>	> 2
<b>color (-)</b>	gray
<b>Description</b>	Uponor controller with interface C-56+I-76 radio, grey
<b>unit</b>	1 set

For receiving and transforming of radio signals from the thermostats, with integrated DEM functions consisting of:

- Controller C-56 with
- Electronic control
  - Reception of max. 12 room-thermostats
  - Connection of max. 14 actuators 24 Volt
  - Heating/Cooling function switched by external contact
  - Pump relay
  - Valve exercise, pump exercise

Interface I-76 with

- Display, back lighted, new look, blue full dot matrix
- Menu in English,

Integrated functions

- Five temperature setback programs
- Max/min temperature limitations
- Holiday temperature
- Automatic summer/wintertime change
- Auto adapt function
- Room check function
- Room bypass function
- The Interface can control up to 3 controllers

Key Advantages

- 15% faster response in heating variations
- 12% reduction in operation costs
- Autobalancing

Accessories

External Antenna, cables for connections, mounting material

Mark of conformity: CE

Operational voltage: 230 V / 50 Hz

Max. power input per actuator: 0,2 A

Protection class: IP 30 (EN 60 529)

Colour: grey (RAL 7015)



## Uponor MLCP white in straight lengths



Diffusion-tight multi-layer composite pipe (PE-RT - adhesive - longitudinally welded aluminium - adhesive - PE-RT) for distribution conduits, rising mains and connection lines for plumbing, radiator connection and fancoil connection. Fire classification E according to DIN EN 13501-1. Pipe end caps as hygienic seal according EN 806.

Resistance of temperature:

Tap water: The maximum permanent operating temperature exists between 0°C and 70°C at a maximum permanent operating pressure of 10 bars. The short-term malfunction temperature is 95°C of a maximum of 100 hours in the operating lifetime.

Heating: The maximum permanent operating temperature is 80°C at a maximum permanent operating pressure of 10 bars. The short-term malfunction temperature is 95°C of a maximum of 150 hours in the operating time per year.

Item No	Description	d (mm)	s (mm)	l (m)	Unit	GTIN/EAN
1013432	Uponor MLCP 16x2 white in straight length 5m	16	2.0	5	125m	4021598005525
1013438	Uponor MLCP 20x2,25 white in straight length 5m	20	2.25	5	85m	4021598005549
1013442	Uponor MLCP 25x2,5 white in straight length 5m	25	2.5	5	50m	4021598005556
1013444	Uponor MLCP 32x3 white in straight length 5m	32	3.0	5	30m	4021598005563
1013446	Uponor MLCP 40x4 white in straight length 5m	40	4.0	5	20m	4021598005570
1013449	Uponor MLCP 50x4,5 white in straight length 5m	50	4.5	5	20m	4021598005587
1013451	Uponor MLCP 63x6 white in straight length 5m	63	6.0	5	15m	4021598005594
1013453	Uponor MLCP 75x7,5 white in straight length 5m	75	7.5	5	5m	4021598010277
1013455	Uponor MLCP 90x8,5 white in straight length 5m	90	8.5	5	5m	4021598012677
1013457	Uponor MLCP 110x10 white in straight length 5m	110	10.0	5	5m	4021598012608



### Aqua-plus pipes

The structure of the material and the smooth texture of the surface ensure low friction losses resulting in low resistance and low pressure drop in the piping. The material used presents a greatly reduced noise factor and restricted transmission of noise through the pipes. Thus plastic pipes of smaller cross-section can be used for the same quantity of water. Aqua-plus pipes are manufactured in cross-sections ranging from 20mm to 160mm, in green, in straight 4m lengths.

### Aqua-Plus pipe with Fiberglass

The new pipes Aqua-Plus-GF are designed, manufactured and tested for quality in compliance with the standards that apply for the simple polypropylene pipes (EN 15874 & DIN 8077/78) and in accordance with the special instruction HR 3.28 of the German Institute SKZ.



Pipe dimensions Aqua-plus GF SDR 7,4

Outer diameter (mm)	Wall thickness (mm)	Inner diameter (mm)	Water content l/m	Pipe weight kgr/m	Packaging (m)
(mm)	(mm)	(mm)	(L/m)	(kgr/m)	(m)
20	2.8	14.4	0.163	0.158	100
25	3.5	18.0	0.254	0.246	80
32	4.4	23.2	0.423	0.394	60
40	5.5	29.0	0.660	0.613	40
50	6.9	36.2	1.029	0.955	16
63	8.6	45.8	1.647	1.500	12
75	10.3	54.4	2.323	2.135	8
90	12.3	65.4	3.358	3.058	4
110	15.1	79.8	4.999	4.576	4
125	17.1	90.8	6.472	5.891	1
160	21.9	116.2	10.599	9.538	1

### Pipes

Interplast apart from single-wall Random (Type 3) polypropylene pipes, also manufactures three layer polypropylene - aluminium - polypropylene pipes. The new pipes are designed, manufactured and tested for quality, in compliance with the standards in effect for simple polypropylene pipes.



### Aqua-Plus Fittings PN 25

The fittings are manufactured in accordance with DIN 16962 from Polypropylene Random (Type 3) and available in cross-sections from 20mm to 160 mm. For the production of the fittings the company uses raw material with a low melt flow index, identical to that of its pipes so that the mechanical strength of the pipe does not differ from that of the fittings.



## BUFFER TANKS & HOT WATER TANKS

### Buffer Tanks

Buffer tanks from 150lt to 5000lt with insulation suitable for internal installation. There is the choice for an electric heater (resistance) and heat exchangers (coil type).



### Hot Water Tanks

Boiler from 150lt to 1000lt with one heat exchanger (coil type) and insulation suitable for internal installation. There is the choice for an electric heater (resistance) and a second heat exchanger (coil type).



*\* Sizes and Technical characteristics,  
upon request to AHI CARRIER SEE S.A.*

## Plate heat exchanger

General heating and cooling duties. Heating by means of steam. The plate heat exchanger consists of a pack of corrugated metal plates with portholes for the passage of the two fluids between which heat transfer will take place.



## STANDARD MATERIALS

### Frame plate

Mild steel, Epoxy painted

### Nozzles

Carbon steel

Metal lined: Stainless steel, Titanium, Alloy 254 SMO, Alloy C276

Rubber lined: Nitrile, EPDM

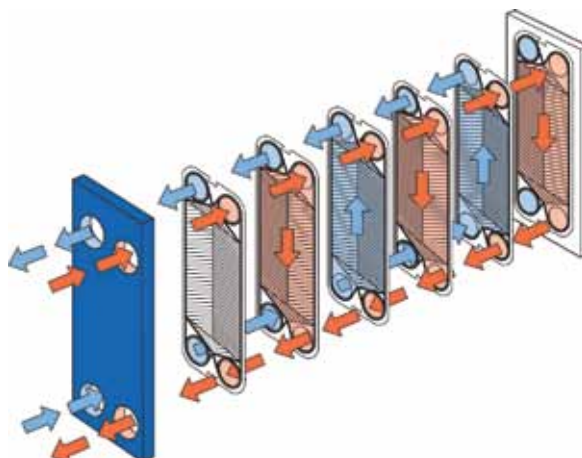
### Plates

Stainless steel: Alloy 316, Alloy 304, Alloy 254 SMO, Alloy C276,  
Titanium

### Gaskets

M6 Nitrile, EPDM, HeatSeal F™

M6M Nitrile, EPDM, HeatSeal F™, HNBR, Viton® G



## WATER PUMPS AND CIRCULATORS

Pumps and circulators for the following applications:

### COOLING - HEATING - AIR-CONDITIONING

- Pumps / Circulators of any type and size, conventional or electronically controlled

### WATER SUPPLY

- submersible and surface pumps
- Domestic Pumps and Pressure Systems

### SEWAGE WATERS

- Submersible drainage pumps, made of stainless steel or cast iron
- Stainless steel wastewater pumps
- Large cast iron pumps for wastewater pumping stations, wastewater treatment

### INDUSTRY

- Pumps and Pressure Systems for industrial use, conventional for electronically controlled



*\* Sizes and Technical characteristics,  
upon request to AHI CARRIER SEE S.A.*

### **Metallic Substructure for Collectors**

Suitable for flat roofs or roof tiles



### **Solar Collectors**

Solar collector with selective surface, with aluminum profile and insulation of polyurethane.



### **Solar Kits**

Hydraulic units with all necessary parts and differential controllers for solar systems.



\* Sizes and Technical characteristics,  
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turn to the experts 

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