



CATALOGUE 2012

PRODUCT AND SYSTEM SOLUTIONS



Heating, ventilation and air conditioning systems
GENERAL CATALOGUE 2012





Catalogue 2012

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A close-up photograph of a dandelion seed head with its seeds blowing away, set against a clear blue sky.

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United Technologies



Carrier – experience backed by a large group

Carrier is part of the United Technologies Corporation (UTC) which employs 199,900 people (2011), operates in approximately 180 countries, and is the 48nd largest corporation in the United States (Fortune list, 2012). The UTC group is a global technology corporation with a long history of pioneering innovation in aerospace, aviation, helicopter design, climate control, elevator design and hydrogen fuel cells.

In 2011 UTC combined Carrier and UTC Fire & Security into one new organisation, UTC Climate, Controls & Security Systems (CCS) to enhance growth opportunities globally and provide even greater commercial and technical solutions for customers.



Supported by the leadership of UTC, Carrier is a source of ideas, technologies and innovation to help build a better world. Our mission is to make the world a better place to live. A mission that was born more than one hundred years ago when Willis Carrier invented the basics of modern air conditioning and developed the first air conditioning system. Since then we have created a comfortable, productive and healthy environment, regardless of climate, and we have ensured that the global food supply is transported and preserved for safe consumption.

Our dedication to enhance our environment also means preserving the environment for everybody. Carrier was the first air conditioning manufacturer to use chlorine-free refrigerants that do not deplete the ozone layer.

For our commitment in developing products for a safer, cleaner and less polluted planet we received the prestigious Ozone Protection Award from the U.S. Environmental Protection Agency (EPA). Every day around the world a Carrier system is installed every eight seconds, and we are now the world's largest manufacturer of air conditioning, ventilation, heating and commercial refrigeration systems.

Carrier quality and reliability are incorporated and guaranteed in all products and systems. They are submitted to extensive tests before they are shipped to the customers and also certified by the major international organisations to guarantee authenticity of the information supplied, safety of the products and high process applications standards. All this means that the customer will receive a safe and reliable product.



United Technologies

Climate | Controls | Security

A leading provider of heating, air conditioning and refrigeration systems, building controls and automation, and fire and security solutions.



Hamilton Sundstrand

A United Technologies Company

The leading supplier of aerospace systems and components, fuel and special fluid pumps, and propeller and engine control systems.



Pratt & Whitney

A United Technologies Company

The specialists in commercial and military aircraft engines and space propulsion systems.



Otis

A United Technologies Company

The world's largest manufacturer of elevators, escalators and moving walkways.



Sikorsky

A United Technologies Company

The world leader in the design and manufacture of helicopters for commercial, industrial and military use.



UTC Power

A United Technologies Company

The innovators in hydrogen-powered fuel cells for space, commercial transport and residential applications.



Natural leadership - sustain

Pioneer in sustainability

From the very beginning, Carrier Corporation has been a natural leader. Not simply for the fact that we created an entirely new and innovative product, but because as we did so, we set the standard in environmental responsibility. At a time when sustainability wasn't on most minds, Carrier led the way. It was only natural.

Over time, Carrier helped pioneer a new industry, and then pioneered environmentally sensitive products while reducing its own impact on the environment. We recognise the responsible balance between the technology we provide today and the world we live in tomorrow.

Preservation of the environment and protecting our finite natural resources is a central tenet of our business. We have consistently demonstrated our adherence to these values by creating environmentally sound products that consume less energy and incorporate innovative materials.

Carrier is committed to reducing the greenhouse gas impact of our products through energy efficiency advancements and the refrigerants we use. Since 1994, we have led the industry in the phase-out of ozone-depleting refrigerants

while introducing many of the world's most energy-efficient heating, air conditioning, and refrigeration systems. At the same time, we've reduced the environmental impact of our operations.

Our environmental commitment extends well beyond our walls to our communities and the marketplace. Carrier is the only company in the world to be a founding member of the U.S., Argentina, China, India, Singapore and France Green Building Councils. In fact, Carrier was instrumental in launching the U.S. Green Building Council in 1993 and was the first company in the world to join the organization. Carrier's Rick Fedrizzi was the Council's first chairman, and later went on to lead the organization as president and CEO.

In 2008, Carrier was named as a formal international advisor to the China Green Building Council, having helped introduce the Green Building Council model to that country.

Today, Carrier continues to improve the environmental performance of our products, services, operations and culture to help achieve a sustainable society and protect the natural environment for generations to come.

Carrier was among the first companies to set energy reduction goals for our factories in 1988. This led to our first company-wide global environmental, health and safety goals in 1997.



From 2000 to 2011 Carrier factories
reduced water usage by

27%

From 2000 to 2011 Carrier factories
reduced air emissions by

60%

ability at Carrier Corporation

"Carrier has been an environmental leader for decades, with a clear and consistent strategy."

Geraud Darnis
Carrier President

from 2006 to 2011 Carrier has lowered greenhouse gas emissions by

35%

Core values

Environmental Stewardship

Performance

Innovation

Employee Development

Customer Care

Integrity

Quality



sustainable
solutions

We were proud to receive the National Safety Council's 2011 Robert W. Campbell Award, recognizing organizations that achieve business excellence by integrating environment, health and safety management into their business operating systems.

Green products and services

Carrier products turn energy into useful work. Because of their reliability and longevity, the energy efficiency of our products becomes part of our customers' environmental footprint. This motivates us to design for the environment, creating products that consume fewer resources and produce fewer emissions during manufacture and operation.

As the world leader in high-technology heating, air conditioning and refrigeration solutions, we are devoted to the advancement and application of the latest technologies. More than 2,000 scientists, engineers and technicians at research and design centres worldwide work to apply the newest technological innovations to the practical needs of millions of customers.

Carrier's energy service operations have implemented more than \$2.5 billion in energy savings at more than 2,000 sites, while our green building consulting services have helped the world's largest companies and organizations, including the Beijing Olympic Village, achieve Leadership in Energy and Environmental Design (LEED) certification.



Sustainability inside and out: our operations

As the world's leader in high-technology heating, air conditioning and refrigeration solutions, we believe market leadership demands environmental leadership. In fact, environmental stewardship is one of our company's core values. Focused on reducing the impact of manufacturing operations across the globe, Carrier has set the industry standard for environmentally sound business practices and a commitment to sustainability across our products, services, operations and culture.

On the operations side, Carrier doubled sales but held factory energy use flat from 1997 through 2005. Since 2006, the company has exceeded its commitment to reduce greenhouse gas emissions by three percent each year. In 2009, two Carrier factories joined only nine others in the world to earn the U.S. Green Building Council's LEED (Leadership in Energy and Environmental Design) rating for existing buildings – a first for the heating, air conditioning and refrigeration industry worldwide.

Energy efficiency

Air conditioning, heating and refrigeration systems require energy to operate, usually electricity or natural gas. We continually invest in research and development to expand the cost-effective energy-efficient range of our products. We do this because buildings consume about 40 percent of all energy worldwide. And according to the U.S. Department of Energy, heating and cooling account for 35 percent of the energy consumed in buildings in the U.S. In nearly every product category, we offer industry-leading, energy-efficient options for our customers.

Efficiency

Carrier's energy services operations have implemented more than **\$2.5 billion** in energy savings at more than 2,000 customer sites.

Carrier was among early leaders to launch factory energy reduction goals in 1988, and expanded to broader global environmental, health and safety metrics in 1997. In 2003, Carrier, as a business unit of United Technologies Corporation, was the first manufacturer of heating, air conditioning and refrigeration systems to join the U.S. EPA Climate Leaders programme by declaring and reporting progress towards climate change goals. From 2000 to 2011, Carrier reduced its air emissions by 60 percent and water usage by 27 percent on an absolute basis. Since 2006, the company has lowered its greenhouse gas emissions by 35 percent.

In 2008, the Montluel factory became the first industrial site in France to use 100% of its electricity from renewable sources.

Carrier implemented a new machine tool lubrication process that reduced volatile organic compound emissions by more than

80%
below the baseline

Refrigerants

Customers look to Carrier to develop sustainable solutions for refrigerants, especially given climate change considerations. Refrigerants are the gases that are compressed to create cooling for air conditioning and refrigeration. Many of these gases are chemicals with environmental impact. For decades, the industry relied on chlorofluorocarbon (CFC) chemicals as refrigerants due to their energy efficiency, safety and economic benefits. In the 1970s and 1980s, scientists began to observe that CFCs contributed to the depletion of the Earth's stratospheric ozone layer that blocks harmful ultraviolet radiation from the sun. This led to an international accord to phase out ozone-depleting substances. Carrier did not wait for international mandates to move. We introduced the first commercial and residential air conditioning systems using non-ozone-depleting refrigerants in 1994 and have since led the industry away from ozone-depleting substances.

Carrier pioneered the phase-out of CFCs for the air conditioning and refrigeration industry in 1994, two years ahead of U.S. requirements and 16 years before mandates in developing countries.

For this achievement, the U.S. EPA awarded Carrier its "Best of the Best" Stratospheric Ozone Protection Award in 2007.

Today, Carrier continues to help international markets meet new non-ozone-depleting requirements, while focusing on the next chapter of refrigerant evolution to reduce the direct greenhouse gas effect. Many of today's refrigerants are based on hydrochlorofluorocarbon (HFC) chemicals because they do not deplete the ozone layer, and compared to CFCs, have reduced the greenhouse impact by as much as 80 percent. Nonetheless, HFCs remain a greenhouse gas and Carrier is committed to finding lower global-warming alternatives. We are a leader in providing commercial refrigeration systems for supermarkets using ultra-low global-warming carbon dioxide as a natural refrigerant.

Carrier continuously invests in research and development. As we have done before, Carrier is committed to deploying products and technologies that minimize environmental impact while serving customer needs. This is equally true with refrigerants, where Carrier will have the right refrigerant solution for every application, while not every application may have the same refrigerant solution.

The Carrier CO₂NSERVATION Meter

The Carrier CO₂NSERVATION Meter calculates avoided greenhouse gas (GHG) emissions as a result of the installation of high-efficiency Carrier air conditioning, heating and refrigeration systems by customers around the world since 2000, and from NORESO, an energy services business of UTC Climate, Controls & Security, since 2008. In 2011, the Carrier CO₂NSERVATION Meter reached 100 million metric tonnes of greenhouse gases saved, equivalent to removing more than 19 million cars off the road for one year.

UTC Climate, Controls & Security has consistently invested in energy-efficient technologies and solutions to assist its customers in lowering that energy demand and GHG emissions. The Carrier CO₂NSERVATION Meter illustrates the avoided GHG emissions associated with energy-efficient products in use and emphasizes the impact of choosing more efficient products and services.



Evergreen® 23XRV
World's leading screw
efficiency chiller

40%
better than the
industry standard

Building Systems

Whether you need air conditioning for a new building or a refurbishment project, for a commercial centre, an office application or an industrial process, Carrier can offer you a wide range of solutions to meet your needs - from liquid chillers/heat pumps, fan coil solutions, air treatment/handling solutions right through to standard and tailor-made system controls.

Each Carrier solution is a global solution that guarantees optimised comfort and performance and rationalised investment. Carrier provides heating, ventilating and air conditioning solutions for optimised individual customer comfort.



Liquid chillers/heat pumps

Some of the innovative recent products are:

1998 - The first Aquasnap air-cooled chillers (40-250 kW) feature a compact design and an integrated hydronic module including pumps, expansion tank and valves for reduced installation time and component sourcing.

2004 - The Aquasnap Puron (262-802 kW) was the first air-cooled chiller in its segment to use the new environmentally sound refrigerant R-410A, with market-leading full and part load efficiencies in a clean, compact design.

2006 - The Aquaforce (252-1700 kW) air-cooled liquid chiller brought another innovation - the all-aluminium MCHE condenser. This eliminates galvanic corrosion, reduces the refrigerant amount required by 30% and improves unit efficiency.

The Aquasnap and Aquaforce ranges offer the patented DX free-cooling system that provides cooling without using the compressors to offer energy efficiency ratios (EER) of up to 28 to 1.

... and for heating a range of desuperheater and heat recovery options to reclaim system heat for use in heating and for domestic hot water.

2009 - The new generation of Aquasnap chillers and heat pumps boasts increased energy efficiency and impressive new control options.

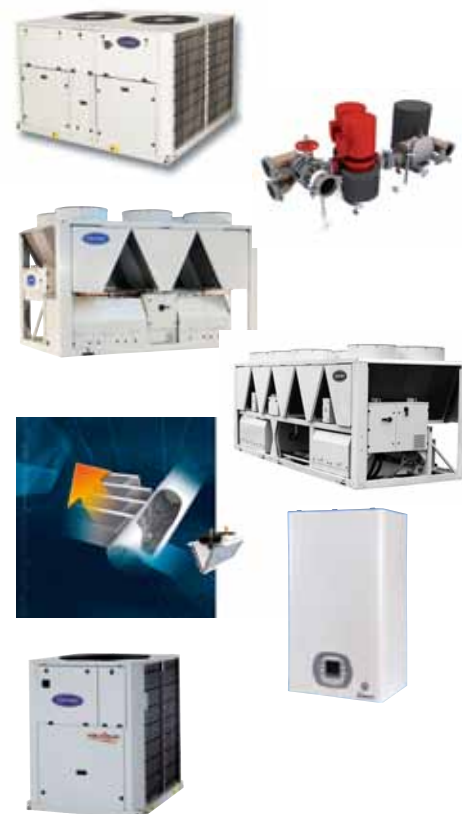
2010 - With the 61AF and 80AW/38AW Carrier launches a new series of heating products to complement the existing product range.



Fan coil solutions

The choice of the correct fan coil system depends on many factors. Carrier offers a range of fan coil solutions to match any application requirements and installation criteria: in the room, in the ceiling, above a false ceiling, in a centralised plant room, and many more.

The Carrier hydronic fan coil solutions guide compares the choices and helps customers to select the right solution for easy integration in the building and the associated air conditioning system.



and Solutions



This includes hydronic systems – a reliable, flexible and ecological solution to meet the demands of today's HVAC markets. All solutions allow cooling, heating, fresh air intake and a range of standard or customised controls.

The Carrier product offer sets industry standards for exceptional performance, energy efficiency and reliability, and is based on more than a century of unmatched expertise, industry leadership and innovation.



Air handling/air treatment solutions

An important aspect of any HVAC system is the correct supply of fresh air and the cleaning, cooling and heating of the recycled air that building occupants breathe. Beyond the legal requirements there are health benefits and improved productivity that result.

Carrier offers a vast range of standard and customised air handling solutions to ensure the best match to the requirements. Features include heat recovery, free cooling, variable speed and low energy consumption motors to ensure the best return on investment and minimal environmental impact.



Control solutions



Carrier equipment and system controls are available for standard system applications and customised, tailor made projects. The right choice is important to ensure complete customer satisfaction. Factors to consider include:

- Enhanced energy efficiency systems
- Easy diagnostics and maintenance
- Capability to work autonomously if the system fails
- Flexibility and upgrade possibility for life-long service in the building.

Service and maintenance

Carrier offers the most comprehensive commercial HVAC/R service schedules in the industry. Our technicians can service your chillers, rooftop units, compressors and boilers. We also provide preventive maintenance solutions to keep your system operating efficiently. We can design, replace or upgrade your equipment to optimise its performance, whether you have just one building or multiple sites nationwide. We can assess the energy needs of your facility and install and service energy-saving solutions including micro-turbines, variable-speed drives and building automation and control systems.



Carrier has been a market leader for more than 100 years, providing customers with heating, ventilation and air conditioning systems. Throughout the world we offer a wide choice of products and systems designed for years of reliable and trouble-free operation.

With the increased focus on reducing energy consumption in buildings and related CO₂ emissions, Carrier continues to improve equipment efficiency and employs an integrated system approach for the highest overall savings. Rather than buying separate system elements we recommend to consider the system as a whole.

The greatest savings are achieved when all heating, ventilation and air conditioning components are intelligently working together, speak the same language and communicate to allow intelligent system management and optimisation according to building use and outside environmental influences.

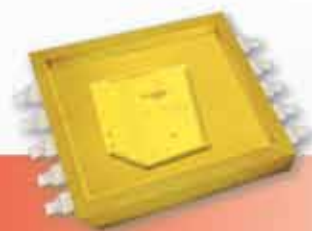
The Aquasmart system, featuring the new Touch Pilot System Manager, can control and optimise commercial HVAC applications in up to 128 zones, reducing energy consumption and providing the desired individual comfort conditions.

Aquasmart is a true ECO SYSTEM, offering considerable energy savings when compared with an equivalent traditional non-communicating system.

SYSTEM CONTROL FOR INCREASED ENERGY SAVINGS

ECO EFFICIENCY

The Aquasmart system's superior energy efficiency is the result of efficient equipment components, optimised by the Touch Pilot System Manager to complement the life of the building occupants.



COOLING AND HEATING

FREE COOLING

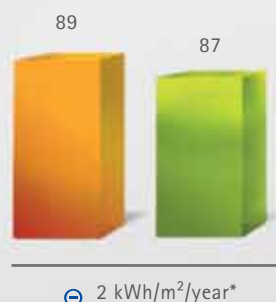
At the right outdoor conditions free cooling can substantially lower energy consumption by reducing the need for mechanical cooling.

In addition to being integrated within traditional free cooling systems, Carrier chiller ranges offer innovative integrated DX free-cooling systems to simplify the system and save space. Additional elements such as glycol, pumps and valves, used in traditional systems, are no longer necessary.

HEAT RECOVERY MEASURES

Heat recovered from the building can be reclaimed for applications requiring hot water, such as comfort heating or sanitary purposes.

Carrier offers a range of heat recovery options, including desuperheaters and heat recovery condensers. These can contribute to reduced heating energy usage or in some cases replace components that use alternative fuels.



* Source: Simulations made using Carrier's Hourly Analysis Program (HAP). Savings quoted are influenced by factors including building type, use and geographical location.

⊖ 2 kWh/m²/year*

AQUASMART

A COMMUNICATING SYSTEM WITH OPTIMISED CONTROL AND INTEGRATED EFFICIENT COMPONENTS



**AIR TREATMENT
PLANT**



**COMFORT
DISTRIBUTION**

VARIABLE WATER FLOW

Most applications only experience full-load design conditions for a few days each month and do not continuously require full design water flow. As an alternative to constant-flow applications Carrier offers integrated variable-speed pumps with reduced water flow at part load conditions. The reduced pump motor energy consumption at part-load conditions – most of the time during the year- results significant energy savings.

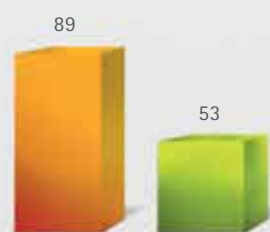


⊖ 8 kWh/m²/year*

DEDICATED HEATING HEAT PUMPS

Carrier has introduced a new generation of heat pumps, designed for heating applications. They deliver superior energy efficiency, hot water at temperatures of up to 63°C and allow operation at outdoor temperatures down to -20°C.

Replacing traditional heating equipment with heat pumps in hydronic systems can lead to substantial energy savings.

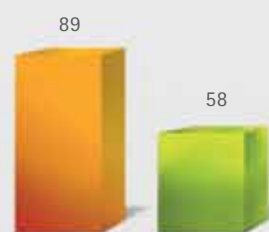


⊖ 36 kWh/m²/year*

VENTILATION AND HEAT RECOVERY

Air treatment plants play an essential role in the indoor air quality of buildings, as they provide occupants with fresh air and remove volatile organic compounds from the occupied space. An air handling plant with heat recovery technology allows waste heat in the extracted air to be reclaimed, considerably reducing heat loads.

Night-time free cooling can further decrease system demands and energy consumption.

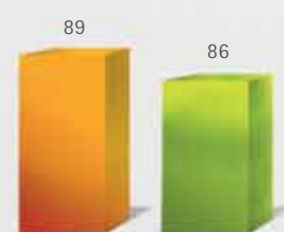


⊖ 31 kWh/m²/year*

WATER TEMINALS (EC MOTORS/VARIABLE FAN SPEED)

The use of terminals with electronically commutated (EC) motors results in improved motor efficiencies (<90%) and enhanced variable fan speed control.

By better matching space loads at part load conditions, unit power consumption is reduced and improved air distribution and sound attenuation enhance occupant comfort.



⊖ 3 kWh/m²/year*

ECO MANAGEMENT

OCCUPANCY-BASED CONTROL TO ELIMINATE WASTE

ADAPT SYSTEM OPERATION
TO MATCH SPACE AND TIME

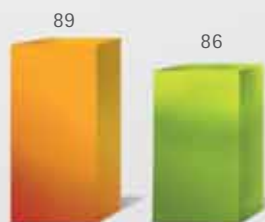
ZONE MANAGEMENT

Grouping similar areas in a building into zones will ensure a coherent and consistent system performance in these zones. Buildings may be zoned according to use, orientation or activity. Examples include offices, meeting rooms, print facilities and IT rooms. Control and adjustment of zone comfort conditions will help building owners and tenants to cut back energy consumption and save energy.

SCHEDULING

Control and optimisation of the HVAC system operation to complement building activity will save energy - delivering the right conditions at the right time. Occupancy-based control with programmed comfort set points and intelligent start/stop system operation to match occupied and unoccupied periods can significantly reduce energy usage.

The Aquasmart Touch Pilot can be used for normal and holiday scheduling.

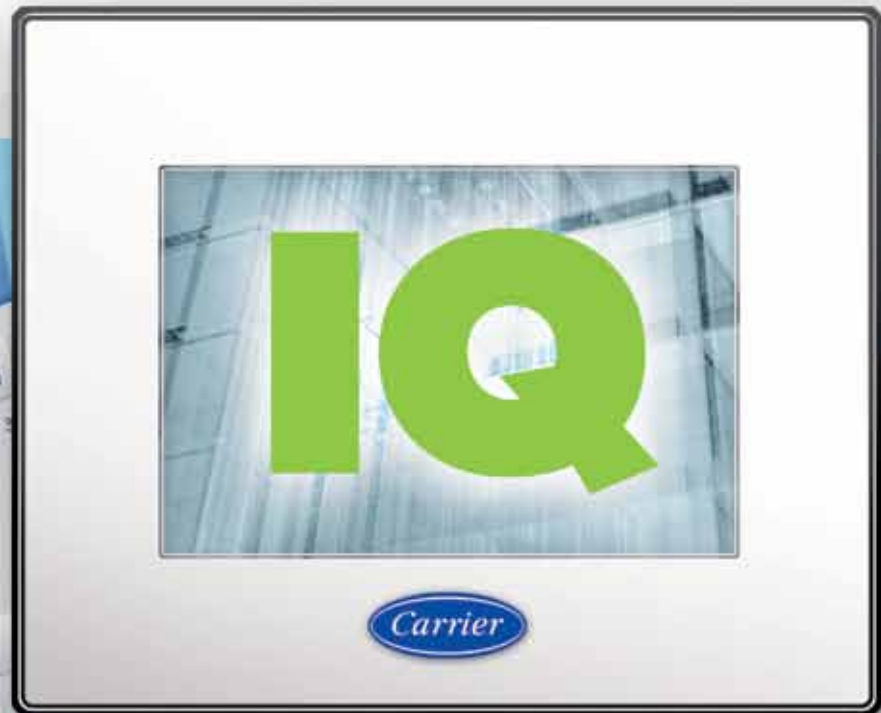


⊖ 3 kWh/m²/year*

ECO INTELLIGENCE

ECO SYSTEMS GUARANTEE
INTERACTIVE INTELLIGENCE

THE ECO SYSTEM



A COMMON LANGUAGE

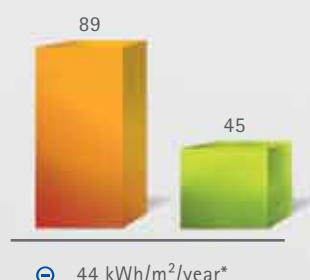
All system components – the chillers or heat pumps, the ventilation system control and the water terminals – need to speak the same language. The Touch Pilot System Manager ensures effective communication of actual and desired space conditions for efficient economical HVAC system control.

CENTRALISED MANAGEMENT

The central Aquasmart Touch Pilot manages all system components so that building owners and users can ensure maximised energy reduction at ideal comfort conditions for building occupants.

OPTIMISED ECONOMIES

The Aquasmart Touch Pilot matches the system operation to meet the building requirements, where needed, when it is needed and as much as it is needed. This lowers energy consumption and optimises system performance. The combination of zone control, operating schedules and optimised unit-by-unit operating parameters can achieve maximised savings.



⊖ 44 kWh/m²/year*

Carrier Service



A full range of building and HVAC service options

When any building's equipment or controls service is relegated to an emergency response, business is at risk. Service is a year-round necessity in order to optimise efficiency, save money, help you make sound management decisions and free you from the anxiety of unplanned downtime. When you partner with Carrier, you ensure that critical comfort needs and regular service requirements are met, and you avoid adverse consequences of neglect.

Carrier Corporation makes it easy for you to select a level of ongoing service that's right for your operation. We are one of the best-trained service providers in the industry, with required ongoing factory, safety and ethics trainings for our personnel.

Carrier technicians are highly skilled in all building systems assessment. They have access to advanced diagnostic tools analysis software, which will quickly and accurately evaluate your entire infrastructure and identify opportunities for improvements and cost savings. And our technicians can service equipment from any manufacturer.

Benefits at a glance

- Comprehensive HVAC system evaluation – overall performance as well as individual chilled water and airside components
- Remote monitoring for ongoing performance tracking and system adjustment
- Enhanced comfort to preserve facility productivity and tenant retention
- Cost-effective system improvement to increase profitability and enhance asset value
- Proactive system upgrades to minimize risks associated with emergency repairs and system failures
- Expert assessment and guidance for replacement of selected components to avoid large capital expenditures
- Energy conservation strategies to reduce costs

Maintenance solutions

Carrier offers a broad range of maintenance solutions for all brands of rooftops, chillers, split and VRF air conditioning, air handling units, controls and accessories.

Carrier's service agreements are tailored to meet the budget and operating needs of your facility and can include both preventive maintenance to keep your equipment running in peak condition and predictive maintenance services to identify potential problems before costly breakdowns occur. The optional Carrier remote monitoring is like having an expert service technician on-site, watching your equipment 24 hours a day, 7 days a week.



Emergency service and repairs

Why not have your equipment repaired by those who know it best? Carrier Service takes pride in our fast response time when helping you with your emergency needs.

Our factory-trained service technicians use the latest diagnostic equipment and are able to perform adjustments or repairs on Carrier equipment as well as all other brands of Heating, Ventilation, Air Conditioning, and Controls equipment and systems. With Carrier as your partner, you can be confident that all repairs are done correctly.



Optimisation and modernisation

Carrier Service can show you how efficiency equals savings: Your chiller or heat pump may be running, but is it running as it is supposed to do? The Carrier Performance Analyzer tool has been developed to answer exactly this question. Our experts make real-time measurements on your equipment and make proposals on what can be improved so that you can get the most out of your equipment and protect your bottom line.

Carrier can help you to:

- Comply with new legislation
- Improve the operation and reliability of your equipment
- Reduce running costs through Carrier's energy-saving, high-efficiency products and controls
- Explore building automation and energy management solutions with our experts

Parts

We offer new and remanufactured compressors, a wide range of popular consumables, essential tools and genuine manufacturer's replacement parts - all with the support of the industry expert.

- Fast response
- Expert technical support with factory back-up
- Attractive prices
- Express delivery possible
- Large stocks and choice of brands



**DON'T LET ANY
ENERGY ESCAPE**

RECLAIM IT

With the new AIROSTAR fresh air handling unit you can experience an environmentally responsible concept in ventilation.

NOTHING IS LOST, EVERYTHING IS RECLAIMED

Up to 90% of the energy from the extract air is transferred to the supply air. Free cooling: cool air almost free-of-charge.

EXACTLY WHAT IS NEEDED, WHEN IT IS NEEDED

Variable air volume to match indoor air quality requirements. Remote control via internet connection.

BOLT DOWN, PLUG IN, READY!

Monobloc casing, air treatment coils, controls ... everything is factory-assembled and tested.



AIROSTAR, discover ECO-EFFICIENCY



Choosing the right system for your application



The breadth and depth of the Carrier product portfolio allow you to choose the right product for any application - heating, cooling or ventilation.

The experience and know-how of the Carrier sales force will help you define the products that best meet your requirements.

Green Building Capabilities



- Design and certification
- Audit and diagnostics
- Energy analysis and tools
- Innovative products for green buildings

Carrier's AdvanTE³C Solutions Center is a global group of Experts in Efficiency and Environment focused on developing sustainable building solutions. The AdvanTE³C Solutions Center is a natural evolution of Carrier's approach to sustainability — and will support customers around the world in developing strategic, energy-efficient and custom-engineered building solutions. Carrier's experts in the AdvanTE³C Solutions Center will apply today's technology in an innovative fashion to capture even greater energy efficiency and environmental benefits. This will help drive innovation in commercial product designs, with a focus on new solutions.

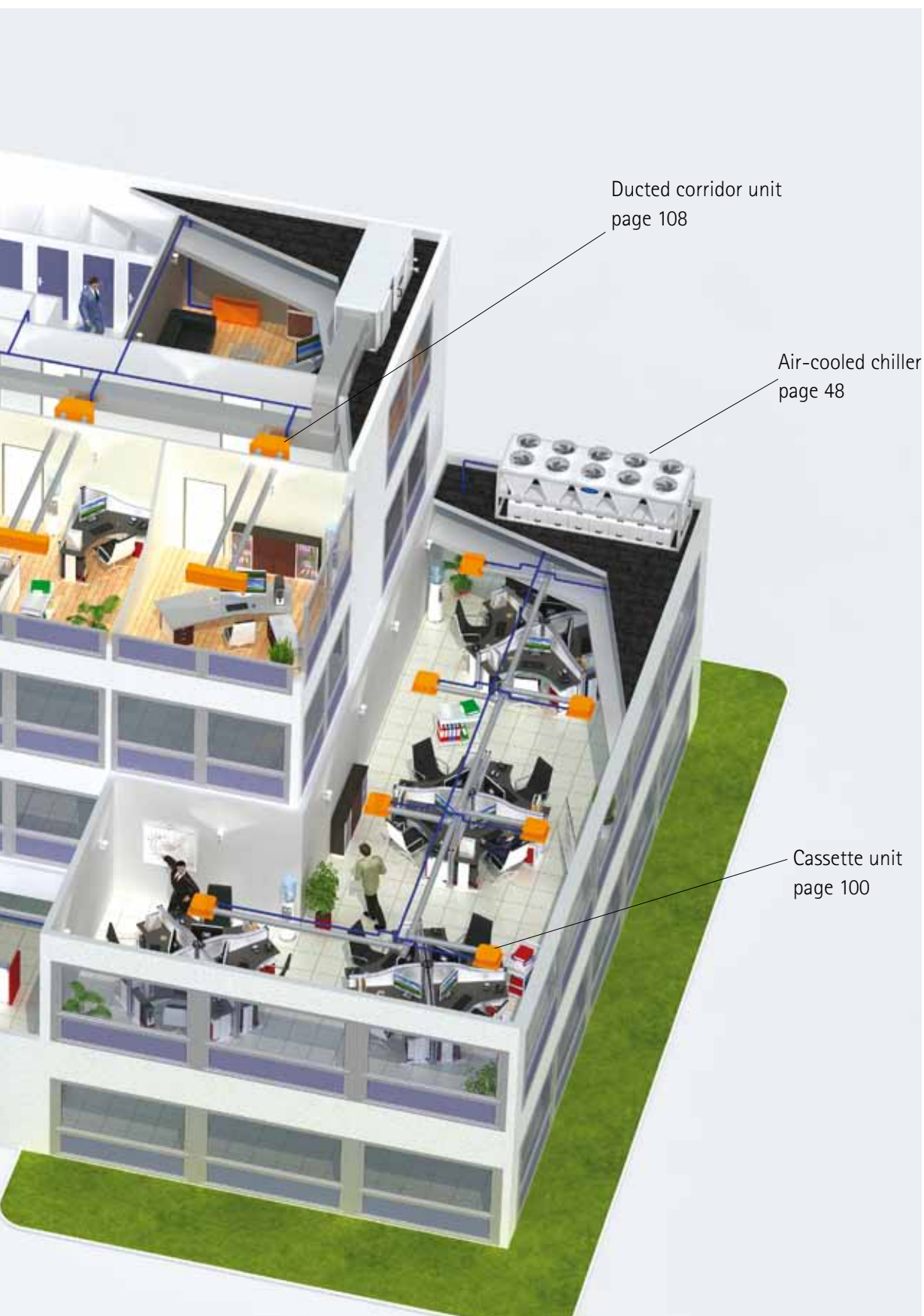
Willis Carrier invented modern air conditioning when he custom-engineered a unique solution to control temperature, humidity and indoor air quality for a Brooklyn printing plant. AdvanTE³C Solutions Center builds on that long legacy of customer-driven innovation and Carrier's expertise in designing energy efficient and sustainable buildings for the future.

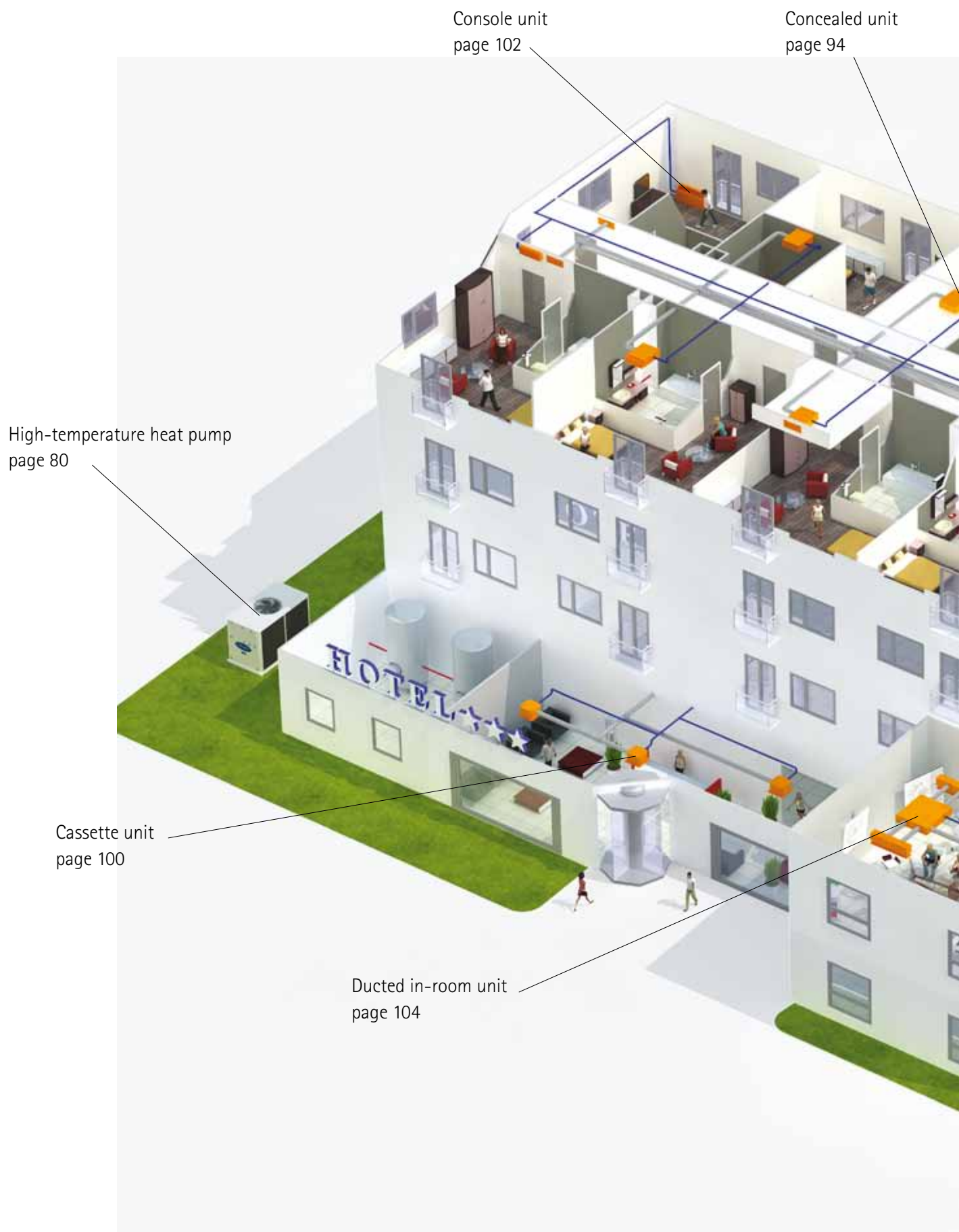
AdvanTE³C
Solutions Center

Console unit
page 102

Ducted in-room unit
page 104

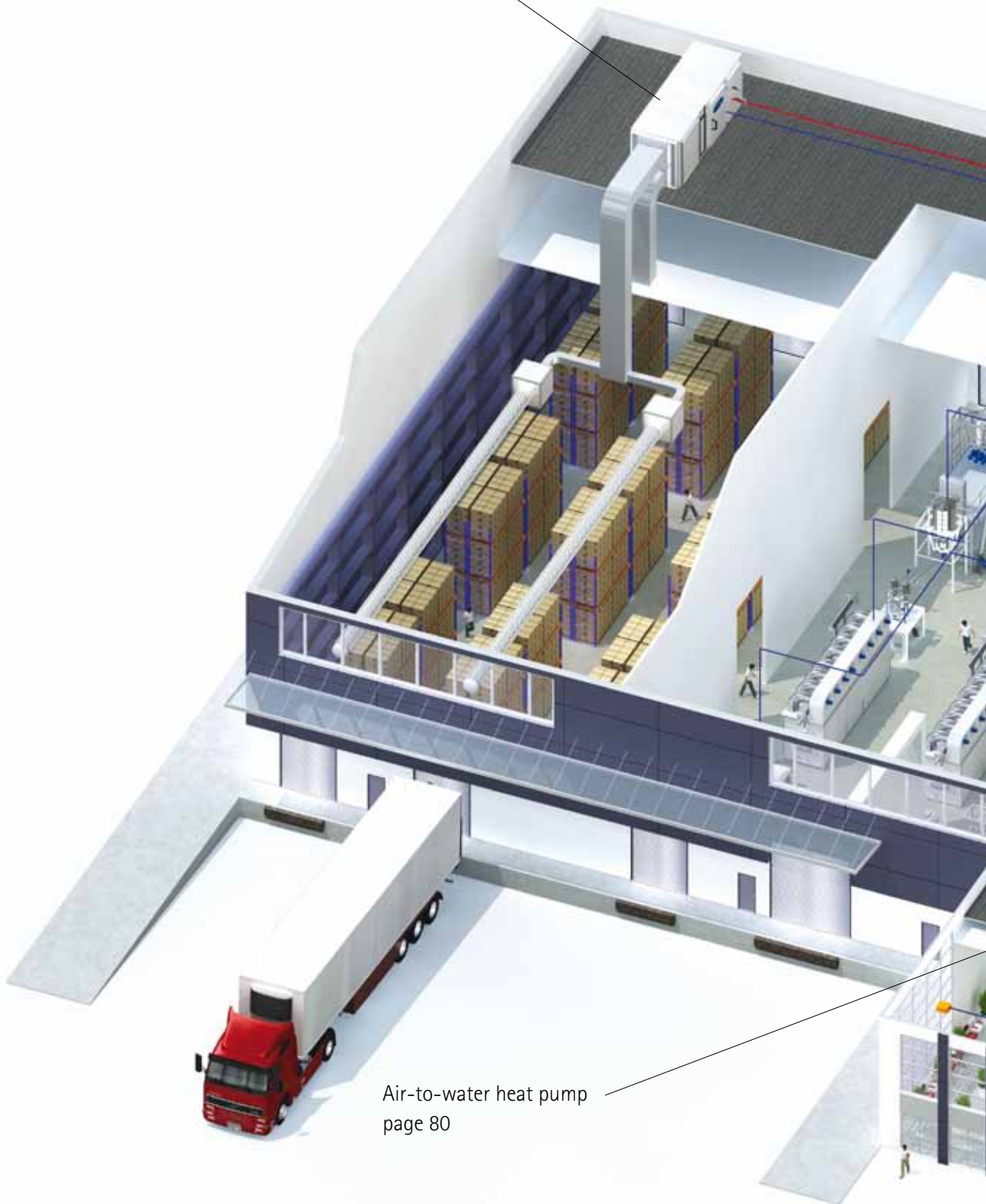




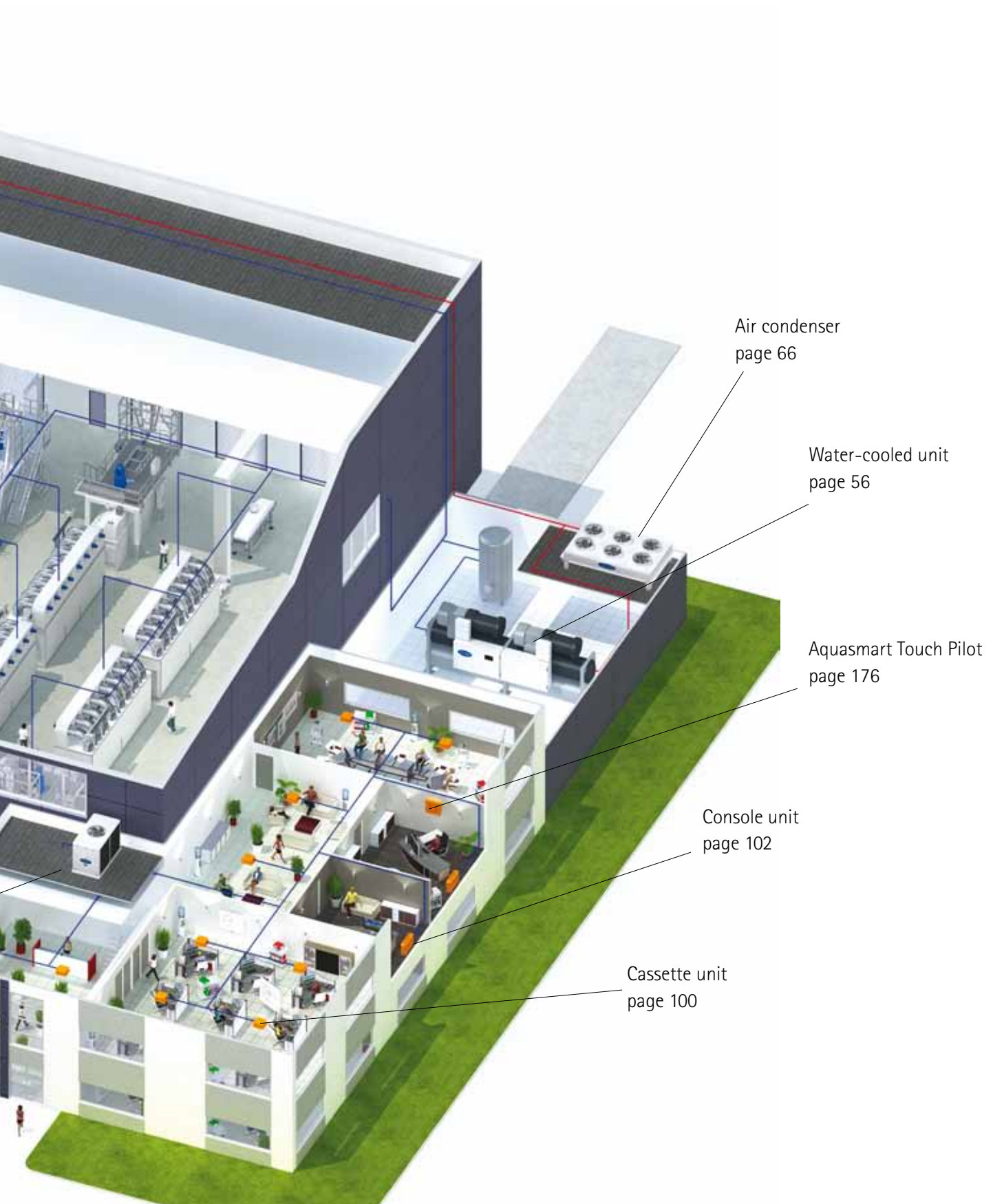




Air handling unit
page 122



Air-to-water heat pump
page 80



Rooftop unit
page 138





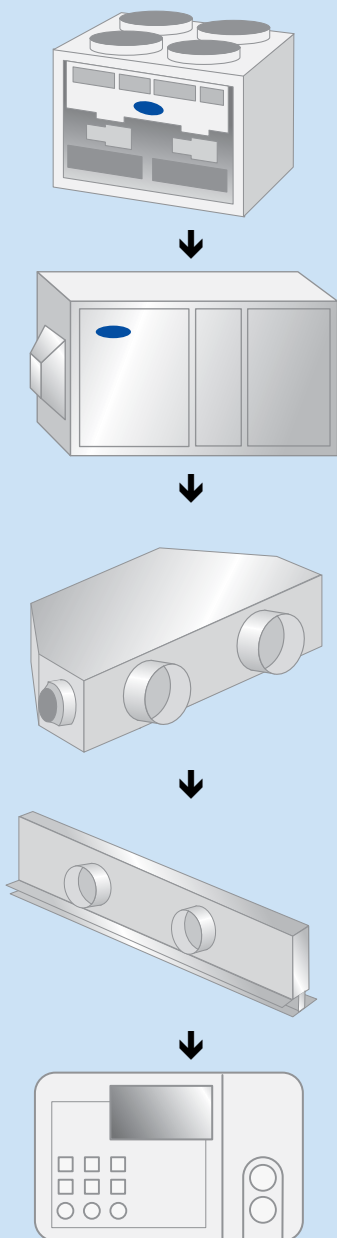
Air-cooled chiller
page 40

Air condenser
pages 62

Water-source heat pump
page 148

Air conditioning Index

System architecture





Type	Range	Refrigerant	Cooling capacity, kW	Page
Air-cooled units, axial fan				
With scroll or rotary compressors	30RA 007-015	R-410A	6-14	32
	30AWH	R-410A	3-16	34
	30RB 017-033	R-410A	16-33	36
	30RBY 017-033	R-410A	16-32	38
	30RBS 039-160	R-410A	39-157	40
	30RBSY 039-160	R-410A	38-155	42
	30RB 162-802	R-410A	170-774	44
With screw compressors	30XAS	R-134a	232-486	46
	30XA	R-134a	267-1682	48
	30WG	R-410A	25-95	50
	23XRV	R-134a	970-1880	60
Water-cooled/condenserless units				
With scroll compressors	30RW/RWA	R-407C	20-316	52
With screw compressors	30HXC	R-134a	287-1302	54
	30XW	R-134a	278-1756	56
	30XW-V	R-134a	587-858	58
Air-cooled condensers				
With axial fan	09SO	R-404A	13-353	62
	09TE	R-404A	102-1092	64
	09AL	R-404A	106-1602	66
Fluid coolers				
With axial fan	09FCSO		11-327	62
	09FCTE		90-1008	64
	09FCAL		89-1498	66

Application of the new EN14511 : 2011 chiller and heat pump performance standard:

Chiller and heat pump performances are calculated in accordance with the EN14511 : 2011 calculation standard and certified by Eurovent.

The latest version of EN14511 was ratified on July 19th, 2011. It uses a different method to take into account the contribution of water pumps, or heat exchanger pressure drops in the unit performances. The efficiency of the pump is no longer a default value, but a function of the required hydraulic power. In January 2012, the Eurovent Certification Company decided that this method is more realistic and it is fully applied starting from the 2012 certification campaign. The performances declared based on the new version of the standard were published on the ECC website www.eurovent-certification.com at the end of March 2012.

IMPORTANT: Only 2012 performances rated according to the new EN14511 : 2011, taking into account water pump and heat exchanger pressure drop are certified by Eurovent. For units declared before 2012, the previous gross EER and COP values without pump correction (for units with integral pump - measured with the pump not running) and the corresponding energy classes are available on ECC website.

Application rating conditions

	Air conditioning applications (AC)	Cooling and heating floor applications (CHF)
Air-cooled cooling	Evaporator EWT/LWT 12°C/7°C OAT 35°C	Evaporator EWT/LWT 23°C/18°C OAT 35°C
Water-cooled cooling	Evaporator EWT/LWT 12°C/7°C Condenser EWT/LWT 30°C/35°C	Evaporator EWT/LWT 23°C/18°C Condenser EWT/LWT 30°C/35°C

(1) Gross adjusted performances, not taking into account the water pump and heat exchanger pressure drops, are not certified by Eurovent for 2012, but used for the 2011 gross declaration and given as a reference for comparison.

Legend

EWT Entering water temperature
LWT Leaving water temperature
OAT Outdoor air temperature

AIR-COOLED LIQUID CHILLERS WITH INTEGRATED HYDRONIC MODULE



Air conditioning

AQUASNAP®

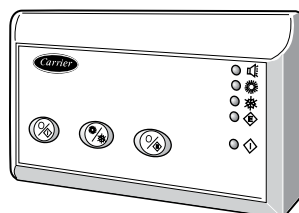
30RA

Accessories

- Remote control
- Service interface
- Mechanical water filter

Features

- Five sizes with nominal cooling capacities from 6 to 14 kW.
- New generation of liquid chillers, featuring the latest technological innovations, incorporating scroll compressors and operating on the ozone-friendly refrigerant HFC-410A (sizes 007-013) or HFC-407C (size 015).
- Integrated hydronic module, with pump and expansion tank, limiting the installation to simple operations like connection of the power supply and the water supply and return piping.
- Electronic, microprocessor-based auto-adaptive control system ensures intelligent control of the compressor start-up sequence, permitting operation at low system water volumes.
- Components are specifically designed for R-410A or R-407C refrigerant, and all units have been submitted to the necessary laboratory tests to ensure perfect operation.
- One or two two-speed axial fans with horizontal air discharge. The advanced design allows exceptionally low-noise operation.
- Compact unit dimensions and reduced weight facilitate installation.
- Galvanised steel panels guarantee increased resistance to atmospheric conditions.
- Removable panels for improved service and easier access to the internal components.
- Condenser coils are made of copper tubes, mechanically expanded into aluminium fins, with an increased heat exchange surface.
- Refrigerant-to-water plate heat exchangers, ensuring optimum heat transfer at reduced dimensions.
- Scroll compressors run very quietly and vibration-free, and are known for their durability and reliability.



Remote control

Physical data



30RA		007	009	011	013	015
Air conditioning application as per EN14511-3 : 2011						
Nominal cooling capacity	kW	6.0	7.0	9.0	11.0	14.2
EER	kW/kW	2.2	2.3	2.7	2.2	2.1
ESEER part-load performance	kW/kW	2.1	2.2	2.2	2.2	2.7
Air conditioning application (1)						
Nominal cooling capacity	kW	6.3	7.1	9.2	10.8	14.0
EER	kW	2.20	2.26	2.69	2.22	2.07
ESEER part-load performance	kW/kW	2.35	2.28	2.72	2.25	2.09
Operating weight	kg	73	85	108	118	135
Refrigerant charge		R-410A	R-410A	R-410A	R-410A	R-407C
Compressor		One scroll compressor				
Evaporator		One plate heat exchanger				
Hydronic circuit						
Pump		One three-speed pump (sizes 005-013) or one single-speed pump (size 015)				
Water inlet/outlet connections	in	1	1	1	1	1
Expansion tank volume	l	1	2	2	2	2
Fans						
Quantity		1	1	2	2	2
Dimensions						
Length x depth x height	mm	800 x 300 x 590	800 x 300 x 803	800 x 300 x 1264	800 x 300 x 1264	800 x 300 x 1264

NOTE: For the conditions please refer to page 31.

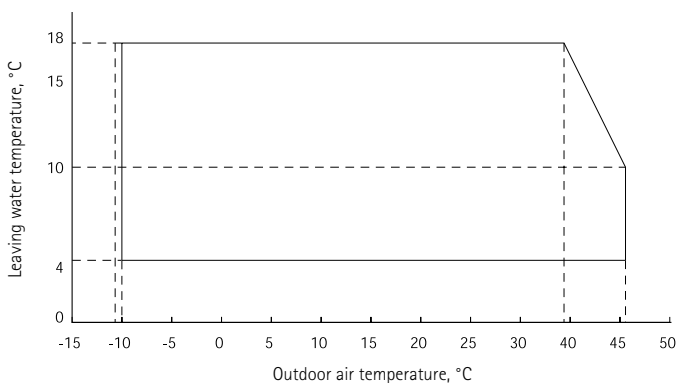
Electrical data

30RA		007	009	011	013	015
Power circuit						
Nominal power supply $\pm 10\%$	V-ph-Hz	400-3-50	400-3-50	400-3-50	400-3-50	400-3-50
Maximum power input*	kW	3.6	4.3	4.4	6.3	8.0
Full load current	A	7.5	8.0	8.5	11.5	14.5
Water circulating pump (230-1-50)						
Current drawn	A	0.3	0.5	0.9	0.97	1.1
Fan motor (230-1-50)						
Current drawn	A	0.94	0.90	1.80	1.80	1.64
Compressor crankcase heater (230-1-50)						
Current drawn	A	0.11	0.11	0.11	0.11	-

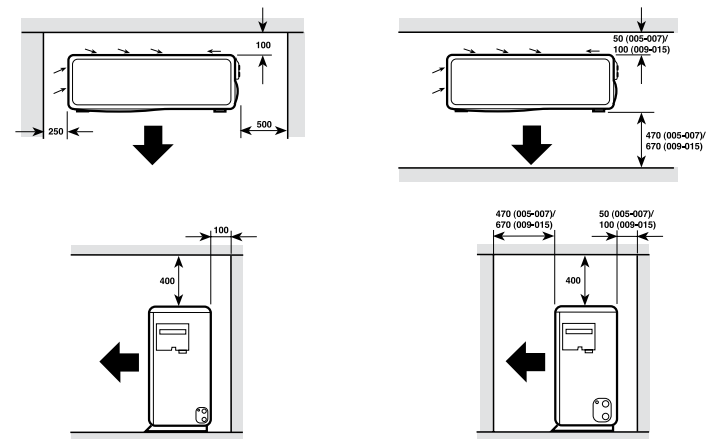
* Maximum unit power input at maximum operating conditions and worst power supply voltage

Operating range

Start-up leaving water temperature 35°C



Clearances, mm



AIR-COOLED CHILLERS



Air conditioning

AQUASNAP^{PLUS}

30AWH

Options/accessories

- Unit without hydronic module (option)
- Unit with hydronic module (option)
- Unit with variable-speed pump (option)*
- Additional outdoor sensor (accessory)
- Remote controller 33AW-RC1 (accessory)
- Programmable thermostat 33AW-CS1 (accessory)

* Available in 2012

30AW controllers



Comfort™ Series programmable thermostat
33AW-CS1






Remote controller
33AW-RC1

Features

- Two versions with or without hydronic module in five sizes with nominal cooling capacities from 3 to 16 kW.
- AquaSnap PLUS air-cooled chillers 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.
- Units integrate the latest technological innovations: ozone-friendly refrigerant R-410A, DC inverter twin-rotary compressors, low-noise fan and micro-processor control.
- Specifically designed for ease-of-installation and service and underlining Carrier's reputation for highest product quality and reliability.
- AquaSnap PLUS chillers can be used with a wide choice of Carrier terminal fan coil units - cassettes, low, medium and high-pressure satellite units, console units, underceiling units and high-wall units.
- Wide operating range offering high performance in a wide temperature range.
- 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.
- Advanced circuit design and component selection has resulted in a compact unit with an exceptionally small footprint that can be easily transported even through narrow doors.
- Comprehensive quality and endurance tests.
- Enhanced control possibilities.

INVERTER
Technology

Physical data

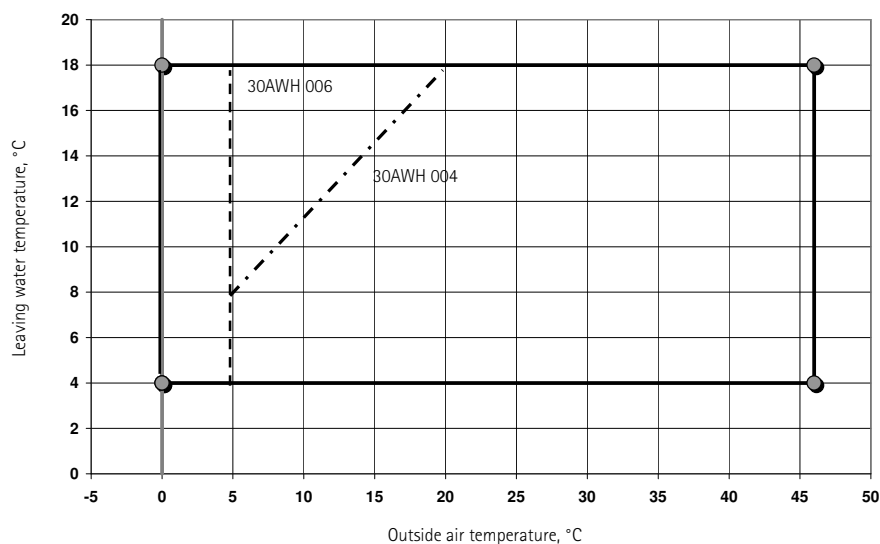
30AW		004	006	008	012	015	
	Air conditioning application as per EN14511-3 : 2011						
	Nominal cooling capacity	kW	3.3	4.7	5.8	10.2	13.0
	EER	kW/kW	3.02	3.00	2.98	2.96	2.95
	ESEER part-load performance	kW/kW	4.36	4.51	4.15	4.22	4.31
	Air conditioning application (1)						
	Nominal cooling capacity	kW	3.3	4.7	5.8	10.2	13.0
	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
	Cooling floor application as per EN14511-3 : 2011						
	Nominal cooling capacity	kW	4.93	7.04	7.84	13.54	16.04
	EER	kW/kW	4.2	3.7	3.99	3.66	3.85
	Operating weight						
	Unit with hydronic module	kg	59	61	71	105	130
	Unit without hydronic module	kg	56	58	68	99	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
Dimensions							
	Length x depth x height	mm	908 x 350 x 821	908 x 350 x 821	908 x 350 x 821	908 x 350 x 1363	908 x 350 x 1363

NOTE: For the conditions please refer to page 31.

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 ²	2.5	2.5	2.5	2.5	2.5

Operating range



AIR-COOLED LIQUID CHILLERS



Air conditioning
30RB

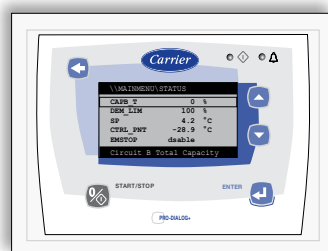
AQUASNAP®

Options/accessories

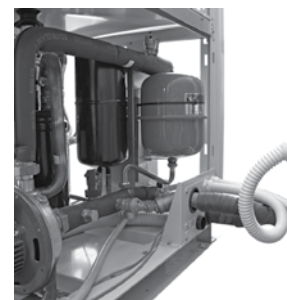
- Unit without hydronic module (option)
- Integrated water fill system (option)
- Power supply without neutral (option)
- JBus, Bacnet and LonTalk gateways (accessory)
- Remote interface (accessory)
- Integrated water fill system (accessory)

Features

- Four sizes with nominal cooling capacities from 16 to 33 kW.
- The new generation of Aquasnap liquid chillers for commercial applications such as the air conditioning of offices and hotels.
- Integrates the latest technological innovations: ozone-friendly refrigerant R-410A, scroll compressors, low-noise fans and auto-adaptive microprocessor control.
- 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 condenser coils with protection grilles on anti-vibration mountings.
- Low-noise fans, now even quieter. Rigid fan installation for reduced start-up noise.
- The unit has a small footprint and is enclosed by easily removable panels.
- Simplified electrical connections.
- 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.
- 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.



Pro-Dialog+ operator interface



Hydronic module (sizes 026-033 shown)

Physical data

30RB		017	021	026	033
Air conditioning application as per EN14511-3 : 2011					
Nominal cooling capacity	kW	16.0	21.0	27.0	33.0
EER	kW/kW	3.0	3.1	3.1	3.3
ESEER part-load performance	kW/kW	3.5	3.5	3.4	3.6
Air conditioning application (1)					
Nominal cooling capacity	kW	16.6	21.6	27.7	33.6
EER	kW/kW	3.15	3.25	3.24	3.45
ESEER part-load performance	kW/kW	3.61	3.64	3.65	3.84
Cooling floor application as per EN14511-3 : 2011					
Nominal cooling capacity	kW	22.7	29.5	38.6	45.8
EER	kW/kW	3.8	3.9	4.0	4.1
Operating weight*					
Standard unit (with hydronic module)	kg	189	208	255	280
Standard unit (without hydronic module)	kg	173	193	237	262
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	2212	2212	3530	3530
Evaporator					
Plate heat exchanger					
Condenser					
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
Dimensions					
Length x depth x height	mm	1136 x 584 x 1579	1136 x 584 x 1579	1002 x 824 x 1790	1002 x 824 x 1790

NOTE: For the conditions please refer to page 31.

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

Electrical data

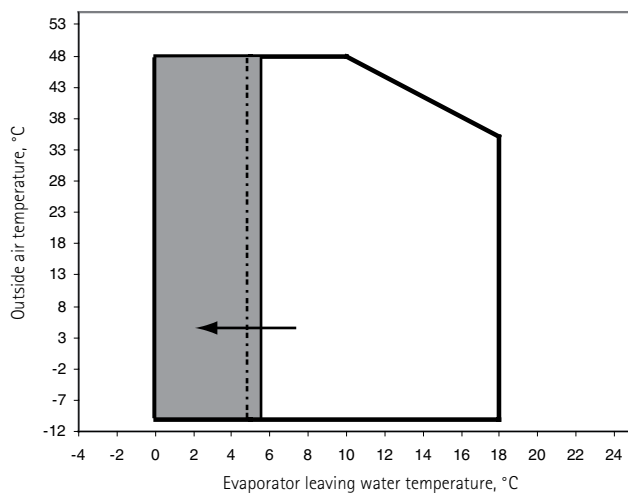
30RB		017	021	026	033
Power circuit					
Nominal power supply	V-ph-Hz	400-3-50 ± 10%			
Control circuit supply					
24 V via internal transformer					
Maximum start-up current (Un)*	A	75	95	118	118
Maximum operating power input**	kW	7.8	9.1	11	13.8
Nominal unit operating current draw***	A	8	12	16	17

* 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.

Operating range



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

DUCTABLE AIR-COOLED LIQUID CHILLERS



Air conditioning
30RBY

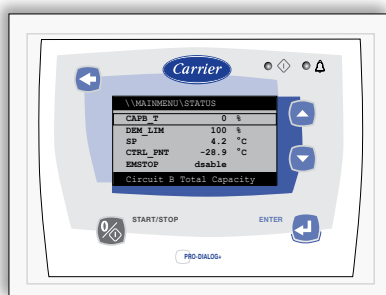
AQUASNAP®

Options/accessories

- Hydronic module (option)
- Integrated water fill system (option/ accessory)
- Inlet duct frame (option)
- Inlet filter frame (option)
- JBus, BacNet and LonTalk gateways (accessory)
- Remote interface (accessory)
- Condensate drain pan (accessory)

Features

- Four sizes with nominal cooling capacities from 16 to 32 kW.
- The new generation of Aquasnap liquid chillers for commercial applications such as the air conditioning of offices and hotels.
- Integrates the latest technological innovations: ozone-friendly refrigerant R-410A, scroll compressors, low-noise fans and auto-adaptive microprocessor control.
- 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.
- Low-noise fans, now even quieter. Rigid fan installation for reduced start-up noise.
- Easy duct connection and fans with 80 Pa available pressure.
- The unit has a small footprint and is enclosed by easily removable panels.
- Simplified electrical connections.
- 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.
- 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.



Pro-Dialog+ operator interface



Hydronic module, sizes 026-033

Physical data

30RBY		017	021	026	033
Air conditioning application as per EN14511-3 : 2011					
Nominal cooling capacity	kW	16.0	20.0	27.0	32.0
EER	kW/kW	2.7	2.6	2.9	3.1
ESEER part-load performance	kW/kW	2.9	2.9	3.2	3.3
Air conditioning application (1)					
Nominal cooling capacity	kW	15.8	20.5	27.3	32.7
EER	kW/kW	2.74	2.71	3.03	3.20
ESEER part-load performance	kW/kW	3.40	3.24	3.88	3.98
Cooling floor application as per EN14511-3 : 2011					
Nominal cooling capacity	kW	19.9	24.8	36.1	42.3
EER	kW/kW	3.1	2.9	3.5	3.7
Operating weight*					
Standard unit (with hydronic module)	kg	209	228	255	280
Standard unit (without hydronic module)	kg	193	213	237	262
Refrigerant					
R-410A					
Compressor					
One scroll compressor					
Control					
Pro-Dialog+					
Fans					
			Two twin-speed centrifugal fans, backward-curved blades		One twin-speed axial fan
Air flow	l/s	1640	1640	3472	3472
Evaporator					
One plate heat exchanger					
Condenser					
Copper tubes and aluminium fins					
Unit with hydronic module					
One single-speed pump, screen filter, expansion tank, flow switch, water circuit drain valve, pressure gauge, automatic air purge valve, safety valve					
Power input*	kW	0.54	0.59	0.99	1.20
Nominal operating current**	A	1.30	1.40	2.40	2.60
Dimensions					
Length x depth x height	mm	1135 x 584 x 1608	1135 x 584 x 1608	1002 x 824 x 1829	1002 x 824 x 1829

NOTE: For the conditions please refer to page 31.

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

Electrical data

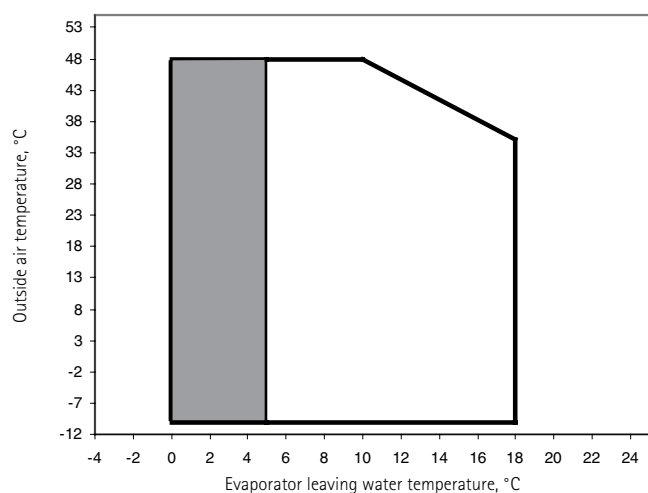
30RBY		017	021	026	033
Power circuit					
Nominal power supply	V-ph-Hz	400-3-50 ± 10%			
Control circuit supply					
		24 V via internal transformer			
Maximum start-up current (Un)*	A	75	95	118	118
Maximum operating power input**	kW	8.0	9.3	11.2	14.0
Maximum operating current draw***	A	13	16	20	24

* 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).

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

Operating range



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

AIR-COOLED LIQUID CHILLERS



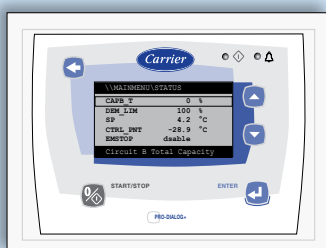
Air conditioning

AQUASNAP

30RBS

Options/accessories

- Condenser with anti-corrosion post-treatment (option)
- Condenser with pre-treated fins (option)
- Very low noise level (option)
- Soft starter (30RBS 039-080 - option)
- Winter operation (option)
- Frost protection down to -20°C (option)
- High- and low-pressure single and dual-pump hydronic modules (option)
- High-pressure variable-speed single and dual-pump hydronic modules (option)
- JBus, Bacnet and LonTalk gateways (option)
- Evaporator screw or welded connection sleeves (option)
- Twinning (accessory)
- Remote interface (accessory)
- Board for additional heating stages (accessory)



Pro-Dialog+ operator interface

Features

- Eleven sizes with nominal cooling capacities from 39 to 157 kW.
- New generation of Aquasnap liquid chillers for commercial or industrial applications.
- Integrates the latest technological innovations: ozone-friendly refrigerant R-410A, scroll compressors, low-noise fans made of a composite material, auto-adaptive microprocessor control, electronic expansion valve and variable-speed pump (option).
- Low-noise scroll compressors with low vibration level.
- Vertical condenser coils with protection grilles on anti-vibration mountings.
- Low-noise Flying Bird IV fans, made of a composite material. Rigid fan installation for reduced start-up noise.
- Small unit footprint and a low height (1330 mm), enclosed by easily removable panels.
- Simplified electrical connections.
- Systematic operation test before shipment and quick-test function for step-by-step verification of the instruments, electrical components and motors.
- Several compressors connected in parallel. At part load, around 99% of the time, only the compressors that are necessary operate, ensuring increased energy efficiency.
- The electronic expansion device (EXV) allows operation at a lower condensing pressure (EER optimisation), and dynamic superheat management optimises the utilisation of the evaporator heat exchange surface.
- 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

30RBS		039	045	050	060	070	080	090	100	120	140	160
Air conditioning application as per EN14511-3 : 2011												
Nominal cooling capacity	kW	39.0	44.0	52.0	58.0	66.0	78.0	89.0	100.0	117.0	134.0	157.0
EER	kW/kW	2.8	2.7	2.7	2.7	2.7	2.6	2.8	2.7	2.7	2.7	2.7
ESEER part-load performance	kW/kW	3.8	3.9	3.8	3.8	3.8	3.8	4.0	4.0	3.9	3.9	3.9
Air conditioning application (1)												
Nominal cooling capacity	kW	39.3	44.7	52.0	58.6	66.9	78.9	89.8	100.4	117.7	134.7	157.6
EER	kW/kW	2.88	2.78	2.76	2.77	2.75	2.72	2.82	2.79	2.71	2.74	2.72
ESEER part-load performance	kW/kW	4.05	4.09	4.08	4.08	4.00	4.07	4.23	4.22	4.15	4.15	4.13
Cooling floor application as per EN14511-3 : 2011												
Nominal cooling capacity	kW	52.3	58.9	72.0	79.5	90.9	108.6	119.9	133.0	154.4	183.3	203.8
EER	kW/kW	3.3	3.2	3.3	3.3	3.3	3.2	3.2	3.1	3.0	3.3	2.8
Operating weight*												
Standard unit without hydronic module	kg	458	466	489	515	502	533	835	845	876	982	1046
Standard unit with hydronic module												
Single high-pressure pump	kg	488	496	519	545	531	562	867	877	912	1021	1085
Dual high-pressure pump	kg	514	522	545	571	557	588	912	922	960	1058	1122
Compressors												
Hermetic scroll compressors, 48.3 r/s												
Circuits A/B		2/-	2/-	2/-	2/-	2/-	2/-	3/-	3/-	3/-	2/2	2/2
Refrigerant												
R-410A												
Capacity control												
Pro-Dialog+												
Condensers												
Grooved copper tubes and aluminium fins												
Fans												
Axial Flying Bird IV with rotating shroud												
Quantity		1	1	1	1	1	1	2	2	2	2	2
Total air flow (at high speed)	l/s	3800	3800	3800	3800	5300	5300	7600	7600	7600	10600	10600
Evaporator												
Direct expansion plate heat exchanger												
Hydronic module (option)												
Single or dual pump, Victaulic screen filter, safety valve, expansion tank, purge valves (water and air), pressure sensors												
Dimensions												
Length x depth x height	mm	1061 x 2050 x 1330						2258 x 2050 x 1330				

NOTE: For the conditions please refer to page 31.

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

Electrical data

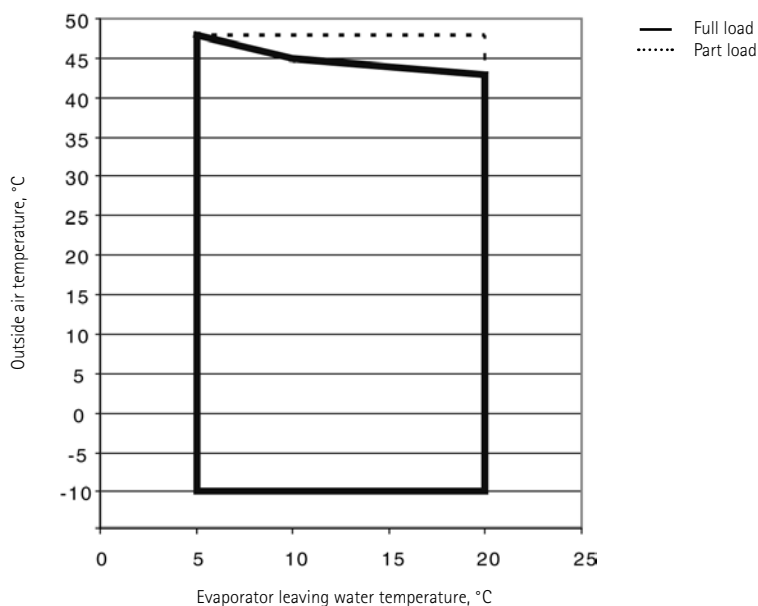
30RBS without hydronic module		039	045	050	060	070	080	090	100	120	140	160
Power circuit												
Nominal power supply	V-ph-Hz	400-3-50 ± 10%										
Control circuit supply												
24 V via internal transformer												
Maximum start-up current (Un)*												
Standard unit	A	112.7	130.9	141.0	143.4	170.4	209.4	168.8	195.8	239.8	226.2	275.2
Unit with electronic starter option	A	74.7	86.5	93.8	96.2	114.4	139.8	-	-	-	-	-
Maximum operating power input**												
	kW	18.8	20.8	24.4	27.8	31.2	35.8	42.2	45.5	52.4	62.3	71.5
Nominal unit operating current draw***												
	A	25.7	30.6	34.9	38.3	45.6	55.8	57.8	67.1	82.7	91.2	112.2

* Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest 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: evaporator entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

Operating range



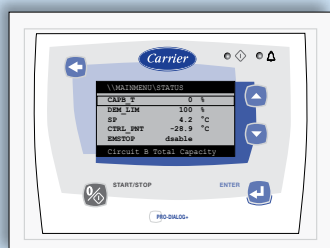
DUCTABLE AIR-COOLED LIQUID CHILLERS



Air conditioning AQUASNAP® 30RBSY

Options/accessories

- Condenser with anti-corrosion post-treatment (option)
- Condenser with pre-treated fins (option)
- Suction air filters mounted on rails (30RBSY 039-080 - option)
- Very low noise level (option)
- Soft starter (30RBSY 039-080 - option)
- Frost protection down to -20°C (option)
- High- and low-pressure single and dual-pump hydronic modules (option)
- High-pressure variable-speed single and dual-pump hydronic modules (option)
- JBus, Bacnet and LonTalk gateways (option)
- Evaporator screw or welded connection sleeves (option)
- Twinning (accessory)
- Remote interface (accessory)
- Board for additional heating stages (accessory)
- Unit support with condensate recovery pan (30RBSY 039-080 - accessory)



Pro-Dialog+ operator interface

Features

- Eleven sizes with nominal cooling capacities from 38 to 155 kW.
- New generation of ductable Aquasnap liquid chillers for commercial or industrial applications. The units include inverter fans to maximise EERs at all operating conditions.
- Integrates the latest technological innovations: ozone-friendly refrigerant R-410A, scroll compressors, low-noise fans made of a composite material, auto-adaptive microprocessor control, electronic expansion valve and variable-speed pump (option).
- Available static pressure of up to 240 Pa for sizes 039 to 060 and 090 to 120, and up to 180 Pa for sizes 070 to 080 and 140 to 160.
- Low-noise scroll compressors with low vibration level.
- Vertical condenser coils with protection grilles on anti-vibration mountings.
- Low-noise Flying Bird IV fans, made of a composite material. Rigid fan installation for reduced start-up noise.
- Small unit footprint and a low height (1330 mm), enclosed by easily removable panels.
- Simplified electrical connections.
- Systematic operation test before shipment and quick-test function for step-by-step verification of the instruments, electrical components and motors.
- Several compressors connected in parallel. At part load, around 99% of the time, only the compressors that are necessary operate, ensuring increased energy efficiency.
- The electronic expansion device (EXV) allows operation at a lower condensing pressure (EER optimisation), and dynamic superheat management optimises the utilisation of the evaporator heat exchange surface.
- 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

30RBSY		039	045	050	060	070	080	090	100	120	140	160
Air conditioning application as per EN14511-3 : 2011												
Nominal cooling capacity	kW	38	43	52	57	65	77	89	100	117	132	154
EER	kW/kW	3.0	2.8	2.8	2.9	2.7	2.7	2.9	2.8	2.8	2.8	2.7
ESEER part-load performance	kW/kW	4.4	4.3	4.1	4.3	4.1	4.2	4.2	4.2	4.3	4.9	4.8
Air conditioning application (1)												
Nominal cooling capacity	kW	38.3	43.5	52.0	57.5	65.2	77.7	89.8	100	118	133	155
EER	kW/kW	3.10	2.92	2.85	2.94	2.79	2.75	2.93	2.90	2.84	2.81	2.78
ESEER part-load performance	kW/kW	6.99	6.23	5.27	5.49	5.40	5.35	5.01	4.84	4.94	6.08	5.86
Cooling floor application as per EN14511-3 : 2011												
Nominal cooling capacity	kW	50.9	57.3	72.0	78.0	88.5	106.9	119.9	133.0	154.4	180.7	213.8
EER	kW/kW	3.5	3.3	3.4	3.5	3.3	3.2	3.3	3.2	3.1	3.3	3.3
Operating weight*												
Standard unit without hydronic module	kg	465	473	496	525	508	542	840	849	880	987	1050
Standard unit with hydronic module												
Single high-pressure pump	kg	495	503	526	555	538	572	872	881	916	1026	1089
Dual high-pressure pump	kg	521	528	551	580	564	598	917	926	965	1063	1126
Compressors												
Hermetic scroll compressors, 48.3 r/s												
Circuits A/B		2/-	2/-	2/-	2/-	2/-	2/-	3/-	3/-	3/-	2/2	2/2
Refrigerant												
R-410A												
Capacity control												
Pro-Dialog+												
Condensers												
Grooved copper tubes and aluminium fins												
Fans												
Axial Flying Bird IV with rotating shroud												
Quantity		1	1	1	1	1	1	2	2	2	2	2
Total air flow (at high speed)	l/s	3800	3800	3800	3800	5300	5300	7600	7600	7600	10600	10600
Evaporator												
Direct expansion plate heat exchanger												
Hydronic module (option)												
Single or dual pump, Victaulic screen filter, safety valve, expansion tank, purge valves (water and air), pressure sensors												
Dimensions**												
Length x depth x height	mm	2109 x 1132/1297 x 1371				2142/2307 x 1132/1297 x 1371			2273 x 2122 x 1371			

NOTE: For the conditions please refer to page 31.

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

** The first value is for units without filter frame, and the second value is for units with option 23B and filter frame.

Electrical data

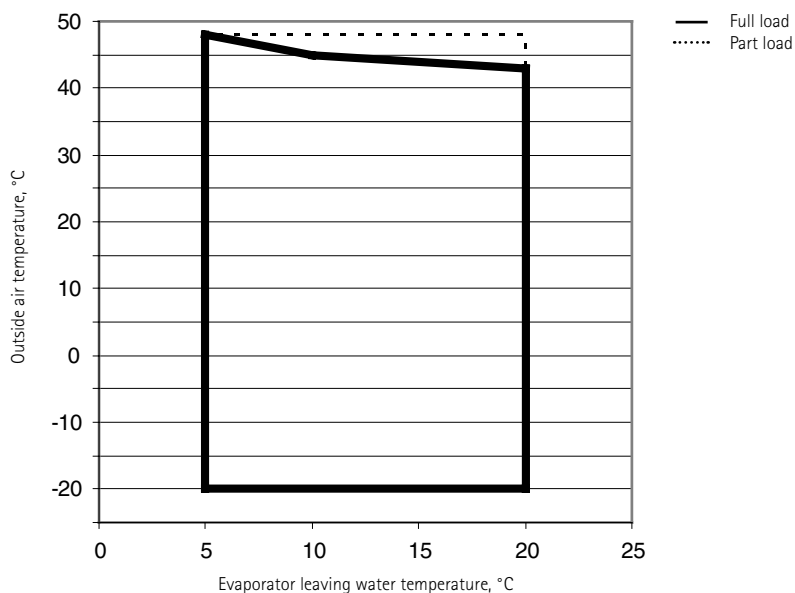
30RBSY without hydronic module		039	045	050	060	070	080	090	100	120	140	160
Power circuit												
Nominal power supply	V-ph-Hz	400-3-50 ± 10%										
Control circuit supply												
24 V via internal transformer												
Maximum start-up current (Un)*												
Standard unit	A	114.9	133.4	143.4	145.4	169.9	208.4	172.8	199.8	242.8	224.3	271.8
Unit with electronic starter option	A	76.9	89.4	96.4	98.4	113.9	138.4	-	-	-	-	-
Maximum operating power input**												
	kW	21.2	24.0	26.2	29.6	31.8	36.4	45.7	49.0	55.9	63.6	72.8
Nominal unit operating current draw***												
	A	30.4	33.4	37.4	42.4	45.4	57.4	66.3	70.8	88.8	90.8	114.8

* Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest 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: evaporator entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

Operating limits



AIR-COOLED LIQUID CHILLERS WITH INTEGRATED HYDRONIC MODULE



Air conditioning

AQUASNAP®

30RB

Options/accessories

- Special condenser treatments*
- Low leaving water temperature from +3°C to -10°C (162-402)*
- Units for indoor installation with discharge ducts*
- Low and very low noise levels*
- Grilles on all four unit faces*
- Enclosure panels each end (Cu/Al coils)*
- Electronic starter (162-522)*
- Winter operation to -10°C or -20°C*
- Evaporator (including water piping) and evaporator and hydronic module frost protection (162-522)*
- Partial heat reclaim*
- Total heat reclaim (262-522)*
- Twinning*
- Main disconnect switch with or without fuse (302-802)*
- Evaporator (all) or evaporator & hydronic module (302-522) with aluminium jacket*
- Compressor suction valve (302-802) or suction & discharge valves (162-522)*
- High/low-pressure single/dual-pump hydronic modules (162-522)*
- JBus, Bacnet or LonTalk gateways*
- DX free-cooling system (232-522)*
- Energy Management Module EMM***
- Fitted safety valves*
- Conforms to Australian codes*
- Unit storage above 48°C*
- MCHE anti-corrosion protection
- Shell-and-tube evaporator (162-262)*
- Traditional Cu/Al coils*
- Connection sleeve**
- Scrolling Marquee Interface**
- Power cable connection side extension (302-802)**

* Option ** Accessory *** Option/accessory

Features

- Five sizes (162 to 262) with plate heat exchanger and eleven sizes (302 to 802) with shell-and-tube heat exchanger with cooling capacities from 170 to 774 kW.
- State-of-the-art Aquasnap liquid chillers featuring the latest technological innovations and operating on the ozone-friendly refrigerant R-410A.
- All-aluminium micro-channel condenser (MCHE) for extra efficiency.
- Integrated hydronic module (option) with water pump and expansion tank.
- Low-noise scroll compressors with low vibration levels.
- V-shaped condenser coils, allowing quieter air flow across the coil.
- Low-noise 4th generation Flying Bird fans, now even quieter. Simplified electrical connections.
- Fast commissioning, as all units are systematically run tested before shipment.
- Economical operation with increased energy efficiency at part load and dynamic superheat management.
- Leak-tight refrigerant circuit and reduced maintenance costs.
- Auto-adaptive control algorithm and automatic compressor unloading for increased reliability.
- Exceptional endurance tests.



Pro-Dialog Plus operator interface

Physical data



30RB 162-262 "B" and 30RB 302-802 units		162	182	202	232	262	302	342	372	402	432	462	522	602	672	732	802
Air conditioning application as per EN14511-3 : 2011																	
Nominal cooling capacity	kW	170	184	208	223	265	297	331	366	395	422	452	503	607	657	712	774
EER	kW/kW	3.0	3.0	2.9	3.0	2.7	2.8	2.7	2.8	2.6	2.7	2.6	2.6	2.7	2.7	2.6	2.6
ESEER part-load performance	kW/kW	3.7	3.5	3.8	3.9	3.7	3.8	3.8	4.0	3.7	3.7	3.7	3.6	4.0	3.9	3.8	3.7
Air conditioning application (1)																	
Nominal cooling capacity	kW	171	185	209	223	266	298	332	367	397	424	454	506	609	660	714	778
EER	kW/kW	3.00	3.02	2.92	3.05	2.71	2.81	2.72	2.83	2.64	2.75	2.62	2.63	2.75	2.72	2.63	2.62
ESEER part-load performance	kW/kW	3.85	3.69	3.99	4.07	3.87	3.96	3.95	4.11	3.89	3.86	3.81	3.74	4.11	4.03	3.91	3.88
Operating weight - standard unit*	kg	1280	1333	1430	1442	1626	2660	2856	2884	3010	3520	3660	3818	4966	5135	5794	5954
Compressors		Hermetic scroll, 48.3 r/s															
Refrigerant		R-410A															
Capacity control		Pro-Dialog Plus															
Condensers		All aluminium micro-channel heat exchanger (MCHE)															
Fans		Axial Flying Bird 4 with rotating shroud															
Quantity		3	4	4	4	4	5	5	6	6	7	7	8	9	10	11	12
Total air flow (high speed)	l/s	13542	18056	18056	18056	18056	22569	22569	27083	27083	31597	31597	36111	40623	45139	49653	54167
Evaporator		Twin-circuit plate heat exchanger															
Dimensions**		Direct expansion, shell-and-tube															
Length x depth x height	mm	2457 x 2253 x 2297				3604 x 3353 x 2297				4798 x 2253 x 2297				5992 x 2253 x 2297			

NOTE: For the conditions please refer to page 31.

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

** Option 280 = unit with shell-and-tube heat exchanger.

Electrical data, 30RB 162-262 "B" and 30RB 302-802 units

30RB (without hydronic module)		162	182	202	232	262	302	342	372	402	432	462	522	602	672	732	802
Power circuit																	
Nominal power supply	V-ph-Hz	400-3-50 ± 10%															
Control circuit supply		24 V, via internal transformer															
Max. power input* - circuits A + B/C	kW	76/-	85/-	98/-	102/-	127/-	140/-	159/-	172/-	191/-	204/-	223/-	255/-	191/96	191/127	255/96	255/127
Nom. current draw** - circuits A + B/C	A	101/-	113/-	129/-	135/-	167/-	185/-	209/-	227/-	251/-	269/-	293/-	334/-	251/125	251/167	334/125	334/167
Max. start-up current*** - circuits A + B/C	A	304/-	353/-	375/-	348/-	426/-	448/-	481/-	502/-	535/-	557/-	590/-	645/-	535/371	535/426	645/371	645/426

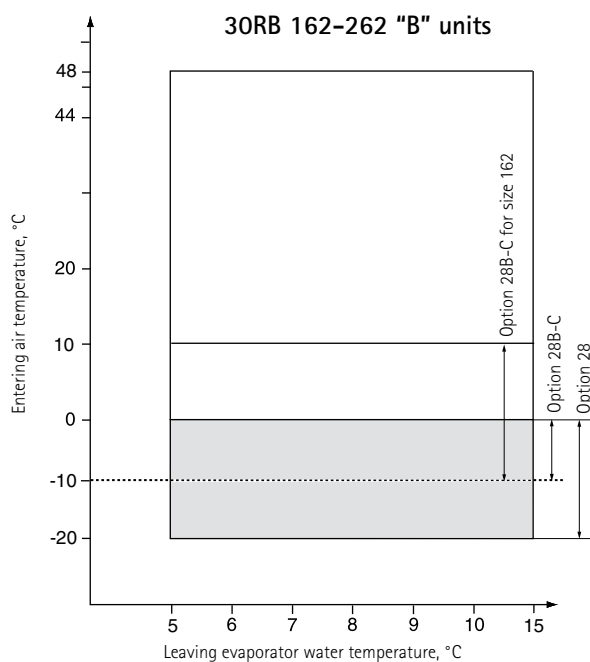
* Power input, compressors and fans, at the unit operating limits (saturated suction temperature 10°C, saturated condensing temperature 65°C) and nominal voltage of 400 V (data given on the unit nameplate).

** Nom. unit current draw at standardised Eurovent conditions: evaporator entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

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

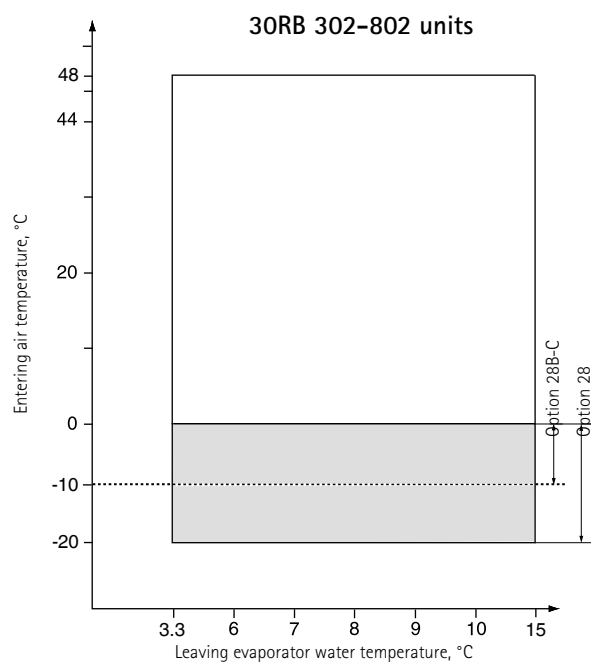
Note: Units 30RB 602-802 have two electrical connection points.

Operating range



Legend:

- Standard unit operating at full load.
- Operating range, units equipped with options 28 and 28B-C "Winter operation".
- Option 28 (with variable-speed lead fan for each circuit) allows operation down to -20°C outside temperature.
- Option 28B-C (with two-speed lead fan for each circuit) allows operation down to -10°C outside temperature. In addition to options 28 and 28B-C the unit must either be equipped with the evaporator frost protection option (for units without hydronic module option) or the evaporator and hydronic module frost protection option (for units with hydronic module option) or the water loop must be protected by the installer by adding a frost protection solution.



Notes:

Evaporator $\Delta T = 5$ K

The evaporator is protected against frost down to -20°C.

AIR-COOLED LIQUID CHILLERS



Air conditioning AQUAFORCE® 30XAS

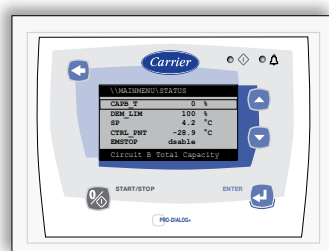
Options/accessories

- Corrosion protection, traditional coils*
- Unit equipped for air discharge ducting*
- IP54 control box*
- Grilles*
- Enclosure panels*
- Winter operation*
- Evaporator and hydronic module frost protection*
- Heat reclaim*
- Service valve*
- Discharge valve*
- High-pressure dual-pump hydronic module*
- High energy efficiency version*
- JBus, BacNet or LON gateways***
- Energy Management module EMM***
- Russian and Australian code compliance*
- Unit without enclosure*
- Traditional coils and traditional coils without slots*
- Suction piping insulation*
- Low and very low sound levels (second attenuation level)*
- MCHE anti-corrosion protection*
- Connection sleeve**
- Lead lag kit**

* Option ** Accessory *** Option/accessory


Features

- Five sizes with nominal cooling capacities from 232 to 486 kW.
- The ideal solution for industrial and commercial applications with optimal performances and maximum quality.
- Available in two versions: one with extremely low noise levels and superior energy efficiency; the other with unequalled energy efficiency for minimised operating costs. Extremely high full load and part load energy efficiencies.
- Twin-rotor screw compressors with high-efficiency motor and a variable capacity valve for exact matching of the cooling capacity to the load.
- All aluminium micro-channel heat exchanger (MCHE) with increased corrosion resistance and higher efficiency than a copper/aluminium coil.
- Use of R-134a refrigerant with zero ozone depletion potential - the microchannel heat exchangers reduce the refrigerant charge by 30%.
- Low-noise 4th generation Flying Bird fans made of composite material.
- Pro-Dialog+ capacity control system.
- Flooded shell-and-tube evaporator to increase heat exchange efficiency.
- Economizer system with electronic expansion device for increased cooling capacity.
- V-shape condenser coils allow quieter air flow across the coil.
- Simplified electrical connections.
- Units are run-tested before shipment and include a quick-test function for fast commissioning.
- Leak-tight refrigerant circuit.
- Comprehensive endurance tests.
- Aquaforce offers multiple remote control, monitoring and diagnostic possibilities.



Pro-Dialog+ operator interface

Physical data

30XAS		242	282	342	442	482
 Air conditioning application as per EN14511-3 : 2011						
Nominal cooling capacity, standard unit/unit with option 119*	kW	232/245	284/285	334/345	431/461	467/486
EER, standard unit/unit with option 119*	kW/kW	2.8/3.0	3.0/3.2	3.1/3.2	2.9/3.2	2.9/3.1
ESEER part-load performance, standard unit/unit with option 119*	kW/kW	3.8/3.7	3.9/3.7	4.0/3.8	3.9/3.8	4.0/3.8
Air conditioning application (1)						
Nominal cooling capacity, standard unit/unit with option 119*	kW	233/245	285/286	335/346	432/462	469/488
EER, standard unit/unit with option 119*	kW/kW	2.78/2.99	3.03/3.18	3.11/3.28	2.96/3.18	2.91/3.13
ESEER part-load performance, standard unit/unit with option 119*	kW/kW	3.85/3.75	4.01/3.76	4.10/3.90	3.97/3.84	4.07/3.89
Operating weight**	kg	2560	2980	3040	3800	3890
With option 116C*	kg	-	3240	3360	4160	4320
With options 254 or 255*	kg	2710	3230	3310	4120	4240
Compressor	06T semi-hermetic screw compressor, 50 r/s					
Refrigerant	R-134a, one refrigerant circuit					
Capacity control	PRO-DIALOG+, electronic expansion valve (EXV)					
Condensers	All aluminium micro-channel heat exchanger					
Condenser fans	Axial Flying Bird IV fans with rotating shroud					
Standard units and units with option 119 - 254*						
Quantity		4	5	6	7	8
Total air flow, standard unit/unit with option 119	l/s	13667/18055	17083/22569	20500/27083	23917/31597	27333/ 36111
Evaporator	Flooded shell-and-tube type					
Chassis paint colour	Colour code: RAL7035					
Dimensions						
Length x depth x height	mm	2410 x 2253 x 2297	3604 x 2253 x 2297	4798 x 2253 x 2297		

NOTE: For the conditions please refer to page 31.

* Options: 116C = high-pressure dual-pump hydronic module; 119 = high energy efficiency units; 254 = units with copper/aluminium coils with slots; 255 = units with copper/aluminium coils with plain fins; 257 = low sound level; 258 = very low sound level.

** Weights are guidelines only. The refrigerant charge is also given on the unit nameplate.

Electrical data

30XAS		242	282	342	442	482
Power circuit						
Nominal power supply	V-ph-Hz	400-3-50 ± 10%				
Control circuit						
Start-up current*	A	303	388	388	587	587
Standard unit/unit with option 119						
Maximum power input**	kW	101/105	113/118	134/139	184/190	213/221
Maximum current draw (Un)**	A	165/172	185/194	218/229	305/318	353/388

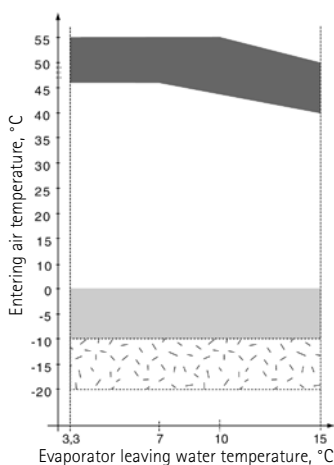
* Instantaneous start-up current (locked rotor current in star connection of the compressor).

** Values obtained at operation with maximum unit power input. Values given on the unit name plate.

Note: Motor and fan electrical data if the unit operates at Eurovent conditions (motor ambient temperature 50°C): 1.9 A, start-up current: 8.4 A, power input: 760 W.

Operating range

Standard unit



Legend



Operating range, unit equipped with option 28 "Winter operation"

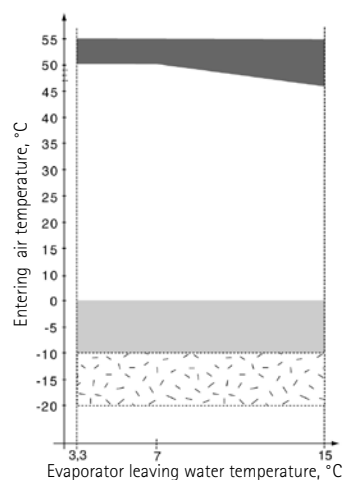


Below 0°C air temperature the unit must either be equipped with the evaporator frost protection option (41A or 41B), or the water loop must be protected against frost by using a frost protection solution (by the installer).



Part load average

High energy efficiency unit or option 119



AIR-COOLED LIQUID CHILLERS



Air conditioning

AQUAFORCE

30XA

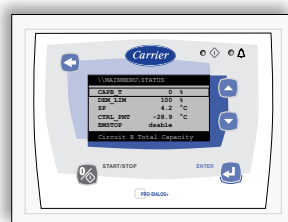
Options/accessories

- Corrosion protection, traditional coils*
- Low/very low temperature glycol solution*
- Unit equipped for discharge ducting*
- IP54 control box*
- Tropical applications*
- Grilles on all four sides*
- Enclosure panels
- Winter operation*
- Evaporator and hydronic module frost protection*
- Heat reclaim*
- Single power connection point*
- Service/discharge valve*
- Evaporator with one pass more or less*
- 21 bar evaporator*
- Reversed water connections*
- Low or high-pressure, single or dual-pump hydronic module*
- Direct-expansion free-cooling system*
- High energy efficiency version*
- JBus, ModBus, BacNet/LON gateway***
- Energy Management module EMM***
- Pro-Dialog Touch Screen interface*
- High-pressure switch to comply with German and Dutch standards*
- Dual safety valve with 3-way valve*
- Swiss, Russian and Australian code compliance*
- Unit without enclosure*
- Traditional coils*
- Insulation on evaporator entering/leaving refrigerant lines*
- Low and very low sound level*
- MCHE anti-corrosion protection*
- Connection sleeve**
- Lead lag kit**
- Anti-vibration mountings**

* Option ** Accessory *** Option/accessory

Features

- Twenty sizes with nominal cooling capacities from 267 to 1682 kW.
- The ideal solution for industrial and commercial applications with optimal performances and maximum quality.
- Available in two versions: one with extremely low noise levels and superior energy efficiency; the other with unequalled energy efficiency for minimised operating costs.
- Twin-rotor screw compressors with high-efficiency motor and a variable capacity valve for exact matching of the cooling capacity to the load.
- All aluminium micro-channel heat exchanger (MCHE) with increased corrosion resistance and higher efficiency than a copper/aluminium coil.
- Use of R-134a refrigerant with zero ozone depletion potential - the microchannel heat exchangers reduce the refrigerant charge by 30%.
- Low-noise 4th generation Flying Bird fans made of composite material.
- Pro-Dialog+ control system.
- Flooded shell-and-tube evaporator.
- Economizer system with electronic expansion device for increased cooling capacity.
- V-shape condenser coils allow quieter air flow across the coil.
- Simplified electrical connections.
- Units are run-tested before shipment and include a quick-test function for fast commissioning.
- Leak-tight refrigerant circuit.
- Comprehensive endurance tests.
- Aquaforce offers multiple remote control, monitoring and diagnostic possibilities.



Pro-Dialog+ operator interface (standard)



Pro-Dialog Touch Screen operator interface (option)

Physical data



30XA		252	302	352	402	452	502	602	702	752	802	852	902	1002	1102	1202	1302	1352	1402	1502	1702
Air conditioning application as per EN14511-3 : 2011																					
Nom. cooling capacity , std. unit	kW	267	291	318	378	426	473	601	654	691	759	807	875	960	1119	1216	1294	1383	1436	1443	1611
Unit with option 119*	kW	273	298	325	391	442	499	612	679	723	785	841	886	976	1147	1216	1317	1437	1480	1525	1682
EER, standard unit	kW/kW	3.0	3.0	3.0	3.1	2.9	2.9	3.0	3.1	2.9	3.0	2.9	3.0	2.9	3.0	3.0	2.9	2.6	3.0	2.9	3.0
EER, unit with option 119*	kW/kW	3.1	3.1	3.1	3.2	3.1	3.2	3.1	3.3	3.1	3.1	3.2	3.1	3.1	3.2	3.0	3.1	3.1	3.2	3.2	3.2
ESEER part-load performance, std. unit	kW/kW	3.8	4.2	4.2	4.1	4.1	4.1	4.1	4.1	4.0	4.1	4.1	3.8	3.8	4.1	3.9	3.9	3.7	4.0	3.9	3.8
ESEER, unit with option 119*	kW/kW	3.9	4.0	4.0	3.9	3.9	3.9	3.8	4.1	3.9	3.9	4.0	3.8	3.7	4.1	3.9	4.0	4.0	4.0	4.0	3.9
Air conditioning application (1)																					
Nom. cooling capacity , std. unit	kW	267	291	319	379	427	475	603	656	693	761	809	878	962	1122	1219	1298	1387	1441	1447	1616
Unit with option 119*	kW	273	298	325	392	443	500	614	681	726	787	844	889	978	1151	1238	1321	1442	1485	1530	1688
EER, standard unit	kW/kW	3.02	2.98	3.01	3.12	2.92	2.97	3.07	3.15	2.94	2.91	3.01	2.94	2.98	3.06	2.99	2.91	2.67	3.00	2.91	3.04
EER, unit with option 119*	kW/kW	3.15	3.12	3.12	3.25	3.12	3.19	3.18	3.35	3.12	3.13	3.28	3.15	3.13	3.28	3.13	3.13	3.13	3.24	3.23	3.27
ESEER part-load performance, std. unit	kW/kW	4.03	4.30	4.31	4.26	4.30	4.25	4.25	4.25	4.14	4.19	4.25	3.93	3.93	4.20	4.08	4.03	3.82	4.10	4.00	3.97
ESEER, unit with option 119*	kW/kW	3.97	4.04	4.10	4.03	4.08	4.08	4.00	4.22	4.01	4.05	4.18	3.94	3.85	4.24	4.01	4.17	4.18	4.13	4.12	4.05
Operating weight**																					
Standard unit and option 119*	kg	3740	3780	3820	4673	4743	5174	6097	6247	6547	6847	7308	7648	8226	10170	10610	10990	11350	4128/8141	4143/8316	7348/7348
Option 254*	kg	4160	4190	4710	5190	5260	5830	6870	7030	7820	8140	8260	9010	9260	11470	11890	12250	12640	4650/9180	4650/9340	8270/8270
Refrigerant	R-134a																				
Compressors	06T semi-hermetic screw compressors, 50 r/s																				
Control	Pro-Dialog, electronic expansion valve (EXV)																				
Condensers	Aluminium micro-channel heat exchangers																				
Fans	Axial Flying Bird 4 fans with rotating shroud																				
Quantity, standard unit - option 119*		6	6	6	8	8	9	11	12	12	12	14	14	16	19	20	20	20	24	24	28
Quantity, option 254*		6	6	7	8	8	9	11	12	13	13	14	15	16	19	20	20	20	24	24	28
Evaporator	Flooded shell-and-tube type																				

NOTE: For the conditions please refer to page 31.

* Options: 119 = high energy efficiency; 254 = traditional Cu/Al coils. Option 119 can be used together with options 254 and 255.

** Weights are guidelines only. The values for sizes 1402, 1502 and 1702 are for modules 1 and 2.

Note: Unit sizes 30XA 1402 to 1702 are supplied in two field-assembled modules.

Electrical data

30XA		252	302	352	402	452	502	602	702	752	802	852	902	1002	1102	1202	1302	1352	1402	1502	1702
Power circuit																					
Nominal power supply	V-ph-Hz	400-3-50 ± 10%																			
Control circuit		24 V via internal transformer																			
Max. start-up current, circuits A + B/C + D*																					
Standard unit	A	269	269	287	402	505	505	574	606	773	803	805	893	941	574/587	773/587	803/587	891/587	893/587	941/587	805/805
High-energy efficiency unit	A	274	274	292	407	510	510	583	616	782	812	815	905	954	583/587	782/587	812/587	901/587	905/587	954/587	815/815
Max. power input, circuits A + B/C + D**																					
Standard unit	kW	121/-	131/-	141/-	165/-	185/-	204/-	247/-	267/-	293/-	312/-	343/-	359/-	420/-	247/210	293/210	342/210	388/209	390/210	420/210	343/343
High-energy efficiency unit	kW	126/-	136/-	147/-	172/-	192/-	212/-	257/-	278/-	304/-	323/-	356/-	372/-	435/-	257/217	304/217	353/217	400/216	405/217	435/217	356/356
Max. unit current draw, circuits A + B/C + D**																					
Standard unit	A	198/-	215/-	233/-	270/-	303/-	335/-	404/-	436/-	492/-	522/-	572/-	611/-	707/-	404/354	492/354	568/354	655/352	661/354	707/354	572/572
High-energy efficiency unit	A	208/-	226/-	243/-	284/-	316/-	350/-	423/-	457/-	512/-	542/-	596/-	635/-	734/-	423/367	512/367	588/367	678/364	688/367	734/367	596/596

* Instantaneous start-up current (operating current of the smallest compressor + fan current + locked rotor current in star connection of the largest compressor). Values obtained at operation with maximum unit power input.

** Values obtained at operation with maximum unit power input. Values given on the unit name plate. Circuit D for size 1702 only.

Note: Unit sizes 30XA 1102 to 1702 have two power connection points (circuits A + B and circuits C + D).

Dimensions, mm

30XA	252-352 + 252-302 Cu/Al	402-452 + 352-452 Cu/Al	502 + 502 Cu/Al	602-802 + 602/702 Cu/Al	852-902 + 752-852 Cu/Al	1002 + 902-1002 Cu/Al	1102-1352 + 1102-1352 Cu/Al
L x D x H	3604 x 2253 x 2297	4798 x 2253 x 2297	5992 x 2253 x 2297	7186 x 2253 x 2297	8380 x 2253 x 2297	9574 x 2253 x 2297	11962 x 2253 x 2297
30XA	1402-1502 + 1402- 1502 Cu/Al module 1/2	1702 + 1702 Cu/Al module 1/2					
L x D x H	9574/4798 x 2253 x 2297	8380/8380 x 2253 x 2297					

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

Operating limits

Evaporator water temperature	°C	Minimum	Maximum
Water entering temperature at start-up	-	-	45*
Water entering temperature during operation	6.8	21	
Water leaving temperature during operation	3.3	15	

Note: If the leaving water temperature is below 4°C, a glycol/water solution or the frost protection option must be used.

* Depending on the installation type and temperature

** Part load, depending on the water temperature

*** Recommended for operation above 46°C

**** Full or part-load operation, depending on the model

Condenser air temperature	°C	Minimum	Maximum
Storage	-20	-20	68
Operation			
Standard unit	-10	-10	55**
With winter operation option (option 28)	-20	-20	55**
With high energy efficiency option (option 119)***	-10	-10	55****

Note: If the air temperature is below 0°C, a glycol/water solution or the frost protection option must be used.

WATER-COOLED LIQUID CHILLERS

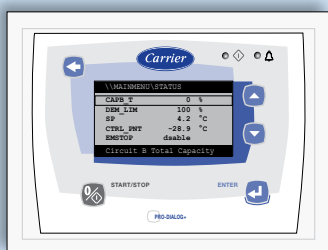


Air conditioning
30WG

AQUASNAP®

Options/accessories

- Very low temperature glycol solution
- Soft starter
- Twinning
- External disconnect handle
- Low or high-pressure single-pump hydronic module, evaporator side
- JBus, Bacnet and LON gateways
- Specific single-source heating control
- Specific cooling control
- Low sound level (-3 dB(A) compared to standard unit)
- Screw or welded evaporator connection sleeves
- Screw or welded water connection between customer condenser and unit
- Low-pressure single-pump hydronic module, condenser side
- High-pressure hydronic module with single variable-speed pump, condenser side
- Unit stackable for operation
- Customer water connection at the top of the unit
- Remote user interface



Pro-Dialog+ operator interface

Features

- Eleven sizes with nominal cooling capacities from 25 to 95 kW and nominal heating capacities from 30 to 115 kW and exceptionally high ESEER values.
- New generation of liquid chillers designed for commercial (offices, hotels etc.), residential (houses, apartments etc.) or industrial applications (low-temperature cooling).
- Optimised for air-conditioning applications with evaporator temperatures down to -12°C, condenser temperatures up to +60°C and three-way valve control of the condensing pressure.
- Units are equipped with the latest generation R-410A scroll compressor, optimised for high-performance.
- Large number of options: hydronic kits with or without variable water flow rate, reinforced sound insulation, stacking and connection of two units, or operation with low-temperature glycol solution down to -12°C. Product range offers a unique combination of high performance and functionality in an exceptionally compact chassis.
- Units include automatic three-way valve control of the condensing pressure for optimised operation, even at low outside temperature.
- Complete hydronic kit for both evaporator and condenser with different levels of available pressure, with variable or fixed speed.
- Needle valve control for easier transition from the comfort mode to domestic hot water production using a collection tank (not supplied).
- Reversibility by water flow inversion in the system.
- Pro-Dialog+ control and compatibility with the Aquasmart system
- Units available with connections at the top or at the rear.
- Easy installation: small footprint, ideal for refurbished buildings, allows access in very tight plant rooms.
- The variable water flow (VWF) technology of the variable-flow pump, optimises system operation and enhances energy efficiency.
- Standard low sound level allows installation in any building type.

Physical data

30WG		020	025	030	035	040	045	050	060	070	080	090
Air conditioning application as per EN14511-3 : 2011												
Cooling capacity	kW	24.6	28.7	31.5	36.7	41.8	46.6	58.1	63.4	73.8	83.9	94.6
Heating capacity	kW	29.8	34.7	38.1	44.4	50.7	56.4	70.3	76.9	89.4	101.8	114.5
EER, cooling	kW/kW	4.72	4.72	4.69	4.73	4.69	4.72	4.72	4.65	4.69	4.65	4.68
COP, heating	kW/kW	5.71	5.71	5.68	5.72	5.68	5.71	5.71	5.64	5.68	5.64	5.67
ESEER at part load performance, cooling	kW/kW	5.09	5.09	5.02	5.04	5.03	5.07	5.84	5.91	5.84	6.04	5.98
Operating weight*	kg	191	200	200	207	212	220	386	392	403	413	441
Compressors												
Hermetic scroll 48.3 r/s												
Quantity		1	1	1	1	1	1	2	2	2	2	2
Number of capacity stages		1	1	1	1	1	1	2	2	2	2	2
Minimum capacity	%	100%	100%	100%	100%	100%	100%	50%	50%	50%	50%	50%
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
Refrigerant*		R-410A										
Control		Pro-Dialog+										
Evaporator		Direct-expansion plate heat exchanger										
Condenser		Plate heat exchanger										

NOTE: For the conditions please refer to page 31.

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

** The first value is for units without filter frame, and the second value is for units with option 23B and filter frame.

Electrical data

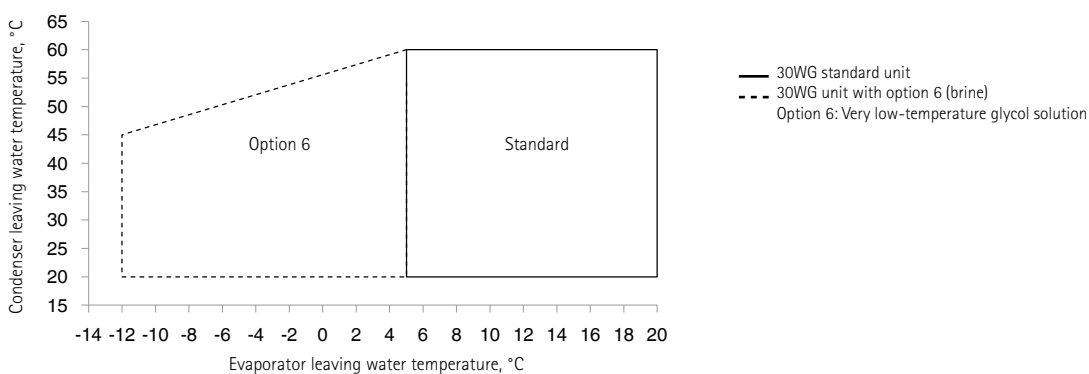
30WG		020	025	030	035	040	045	050	060	070	080	090	
Power circuit													
Nominal voltage	V-ph-Hz	400-3-50 ± 10%											
Control circuit supply		24 V, via internal transformer											
Maximum start-up current draw (Un)*													
Standard unit	A	98	142	142	147	158	197	163	165	174	188	233	
Unit with electronic starter option	A	53.9	78.1	78.1	80.9	86.9	108.4	100.1	102.1	108.9	117.9	144.4	
Maximum operating power input**		kW	9.1	10.7	11.7	13.6	15	17	21.4	23.4	27.2	30	34
Maximum operating current draw (Un)***		A	15.6	18.7	19.8	23.2	25.4	29	37.4	39.6	46.4	50.8	58

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

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

Operating range



WATER-COOLED/CONDENSERLESS LIQUID CHILLERS WITH INTEGRATED HYDRONIC MODULE



Air conditioning

AQUASNAP®

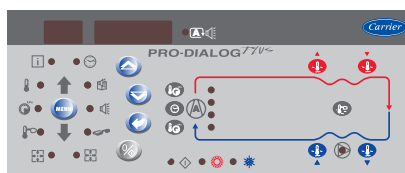
30RW

Options/accessories

- Evaporator hydronic module with single pump or with twin-head pump (sizes 060-300) (option)
- Condenser hydronic module with single pump or with twin-head pump (sizes 060-300) (option)
- Chiller without condenser 30RWA (option)
- Heat pump (hot or cold water control) (option)
- Low leaving water temperature down to -10°C (30RW) (option)
- Electronic starter for reduced start-up current (option)
- Communications board for the Aquasmart system (option)
- CCN Clock Board RS485 communications and time schedule board (option/accessory)

Features

- Nineteen sizes with nominal cooling capacities from 20 to 315 kW.
- New chillers with scroll compressors, digital auto-adaptive Pro-Dialog control and ozone-friendly refrigerant HFC-407C.
- Can be supplied with integrated hydronic evaporator and condenser modules, limiting the installation to simple operations such as the entering and leaving water piping connection.
- Intelligent control of condenser water pump speed and operation of glycol cooler (30RW) or air-cooled condenser fans (30RWA) to ensure reliable and economical operation.
- Quick electrical connections.
- Units can operate down to -20°C outside temperature.
- The variable-speed condenser water pump automatically adjusts the water flow rate to maintain the ideal condensing conditions.
- High-performance plate heat exchangers maximise the thermodynamic properties of refrigerant HFC-407C. From size 30RW 160 the evaporator and the condenser have two interlaced refrigerant circuits.
- Space-saving design.
- No plant room required – unit can be installed in a place that is open to the public, if local regulations permit.
- The refrigerant circuit is completely leak-proof.
- Used with Carrier 09 series glycol coolers or air-cooled condensers, supplied ready for installation with a control box. All control components are installed and tested in the factory.



Pro-Dialog Plus operator interface

Physical data



30RW/RWA		020	025	030	040	045	060	070	080	090	110	120	135	150	160	185	210	245	275	300
Air conditioning application as per EN14511-3 : 2011																				
Nominal cooling capacity 30RW	kW	20	26	30	40	46	57	72	81	92	110	125	141	151	164	186	219	251	288	315
EER	kW/kW	3.8	4.0	4.0	4.0	3.9	4.0	4.1	4.0	3.9	4.1	3.9	4.0	3.9	4.5	4.2	4.3	4.3	4.3	4.3
ESEER part-load performance	kW/kW	4.1	4.5	4.4	4.4	4.3	4.7	4.8	4.8	4.7	4.8	4.6	4.7	4.7	5.4	5.1	5.2	5.0	5.3	5.1
Air conditioning application (1)																				
Nominal cooling capacity 30RW	kW	20.6	26.5	30.5	40.5	46.2	57.0	72.0	81.0	92.0	110.0	125.0	142.0	152.0	165.0	187.0	220.0	252.0	289.0	316.0
EER	kW/kW	4.14	4.26	4.25	4.20	4.09	4.13	4.23	4.22	4.10	4.23	4.09	4.17	4.07	4.97	4.41	4.48	4.42	4.48	4.45
ESEER part-load performance	kW/kW	4.6	4.8	4.8	4.7	4.6	5.1	5.2	5.2	5.1	5.2	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0	5.0
Net nominal cooling capacity 30RWA	kW	19	24.4	28.2	37.8	43.5	54	67	76	87	102	117	134	143	148	170	198	226	264	291
Operating weight																				
30RW without hydronic module	kg	316	335	338	367	387	683	713	755	781	864	937	956	977	1079	1144	1357	1471	1421	1491
30RWA without hydronic module	kg	325	339	339	361	375	627	648	682	703	777	840	849	859	953	1000	1318	1318	1361	1371
Extra weight																				
Evaporator with single-pump hydronic kit	kg	25	25	25	27	27	14	14	14	14	15	15	15	15	75	75	75	75	60	63
Condenser with single-pump hydronic kit	kg	35	35	35	37	37	20	20	20	20	80	80	80	80	80	80	95	95	97	101
Evaporator with twin-head pump hydronic kit	kg	-	-	-	-	-	104	104	104	104	130	130	130	130	130	130	188	188	-	-
Condenser with twin-head pump hydronic kit	kg	-	-	-	-	-	114	114	114	114	140	140	140	140	140	140	198	198	-	-
Casing, if hydronic option is used	kg	-	-	-	-	-	-	-	-	-	-	-	-	-	170	170	170	170	-	-
Refrigerant 30RW	R-407C																			
Compressors 30RW/30RWA	Hermetic scroll, 48.3 r/s																			
Control	Pro-Dialog Plus																			
Condensers (30RW)	Welded plate heat exchangers, max. water-side operating pressure with hydronic module 1000 kPa, without hydronic module 400 kPa																			
Hydronic condenser module (30RW)	Removable screen filter, variable-speed water pump, expansion tank, safety valve, pressure gauge, and purge valve																			
Condenser pump	Single or twin-head composite centrifugal pump, according to option used, variable speed by frequency converter (48.3 r/s)																			
Evaporator (30RW/30RWA)	Welded direct-expansion plate heat exchanger, max. water-side operating pressure with hydronic module 1000 kPa, without hydronic module 400 kPa																			
Hydronic evaporator module (30RW/30RWA)	Removable screen filter, water pump, expansion tank, water flow switch, safety valve, pressure gauge, purge valve and control valve																			
Evaporator pump	Single or twin-head composite centrifugal pump, according to option used (48.3 r/s)																			
Water connections (30RW/30RWA)	Victaulic** (30RW 025-045 without hydronic module: threaded gas connections)																			
Field refrigerant connections (30RWA)	Welded copper tube																			

NOTE: For the conditions please refer to page 31.

* The RWA units only have a nitrogen holding charge.

** With tubular sleeve, supplied with the unit, consisting of a Victaulic connection at one end and a plain section at the other end.

Electrical data

30RW/RWA (without hydronic module)		020	025	030	040	045	060	070	080	090	110	120	135	150	160	185	210	245	275	300
Power circuit																				
Nominal power supply	V-ph-Hz	400-3-50 ± 10%																		
Control circuit supply	The control circuit is supplied via the unit-mounted transformer																			
Maximum unit power input, 30RW + 30RWA*	kW	8.1	10.3	12.0	15.8	18.0	22.3	27.8	31.6	36.1	42.4	48.8	54.0	59.1	63.2	72.2	84.9	97.6	107.9	118.2
Nominal unit current draw 30RW**	A	9.9	12.6	14.6	17.9	21.1	27.2	32.5	35.8	42.1	48,1	54,0	61,0	68,0	71,7	84,2	96,1	108,0	122,0	136,0
Nominal unit current draw 30RWA***	A	10.4	13.3	15.5	19.1	22.4	28.8	34.5	38.1	44.8	51.4	58.0	64.7	71.4	76.3	89.6	102.8	116.0	129.4	142.8
Maximum start-up current, (standard unit without electronic starter)																				
30RW + 30RWA†	A	86.0	130.0	130.0	135.0	155.0	147.6	155.5	160.9	185.2	245.2	254.0	309.0	318.0	212.6	245.7	314.5	332.0	396.0	414.0
Maximum start-up current, (electronic-starter option)																				
30RW + 30RWA‡	A	51.6	78.0	78.0	81.0	93.0	95.6	101.5	106.9	123.2	159.2	168.0	201.0	210.0	158.6	183.7	228.5	246.0	288.0	306.0

* Power input of the compressor(s) at maximum unit operating conditions: entering/leaving evaporator water temperature = 15°C/10°C, maximum condensing temperature of 65°C, and 400 V nominal voltage.

** Nominal unit current draw at standard conditions: evaporator entering/leaving water temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C. The current values are given at 400 V nominal voltage.

*** Nominal unit current draw at standard conditions: evaporator entering/leaving water temperature 12°C/7°C, saturated condensing temperature (dew point) 45°C, subcooling 5 K. The current values are given at 400 V nominal voltage.

† Maximum instantaneous starting current at 400 V nominal voltage and with compressor in across-the-line start (maximum operating current of the smallest compressor(s) + locked rotor current of the largest compressor).

‡ Maximum instantaneous starting current at 400 V nominal voltage and with compressor with electronic starter (maximum operating current of the smallest compressor(s) + reduced start-up current of the largest compressor).

Dimensions, mm

30RW/RWA	A	B	C
020-045 (standard unit)	1204	695	1698
020-045 (with hydronic module and/or option 116E)	1204	695	1750
060-150	2004	895	1750
160-300 (standard unit)	2300	922	1963
160-300 (with hydronic module)	2950	922	1993

Please leave 700 mm clearance at both sides of the unit (900 mm for 30RW/RWA 020-045 without hydronic module), and 900 mm (1100 mm for sizes 160-300) behind the unit.



WATER-COOLED SCREW-COMPRESSOR LIQUID CHILLERS



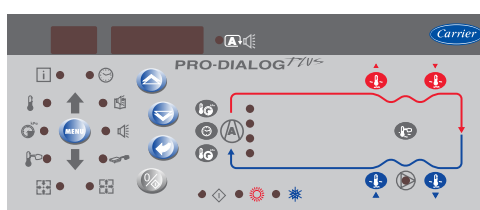
Air conditioning 30HXC

Options/accessories

- Compressor suction valve (option)
- Evaporator or condenser with one pass less (option)
- Evaporator or condenser maximum water-side operating pressure of 21 bar (option)
- RS485 communications interface with JBus, BacNet, LON protocol (accessory)
- Electronic compressor starter (30HXC 200-375) (option)
- Electrical protection to IP44C (option)
- High condensing temperature unit and nonreversible heat pump (option)
- Reversed evaporator or condenser water inlet/ outlet (option)
- Tropicalized control box (option)
- Disassembled unit (option)
- Evaporator or condenser water pump starter (option)
- Three-way control valve, condenser (option)
- Heat exchanger water connection kit (accessory)
- Low evaporator leaving water temperatures $< +4^{\circ}\text{C}$ to $> -6^{\circ}\text{C}$ (option)
- Very low evaporator leaving water temperatures $< 0^{\circ}\text{C}$ to $> -10^{\circ}\text{C}$ (option)

Features

- Seventeen sizes with nominal cooling capacities from 287 to 1302 kW.
- Pro-Dialog Plus control to optimise the efficiency of the refrigerant circuit.
- Ozone-friendly HFC-134a refrigerant, proven, non-toxic, non-flammable.
- Equipped with screw compressors for extremely quiet operation and low vibration levels.
- Control is fully automatic and includes auto diagnostics.
- Two independent refrigerant circuits.
- Multiple compressor concept.
- Series star/delta starter, limiting the start-up current on (30HXC 080-190).
- Easy installation - compact design, fits through a standard door opening. Supplied as a complete package for easy installation. No extra controls, timers, starters or other items to install.
- Single power point (30HXC 080 to 190), and one power point per circuit (30HXC 200 to 375).
- Simple to service: mechanically cleanable evaporator and condenser, twin screw compressors with minimum routine service.
- Very low temperature option available for part of the range, allows evaporator leaving water temperatures down to -10°C .



Pro-Dialog Plus operator interface



Carrier twin-screw compressor

Physical data



30HXC		080	090	100	110	120	130	140	155	175	190	200	230	260	285	310	345	375
Air conditioning application as per EN14511-3 : 2011																		
Nominal cooling capacity	kW	287	312	348	375	413	450	510	543	600	652	701	814	899	987	1109	1207	1302
EER	kW/kW	5.0	4.8	4.8	4.6	4.9	4.7	4.7	4.6	4.7	4.7	4.7	4.7	4.5	4.8	4.8	4.6	4.7
ESEER part-load performance	kW/kW	5.6	5.4	5.3	5.3	5.2	5.2	5.2	4.8	5.0	5.0	5.1	5.1	5.0	5.1	5.5	5.4	5.3
Air conditioning application (1)																		
Nominal cooling capacity	kW	288	314	350	376	414	452	512	545	602	655	704	817	902	991	1113	1212	1308
EER	kW/kW	5.25	5.02	5.05	4.81	5.10	4.96	4.97	4.80	4.89	4.97	4.96	4.92	4.64	4.99	4.98	4.77	4.91
ESEER part-load performance	kW/kW	6.2	6.1	5.9	5.9	5.9	5.9	5.8	5.5	5.6	5.6	5.8	5.6	5.6	5.8	6.2	6.2	6.2
Operating weight	kg	2274	2279	2302	2343	2615	2617	2702	2712	3083	3179	3873	4602	4656	4776	5477	5553	5721
Refrigerant charge		HFC-134a																
Compressors		Semi-hermetic, twin-screw																
Quantity - Circuit A		1	1	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2
Quantity - Circuit B		1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2
Capacity control		Pro-Dialog Plus control																
No. of control steps		6	6	6	6	6	6	6	6	6	6	8	8	8	8	10	10	10
Evaporator		Shell and tube with internally finned copper tubes																
Water connections		Flat flange factory-supplied, to be welded on site																
Inlet/outlet	in	4	4	4	5	5	5	5	5	5	5	6	6	6	6	8	8	8
Condenser		Shell and tube with internally finned copper tubes																
Water connections		Flat flange factory-supplied, to be welded on site																
Inlet/outlet	in	5	5	5	5	5	5	5	5	6	6	6	8	8	8	8	8	8

NOTE: For the conditions please refer to page 31.

Not applicable to high condensing temperature units - please refer to electronic selection catalogue.

Electrical data

30HXC		080	090	100	110	120	130	140	155	175	190	200	230	260	285	310	345	375
Power circuit																		
Nominal power supply (Un)*	V-ph-Hz	400-3-50 ± 10%																
Control circuit supply		The control circuit is supplied via the factory-installed transformer																
Nominal current drawn*	A	101	115	127	143	149	168	190	207	226	234	255	294	337	354	399	448	477
Maximum starting current, standard unit***	A	181	206	223	249	267	298	333	355	382	442	841	978	1027	1200	1129	1184	1373
Circuit A**	A	-	-	-	-	-	-	-	-	-	-	712	822	871	1028	844	871	1028
Circuit B**	A	-	-	-	-	-	-	-	-	-	-	605	715	715	856	844	871	1028

* Standard Eurovent conditions: Evaporator entering/leaving water temperature 12°C and 7°C. Condenser entering/leaving water temperature 30°C/35°C.

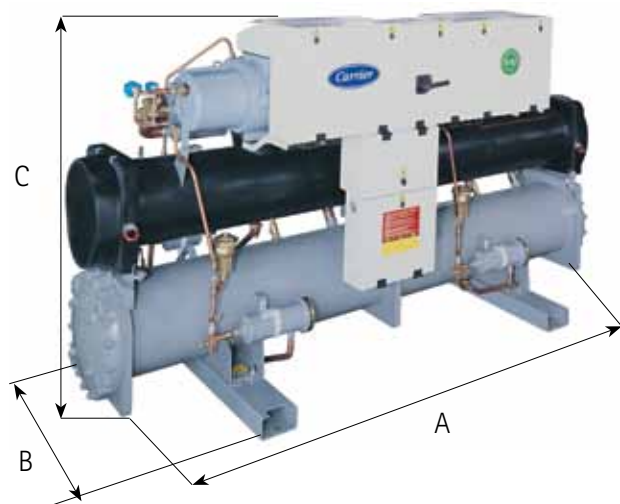
** Maximum unit operating current at maximum unit power input.

*** Maximum instantaneous starting current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced starting current of the largest compressor).

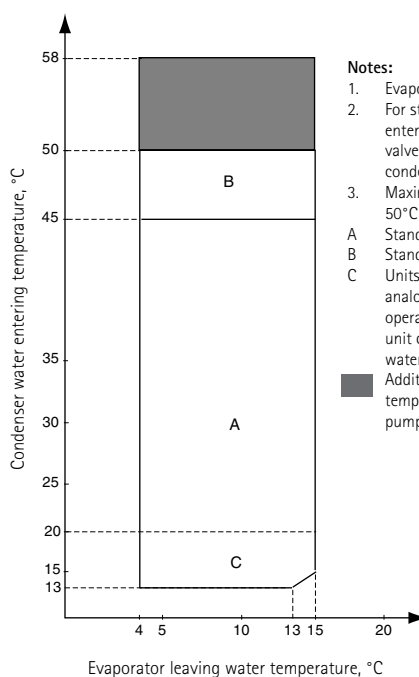
Dimensions, mm

30HXC	A	B	C
080-090-100	2558	980	1800
110	2565	980	1850
120-130-140-155	3275	980	1816
175-190	3275	980	1940
200	3903	1015	1980
230-260-285	3924	1015	2060
310-345-375	4533	1015	2112

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



Operating range



Notes:

1. Evaporator and condenser $\Delta T = 5$ K
 2. For start-up at full load with a condenser water entering temperature below 20°C, a three-way valve must be used to maintain the correct condensing temperature
 3. Maximum condenser water leaving temperature 50°C (at full load)
- A Standard unit operating at full load.
 B Standard unit operating at reduced load.
 C Units operating with head pressure control with analogue water control valve. For transient operating modes (start-up and part load) the unit can operate down to a condenser entering water temperature of 13°C.
- Additional operating range for high condensing temperature units and non-reversible heat pumps.

WATER-COOLED LIQUID CHILLERS



Air conditioning

30XW



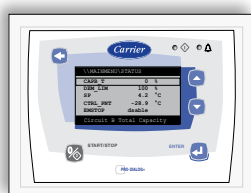
Options/accessories

- Medium and low temperature applications*
- Unit supplied in two assembled parts*
- With or without disconnect switch/short-circuit protection*
- Single power connection point
- Low sound level, -2 dB(A)*
- Super-low sound level, -3 dB(A)*
- Evaporator/condenser pump electrical power/control circuit options*
- Service valve set*
- Evaporator/condenser arrangement with one pass*
- Condenser insulation*
- 21 bar evaporator and condenser*
- JBus, BacNet and LON gateways***
- Various condensing temperature options*
- Energy Management Module EMM***
- Code compliance for Switzerland and Australia*
- Lead-lag kit**
- Water connection kit for welded or flanged connections**

* Option ** Accessory *** Option/accessory

Features

- Twenty standard-efficiency sizes with nominal cooling capacities from 278 to 1732 kW and eleven high-efficiency sizes with nominal cooling capacities from 511 to 1756 kW.
- The premium solution for industrial and commercial applications that require optimal performances and maximum quality.
- Two versions: 30XW for air conditioning and refrigeration applications, and 30XWH for heating applications (see separate entry).
- Two efficiency classes: the standard-efficiency 30XW offers an optimised balance of technical and economical aspects and superior energy efficiency, whilst the high-efficiency 30XW-P offers unequalled energy efficiency at minimised operating cost.
- Twin-rotor screw compressors with high-efficiency motor and a variable capacity valve for exact matching of the cooling capacity to the load.
- Use of R-134a refrigerant with zero ozone depletion potential.
- Pro-Dialog control system.
- Flooded mechanically cleanable heat exchangers.
- Exceptional full and part load energy efficiency.
- Economizer system with electronic expansion device for increased cooling capacity (30XW-P).
- Simplified electrical connections.
- Units are run-tested before shipment and include a quick-test function for fast commissioning.
- Leak-tight refrigerant circuit.
- Comprehensive endurance tests.
- Aquaforce offers multiple remote control, monitoring and diagnostic possibilities.



Pro-Dialog+ operator interface



Touch-screen Pro-Dialog operator interface (option)

Physical data

Standard-efficiency units 30XW--		252	302	352	402	452	552	602	652	702	802	852	1002	1052	1152	1252	1352	1452	1552	1652	1702
Air conditioning application as per EN14511-3 : 2011																					
Nominal cooling capacity	kW	278	309	360	459	474	534	539	678	732	792	840	1019	1063	1151	1259	1342	1455	1549	1657	1732
EER	kW/kW	5.4	5.3	5.3	5.2	5.4	5.2	5.3	5.4	5.3	5.2	5.4	5.3	5.2	5.5	5.7	5.5	5.4	5.3	5.7	5.7
ESEER part-load performance	kW/kW	5.8	5.6	5.6	5.8	5.8	5.8	5.7	6.1	6.0	5.8	6.0	6.3	6.4	6.5	6.7	6.4	6.3	6.1	6.6	6.6
Air conditioning application (1)																					
Nominal cooling capacity	kW	278	310	361	436	476	535	541	680	734	795	844	1024	1068	1156	1264	1349	1463	1559	1663	1739
EER	kW/kW	5.64	5.56	5.50	5.55	5.57	5.46	5.52	5.67	5.61	5.52	5.70	5.57	5.54	5.78	6.00	5.82	5.73	5.70	5.96	6.00
ESEER part-load performance	kW/kW	6.29	6.13	6.15	6.15	6.34	6.51	6.33	6.77	6.81	6.65	6.66	7.37	7.61	7.62	7.69	7.46	7.43	7.31	7.58	7.59
Cooling floor application as per EN14511-3 : 2011																					
Nominal cooling capacity	kW	353	368	459	575	575	601	667	844	883	886	922	1325	1376	1371	1696	1844	1925	1922	1953	2019
EER	kW/kW	6.9	6.3	6.7	6.4	6.4	5.8	6.5	6.6	6.3	5.8	5.9	6.8	6.8	6.5	7.5	7.4	7.0	6.8	6.7	6.7
Operating weight	kg	2054	2059	2083	2575	2575	2613	2644	3247	3266	3282	3492	5370	5408	5705	7066	7267	7305	7337	8681	8699
Dimensions																					
Length	mm	2732	2732	2732	2732	2742	2742	2742	3059	3059	3059	2780	4025	4025	4025	4730	4730	4730	4730	4790	4790
Depth	mm	927	927	927	936	936	936	936	1044	1044	1044	1044	1036	1036	1036	1162	1162	1162	1162	1902	1902
Height	mm	1580	1580	1580	1693	1693	1693	1693	1848	1848	1848	1898	1870	1870	1926	2051	2051	2051	2051	1515	1515
High-efficiency units 30XW-P																					
Air conditioning application as per EN14511-3 : 2011																					
Nominal cooling capacity	kW	511		579		738		787		862		1041		1160		1317		1470		1626	1756
EER	kW/kW	5.7		5.7		5.9		5.7		5.7		5.8		5.8		5.9		5.8		5.9	5.8
ESEER part-load performance	kW/kW	6.1		6.1		6.4		6.3		6.2		6.7		6.8		6.9		6.8		6.8	6.6
Air conditioning application (1)																					
Nominal cooling capacity	kW	512		581		739		789		865		1044		1165		1320		1473		1632	1763
EER	kW/kW	5.97		5.99		6.06		5.87		5.96		6.02		6.09		6.12		6.10		6.13	6.08
ESEER part-load performance	kW/kW	6.62		6.76		6.96		6.84		6.86		7.49		7.91		7.58		7.59		7.65	7.52
Cooling floor application as per EN14511-3 : 2011																					
Nominal cooling capacity	kW	625		721		935		1005		1088		1279		1426		1694		Not available			
EER	kW/kW	7.1		7.3		7.4		7.2		7.2		7.2		7.2		7.5		Not available			
Operating weight	kg	2981		3020		3912		3947		3965		6872		6950		9099		9307		10910	10946
Dimensions																					
Length	mm	3059		3059		3290		3290		3290		4730		4795		4812		4812		4832	4832
Depth	mm	936		936		1065		1070		1070		1039		1039		1935		1935		2129	2129
Height	mm	1743		1743		1950		1950		1950		1997		1997		1515		1515		1562	1562
Physical data for all units																					
Compressors	Semi-hermetic 06T screw compressors, 50 r/s																				
Refrigerant	R-134a																				
Capacity control	Pro-Dialog, electronic expansion valves (EXV)																				
Evaporator	Shell-and-tube flooded type, maximum operating pressure 1000 kPa, 3/8" NPT drain and vent connections																				
Condenser	Shell-and-tube type, maximum operating pressure 1000 kPa, 3/8" NPT drain and vent connections																				

NOTE: For the conditions please refer to page 31.

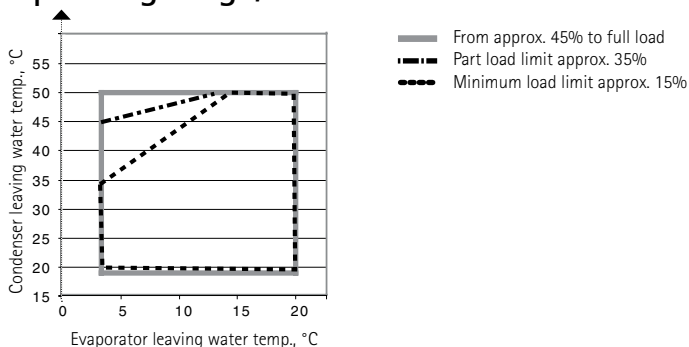
Electrical data

Standard-efficiency units 30XW--		252	302	352	402	452	552	602	652	702	802	852	1002	1052	1152	1252	1352	1452	1552	1652	1702
Nominal power supply, all units	V-ph-Hz	400-3-50 ± 10%																			
Control circuit, all units		24 V via the built-in transformer																			
Maximum start-up current*																					
Circuit A	A	233	233	303	414	414	414	414	587	587	587	587	414	414	414	587	587	587	587	587	587
Circuit B	A	-	-	-	-	-	-	-	-	-	-	-	414	414	414	414	587	587	587	587	587
Maximum power input**																					
Circuit A	kW	76	89	97	128	135	151	151	184	200	223	223	150	151	151	184	184	200	223	223	223
Circuit B	kW	-	-	-	-	-	-	-	-	-	-	-	135	151	151	151	184	200	223	202	223
Maximum current drawn (Un)**																					
Circuit A	A	123	145	160	206	217	242	242	295	317	351	351	242	242	242	295	295	317	351	351	351
Circuit B	A	-	-	-	-	-	-	-	-	-	-	-	217	242	242	242	295	317	351	317	351
High-efficiency units 30XW-P		512	562	712	812	862	1012	1162	1312	1462	1612	1762									
Maximum start-up current*																					
Circuit A/B	A	414/-	414/-	587/-	587/-	587/-	414/414	414/414	587/414	587/587	587/587	587/587									
Maximum power input**																					
Circuit A/B	kW	135/-	151/-	184/-	200/-	223/-	134/134	151/151	184/151	184/184	200/200	223/223									
Maximum current drawn (Un)**																					
Circuit A/B	A	217/-	242/-	295/-	317/-	351/-	217/217	242/242	295/242	295/295	317/317	351/351									

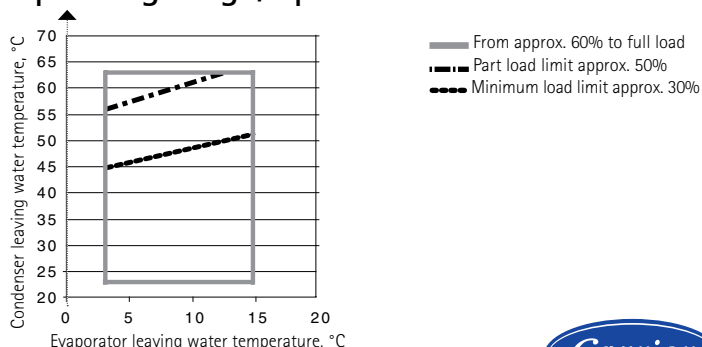
* Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

** Values obtained at operation with maximum unit power input. Values given on the unit name plate.

Operating range, standard units



Operating range, option 150



WATER-COOLED LIQUID CHILLERS



Air conditioning 30XW-V

AQUAForce PLUS

Options

- Condenser insulation
- Service valve set
- Evaporator and/or condenser with one pass
- 21 bar evaporator and/or condenser
- Reversed evaporator and/or condenser water connections
- JBus, BacNet or LON gateway
- Condensing temperature limitation
- Control for low condensing temperature systems
- Energy Management Module EMM
- Leak detection
- Code compliance for Switzerland in addition to PED code
- Code compliance for Australia
- Low noise level (-3 dB(A) compared to standard unit)
- Welded evaporator and/or condenser water connection kit
- Flanged evaporator and/or condenser water connection kit
- Thermal compressor insulation
- EMC classification according to IEC 61800-3 - class C2

Features

- Four sizes for industrial and commercial applications with nominal cooling capacities from 587 to 858 kW.
- The units feature exclusive inverter-driven screw compressors - an evolution of the proven traditional Carrier twin-rotor screw compressor design.
- 30XW-V units are designed for high performance both at full load and at part load with EERs up to 5.4 and ESEERs up to 8.0 (EN14511-3:2011) and Eurovent energy class A ratings.
- New innovative Touch Pilot smart control for variable-drive screw-compressor units uses an intuitive, user-friendly interface with concise, clear information in a choice of languages.
- Compliance with IEC61800-3 - class C3.
- Inverter-driven twin-rotor screw compressors allow precise capacity matching of building load changes and significantly reduce unit power input, especially at part load.
- Flooded mechanically cleanable heat exchangers.
- Compact design and simplified electrical and water connections for easy installation.
- R-134a refrigerant with zero ozone depletion potential.
- Leak-tight refrigerant circuit.
- Minimised operating sound level at part load.
- Improved electrical performance.



Touch Pilot operator interface

Physical data

30XW-V		580	630	810	880
Air conditioning application as per EN14511-3 : 2011					
Cooling capacity	kW	587	652	812	858
EER	kW/kW	5.44	5.31	5.25	5.07
ESEER at part load performance	kW/kW	7.80	7.60	8.04	7.76
Air conditioning application (1)					
Cooling capacity	kW	588	654	814	861
EER	kW/kW	5.67	5.56	5.46	5.29
ESEER at part load performance	kW/kW	9.03	9.04	9.52	9.25
Cooling floor application as per EN14511-3 : 2011					
Cooling capacity	kW	791	846	1022	970
EER	kW/kW	6.96	6.50	6.22	5.63
Cooling floor application (1)					
Cooling capacity	kW	794	850	1026	973
EER	kW/kW	7.50	7.03	6.62	5.93
Operating weight**	kg	3152	3190	4157	4161
Compressor		Semi-hermetic 06T screw compressor, 60 r/s			
Quantity		1	1	1	1
Capacity control		Touch Pilot, electronic expansion valve (EXV)			
Minimum capacity	%	20	20	20	20
Dimensions					
Width	mm	3059	3059	3290	3290
Depth	mm	1087	1087	1237	1237
Height	mm	1743	1743	1950	1950
Refrigerant		R-134a			
Evaporator		Multi-tube type flooded			
Condenser		Multi-tube type			

NOTE: For the conditions please refer to page 31.

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

Electrical data

30XW-V		580	630	810	880
Power circuit					
Nominal voltage	V-ph-Hz	400-3-50 ± 10%			
Control circuit supply					
Start-up current*		Negligible (lower than maximum current drawn)			
Power factor at nominal**/maximum*** capacity		0.89/0.92	0.90/0.92	0.89/0.92	0.90/0.92
Maximum power input***	kW	155	193	222	246
Eurovent current draw**	A	175	200	240	265
Maximum current draw (Un)****	A	245	300	346	383

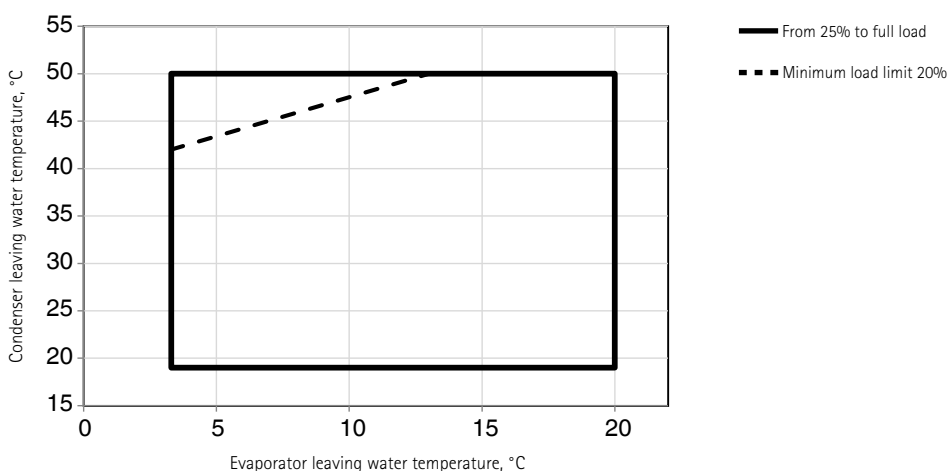
* Instantaneous start-up current

** Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

*** Values obtained at operation with maximum unit power input.

**** Values obtained at operation with maximum unit power input. Values given on the unit name plate.

Operating range



HIGH-EFFICIENCY CHILLERS WITH SCREW COMPRESSORS



Air conditioning 23XRV

Control



CCN - Carrier Comfort Network



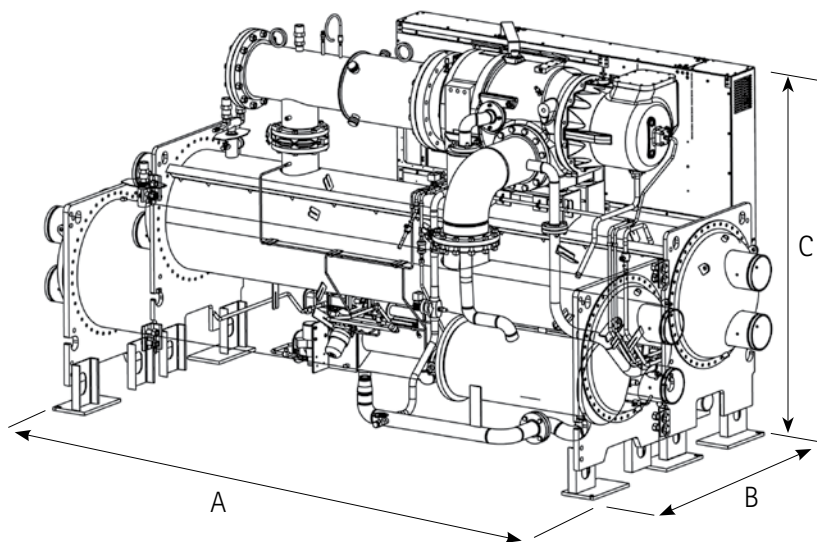
23XRV units are equipped with unique triple-rotor screw compressor technology

Features

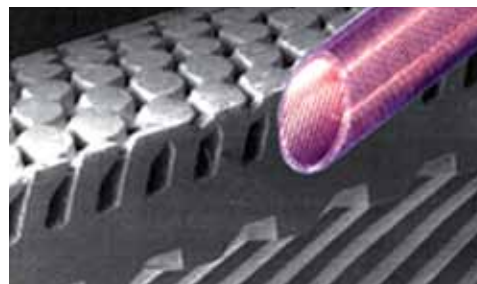
- The 23XRV Evergreen range offers superior solutions with record capacities from 970 to 1880 kW, EERs up to 6.5 and ESEERs up to 10.0.
- Innovative triple-rotor screw compressor design that features a balanced rotor geometry and shorter screw lengths.
- Variable-frequency drive compressor to maximise machine energy efficiency. Achieves ultra-high efficiency levels whilst lowering the cost of ownership.
- Combination of the reliability of a screw compressor with the energy savings of a variable-frequency drive (VFD).
- Unparalleled operational envelope that permits the chiller to operate under real-world adverse conditions.
- Ideal for both new construction and replacement using environmentally sound refrigerant (R-134a) at superior efficiency and with powerful controls.
- Mix-match capability with wide range of heat exchangers for unit performance optimisation.

Dimensions

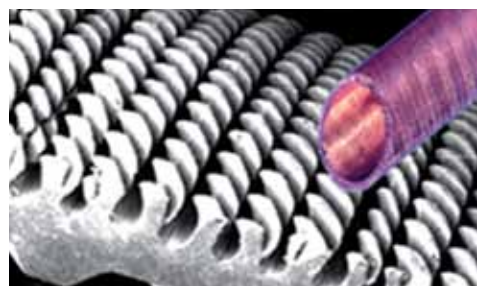
Heat exchanger size		Length A			Width B	Height C
		One pass	Two passes	Three passes		
30 to 32	mm	4350	4172	4350	1930	2200
35 to 37	mm	4870	4693	4870	1930	2200
40 to 42	mm	4496	4347	4420	2045	2299
45 to 47	mm	5017	4867	4940	2045	2299
50 to 52	mm	4521	4382	4432	2127	2305
55 to 57	mm	5042	4902	4953	2127	2305



Evaporator tubes

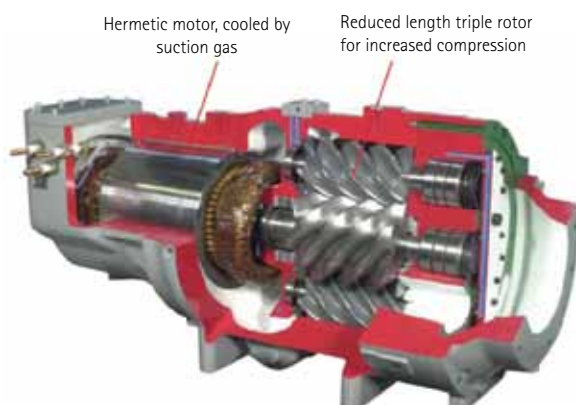


Condenser tubes



Micro-grooved heat exchanger tubes to ensure optimised heat exchange between the refrigerant and the heat exchange medium.

New generation screw compressor



Variable-frequency drive with active filtering Cooling ensured by refrigerant



AIR-COOLED CONDENSERS/ FLUID COOLERS



Air conditioning

SOPRANO

09SO

Options/accessories

- Multiple circuits
- Horizontal discharge
- Extra-high feet (2 sizes) to comply with specific site configurations
- Special fin spacings
- Mounted electrical panel
- Special colour casing
- Emergency switch
- Special motors (selected models)
- Fan isolator switch
- Sub-cooling circuits (vertical air flow only)
- Stainless steel screws
- EC Motors for significant energy savings (sizes 09SO 60 and 09SO 90)
- Motor power supplies 230 V-3 ph-50 Hz and 400 V-3 ph-60 Hz.
- Higher motor insulation for ambient temperatures above 45°C
- Alternative fin materials for saline and polluted atmospheres
 - Copper tubes/aluminium fins with vinyl coating
 - Copper tubes/aluminium fins with a wide choice of anti-corrosion coatings such as Blygold to suit site conditions

Features

- 09SO air-cooled condensers with low/medium cooling capacities from 13 to 353 kW designed for commercial use in refrigeration and air conditioning applications. All models are available with vertical or horizontal air flow.
- 09FCSO fluid coolers cover a wide capacity range from 11 to 327 kW in commercial applications, working with fluids that are copper compatible. All models are available with vertical or horizontal air flow.
- Air-cooled condensers and fluid coolers with propeller fans for any refrigeration or air conditioning application.
- Three fan diameters, six fan speeds, models with 1 to 6 fans, available in several sound level classes, and a wide selection of a single or double-row high-efficiency coils, with copper tubes and aluminium fins.
- Casing in galvanised sheet steel, powder-painted polyester, resisting UV radiation and offering excellent corrosion protection.
- The propeller fans ensure a significant sound reduction, while maintaining high air flow performances. Motors have high-efficiency shrouds to reduce sound levels and increase the air flow efficiency of the fan motor assembly.
- All condensers and fluid coolers were designed and tested by independent laboratories in accordance with European Standards, and the performances comply with EN 327 for air-cooled condensers and EN 1048 for fluid coolers.
- Dry coolers are suitable for cooling water or other fluids that do not corrode with copper.
- Electrical connections in weatherproof boxes, easy access for maintenance.
- Air-cooled condensers are available with refrigerant R-134a, R-407C, R-410A and R-404A.
- The sound power levels are in accordance with ISO 3741 and ISO 3744.

Physical data

	Fans/poles	4PH (Delta)			4PL (Star)			6PH (Delta)			6PL (Star)			8PH (Delta)			8PL (Star)			12PH (Delta)			12PL (Star)		
Models	Fan arrangement	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)
Single row																									
09SO 50 1MSA	1 x 1 - ø500	29	1851	82/51	26	1568	78/47	21	1194	71/40	18	1008	68/37	16	815	65/34	13	656	63/32						
09SO 50 1MSB	1 x 1 - ø500	36	2129	82/51	32	1929	78/47	26	1386	71/40	21	1171	68/37	20	1010	65/34	17	811	63/32						
09SO 50 2MSA	1 x 2 - ø500	59	3703	85/53	52	3136	81/49	42	2389	74/42	37	2017	71/39	32	1631	68/36	27	1311	66/34						
09SO 50 2MSB	1 x 2 - ø500	72	4258	85/53	64	3608	81/49	52	2772	74/42	43	2342	71/39	41	2019	68/36	34	1622	66/34						
09SO 50 3MSA	1 x 3 - ø500	88	5554	87/55	77	4704	83/51	63	3583	76/44	56	3025	73/41	48	2446	70/38	40	1967	68/36						
09SO 50 3MSB	1 x 3 - ø500	108	6388	87/55	96	5413	83/51	78	4158	76/44	64	3513	73/41	61	3029	70/38	51	2433	68/36						
09SO 60 1MSB	1 x 1 - ø650							45	2858	80/48	39	2336	75/43	34	1989	72/40	29	1569	67/35	24	1211	60/28	20	936	55/24
09SO 60 1MSC	1 x 1 - ø650							54	3275	80/48	49	2707	75/43	43	2433	72/40	36	1914	67/35	30	1522	60/28	24	1164	55/24
09SO 60 2MSB	1 x 2 - ø650							89	5717	83/51	77	4672	78/46	69	3978	75/43	58	3139	70/38	48	2422	63/31	40	1872	58/27
09SO 60 2MSC	1 x 2 - ø650							108	6550	83/51	99	5414	78/46	87	4867	75/43	73	3828	70/38	61	3044	63/31	49	2328	58/27
09SO 60 3MSB	1 x 3 - ø650							134	8575	85/53	116	7008	80/48	103	5967	77/45	86	4708	72/40	71	3633	65/33	60	2808	60/29
09SO 60 3MSC	1 x 3 - ø650							161	9825	85/53	147	8121	80/48	130	7300	77/45	108	5742	72/40	91	4567	65/33	73	3492	60/29
09SO 60 4MSB	1 x 4 - ø650							179	11433	86/54	154	9344	81/49	137	7956	78/46	115	6278	73/41	95	4844	66/34	80	3744	61/30
09SO 60 4MSC	1 x 4 - ø650							215	13100	86/54	197	10828	81/49	173	9733	78/46	145	7656	73/41	121	6089	66/34	97	4656	61/30
09SO 90 1MSC	1 x 1 - ø900							106	7257	87/55	89	5668	81/49	88	5622	80/48	73	4293	73/41	63	3514	68/36	48	2444	59/27
09SO 90 1MSD	1 x 1 - ø900							118	7636	87/55	98	5943	81/49	96	5806	80/48	79	4431	73/41	68	3621	68/36	51	2538	59/27
09SO 90 1MSE	1 x 1 - ø900							128	7843	87/55	106	6142	81/49	104	5989	80/48	85	4568	73/41	73	3758	68/36	55	2643	59/27
09SO 90 2MSC	1 x 2 - ø900							212	14514	90/58	177	11336	84/52	176	11244	83/51	145	8586	76/44	126	7028	71/39	96	4889	62/30
09SO 90 2MSD	1 x 2 - ø900							235	15272	90/58	196	11886	84/52	192	11611	83/51	157	8861	76/44	136	7242	71/39	103	5075	62/30
09SO 90 2MSE	1 x 2 - ø900							255	15686	90/58	212	12283	84/52	208	11978	83/51	170	9136	76/44	146	7517	71/39	110	5286	62/30
09SO 90 3MSC	1 x 3 - ø900							317	21771	92/60	266	17004	86/54	264	16867	85/53	217	12879	78/46	189	10542	73/41	144	7333	64/32
09SO 90 3MSD	1 x 3 - ø900							353	22908	92/60	294	17829	86/54	288	17417	85/53	236	13292	78/46	204	10863	73/41	155	7613	64/32
Double row																									
09SO 50 2MDA	2 x 1 - ø500	59	3703	85/53	52	3136	81/49	42	2389	74/42	37	2017	71/39	32	1631	68/36	27	1311	66/34						
09SO 50 2MDB	2 x 1 - ø500	72	4258	85/53	64	3608	81/49	52	2772	74/42	43	2342	71/39	41	2019	68/36	34	1622	66/34						
09SO 50 4MDA	2 x 2 - ø500	117	7406	88/56	103	6272	84/52	84	4778	77/45	74	4033	74/42	63	3261	71/39	54	2622	69/37						
09SO 50 4MDB	2 x 2 - ø500	144	8617	88/56	128	7217	84/52	104	5544	77/45	86	4683	74/42	81	4039	71/39	68	3244	69/37						
09SO 50 6MDA	2 x 3 - ø500	175	11108	90/58	154	9408	86/54	126	7167	79/47	111	6050	76/44	95	4892	73/41	80	3933	71/39						
09SO 50 6MDB	2 x 3 - ø500	216	12775	90/58	191	10825	86/54	156	8317	79/47	128	7025	76/44	122	6058	73/41	102	4867	71/39						
09SO 60 2MDB	2 x 1 - ø650							90	5717	83/51	77	4672	78/46	69	3978	75/43	58	3139	70/38	48	2422	63/31	40	1872	58/27
09SO 60 2MDC	2 x 1 - ø650							108	6625	83/51	99	5414	78/46	87	4867	75/43	73	3828	70/38	61	3044	63/31	49	2328	58/27
09SO 60 4MDB	2 x 2 - ø650							179	11433	86/54	155	9344	81/49	137	7956	78/46	115	6278	73/41	95	4844	66/34	80	3744	61/30
09SO 60 4MDC	2 x 2 - ø650							215	13100	86/54	197	10828	81/49	173	9733	78/46	145	7656	73/41	121	6089	66/34	97	4556	61/30
09SO 60 6MDB	2 x 3 - ø650							268	17150	88/56	231	14017	83/51	205	11933	80/48	172	9417	75/43	142	7267	68/36	120	5517	63/32
09SO 60 6MDC	2 x 3 - ø650							322	19650	88/56	295	16242	83/51	259	14600	80/48	217	11483	75/43	181	9133	68/36	146	6983	63/32

CAP - Nominal capacity AF - Air flow LwA - Sound power level LpA - Sound pressure level at 10 m

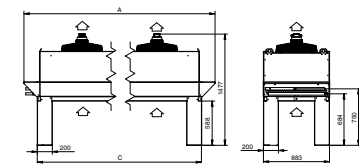
Note: Performance data given for units with 400 V-3 ph-50 Hz power supply, refrigerant R-404A, Δt1 = 15 K, operating pressure 26 bar, EN327. For performance data for units with 230 V-1 ph- 50Hz power supply, other refrigerants and for 09SO dry coolers, see technical documentation or electronic selection program.

Fan data

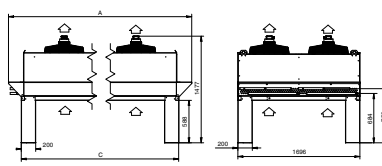
		ø500 mm				ø650 mm				ø900 mm				ø900 mm			
		4PH	4PL	6PH	6PL	8PH	8PL	6PH	6PL	8PH	8PL	12PH	12PL	6PH	6PL	8PH	8PL
Power input	kW	0.70	0.51	0.27	0.12	0.15	0.10	1.09	0.77	0.52	0.37	0.22	0.12	2.65	1.7	1.32	0.82
Full load current	A	1.90	1.05	0.80	0.40	0.45	0.22	3.00	1.25	1.50	0.75	0.85	0.35	6.00	3.10	3.50	1.50

Correction factors for different refrigerants

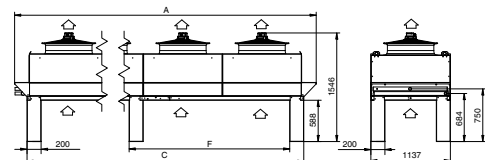
Refrigerant	Temperature difference ΔT, K					
	8	10	12	15	17	20
R-404A - R-22 - R-134a - R-507	0.53	0.67	0.80	1.00	1.13	1.33
R-407C, R-407A	0.46	0.62	0.77	1.00	1.15	1.38



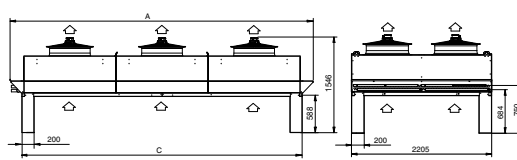
Size 50, single row



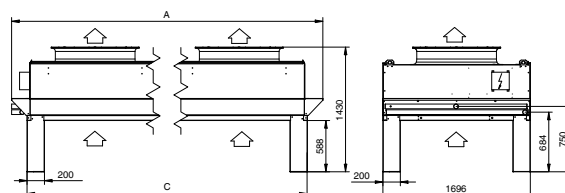
Size 50, double row



Size 60, single row



Size 60, double row



Size 90, single row

Dimensions and weights

Models	Dimensions, mm			Net weight kg
	A	C	F	
09SO 50 1MSA	1168	814	-	98
09SO 50 1MSB	1543	1189	-	117
09SO 50 2MSA	1920	1566	-	163
09SO 50 2MSB	2670	2316	-	201
09SO 50 3MSA	2671	2317	-	227
09SO 50 3MSB	3796	3442	-	285
09SO 60 1MSB	1543	1189	-	141
09SO 60 1MSC	1918	1564	-	163
09SO 60 2MSB	2670	2316	-	247
09SO 60 2MSC	3420	3066	-	297
09SO 60 3MSB	3796	3442	-	351
09SO 60 3MSC	4921	4567	-	428
09SO 60 4MSB	4922	4568	2286	468
09SO 60 4MSC	6422	6068	3036	562
09SO 90 1MSC	1918	1564	-	263
09SO 90 1MSD	2293	1939	-	301
09SO 90 1MSE	2668	2314	-	333
09SO 90 2MSC	3420	3066	-	473
09SO 90 2MSD	4170	3816	-	553
09SO 90 2MSE	4920	4566	-	619
09SO 90 3MSC	4921	4567	-	691
09SO 90 3MSD	6046	5692	-	820
09SO 50 2MDA	1168	814	-	162
09SO 50 2MDB	1543	1189	-	195
09SO 50 4MDA	1920	1566	-	282
09SO 50 4MDB	2670	2316	-	346
09SO 50 6MDA	2671	2317	-	399
09SO 50 6MDB	3796	3442	-	498
09SO 60 2MDB	1543	1189	-	243

Note: Dimension A is the maximum length.

AIR-COOLED CONDENSERS/ FLUID COOLERS



Air conditioning

TENOR

09TE

Options/accessories

- Multiple circuits
- Special fin spacings
- Mounted electrical panel
- Special colour casing
- Emergency switch
- Special motors (selected models)
- Fan isolator switch
- Stainless steel screws
- Two speed connections for the motors
- EC motors for significant energy savings
- Motor power supplies 230 V-3 ph-50 Hz and 400 V-3 ph-60 Hz.
- Higher motor insulation for ambient temperatures above 45°C
- Alternative fin materials for saline and polluted atmospheres
 - Copper tubes/aluminium fins with vinyl coating
 - Copper tubes/aluminium fins with a wide choice of anti-corrosion coatings such as Blygold to suit site conditions

Features

- 09TE air-cooled condensers with medium/high cooling capacities from 102 to 1092 kW designed for commercial and industrial use in refrigeration and air conditioning applications.
- 09FCTE fluid coolers cover a wide capacity range from 90 to 1008 kW is designed for commercial and industrial applications, working with fluids that are copper compatible.
- Air-cooled condensers and fluid coolers with propeller fans for any refrigeration or air conditioning application.
- Six fan speeds, models with 2 to 16 fans, available in several sound level classes, and a wide selection of a single or double-row high-efficiency coils, with copper tubes and aluminium fins.
- Casing in galvanised sheet steel, powder-painted polyester, resisting UV radiation and offering excellent corrosion protection.
- The propeller fans ensure a significant sound reduction, while maintaining high air flow performances. Motors have high-efficiency shrouds to reduce sound levels and increase the air flow efficiency of the fan motor assembly, and are designed to work with frequency speed control from 50 to 20 Hz.
- All condensers and fluid coolers were designed and tested by independent laboratories in accordance with European Standards, and the performances comply with EN 327 for air-cooled condensers and EN 1048 for fluid coolers.
- Dry coolers are suitable for cooling water or other fluids that do not corrode with copper.
- Electrical connections in weatherproof boxes, easy access.
- Air-cooled condensers are available with refrigerant R-134a, R-407C, R-410A and R-404A.
- The sound power levels are in accordance with ISO3741 and ISO3744.

Physical data

Models	Fans/poles	6PH (Delta)			6PL (Star)			8PH (Delta)			8PL (Star)			12PH (Delta)			12PL (Star)		
	Fan arrangement	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)
Single row																			
09-TE90 2MSB	1 x 2 - ø900	238	15483	90/58	201	12083	84/52	186	11194	83/51	154	8561	76/44	136	7189	71/39	106	5236	62/30
09-TE90 3MSB	1 x 3 - ø900	357	23225	92/60	301	18125	86/54	279	16792	85/53	231	12842	78/46	204	10783	73/41	159	7729	64/32
09-TE90 4MSB	1 x 4 - ø900	477	30967	93/61	402	24167	87/55	372	22389	86/54	308	17122	79/47	272	14378	74/42	212	10306	65/33
09-TE90 5MSB	1 x 5 - ø900	597	38708	94/62	502	30208	88/56	465	27986	87/55	385	21403	80/48	340	17972	75/43	265	12882	66/34
09-TE90 6MSB	1 x 6 - ø900	717	46450	95/63	603	36250	89/57	559	33583	88/56	463	25683	81/49	408	21567	76/44	318	15458	67/35
09-TE90 7MSB	1 x 7 - ø900	836	54192	96/63	704	42292	90/57	652	39181	89/56	540	29964	82/49	476	25161	77/44	371	18035	68/35
Double row																			
09-TE90 4MDB	2 x 2 - ø900	399	27475	93/61	335	21142	87/55	326	20375	86/54	258	14686	79/47	227	12561	74/42	175	8753	65/33
09-TE90 6MDB	2 x 2 - ø900	599	41213	95/63	502	31713	89/57	489	30563	88/56	387	22029	81/49	341	18842	76/44	263	13129	67/35
09-TE90 8MDB	2 x 2 - ø900	800	54950	96/64	670	42283	90/58	653	40750	89/57	517	29372	82/50	455	25122	77/45	351	17506	68/36
09-TE90 10MDB	2 x 3 - ø900	1001	68688	97/65	838	52854	91/59	817	50938	90/58	646	36715	83/51	569	31403	78/46	439	21882	69/37
09-TE90 12MDB	2 x 3 - ø900	1201	82425	98/65	1006	63425	92/59	980	61125	91/58	776	44058	84/51	684	37683	79/46	527	26258	70/37
09-TE90 14MDB	2 x 3 - ø900	1400	96163	99/66	1173	73996	93/60	1145	71313	92/59	905	51401	85/52	798	43964	80/47	615	30635	71/38
09-TE90 16MDB	2 x 4 - ø900	1602	109900	99/66	1341	84567	93/60	1308	81500	92/59	1035	58744	85/52	912	50244	80/47	703	35011	71/38

CAP - Nominal capacity AF - Air flow Lw - Sound power level Lpa - Sound pressure level at 10 m

Note: Performance data given for units with 400 V-3 ph-50 Hz power supply, refrigerant R-404A, Δt1 = 15 K, operating pressure 26 bar, EN327. For performance data for units with other refrigerants and for 09FCTE 90 dry coolers, see technical documentation or electronic selection program.

Fan data

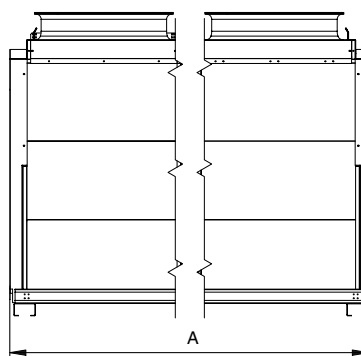
		ø900 mm					
		6PH	6PL	8PH	8PL	12PH	12PL
Power input	kW	2.65	1.7	1.32	0.82	0.48	0.26
Full load current	A	6.00	3.10	3.50	1.50	1.50	0.65

Correction factors for different refrigerants

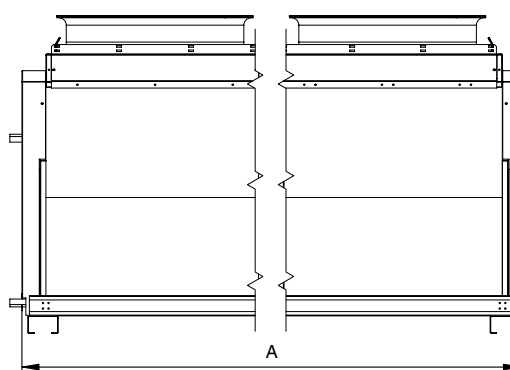
Refrigerant	Temperature difference ΔT, K					
	8	10	12	15	17	20
R-404A - R-22 - R-134a - R-507	0.53	0.67	0.80	1.00	1.13	1.33
R-407C, R-407A	0.46	0.62	0.77	1.00	1.15	1.38

Dimensions and weights

Models	Max. length A, mm	Net weight, kg
09TE 90 2MSB	2465	469
09TE 90 3MSB	3590	691
09TE 90 4MSB	4715	872
09TE 90 5MSB	5840	1072
09TE 90 6MSB	6965	1273
09TE 90 7MSB	8090	1472
09TE 90 4MDB	2465	882
09TE 90 6MDB	3590	1301
09TE 90 8MDB	4715	1650
09TE 90 10MDB	5840	2018
09TE 90 12MDB	6965	2390
09TE 90 14MDB	8090	2785
09TE 90 16MDB	9215	3256



Single-row models



Double-row models

AIR-COOLED CONDENSERS/ FLUID COOLERS



Air conditioning

ALTO

09AL

Options/accessories

- Multiple circuits
- Horizontal discharge
- Extra-high feet (2 sizes) to comply with specific site configurations
- Special fin spacings
- Mounted electrical panel
- Special colour casing
- Emergency switch
- Special motors (selected models)
- Fan isolator switch
- Sub-cooling circuits (vertical air flow only)
- Stainless steel screws
- EC Motors for significant energy savings
- Motor power supplies 230 V-3 ph-50 Hz and 400 V-3 ph-60 Hz.
- Higher motor insulation for ambient temperatures above 45°C
- Two speed connections for the motors
- Alternative fin materials for saline and polluted atmospheres
 - Copper tubes/aluminium fins with vinyl coating
 - Copper tubes/aluminium fins with a wide choice of anti-corrosion coatings such as Blygold to suit site conditions

Features

- 09AL air-cooled condensers with medium/high cooling capacities from 106 to 1602 kW designed for commercial and industrial use in refrigeration and air conditioning applications. All models are available with vertical or horizontal air flow.
- 09FCAL fluid coolers cover a wide capacity range from 89 to 1498 kW in commercial and industrial applications, working with fluids that are copper compatible. All models are available with vertical or horizontal air flow.
- Air-cooled condensers and fluid coolers with propeller fans for any refrigeration or air conditioning application.
- Six fan speeds, models with 3 to 12 fans, available in several sound level classes, and a wide selection of single or double-row high-efficiency coils, with copper tubes and aluminium fins.
- Casing in galvanised sheet steel, powder-painted polyester, resisting UV radiation and offering excellent corrosion protection.
- The propeller fans ensure a significant sound reduction, while maintaining high air flow performances. Motors have high-efficiency shrouds to reduce sound levels and increase the air flow efficiency of the fan motor assembly, and are designed to work with frequency speed control from 50 to 20 Hz.
- All condensers and fluid coolers were designed and tested by independent laboratories in accordance with European Standards, and the performances comply with EN 327 for air-cooled condensers and EN 1048 for fluid coolers.
- Dry coolers are suitable for cooling water or other fluids that do not corrode with copper.
- Electrical connections in weatherproof boxes, easy access for maintenance.
- Air-cooled condensers are available with refrigerant R-134a, R-407C, R-410A and R-404A.
- The sound power levels are in accordance with ISO 3741 and ISO 3744.

Physical data

Models	Fans/poles	06PH (Delta)			06PL (Star)			08PH (Delta)			08PL (Star)			12PH (Delta)			12PL (Star)		
	Fan arrangement	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)	CAP kW	AF l/s	Lw/Lpa dB(A)
Single row																			
09AL 91 3MSC	1 x 3 - ø900	224	19571	92/60	190	15050	86/54	182	14025	85/53	153	10771	78/46	131	8617	73/41	102	6142	64/32
09AL 91 3MSD	1 x 3 - ø900	273	22458	92/60	231	17279	86/54	214	15400	85/53	178	11825	78/46	152	9625	73/41	119	6875	64/32
09AL 91 3MSE	1 x 3 - ø900	326	23833	92/60	275	18333	86/54	253	16225	85/53	207	12467	78/46	180	10358	73/41	138	7379	64/32
09AL 91 4MSC	1 x 4 - ø900	299	26094	93/61	253	20067	87/55	242	18700	86/54	204	14361	79/47	175	11489	74/42	136	8189	65/33
09AL 91 4MSD	1 x 4 - ø900	364	29944	93/61	308	23039	87/55	285	20533	86/54	237	15767	79/47	202	12833	74/42	158	9167	65/33
09AL 91 4MSE	1 x 4 - ø900	434	31778	93/61	366	24444	87/55	337	21633	86/54	276	16622	79/47	240	13811	74/42	184	9839	65/33
09AL 91 5MSC	1 x 5 - ø900	373	32618	94/61	316	25083	88/56	303	23375	87/55	255	17951	80/48	218	14361	75/43	170	10236	66/34
09AL 91 5MSD	1 x 5 - ø900	455	37431	94/60	385	28799	88/55	356	25667	87/54	296	19708	80/47	253	16028	75/42	198	11458	66/33
09AL 91 5MSE	1 x 5 - ø900	543	39722	94/60	458	30556	88/55	421	27042	87/54	344	20778	80/47	300	17264	75/42	230	12299	66/33
09AL 91 6MSC	1 x 6 - ø900	448	39142	95/63	379	30100	89/57	363	28050	88/56	306	21542	81/49	262	17233	76/44	203	12283	67/35
09AL 91 6MSD	1 x 6 - ø900	546	44917	95/62	482	34558	89/56	427	30800	88/55	355	23650	81/48	303	19250	76/43	237	13750	67/34
Double row																			
09AL 91 4MDC	2 x 2 - ø900	300	26094	93/61	254	20067	87/55	252	18700	86/54	204	14361	79/47	176	11489	74/42	136	8189	65/33
09AL 91 4MDD	2 x 2 - ø900	364	29944	93/61	308	23039	87/55	286	20533	86/54	238	15767	79/47	202	12833	74/42	158	9167	65/33
09AL 91 4MDE	2 x 2 - ø900	434	31778	93/61	366	24444	87/55	338	21633	86/54	276	16622	79/47	240	13811	74/42	184	9839	65/33
09AL 91 6MDC	2 x 3 - ø900	448	39142	95/63	380	30100	89/57	364	28050	88/56	306	21542	81/49	262	17233	76/44	204	12283	67/35
09AL 91 6MDD	2 x 3 - ø900	546	44917	95/63	462	34558	89/57	428	30800	88/56	356	23650	81/49	304	19250	76/44	238	13750	67/35
09AL 91 6MDE	2 x 3 - ø900	652	47667	95/63	550	36667	89/57	506	32450	88/56	414	24933	81/49	360	20717	76/44	276	14758	67/35
09AL 91 8MDC	2 x 4 - ø900	598	52189	96/64	506	40133	90/58	484	37400	89/57	408	28722	82/50	350	22978	77/45	272	16378	68/36
09AL 91 8MDD	2 x 4 - ø900	728	59889	96/63	616	46078	90/58	570	41067	89/56	474	31533	82/49	404	25667	77/44	295	18333	68/35
09AL 91 8MDE	2 x 4 - ø900	868	63556	96/63	732	48889	90/57	674	43267	89/56	552	33244	82/49	480	27622	77/44	368	19678	68/35
09AL 91 10MDC	2 x 5 - ø900	746	65236	97/64	632	50167	91/58	606	46750	90/57	510	35903	83/50	436	28722	78/45	340	20472	69/36
09AL 91 10MDD	2 x 5 - ø900	910	74861	97/64	770	57597	91/58	712	51333	90/57	592	39417	83/50	506	32083	78/45	396	22917	69/36
09AL 91 10MDE	2 x 5 - ø900	1086	79444	97/64	916	61111	91/58	842	54083	90/57	688	41556	83/50	600	34528	78/45	460	24597	69/36
09AL 91 12MDC	2 x 6 - ø900	896	78283	98/65	758	60200	92/59	726	56100	91/58	612	43083	84/51	524	34467	79/46	406	24567	70/37
09AL 91 12MDD	2 x 6 - ø900	1092	89833	98/65	924	69117	92/59	854	61600	91/58	710	47300	84/51	606	38500	79/46	474	27500	70/37

CAP - Nominal capacity AF - Air flow LwA - Sound power level LpA - Sound pressure level at 10 m

Note: Performance data given for units with 400 V-3 ph-50 Hz power supply, refrigerant R-404A, Δt1 = 15 K, operating pressure 26 bar, ENV327. For performance data for units with other refrigerants and for 09FCAL 91 dry coolers, see technical documentation or electronic selection program.

Fan data

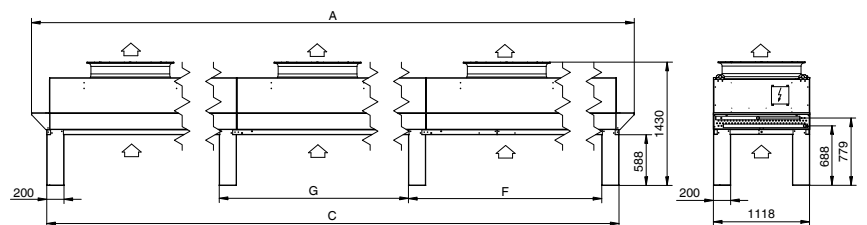
		ø900 mm					
		6PH	6PL	8PH	8PL	12PH	12PL
Power input	kW	2.65	1.7	1.32	0.82	0.48	0.26
Full load current	A	6.00	3.10	3.50	1.50	1.50	0.65

Correction factors for different refrigerants

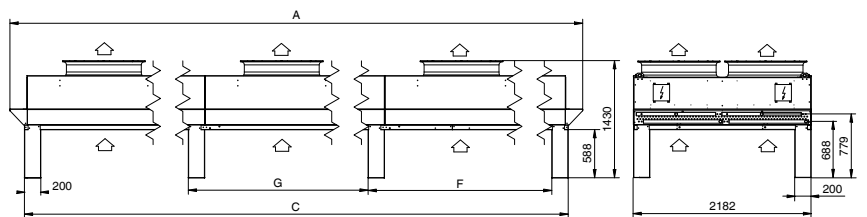
Refrigerant	Temperature difference ΔT, K					
	8	10	12	15	17	20
R-404A - R-22 - R-134a - R-507	0.53	0.67	0.80	1.00	1.13	1.33
R-407C, R-407A	0.46	0.62	0.77	1.00	1.15	1.38

Dimensions and weights

Models	Dimensions, mm				Net weight, kg
	A	C	F	G	
09AL 91 3MSC	4921	4567	-	-	566
09AL 91 3MSD	6046	5692	-	-	680
09AL 91 3MSE	7171	6817	2285	-	765
09AL 91 4MSC	6422	6068	3036	-	755
09AL 91 4MSD	7922	7568	3786	-	886
09AL 91 4MSE	9422	9068	4536	-	1001
09AL 91 5MSC	7924	7570	3036	1502	945
09AL 91 5MSD	9799	9444	3787	1876	1109
09AL 91 5MSE	11674	11320	4536	2252	1250
09AL 91 6MSC	9426	9072	3037	3003	1115
09AL 91 6MSD	11676	11322	3787	3753	1314
09AL 91 4MDC	3420	3066	-	-	695
09AL 91 4MDD	4170	3816	-	-	807
09AL 91 4MDE	4920	4566	-	-	903
09AL 91 6MDC	4921	4567	-	-	1014
09AL 91 6MDD	6046	5692	-	-	1195
09AL 91 6MDE	7171	6817	2285	-	1341
09AL 91 8MDC	6422	6068	3036	-	1351
09AL 91 8MDD	7922	7568	3789	-	1569
09AL 91 8MDE	9422	9068	4536	-	1762
09AL 91 10MDC	7924	7570	3036	1502	1683
09AL 91 10MDD	9799	9445	3787	1876	1958
09AL 91 10MDE	11674	11320	4536	2252	2207
09AL 91 12MDC	9426	9072	3037	3003	2007
09AL 91 12MDD	11676	11322	3787	3753	2333

Note: Dimension A is the maximum length.

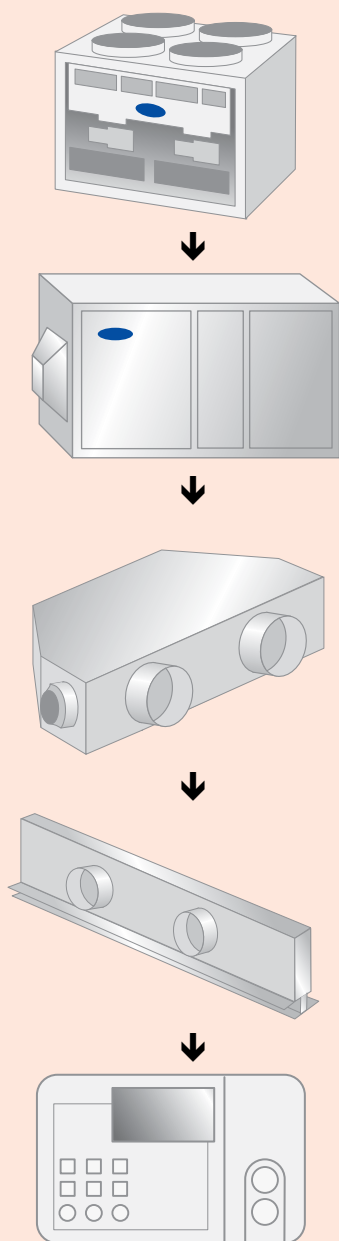
Single-row models



Double-row models

Heating Index

System architecture





Type	Range	Refrigerant	Cooling capacity, kW	Heating capacity, kW	Page
Air-to-water heat pumps, axial fan					
With scroll or rotary compressors	80HMA	4 to 20 kW, depending on the heat pump used			70
	80AW/38AW	R-410A	4.2-5.0	5.0-11.5	72
	30RH 007-013	R-410A	6.3-11.5	7.3-13.0	74
	30AWH	R-410A	3-16	4-14.5	76
	61AF 014-019	R-410A	-	14-19	78
	61AF 022-105	R-410A	-	21-102	80
	30RQ 017-033	R-410A	16-33	17-33	82
	30RQY 017-033	R-410A	15-32	17-31	84
	30RQS 039-160	R-410A	38-150	42-157	86
	30RQSY 039-160	R-410A	37-147	42-159	88
	30RQ 182-522	R-410A	177-470	184-554	90
	61WG	R-410A	24-95	29-117	92
Water-to-water heat pumps					
With screw compressors	30XWH	R-134a	278-1756	322-1989	94
	30XWHV	R-134a	587-858	648-958	96

Application of the new EN14511 : 2011 chiller and heat pump performance standard:

Chiller and heat pump performances are calculated in accordance with the EN14511 : 2011 calculation standard and certified by Eurovent.

The latest version of EN14511 was ratified on July 19th, 2011. It uses a different method to take into account the contribution of water pumps, or heat exchanger pressure drops in the unit performances. The efficiency of the pump is no longer a default value, but a function of the required hydraulic power. In January 2012, the Eurovent Certification Company decided that this method is more realistic and it is fully applied starting from the 2012 certification campaign. The performances declared based on the new version of the standard were published on the ECC website www.eurovent-certification.com at the end of March 2012.

IMPORTANT: Only 2012 performances rated according the new EN14511 : 2011, taking in account water pump and heat exchanger pressure drop are certified by Eurovent. For units declared before 2012, the previous gross EER and COP values without pump correction (for units with integral pump - measured with the pump not running) and the corresponding energy classes are available on ECC website.

Application rating conditions

Air conditioning applications (AC)		Cooling and heating floor applications (CHF)		High-temperature heating (HT)		Very high-temperature heating (VHT)	
Air-cooled cooling							
Evaporator EWT/LWT 12°C/7°C OAT 35°C		Evaporator EWT/LWT 23°C/18°C OAT 35°C					
Air-cooled heating							
Condenser EWT/LWT 40°C/45°C Evaporator OAT 7°C	EWT/LWT 40°C/45°C OAT 2°C	Condenser EWT/LWT 30°C/35°C Evaporator OAT 7°C	EWT/LWT 30°C/35°C OAT 2°C	Condenser EWT/LWT 47°C/55°C Evaporator OAT 7°C	EWT/LWT 47°C/55°C OAT 2°C	Condenser EWT/LWT 50°C/65°C Evaporator OAT 7°C	EWT/LWT 47°C/55°C OAT 2°C
Water-cooled cooling							
Evaporator EWT/LWT 12°C/7°C Condenser EWT/LWT 30°C/35°C		Evaporator EWT/LWT 23°C/18°C Condenser EWT/LWT 30°C/35°C					
Water-cooled heating							
Condenser EWT/LWT 10°C/7°C Condenser EWT/LWT 40°C/45°C		Evaporator EWT/LWT 10°C/7°C Condenser EWT/LWT 30°C/35°C		Evaporator EWT/LWT 10°C/7°C Condenser EWT/LWT 47°C/55°C		Evaporator EWT/LWT 0°C/-3°C Condenser EWT/LWT 47°C/55°C	

(1) Gross adjusted performances, not taking into account the water pump and heat exchanger pressure drops, are not certified by Eurovent for 2012, but used for the 2011 gross declaration and given as a reference for comparison.

Legend

EWT Entering water temperature
LWT Leaving water temperature
OAT Outdoor air temperature

COMFORT MODULE RANGE FOR MONOBLOC HEAT PUMPS



Heating 80HMA

Accessories

- Communication kit for installation on the heat pump
- Additional user interface, monitors two independent comfort zones or used together with comfort module interface
- Remote outdoor sensor maximises comfort compared to using the condensing unit OAT sensor
- Domestic hot water tank for storage of domestic hot water, one or two coils, 200 or 300 litres, with or without thermal solar panel connection
- Domestic hot-water three-way valve and actuator to connect domestic hot water tank
- Thermal cut-out, floor heating - stops circulation pump when supply temperature is too high
- Piping kit to install domestic hot-water valve and actuator inside the unit.
- Cover panel to install two-zone kit detached from comfort module.
- Kit to add three-way valve and actuator in second zone
- Two-zone kit allows independent control of two comfort zones
- Swimming pool kit controls swimming pool heating, using the heat pump
- Pump kit - necessary when available heat pump pressure is too low for the installation
- BPHE kit for heat pumps up to 8 or 16 kW - separate heat pump loop (with glycol) from indoor loop; includes BPHE and pump

Features

- Five sizes with nominal cooling capacities from 4 to 20 kW and nominal heating capacities from 4 to 20 kW, depending on the heat pump model used.
- The new comfort module range for monobloc inverter heat pumps offers a complete heating system that is easy to design and install.
- System controls ensure optimised energy efficiency, using auto-adaptative weather compensation control that constantly monitors the indoor and outdoor climate to optimise the heat pump energy efficiency and deliver perfect indoor climate.
- With its improved aesthetics and compactness, combined with new features and options, the new comfort module sets new standards in energy savings and comfort. Using the two-zone kit, two different terminal unit types or two independent comfort zones can be closely monitored. Domestic hot water production is made easy and can be interfaced with thermal solar panels.
- All 30AWH-HC sizes are compatible with the 80HMA comfort module range. The comfort module controls can also manage up to eight 30AWH units. 30RQ 017 to 021 and 61AF 014 to 019 units are also compatible, but the water volume of this installation needs to be checked.
- Reversible operation.
- Electric booster heater or boiler back-up.
- Auto-adaptative weather compensation control.
- Dual comfort zone with independent control of two terminal unit types.
- User-friendly controller with large display, intuitive symbols and two simple buttons, allowing the user to select the desired operating parameter values.



Operator interface

Physical data

Indoor unit (comfort module)		80HMA-M00	80HMA-M03	80HMA-M06	80HMA-T06	80HMA-T09
Number of comfort zones		1	1	1	1	1
Electric booster element	kW	0	3	6	6	9
Number of auxiliary heating steps		1 (external boiler)	1	3	3	3
Connection of back-up boiler		Yes	No	No	No	No
Dimensions, H x L x D	mm	800 x 450 x 320	800 x 450 x 320	800 x 450 x 320	800 x 450 x 320	800 x 450 x 320
Operating weight	kg	34	35	35	35	35
Power supply	V-ph-Hz	230-1-50	230-1-50	230-1-50	400-3-50	400-3-50
Recommended circuit breaker size		C6	C20	C32	C16	C20

Combination table, indoor and outdoor units

Outdoor unit (heat pump)		Indoor unit (comfort module)	
30AWH04HC	Nominal capacity 4 kW	80HMA-M00	Reversible, 1 zone, maximum heating capacity 20 kW for boiler back-up application
30AWH06HC	Nominal capacity 6 kW	80HMA-M03	Reversible, 1 zone, maximum heating capacity 20 kW with 3 kW 1-phase electrical heater booster
30AWH08HC	Nominal capacity 8 kW	80HMA-M06	Reversible, 1 zone, maximum heating capacity 20 kW with 6 kW 1-phase electrical heater booster
30AWH12HC	Nominal capacity 12 kW	80HMA-T06	Reversible, 1 zone, maximum heating capacity 20 kW with 6 kW 3-phase electrical heater booster
30AWH15HC	Nominal capacity 15 kW	80HMA-T09	Reversible, 1 zone, maximum heating capacity 20 kW with 9 kW 3-phase electrical heater booster

NOTE: All 30AWH sizes are compatible with the 80HMA comfort module range. Comfort module controls can also manage up to eight 30AWH units. A parallel hydronic coupling of the unit to a tank is necessary (field supply). 30RQ 017 to 021 and 61AF 014 to 019 units are also compatible, but the water volume of this installation must be checked by a professional and comply with the heat pump size minimum requirements. Depending on the terminal unit type installed with the Carrier system a buffer tank may have to be added.

Electrical data

Comfort module 80HMA		M00	M03	M06	T06	T09
Power supply	V-ph-Hz	230-1-50	230-1-50	230-1-50	400-3-50	400-3-50
Voltage range	V	207-253	207-253	207-253	360-400	360-400
Max. power consumption, board and auxiliary devices	kW	1.15	1.15	1.15	1.15	1.15
Board and auxiliary circuit breaker protection (not included)		C6	C6	C6	C6	C6
Electric heater power consumption	kW	0	3	6	6	9
Electric heater circuit breaker protection (not included)		C6	C20	C32	C16	C20
Max. operating current	A	5	18	31	14	18
Main power cable size	mm ²	3G x 2.5	3G x 4	3G x 6	5G x 2.5	5G x 4
Communication cable (FROH2R)	mm ²	2 x 0.75	2 x 0.75	2 x 0.75	2 x 0.75	2 x 0.75
User interface (additional or remote) cable (FROH2R)	mm ²	4 x 0.75	4 x 0.75	4 x 0.75	4 x 0.75	4 x 0.75
Booster heater power supply cable (H05VV-F)	mm ²	3G x 2.5	3G x 2.5	3G x 2.5	3G x 2.5	3G x 2.5
Booster heater activation cable (FROH2R)	mm ²	2 x 1	2 x 1	2 x 1	2 x 1	2 x 1
Domestic hot water sensor cable (FROH2R)	mm ²	2 x 0.5	2 x 0.5	2 x 0.5	2 x 0.5	2 x 0.5
Remote outdoor sensor cable (FROH2R)	mm ²	2 x 0.5	2 x 0.5	2 x 0.5	2 x 0.5	2 x 0.5

Note: The heat pump data depends on the heat pump used.

Operating limits

Heat pump limits	Depends on the heat pump selected
Comfort module limits	
Indoor temperature	5-30°C
Water temperature, cooling	4-18°C
Water temperature, heating	20-80°C

AIR-TO-WATER HEAT PUMP HEATING SYSTEM



Heating

80AW/38AW

Accessories

- Additional user interface.
- Communication kit.
- Remote outdoor air sensor maximises comfort.
- Room temperature sensor.
- Domestic hot water tank, one or two coils – storage, 200 l/300 l of domestic hot water with or without thermal solar panel connection.
- CDU rubber vibration isolators.
- Domestic hot-water three-way valve and actuator.
- Thermal cut-out, floor heating to connect under-floor heating zone.
- Two-zone kit – allows independent control of two comfort zones
- Piping kit to install domestic hot-water valve and actuator inside unit.
- Cover panel to install two-zone kit detached from comfort module.

Control

- User-friendly controller with large display, intuitive symbols and two simple buttons, allowing the user to select the desired operating parameter values.



Features

- Eight sizes with nominal heating capacities from 5 to 11.5 kW and nominal cooling capacities from 4.2 to 9.0 kW.
- Reversible XP Energy air-to-water split system heat pumps with built-in inverter technology, designed for residential and light commercial applications, offer excellent energy efficiency values, exceptionally quiet operation and meet the most stringent operating temperature demands.
- Incorporate the latest technological innovations: ozone-friendly refrigerant R-410A, DC inverter twin-rotary compressors, low-noise fan and microprocessor control.
- Designed for ease-of-installation and service.
- For added flexibility the XP Energy systems are available in heating only or reversible versions, to suit the demand. Back-up heating with either electrical (single-energy applications) or gas boiler (dual-energy applications).
- Can be used with a wide choice of Carrier terminal fan coil units – cassettes, low, medium and high-pressure satellite units, console units, under-ceiling units and high-wall units.
- Wide operating range in both heating and cooling mode offering high performance in a wide temperature range.
- DC inverter twin-rotary compressors guarantee enhanced reliability, low energy consumption and smooth operation under all operating conditions.
- Variable-speed fans with an innovative patented fan blade shape ensure improved air distribution at exceptionally low noise levels.
- Pre-set or customised selection of the appropriate climate curve for stable output capacity to match the heat load.
- Output to link and integrate the unit with existing heat sources for dual-energy approach with increased savings and optimum comfort in all conditions.
- Able to control two independent comfort zones with a two-zone kit added to the main comfort module.
- Leaving water temperature up to 60°C for radiator and domestic hot water applications, making hot water readily available.

Physical data, indoor and outdoor units

System	Heating only				Heating and cooling			
Indoor unit (comfort module)	80AWH 065	80AWH 065	80AWH 115	80AWH 115	80AWX 065	80AWX 065	80AWX 115	80AWX 115
Outdoor unit (heat pump)	38AW 050H7	38AW 065H7	38AW 090H7	38AW 115H7	38AW 050H7	38AW 065H7	38AW 090H7	38AW 115H7
Max. leaving water temperature	°C	60	60	60	60	60	60	60
Nominal heating capacity*	kW	5.0	6.5	9.1	11.5	5.0	6.5	9.1
Min./Max. heating capacity*	kW	1.5/5.9	1.3/7.8	3.6/11.1	3.5/13.8	1.5/5.9	1.3/7.8	3.6/11.1
COP*	kW/kW	4.10	4.10	4.20	4.10	4.10	4.10	4.10
Nominal cooling capacity**	kW	-	-	-	4.2	5.6	7.9	9.0
Min./Max. heating capacity**	kW	-	-	-	1.6/6.6	2.0/7.3	3.9/9.5	4.1/12.1
EER**	kW/kW	-	-	-	3.65	3.65	4.05	3.80

* 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 (comfort module)	80AW 065	80AW 065	80AW 115	80AW 115
Outdoor unit (heat pump)	38AW 050H7	38AW 065H7	38AW 090H7	38AW 115H7
Number of comfort zones	1	1	1	1
Nominal water flow rate	l/s (l/h)	0.24 (860)	0.31 (1118)	0.43 (1548)
Minimum water flow rate	l/s (l/h)	0.19 (688)	0.25 (894)	0.34 (1238)
Maximum water flow rate	l/s (l/h)	0.29 (1032)	0.37 (1342)	0.52 (1858)
Nominal temperature difference	K	5	5	5
Sound power level, cooling	dB(A)	40.9	40.9	40.9
Sound power level, heating	dB(A)	40.9	40.9	40.9
Dimensions, H x L x D	mm	800 x 450 x 320	800 x 450 x 320	800 x 450 x 320
Operating weight	kg	48	48	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 (m³/h)	728 (2620)	783 (2820)	1658 (5970)
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.

Indoor unit for 38AW 050H7 and 38AW 065H7	80AWX 065M0	80AWX 065M3	80AWX 065M6	80AWX 065T6	80AWH 065M0	80AWH 065M3	80AWH 065M6	80AWH 065T6
Number of comfort zones	1	1	1	1	1	1	1	1
Electric heater element	kW	0	3	6	6	0	3	6
Heating only	No	No	No	No	Yes	Yes	Yes	Yes
Heating and cooling	Yes	Yes	Yes	Yes	No	No	No	No
Connection of back-up boiler	Yes	No	No	No	Yes	No	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	400-3-50

Indoor unit for 38AW 090H7 and 38AW 115H7	80AWX 115M0	80AWX 115M3	80AWX 115M6	80AWX 115T6	80AWX 115T9	80AWH 115M0	80AWH 115M3	80AWH 115M6	80AWH 115T6	80AWH 115T9
Number of comfort zones	1	1	1	1	1	1	1	1	1	1
Electric heater element	kW	0	3	6	6	9	0	3	6	9
Heating only	No	No	No	No	No	Yes	Yes	Yes	Yes	Yes
Heating and cooling	Yes	Yes	Yes	Yes	Yes	No	No	No	No	No
Connection of back-up boiler	Yes	No	No	No	No	Yes	No	No	No	No
Power supply	V-ph-Hz	230-1-50	230-1-50	230-1-50	400-3-50	400-3-50	230-1-50	230-1-50	230-1-50	400-3-50

Electrical data, indoor and outdoor units

Outdoor unit	38AW 050	38AW 065	38AW 090	38AW 115
Power supply/voltage range	V-ph-Hz/V	230-1-50/198-264	230-1-50/198-264	230-1-50/198-264
Full load current/operating current	A	11/7.9	11.7/9.0	18.9/13.4
Fuse rating*	A	16	16	25
Power consumption	W	1473	1930	2887
Main power wire size	mm²	2.5	2.5	2.5
Power factor	%	0.95	0.95	0.95

* Time delay fuse

Comfort module		80AW-065				80AW-115					
		M0	M3	M6	T6	M0	M3	M6	T6	T9	
Outdoor units		38AW 050H7/38AW 065H7				38AW 090H7/38AW 115H7					
Power supply	V-ph-Hz	230-1-50 ± 10%			400-3-50 ± 10%		230-1-50 ± 10%			400-3-50 ± 10%	
Power input	kW	-	3	6	6	-	3	6	6	9	
Operating current	A	-	13	26	L1: 13 L2: 13 N: 13	-	13	26	L1: 13 L2: 13 N: 13	L1: 19.5 L2: 19.5 N: 19.5	

AIR-TO-WATER HEAT PUMPS WITH INTEGRATED HYDRONIC MODULE



Heating 30RH

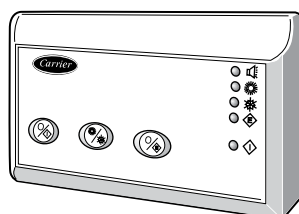
AQUASNAP
Reversible

Accessories

- Remote control
- Service interface
- Mechanical water filter

Features

- Four sizes with nominal cooling capacities from 6.3 to 11.5 kW and nominal heating capacities from 7.3 to 13.0 kW.
- New generation of heat pumps, featuring the latest technological innovations, such as scroll compressors and the ozone-friendly refrigerant HFC-410A.
- Integrated hydronic module, with pump and expansion tank, limiting the installation to simple operations like connection of the power supply and the water supply and return piping.
- Electronic, microprocessor-based auto-adaptive control system ensures intelligent control of the compressor start-up sequence, permitting operation at low system water volumes.
- Components are specifically designed for R-410A refrigerant, and all units have been submitted to the necessary laboratory tests to ensure perfect operation.
- One- or two two-speed axial fans with horizontal air discharge. Advanced design allows exceptionally low-noise operation.
- Compact unit dimensions and reduced weight facilitate installation.
- Galvanised steel panels guarantee increased resistance to atmospheric conditions.
- Removable panels for improved service and easier access to internal components.
- Condenser coils are made of copper tubes, mechanically expanded into aluminium fins, with an increased heat exchange surface.
- Refrigerant-to-water heat exchangers are plate heat exchangers, ensuring optimum heat transfer at reduced dimensions.
- Scroll compressors run very quietly and vibration-free, and are known for their durability and reliability.
- Microprocessor-controlled automatic outdoor heat exchanger defrost cycles allow the unit to operate with high efficiency at low outdoor temperatures.



Remote control

Physical data



30RH		007	009	011	013
Air conditioning application as per EN14511-3 : 2011					
Nominal cooling capacity	kW	6.3	7.0	9.3	11.5
Nominal heating capacity	kW	7.3	8.2	9.7	13.0
EER (cooling)/COP (heating)	kW/kW	2.35/2.59	2.40/2.58	2.91/2.71	2.56/2.63
ESEER part-load performance, cooling	kW/kW	2.35	2.45	2.92	2.65
Air conditioning application (1)					
Nominal cooling capacity	kW	6.3	7.1	9.5	11.4
Nominal heating capacity	kW	7.5	8.5	9.9	13.1
EER (cooling)/COP (heating)	kW/kW	2.27/2.60	2.37/2.53	2.83/2.68	2.45/2.70
ESEER part-load performance, cooling	kW/kW				
Operating weight	kg	85	88	112	123
Refrigerant		R-410A			
Compressor		One scroll compressor			
Refrigerant-to-water heat exchanger		One plate heat exchanger			
Hydronic circuit		One three-speed pump, water inlet/outlet connections 1 inch			
Expansion tank volume	l	2	3	3	3
Fans		One or two propeller fans			
Quantity		1	1	2	2

NOTE: For the conditions please refer to page 69.

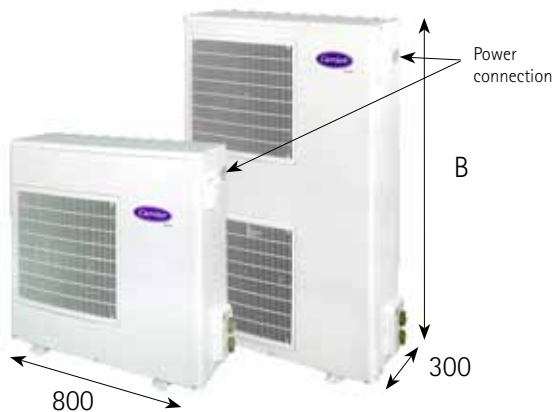
Electrical data

30RH		007	009	011	013
Power circuit					
Power supply	V-ph-Hz	400-3-50 ± 10%	400-3-50 ± 10%	400-3-50 ± 10%	400-3-50 ± 10%
Maximum power input*	kW	3.9	4.3	4.9	6.7
Locked rotor current	A	35	40	48	64
Full load current	A	6.5	6.5	8.0	11.5
Water circulating pump current draw (230-1-50)	A	0.50	0.50	0.90	0.97
Fan motor current draw (230-1-50)	A	0.94	0.90	1.80	1.80
Compressor crankcase heater current draw (230-1-50)	A	0.11	0.11	0.11	0.11

* Maximum power input at maximum operating conditions and worst power supply voltage.

Dimensions, mm

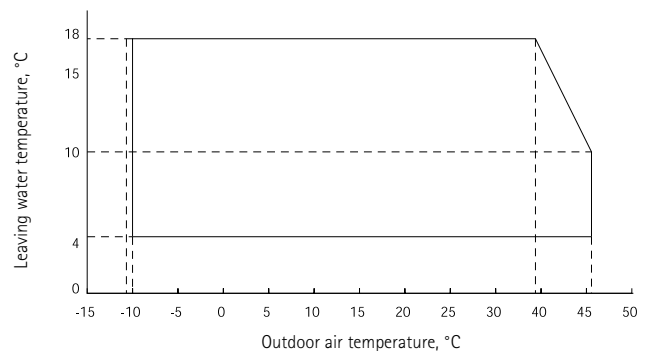
30RH	007	009	011	013
B	803	803	1264	1264



Operating range

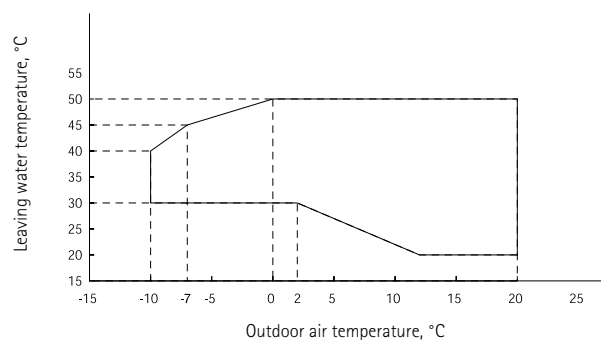
Cooling mode

Start-up leaving water temperature 35°C

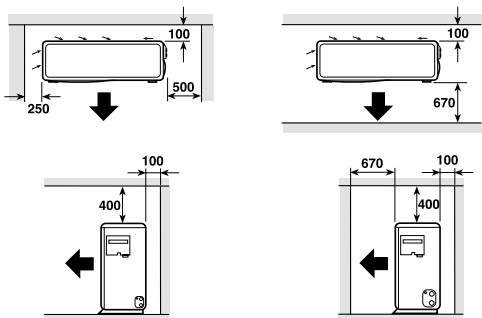


Heating mode

Start-up leaving water temperature 10°C



Clearances, mm



REVERSIBLE AIR-TO-WATER HEAT PUMPS



AQUASNAP PLUS
Reversible

Heating 30AWH

Options/accessories

- Unit without hydronic module (option)
- Unit with hydronic module (option)
- Unit with variable-speed pump (option)*
- Additional outdoor sensor (accessory)
- Remote controller 33AW-RC1 (accessory)
- Programmable thermostat 33AW-CS1 (accessory)

* Available in 2012

30AW controllers



Comfort™ Series programmable thermostat
33AW-CS1



Remote controller
33AW-RC1

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.
- Units integrate the latest technological innovations: ozone-friendly refrigerant R-410A, DC inverter twin-rotary compressors, low-noise fan and micro-processor control.
- Specifically designed for ease-of-installation and service and underlining Carrier's reputation for highest product quality and reliability.
- AquaSnap PLUS heat pump systems can be used with a wide choice of Carrier terminal fan coil units - cassettes, low, medium and high-pressure satellite units, console units, underceiling units and high-wall units.
- Wide operating range in both heating and cooling mode offering high performance in a wide temperature range.
- 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.
- Output to link and integrate the unit with existing heat sources to offer a bivalent approach, increased savings and optimum comfort in all weather conditions.
- Leaving water temperature up to 60°C for domestic hot water applications, making hot water readily available.
- Advanced circuit design and component selection has resulted in a compact unit with an exceptionally small footprint that can be easily transported even through narrow doors.
- Comprehensive quality and endurance tests.
- Enhanced control possibilities.

INVERTER
Technology

Physical data

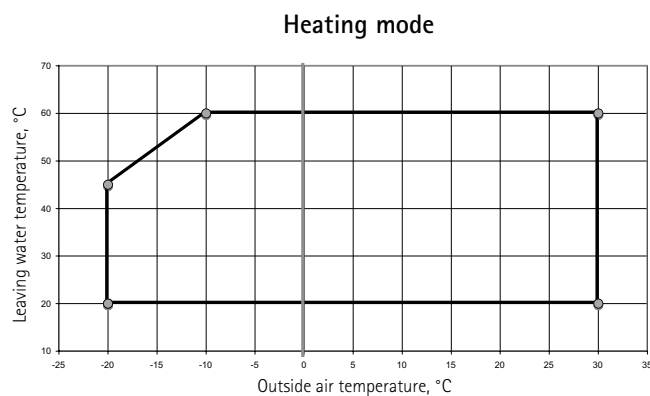
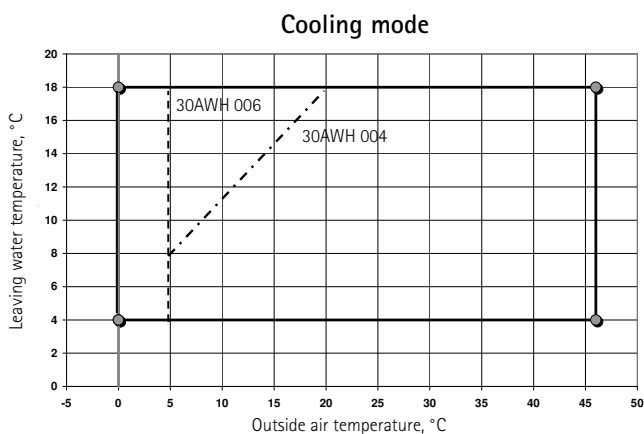
30AW		004	006	008	012	015
Air conditioning application as per EN14511-3 : 2011						
Nominal cooling capacity	kW	3.3	4.7	5.8	10.2	13.0
Nominal heating capacity	kW	4.0	6.0	7.0	13.0	14.0
EER (cooling)/COP (heating)	kW/kW	3.02/3.30	3.00/3.10	2.98/3.20	2.96/3.00	2.95/3.2
ESEER part-load performance, cooling	kW/kW	4.36	4.51	4.15	4.22	4.31
Air conditioning application (1)						
Nominal cooling capacity	kW	3.3	4.7	5.8	10.2	13.0
Nominal heating capacity	kW	3.9	5.8	7.4	12.9	14.0
EER (cooling)/COP (heating)	kW/kW	2.91/3.2	2.95/3.06	2.95/3.18	2.96/3.03	2.91/3.21
ESEER part-load performance, cooling	kW/kW	4.5	4.6	4.4	4.3	4.4
Cooling/heating floor application as per EN14511-3 : 2011						
Nominal cooling capacity	kW	4.93	7.04	7.84	13.54	16.04
Nominal heating capacity	kW	4.0	6.0	7.0	12.0	14.0
EER (cooling)/COP (heating)	kW/kW	4.2/4.2	3.7/4.3	3.99/4.0	3.66/4.0	3.85/4.1
Cooling/heating floor application (1)						
Nominal cooling capacity	kW	4.9	7.0	7.8	13.5	16.0
Nominal heating capacity	kW	4.1	5.8	7.2	11.9	14.5
EER (cooling)/COP (heating)	kW/kW	4.05/4.05	3.66/4.24	3.95/3.95	3.67/3.94	3.81/4.06
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
Dimensions						
Length x depth x height	mm	908 x 350 x 821	908 x 350 x 821	908 x 350 x 821	908 x 350 x 1363	908 x 350 x 1363

NOTE: For the conditions please refer to page 69.

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 ²	2.5	2.5	2.5	2.5	2.5

Operating range



HIGH-TEMPERATURE AIR-TO-WATER HEAT PUMPS



Heating 61AF

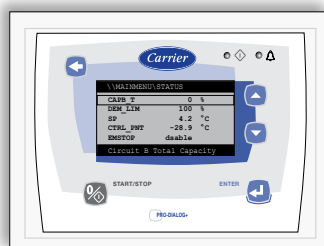
AQUASNAP
Heating

Accessories

- JBus, BacNet and LonTalk gateway
- Remote user interface
- Twinning - lead-lag kit

Features

- Two sizes with nominal heating capacities from 14 to 19 kW.
- AquaSnap high-temperature air-to-water heat pumps were designed for commercial applications such as the heating of offices, apartments and hotels as well as domestic hot water production in new and refurbished buildings.
- Units incorporate the latest technological features: scroll compressors with vapour injection, low-noise fans made of a composite material, auto-adaptative microprocessor control, electronic expansion valve and multi-speed pump.
- Units certified to the Eurovent energy efficiency class A with a COP of over 4 and comply with the COP required by the Ecolabel certification.
- 61AF heat pumps incorporate a hydronic module with a multi-speed pump, as standard.
- 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 for domestic hot water applications.
- 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.
- Low-noise scroll compressors with low vibration level.
- Simplified electrical connections.
- Comprehensive quality and endurance tests.



Pro-Dialog+ operator interface

Physical data

61AF		014-7	014-9	019
Air conditioning application as per EN14511-3 : 2011				
Nominal heating capacity (OAT 7°C)	kW	14.0	14.0	20.0
COP	kW/kW	3.5	3.5	3.5
Nominal heating capacity (OAT 2°C)	kW	10.0	10.0	14.0
COP	kW/kW	2.8	2.8	2.7
Air conditioning application (1)				
Nominal heating capacity	kW	14.0	14.0	19.8
COP	kW/kW	3.2	3.3	3.3
Heating floor application as per EN14511-3 : 2011				
Nominal heating capacity (OAT 7°C)	kW	14.0	14.0	20.0
COP	kW/kW	4.2	4.2	4.2
Nominal heating capacity (OAT 2°C)	kW	10.0	10.0	14.0
COP	kW/kW	3.2	3.2	3.1
Heating floor application (1)				
Nominal heating capacity	kW	14.0	14.0	19.8
COP	kW/kW	4.1	4.1	4.1
Operating weight*				
Standard unit without hydronic module	kg	159	159	206
Standard unit with hydronic module option	kg	169	169	216
Compressor				
One, hermetic scroll, 48.3 r/s				
Refrigerant***				
R-407C				
Condenser				
Direct-expansion plate heat exchanger				
Fan				
Axial				
Quantity		2	2	2
Air flow	l/s	2050	2050	2000
Evaporator				
Grooved copper tubes and aluminium fins				
Dimensions				
Length x depth x height	mm	1103 x 333 x 1278	1103 x 333 x 1278	1135 x 559 x 1579

NOTE: For the conditions please refer to page 69.

* 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
Power circuit							
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%
Control circuit supply							
24 V, via internal transformer							
Maximum start-up current (Un)*							
Standard unit	A	-	66	102	-	67	104
Unit with electronic starter option	A	47	-	-	48	-	-
Unit power factor at maximum capacity**							
		0.82	0.82	0.82	0.82	0.82	0.82
Maximum unit power input**							
	kW	6.41	5.90	8.80	6.62	6.10	9.20
Nominal unit current draw***							
	A	22.9	7.9	12.4	23.7	7.9	12.4
Maximum unit current draw (Un)****							
	A	30.7	10.8	16.0	31.5	10.8	16.0

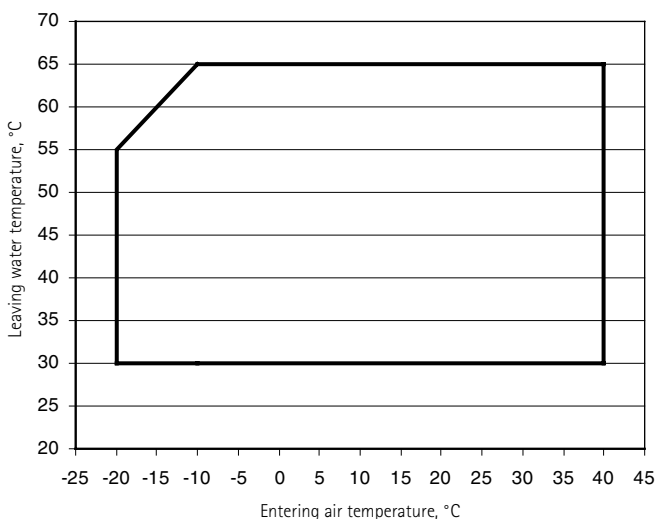
* Maximum instantaneous start-up current at operating limit values (maximum operating current of the pump + fan current + locked rotor current of the compressor).

** 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).

Operating range



HIGH-TEMPERATURE AIR-TO-WATER HEAT PUMPS



Heating 61AF

AQUASNAP
Heating

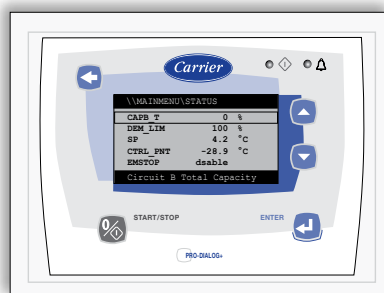
Options/accessories

- Condenser with pre-treated fins (option)
- Ductable version
- Low noise level (option)
- Soft starter (option)
- Frost protection down to -20°C (option)
- Low-pressure single-pump hydronic module (option)
- JBus, BacNet and LonTalk gateway (option/accessory)
- Heating system control (option)*
- Water screw connection and welded water connection between the customer's condenser and the unit (option)
- Remote user interface (accessory)
- Twinning - lead-lag kit (accessory)

* Available at the end of 2012

Features

- Seven sizes with nominal heating capacities from 21 to 102 kW.
- AquaSnap high-temperature air-to-water heat pumps were designed for commercial applications such as the heating of offices, apartments and hotels as well as domestic hot water production in new and refurbished buildings.
- Units incorporate the latest technological features: scroll compressors with vapour injection, low-noise fans made of a composite material, auto-adaptative microprocessor control, electronic expansion valve and multi-speed pump.
- Units certified to the Eurovent energy efficiency class A with a COP of over 4 and comply with the COP required by the Ecolabel certification.
- The high-temperature 61AF heat pumps incorporate an optional hydronic module with a multi-speed pump.
- 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 for domestic hot water applications.
- 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.
- Low-noise scroll compressors with low vibration level.
- Simplified electrical connections.
- Comprehensive quality and endurance tests.





Pro-Dialog+ operator interface



Hydronic module

Physical data

61AF		022	030	035	045	055	075	105	
	Air conditioning application as per EN14511-3 : 2011								
	Nominal heating capacity (OAT 7°C)	kW	21.0	26.0	32.0	44.0	52.0	67.0	102.0
	COP	kW/kW	3.5	3.5	3.4	3.6	3.7	3.4	3.6
	Nominal heating capacity (OAT 2°C)	kW	15.0	18.0	23.0	31.0	38.0	48.0	72.0
	COP	kW/kW	2.6	2.6	2.6	2.7	2.8	2.6	2.7
	Air conditioning application (1)								
	Nominal heating capacity	kW	20.8	25.7	32.2	43.6	52.2	66.7	102.0
	COP	kW/kW	3.6	3.5	3.5	3.7	3.7	3.4	3.6
	Heating floor application as per EN14511-3 : 2011								
	Nominal heating capacity (OAT 7°C)	kW	21.0	26.0	33.0	44.0	52.0	65.0	102.0
	COP	kW/kW	4.1	4.1	4.1	4.3	4.4	4.0	4.3
	Nominal heating capacity (OAT 2°C)	kW	15.0	19.0	23.0	31.0	38.0	49.0	72.0
	COP	kW/kW	3.1	3.1	3.1	3.3	3.4	3.1	3.2
Heating floor application (1)									
	Nominal heating capacity	kW	21.2	26.1	32.8	43.8	52.8	64.7	102.0
	COP	kW/kW	4.3	4.3	4.2	4.4	4.4	4.0	4.3
Operating weight*									
	Standard unit without hydronic module	kg	343	396	421	509	533	900	1020
	Standard unit with hydronic module option	kg	349	403	436	524	549	926	1046
Compressor		One, hermetic scroll 48.3 r/s						Two, hermetic scroll 48.3 r/s	
Condenser		Direct-expansion plate heat exchanger							
Fan		Axial with rotating shroud, Flying Bird IV							
	Quantity	1	1	1	1	1	2	2	
	Total air flow at high speed	l/s	3770	3748	3736	4035	4036	7479	8072
Evaporator		Grooved copper tubes and aluminium fins							
Refrigerant*		R-407C							
Dimensions									
	Length x depth x height	mm	1110 x 1327 x 1330			1114 x 2100 x 1330		2273 x 2100 x 1330	

NOTE: For the conditions please refer to page 69.

* 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
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)*								
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
Unit power factor at maximum capacity**		0.82	0.82	0.82	0.82	0.82	0.82	0.82
Maximum unit power input**	kW	8.7	11.6	12.9	14.6	16.8	25.8	33.7
Nominal unit current draw***	A	14.3	16.9	20.2	23.2	27.9	39.7	55.1
Maximum unit current draw (Un)****	A	16.1	21.3	24.1	27.1	31.1	47.5	61.5

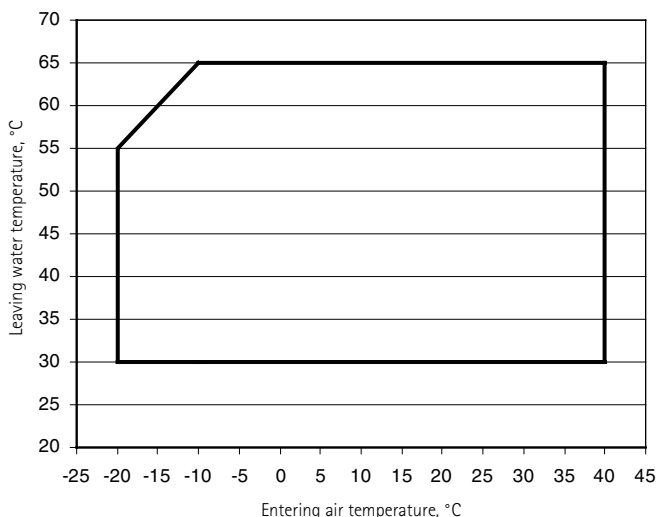
* Maximum instantaneous start-up current at operating limit values (maximum operating current of the compressor + fan current + locked rotor current of the compressor).

** 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).

Operating range



— Full load

AIR-TO-WATER HEAT PUMPS



Heating 30RQ

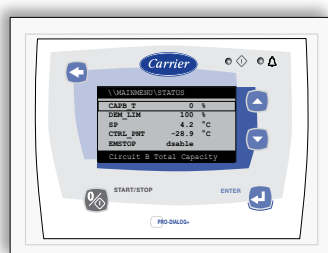
AQUASNAP
Reversible

Options/accessories

- Unit without hydronic module (option)
- Integrated water fill system (option)
- Power supply without neutral (option)
- JBus, BacNet and LonTalk gateways (accessory)
- Remote interface (accessory)
- Integrated water fill system (accessory)

Features

- Four sizes with nominal cooling capacities from 16 to 33 kW and nominal heating capacities from 17 to 33 kW.
- The new generation of Aquasnap heat pumps for commercial applications such as the air conditioning of offices and hotels.
- Integrates the latest technological innovations: ozone-friendly refrigerant R-410A, scroll compressors, low-noise fans and auto-adaptive microprocessor control.
- 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.
- The unit has a small footprint and is enclosed by easily removable panels.
- Simplified electrical connections.
- 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.
- 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.



Pro-Dialog+ operator interface



Hydronic module (sizes 026-033 shown)

Physical data

30RQ		017	021	026	033
Air conditioning application as per EN14511-3 : 2011					
Nominal cooling capacity	kW	16.1	20.3	26.8	32.8
Nominal heating capacity	kW	17.0	22.0	30.0	33.0
EER (cooling)/COP (heating)	kW/kW	3.15/3.20	3.12/3.30	2.98/3.20	3.19/3.20
ESEER part-load performance, cooling	kW/kW	3.59	3.45	3.32	3.55
Air conditioning application (1)					
Nominal cooling capacity	kW	16.2	20.4	27.0	33.1
Nominal heating capacity	kW	16.8	21.4	29.6	33.0
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
Cooling/heating floor application as per EN14511-3 : 2011					
Nominal cooling capacity	kW	22.3	27.4	34.4	43.5
Nominal heating capacity	kW	18.0	22.0	31.0	35.0
EER (cooling)/COP (heating)	kW/kW	4.04/4.0	3.79/4.0	3.59/3.9	3.91/3.9
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
Dimensions					
Length x depth x height	mm	1136 x 584 x 1579	1136 x 584 x 1579	1002 x 824 x 1790	1002 x 824 x 1790

NOTE: For the conditions please refer to page 69.

* 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

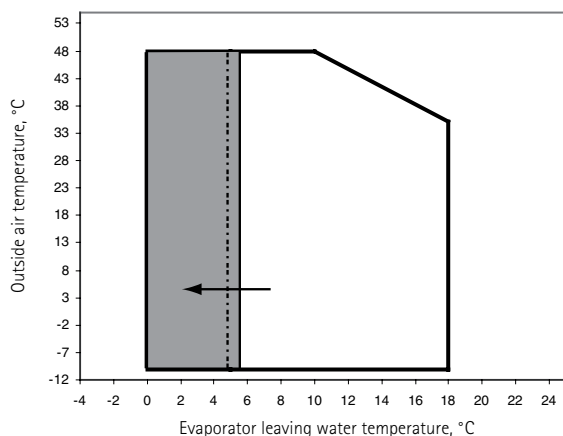
* Maximum instantaneous start-up current (locked rotor current of the compressor).

** 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.

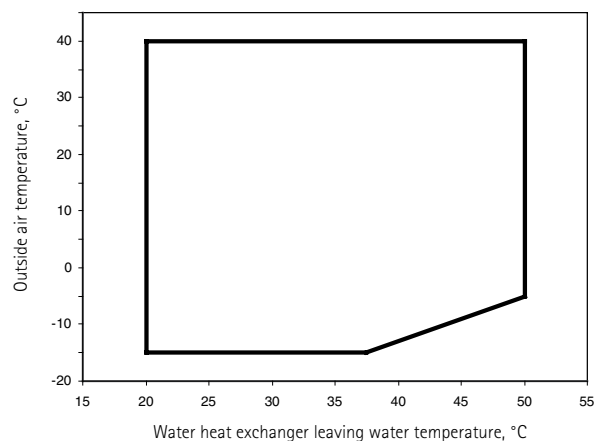
Operating range

Cooling mode



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

Heating mode



DUCTABLE AIR-TO-WATER HEAT PUMPS



AQUASNAP
Reversible

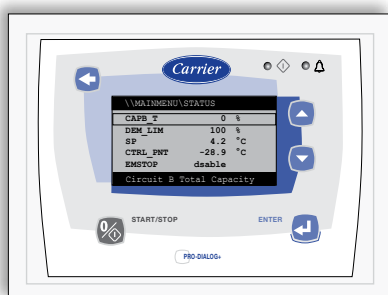
Heating 30RQY

Options/accessories

- Hydronic module (option)
- Integrated water fill system (option/ accessory)
- Inlet duct frame (option)
- Inlet filter frame (option)
- JBus, BacNet and LonTalk gateways (accessory)
- Remote interface (accessory)
- Condensate drain pan (accessory)

Features

- Four sizes with nominal cooling capacities from 15 to 32 kW and nominal heating capacities from 17 to 31 kW.
- The new generation of Aquasnap heat pumps for commercial applications such as the air conditioning of offices and hotels.
- Integrates the latest technological innovations: ozone-friendly refrigerant R-410A, scroll compressors, low-noise fans and auto-adaptive microprocessor control.
- 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.
- Low-noise fans, now even quieter. Rigid fan installation for reduced start-up noise.
- Easy duct connection and fans with 80 Pa available pressure.
- The unit has a small footprint and is enclosed by easily removable panels.
- Simplified electrical connections.
- 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.
- 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.



Pro-Dialog+ operator interface



Hydronic module, sizes 026-033

Physical data

30RQY		017	021	026	033
Air conditioning application as per EN14511-3 : 2011					
Nominal cooling capacity	kW	14.9	19.1	27.1	32.4
Nominal heating capacity	kW	17.0	20.0	29.0	31.0
EER (cooling)	kW/kW	2.62	2.63	2.88	3.03
COP (heating)	kW/kW	2.8	2.8	2.7	2.7
ESEER part-load performance, cooling	kW/kW	2.91	2.88	3.15	3.30
Air conditioning application (1)					
Nominal cooling capacity	kW	15.0	19.2	27.3	32.6
Nominal heating capacity	kW	16.9	20.3	28.5	31.1
EER (cooling)	kW/kW	2.72	2.72	3.03	3.19
COP (heating)	kW/kW	2.81	2.81	2.81	2.81
ESEER part-load performance, cooling	kW/kW	3.41	3.24	3.87	3.97
Cooling/heating floor application as per EN14511-3 : 2011					
Nominal cooling capacity	kW	18.5	23.9	35.7	41.3
Nominal heating capacity	kW	17.0	21.0	30.0	32.0
EER (cooling)	kW/kW	2.94	3.03	3.51	3.59
COP (heating)	kW/kW	3.4	3.3	3.3	3.3
Operating weight*					
Standard unit (with hydronic module)	kg	226	243	280	295
Standard unit (without hydronic module)	kg	211	228	262	277
Refrigerant					
R-410A					
Compressor					
One scroll compressor					
Control					
Pro-Dialog+					
Fans					
Two twin-speed centrifugal fans, backward-curved blades					
One twin-speed axial fan					
Air flow	l/s	1640	1640	3472	3472
Evaporator					
One plate heat exchanger					
Condenser					
Copper tubes and aluminium fins					
Unit with hydronic module					
One single-speed pump, screen filter, expansion tank, flow switch, water circuit drain valve, pressure gauge, automatic air purge valve, safety valve					
Power input	kW	0.54	0.59	0.99	1.20
Nominal operating current	A	1.30	1.40	2.40	2.60
Dimensions					
Length x depth x height	mm	1135 x 584 x 1608	1135 x 584 x 1608	1002 x 824 x 1829	1002 x 824 x 1829

NOTE: For the conditions please refer to page 69.

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

Electrical data

30RQY		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	8.0	9.3	11.2	14.0
Nominal unit operating current draw***	A	13	16	20	24

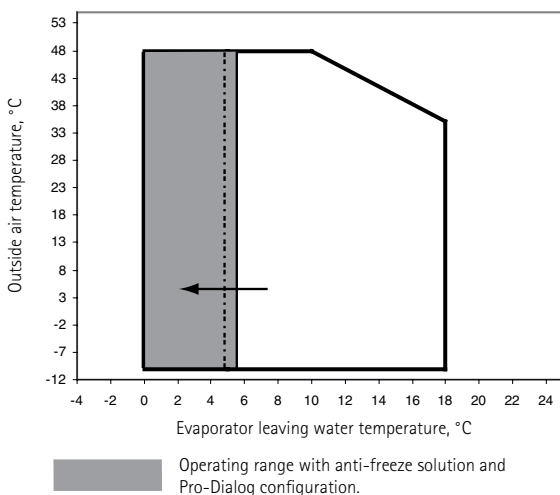
* Maximum instantaneous start-up current (locked rotor current of the compressor).

** 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).

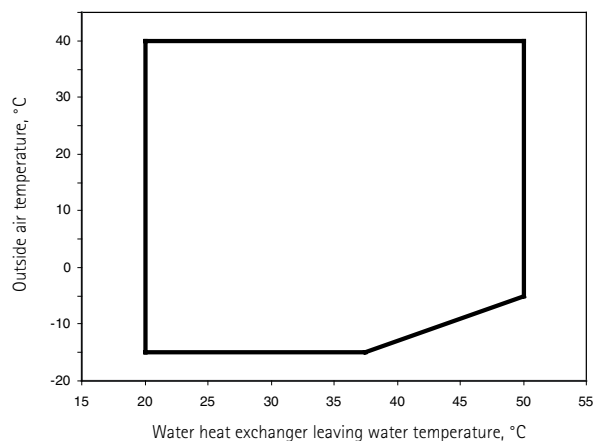
*** Standardised Eurovent conditions: water heat exchanger entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

Operating range

Cooling mode



Heating mode



AIR-TO-WATER HEAT PUMPS

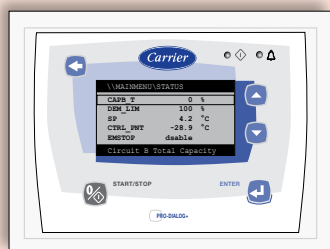


Heating 30RQS



Options/accessories

- Air heat exchanger with pre-treated fins (option)
- Very low noise level (option)
- Soft starter (30RQS 039-080 - option)
- Winter operation (option)
- Frost protection down to -20°C (option)
- High- and low-pressure single and dual-pump hydronic modules (option)
- High-pressure variable-speed single- or dual-pump hydronic modules (option)
- JBus, BacNet and LonTalk gateways (option)
- Screw or welded water heat exchanger connection sleeves (option)
- Twinning (accessory)
- Remote interface (accessory)
- Board for additional heating stages (accessory)





Pro-Dialog+ operator interface

Features

- Twelve sizes with nominal cooling capacities from 38 to 149 kW and nominal heating capacities from 42 to 158 kW.
- New generation of Aquasnap heat pumps for commercial or industrial applications.
- Integrates the latest technological innovations: ozone-friendly refrigerant R-410A, scroll compressors, low-noise fans made of a composite material, auto-adaptive microprocessor control, electronic expansion valve and variable-speed pump (option).
- Low-noise scroll compressors with low vibration level.
- Vertical air heat exchanger coils with protection grilles on anti-vibration mountings.
- Low-noise Flying Bird IV fans, made of a composite material. Rigid fan installation for reduced start-up noise.
- Small unit footprint and a low height (1330 mm), enclosed by easily removable panels.
- Simplified electrical connections.
- Systematic operation test before shipment and quick-test function for step-by-step verification of the instruments, electrical components and motors.
- Several compressors connected in parallel. At part load, around 99% of the time, only the compressors that are necessary operate, ensuring increased energy efficiency.
- The electronic expansion device (EXV) allows operation at a lower condensing pressure (EER optimisation), and dynamic superheat management optimises the utilisation of the water heat exchanger surface.
- 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

30RQS		039	045	050	060	070	078	080	090	100	120	140	160
	Air conditioning application as per EN14511-3 : 2011												
Nominal cooling capacity	kW	38.0	43.5	49.8	58.5	63.6	73.7	77.7	85.6	95.9	113.2	131.6	149.4
Nominal heating capacity	kW	42.0	47.0	53.0	61.0	70.0	78.0	80.0	93.0	101.0	117.0	138.0	158.0
EER (cooling)	kW/kW	2.84	2.70	2.65	2.77	2.70	2.58	2.79	2.70	2.70	2.69	2.77	2.58
COP (heating)	kW/kW	3.10	3.10	3.00	3.00	3.10	2.90	3.10	3.00	3.10	3.10	3.10	3.00
ESEER part-load performance, cooling	kW/kW	3.80	3.77	3.81	3.61	3.61	3.57	3.84	3.77	3.88	4.04	3.75	3.67
Air conditioning application (1)													
Nominal cooling capacity	kW	38.3	43.8	50.1	58.9	64.1	74.2	78.1	86.1	96.5	113.9	132.4	150.3
Nominal heating capacity	kW	41.6	46.4	53.0	60.9	69.1	77.0	79.2	92.2	100.3	116.1	137.0	157.0
EER (cooling)	kW/kW	2.92	2.78	2.72	2.84	2.78	2.64	2.85	2.77	2.76	2.76	2.84	2.64
COP (heating)	kW/kW	3.12	3.09	3.07	3.07	3.11	2.91	3.11	3.06	3.12	3.10	3.10	3.01
ESEER part-load performance, cooling	kW/kW	4.00	4.00	4.03	3.80	3.81	3.75	4.00	4.00	4.12	4.30	4.00	3.92
	Cooling/heating floor application as per EN14511-3 : 2011												
Nominal cooling capacity	kW	47.5	54.4	63.2	71.3	78.9	93.1	97.4	107.9	117.7	143.2	163.1	186.8
Nominal heating capacity	kW	43.0	47.0	55.0	63.0	71.0	80.0	83.0	95.0	103.0	121.0	141.0	162.0
EER (cooling)	kW/kW	3.28	3.16	3.09	3.12	3.08	2.97	3.19	3.14	3.10	3.10	3.17	2.92
COP (heating)	kW/kW	3.70	3.70	3.80	3.70	3.70	3.50	3.70	3.70	3.80	3.70	3.70	3.60
Operating weight*													
Standard unit without hydronic module	kg	506	513	539	552	553	560	748	895	903	959	1060	1078
Standard unit with hydronic module													
Single high-pressure pump	kg	535	543	569	582	582	590	778	927	935	995	1099	1117
Dual high-pressure pump	kg	561	569	594	608	608	616	804	972	980	1043	1136	1127
Compressors		Hermetic scroll compressors, 48.3 r/s											
Circuit A/B		2/-	2/-	2/-	2/-	2/-	2/-	2/-	3/-	3/-	3/-	2/2	2/2
Refrigerant		R-410A											
Capacity control		Pro-Dialog+											
Air heat exchangers		Grooved copper tubes and aluminium fins											
Fans		Axial Flying Bird IV with rotating shroud											
Quantity		1	1	1	1	1	1	2	2	2	2	2	2
Total air flow (at high speed)	l/s	3800	3800	3800	5300	5300	5300	7600	7600	7600	7600	10600	10600
Water heat exchanger		Direct expansion, plate heat exchanger											
Hydronic module (option)		Single or dual pump, Victaulic screen filter, safety valve, expansion tank, purge valves (water and air), pressure sensors											
Dimensions													
Length x depth x height	mm	1090 x 2109 x 1330						2273 x 2136 x 1330					

NOTE: For the conditions please refer to page 69.

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

Electrical data

30RQS without hydronic module		039	045	050	060	070	078	080	090	100	120	140	160
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)*													
Standard unit	A	112.7	130.9	141.0	145.9	170.4	209.4	209.4	168.8	195.8	239.8	226.2	275.2
Unit with electronic starter option	A	74.7	86.5	93.8	98.7	114.4	139.8	-	-	-	-	-	-
Maximum operating power input**													
Nominal unit operating current draw***	A	25.7	30.6	34.9	40.8	45.6	55.8	55.8	57.8	67.1	82.7	91.2	112.2

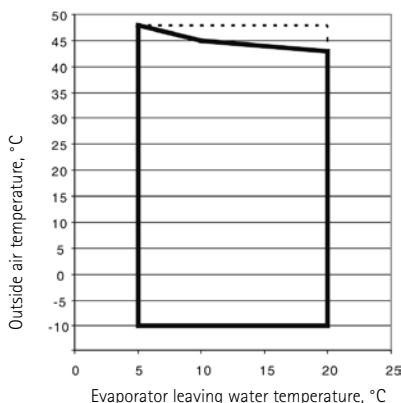
* Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor).

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

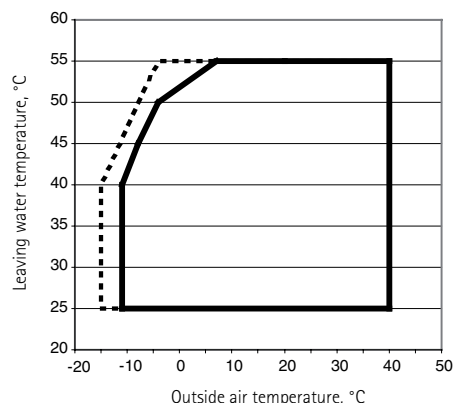
*** Standardised Eurovent conditions: evaporator entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

Operating range

Cooling mode



Heating mode



DUCTABLE AIR-TO-WATER HEAT PUMPS

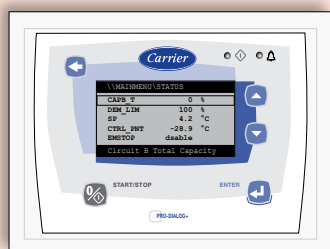


Heating 30RQSY

AQUASNAP
Reversible

Options/accessories

- Air heat exchanger with pre-treated fins (option)
- Very low noise level (option)
- Suction air filters mounted on rails (30RQSY 039-078 -option)
- Soft starter (30RQSY 039-080 - option)
- Frost protection down to -20°C (option)
- High- and low-pressure single and dual-pump hydronic modules (option)
- High-pressure variable-speed single- or dual-pump hydronic modules (option)
- JBus, Bacnet and LonTalk gateways (option)
- Screw or welded water heat exchanger connection sleeves (option)
- Twinning (accessory)
- Remote interface (accessory)
- Board for additional heating stages (accessory)
- Unit support with condensate recovery pan (30RQSY 039-078 -accessory)






Pro-Dialog+ operator interface

Features

- Twelve sizes with nominal cooling capacities from 37 to 147 kW and nominal heating capacities from 42 to 159 kW.
- New generation of Aquasnap heat pumps for commercial or industrial applications. The units include inverter fans to maximise EERs and COPs at all operating conditions.
- Integrates the latest technological innovations: ozone-friendly refrigerant R-410A, scroll compressors, low-noise fans made of a composite material, auto-adaptive microprocessor control, electronic expansion valve and variable-speed pump (option).
- Available static pressure of up to 240 Pa for sizes 039 to 050 and 080 to 120, and up to 180 Pa for sizes 060 to 078 and 140 to 160.
- Low-noise scroll compressors with low vibration level.
- Vertical air heat exchanger coils with protection grilles on anti-vibration mountings.
- Low-noise Flying Bird IV fans, made of a composite material. Rigid fan installation for reduced start-up noise.
- Small unit footprint and a low height (1330 mm), enclosed by easily removable panels.
- Simplified electrical connections.
- Systematic operation test before shipment and quick-test function for step-by-step verification of the instruments, electrical components and motors.
- Several compressors connected in parallel. At part load, around 99% of the time, only the compressors that are necessary operate, ensuring increased energy efficiency.
- The electronic expansion device (EXV) allows operation at a lower condensing pressure (EER and COP optimisation), and dynamic superheat management optimises the utilisation of the water heat exchanger surface.
- 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

30RQSY		039	045	050	060	070	078	080	090	100	120	140	160
	Air conditioning application as per EN14511-3 : 2011												
Nominal cooling capacity	kW	37.2	43.5	49.8	57.6	62.6	72.6	77.7	85.6	95.9	113.2	129.6	147.1
Nominal heating capacity	kW	42.0	47.0	54.0	62.0	70.0	78.0	80.0	93.0	101.0	117.0	139.0	159.0
EER (cooling)	kW/kW	3.04	2.91	2.81	2.92	2.81	2.64	2.81	2.83	2.83	2.83	2.86	2.65
COP (heating)	kW/kW	3.30	3.20	3.10	3.30	3.30	3.10	3.20	3.20	3.10	3.10	3.20	3.10
ESEER part-load performance, cooling	kW/kW	4.36	4.36	4.25	4.25	4.09	3.92	3.78	4.11	4.21	4.46	4.72	4.57
	Air conditioning application (1)												
Nominal cooling capacity	kW	37.5	43.8	50.1	58.0	63.1	73.0	78.1	86.1	96.5	114	130	148
Nominal heating capacity	kW	41.6	46.4	53.1	61.3	69.5	77.4	79.2	92.2	100	116	138	158
EER (cooling)	kW/kW	3.18	3.04	2.93	2.98	2.89	2.72	3.09	2.94	2.93	2.94	2.94	2.68
COP (heating)	kW/kW	3.36	3.31	3.20	3.30	3.30	3.12	3.46	3.24	3.20	3.23	3.26	3.08
ESEER part-load performance, cooling	kW/kW	7.84	6.79	6.16	5.67	5.34	4.99	7.42	5.31	5.41	6.01	5.87	5.16
	Cooling/heating floor application as per EN14511-3 : 2011												
Nominal cooling capacity	kW	46.6	54.4	63.2	70.1	77.5	91.5	97.4	107.9	117.7	143.2	160.3	183.6
Nominal heating capacity	kW	43.0	47.0	55.0	63.0	72.0	80.0	83.0	95.0	103.0	121.0	142.0	163.0
EER (cooling)	kW/kW	3.48	3.39	3.26	3.27	3.20	3.030	3.21	3.28	3.25	3.24	3.26	2.98
COP (heating)	kW/kW	4.00	4.00	3.90	4.10	4.00	3.80	3.80	3.90	3.80	3.90	4.00	3.70
Operating weight*													
Standard unit without hydronic module	kg	521	528	559	573	573	580	762	930	939	994	1090	1107
Standard unit with hydronic module													
Single high-pressure pump	kg	551	558	588	602	603	610	792	961	971	1030	1129	1146
Dual high-pressure pump	kg	577	584	614	628	629	636	818	1006	1016	1078	1166	1183
Compressors		Hermetic scroll compressors. 48.3 r/s											
Circuit A/B		2/-	2/-	2/-	2/-	2/-	2/-	2/-	3/-	3/-	3/-	2/2	2/2
Refrigerant		R-410A											
Capacity control		Pro-Dialog+											
Air heat exchangers		Grooved copper tubes and aluminium fins											
Fans		Axial Flying Bird IV with rotating shroud											
Quantity		1	1	1	1	1	1	2	2	2	2	2	2
Total air flow (at high speed)	l/s	3500	3500	3500	4600	4600	4600	7000	7000	7000	7000	9200	9200
Water heat exchanger		Direct expansion, plate heat exchanger											
Hydronic module (option)		Single or dual pump, Victaulic screen filter, safety valve, expansion tank, purge valves (water and air), pressure sensors											
Dimensions**													
Length x depth x height	mm	2109 x 1132/1297 x 1371			2142/2307 x 1132/1297 x 1371			2273 x 2122 x 1371					

NOTE: For the conditions please refer to page 69.

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

** The first value is for units without filter frame, and the second value is for units with option 23B and filter frame.

Electrical data

30RQSY without hydronic module		039	045	050	060	070	078	080	090	100	120	140	160	
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)*														
Standard unit	A	115.8	134.3	144.3	146.3	170.8	210.3	216.6	174.6	201.6	246.6	226.1	276.6	
Unit with electronic starter option	A	77.8	90.2	97.3	99.3	114.8	140.3	146.6						
Maximum operating power input**		kW	21.4	24.2	26.4	29.8	32.0	36.6	39.4	46.1	49.4	56.3	64.0	73.2
Nominal unit operating current draw***		A	31.3	34.3	38.3	43.3	46.3	58.3	64.6	68.1	72.6	90.6	92.6	116.6

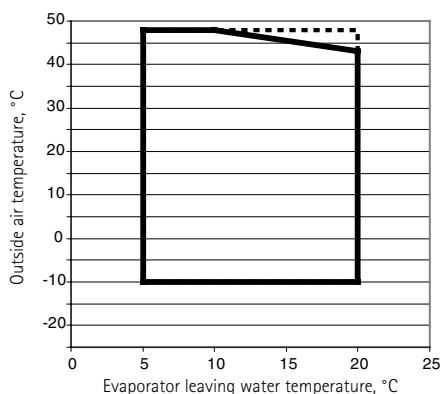
* Maximum instantaneous start-up current at operating limit values (maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor).

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

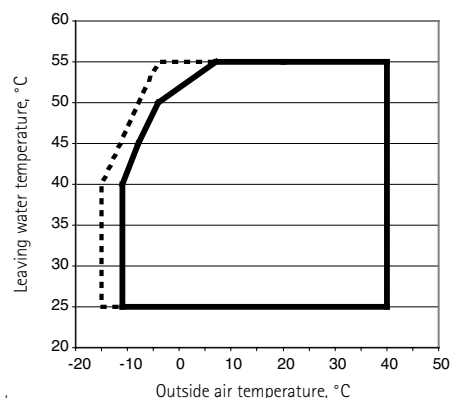
*** Standardised Eurovent conditions: evaporator entering/leaving water temperature 12°C/7°C, outside air temperature 35°C.

Operating range

Cooling mode



Heating mode



— Full load
- - - Part load

AIR-TO-WATER HEAT PUMPS WITH INTEGRATED HYDRONIC MODULE



Heating 30RQ

AQUASNAP
Reversible

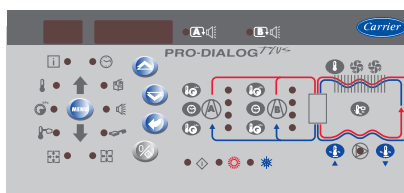
Options/accessories

- Euro Pack: enclosure panels, water heat exchanger frost protection, main disconnect switch and low noise level*
- Air heat exchanger corrosion protection*
- Units for indoor installation with discharge ducts*
- Low and very low noise levels*
- Grilles on all four unit faces*
- Enclosure panels on each end of coils*
- Winter operation*
- Water heat exchanger frost protection*
- Water heat exchanger and hydronic module frost protection*
- Partial heat reclaim*
- Twinning*
- Main disconnect switch with or without fuse (302-522)*
- Water heat exchanger (all) or water heat exchanger and hydronic module (302-522) with aluminium jacket*
- High and low-pressure single or dual-pump hydronic modules*
- JBus, BacNet or LonTalk gateways*
- Energy Management Module EMM***
- Safety valve with three-way valve fitted*
- Conforms to Australian codes*
- Unit storage above 48°C*
- Coil defrost resistance heaters*
- Traditional Cu/Al coils*
- Shell-and-tube water heat exchanger Connection sleeve**
- Scrolling Marquee Interface**
- Power cable connection side extension (302-522)**
- Connection sleeve, standard unit**

* Option ** Accessory *** Option/accessory



Features

- Eleven sizes with nominal cooling capacities from 177 to 470 kW and nominal heating capacities from 184 to 554 kW.
- State-of-the-art Aquasnap heat pumps featuring the latest technological innovations and operating on the ozone-friendly refrigerant R-410A.
- Integrated hydronic module with water pump and expansion tank.
- Low-noise scroll compressors with low vibration levels.
- V-shaped air heat exchanger coils, allowing quieter air flow across the coil.
- Low-noise 4th generation Flying Bird fans, now even quieter. Rigid fan installation prevents start-up noise.
- Simplified electrical connections.
- Fast commissioning, as all units are systematically run tested before shipment.
- Economical operation with increased energy efficiency at part load and dynamic superheat management.
- Leak-tight refrigerant circuit and reduced maintenance costs.
- Auto-adaptive control algorithm and automatic compressor unloading for increased reliability.
- Exceptional endurance tests.



Pro-Dialog Plus operator interface

Physical data, 30RQ 182-262 "B" + 30RQ 302-522 units

30RQ 182-262 "B" + 30RQ 302-522		182	202	232	262	302	342	372	402	432	462	522	
 Air conditioning application as per EN14511-3 : 2011													
Nominal cooling capacity	kW	177.2	198.0	216.5	250.4	278.5	308.9	333.3	368.4	392.4	435.5	469.5	
Nominal heating capacity	kW	184.0	205.0	221.0	268.0	303.0	336.0	367.0	408.0	446.0	507.0	554.0	
EER (cooling)	kW/kW	2.93	2.70	2.84	2.62	2.63	2.46	2.63	2.49	2.59	2.59	2.40	
COP (heating)	kW/kW	2.90	2.80	3.00	2.90	2.70	2.80	2.80	2.70	2.80	2.80	2.70	
ESEER part-load performance, cooling	kW/kW	3.97	3.68	4.18	3.67	4.03	3.75	3.50	3.54	3.61	3.43	3.25	
Air conditioning application (1)													
Nominal cooling capacity	kW	178.0	199.0	217.0	251.0	280.0	310.0	334.0	370.0	394.0	437.0	472.0	
Nominal heating capacity	kW	183.0	204.0	221.0	267.0	302.0	335.0	366.0	407.0	445.0	505.0	551.0	
EER (cooling)	kW/kW	2.98	2.75	2.89	2.66	2.67	2.49	2.65	2.52	2.62	2.63	2.43	
COP (heating)	kW/kW	2.87	2.85	3.00	2.87	2.74	2.81	2.85	2.75	2.81	2.81	2.74	
ESEER part-load performance, cooling	kW/kW	4.16	3.83	4.38	3.84	4.20	3.87	3.60	3.66	3.75	3.58	3.40	
 Cooling/heating floor application as per EN14511-3 : 2011													
Nominal cooling capacity	kW	177.2	198.0	216.5	250.4	279.5	308.9	333.3	368.4	392.4	435.5	469.5	
Nominal heating capacity	kW	192.0	213.0	231.0	276.0	306.0	337.0	368.0	407.0	443.0	507.0	549.0	
EER (cooling)	kW/kW	2.93	2.70	2.84	2.62	2.63	2.46	2.63	2.49	2.59	2.59	2.40	
COP (heating)	kW/kW	3.60	3.50	3.70	3.50	3.30	3.40	3.50	3.30	3.30	3.40	3.20	
Operating weight - standard unit*	kg	1714	1825	1834	2046	3045	3241	3328	3458	4028	4194	4384	
Compressors	Hermetic scroll, 48.3 r/s												
Refrigerant	R-410A												
Capacity control	Pro-Dialog Plus												
Air heat exchangers	Grooved copper tubes and aluminium fins												
Fans	Axial Flying Bird 4 fans with rotating shroud												
Quantity		4	4	4	4	5	5	6	6	8	8	8	
Total air flow	l/s	18056	18056	18056	18056	22569	22569	27083	27083	31597	36111	36111	
Water heat exchanger	Twin-circuit plate heat exchanger												
Dimensions	Direct-expansion twin-circuit. shell-and-tube heat exchanger												
Length x depth x height	mm	2457 x 2253 x 2297				3604 x 2253 x 2297				4798 x 2253 x 2297			

NOTE: For the conditions please refer to page 69.

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

Electrical data, 30RQ 182-262 "B" + 30RQ 302-522 units

30RQ (without hydronic module)	182	202	232	262	302	342	372	402	432	462	522
Power circuit											
Nominal power supply	V-ph-Hz	400-3-50 ± 10%									
Control circuit supply		24 V, via internal transformer									
Maximum power input* - circuits A + B/C	kW	85	98	102	127	140	159	166	191	204	229
Nominal current draw** - circuits A + B/C	A	113	129	135	167	185	209	219	251	269	302
Maximum start-up current*** - circuits A + B/C	A	353	375	348	426	448	481	492	536	558	601

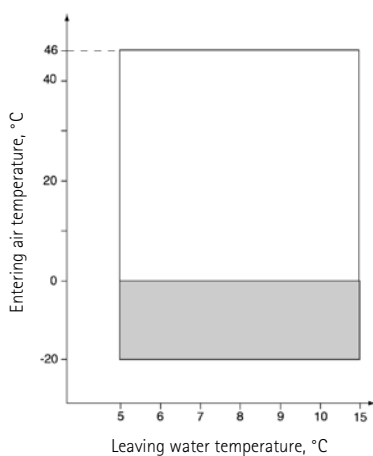
* Power input of the compressor(s) + fan(s) at maximum unit operating conditions saturated suction temperature 10°C, saturated condensing temperature 65°C at 400 V nominal voltage (values given on the unit name plate).

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

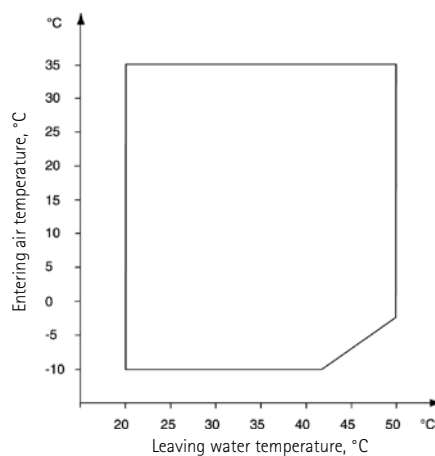
*** Maximum instantaneous starting current at operating limit values (maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor).

Operating range

Cooling mode



Heating mode



Note: Water heat exchanger and air heat exchanger $\Delta t = 5$ K

- Operating range, standard unit
- Operating range, unit equipped with option 28 (winter operation). In addition the unit must either be equipped with the frost protection option for the water heat exchanger and the hydronic module (if used), or the water loop must be protected against frost by the installer, using an anti-freeze solution.

WATER-SOURCE HEAT PUMPS

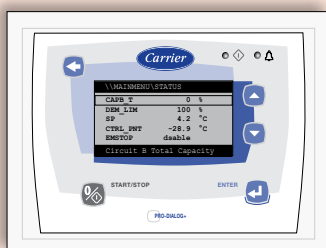


Heating 61WG



Options/accessories

- Soft starter
- Twinning
- External disconnect handle
- Condenser insulation
- Low or high-pressure single-pump hydronic module, evaporator side
- JBus, Bacnet and LON gateways
- Specific single-source heating control
- Control of multi-source heating system
- Low sound level (-3 dB(A) compared to standard unit)
- Screw or welded evaporator connection sleeves
- Screw or welded water connection between customer condenser and unit
- Low-pressure single-pump hydronic module, condenser side
- High-pressure hydronic module with single variable-speed pump, condenser side
- High-temperature water production, condenser side, with glycol solution on the evaporator side
- Unit stackable for operation
- Customer water connection at the top of the unit
- Remote user interface



Pro-Dialog+ operator interface

Features

- Eleven sizes with nominal cooling capacities from 24 to 95 kW and nominal heating capacities from 29 to 117 kW.
- New generation of heat pumps designed for commercial (offices, hotels etc.), residential (houses, apartments etc.) or industrial applications (domestic hot-water production etc.).
- Optimised for heating applications with a leaving water temperature up to 65°C (without supplementary heating), evaporator temperature down to -5°C and a COP of above 5.
- Units are equipped with the latest generation R-410A scroll compressor, optimised for high-performance.
- Large number of options: hydronic kits with or without variable water flow rate, reinforced sound insulation, stacking and connection of two units, or operation with low-temperature glycol solution down to -12°C. Product range offers a unique combination of high performance and functionality in an exceptionally compact chassis.
- The high temperature makes these units compatible with most heat sources, both in new and refurbished buildings and permits domestic hot water production in significant quantities (dual setpoint).
- Units use weather compensation control and control four supplementary electric heating stages or a relief boiler.
- Complete hydronic kit for both evaporator and condenser with different levels of available pressure, with variable or fixed speed.
- Needle valve control for easier transition from the comfort mode to domestic hot water production using a collection tank (not supplied).
- Reversibility by water flow inversion in the system.
- Pro-Dialog+ control and compatibility with the Aquasmart system
- Units available with connections at the top or at the rear.
- Easy installation: small footprint, ideal for refurbished buildings, allows access in very tight plant rooms.
- The variable water flow (VWF) technology of the variable-flow pump, optimises system operation and enhances energy efficiency.
- Standard low sound level allows installation in any building type.

Physical data



61WG		020	025	030	035	040	045	050	060	070	080	090
Air conditioning application as per EN14511-3 : 2011												
Heating capacity	kW	29.0	34.4	38.3	44.2	50.2	57.2	68.6	78.2	88.4	100	117
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
COP (heating)	kW/kW	5.42	5.29	5.20	5.29	5.34	5.32	5.49	5.36	5.46	5.28	5.33
EER (cooling)	kW/kW	4.43	4.30	4.21	4.30	4.35	4.33	4.50	4.37	4.47	4.29	4.34
Operating weight	kg	191	200	200	207	212	220	386	392	403	413	441
Compressors												
Hermetic scroll 48.3 r/s												
Quantity		1	1	1	1	1	1	2	2	2	2	2
Number of capacity stages		1	1	1	1	1	1	2	2	2	2	2
Minimum capacity	%	100%	100%	100%	100%	100%	100%	50%	50%	50%	50%	50%
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
Refrigerant*	R-410A											
Control	Pro-Dialog+											
Evaporator	Direct-expansion plate heat exchanger											
Condenser	Plate heat exchanger											

NOTE: For the conditions please refer to page 69.

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

** The first value is for units without filter frame, and the second value is for units with option 23B and filter frame.

Electrical data

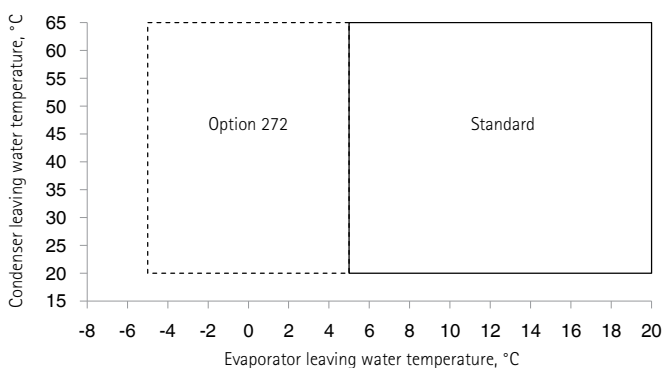
61WG		020	025	030	035	040	045	050	060	070	080	090
Power circuit												
Nominal voltage	V-ph-Hz	400-3-50 ± 10%										
Control circuit supply		24 V, via internal transformer										
Maximum start-up current draw (Un)*												
Standard unit	A	98	142	142	147	158	197	164	166	175	189	233
Unit with electronic starter option	A	53.9	78.1	78.1	80.9	86.9	108.4	100.1	102.1	108.9	117.9	144.4
Maximum operating power input**	kW	9.7	11.4	12.7	14.6	16.5	18.6	22.8	25.4	29.2	33	37.2
Maximum operating current draw (Un)***	A	16.1	19.6	21.1	24.4	26.7	30.9	39.2	42.2	48.8	53.4	61.8

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

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

Operating range



— 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

WATER-TO-WATER HEAT PUMPS



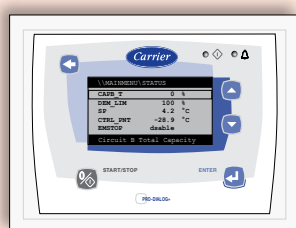
Heating 30XWH



Options/accessories

- Medium and low temperature applications*
- Unit supplied in two assembled parts*
- With or without disconnect switch/short-circuit protection*
- Single power connection point
- Low sound level, -2 dB(A)*
- Super-low sound level, -3 dB(A)*
- Evaporator/condenser pump electrical power/control circuit options*
- Service valve set*
- Evaporator/condenser arrangement with one pass*
- Condenser insulation*
- 21 bar evaporator and condenser*
- JBus, BacNet and LON gateways***
- Various condensing temperature options*
- Energy Management Module EMM***
- Code compliance for Switzerland and Australia*
- Lead-lag kit**
- Water connection kit for welded or flanged connections**

* Option ** Accessory *** Option/accessory



Pro-Dialog+ operator interface

Features

- Sixteen standard-efficiency sizes with nominal cooling capacities from 278 to 1732 kW and nominal heating capacities from 322 to 1969 kW and eleven high-efficiency sizes with nominal cooling capacities from 511 to 1756 kW and nominal heating capacities from 584 to 1989 kW.
- The premium solution for industrial and commercial applications that require optimal performances and maximum quality.
- Two versions: 30XW for air conditioning and refrigeration applications (see separate entry), and 30XWH for heating applications.
- Two efficiency classes: the standard-efficiency 30XWH offers an optimised balance of technical and economical aspects and superior energy efficiency, whilst the high-efficiency 30XWHP offers unequalled energy efficiency at minimised operating cost.
- Twin-rotor screw compressors with high-efficiency motor and a variable capacity valve for exact matching of the cooling capacity to the load.
- Use of R-134a refrigerant with zero ozone depletion potential.
- Pro-Dialog control system.
- Flooded mechanically cleanable heat exchangers.
- Exceptional full and part load energy efficiency.
- Economizer system with electronic expansion device for increased cooling capacity (30XWHP).
- Simplified electrical connections.
- Units are run-tested before shipment and include a quick-test function for fast commissioning.
- Leak-tight refrigerant circuit.
- Comprehensive endurance tests.
- Aquaforce offers multiple remote control, monitoring and diagnostic possibilities.



Touch-screen Pro-Dialog operator interface

Physical data

Standard-efficiency units 30XWH		252	302	352	402	452	552	602	652	702	802	852	1002	1052	1152	1252	1352	1452	1552	1652	1702		
Air conditioning application as per EN14511-3 : 2011																							
Nominal cooling capacity	kW	278	309	360	459	474	534	539	678	732	792	840	1019	1063	1151	1259	1342	1455	1549	1657	1732		
Nominal heating capacity	kW	322	360	422	517	530	601	631	752	814	888	968	1140	1193	1324	1384	1481	1613	1718	1890	1969		
EER (cooling)/COP (heating)	kW/kW	5.4/4.7	5.3/4.6	5.3/4.6	5.2/4.5	5.4/4.6	5.2/4.5	5.3/4.6	5.4/4.6	5.3/4.5	5.2/4.5	5.4/4.7	5.3/4.5	5.2/4.4	5.5/4.7	5.7/4.8	5.5/4.6	5.4/4.5	5.3/4.4	6.3/5.7	6.3/5.7		
ESEER part-load perform., clng.	kW/kW	5.8	5.6	5.6	5.8	5.8	5.8	5.7	6.1	6.0	5.8	6.0	6.3	6.4	6.5	6.7	6.4	6.3	6.1	6.6	6.6		
Air conditioning application (1)																							
Nominal cooling capacity	kW	278	310	361	436	476	535	541	680	734	795	844	1024	1068	1156	1264	1349	1463	1559	1663	1739		
Nominal heating capacity	kW	310	346	405	467	511	579	607	726	786	856	931	1099	1147	1275	1334	1427	1553	1652	1818	1892		
EER (cooling)/COP (heating)	kW/kW	5.6/4.7	5.6/4.6	5.5/4.6	5.6/4.6	5.6/4.5	5.5/4.5	5.5/4.6	5.7/4.5	5.6/4.5	5.5/4.5	5.7/4.6	5.6/4.5	5.5/4.5	5.8/4.7	6.0/4.7	5.8/4.6	5.7/4.6	5.7/4.6	6.0/4.8	6.0/4.8		
ESEER part-load perform., clng.	kW/kW	6.29	6.13	6.15	6.15	6.34	6.51	6.33	6.77	6.81	6.65	6.66	7.37	7.61	7.62	7.69	7.46	7.43	7.31	7.58	7.59		
Cooling/heating floor application as per EN14511-3 : 2011																							
Nominal cooling capacity	kW	353	368	459	575	575	601	667	844	883	886	922	1325	1376	1371	1696	1844	1917	1912	1949	2014		
Nominal heating capacity	kW	328	367	429	546	561	634	642	800	865	940	992	1206	1261	1354	1474	1578	1716	1831	1941	2031		
EER (cooling)/COP (heating)	kW/kW	6.9/6.3	6.3/6.2	6.7/6.1	6.4/6.0	6.4/6.1	5.8/5.9	6.5/6.0	6.6/6.1	6.3/6.0	5.8/5.9	5.9/6.1	6.8/5.9	6.8/5.8	6.5/6.1	7.5/6.3	7.4/6.0	6.7/5.9	6.3/5.7	6.5/6.2	6.4/6.7		
Operating weight	kg	2054	2059	2083	2575	2575	2613	2644	3247	3266	3282	3492	5370	5408	5705	7066	7267	7305	7337	8681	8699		
Dimensions																							
Length	mm	2732	2732	2732	2732	2742	2742	2742	3059	3059	3059	2780	4025	4025	4025	4730	4730	4730	4730	4790	4790		
Depth	mm	927	927	927	936	936	936	936	1044	1044	1044	1044	1036	1036	1036	1162	1162	1162	1162	1902	1902		
Height	mm	1580	1580	1580	1693	1693	1693	1693	1848	1848	1848	1898	1870	1870	1926	2051	2051	2051	2051	1515	1515		
High-efficiency units 30XW-P		512		562		712		812		862		1012		1162		1312		1462		1612		1762	
Air conditioning application as per EN14511-3 : 2011																							
Nominal cooling capacity	kW	511		579		738		787		862		1041		1160		1317		1469		1626		1756	
Nominal heating capacity	kW	584		666		842		904		982		1191		1323		1498		1678		1846		1989	
EER (cooling)/COP (heating)	kW/kW	5.7/5.0		5.7/4.9		5.9/5.0		5.7/4.8		5.7/4.9		5.8/5.0		5.8/4.9		5.9/5.0		5.8/4.9		5.9/4.9		5.8/4.9	
ESEER part-load performance	kW/kW	6.1		6.1		6.4		6.3		6.2		6.7		6.8		6.9		6.8		6.8		6.6	
Air conditioning application (1)																							
Nominal cooling capacity	kW	512		581		740		789		865		1047		1165		1320		1474		1632		1764	
Nominal heating capacity	kW	547		621		793		854		924		1110		1246		1411		1584		1752		1872	
EER (cooling)/COP (heating)	kW/kW	5.97/4.85		5.99/4.81		6.07/4.87		5.87/4.69		5.96/4.78		6.03/4.86		6.09/4.92		6.12/4.92		6.09/4.92		6.13/4.85		6.08/4.73	
ESEER part-load performance	kW/kW	6.78		6.79		7.00		7.05		6.98		7.64		7.99		7.72		7.59		7.65		7.18	
Cooling floor application as per EN14511-3 : 2011																							
Nominal cooling capacity	kW	625		721		935		1005		1088		1279		1426		1694		Not available					
Nominal heating capacity	kW	597		678		861		924		1010		1217		1356		1533		Not available					
EER	kW/kW	7.1/6.5		7.3/6.5		7.4/6.8		7.2/6.6		7.2/6.7		7.2/6.8		7.2/6.4		7.5/6.6		Not available					
Operating weight	kg	2981		3020		3912		3947		3965		6872		6950		9099		9307		10910		10946	
Dimensions																							
Length	mm	3059		3059		3290		3290		3290		4795		4795		4812		4812		4832		4832	
Depth	mm	936		936		1065		1070		1070		1039		1039		1935		1935		2129		2129	
Height	mm	1743		1743		1950		1950		1950		1997		1997		1541		1541		1594		1594	

Physical data for all units																					
Compressors	Semi-hermetic 06T screw compressors, 50 r/s																				
Refrigerant	R-134a																				
Capacity control	Pro-Dialog, electronic expansion valves (EXV)																				
Evaporator	Shell-and-tube flooded type, maximum operating pressure 1000 kPa, 3/8" NPT drain and vent connections																				
Condenser	Shell-and-tube type, maximum operating pressure 1000 kPa, 3/8" NPT drain and vent connections																				

NOTE: For the conditions please refer to page 69.

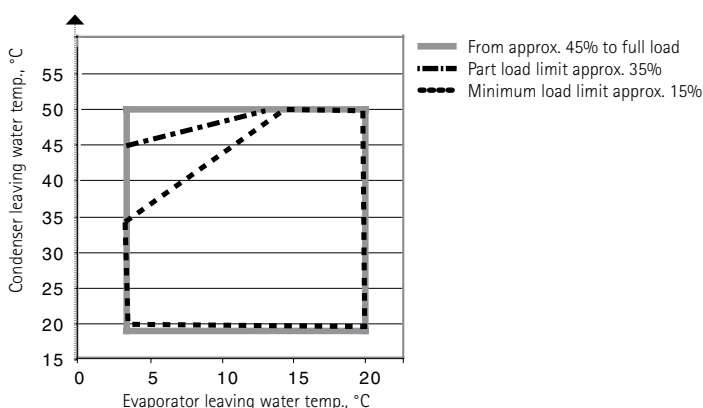
Electrical data

Standard-efficiency units 30XWH		452	552	602	652	702	802	852	1002	1052	1152	1252	1352	1452	1552	1652	1702
Nominal power supply, all units	V-ph-Hz	400-3-50 ± 10%															
Control circuit, all units		24 V via the built-in transformer															
Maximum start-up current*																	
Circuits A/B	A	414/-	414/-	587/-	587/-	587/-	587/-	587/-	414/414	414/414	414/414	587/414	587/587	587/587	587/587	587/587	587/587
Maximum power input**																	
Circuits A/B	kW	134/-	151/-	151/-	184/-	200/-	223/-	223/-	150/134	151/151	151/151	184/151	184/184	200/200	223/223	223/203	223/223
Maximum current drawn (Un)**																	
Circuits A/B	A	217/-	242/-	242/-	295/-	317/-	351/-	351/-	242/217	242/242	242/242	295/242	295/295	317/317	351/351	351/317	351/351
High-efficiency units 30XWHP		512	562	712	812	862	1012	1162	1312	1462	1612	1762					
Maximum start-up current*																	
Circuits A/B	A	414/-	414/-	587/-	587/-	587/-	414/414	414/414	587/587	587/587	587/587	587/587					
Maximum power input**																	
Circuits A/B	kW	134/-	151/-	184/-	200/-	223/-	134/134	151/151	184/151	184/184	200/200	223/223					
Maximum current drawn (Un)**																	
Circuits A/B	A	217/-	242/-	295/-	317/-	351/-	217/217	242/242	295/242	295/295	317/317	351/351					

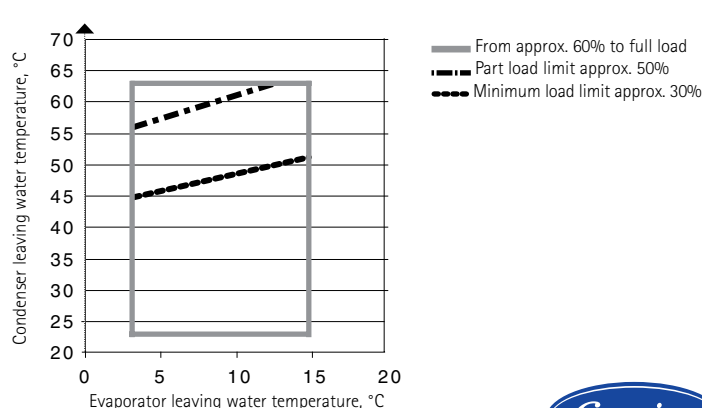
* Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

** Values obtained at operation with maximum unit power input. Values given on the unit name plate.

Operating range, standard units



Operating range, option 150



WATER-TO-WATER HEAT PUMPS



Heating

30XWHV

AQUAFORCE PLUS
Heating

Options

- Condenser insulation
- Service valve set
- Evaporator and/or condenser with one pass
- 21 bar evaporator and/or condenser
- Reversed evaporator and/or condenser water connections
- JBus, BacNet or LON gateway
- Condensing temperature limitation
- Control for low condensing temperature systems
- Energy Management Module EMM
- Leak detection
- Code compliance for Switzerland in addition to PED code
- Code compliance for Australia
- Low noise level (-3 dB(A) compared to standard unit)
- Welded evaporator and/or condenser water connection kit
- Flanged evaporator and/or condenser water connection kit
- Thermal compressor insulation
- EMC classification according to IEC 61800-3 - class C2

Features

- Four sizes for industrial and commercial applications with nominal cooling capacities from 587-858 kW and nominal heating capacities from 648 to 968 kW.
- The units feature exclusive inverter-driven screw compressors - an evolution of the proven traditional Carrier twin-rotor screw compressor design.
- Units can provide up to 50°C on the condenser side.
- 30XWHV units are designed for high performance both at full load and at part load with COPs up to 4.6 and Eurovent energy class A ratings.
- New innovative Touch Pilot smart control for variable-drive screw-compressor units uses an intuitive, user-friendly interface with concise, clear information in a choice of languages.
- Compliance with IEC61800-3 - class C3.
- Inverter-driven twin-rotor screw compressors allow precise capacity matching of building load changes and significantly reduce unit power input, especially at part-load.
- Flooded mechanically cleanable heat exchangers.
- Compact design and simplified electrical and water connections for easy installation.
- R-134a refrigerant with zero ozone depletion potential.
- Leak-tight refrigerant circuit.
- Minimised operating sound level at part load.
- Improved electrical performance.



Touch Pilot operator interface

Physical data

30XWHV		580	630	810	880
Air conditioning application as per EN14511-3 : 2011					
Nominal cooling capacity	kW	587	652	812	858
Nominal heating capacity	kW	648	719	890	968
EER (cooling)/COP (heating)	kW	5.44/4.64	5.31/4.53	5.25/4.56	5.07/4.41
ESEER part-load performance, cooling	kW/kW	7.80	7.60	8.04	7.76
Air conditioning application (1)					
Nominal cooling capacity	kW	588	654	814	861
Nominal heating capacity	kW	646	716	887	965
EER (cooling)/COP (heating)	kW	5.67/4.84	5.56/4.75	5.46/4.75	5.29/4.61
ESEER part-load performance, cooling	kW/kW	9.03	9.04	9.52	9.25
Cooling/heating floor application – as per EN14511-3 : 2011					
Nominal cooling capacity	kW	791	846	1022	970
Nominal heating capacity	kW	687	767	956	1021
EER (cooling)/COP (heating)	kW/kW	6.96/6.15	6.50/5.98	6.22/5.96	5.63/5.81
Cooling/heating floor application (1)					
Nominal cooling capacity	kW	794	850	1026	973
Nominal heating capacity	kW	684	763	953	1017
EER (cooling)/COP (heating)	kW/kW	7.50/6.59	7.03/6.49	6.62/6.39	5.93/6.25
Operating weight*	kg	3152	3190	4157	4161
Compressor		Semi-hermetic 06T screw compressor, 60 r/s			
Quantity		1	1	1	1
Capacity control		Touch Pilot, electronic expansion valve (EXV)			
Minimum capacity	%	20	20	20	20
Dimensions					
Width	mm	3059	3059	3290	3290
Depth	mm	1087	1087	1237	1237
Height	mm	1743	1743	1950	1950
Refrigerant		R-134a			
Evaporator		Multi-tube type flooded			
Condenser		Multi-tube type			

NOTE: For the conditions please refer to page 69.

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

Electrical data

30XWHV		580	630	810	880
Power circuit					
Nominal voltage	V-ph-Hz	400-3-50 ± 10%			
Control circuit supply					
24 V, via internal transformer					
Start-up current*					
Negligible (lower than maximum current drawn)					
Power factor at nominal**/maximum*** capacity		0.89/0.92	0.90/0.92	0.89/0.92	0.90/0.92
Maximum power input***	kW	155	193	222	246
Eurovent current draw**	A	175	200	240	265
Maximum current draw (Un)****	A	245	300	346	383

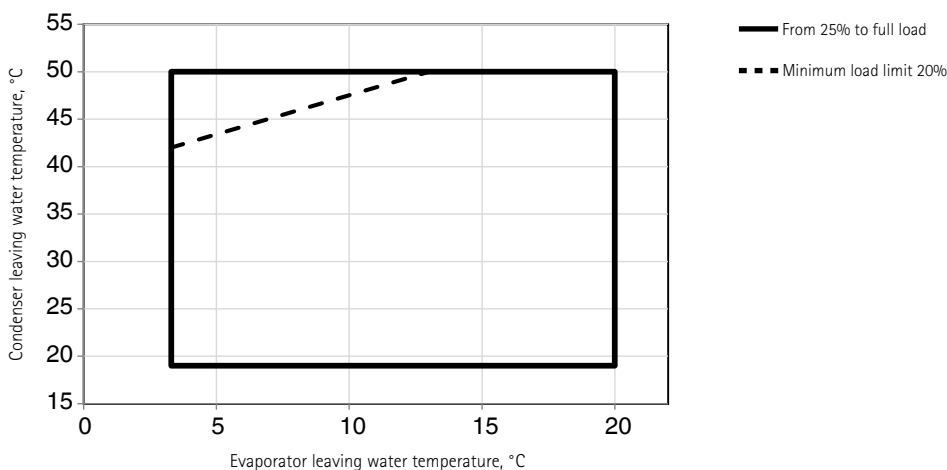
* Instantaneous start-up current

** Eurovent unit operating conditions: evaporator entering/leaving water temperature = 12°C/7°C, condenser entering/leaving water temperature = 30°C/35°C.

*** Values obtained at operation with maximum unit power input.

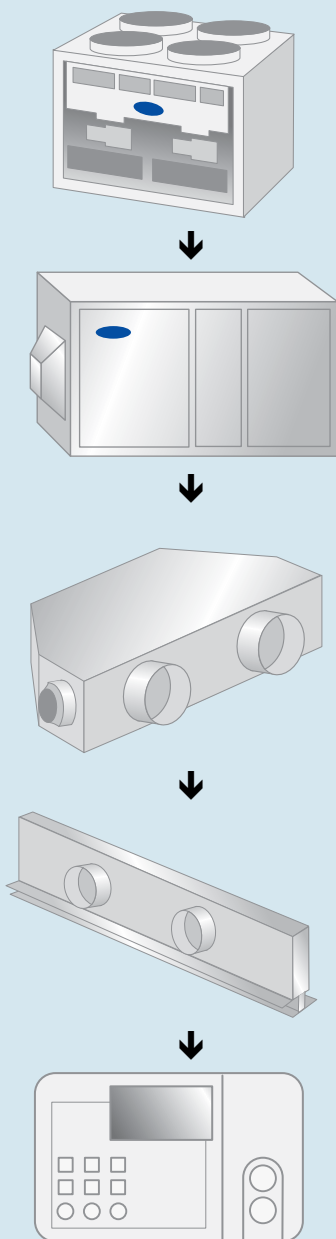
**** Values obtained at operation with maximum unit power input. Values given on the unit name plate.

Operating range



Air treatment Index

System architecture





Chilled-water terminal units

Type				Range	Cooling capacity, kW	Heating capacity, kW	Air flow, l/s	Page
Cassette	Cabinet	Concealed	Ducted					
X				42GW	1.5-10	2.2-13	90-470	100
	X	X		42N	0.8-6.4	1.1-9.5	35-422	102
			X	42EM	1.3-7.3	1.5-8.6	66-259	104
			X	42DW	4.4-11.7	6.5-19.8	220-726	106
			X	42BJ	0.5-6.0	0.5-12.5	16-250	108
			X	42GM	2.2	1.7	94	110
			X	42GR	3.1	2.9-3.5	103-109	112

Air systems and terminal units

Type	Range	Cooling capacity, kW	Heating capacity, kW	Air flow, l/s	Page
Linear air diffusers: Moduboot	35BD/SR	-	-	28-180	114
System-powered linear VAV air diffusers: Moduline	37AG	-	-	19-173	116
	37AH	-	-	47-236	116
	37AS	-	-	19-78	116

Air handling units

Type	Range	Cooling capacity, kW	Heating capacity, kW	Air flow, l/s	Page
Standard units	39SQ	-	-	400-7300	118
Standard energy recovery units	39SQC/R/P	-	-	200-5000	120
Modular units	39HQ	-	-	5000-35000	122

CASSETTE FAN COIL UNITS



Air treatment 42GW



Options/accessories

- Two- or four-way valves
- Fresh air inlet
- Conditioned air to adjacent room kit
- Electric heater
- Auxiliary drain pan

Standard controls

Electronic thermostat

- 2 versions, A + B, with potentiometer
- Auto or manual 3-speed selection
- Automatic or manual change-over
- Electric heat control
- Comfort/economy/frost protection modes



HDB controller

- Digital display or infra-red terminal
- Unit grouping capability
- Adjustable settings and parameters
- Timer and daily scheduling



NTC communicating controller

- Network communication
- Aquasmart Evolution compatible
- IAQ and DCV management
- Motorised blinds & lighting control



Features

- Six sizes with integrated, factory-mounted cooling and heating coils, two-pipe or two-pipe with electric heater, and four-pipe applications, with an air flow range from 90 to 440 l/s, a cooling capacity range from 1.5 to 10 kW, and a heating capacity range from 2.2 to 13 kW.
- The 42GW_S is available with a new-generation three-speed AC motor. The 42GW_E is available with a variable-speed Low Energy Consumption EC motor.
- 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.
- Reliable and economical cooling and heating for light commercial applications, large offices, shops, restaurants, showrooms, lobbies and meeting rooms.
- Elegant air inlet grille, blends in with any room décor.
- 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.
- The 42GW units were designed for extremely quiet operation with sound levels that set new comfort standards. The new design of the centrifugal fan and the fan/motor assembly ensures extra-quiet operation.
- The standard filter for the Idrofan cassette range has a pleated filtration surface, resulting in a 87% larger surface than a conventional filter.
- The special design of the diffuser ensures rapid blending of the supply and room air. Conditioned air is directed along the ceiling then evenly distributed throughout the room. Return air enters the cassette through a large grille.
- High-performance autonomous condensate drain pump encased in a special sound-insulating material for improved fast and quiet condensate removal
- Easy maintenance with direct access from below to all main components.

Physical and electrical data, units with AC motors

42GW	200C			300C			400C			500C			600C			700C			
Coil type	2 pipes			2 pipes			2 pipes			2 pipes			2 pipes			2 pipes			
Fan speed*	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	
Air flow	l/s	183	125	100	204	140	89	249	173	134	272	199	147	321	229	139	443	299	166
Cooling mode																			
Total cooling capacity	kW	2.40	1.80	1.55	4.00	2.90	1.90	4.70	3.50	2.85	6.30	4.50	3.40	7.20	5.50	3.70	9.60	6.60	4.05
Sensible cooling capacity	kW	2.01	1.49	1.31	3.10	2.20	1.41	3.70	2.70	2.10	4.80	3.60	2.70	5.50	4.10	2.70	7.35	4.85	3.00
Water flow rate	l/s	0.11	0.09	0.07	0.19	0.14	0.09	0.22	0.17	0.14	0.30	0.22	0.16	0.34	0.26	0.18	0.46	0.32	0.19
	l/h	413	310	267	688	499	327	808	602	490	1084	774	585	1238	946	636	1651	1135	697
Water pressure drop	kPa	11.1	6.5	4.9	11.0	6.2	2.9	14.7	8.6	6.0	23.3	13.6	8.7	11.6	7.0	3.4	19.8	9.9	4.0
Heating mode																			
Heating capacity	kW	3.20	2.50	2.20	5.00	4.00	2.50	6.20	4.60	3.70	8.11	6.00	4.50	10.00	7.40	4.60	13.00	9.30	5.20
Water pressure drop	kPa	10.9	5.6	4.0	11.1	5.2	1.9	16.2	8.1	5.0	18.1	10.1	6.2	10.5	6.6	3.3	17.3	9.1	3.9
Water content	l	0.55			1.1			1.1			1.6			2.4			2.4		
Sound power level	dB(A)	47	37	32	52	44	32	57	48	42	47	40	34	53	46	37	61	52	40
Sound pressure level**	dB(A)	38	28	23	43	35	23	48	39	33	38	31	25	44	37	28	52	43	31
Power input	W	58	35	25	54	32	16	94	55	35	63	39	27	85	59	33	185	130	60
Current input	A	0.27	0.17	0.12	0.24	0.14	0.07	0.41	0.24	0.16	0.30	0.17	0.12	0.46	0.27	0.14	0.85	0.58	0.26
Eurovent energy class FCEER/FCCOP	D/D				C/C			D/D			C/C			C/C			D/D		
Electric heater (high capacity)	W	1500			2500			2500			3000			3000			3000		
Current input (high capacity)	A	5.9			9.4			9.4			11.3			11.3			11.3		

42GW	200D			300D			400D			700D			
Coil type	4 pipes			4 pipes			4 pipes			4 pipes			
Fan speed*	1	2	3	1	2	3	1	2	3	1	2	3	
Air flow	l/s	183	125	100	204	140	89	249	173	134	443	299	166
Cooling mode													
Total cooling capacity	kW	2.20	1.65	1.45	3.50	2.70	2.00	4.10	3.25	2.60	9.10	6.80	3.80
Sensible cooling capacity	kW	2.00	1.48	1.27	2.70	2.10	1.50	3.30	2.60	2.05	7.10	5.20	2.70
Water flow rate	l/s	0.11	0.08	0.07	0.17	0.13	0.10	0.20	0.16	0.12	0.43	0.32	0.18
	l/h	378	284	249	602	464	344	705	559	447	1565	1170	654
Water pressure drop	kPa	13.7	8.2	6.6	10.1	6.6	4.0	13.1	8.9	6.2	39.0	23.8	8.9
Water content	l	0.4			1.1			1.1			2.4		
Heating mode													
Heating capacity	kW	1.90	1.44	1.24	6.37	5.10	3.60	6.80	5.80	5.00	16.00	11.50	7.30
Water flow rate	l/s	0.05	0.03	0.03	0.15	0.12	0.09	0.16	0.14	0.12	0.38	0.27	0.17
	l/h	163	124	107	548	439	310	585	499	430	1376	989	628
Water pressure drop	kPa	31.4	21.1	17.0	25.5	16.1	7.8	29.2	21.0	15.4	23.4	13.6	6.4
Water content	l	0.1			0.6			0.6			1.2		
Sound power level	dB(A)	47	37	32	54	45	33	57	48	42	61	52	40
Sound pressure level**	dB(A)	38	28	23	45	36	24	48	39	33	52	43	31
Power input	W	58	35	25	54	32	16	94	55	35	185	130	60
Current input	A	0.27	0.17	0.12	0.24	0.14	0.07	0.41	0.24	0.16	0.85	0.58	0.26
Eurovent energy class FCEER/FCCOP	E/E				C/B			D/C			D/C		

Based on Eurovent conditions:

Cooling mode (2 and 4-pipe coil): entering air temperature 27°C db/19°C wb, entering/leaving water temperature 7/12°C, high fan speed.

Heating mode (2-pipe coil): entering air temperature 20°C, entering water temperature 50°C, high fan speed, water flow rate as cooling mode.

Heating mode (4-pipe coil): entering air temperature 20°C, entering water temperature 70°C, high fan speed, water Δt = 10 K

* Fan speeds: 1 = high, 2 = medium, 3 = low

** Sound pressure level and NR values are based on a hypothetical sound attenuation for the room of -9 dB(A).

Note: Electrical heater version is available on all 2-pipe units.

Physical and electrical data, units with LEC motors

Note: All other data is the same as for the units with AC motors

42GW	209C				309C				409C				509C				609C				709C			
Coil type	2 pipes				2 pipes				2 pipes				2 pipes				2 pipes				2 pipes			
Voltage (d.c.)	V	10	6	2	10	6	2	10	6	2	10	6	2	10	6	2	10	6	2	10	6	2		
Air flow	l/s	183	125	100	204	140	89	249	173	134	272	199	147	321	229	139	443	299	166					
Power input	W	23	10	7	33	14	7	57	23	13	25	12	7	46	23	9	115	40	11					
Current input	A	0.19	0.10	0.08	0.27	0.13	0.08	0.46	0.20	0.12	0.23	0.12	0.08	0.40	0.22	0.10	0.89	0.35	0.12					
Eurovent energy class FCEER/FCCOP	A/A				A/A			B/B			A/A			A/A			A/A							

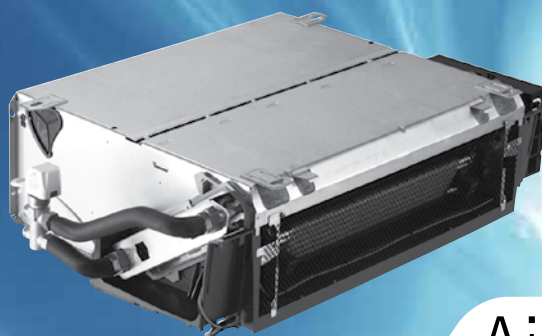
42GW	209D				309D			409D			709D		
Coil type	4 pipes				4 pipes			4 pipes			4 pipes		
Voltage (d.c.)	V	10	6	2	10	6	2	10	6	2	10	6	2
Air flow	l/s	183	125	100	204	140	89	249	173	134	443	299	166
Power input	W	23	10	7	32	14	7	57	22	13	115	40	11
Current input	A	0.19	0.10	0.08	0.29	0.14	0.08	0.46	0.21	0.12	0.89	0.35	0.12
Eurovent energy class FCEER/FCCOP	B/B				A/A			B/A			A/A		

Dimensions and weights

All units	42GW 200/209	42GW 300/309	42GW 400/409	42GW 500/509	42GW 600/609	42GW 700/709
Dimensions (H x L x D)	mm	298 x 569/627 x 569/627	298 x 569/627 x 569/627	298 x 569/627 x 569/627	302 x 822/879 x 822/879	302 x 822/879 x 822/879
Grille dimensions (H x L x D)	mm	36 x 720 x 720	36 x 720 x 720	36 x 720 x 720	37 x 960 x 960	37 x 960 x 960
Weight unit/weight grille	kg	15/2.5	16.5/2.5	16.5/2.5	37/5	39.6/5

Where two-values are given the second value applies to units with two or four-way valves.

ROOM FAN COIL UNITS



Air treatment 42N



Accessories

- Supporting feet
- Supporting feet and cover panel
- Return air grille for cabinet unit
- Rear closing panel
- Cabinet on concealed units,
- Discharge air sleeve (concealed units only)
- Supporting brackets
- A and B-type thermostats
- Special installation kit
- Cold draught prevention kit - all two-pipe sizes
- Automatic changeover switch
- Air sensor with 15 m cable
- Water sensor kit with 15 m cable
- Infrared remote controller and infrared remote receiver kit
- ZUI1 or ZUI2 interface
- SUI1 or SUI2 (with/without fan speed selection)

Features

- Eleven sizes with two-pipe, two-pipe changeover or four-pipe coils, with an air flow range from 35 to 422 l/s, a cooling capacity range from 0.8 to 6.4 kW, and a heating capacity range from 1.1 to 9.5 kW.
- 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.
- Concealed or cabinet chilled-water fan coil system, designed for vertical and horizontal installation in a room or above a false ceiling.
- Economical cooling and heating for hotels, commercial and residential applications.
- Cabinet version complete with control terminal.
- Combines aesthetic slim-line design with high installation flexibility.
- Two fan types, a tangential fan for ultra-low noise level and a centrifugal fan for high air distribution system compatibility.
- Factory-mounted PTC electric heater with low and high capacity settings.
- Low hydraulic pressure drop with a valve mounted.
- Quick installation with factory-mounted options (controls, valves).
- LEC models enhance unit performance offering reduced energy costs, improved comfort, maximum flexibility and extended operating life.

Standard controls

Electronic thermostat

- Two versions, A and B, with potentiometer
- Automatic or manual three-speed selection
- Automatic or manual change-over
- Electric heat control
- Comfort/economy/frost protection modes



HDB controller

- Digital display or infra-red terminal
- Unit grouping capability
- Adjustable settings and parameters
- Timer and daily scheduling



NTC communicating controller

- Network communication
- Aquasmart Evolution system compatible
- IAQ and DCV management
- Motorised blinds & lighting control



Physical and electrical data, units with AC motors

42N_S, 2-pipe coil							20					26		
Fan speed		5	4	3	2	1	5	4	3	2	1	3	2	1
Fan type		One, tangential					One, centrifugal					One, centrifugal		
Air flow	l/s-m³/h	35-125	56-200	69-250	84-300	97-350	59-215	80-285	92-330	107-385	128-460	93-335	149-536	196-706
Cooling mode*														
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
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
Water flow rate	l/s-l/h	0.04-143	0.05-184	0.06-205	0.06-230	0.07-256	0.07-239	0.09-311	0.10-358	0.11-402	0.12-437	0.10-361	0.14-516	0.17-619
Water pressure drop	kPa	6.2	9.6	11.5	14.1	16.9	2.8	4.2	5.3	6.4	7.3	5.4	9.5	12.7
Heating mode**														
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
Water pressure drop	kPa	4.9	7.8	9.4	11.6	14.0	2.2	3.4	4.3	5.2	6.0	4.4	7.8	10.6
Electrical data														
Power input	W	16	17	19	23	30	29	30	31	34	36	45	55	65
Current drawn	A	0.08	0.08	0.09	0.11	0.13	0.13	0.13	0.14	0.15	0.16	0.21	0.25	0.30
Electric heater														
High/low capacity	W	800/500					1000/500					1000/500		
Current drawn, high/low capacity	A	3.48/2.18					4.35/2.18					4.35/2.18		
Eurovent energy class FCEER/FCCOP							D/D					E/E		

42N_S, 2-pipe coil						42			45					65			
Fan speed		5	4	3	2	1	3	2	1	5	4	3	2	1	3	2	1
Fan type		Two, centrifugal					Two, centrifugal			Two, centrifugal					Two, centrifugal		
Air flow	l/s-m³/h	97-350	126-455	153-550	182-655	207-745	147-531	222-798	268-965	146-525	185-665	224-805	277-995	333-1195	237-853	331-1191	422-1519
Cooling mode*																	
Total cooling capacity	kW	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
Sensible cooling capacity	kW	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	4.6	5.10
Water flow rate	l/s-l/h	0.10-356	0.12-437	0.14-518	0.17-595	0.18-636	0.14-516	0.19-688	0.22-774	0.12-447	0.16-580	0.19-695	0.23-815	0.26-937	0.19-671	0.26-937	0.30-1092
Water pressure drop	kPa	6.0	8.6	11.5	14.6	16.4	11.4	18.8	23.0	3.2	5.0	6.7	9.0	11.5	6.4	11.5	15.0
Heating mode**																	
Heating capacity	kW	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
Water pressure drop	kPa	4.8	6.9	9.2	11.7	13.1	9.2	15.0	18.4	2.7	4.2	5.5	7.5	9.5	5.4	9.5	12.3
Water content	l	1.8	1.8	1.8	1.8	1.8	1.8	1.8	1.8	2.1	2.1	2.1	2.1	2.1	2.1	2.1	2.1
Electrical data																	
Power input	W	42	44	46	50	57	45	75	100	69	77	83	92	128	90	125	165
Current drawn	A	0.19	0.20	0.21	0.23	0.25	0.21	0.35	0.45	0.31	0.34	0.37	0.41	0.55	0.41	0.55	0.72
Electric heater																	
High/low capacity	W	2000/1000					2000/1000			2000/1000					2000/1000		
Current drawn, high/low capacity	A	8.70/4.35					8.70/4.35			8.70/4.35					8.70/4.35		
Eurovent energy class FCEER/FCCOP							D/D			E/E					E/E		

Physical and electrical data, units with LEC motors

42N_E, 2-pipe coil		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 type		One, tangential					One, centrifugal					Two, centrifugal					Two, centrifugal				
Air flow	l/s-m³/h	35	56	69	84	97	59	80	92	107	128	97	126	153	182	207	146	185	224	277	333
		125	200	250	300	350	215	285	330	385	460	350	455	550	655	745	525	665	805	995	1195
Cooling mode*																					
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
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
Water flow rate	l/s-l/h	0.04	0.05	0.06	0.06	0.07	0.07	0.09	0.10	0.11	0.12	0.10	0.12	0.14	0.17	0.18	0.12	0.16	0.19	0.23	0.26
		143	184	205	230	256	239	311	358	402	437	356	437	518	595	636	447	580	685	815	937
Water pressure drop	kPa	6.2	9.6	11.5	14.1	16.9	2.8	4.2	5.3	6.4	7.3	6.0	8.6	11.5	14.6	16.4	3.2	5.0	6.7	9.0	11.5
Heating mode**																					
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
Water pressure drop	kPa	4.9	7.8	9.4	11.6	14.0	2.2	3.4	4.3	5.2	6.0	4.8	6.9	9.2	11.7	13.1	2.7	4.2	5.5	7.5	9.5
Electrical data																					
Power input	W	3	4	7	10	14	3	5	7	10	15	5	9	15	23	35	8	14	25	39	65
Current drawn	A	0.08	0.09	0.10	0.11	0.15	0.09	0.09	0.11	0.13	0.16	0.10	0.12	0.16	0.21	0.29	0.10	0.15	0.22	0.35	0.52
Electric heater																					
High/low capacity	W	800/500					1000/500					2000/1000					2000/1000				
Current drawn, high/low capacity	A	3.48/2.18					4.35/2.18					8.70/4.35					8.70/4.35				
Eurovent energy class FCEER/FCCOP							A/A					A/A					A/A				

Note: For data on 4-pipe coils please refer to the specific product documentation.

Dimensions and weights

Vertical units with cabinet				Horizontal units with cabinet				Horizontal concealed units				Vertical concealed units			
S15	S20-26	S30-42	S45-65	S15	S20-26	S30-42	S45-65	S15	S20-26	S30-42	S45-65	S15	S20-26	S30-42	S45-65
E19	E29	E39	E49	E19	E29	E39	E49	E19	E29	E39	E49	E19	E29	E39	E49
Length	mm	830	1030	1230	1430	830	1030	1230	1430	606	806	1006	1206	606	806
Width	mm	220	220	220	220	657	657	657	657	518	518	518	518	220	220
Height	mm	657	657	657	657	220	220	220	220	220	220	220	220	640	640
Weight	kg	17	19	22	35	17	19	22	35	13	15	16	28	13	15

DUCTED FAN COIL UNITS



Air treatment 42EM



Options/accessories

- Wall-mounted infrared receiver
- Factory-mounted two- or four-way valves

Standard controls

Electronic thermostat

- 2 versions, A + B, with potentiometer
- Automatic or manual three-speed selection
- Automatic or manual change-over
- Electric heat control
- Comfort/economy/frost protection modes



HDB controller

- Digital display or infra-red terminal
- Unit grouping capability
- Adjustable settings and parameters
- Timer and daily scheduling



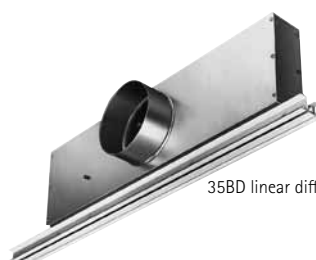
NTC communicating controller

- Network communication
- Aquasmart Evolution compatible
- IAQ and DCV management
- Motorised blinds & lighting control



Features

- Different sizes with two-pipe, two-pipe plus electric heater or four-pipe coils, with an air flow range from 66 to 259 l/s, a cooling capacity range from 1.3 to 7.3 kW and a heating capacity range from 1.5 to 8.6 kW.
- Decentralised compact ducted chilled-water fan coil system, designed for installation in plant rooms. This allows centralised service and maintenance.
- Reliable and economical cooling and heating for light commercial and office applications.
- Low height of 250 mm.
- Installation flexibility with two versions: modular or compact.
- Compatible with the 35BD air diffuser range.
- Air outlet modularity with different spigots.
- Extremely low sound level in the ducting of the air distribution system.
- Six-speed fan motor, offering a choice of several medium comfort speeds.
- Available with low-consumption variable-speed EC motor (LEC).
- High-pressure centrifugal fans, compatible with all main air distribution systems.
- High-efficiency EU3 filter as standard.
- Safe factory-installed electric heater for single or two-stage hot water heating.
- Low water pressure drop with a valve mounted, compatible with all chiller pump kits.
- Quick installation with factory-installed options (controls, valves).
- Atmospha sizes 09 and 19 are equipped with the variable-speed low-consumption LEC fan motor assembly, that is controlled by a 0 to 10 V signal, available with the Carrier NTC type electronic control.



35BD linear diffuser (supply and return air)

Physical data

42EM		05			09			10			19			22			32		
Fan speed		L	M	H	L	M	H	L	M	H	L	M	H	L	M	H	L	M	H
Air flow	l/s	66	97	104	35	108	133	74	119	132	37	127	151	96	183	207	96	183	207
	m³/h	237	349	375	126	396	479	271	438	490	122	456	544	345	659	744	345	659	744
Available static pressure	Pa	23	50	58	1	50	75	19	50	62	4	50	75	14	50	64	14	50	64
Cooling mode, two pipes*																			
Total cooling capacity	kW	1.5	2.01	2.13	0.88	2.19	2.53	1.87	2.76	3	1.01	2.90	3.31	2.52	4.33	4.75	2.99	5.38	5.97
Sensible cooling capacity	kW	1.15	1.59	1.69	0.65	1.76	2.05	1.39	2.11	2.31	0.73	2.23	2.59	1.85	3.29	3.65	2.05	3.77	4.2
Water flow rate	l/h	0.07	0.10	0.10	0.04	0.11	0.12	0.09	0.13	0.14	0.04	0.14	0.16	0.12	0.21	0.23	0.14	0.26	0.29
	l/s	258	346	363	150	376	434	321	475	516	162	499	569	433	745	817	514	925	1027
Water pressure drop	kPa	11	19	21	4	23	30	11	23	27	3	25	33	10	30	36	13	35	45
Water content	l	0.35	0.35	0.35	0.35	0.35	0.35	0.5	0.5	0.5	0.5	0.5	0.5	1	1	1	1.7	1.7	1.7
Heating mode, two pipes**																			
Heating capacity	kW	2.09	2.9	3.08	1.1	3.19	3.76	2.44	3.75	4.1	1.26	3.97	4.6	3.2	5.69	6.31	3.34	6.21	6.9
Cooling mode, four pipes*																			
Total cooling capacity	kW	1.33	1.78	1.88	0.80	1.95	2.22	1.8	2.6	2.8	0.91	2.67	3.01	2.47	4.04	4.42	2.99	5.38	5.97
Sensible cooling capacity	kW	1.07	1.47	1.55	0.62	1.62	1.87	1.36	2.03	2.21	0.66	2.1	2.4	1.8	3.14	3.46	2.05	3.77	4.2
Water flow rate	l/h	0.06	0.085	0.009	0.04	0.093	0.106	0.09	0.12	0.13	0.04	0.13	0.14	0.12	0.2	0.21	0.14	0.26	0.29
	l/s	229	306	322	137	335	382	310	446	482	155	457	518	414	695	759	514	925	1027
Water pressure drop	kPa	8	14	15	3	17	22	14	29	34	4	30	39	10	29	35	13	35	45
Water content	l	0.32	0.32	0.32	0.32	0.32	0.32	0.45	0.45	0.45	0.45	0.45	0.45	0.90	0.90	0.90	1.7	1.7	1.7
Heating mode, four pipes***																			
Heating capacity	kW	1.51	2.00	2.10	0.9	2.17	2.5	2.44	3.46	3.73	1.36	3.63	4.09	2.47	4.05	4.41	2.08	3.56	3.92
Water flow rate	l/h	0.04	0.05	0.05	0.02	0.05	0.06	0.04	0.06	0.06	0.02	0.06	0.07	0.06	0.10	0.11	0.05	0.09	0.09
	l/s	130	172	181	77	187	215	209	298	320	110	311	352	212	348	379	179	306	337
Water pressure drop	kPa	10	17	19	3	20	27	7	14	16	2	16	20	4	9	11	9	23	27
Water content	l	0.11	0.11	0.11	0.11	0.11	0.11	0.15	0.15	0.15	0.15	0.15	0.15	0.2	0.2	0.2	0.3	0.3	0.3
Electric heater		230 V ± 15 % - 1 ph - 50 Hz																	
Maximum capacity	W	1000			1000			1000			1000			2000			2000		
Current drawn	A	4.35			4.35			4.35			4.35			8.7			8.7		
Sound levels																			
Sound power level (return and radiated)	dB(A)	43	51	53	33	52	56	41	51	53	34	52	57	41	55	58	41	55	58
Sound power level (supply)	dB(A)	42	49	50	29	50	55	38	49	51	32	51	56	40	54	56	40	54	56
Electrical data, motor		1 ph - 50 Hz - 230 V ± 15 %																	
Power input	W	45	77	105	4	44	75	44	82	113	6	51	83	67	120	142	67	120	142
Current drawn	A	0.2	0.34	0.45				0.17	0.35	0.48				0.30	0.50	0.63	0.30	0.50	0.63
Air filter (G3)	mm	230 x 420			230 x 420			230 x 570			230 x 570			230 x 990			208 x 978		
Technical data		Connection diameter, cold and hot-water coils: 1/2" gas (unit nut female), spigot connection diameter 200 mm																	
Height x depth x length	mm	250 x 700 x 1015			250 x 700 x 870			250 x 850 x 870			250 x 850 x 870			250 x 850 x1270			250 x 1110 x 1270		
Unit weight	kg	17			22			22			22			39			69		

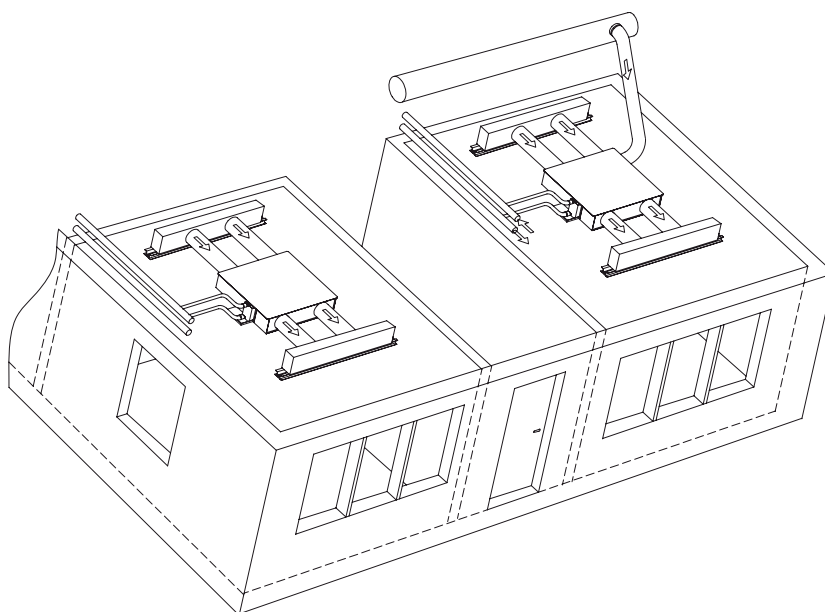
Fan speed: L = Low, M = Medium, H = High

* Eurovent conditions: Entering air temperature = 27°C db/47% rh - entering water temperature = 7°C, water temperature difference = 5 K.

** Eurovent conditions: Entering air temperature = 20°C, entering water temperature = 50°C, same water flow rate as in cooling.

*** Eurovent conditions: Entering air temperature = 20°C, entering water temperature = 70°C, water temperature difference = 10 K.

NOTE: Models 2x include sizes 21, 22 and 23 with different speed arrangements. Models 3x include sizes 31, 32 and 33 with different speed arrangements.



LARGE DUCTED FAN COIL UNITS



Air treatment 42DW



Options/accessories

- Factory-installed two- or four-way valves
- High-efficiency filter

Standard controls

Electronic thermostat

- 2 versions, A + B, with potentiometer
- Automatic or manual three-speed selection
- Automatic or manual change-over
- Electric heat control
- Comfort/economy/frost protection modes



HDB controller

- Digital display or infra-red terminal
- Unit grouping capability
- Adjustable settings and parameters
- Timer and daily scheduling



NTC communicating controller

- Network communication
- Aquasmart Evolution compatible
- IAQ and DCV management
- Motorised blinds & lighting control



Features

- Available in four sizes with two-pipe, two-pipe plus electric heater or four-pipe coils, with an air flow range from 220 to 726 l/s, a cooling capacity range from 4.4 to 11.7 kW and a heating capacity range from 6.5 to 19.8 kW.
- Compact ducted chilled-water fan coil units, designed for installation above false ceilings.
- Reliable and efficient heating and cooling for light commercial and residential applications.
- Minimised size, using a V-shaped coil, and reduced height of 285 mm.
- Air return from the rear or below for increased installation flexibility.
- Air outlet modularity (sleeve or spigots), outlets on the front or at the sides.
- High-capacity unit with low sound levels.
- Four-speed motor, offering a choice of two medium comfort speeds.
- High-pressure centrifugal fans.
- Compatible with the 35BD air diffuser range.
- Safe factory-installed electric heater for single or two-stage hot water heating.
- Low hydraulic pressure drop with a valve mounted, compatible with all chiller pump kits.
- Quick installation with factory-installed options (controls, valves).
- Improved market competitiveness.



35BD linear diffuser (supply and return air)

Physical data

Unit size	42DWC 07				42DWC 09				42DWC 12				
Fan speed		Low	Medium	High	Super high	Low	Medium	High	Super high	Low	Medium	High	Super high
Fan													
Air flow	l/s	220	251	261	273	253	303	348	372	475	562	625	668
	m³/h	793	903	941	983	910	1090	1251	1338	1710	2024	2250	2403
Static pressure	Pa	39	50	54	59	35	50	66	75	36	50	62	70
Cooling mode													
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
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
Water flow rate	l/s	0.24	0.26	0.27	0.28	0.28	0.33	0.37	0.38	0.55	0.49	0.53	0.54
	l/h	849	947	980	1010	1012	1173	1320	1385	1992	1776	1897	1950
Water pressure drop	kPa	16	21	23	25	16	22	27	30	38	45	54	60
Heating mode, 2 pipes													
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
Water pressure drop	kPa	16	21	23	25	16	22	27	30	38	45	54	60
Heating mode, 4 pipes													
Heating capacity	kW	-	-	-	-	-	-	-	-	-	-	-	-
Water flow rate	l/h	-	-	-	-	-	-	-	-	-	-	-	-
	l/h	-	-	-	-	-	-	-	-	-	-	-	-
Water pressure drop	kPa	-	-	-	-	-	-	-	-	-	-	-	-
Electric heater capacity	W	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000	3000
Sound levels													
Sound power level	dBA	55	57	58	59	56	60	64	65	62	66	68	70
Sound pressure level*	dBA	38	40	41	42	39	43	47	48	45	49	51	53
NR value		35	37	38	39	35	40	44	45	41	45	48	50
Power supply	V-ph-Hz	230-1-50				230-1-50				230-1-50			
Power input	W	85	95	100	105	125	165	180	195	265	310	335	360
Current draw	A	0.37	0.41	0.43	0.46	0.54	0.72	0.78	0.85	1.15	1.35	1.46	1.57
Dimensions													
Coil outlet/inlet diameter	inch	3/4				3/4				3/4			
Length	mm	925				925				1325			
Height	mm	285				285				285			
Depth	mm	750				750				750			
Weight (without/with electric heater)	kg	35/39				37/41				48/53			

Unit size		42DWC 16				42DWD 09				42DWD 16			
Fan speed		Low	Medium	High	Super high	Low	Medium	High	Super high	Low	Medium	High	Super high
Fan													
Air flow	l/s	598	655	691	726	253	303	348	372	598	655	691	726
	m³/h	2154	2359	2489	2614	910	1090	1251	1338	2154	2359	2489	2614
Static pressure	Pa	42	50	56	61	35	50	66	75	42	50	56	61
Cooling mode													
Total cooling capacity	kW	11.98	12.72	13.43	13.71	5.55	6.89	7.04	7.32	10.65	11.22	11.43	11.66
Sensible cooling capacity	kW	9.35	10.02	10.64	10.53	4.25	4.95	5.5	5.82	8.7	8.26	9.51	9.68
Water flow rate	l/s	0.59	0.64	0.64	0.67	0.27	0.30	0.34	0.35	0.51	0.54	0.55	0.56
	l/h	2135	2305	2309	2425	955	1097	1210	1259	1831	1929	1966	2004
Water pressure drop	kPa	48.3	56.1	54.3	58.4	21	25	30	33	43	48	50	52
Heating mode, 2 pipes													
Heating capacity	kW	17.35	18.71	18.91	19.76	-	-	-	-	-	-	-	-
Water pressure drop	kPa	48.3	56.1	54.3	58.4	-	-	-	-	-	-	-	-
Heating mode, 4 pipes													
Heating capacity	kW	-	-	-	-	6.87	7.7	8.33	8.83	14.53	15.39	15.87	15.93
Water flow rate	l/h	-	-	-	-	0.17	0.19	0.20	0.22	0.36	0.38	0.39	0.39
	l/h	-	-	-	-	604	677	732	777	1278	1353	1395	1400
Water pressure drop	kPa	-	-	-	-	11	12	15	18	54	60	63	65
Electric heater capacity	W	3000	3000	3000	3000	-	-	-	-	-	-	-	-
Sound levels													
Sound power level	dBA	68	70	72	73	56	60	64	65	68	70	72	73
Sound pressure level*	dBA	51	53	55	56	39	43	47	48	51	53	55	56
NR value		48	49	51	52	35	40	44	45	48	49	51	52
Power supply	V-ph-Hz	230-1-50				230-1-50				230-1-50			
Power input	W	370	410	430	450	135	175	197.5	220	400	460	485	510
Current draw	A	1.61	1.78	1.87	1.96	0.59	0.76	0.86	0.96	1.74	2.00	2.11	2.22
Dimensions													
Coil outlet/inlet diameter	inch	3/4				3/4				3/4			
Length	mm	1325				925				1325			
Height	mm	285				285				285			
Depth	mm	750				750				750			
Weight (without/with electric heater)	kg	53/58				37				53			

Based on Eurovent rating standards:

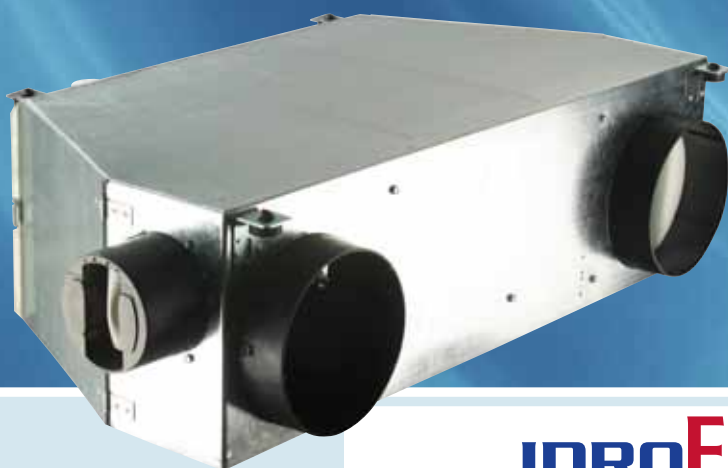
Cooling: Entering/leaving air temperature = 27°C db/19°C wb – entering/leaving water temperature = 7°C/12°C.

Heating (2 pipes): Entering air temperature = 20°C – entering water temperature = 50°C, same water flow rate as in cooling.

Heating (4 pipes): Entering air temperature = 20°C – entering/leaving water temperature = 70°C/60°C.

* Based on a hypothetical sound attenuation for the room and the system of -17 dB(A).

INDIVIDUAL COMFORT MODULES



Air treatment 42BJ



Options/accessories

- Factory-installed two- or four-way valves
- High-efficiency filter
- Condensate pump

Standard controls

NTC communicating controller



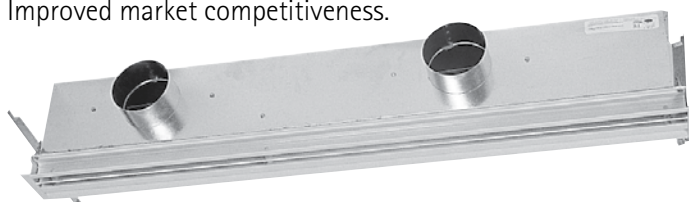
- Network communication
- Aquasmart Evolution system compatible
- IAQ and DCV management
- Motorised blinds and lighting control



Aquasmart New System Manager

Features

- Three sizes with two-pipe, two-pipe plus electric heater or 4-pipe coils, with an air flow range from 16 to 250 l/s, a cooling capacity range from 0.5 to 6 kW and a heating capacity range from 0.5 to 12.5 kW.
- Compact, U-shaped ducted chilled-water fan coil systems, designed for installation above false ceilings in corridors.
- Reliable and economical cooling and heating for light commercial and office applications.
- Includes a centrifugal fan with a low-energy consumption (LEC) motor. This direct-drive motor is electronically commutated (EC motor). It is piloted by a 0-10 V signal that permits operation with a wide range of rotational speeds, varying from the base setting and is precise, simple and quiet. It also includes an air filter, a fresh air inlet with adjustable air quantity, a chilled-water cooling coil and a hot-water heating coil and/or an electric resistance heater.
- U-shape model with inlet and outlet on the same side.
- Compatible with the 35BD air diffuser range.
- Low height of 270 mm (sizes 1.9 and 2.9).
- Extra low sound level in ducted air distribution system.
- High-pressure centrifugal fans, compatible with air distribution systems up to 300 Pa.
- High-efficiency F5 or F6 filter.
- Safe factory-installed electric heater for single or two-stage hot water heating.
- Low hydraulic pressure drop with a valve mounted, compatible with all chiller pump kits.
- Quick installation with factory-installed options (controls, valves).
- Available with demand control ventilation (DCV) and CO₂ sensor.
- Improved market competitiveness.



35BD linear diffuser (supply and return air)

Physical and electrical data

42BJ ICM LEC		1.9			2.9			4.9		
Fan speed*		L	M	H	L	M	H	L	M	H
Air flow	l/s	16	116	190	25	163	224	40	220	239
	m³/h	58	418	684	90	587	806	144	792	860
Available static pressure	Pa	1	50	135	1	50	95	2	50	59
Cooling mode**										
Total cooling capacity	kW	0.46	2.6	3.65	0.68	4.06	5.3	1.3	5.14	5.43
Sensible cooling capacity	kW	0.33	2	2.93	0.47	3	3.99	0.89	3.8	4.05
Water flow rate	l/s	0.02	0.12	0.17	0.03	0.19	0.25	0.06	0.25	0.26
	l/h	80	448	628	118	699	912	224	884	935
Water pressure drop	kPa	2	27	47	2	39	61	5	61	68
Water content	l	0.9	0.9	0.9	1.2	1.2	1.2	1.5	1.5	1.5
Two-pipe heating mode***										
Heating capacity	kW	0.51	2.95	4.14	0.76	4.82	6.34	1.43	6.4	6.8
Eurovent energy class FCEER/FCCOP		C/C			B/B			B/B		
Four-pipe heating mode****										
Heating capacity	kW	0.69	3.1	4.04	1.09	4.37	5.22	1.94	6.4	6.71
Water flow rate	l/s	0.02	0.07	0.10	0.03	0.10	0.12	0.05	0.15	0.16
	l/h	60	267	348	94	376	449	168	550	577
Water pressure drop	kPa	1	15	23	4	32	41	8	67	73
Water content	l	0.2	0.2	0.2	0.29	0.29	0.29	0.45	0.45	0.45
Eurovent energy class FCEER/FCCOP		C/C			B/B			B/A		
Electric heater	V-ph-Hz	230-1-50								
Maximum capacity	kW	0.5	1.9	2.23	0.75	2.12	2.25	1	2.25	2.25
Maximum current drawn	A	11	11	11	11	11	11	11	11	11
Sound levels										
Sound power level (return + radiated)	dB(A)	29	50	59	34	52	59	33	60	62
Sound power level (supply)	dB(A)	26	57	66	20	63	69	31	69	72
Global sound power level	dB(A)	31	58	67	34	63	69	35	70	72
Sound pressure level†	dB(A)	10	37	46	13	42	48	14	49	51
NR value†	-	-	32	41	-	37	43	-	44	46
Electrical data, motor		230 V-1 ph-50 Hz, EC motor with low energy consumption								
Power input	W	4	49	160	4	68	174	5	46	186
Air filter F5 or F6	mm	240 x 400			240 x 550			315 x 550		
Physical data										
Connection diameter, chilled and hot-water coil	in	1/2 gas			1/2 gas			1/2 gas		
Spigot connection diameter	mm	200			200			250		
Length x depth x height	mm	900 x 665 x 270			1100 x 815 x 270			1100 x 815 x 345		
Unit weight (standard)	kg	31			40			50		

* Fan speed: L = Low, M = Medium, H = High

** Eurovent conditions: Entering air temperature 27°C/47% rh, entering water temperature 7°C, water temperature difference 5 K.

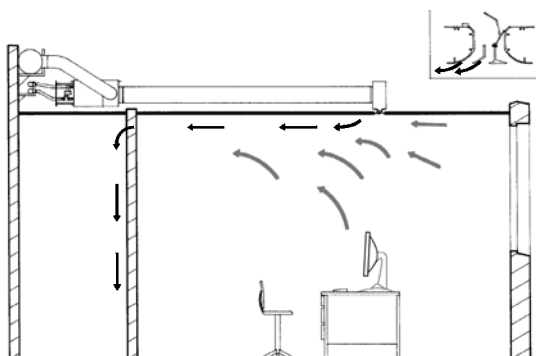
*** Eurovent conditions: Entering air temperature 20°C - entering water temperature 50°C, with same water flow rate as in cooling mode.

**** Eurovent conditions: Entering air temperature 20°C - entering water temperature 70°C, water temperature difference 10 K.

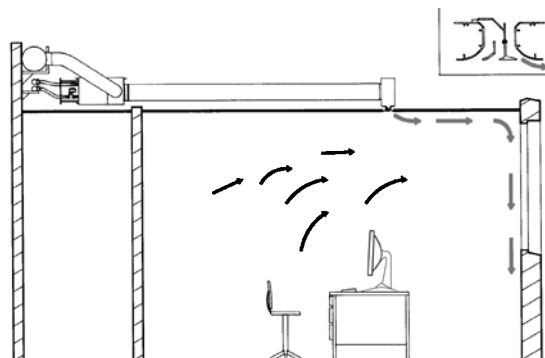
† Based on a hypothetical sound attenuation for the room and the system of -21 dB(A).

Air distribution with Optimix linear diffusers

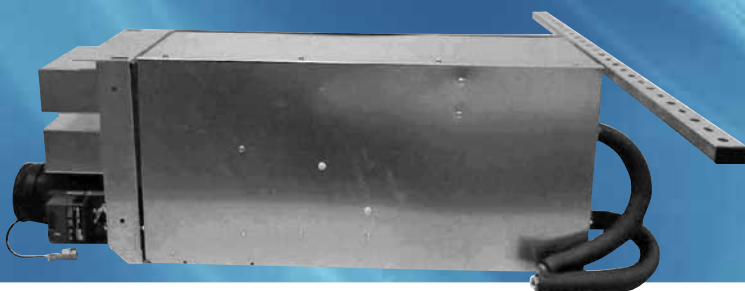
Cooling air flow



Heating air flow



AIR TREATMENT MODULES



Air treatment 42GM

Options/accessories

- Customised product on request

Standard controls

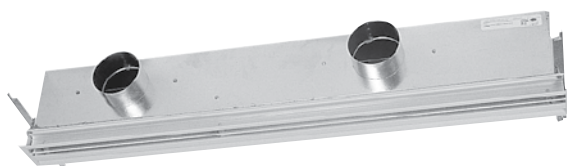
NTC communicating controller



- Network communication
- Aquasmart Evolution system compatible
- IAQ and DCV management
- Motorised blinds and lighting control

Features

- One size with two-pipe plus electric heater or four-pipe coils, with an air flow of 94 l/s, a cooling capacity of 2.2 kW and a heating capacity of 1.7 kW.
- Decentralised compact ducted chilled-water fan coil system, designed for installation in plant rooms. This allows centralised service and maintenance.
- Reliable and efficient heating and cooling for office blocks and institutional buildings.
- High efficiency EU6 filter.
- Extremely low sound level.
- The LEC (low energy consumption) fan motor assembly is available as standard. This direct-drive motor is electronically commutated (EC motor), controlled by a 0–10 V signal and allows precise, simple and quiet unit operation in a wide range of rotational speeds in variation from the original speed.
- High-pressure centrifugal fans, compatible with air distribution systems up to 300 Pa.
- Compatible with the 35BD air diffuser range.
- Safe factory-installed electric heater for single or two-stage hot water heating.
- Available with demand control ventilation (DCV) and CO₂ sensor.
- Can be equipped with a UV-PCO IAQ module.
- Low hydraulic pressure drop with a valve mounted, compatible with all chiller pump kits.
- Quick installation with factory-installed options (controls, valves).



35BD linear diffuser (supply and return air)

Physical data

42GM		Size 1.9 (2 pipes)	Size 1.9 (4 pipes)
Fan			
Air flow	l/s (m³/h)	94 (337)	94 (337)
Pressure drop	Pa	290	290
Cooling mode			
Total cooling capacity	kW	2.20	2.20
Sensible cooling capacity	kW	1.70	1.70
Water flow rate	l/s (l/h)	0.11 (380)	0.11 (380)
Water pressure drop	kPa	65 (with 2-way valve)	47 (with 2-way valve)
4-pipe heating mode			
Heating capacity	kW	-	2.21
Water flow rate	l/s	-	0.05 (190)
Water pressure drop	kPa	-	10
Electric heater			
Low-capacity heating	W	470	-
High-capacity heating	W	1750	-
Sound levels			
Sound power level (inlet and radiated)	dB(A)	65	65
Sound power level (outlet duct)	dB(A)	70	70
Sound pressure level*	dB(A)	49	49
NR value		45	45
Power supply			
Power input	V-ph-Hz	230-1-50	230-1-50
Current draw	W	115	115
	A	0.81	0.81
Dimensions			
Coil inlet/outlet diameters	in	1/2 gas	1/2 gas
Length	mm	1202	1202
Height	mm	412	412
Depth	mm	300	300
Weight	kg	30	30

Based on Eurovent rating standards:

Cooling: Entering/leaving air temperature = 27°C db/19°C wb – entering/leaving water temperature = 7°C/12°C.

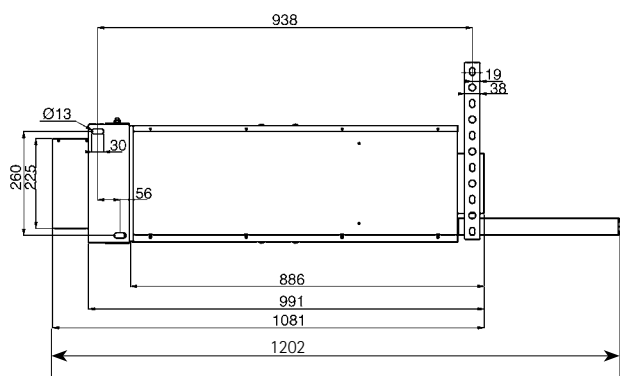
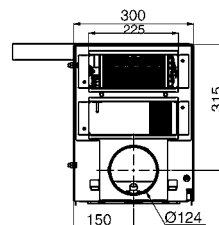
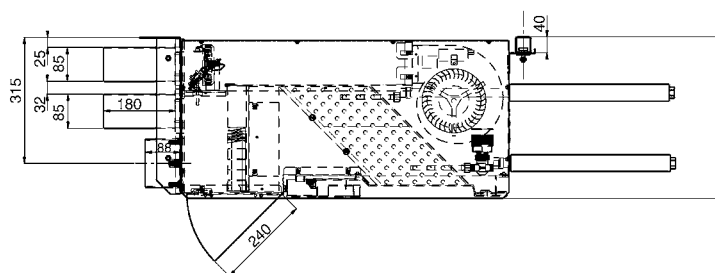
Heating (2 pipes): Entering air temperature = 20°C – entering water temperature = 50°C, same water flow rate as in cooling.

Heating (4 pipes): Entering air temperature = 20°C – entering/leaving water temperature = 70°C/60°C.

* Based on a hypothetical sound attenuation for the room and the system of -21 dB(A).

Dimensions, mm

42GM with front fastening support with constant-flow fresh air



AIR TREATMENT MODULES



Air treatment 42GR



Options/accessories

- Custom-made product on request

Standard controls

NTC communicating controller



- Network communication
- Aquasmart Evolution system compatible
- IAQ and DCV management
- Motorised blinds and lighting control

Features

- Two sizes with two-pipe plus electric heater or four-pipe coils, with an air flow range from 103 to 109 l/s, a cooling capacity of 3.1 kW and a heating capacity range from 2.9 to 3.5 kW.
- Decentralised compact ducted chilled-water fan coil system, designed for installation in plant rooms. This allows centralised service and maintenance.
- Reliable and efficient heating and cooling for office blocks and institutional buildings.
- High efficiency EU6 filter.
- Extremely low sound level.
- The LEC (low energy consumption) fan motor assembly is available as standard. This direct-drive motor is electronically commutated (EC motor), controlled by a 0–10 V signal and allows precise, simple and quiet unit operation in a wide range of rotational speeds in variation from the original speed.
- High-pressure centrifugal fans, compatible with air diffusion systems up to 300 Pa.
- Compatible with the 35BD air diffuser range.
- Safe factory-installed electric heater for single or two-stage hot water heating.
- Available with demand control ventilation (DCV) and CO₂ sensor.
- Can be equipped with a UV-PCO IAQ module.
- Low hydraulic pressure drop with a valve mounted, compatible with all chiller pump kits.
- Quick installation with factory-installed options (controls, valves).



35BD linear diffuser (supply and return air)

Physical data

42GR		Size 1.9	Size 2.9
Fan			
Air flow	l/s (m³/h)	109 (394)	103 (371)
Pressure drop	Pa	395	250
Cooling mode			
Total cooling capacity	kW	3.07	3.14
Sensible cooling capacity	kW	2.21	2.20
Water flow rate	l/s (l/h)	0.14 (504)	0.21 (752)
Water pressure drop	kPa	34	52
2-pipe heating mode			
Heating capacity	kW	3.09	3.20
4-pipe heating mode			
Heating capacity	kW	2.92	3.54
Water flow rate	l/s (l/h)	0.07 (251)	0.08 (305)
Water pressure drop	kPa	12	19
Electric heater			
Low-capacity heating	W	450	450
High-capacity heating	W	1700	1800
Sound levels			
Sound power level	dB(A)	74	66
Sound pressure level*	dB(A)	53	45
NR value		48	40
Power supply			
Power input	W	133	126
Current draw	A	0.64	0.91
Dimensions			
Coil inlet/outlet diameters	in	1/2 gas	1/2 gas
Length	mm	960	960
Height	mm	962	962
Depth	mm	250	420
Weight	kg	35	50

Based on Eurovent rating standards:

Cooling: Entering/leaving air temperature = 27°C db/19°C wb – entering/leaving water temperature = 7°C/12°C.

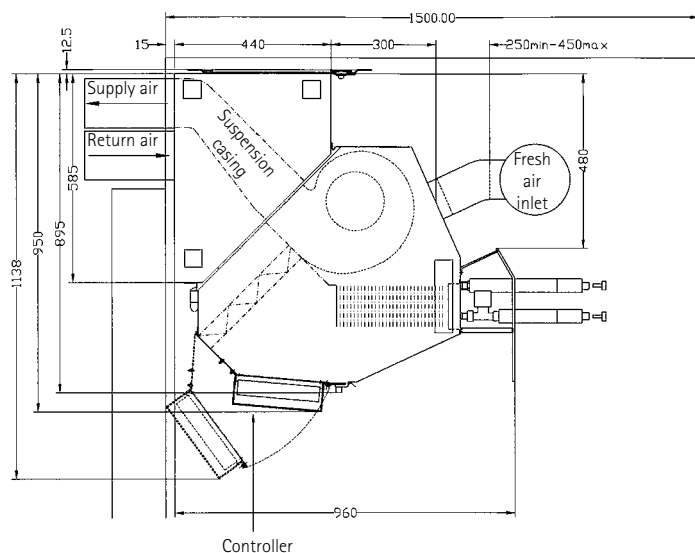
Heating (2 pipes): Entering air temperature = 20°C – entering water temperature = 50°C, same water flow rate as in cooling.

Heating (4 pipes): Entering air temperature = 20°C – entering/leaving water temperature = 70°C/60°C.

* Based on a hypothetical acoustic attenuation for the room and the air distribution system of -21 dB(A).

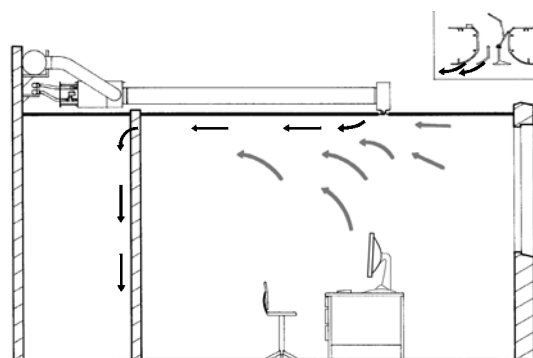
Dimensions, mm

Standard installation

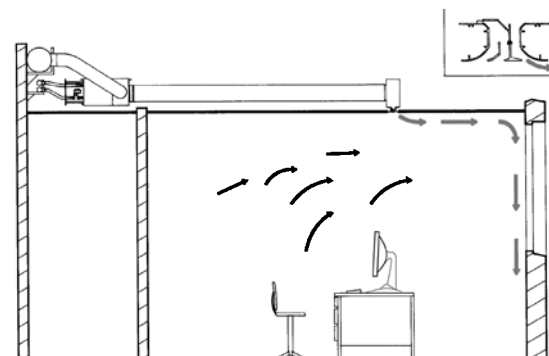


Air distribution with Optimix linear diffusers

Cooling air flow



Heating air flow



MODUBOOT AIR DIFFUSERS

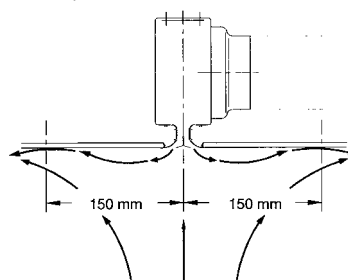
Air treatment 35BD/SR

Accessories

- Return air diffusers
- Dummy diffusers
- Diffuser end trim strips
- Alignment channels
- Mounting brackets

Features

- Linear diffusers with high induction, specially designed to be connected to the Carrier 42GR Air Treatment Modules, 42BJ Individual Comfort Modules, 42EM Atmosphaera and 42DW ducted fan coil units.
- Two main types:
 - AG and AH profiles, two slots one-way and two-way blow for cold air diffusion and return air.
 - FH, SH, XH, LH profiles: two to five slots with Optimix damper for cold and warm air diffusion.
- 35BD models have a supply or return air Moduboot, 35SR models have a supply and return air Moduboot.
- 35BD – 19 diffuser profiles with two to five slots, and one-way or two-way blow for cold air diffusion or return air.
- 35SR – 17 diffuser profiles with three to five slots for cold and warm air diffusion.
- Four nominal lengths: 600 – 1200 – 1350 – 1500 mm for the 35BD and 1200 – 1350 – 1500 – 1800 mm for the 35SR.
- Choice of models allows air throw adjustment according to the required air flow.
- Damper position of the Optimix diffuser changes automatically with the primary air temperature.
- Comprises a galvanized sheet metal plenum with 13 mm thick fibreglass acoustic and thermal internal insulation.
- Aerodynamic diffuser design provides uniform air distribution without disturbing draughts.
- From fully cold to fully warm position, the damper operation provides adjusted air diffusion to ensure optimum comfort in the occupied space.



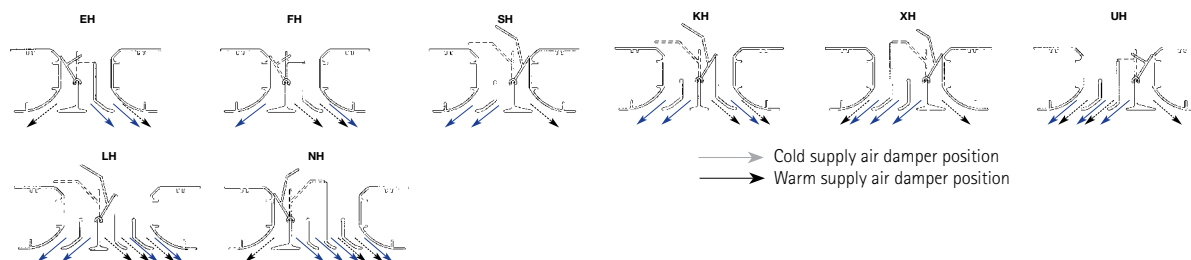
35BD supply or return air

Model	No. of slots	Duct diameter mm	Nominal diffuser length mm	Plenum length mm	Overall height mm
AG	2	159/199	600	473	270.4
	2	159/199	1200	939	270.4
	2	159/199	1500	1235	270.4
AH	2	199			
VH/MH	3	199	600	539	280.8
GH/JH	4	199	1200-1350	1139	280.8
BH/QH	5	199	1500	1439	280.8
CH	5	199			

35BD supply or return air Optimix

Model	No. of slots	Duct diameter mm	Nominal diffuser length mm	Plenum length mm	Overall height mm
SH	3	199			
EH/FH	3	199	1200-1350	1139	280.8
KH/XH	4	199	1500	1439	220.8
UH	4	199			
LH/NH	5	199			

Optimix diffuser profiles



35SR supply/return air

Model	No. of slots	Duct diameter mm	Nominal diffuser length mm	Plenum length mm	Supply section length mm	Return section length mm	Overall height mm
VH/MH	3	159/199*					
GH	4	159/199**	1200-1350	1139	742	388	280.8
JH	4	159/199**	1500	1439	867	563	280.8
CH/QH	5	159/199***	1800	1739	1067	663	280.8
BH	5	159/199***					

* 159 mm for diffuser length 1200-1350 mm only

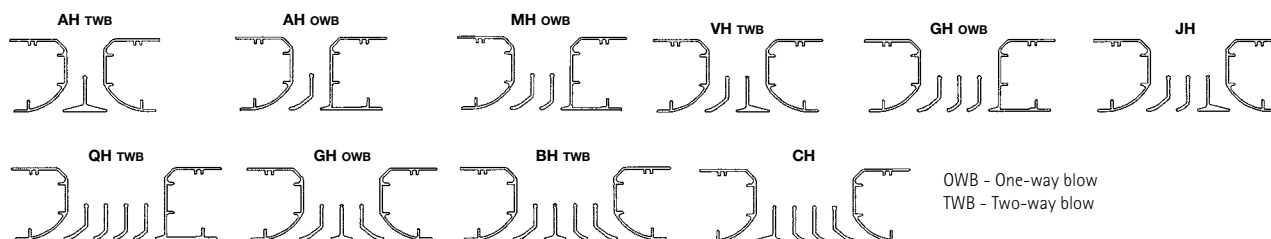
** 159 mm for diffuser length 1500 mm only

*** 159 mm for diffuser length 1800 mm only

35SR supply/return air Optimix

Model	No. of slots	Duct diameter mm	Nominal diffuser length mm	Plenum length mm	Supply section length mm	Return section length mm	Overall height mm
EH/FH	3	199					
SH	3	199					
XH	4	199	1200-1350	1139	742	388	280.8
UH	4	199	1500	1439	867	563	280.8
KH	4	199	1800	1739	1067	663	280.8
LH	5	199					
NH	5	199					

Other diffuser profiles



MODULINE AIR DIFFUSERS



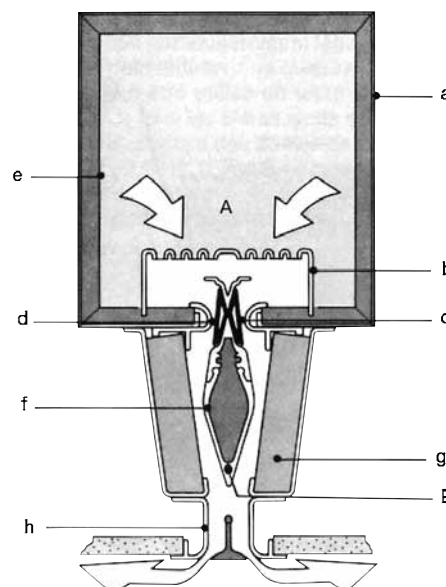
Air treatment 37A

Accessories

- One- or two-way T-bar or continuous, 2-way return air diffuser (AG, AH)
- One- or two-way T-bar or continuous dummy units (AG, AH)
- End trimming piece (all)
- Alignment channels (AG, AS)
- Plastic blanking piece (all)
- Constant volume control kit (all)
- Variable air volume controller with Moduline thermostat (all)
- Variable air volume control with room thermostat (all)
- Minimum air flow controller
- Warm-up switch
- Various suspension accessories
- Various plenum accessories
- Various control accessories

Features

- Three types of terminals with nominal air flows from 19 to 236 l/s.
- Wide range of capacities, weights and physical dimensions.
- Air distribution and air volume flow control, constant or variable volume are integrated in the terminal itself.
- One-piece, self-contained units, can be used in any type of air treatment unit: ducted central station air handlers or packaged indoor or outdoor air conditioners.
- Conditioned air is distributed through linear diffuser slots in the ceiling.
- Available in sizes to match standard false ceiling modules.
- Galvanised steel plenums (a).
- Perforated sheet steel distribution plate (b).
- Neoprene bellows which expand and contract with the control pressure (c).
- Felt-coated bellows stops control the noise level (d).
- Thermal and acoustic insulation (e).
- Aerodynamically profiled central air guide (f).
- Acoustic insulation, attenuates air flow noise (g).
- Air diffuser assembly of extruded aluminium (h).



**37AG – nominal lengths 1200 and 1500 mm
(active length 900 mm), air flow 56 l/s**

Nominal plenum height	mm	180	230	280
Plenum size	mm	178 x 178	229 x 229	279 x 279
Overall unit height	mm	327	378	428
Width	mm	181.5	232.5	282.5
Weight	kg	10	12	16

**37AG – nominal length 1500 mm
(active length 1200 mm) – air flow 74 l/s**

Nominal plenum height	mm	180	230	280
Plenum size	mm	178 x 178	229 x 229	279 x 279
Overall unit height	mm	327	378	428
Width	mm	181.5	232.5	282.5
Weight	kg	12	15	19

**37AH – nominal lengths of 1200 and 1500 mm
(active length 900 mm) – air flow 97 l/s**

Nominal plenum height	mm	230	280
Plenum size	mm	229 x 229	279 x 279
Overall unit height	mm	388	438
Width	mm	232.5	282.5
Weight	kg	15	16

**37AS – nominal lengths of 1200 and 1500 mm
(active length 900 mm) – air flow 56 l/s**

Nominal plenum height	mm	127
Plenum size	mm	127 x 178
Overall unit height	mm	170
Width	mm	288
Weight	kg	11.5



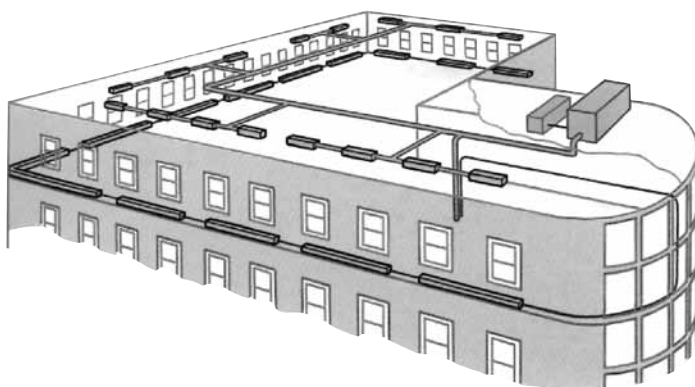
37AG: Air flow range: 19–173 l/s



37AH: Air flow range: 47–236 l/s



37AS: Air flow range: 19–78 l/s



AIR HANDLING UNITS



Air treatment 39SQ



Options

- Outdoor installation
- Inspection section in between heating and cooling coils
- Reversed hot/chilled water coils
- Differential pressure gauges
- Differential pressure taps
- Direct-expansion R-410A refrigerant coil
- Lighting with switch
- Door safety screen
- Variable-speed drive with integrated disconnect switch
- Run-around coils for energy recovery
- Hygienic options for hospital/laboratory applications: class 3 dampers, F9 fanal filter, inspection sections
- Empty section

Features

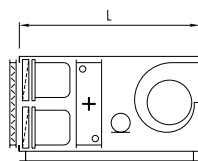
- New generation standardised air handling units for tertiary and commercial applications.
- Eurovent-certified performances.
- Standardised components for short delivery time (target 4 weeks) and competitive price positioning.
- "Clean concept" design with smooth internal surfaces for easy cleaning and better air quality.
- 60 mm double-skin construction for good thermal insulation and low-noise operation.
- Three basic configurations:
 - Exhaust unit
 - Supply unit with a single fan
 - Combined return and supply unit with two fans
- Eight sizes with air flows from 0.4 to 7.3 m³/s (1400 to 26300 m³/h).
- Galvanised steel frame and casing with large hinged access doors.
- Casing performance (EN1886): air leakage L1, thermal transmittance T3, thermal bridging TB3.
- Double or single mixing section.
- Pre-heating hot water coil.
- G4 pleated or/and F7 bag filters.
- Hot water coil or electric heaters.
- Chilled water coil.
- Belt-driven forward/backward curved fans or direct-drive plug-in fans.

Physical data

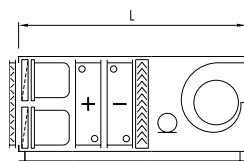
39SQ		0402	0404	0604	0606	0806	0808	1008	1010
Height (including base frame)	mm	560	800	800	1120	1120	1440	1440	1760
Width	mm	738	738	1058	1058	1378	1378	1698	1698
1 – Exhaust unit									
Air flow	m³/s	0.58	1.17	1.75	2.63	3.5	4.67	5.83	7.29
Length	mm	660	820	900	1060	1140	1220	1300	1540
2 – Supply unit heating									
Air flow	m³/s	0.58	1.17	1.75	2.63	3.5	4.67	5.83	7.29
Heating capacity	kW	24.5	48.5	74.5	112.3	140.1	188.5	243.7	304.4
Length	mm	1380	1540	1620	1780	1860	1940	2180	2340
3 – Supply unit heating and cooling									
Air flow	m³/s	0.54	1	1.72	2.58	3.2	4.36	5.73	7.1
Heating capacity	kW	22.5	42.6	73.3	110	132.7	181.1	241	300.2
Cooling capacity	kW	10	19.2	33.1	49.9	63	86.2	112.3	139.7
Length	mm	1860	2020	2100	2260	2340	2420	2660	2820
4 – Supply unit: mixing/heating/cooling									
Air flow	m³/s	0.54	1	1.72	2.58	3.2	4.36	5.73	7.1
Heating capacity	kW	22.5	42.6	73.3	110	132.7	181.1	241	300.2
Cooling capacity	kW	10	19.2	33.1	49.9	63	86.2	112.3	139.7
Length	mm	2180	2340	2420	2660	2740	3060	3220	3460
5 – Combined exhaust and supply unit									
Air flow	m³/s	0.54	1	1.72	2.58	3.2	4.36	5.73	7.1
Heating capacity	kW	22.5	42.6	73.3	110	132.7	181.1	241	300.2
Cooling capacity	kW	10	19.2	33.1	49.9	63	86.2	112.3	139.7
Length total	mm	3220	3540	3700	4180	4340	4820	5140	5700
Length section 1	mm						2450	2530	2930
Length section 2	mm						2370	2610	2770
Electric heater option									
Heating capacity 1	kW	7.5	7.5	18	27	36	36	45	60
Heating capacity 2	kW	11.3	15	27	36	48	60	75	90
Heating capacity 3	kW	15	22.5	36	54	72	96	120	150
Heating capacity 4	kW	18.8	30	45	63	84	120	150	180
Heating capacity 5	kW	30	37.5	54	81	108	144	180	225
Pre-heating coil option									
Heating capacity	kW	6.4	12.2	20.9	31.4	38.8	53	69.6	86.5



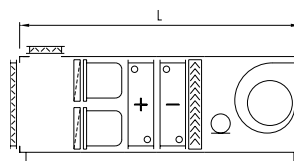
1 – Exhaust unit
Exhaust fan



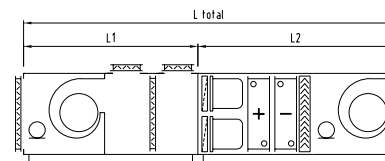
2 – Supply unit heating
Return air damper
G4+F7 filter
Heating coil 2 rows
Supply fan



3 – Supply unit heating and cooling
Return air damper
G4 + F7 filters
Heating coil 2 rows
Cooling coil 6 rows
Supply fan



4 – Supply unit: mixing/heating/cooling
Return air damper
Fresh air damper
G4 + F7 filters
Heating coil 2 rows
Cooling coil 6 rows
Supply fan



5 – Combined exhaust and supply unit
Return air damper
Return fan
Fresh air damper
Exhaust damper
Mixing damper
Fresh air damper
G4 + F7 filters
Heating coil 2 rows
Cooling coil 6 rows

Standard conditions:

Heating: air -10°C/90% rh, +25°C, water 80/60°C

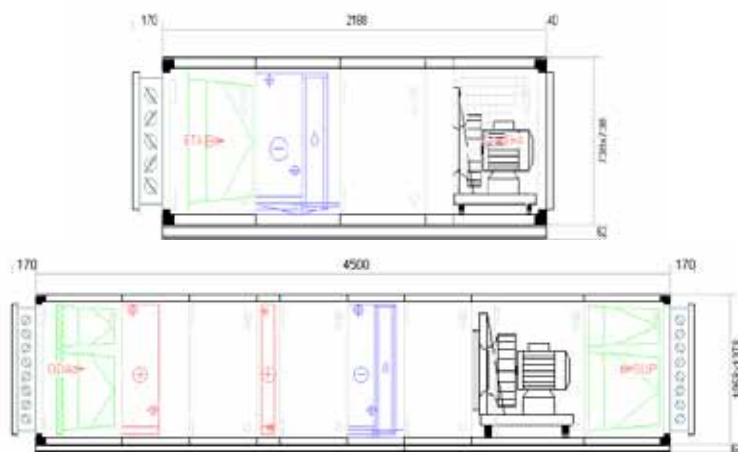
Cooling: air 28°C/50% rh, +16°C, water 7/12°C

Pre-heating: air -5°C, +5°C, water 80/70°C

External static pressure 300 Pa

Notes on dimensions:

- All dimensions are for indoor units with backward-curved fans, except size 0402 that has dimensions with a forward-curved fan
- Casing length is exclusive of return air damper
- Electric heater option: length varies with heating capacity
- Pre-heating coil option: length + 160 mm
- Contact your Carrier representative for certified dimensional drawings



Hospital exhaust and supply units with run-around coil for energy recovery

FRESH AIR UNITS WITH ENERGY RECOVERY



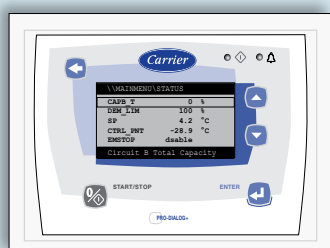
Air treatment

39SQC/R/P



Options/accessories

- Outdoor installation
- Reversed extract/supply air duct connections
- Left-hand water connections & service side
- Outdoor air pre-heater to prevent air-to-air heat exchanger freezing at very low outside air temperatures
- Air heater (hot-water or electrical heater)
- Air cooler (chilled-water coil)
- Inspection chamber between heating and cooling coils
- Pro-Dialog human interface (local or remote installation)
- Inspection windows
- Extract, exhaust, outside, supply air isolating dampers
- G4 fresh-air pre-filter
- Sound attenuators (accessory)
- Direct-expansion Carrier R-410A refrigerant coil
- JBus, BACnet communications gateways
- Cool/heat change-over coil for heat pump applications
- Coated coils
- Recirculation damper (39SQP/R)



Pro-Dialog+ operator interface

Features

- Three versions in nine sizes with air flows from 0.2 to 5 m³/s (700 to 18000 m³/h).
- 39SQ units are designed to supply fresh air to any type of building. The efficient air-to-air heat exchanger recycles the heat from the exhaust air, pre-heats cold outdoor air in winter and pre-cools hot outdoor air in summer, resulting in impressive energy savings.
- Eurovent-certified performances.
- High-efficiency units with counter-flow plate (C models) or rotary heat exchangers (R models) with a thermal efficiency up to 85%.
- Casing performance (EN1886): air leakage L1, thermal transmittance T3, thermal bridging TB3.
- Standard-efficiency units with cross-flow plate heat exchangers (P models) with a thermal efficiency up to 54%.
- Plug & play installation thanks to factory-mounted control system.
- Delivered in one piece with integrated heating and cooling coils (only the 39SQR 1212 is delivered in two pieces).
- Field-separable casing in two pieces to facilitate installation in existing buildings.
- Plug fans with variable frequency drive.
- F7 efficiency filters.
- Main control system functions:
 - Air flow control: constant volume, constant pressure, variable volume (demand ventilation with CO₂ sensor)
 - Temperature control: extract or supply air temperature, room temperature sensor
 - Summer night free-cooling control
 - Alarm indication: temperature too low, coil frosting, clogged filters, etc.
 - Easy local or remote access by integrated web server (no specific software required)
 - RS485 communication port

Physical data

Model		39SQC			39SQR							39SQP							
Size		0405	0506	0606	0606	0707	0808	0909	1010	1111	1212	0405	0506	0606	0707	0808	0909	1010	
Weight																			
Unit without coils	kg	218	294	345	328	385	516	586	717	852	1043	210	275	324	395	536	578	688	
Unit with reheating and cooling coils	kg	301	399	469	428	509	660	757	952	1121	1346	277	360	423	518	712	783	923	
Unit air flow																			
Maximum	m³/s	0.43	0.72	0.88	1.25	1.70	2.22	2.81	3.47	4.20	5.00	0.68	1.04	1.25	1.70	2.22	2.81	3.47	
	m³/h	1565	2580	3150	4500	6125	8000	10125	12500	15125	18000	2450	3750	4500	6125	8000	10125	12500	
Minimum	m³/s	0.20	0.34	0.43	0.43	0.62	0.91	1.25	1.48	1.91	2.18	0.20	0.34	0.43	0.62	0.91	1.25	1.48	
	m³/h	737	1225	1549	1549	2247	3265	4501	5328	6882	7847	737	1225	1549	2247	3265	4501	5328	
Unit thermal efficiency*	%	94	94	94	77.5	78	78	79	79	79	79	62	63	63	64	64	63	62	
Unit external static pressure																			
At max. air flow (low static fan)	Pa	500	700	700	150	-	-	-	120	-	150	400	-	0	-	50	-	150	
At max. air flow (high static fan)	Pa	1550	2000	1700	600	400	1200	500	950	800	1050	650	800	650	450	1300	550	1000	
Specific unit fan power**	kW/m³/s	2.4	2.1	2.5	2.3	2.3	2.1	2.1	1.9	2	1.7	2.2	1.9	2.1	2	1.8	1.9	1.7	
Unit sound data***																			
Sound power level, casing radiated	dB(A)	68	68	71	70	73	68	73	69	73	69	67	66	69	73	67	73	69	
Sound power level, extract duct	dB(A)	74	74	77	76	79	75	79	76	79	76	77	75	79	82	77	79	78	
Sound power level, supply duct	dB(A)	84	84	88	87	89	85	89	86	89	86	84	82	86	88	84	89	86	
Heat reclaim heat exchanger		Counter-flow plate			Rotary							Cross-flow plate							
Material		Aluminium			Aluminium							Aluminium							
Capacity control		Bypass damper			Variable speed drive							Bypass damper							
Exhaust and supply fans		Plug fan (backward curved)																	
Fan diameter	mm	225	280	280	280	315	400	400	500	500	630	225	280	280	315	400	400	500	
Drive		Frequency inverter																	
Rated motor power (low static)	kW	0.55	1.1	1.5	1.5	2.2	2.2	2.2	4	5.5	5.5	1.1	1.1	1.5	2.2	2.2	2.2	4	
Rated motor power (high static)	kW	1.5	2.2	3	3	4	5.5	5.5	7.5	11	11	1.5	2.2	3	4	5.5	5.5	7.5	
Exhaust and supply air filters		Bag filter 500 mm, filter efficiency F7											Pleated filter 100 mm, filter efficiency F7						
Outside air pre-heating coil		Hot-water coil or electric heater (option)																	
Supply air reheating coil		Hot-water coil or electric heater (option)																	
Supply air cooling coil		Chilled-water coil (option)																	
Control system		Digital control with web server																	
Chassis paint colour		Colour code: RAL 7035																	

* Thermal efficiency of supply air at 2 m/s with the effect of supply air fan, outside air -10°C, extract air 22°C/50%.

** Specific fan power with clean filters at 2 m/s and 200 Pa.

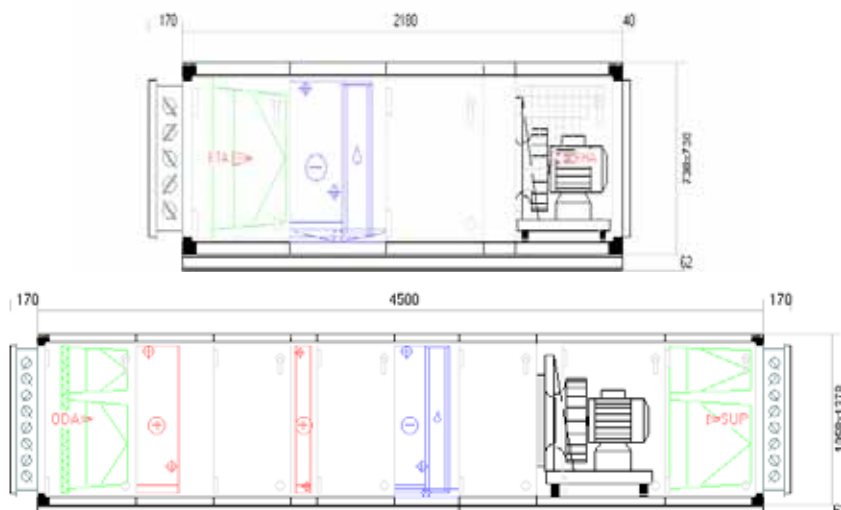
*** Sound power at 2 m/s and 200 Pa.

Data for standard unit without optional coils and dampers.

Electrical data

Model 39		SQC 0405	SQC 0506	SQC 0606	SQR 0606	SQR 0707	SQR 0808	SQR 0909	SQR 1010	SQR 1111	SQR 1212
		SQP 0405	SQP 0506	SQP 0606		SQP 0707	SQP 0808	SQP 0909	SQP 1010		
Power circuit		Built-in main disconnect switch									
Nominal power supply	V-ph-Hz	400-3-50 neutral									
Voltage range	V	360-440									
Maximum unit power	kW	3.6	5.8	7.7	7.7	10.5	14.1	14.1	18.9	27.3	27.3
Maximum supply cable size	mm²	2.5	4	4	4	6	6	6	10	16	16
Main switch	A	25	25	25	25	40	40	40	63	63	63
Short circuit unit capacity	kA	15	15	15	15	15	15	15	15	15	15
Recommended power line fuse protection	A	20	25	25	25	35	35	35	50	63	63
Control circuit power	Built-in 24 V control transformer										

Note: Electric pre-heater and reheater have separate power supply.



Hospital exhaust and supply units with run-around coil for energy recovery

AIR HANDLING UNITS



Air treatment 39HQ



Options

- 100% stainless steel
- Direct-drive fans
- All types of humidification systems, including infrasonic
- Flat pack option for site assembly
- Heat recovery systems (run-around coil, plate heat exchanger and thermal wheels)
- Wide selection of standard accessories
- 316L stainless steel drain pan with PVC wall lining in the outside air inlet section and filter section

Features



High-efficiency centrifugal fan

Special sorption heat recovery wheels



Filters are easily removable



Generously sized access doors

Features

- Airovision is a modular construction that can be fully customised to provide the required performance for any application.
- Special new casings encompass only high-quality components, including filters, heat recovery systems, fan assemblies, cooling and heating coils, humidifiers and attenuators.
- The Airovision range also pays special attention to air quality and reduction of the energy required to cool, heat, humidify and supply the conditioned air.
- Airovision is available in a large selection of sizes and arrangements, suitable for many different applications.
- Applications include leisure and event complexes, theatres, museums, libraries, offices in companies and government institutions, shopping centres, supermarkets, department stores and educational establishments, as well as oil drilling rigs, airports and cruise ships.
- In addition Airovision is also ideal in health care and in industries with stringent hygiene requirements.

Environmentally sound

- No paint treatment required after the production process
- 100% recyclable components
- Low energy usage due to optimised component selection
- High-efficiency heat recovery systems available

Technical specification (in accordance with EN1886)

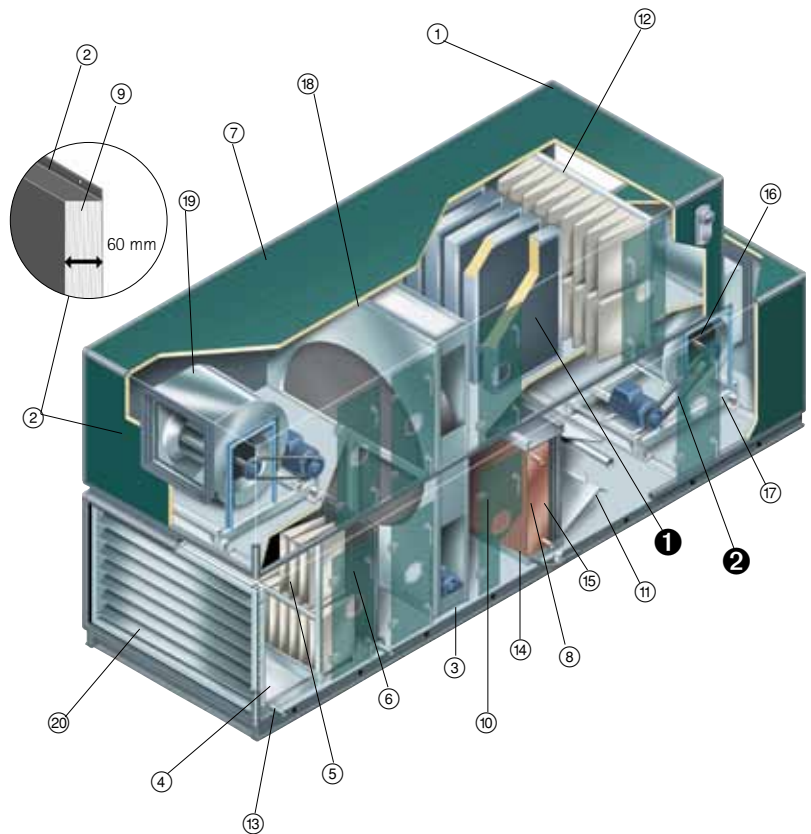
- Heat transfer factor class T2
- Thermal bridging factor TB 2
- Air tightness class B (L2)
- Mechanical strength class 1A (DI)
- Filter bypass leakage
 - class F7 for standard slide-in construction
 - class F9 for special slide-in construction
 - class F9 for built-in construction

Rigid construction

- ① Carrier Holland Heating profiled steel frame construction with purpose-built corner and centre posts
- ② Panels with 60 mm thick thermal insulation
- ③ Robust base frame made of galvanised steel box profile

High corrosion resistance

- ④ 316L stainless steel drain pan with PVC wall lining in the outside air inlet section and filter section (option)
- ⑤ Filters held in 316L stainless steel frames
- ⑥ Anti-corrosion protection available
- ⑦ Internal and external panels made of high-quality prepainted galvanised sheet steel
- ⑧ Cooling coils with integrated stainless steel drain pan and plastic droplet eliminator housed in an aluminium frame
- ⑨ Special panel design and frame detail eliminate the risk of condensation forming in the panels



Easy maintenance

- ⑩ Various inspection options with generously sized clear opening access doors
- ⑪ Completely smooth internal surfaces
- ⑫ Filters easily removable
- ⑬ Drain pan in the outside air inlet section and filter section equipped with drain (option)
- ⑭ Cooling coil drain pan fully accessible for cleaning/disinfection
- ⑮ Moisture eliminator after the cooling coil easily removable
- ⑯ Long-life fan and motor bearings
- ⑰ Fans removable from the side

High-quality built-in components

- ⑱ Special sorption heat recovery wheels for optimised recovery of heat, cold and humidity
- ⑲ High-efficiency centrifugal low-noise fans, mounted on vibration isolators with low transmission factor
- ⑳ Aluminium dampers with UV-resistant double nylon bearings
- ① Skrim faced sound absorption splitters
- ② Matched high-efficiency belt drives

Central station air handling unit range (based on a nominal filter loading of 1.11 m³/s)

Width \ Height	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25
2.5	0.56	0.69	0.83																			
4	1.11	1.39	1.67	1.81	2.22	2.50	2.78	3.06	3.33													
6	1.67	2.22	2.50	2.92	3.33	3.75	4.17	4.72	5.00	5.56	5.83	6.39	6.67	7.22	7.50							
8			3.33	3.89	4.44	5.00	5.56	6.11	6.67	7.22	7.78	8.33	8.89	9.44	10.00	10.56	11.11	11.67	12.22	12.78	13.33	
10					5.56	6.39	6.94	7.64	8.33	9.03	9.72	10.56	11.11	11.94	12.50	13.33	13.89	14.72	15.28	16.11	16.67	17.50
12						7.50	8.33	9.17	10.00	10.83	11.67	12.50	13.33	14.44	15.00	15.83	16.67	17.50	18.33	19.17	20.00	20.83
14									11.67	12.78	13.61	14.72	15.56	16.67	17.50	18.61	19.44	20.56	21.39	22.50	23.33	24.44
16										14.44	15.56	16.67	17.78	18.89	20.00	21.11	22.22	23.33	24.44	25.56	26.67	27.78
18															22.50	23.89	25.00	26.39	27.50	28.89	30.00	31.39
20																	27.78	29.17	30.56	31.94	33.33	34.72

Preferred range Combination with heat recovery Other sizes

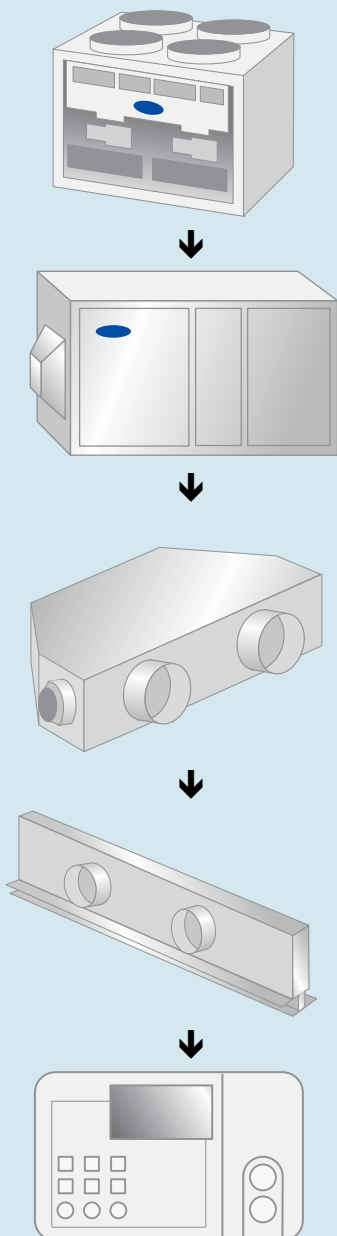
Note: All air flow values are in m³/s. Larger unit sizes are possible.

Module dimension: 160 mm
 External width: n x module plus 98 mm
 External height: n x module plus 98 mm
 Base frame height: 60 mm or 62 mm

Example: type 39HQ12.10
 Width: 12 x 160 plus 98 = 2.018 mm
 Height: 10 x 160 plus 98 = 1.698 mm
 Nominal air flow: 8.33 m³/s

Air treatment Index

System architecture





Refrigerant-based air treatment units

Type	Range	Refrigerant	Cooling capacity kW	Heating capacity kW	Air flow, l/s	Page
Split systems						
Outdoor units, axial fan	38RA	R-407C	40-151	-	-	126
Monoblocs or split systems, ductable condenser and evaporator						
Horizontal units	50TZ (38FZ + 40TZ/BZ)	R-407C	7-23	-	400-1365	128
	50YZ (38BZ + 40BZ)	R-407C	6-22	7-25	400-1365	130
Vertical units	50PZ (38PZ + 40PZ)	R-407C	13-73	16-83	960-3530	132
Rooftop units						
	50GL	R-410A	7-14	-	377-755	134
	50JZ	R-410A	7-14	7-13	377-755	136
	50UA	R-410A	44-115	-	2528-5550	138
	50UH	R-410A	44-109	44-112	2528-5550	140
	48UA	R-410A	44-115	-	2528-5550	142
	48UH	R-410A	44-109	44-112	2528-5550	144
Water-source heat pumps						
Horizontal/vertical units	50PCH/V	R-410A	2.1-15.0	2.8-18.7	121-686	146
Consoles	50PEC	R-410A	2.1-3.7	2.8-4.5	142-269	148

AIR-COOLED CONDENSING UNITS



Air treatment 38RA

Options/accessories

- Condenser anti-corrosion pre-treatment for light marine and urban applications (option)
- Condenser post-assembly corrosion treatment for heavy-duty rural, urban and industrial applications (option)
- Electronic compressor starter for reduction of start-up current (38RA 040-080 – option)
- Programmable or non-programmable electronic thermostat (accessory)

Features

- Ten sizes with nominal cooling capacities from 40 to 151 kW.
- Units feature the latest technological innovations: scroll compressors, low-noise fans made of a composite material, microprocessor control and ozone-friendly refrigerant HFC-407C, and include all refrigeration and control components for quick connection to a direct-expansion air handling unit.
- Equipped with the exceptionally quiet, revolutionary second-generation Flying Bird fan. The fan is not fixed to the top unit panel, but supported by an extremely rigid tower chassis to prevent transmission of vibrations to the unit casing.
- Scroll compressors run extremely quietly and vibration-free, and are very durable and reliable.
- Refrigerant circuit includes all components for easy connection to a direct expansion air handling unit: filter drier, moisture sight glass, high and low pressure switch, as well as solenoid valves for pumpdown. Two independent refrigerant circuits from size 38RA 090 onwards.
- Designed for year-round operation.
- Electrical connections are simplified.
- Large panels, removable without tools, and hinged door of the control box for easy access to all components.



Programmable TSTAT thermostat

Physical data

38RA		040	050	060	070	080	090	100	120	140	160
Net nominal cooling capacity*	kW	39.9	49.5	58.0	68.0	77.0	87.0	95.0	114.0	133.0	151.0
Operating weight (unit supplied with nitrogen holding charge)	kg	479	572	590	601	625	1100	1108	1136	1202	1250
Compressors	Hermetic scroll compressor, 48.3 r/s										
Quantity, circuit A		1	2	2	2	2	1	1	2	2	2
Quantity, circuit B		-	-	-	-	-	2	2	2	2	2
No. of capacity steps		1	2	2	2	2	2	2	2	2	2
Control type	Pro-Dialog Plus										
Air heat exchanger	Grooved copper tubes, aluminium fins										
Fans	Axial Flying Bird 2 fans with rotating shroud										
Quantity		1	1	1	1	1	2	2	2	2	2
Total air flow (high speed)	l/s	3870	3660	4080	5600	5600	7350	7950	8160	11200	11200

* Net nominal cooling capacity based on nominal conditions = saturated suction temperature (dew point) = 5°C, suction superheat = 5 K, sub-cooling = 8.3 K, outdoor air temperature 35°C.

Electrical data

38RA		040	050	060	070	080	090	100	120	140	160
Power circuit											
Nominal power supply	V-ph-Hz	400-3-50 ± 10%									
Control circuit supply		The control circuit is supplied via the unit-mounted transformer									
Maximum unit power input*	kW	19.2	23.5	27.8	32.8	38.6	42.7	47.0	55.6	65.6	77.2
Nominal unit current draw**	A	27.9	33.5	40.1	48.9	54.1	61.4	68.0	88.1	97.8	108.1
Maximum unit current draw***	A	32.9	40.5	47.2	56.1	64.1	73.4	80.1	94.3	112.1	128.1
Maximum start-up current†	A	178	151	156	166	210	218	226	204	223	273

* Power input of the compressor(s) + fan(s) at maximum operating conditions for each unit: saturated suction temperature = 10°C and maximum air entering temperature of 45°C ± 1 K depending on the unit, and 400 V nominal voltage (values given on the unit name plate).

** Nominal unit current draw at nominal conditions: saturated suction temperature (dew point) = 5°C, suction superheat = 5 K, sub-cooling = 8.3 K, outdoor air temperature 35°C. The current values are given at 400 V nominal voltage.

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

† Maximum instantaneous starting current at 400 V nominal voltage with direct compressor starting (maximum operating current of the smallest compressor(s) + fan current + locked rotor current of the largest compressor).

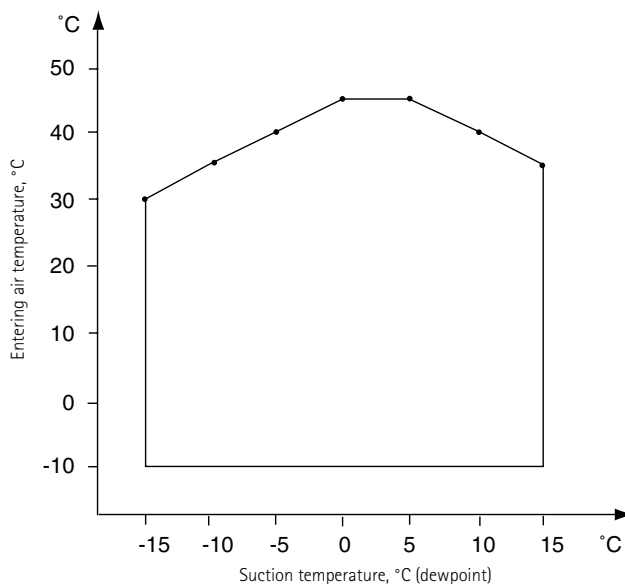
Dimensions, mm

38RA	A	B	C
040-080	2071	1081	1329
090-160	2071	2278	1329

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



Operating range



SINGLE-PACKAGE COOLING UNITS



Air treatment 50TZ

Options/accessories

- Head pressure control (option/accessory)
- Crankcase heater (option/accessory)
- Hot water coil (option/accessory)
- Flare connections (option)
- Outdoor air filter (option/accessory)

Features

- Seven sizes with nominal cooling capacities from 6.5 to 22.7 kW.
- Units consist of the indoor unit 40BZ (40TZ for unit size 084) and the outdoor unit 38FZ.
- Compact, low-profile, air-cooled cooling units, designed for installation in the void above false ceilings.
- Unit cabinet made of prepainted sheet steel. All units include internal thermal and sound insulation.
- Interchangeable unit panels permit alternative supply and return air paths on all models.
- Easily transformed from packaged to split units.
- Quiet, centrifugal fans, statically and dynamically balanced for vibration-free operation.
- Reliable hermetic compressors for R-407C, include overcurrent and over-temperature protection and internal and external vibration isolators.
- Hermetically-sealed leak-tested refrigerant circuit with deoxidized and dehydrated copper tubes.
- Master Link II electronic control.



Master Link II electronic control

Physical data

50TZ Packaged unit		024	036	042	048	060	072	084
Nominal cooling capacity*	kW	6.50	9.11	10.50	12.00	14.80	19.10	22.74
Weight	kg	168	193	211	241	267	329	381
Compressor		Hermetic reciprocating compressor						
Refrigerant		R-407C						
Evaporator section (40TZ/BZ)		Copper tubes, pre-treated aluminium fins						
Evaporator fan (40TZ/BZ)		One ... centrifugal						
Nominal air flow	l/s	400	565	670	670	950	1320	1365
Condenser section (38FZ)		Copper tubes, pre-treated aluminium fins						
Condenser fan (38FZ)		One ... centrifugal						
Nominal air flow	l/s	530	800	865	865	1350	1650	1875
Indoor unit		40BZ 024	40BZ 036	40BZ 042	40BZ 048	40BZ 060	40BZ 072	40TZ 084
Outdoor unit		38FZ 024	38FZ 036	38FZ 042	38FZ 048	38FZ 060	38FZ 072	38FZ 084
Nominal cooling capacity*	kW	6.00	8.22	9.00	11.22	13.95	17.38	20.25
Weight (indoor unit)	kg	58	63	71	76	87	116	120
Weight (outdoor unit)	kg	110	130	140	165	180	213	261

* Based on an outdoor air dry bulb temperature of 35°C and an indoor air wet bulb temperature of 19°C.

Electrical data

50TZ (40TZ/BZ + 38FZ)		024	036	042	048	060	072	084
Nominal voltage (±10%)*	V	230	400	230	400	400	400	400
Nominal power input**	kW	2.90	2.90	3.99	3.99	4.68	5.07	10.08
Nominal current drawn**	A	13.33	6.30	12.50	8.74	11.50	12.23	18.54
Starting current	A	86	46	99	60	72	81	105

* The unit power supply is three-phase (except size 024, 230 V which is single-phase). The fan power supply is single-phase, except for sizes 072 and 084 which are three-phase.

** Based on an outdoor air dry bulb temperature of 35°C and an indoor air wet bulb temperature of 19°C and dry bulb temperature of 27°C.

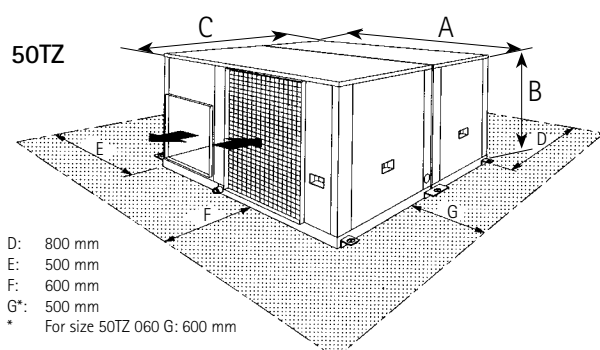
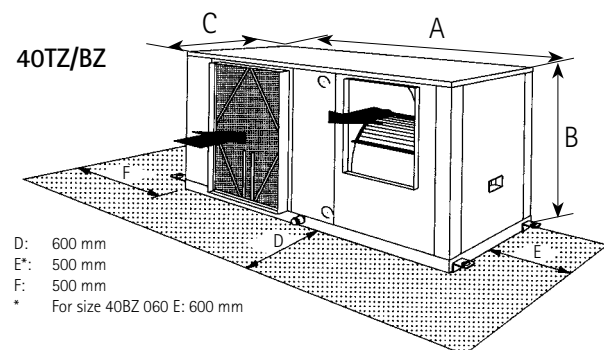
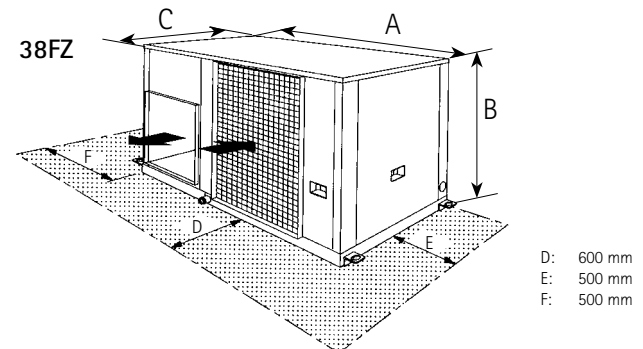
Dimensions, mm

50TZ	A	B	C
024	1190	470	1199
036	1250	540	1259
042	1350	540	1359
048	1450	540	1459
060	1500	560	1509
072	1700	630	1709
084	1700	630	1889
38FZ	A	B	C
024	1190	470	714
036	1250	540	764
042	1350	540	814
048	1450	540	914
060	1500	560	964
072	1700	630	1008
084	1700	630	1188
40TZ/BZ	A	B	C
024	1190	470	508
036	1250	540	569
042	1350	540	619
048	1450	540	619
060	1500	560	619
072	1700	630	775
084	1700	630	775

Operating limits

Zone	Air temperature, °C	
	Dry bulb	Wet bulb
Indoor		
Maximum	35	21
Minimum	19	14
Outdoor		
Maximum	46	-
Minimum	19*	-

* With optional head pressure control the unit will operate at temperatures below 19°C.



SINGLE-PACKAGE HEAT PUMPS



Air treatment 50YZ

Options/accessories

- Head pressure control (option/accessory)
- Hot water coil (option/accessory)
- Flare connections (option)
- Outdoor air filter (option/accessory)

Features

- Seven sizes with nominal cooling capacities from 6.2 to 22.2 kW and nominal heating capacities from 6.52 to 25.0 kW.
- Units consist of the indoor unit 40BZ and the outdoor unit 38BZ.
- Compact low profile air-to-air heat pumps, designed for installation in the void above false ceilings.
- Unit cabinet made of prepainted sheet steel. All units include internal thermal and sound insulation.
- Interchangeable unit panels permit alternative supply and return air paths on all models.
- Easily transformed from packaged to split units.
- Quiet, centrifugal fans, statically and dynamically balanced for vibration-free operation.
- Reliable hermetic compressors for R-407C, include overcurrent and over-temperature protection and internal and external vibration isolators.
- Hermetically-sealed leak-tested refrigerant circuit with deoxidized and dehydrated copper tubes.
- Master Link II electronic control.



Master Link II electronic control

Physical data

50YZ Packaged unit		024	036	042	048	060	072	084
Nominal cooling capacity*	kW	6.20	8.90	10.10	11.56	14.34	19.10	22.20
Nominal heating capacity**	kW	6.52	9.50	11.30	12.50	16.84	21.80	25.00
Weight	kg	170	196	214	244	270	332	385
Compressor	Hermetic reciprocating compressor							
Refrigerant	R-407C							
Indoor section (40BZ)	Copper tubes, pre-treated aluminium fins							
Indoor fan (40BZ)	One ... centrifugal							
Nominal air flow	l/s	400	565	670	670	950	1320	1365
Outdoor section (38BZ)	Copper tubes, pre-treated aluminium fins							
Outdoor fan (38BZ)	One ... centrifugal							
Nominal air flow	l/s	530	800	865	865	1350	1650	1875
Indoor unit		40BZ 024	40BZ 036	40BZ 042	40BZ 048	40BZ 060	40BZ 072	40BZ 084
Outdoor unit		38BZ 024	38BZ 036	38BZ 042	38BZ 048	38BZ 060	38BZ 072	38BZ 084
Weight (indoor unit)	kg	58	63	71	76	87	116	120
Weight (outdoor unit)	kg	112	133	143	168	183	216	265

* Based on an outdoor air dry bulb temperature of 35°C and an indoor air wet bulb temperature of 19°C.

** Based on an outdoor air wet bulb temperature of 6°C and an indoor air dry bulb temperature of 20°C.

Electrical data

50YZ (40BZ + 38BZ)		024	036	042	048	060	072	084
Nominal voltage (±10%)*	V	230	400	230	400	400	400	400
Nominal power input								
Cooling**	kW	2.74	2.74	4.20	4.20	4.70	5.04	7.57
Heating***	kW	2.35	2.35	3.51	3.51	4.00	4.55	6.97
Nominal current drawn								
Cooling**	A	12.77	6.04	13.89	10.06	11.40	12.43	18.06
Heating***	A	11.21	5.30	12.00	8.87	10.60	11.65	17.57
Starting current	A	86	46	99	60	72	81	105

* The unit power supply is three-phase (except size 024, 230 V) which is single-phase). The fan power supply is single-phase, except for sizes 072 and 084 which are three-phase.

** Based on an outdoor air dry bulb temperature of 35°C and an indoor air wet bulb temperature of 19°C.

*** Based on an outdoor air wet bulb temperature of 6°C and an indoor air dry bulb temperature of 20°C.

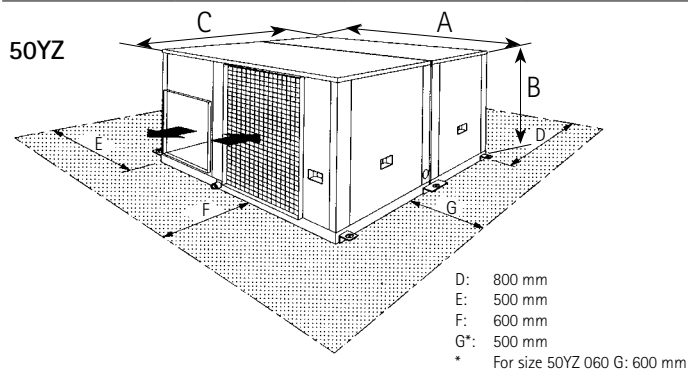
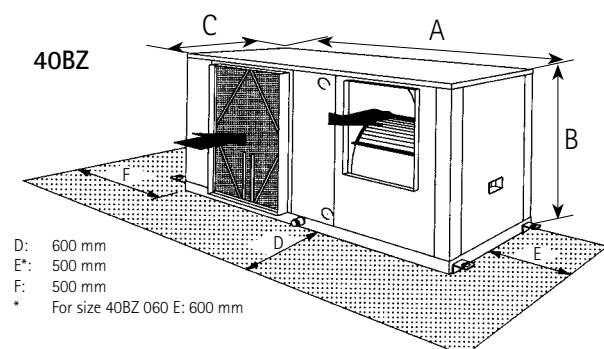
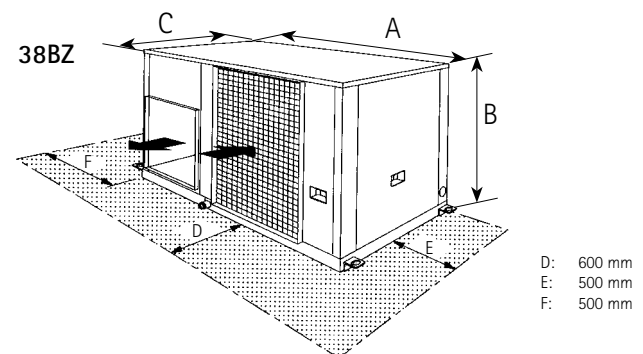
Dimensions, mm

50YZ	A	B	C
024	1190	470	1199
036	1250	540	1259
042	1350	540	1359
048	1450	540	1459
060	1500	560	1509
072	1700	630	1709
084	1700	630	1889
38BZ	A	B	C
024	1190	470	714
036	1250	540	764
042	1350	540	814
048	1450	540	914
060	1500	560	964
072	1700	630	1008
084	1700	630	1188
40BZ	A	B	C
024	1190	470	508
036	1250	540	569
042	1350	540	619
048	1450	540	619
060	1500	560	619
072	1700	630	775
084	1700	630	775

Operating limits

Zone	Cooling		Heating	
	Dry bulb	Wet bulb	Dry bulb	Wet bulb
Indoor air temperature °C				
Maximum	35	21	27	-
Minimum	19	14	-	-
Outdoor air temperature °C				
Maximum	46	-	24	18
Minimum	19*	-	-15	-

* With optional head pressure control, the unit will operate at temperatures below 19°C.



VERTICAL AIR-TO-AIR HEAT PUMPS



Air treatment 50PZ

Options/accessories

- Head pressure control kit (option/ accessory)
- Electric heating (option/accessory)
- Outdoor air filter (option/accessory)
- Protection grille (option/accessory)
- Hot water coil (option/accessory)
- Economizer (accessory)
- User interface (option)
- Minimum opening potentiometer (option/accessory)
- Volt-free contacts (option)
- Optional communications (option/ accessory)
- Return air sensor (option/accessory)
- Superior drive (option)
- 38PZ for vertical discharge (option)

Features

- Nine sizes with nominal cooling capacities from 13.4 to 72.6 kW and nominal heating capacities from 15.8 to 83 kW.
- Units consist of two sections: an indoor section (40PZ) and an outdoor section (38PZ) of matching size.
- Ideal for installation in new buildings or refurbishment projects for small and medium-sized commercial and residential applications, such as restaurants, shops, laboratories, art galleries, offices and homes.
- Cabinet is made of prepainted metal sheets. The panels are thermally and acoustically insulated.
- Double inlet centrifugal fans, with forward-curved blades.
- Refrigerant-to-air heat exchangers manufactured from high-quality, deoxidized and dehydrated copper tubing, mechanically expanded into precoated aluminium fins.
- Three-phase reciprocating or scroll compressors for R-407C with built-in crankcase heaters and overcurrent and overtemperature protection.
- Built-in overpressure valves.
- Refrigerant circuit made of deoxidized and dehydrated copper tubing, completely hermetic and leak tested.
- Master Link II electronic control system.



Master Link II electronic control

Physical data

50PZ		015	025	030	031	040	045	055	065	075
Nominal cooling capacity*	kW	13.42	21.81	28.50	27.70	34.36	43.60	52.51	61.94	72.58
Nominal heating capacity**	kW	15.76	25.02	30.58	30.20	39.15	50.18	57.43	66.60	83.06
Weight kg										
50PZ		238	400	412	427	638	864	919	968	1058
40PZ		78	140	150	150	230	297	317	335	365
38PZ		160	260	262	277	408	567	602	633	693
Compressor (R-407C)	Hermetic reciprocating Scroll									
Indoor/outdoor coil (40PZ/38PZ)	Copper tubes, pretreated aluminium fins									
Indoor coil fan (40PZ)	Double inlet centrifugal type									
Quantity		1	2	2	2	2	2	2	2	2
Nominal air flow	l/s	960	1490	1690	1690	2190	2640	2910	3140	3530
Outdoor coil fan (38PZ)	Double inlet centrifugal type									
Quantity		1	2	2	2	2	2	2	2	2
Nominal air flow	l/s	1470	3020	2780	2780	3610	4580	5080	6030	6890

* Based on an outdoor air temperature of 35°C db and an indoor air temperature of 19°C wb.

** Based on an outdoor air temperature of 6°C wb and an indoor air temperature of 20°C db.

Electrical data

50PZ (40PZ/38PZ)		015	025	030	031	040	045	055	065	075
Nominal voltage*	V	400	400	400	400	400	400	400	400	400
Nominal power input	kW									
Cooling**		7.2	11.2	13.6	14.6	18.1	21.6	25.4	30.2	38.5
Heating***		6.6	11.1	12.4	12.7	17.5	20.8	23.7	27.1	34.3
Nominal current drawn	A									
Cooling**		13.7	19.2	22.2	26.6	31.8	38.2	42.4	50.9	68.6
Heating***		13.0	19.2	20.7	24.0	30.2	36.8	40.9	47.4	63.5
Starting current	A	80.0	106.3	133.3	95.3	134.0	156.7	187.8	219.0	256.0

* All units are built for 3-phase, 50 Hz supply.

** Based on an outdoor air dry bulb temperature of 35°C and an indoor air wet bulb temperature of 19°C.

*** Based on an outdoor air temperature of 6°C wb and an indoor air temperature of 21°C db.

Dimensions, mm

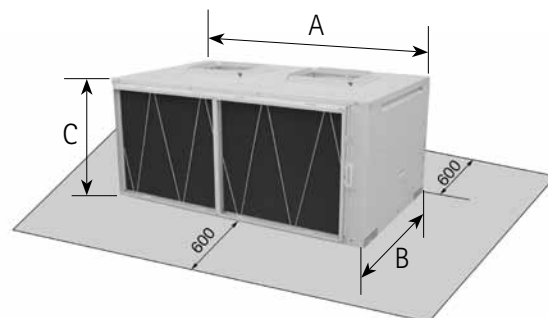
50PZ	A	B	C
015	910	850	1688
025	1350	883	1890
030, 031	1350	883	1940
040	1600	993	2095
045, 055	2126	1154	2158
065, 075	2526	1154	2158
38PZ	A	B	C
015	910	785	1180
025	1350	809	1280
030, 031	1350	809	1280
040	1600	919	1435
045, 055	2126	1080	1498
065, 075	2526	1080	1498
40PZ	A	B	C
015	910	850	588
025	1350	883	690
030, 031	1350	883	740
040	1600	993	740
045, 055	2126	1154	750
065, 075	2526	1154	750

Operating limits

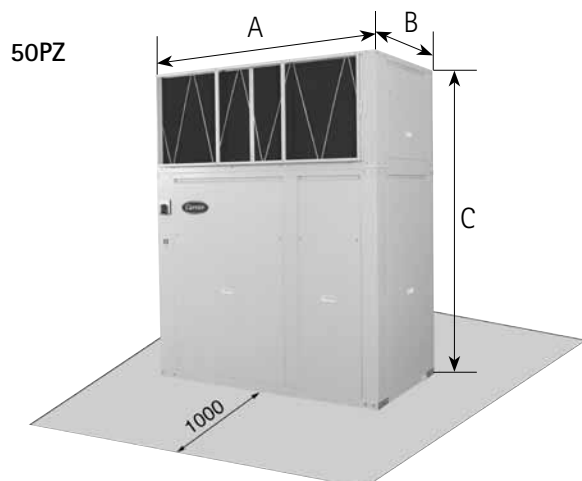
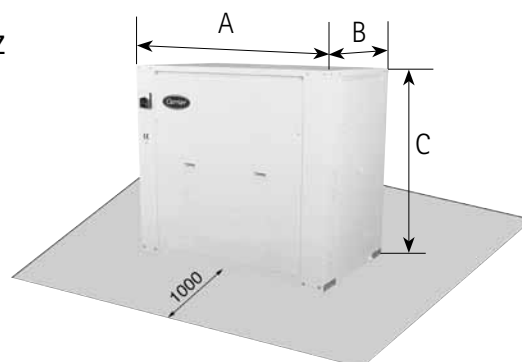
Zone	Cooling		Heating	
	Dry bulb	Wet bulb	Dry bulb	Wet bulb
Indoor air temperature °C				
Maximum	35	21	27	-
Minimum	19	14	-	-
Outdoor air temperature °C				
Maximum	46	-	24	18
Minimum	19*	-	-15	-

* With optional head pressure control, the unit will operate at temperatures below 19°C.

40PZ



38PZ



Clearances required

SMALL PACKAGED ROOFTOP COOLING UNITS



Air treatment
50GL

Options/accessories

- Outdoor coil with e-coat, sizes A36 + A48 (option)
- Economizer (accessory)
- Manual air damper, 25% open (accessory)
- Electric heaters, 6.5 and 8.7 kW (all sizes), 13 kW (sizes A30-A48), 17.4 kW (size A48) (accessory)
- Filter rack for downflow configuration (accessory)
- Flat roof curbs, 203 mm and 356 mm (accessory)
- Square-to-round duct transition kit (accessory)
- Thermostats (accessory)
- Low ambient kit (Motormaster II control - accessory)

Features

- Four sizes with nominal cooling capacities from 7 to 14 kW.
- One-piece cooling units with optional electric heater, low installation cost, dependable performance and easy maintenance.
- Efficient operation with EERs up to 2.7.
- Units use R-410A refrigerant with an ozone depletion potential of zero.
- Compact, fully self-contained units, pre-wired, pre-piped, and pre-charged for minimum installation expense.
- Durable, dependable components - the high-efficiency compressor is hermetically sealed against contamination for longer life and dependable operation and includes internal high-pressure and overcurrent protection. Vibration isolation provides quiet operation.
- The units are designed for easy use in either downflow or horizontal applications. Each unit is easily converted from horizontal to downflow and includes horizontal duct covers.
- Direct-drive multi-speed indoor fan motor is standard. Direct-drive outdoor fan motors help reduce energy consumption.
- The refrigerant system is designed to provide optimal dependability.
- Indoor and outdoor coils are manufactured from copper tube and aluminium fins, and computer-designed for optimum heat transfer and cooling efficiency.
- High and low pressure switches give added safety and reliability.
- Low sound ratings ensure a quiet indoor and outdoor environment.
- Cabinets provide easy single-panel accessibility to serviceable components.
- Louvered grille provides hail and vandalism protection for the coil.
- Cabinets are constructed of heavy-duty, phosphated, zinc-coated pre-painted steel.
- Operation down to 4.4°C in cooling, as standard.

Physical data

50GL		A24	A30	A36	A48
Nominal cooling capacity*	kW	6.9	8.6	10.7	14.4
Operating weight	kg	130	145	147	171
Compressor	One scroll compressor				
Refrigerant	R-410A				
Condenser					
Rows ... fin spacing	mm	1 ... 1.5	1 ... 1.5	2 ... 1.5	2 ... 1.5
Condenser fan					
Nominal air flow	l/s	1109	1109	1109	1557
Evaporator					
Rows ... fin spacing	mm	2 ... 1.7	3 ... 1.7	3 ... 1.7	3 ... 1.7
Evaporator fan					
Nominal air flow	l/s	377	472	566	755
Return air filters	Throwaway				
Sound power level	dB (A)	75	75	75	78

* Based on: 27°C db/19°C wb indoor air entering temperature and 35°C outdoor air entering temperature.

Electrical data

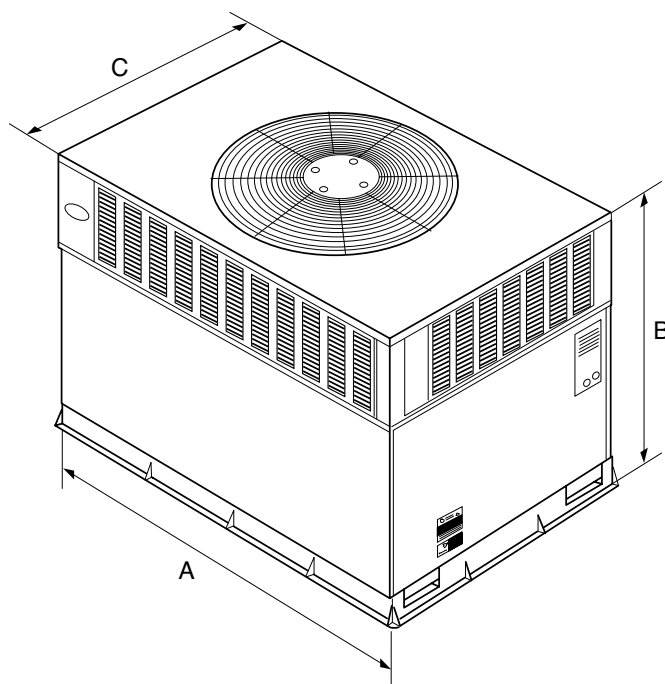
50GL		A24	A30	A36	A48
Nominal power supply $\pm 10\%$	V-ph-Hz	400-3-50	400-3-50	400-3-50	400-3-500
Compressor					
Rated load current	A	4.5	5.2	6.5	6.7
Locked rotor current	A	32	35	46	50
Full load current					
Outdoor fan motor	A	0.8	0.8	0.8	1.3
Indoor fan motor	A	1.1	1.7	2.0	3.9

Dimensions, mm

50GL	A	B	C
A24	1226	940	799
A30	1226	991	799
A36	1226	890	799
A48	1226	990	1091

Clearances:

Evaporator coil access side, power entry side, unit top and side opposite ducts - 914 mm.
Duct panel side (clearance to nearest wall) - 305 mm.



SMALL PACKAGED ROOFTOP HEAT PUMPS



Air treatment 50JZ

Options/accessories

- Outdoor coil with e-coat, sizes A36 + A48 (option)
- Economizer (accessory)
- Manual air damper, 25% open (accessory)
- Electric heaters, 6.5 and 8.7 kW (all sizes), 13 kW (sizes A30-A48), 17.4 kW (size A48) (accessory)
- Filter rack for downflow configuration (accessory)
- Flat roof curbs, 203 mm and 356 mm (accessory)
- Square-to-round duct transition kit (accessory)
- Thermostats (accessory)
- Low ambient kit (Motormaster II control - accessory)

Features

- Four sizes with nominal cooling capacities from 7 to 14 kW, and nominal heating capacities from 7 to 13 kW.
- One-piece heat pumps with optional electric heater, low installation cost, dependable performance and easy maintenance.
- Efficient operation with COPs up to 3.20.
- Units use R-410A refrigerant with an ozone depletion potential of zero.
- Compact, fully self-contained heat pumps, pre-wired, pre-piped, and precharged for minimum installation expense.
- Durable, dependable components - the high-efficiency compressor is hermetically sealed against contamination for longer life and dependable operation and includes internal high-pressure and over-current protection.
- The units are designed for easy use in either downflow or horizontal applications. Each unit is easily converted from horizontal to downflow.
- Direct-drive multi-speed indoor fan motor is standard. Direct-drive outdoor fan motors help reduce energy consumption.
- The refrigerant system is designed to provide optimal dependability.
- Indoor and outdoor coils are manufactured from copper tube and aluminium fins, and computer-designed for optimum heat transfer and cooling efficiency.
- High and low pressure switches give added safety and reliability.
- Low sound ratings ensure a quiet indoor and outdoor environment.
- Cabinets provide easy single-panel accessibility to serviceable components.
- Louvered grille provides hail and vandalism protection for the coil.
- Cabinets are constructed of heavy-duty, phosphated, zinc-coated pre-painted steel.
- Operation down to 4.4°C in cooling, as standard.

Physical data

50JZ		A24	A30	A36	A48
Nominal cooling capacity*	kW	6.9	8.6	10.7	14.4
Nominal heating capacity**	kW	7.0	8.1	10.6	13.1
Operating weight	kg	142	152	156	169
Compressor		One scroll compressor			
Refrigerant		R-410A			
Outdoor heat exchanger					
Rows ... fin spacing	mm	2 ... 1.5	2 ... 1.5	2 ... 1.5	2 ... 1.5
Outdoor fan					
Nominal air flow	l/s	1038	1038	1038	1133
Indoor heat exchanger					
Rows ... fin spacing	mm	3 ... 1.7	3 ... 1.7	4 ... 1.7	4 ... 1.7
Indoor fan					
Nominal air flow	l/s	377	472	566	755
Return air filters		Throwaway			
Sound power level	dB (A)	75	75	75	78

* Based on: 27°C db/19°C wb indoor air entering temperature and 35°C outdoor air entering temperature.

** Based on: 20°C db indoor air entering temperature and 6°C outdoor air entering temperature.

Electrical data

50JZ		A24	A30	A36	A48
Nominal power supply ±10%	V-ph-Hz	400-3-50	400-3-50	400-3-50	400-3-500
Compressor					
Rated load current	A	4.5	5.2	6.5	6.7
Locked rotor current	A	32	35	46	50
Full load current					
Outdoor fan motor	A	0.8	0.8	0.8	1.3
Indoor fan motor	A	1.1	1.7	2.0	3.9

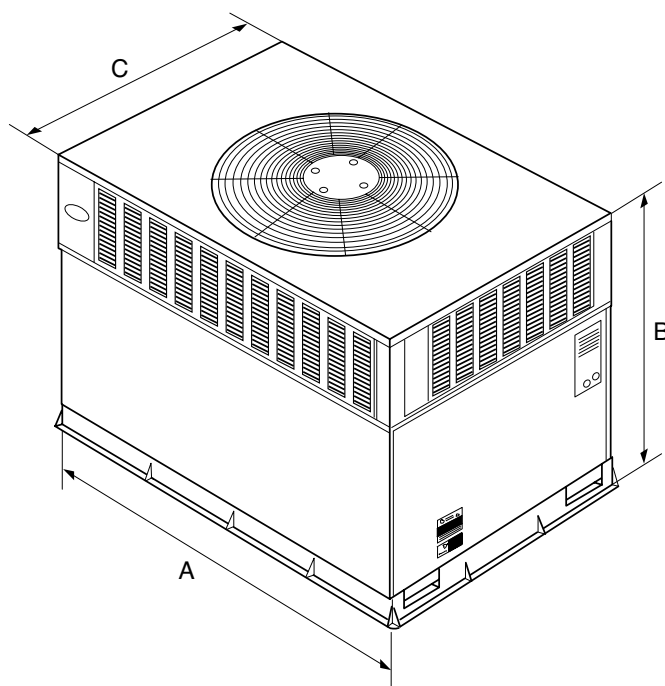
Dimensions, mm

50JZ	A	B	C
A24	1226	890	799
A30	1226	940	799
A36	1226	940	799
A48	1226	1041	1091

Clearances:

Evaporator coil access side, power entry side, unit top and side opposite ducts - 914 mm.

Duct panel side (clearance to nearest wall) - 305 mm.



PACKAGED ROOFTOP COOLING UNITS



Air treatment 50UA

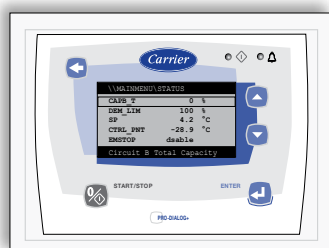
Options/accessories

- Electric heaters, various capacities*
- Hot-water coils, various capacities*
- Various coil protection options*
- Fresh-air slidding panel*
- Manual outdoor air damper*
- Economizer, thermostatic or enthalpy control, with or without CO₂ sensor control*
- Supply fan with various high static pressure options with or without soft starter*
- Standard supply fan with or without soft starter*
- Various filter options*
- Stainless steel drain pan*
- Energy recovery module*
- Various return/exhaust air options*
- Various temperature sensor options*
- CCN/JBus, Lon or BACnet gateways*
- Dirty filter detection*
- Supply air flow detection*
- Smoke detector*
- Fire thermostat*
- Duct connection fixing frame*
- Various packaging options*
- Vertical supply roof curb**
- Vertical supply roof curb with longitudinal adjustment**
- Vertical supply roof curb with transversal adjustment**
- Horizontal supply roof curb**
- Transition roof curb (French ERP)**
- Remote user interface (Pro-Dialog+)**

* Option ** Accessory

Features

- Seven sizes with nominal cooling capacities from 44 to 115 kW.
- 50UA units are packaged rooftop cooling units, available with additional heating options (hot-water coil or electric heaters).
- Versatile and efficient air conditioners, designed for outdoor installation.
- Self-contained, can be installed in commercial and industrial applications.
- Units use the ozone-friendly refrigerant R-410A that does not affect the ozone layer.
- Components are specifically designed for R-410A refrigerant.
- Reduced size and weight make these units ideal for today's lightweight building structures.
- Cabinet made of powder-painted sheet metal.
- Compressors are hermetic scroll compressors and mounted on vibration isolators.
- Crankcase heaters are standard for all units.
- Low-noise shrouded axial Flying Bird fans, made of composite plastic material.
- Heat exchangers made of high-quality staggered copper tubing, mechanically bonded into pre-coated corrugated aluminium fins.
- Leak-tight refrigerant circuits with brazed connections and reduced vibration levels. Access to pressure transducers and temperature sensors without losing charge.
- Units are fully wired in accordance with EN standards.
- Simplified electrical connections.



Pro-Dialog+ operator interface

Physical data

50UA		045	055	065	075	085	100	120
Nominal cooling capacity*	kW	44.1	50.9	61.1	71.5	88.9	102.5	114.5
Nominal power input, cooling	kW	14.4	17.9	21.2	27.0	28.7	34.2	40.3
EER	kW/kW	3.06	2.85	2.88	2.65	3.10	3.01	2.84
Operating weight	kg	815	955	1033	1043	1555	1645	1765
Refrigerant charge		R-410A						
Control		Pro-Dialog+						
Compressor		Hermetic scroll						
No. of circuits/No. of compressors		1/1	1/2	2/2	2/2	2/2	2/3	2/4
Indoor/outdoor coil		Copper tubes, aluminium fins						
Indoor fan and motor		One, centrifugal						
Air flow	l/s	2528	3444	3472	3944	5550	5550	5550
Outdoor fan and motor		Axial Flying Bird fans with rotating shroud, direct-drive motor						
Quantity ... air flow	l/s	1 ... 5400	2 ... 6700	2 ... 10100	2 ... 10100	2 ... 10300	2 ... 10600	2 ... 10600
Sound power level 10⁻¹² W**	dB(A)	86.5	84.4	90.6	90.6	90.7	91.0	91.3
Electric heaters								
Type		Option 84	Option 85	Option 85	Option 85	Option 86	Option 86	Option 86
Heating capacity	kW	27	36	36	36	54	54	54
Capacity steps		18 - 9	18 - 18	18 - 18	18 - 18	27 - 54	27 - 54	27 - 54
Rated current	A	39	52	52	52	78	78	78
Dimensions								
Length	mm	2125	2125	2125	2125	3581	3581	3581
Width	mm	2193	2193	2193	2193	2196	2196	2196
Height	mm	1413	1442	1796	1796	1825	1825	1825

* Nominal Eurovent conditions: outdoor air dry bulb temperature of 35°C, indoor air wet bulb temperature of 19°C.

** In accordance with ISO 961461 and certified by Eurovent. The values have been rounded and are for information only.

Electrical data

50UA**		045	055	065	075	085	100	120
Nominal voltage	V-ph-Hz	400-3-50 ± 10%						
Maximum power input*	kW	21.68	27.41	33.52	40.50	44.58	52.98	59.38
Nominal current drawn*	A	28.73	36.76	43.00	52.12	55.97	66.55	77.79
Maximum start-up current	A	206	173	183	204	246	261	226

* Based on an outdoor air dry bulb temperature of 35°C and an indoor air wet bulb temperature of 19°C.

** Standard unit without any options and accessories.

Energy recovery module (option)

The energy recovery module (ERM) is an individual dual-flow unit, equipped with a high-efficiency Eurovent-certified air-to-air heat recovery wheel with 63% to 88% efficiency, an integrated variable-air-volume plug fan and a control system for plug-and-play installation. Specially designed for economical indoor air extraction and to take in fresh air to meet current and future requirements for high-energy-efficiency buildings.

- Unit cabinet is made of galvanised and powder-painted sheet metal.
- Fitted with G4 filters on the fresh-air side as standard to protect the heat recovery wheel against dust.
- Insulated duct, power and control wiring between ERM and rooftop unit - supplied by the factory with the duct kit.
- Heat exchanger reclaims up to 90% of the heat from the extract air and transfers it to the supply air.
- High-efficiency plug fans for exhaust air are more energy-efficient and require less maintenance.



PACKAGED ROOFTOP HEAT PUMPS



Air treatment 50UH

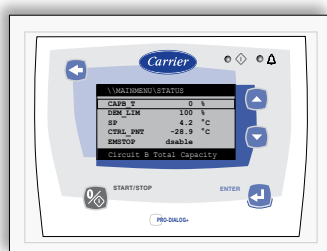
Options/accessories

- Electric heaters, various capacities*
- Hot-water coils, various capacities*
- Various coil protection options*
- Fresh-air slidding panel*
- Manual outdoor air damper*
- Economizer, thermostatic or enthalpy control, with or without CO₂ sensor control*
- Supply fan with various high static pressure options with or without soft starter*
- Standard supply fan with or without soft starter*
- Various filter options*
- Stainless steel drain pan*
- Energy recovery module*
- Various return/exhaust air options*
- Various temperature sensor options*
- CCN/JBus, Lon or BACnet gateways*
- Dirty filter detection*
- Supply air flow detection*
- Smoke detector*
- Fire thermostat*
- Duct connection fixing frame*
- Various packaging options*
- Vertical supply roof curb**
- Vertical supply roof curb with longitudinal adjustment**
- Vertical supply roof curb with transversal adjustment**
- Horizontal supply roof curb**
- Transition roof curb (French ERP)**
- Remote user interface (Pro-Dialog+)**

* Option ** Accessory

Features

- Seven sizes with nominal cooling capacities from 44 to 109 kW and nominal heating capacities from 44 to 112 kW.
- 50UH units are packaged reversible rooftop heat pumps, available with additional heating options (hot-water coil or electric heaters).
- Versatile and efficient heat pumps, designed for outdoor installation.
- Self-contained, can be installed in commercial and industrial applications.
- Units use the ozone-friendly refrigerant R-410A that does not affect the ozone layer.
- Components are specifically designed for R-410A refrigerant.
- Reduced size and weight make these units ideal for today's lightweight building structures.
- Cabinet made of powder-painted sheet metal.
- Compressors are hermetic scroll compressors and mounted on vibration isolators.
- Crankcase heaters are standard for all units.
- Low-noise shrouded axial Flying Bird fans, made of composite plastic material.
- Heat exchangers made of high-quality staggered copper tubing, mechanically bonded into pre-coated corrugated aluminium fins.
- Leak-tight refrigerant circuits with brazed connections and reduced vibration levels. Access to pressure transducers and temperature sensors without losing charge.
- Units are fully wired in accordance with EN standards.
- Simplified electrical connections.
- Reduced defrost cycle duration due to the new coil design and an auto-adaptive control algorithm.



Pro-Dialog+ operator interface

Physical data

50UH		045	055	065	075	085	100	120
Nominal cooling capacity*	kW	43.5	50.1	59.1	69.1	84.5	96.7	108.8
Nominal power input, cooling	kW	14.4	17.7	20.7	26.5	27.5	33.8	38.7
EER	kW/kW	3.03	2.83	2.86	2.61	3.07	2.86	2.81
Nominal heating capacity**	kW	43.5	54.4	62.0	74.5	85.1	98.7	120.7
Nominal power input, heating	kW	13.2	16.0	20.1	24.8	24.4	30.7	37.5
COP	kW/kW	3.30	3.41	3.09	3.01	3.49	3.21	3.22
Operating weight	kg	820	965	1043	1053	1565	1655	1775
Refrigerant charge		R-410A						
Control		Pro-Dialog+						
Compressor		Hermetic scroll						
No. of circuits/No. of compressors		1/1	1/2	2/2	2/2	2/2	2/3	2/4
Indoor/outdoor coil		Copper tubes, aluminium fins						
Indoor fan and motor		One, centrifugal						
Air flow	l/s	2528	3444	3472	3944	5550	5550	5550
Outdoor fan and motor		Axial Flying Bird fans with rotating shroud, direct-drive motor						
Quantity ... air flow	l/s	1 ... 5400	2 ... 6700	2 ... 10100	2 ... 10100	2 ... 10300	2 ... 10600	2 ... 10600
Sound power level 10⁻¹² W***	dB(A)	86.5	84.4	90.6	90.6	90.7	91.0	91.3
Electric heaters								
Type		Option 84	Option 85	Option 85	Option 85	Option 86	Option 86	Option 86
Heating capacity	kW	27	36	36	36	54	54	54
Capacity steps		18 - 9	18 - 18	18 - 18	18 - 18	27 - 54	27 - 54	27 - 54
Rated current	A	39	52	52	52	78	78	78
Dimensions								
Length	mm	2125	2125	2125	2125	3581	3581	3581
Width	mm	2193	2193	2193	2193	2196	2196	2196
Height	mm	1413	1442	1796	1796	1825	1825	1825

* Nominal Eurovent conditions: outdoor air dry bulb temperature of 35°C, indoor air wet bulb temperature of 19°C.

** Nominal Eurovent conditions: outdoor air wet bulb temperature of 6°C, indoor air dry bulb temperature of 20°C.

*** In accordance with ISO 961461 and certified by Eurovent. The values have been rounded and are for information only.

Electrical data

50UH**		045	055	065	075	085	100	120
Nominal voltage	V-ph-Hz	400-3-50 ± 10%						
Maximum power input*	kW	21.68	27.41	33.52	40.50	44.58	52.98	59.38
Nominal current drawn*	A	25.27	31.55	36.82	45.67	47.30	58.80	77.11
Maximum start-up current	A	206	173	183	204	246	261	226

* Based on an outdoor air dry bulb temperature of 35°C and an indoor air wet bulb temperature of 19°C.

** Standard unit without any options and accessories.

Energy recovery module (option)

The energy recovery module (ERM) is an individual dual-flow unit, equipped with a high-efficiency Eurovent-certified air-to-air heat recovery wheel with 63% to 88% efficiency, an integrated variable-air-volume plug fan and a control system for plug-and-play installation. Specially designed for economical indoor air extraction and to take in fresh air to meet current and future requirements for high-energy-efficiency buildings.

- Unit cabinet is made of galvanised and powder-painted sheet metal.
- Fitted with G4 filters on the fresh-air side as standard to protect the heat recovery wheel against dust.
- Insulated duct, power and control wiring between ERM and rooftop unit - supplied by the factory with the duct kit.
- Heat exchanger reclaims up to 90% of the heat from the extract air and transfers it to the supply air.
- High-efficiency plug fans for exhaust air are more energy-efficient and require less maintenance.



PACKAGED ROOFTOP COOLING AND GAS HEATING UNITS

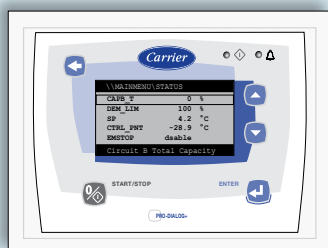


Air treatment 48UA

Options/accessories

- Natural gas or propane gas modules, various capacities*
- Various coil protection options*
- Fresh-air sliding panel*
- Manual outdoor air damper*
- Economizer, thermostatic or enthalpy control, with or without CO₂ sensor control*
- Supply fan with various high static pressure options with or without soft starter*
- Standard supply fan with or without soft starter*
- Various filter options*
- Stainless steel drain pan*
- Energy recovery module*
- Various return/exhaust air options*
- Various temperature sensor options*
- CCN/JBus, Lon or BACnet gateways*
- Dirty filter detection*
- Supply air flow detection*
- Smoke detector*
- Fire thermostat*
- Duct connection fixing frame*
- Various packaging options*
- Various roof curb versions (see 50UA)**
- Remote user interface (Pro-Dialog+)**

* Option ** Accessory



Pro-Dialog+ operator interface

Features

- Seven sizes with nominal cooling capacities from 44 to 115 kW and a nominal gas heat output from 42 to 151 kW.
- 48UA units are packaged rooftop cooling units, factory fitted with a multi-stage gas heater.
- Versatile and efficient air conditioners, designed for outdoor installation.
- Self-contained and can be installed in commercial and industrial applications.
- Units use the ozone-friendly refrigerant R-410A that does not affect the ozone layer.
- Components are specifically designed for R-410A refrigerant.
- Reduced size and weight make these units ideal for today's lightweight building structures.
- Cabinet made of powder-painted sheet metal.
- Compressors are hermetic scroll compressors and mounted on vibration isolators.
- Crankcase heaters are standard for all units.
- Low-noise shrouded axial Flying Bird fans, made of composite plastic material.
- Heat exchangers made of high-quality staggered copper tubing, mechanically bonded into pre-coated corrugated aluminium fins.
- Leak-tight refrigerant circuits with brazed connections and reduced vibration levels. Access to pressure transducers and temperature sensors without losing charge.
- Fully wired in accordance with EN standards.
- Simplified electrical connections.
- Gas heating system designed as an alternative to the hot water coil or electric heating options. Units are available with three gas heating modules.
- Tubular dimpled gas heat exchanger optimises heat transfer for maximum efficiency.
- Modular burner assembly consists of a series of injectors.
- Induced draft combustion system for improved efficiency.
- Integrated gas unit controller (IGC).

Physical data

48UA		045	055	065	075	085	100	120
Nominal cooling capacity*	kW	44.1	50.9	61.1	71.5	88.9	102.5	114.5
Nominal power input, cooling	kW	14.4	17.9	21.2	27.0	28.7	34.2	40.3
EER	kW/kW	3.06	2.85	2.88	2.65	3.10	3.01	2.84
Operating weight	kg	750	890	960	970	1420	1510	1600
Refrigerant charge		R-410A						
Control		Pro-Dialog+						
Compressor		Hermetic scroll						
No. of circuits/No. of compressors		1/1	1/2	2/2	2/2	2/2	2/3	2/4
Indoor/outdoor coil		Copper tubes, aluminium fins						
Indoor fan and motor		One, centrifugal						
Air flow	l/s	2528	3444	3472	3944	5550	5550	5550
Outdoor fan and motor		Axial Flying Bird fans with rotating shroud, direct-drive motor						
Quantity ... air flow	l/s	1 ... 5400	2 ... 6700	2 ... 10100	2 ... 10100	2 ... 10300	2 ... 10600	2 ... 10600
Sound power level 10⁻¹² W**	dB(A)	86.5	84.4	90.6	90.6	90.7	91.0	91.3
Dimensions								
Length	mm	2125	2125	2125	2125	3581	3581	3581
Width	mm	2193	2193	2193	2193	2196	2196	2196
Height	mm	1413	1442	1796	1796	1825	1825	1825
Gas heaters								
Natural gas heating type		Option 91	Option 91	Option 92	Option 92	Option 94	Option 94	Option 95
Number of cells/injector		6	6	7	7	12	12	14
Net heat input (min./max.)	kW	49/70	49/70	57/81	57/81	49/139	49/139	57/162
Heat output (min./max.)	kW	42/62	42/62	50/73	50/73	43/125	43/125	51/147
Propane gas heating type		Option 101	Option 101	Option 102	Option 102	Option 104	Option 104	Option 105
Number of cells/injector		6	6	7	7	12	12	12
Net heat input (min./max.)	kW	--/71	--/71	--/83	--/83	71/142	71/142	83/166
Heat output (min./max.)	kW	--/64	--/64	--/75	--/75	64/128	64/128	75/151
Weight****	kg	73	73	80	80	150	150	165
Power input (400 V-3 ph-50 Hz)	kW	0.22	0.22	0.22	0.22	0.44	0.44	0.44

* Nominal Eurovent conditions: outdoor air dry bulb temperature of 35°C, indoor air wet bulb temperature of 19°C.

** In accordance with ISO 961461 and certified by Eurovent. The values have been rounded and are for information only.

**** Weight and power input values apply to the heating modules.

Electrical data

48UA**		045	055	065	075	085	100	120
Nominal voltage	V-ph-Hz	400-3-50 ± 10%						
Maximum power input*	kW	21.68	27.41	33.52	40.50	44.58	52.98	59.38
Nominal current drawn*	A	28.73	36.76	43.00	52.12	55.97	66.55	77.79
Maximum start-up current	A	206	173	183	204	246	261	226

* Based on an outdoor air dry bulb temperature of 35°C and an indoor air wet bulb temperature of 19°C.

** Standard unit without any options and accessories.

Energy recovery module (option)

The energy recovery module (ERM) is an individual dual-flow unit, equipped with a high-efficiency Eurovent-certified air-to-air heat recovery wheel with 63% to 88% efficiency, an integrated variable-air-volume plug fan and a control system for plug-and-play installation. Specially designed for economical indoor air extraction and to take in fresh air to meet current and future requirements for high-energy-efficiency buildings.

- Unit cabinet is made of galvanised and powder-painted sheet metal.
- Fitted with G4 filters on the fresh-air side as standard to protect the heat recovery wheel against dust.
- Insulated duct, power and control wiring between ERM and rooftop unit – supplied by the factory with the duct kit.
- Heat exchanger reclaims up to 90% of the heat from the extract air and transfers it to the supply air.
- High-efficiency plug fans for exhaust air are more energy-efficient and require less maintenance.



PACKAGED ROOFTOP HEAT PUMP AND GAS HEATING UNITS

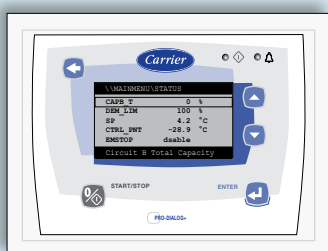


Air treatment 48UH

Options/accessories

- Natural gas or propane gas modules, various capacities*
- Various coil protection options*
- Fresh-air slidding panel*
- Manual outdoor air damper*
- Economizer, thermostatic or enthalpy control, with or without CO₂ sensor control*
- Supply fan with various high static pressure options with or without soft starter*
- Standard supply fan with or without soft starter*
- Various filter options*
- Stainless steel drain pan*
- Energy recovery module*
- Various return/exhaust air options*
- Various temperature sensor options*
- CCN/JBus, Lon or BACnet gateways*
- Dirty filter detection*
- Supply air flow detection*
- Smoke detector*
- Fire thermostat*
- Duct connection fixing frame*
- Various packaging options*
- Various roof curb versions (see 50UA)**
- Remote user interface (Pro-Dialog+)**

* Option ** Accessory



Pro-Dialog+ operator interface

Features

- Seven sizes with nominal cooling capacities from 44 to 109 kW, nominal heating capacities from 44 to 112 kW and a nominal gas heat output from 42 to 151 kW.
- 48UH units are packaged reversible rooftop heat pumps, factory fitted with a multi-stage gas heater.
- Versatile and efficient heat pumps, designed for outdoor installation.
- Self-contained and can be installed in commercial and industrial applications.
- Units use the ozone-friendly refrigerant R-410A that does not affect the ozone layer.
- Components are specifically designed for R-410A refrigerant.
- Reduced size and weight make these units ideal for today's lightweight building structures.
- Cabinet made of powder-painted sheet metal.
- Compressors are hermetic scroll compressors and mounted on vibration isolators.
- Crankcase heaters are standard for all units.
- Low-noise shrouded axial Flying Bird fans, made of composite plastic material.
- Heat exchangers made of high-quality staggered copper tubing, mechanically bonded into pre-coated corrugated aluminium fins.
- Leak-tight refrigerant circuits with brazed connections and reduced vibration levels. Access to pressure transducers and temperature sensors without losing charge.
- Fully wired in accordance with EN standards.
- Simplified electrical connections.
- Gas heating system designed as an alternative to the hot water coil or electric heating options. Units are available with three gas heating modules.
- Tubular dimpled gas heat exchanger optimises heat transfer for maximum efficiency.
- Modular burner assembly consists of a series of injectors.
- Induced draft combustion system for improved efficiency.
- Integrated gas unit controller (IGC).

Physical data

48UH		045	055	065	075	085	100	120
Nominal cooling capacity*	kW	43.5	50.1	59.1	69.1	84.5	96.7	108.8
Nominal power input, cooling	kW	14.4	17.7	20.7	26.5	27.5	33.8	38.7
EER	kW/kW	3.03	2.83	2.86	2.61	3.07	2.86	2.81
Nominal heating capacity**	kW	43.5	54.4	62.0	74.5	85.1	98.7	120.7
Nominal power input, heating	kW	13.2	16.0	20.1	24.8	24.4	30.7	37.5
COP	kW/kW	3.30	3.41	3.09	3.01	3.49	3.21	3.22
Operating weight	kg	820	965	1043	1053	1565	1655	1775
Refrigerant charge		R-410A						
Control		Pro-Dialog+						
Compressor		Hermetic scroll						
No. of circuits/No. of compressors		1/1	1/2	2/2	2/2	2/2	2/3	2/4
Indoor/outdoor coil		Copper tubes, aluminium fins						
Indoor fan and motor		One, centrifugal						
Air flow	l/s	2528	3444	3472	3944	5550	5550	5550
Outdoor fan and motor		Axial Flying Bird fans with rotating shroud, direct-drive motor						
Quantity ... air flow	l/s	1 ... 5400	2 ... 6700	2 ... 10100	2 ... 10100	2 ... 10300	2 ... 10600	2 ... 10600
Sound power level 10⁻¹² W***	dB(A)	86.5	84.4	90.6	90.6	90.7	91.0	91.3
Dimensions								
Length	mm	2125	2125	2125	2125	3581	3581	3581
Width	mm	2193	2193	2193	2193	2196	2196	2196
Height	mm	1413	1442	1796	1796	1825	1825	1825
Gas heaters								
Natural gas heating type		Option 91	Option 91	Option 92	Option 92	Option 94	Option 94	Option 95
Number of cells/injector		6	6	7	7	12	12	14
Net heat input (min./max.)	kW	49/70	49/70	57/81	57/81	49/139	49/139	57/162
Heat output (min./max.)	kW	42/62	42/62	50/73	50/73	43/125	43/125	51/147
Propane gas heating type		Option 101	Option 101	Option 102	Option 102	Option 104	Option 104	Option 105
Number of cells/injector		6	6	7	7	12	12	12
Net heat input (min./max.)	kW	--/71	--/71	--/83	--/83	71/142	71/142	83/166
Heat output (min./max.)	kW	--/64	--/64	--/75	--/75	64/128	64/128	75/151
Weight****	kg	73	73	80	80	150	150	165
Power input (400 V-3 ph-50 Hz)	kW	0.22	0.22	0.22	0.22	0.44	0.44	0.44

* Nominal Eurovent conditions: outdoor air dry bulb temperature of 35°C, indoor air wet bulb temperature of 19°C.

** Nominal Eurovent conditions: outdoor air wet bulb temperature of 6°C, indoor air dry bulb temperature of 20°C.

*** In accordance with ISO 961461 and certified by Eurovent. The values have been rounded and are for information only.

**** Weight and power input values apply to the heating modules.

Electrical data

48UH**		045	055	065	075	085	100	120
Nominal voltage	V-ph-Hz	400-3-50 ± 10%						
Maximum power input*	kW	21.68	27.41	33.52	40.50	44.58	52.98	59.38
Nominal current drawn*	A	25.27	31.55	36.82	45.67	47.30	58.80	77.11
Maximum start-up current	A	206	173	183	204	246	261	226

* Based on an outdoor air dry bulb temperature of 35°C and an indoor air wet bulb temperature of 19°C.

** Standard unit without any options and accessories.

Energy recovery module (option)

The energy recovery module (ERM) is an individual dual-flow unit, equipped with a high-efficiency Eurovent-certified air-to-air heat recovery wheel with 63% to 88% efficiency, an integrated variable-air-volume plug fan and a control system for plug-and-play installation. Specially designed for economical indoor air extraction and to take in fresh air to meet current and future requirements for high-energy-efficiency buildings.

- Unit cabinet is made of galvanised and powder-painted sheet metal.
- Fitted with G4 filters on the fresh-air side as standard to protect the heat recovery wheel against dust.
- Insulated duct, power and control wiring between ERM and rooftop unit – supplied by the factory with the duct kit.
- Heat exchanger reclaims up to 90% of the heat from the extract air and transfers it to the supply air.
- High-efficiency plug fans for exhaust air are more energy-efficient and require less maintenance.



DUCTED WATER-SOURCE HEAT PUMPS



Air treatment
50PC



Options/accessories

- Air flow configuration (option)
- LONWorks® control (option)
- Single-phase power supply (50PCH/PCV 006-036) (option)
- Extended range for geothermal applications (-6.7°C to 43.3°C) (option)
- Very low sound level (option)
- High static fan (option)
- Cupro-Nickel refrigerant-to-water heat exchanger (option)
- E-coated refrigerant-to-air heat exchanger for highly corrosive environments (option)
- Hose kits (accessory)
- Ball water valves (accessory)
- Solenoid water valves (accessory)
- 50 mm filter rack (accessory)
- Aquazone™ thermostats (accessory)

Features

- Nine sizes with nominal cooling capacities from 2.1 to 15.0 kW and nominal heating capacities from 2.8 kW to 18.7 kW.
- Single-package horizontally (50PCH) and vertically (50PCV) mounted water-source heat pumps with microprocessor controls.
- Single-phase power supply.
- High energy efficiency cooling EERs up to 7* and heating COPs up to 5.
- Galvanised steel construction with 12.7 mm coated acoustic insulation. Units have powder coated paint finish on both sides for added protection.
- Units use non-ozone-depleting R-410A refrigerant.
- Rotary or scroll compressor.
- Water-to-refrigerant tube-in-tube heat exchanger.
- Air handling section lined with 12.7 mm foil-backed insulation for ease of cleaning.
- Permanent split capacitor (PSC) three-speed direct drive fans.
- One-inch filter with side-access holding brackets.
- Horizontal units are available in four air flow configurations, including left or right return, and left, right or back discharge. Horizontal units are field convertible from left or right discharge to back discharge.
- Vertical units are available in four air flow patterns including top discharge, with front, right or left return
- Microprocessor based controls standard on all units, features include loss-of-charge switch, high-pressure switch, water and air coil freeze protection (selectable for water or anti-freeze), lockout safety circuit reset at the thermostat or disconnect, LED fault indication, five-minute anti-short cycle, random start relay, high and low voltage protection, condensate overflow protection, dry contact for alarm, accessory relay, water heat output, 50 VA transformer.

* Ground-water heat pump applications with an entering water temperature of 15°C.

Physical data

50PCH/PCV		009	015	018	024	030	036	042	048	060
Nominal cooling capacity*	kW	2.11	3.48	4.16	5.97	7.08	8.69	10.10	12.02	14.97
Power input	kW	0.56	0.79	1.01	1.46	1.73	2.07	2.53	2.93	3.65
EER	kW/kW	3.8	4.4	4.1	4.1	4.1	4.2	4.0	4.1	4.1
Nominal heating capacity**	kW	2.75	4.11	5.10	6.93	8.54	10.99	12.82	13.59	18.73
Power input	kW	0.67	0.84	1.04	1.39	1.74	2.34	2.79	2.72	4.07
COP	kW/kW	4.1	4.9	4.9	5.0	4.9	4.7	4.6	5.0	4.6
Operating weight	kg	47	69	72	86	89	92	99	119	138
Compressor	One rotary compressor									
Refrigerant	R-410A, one refrigerant circuit									
Refrigerant-to-air heat exchanger	Copper tube, aluminium fins									
Fan	Three-speed direct-drive PSC centrifugal fan									
Nominal air flow, cooling/heating	l/s	121	192	230	274	343	412	480	549	686
Refrigerant-to-water heat exchanger	Tube-in-tube									
Fan										
Water connections	in	1/2	1/2	1/2	3/4	3/4	3/4	3/4	1	1
Return air filters	Throwaway									

* Based on: 27°C db/19°C wb entering air temperature and 30°C entering water temperature.

** Based on: 20°C db/15°C wb entering air temperature and 20°C outside air temperature.

Note: All ratings are based upon operation at lower voltage of dual-voltage rated models.

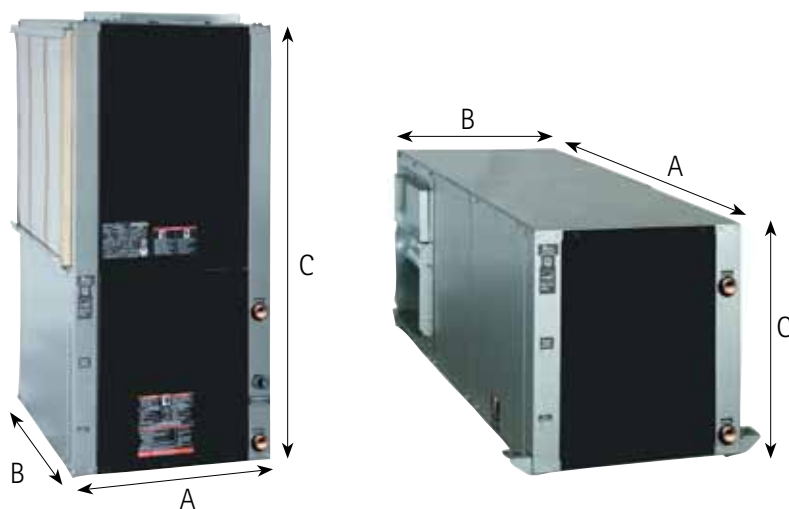
Electrical data

50PCH/PCV		009	015	018	024	030	036	042	048	060
Nominal power supply $\pm 10\%$	V-ph-Hz	230-1-50	230-1-50	230-1-50	230-1-50	230-1-50	400-3-50	230-1-50	400-3-50	400-3-50
Compressor										
Rated load current	A	3.1	4.7	5.9	9.0	11.2	3.9	13.5	5.4	6.0
Locked rotor current	A	18.8	23.0	24.0	52.0	60.0	28.0	67.0	38.0	46.0
Total unit full load current	A	3.8	5.6	6.8	10.3	13.9	5.6	15.5	6.6	7.7
Fan motor full load current	A	0.7	0.9	0.9	1.3	2.7	1.7	2.0	1.2	1.7

Dimensions, mm

50PCH/PCV	A	B	C
50PCH 009	866	485	279
50PCH 015-018	1095	511	432
50PCH 024-030	1095	511	465
50PCH 036-042	1196	511	533
50PCH 048-060	1374	612	533
50PCV 009	485	485	279
50PCV 015-018	546	546	991
50PCV 024-030	546	546	1016
50PCV 036-042	546	660	1143
50PCV 048-060	610	826	1168

For clearances please refer to the specific product literature



CONSOLE WATER-SOURCE HEAT PUMPS



Air treatment
50PEC



Options/accessories

- Automatic water flow regulator (option)
- Two-way motorised valve (option)
- Left or right-hand water connections (option)
- Deluxe D control with additional functions (option)
- LONWorks® communication interface (option)
- Cupro-Nickel refrigerant-to-water heat exchanger (option)
- Extended range with entering water temperature below 15.6°C (option)
- Very low sound levels (option)
- Cabinet options: no cabinet, bottom or front return (option)
- Hose kits (accessory)
- Ball water valves (accessory)
- Solenoid water valves (accessory)
- Aquazone™ thermostats (accessory)

Features

- Four sizes with nominal cooling capacities from 2.1 to 3.7 kW and nominal heating capacities from 2.8 kW to 4.5 kW.
- Heating COPs go up to 5.2, among the highest in the industry.
- Suitable for either geothermal or water-loop or open-loop applications with an operating temperature range from -6.7°C to 50°C.
- High architectural flexibility: vertical concealed or cabinet unit
- Aesthetic cabinet with oven-baked powder paint finish and aluminium supply air grille
- Units use non-ozone-depleting R-410A refrigerant.
- Unit operation is exceptionally quiet thanks to rotary compressors.
- Water-to-refrigerant tube-in-tube heat exchanger.
- Permanent split capacitor (PSC) multiple-speed fan.
- Complete C microprocessor-based controls standard on all units. Features include:
 - loss-of-charge switch
 - high-pressure switch
 - water and air coil freeze protection (selectable for water or antifreeze)
 - lockout safety circuit reset at thermostat or disconnect
 - LED fault indication
 - five-minute anti-short cycle protection
 - random start relay,
 - high and low-voltage protection
 - condensate overflow protection
 - dry contact for alarm
 - accessory relay
 - water temperature monitoring (performance sentinel)
 - electric heat output
 - 50 VA transformer.

Physical data

50PEC		009	012	015	018
Nominal cooling capacity*	kW	2.10	2.81	3.33	3.66
Power input	kW	0.49	0.72	0.85	0.76
EER	kW/kW	4.3	3.9	3.9	4.8
Nominal heating capacity**	kW	2.75	3.49	4.23	4.48
Power input	kW	0.53	0.89	0.85	0.95
COP	kW/kW	5.2	3.9	5.0	4.7
Operating weight	kg	79	82	86	100
Compressor		One rotary compressor			
Refrigerant		R-410A, one refrigerant circuit			
Refrigerant-to-air heat exchanger		Copper tube, aluminium fins			
Fan		Multi-speed permanently lubricated PSC centrifugal fan			
Nominal air flow, cooling/heating	l/s	142/151	175/184	189/198	250/269
Refrigerant-to-water heat exchanger		Tube-in-tube			
Water connections	in	1/2	1/2	1/2	3/4
Return air filters		Cleanable			

* Based on: 27°C db/19°C wb entering air temperature and 30°C entering water temperature.

** Based on: 20°C db/15°C wb entering air temperature and 20°C outside air temperature.

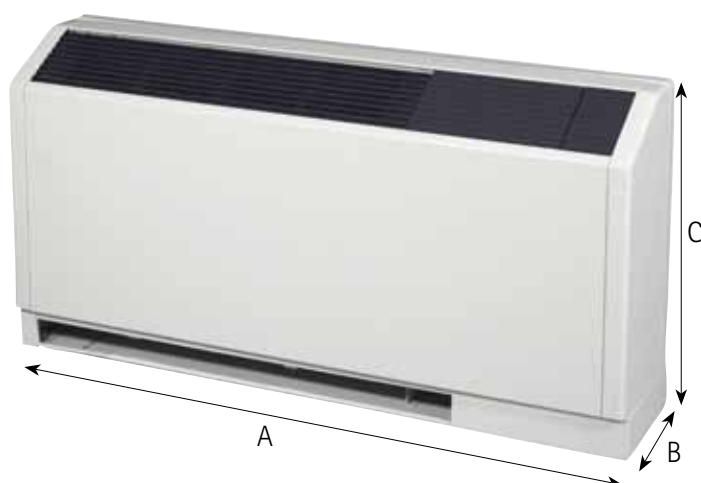
Electrical data

50PEC		009	012	015	018
Nominal power supply ±10%	V-ph-Hz	230-1-50	230-1-50	230-1-50	230-1-500
Compressor					
Rated load current	A	3.2	4.0	4.7	5.6
Locked rotor current	A	17	19	23	25
Total unit full load current	A	3.6	4.4	5.3	6.2
Fan motor full load current	A	0.4	0.4	0.6	0.6

Dimensions, mm

50PEC	A	B	C
009	1219	305	658/533*
012	1219	305	658/533*
015	1219	305	658/533*
018	1372	305	658/533*

* The first value is for units with bottom return, second value for units with front return.



Operating limits

		Cooling	Heating
Minimum ambient air temperature	°C	10.0	10.0
Rated ambient air temperature	°C	26.7	20.0
Maximum ambient air temperature	°C	37.8	29.4
Minimum entering air temperature	°C	10.0	10.0
Rated entering air temperature, db/wb	°C	26.7/18.9	20.0
Maximum ambient air temperature, db/wb	°C	37.8/27.8	26.7
Minimum entering water temperature	°C	-1.1*	-6.6*
Maximum ambient air temperature	°C	37.8	29.4
Normal entering water temperature	°C	29.4	21.1
Maximum entering water temperature	°C	48.9	32.2

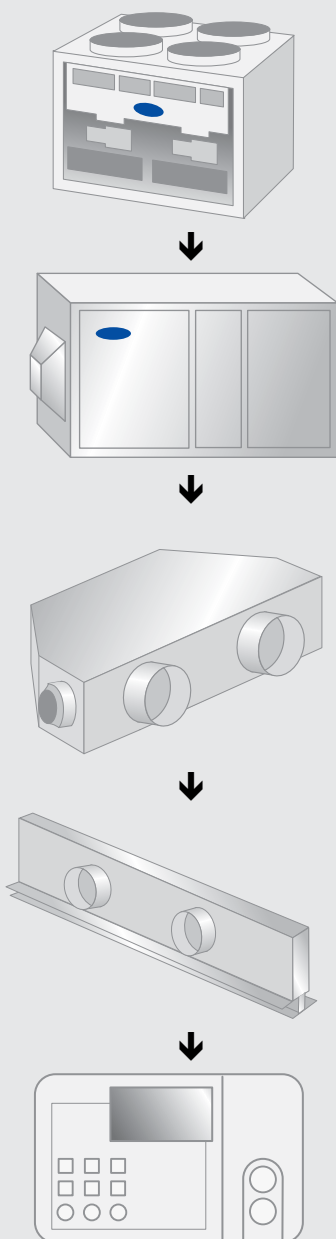
* Requires optional extended range insulation package when operating below the dew point.

Notes:

1. Minimum air and water conditions can only be used at ISO 13256-1 flow rates.
2. The 50PEC units may have up two values at maximum or minimum with all other parameters at normal conditions.

Industrial Index

System architecture





Type	Range	Refrigerant	Cooling capacity, kW	Heating capacity, kW	Page
Water-cooled chillers					
With screw compressors	30XW brine unit	R-134a	298-705	-	152
With centrifugal compressors	19XR/XRV	R-134a	1000-5300	-	154
Absorption chillers					
Single-effect					
Steam-fired absorption chillers	16TJ		352-2461	-	156
Hot water-fired absorption chillers	16LJ		264-1846	-	158
Double-effect					
Direct-fired absorption chillers/heaters	16DJ		352-5274	268-4026	160
Steam-fired absorption chillers	16NK		345-4652	-	162

Application of the new EN14511 : 2011 chiller and heat pump performance standard:

Chiller and heat pump performances are calculated in accordance with the EN14511 : 2011 calculation standard and certified by Eurovent.

The latest version of EN14511 was ratified on July 19th, 2011. It uses a different method to take into account the contribution of water pumps, or heat exchanger pressure drops in the unit performances. The efficiency of the pump is no longer a default value, but a function of the required hydraulic power. In January 2012, the Eurovent Certification Company decided that this method is more realistic and it is fully applied starting from the 2012 certification campaign. The performances declared based on the new version of the standard were published on the ECC website www.eurovent-certification.com at the end of March 2012.

IMPORTANT: Only 2012 performances rated according the new EN14511 : 2011, taking in account water pump and heat exchanger pressure drop are certified by Eurovent. For units declared before 2012, the previous gross EER and COP values without pump correction (for units with integral pump - measured with the pump not running) and the corresponding energy classes are available on ECC website.

Application rating conditions

	Air conditioning applications (AC)	Medium brine applications (MB)
Air-cooled cooling	Evaporator EWT/LWT 12°C/7°C OAT 35°C	Evaporator EWT/LWT 0°C/-5°C OAT 35°C
Water-cooled cooling	Evaporator EWT/LWT 12°C/7°C Condenser EWT/LWT 30°C/35°C	Evaporator EWT/LWT 0°C/-5°C Condenser EWT/LWT 30°C/35°C

(1) Gross adjusted performances, not taking into account the water pump and heat exchanger pressure drops, are not certified by Eurovent for 2012, but used for the 2011 gross declaration and given as a reference for comparison.

Legend

EWT Entering water temperature

LWT Leaving water temperature

OAT Outdoor air temperature

WATER-COOLED BRINE CHILLERS



Industrial 30XW

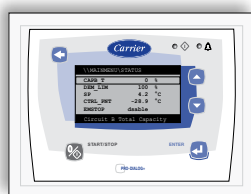
AQUAFORCE

Options/accessories

- Medium and low temperature applications*
- With or without disconnect switch/short-circuit protection (option)
- Single power connection point
- Low sound level, -2 dB(A) (option)
- Super-low sound level, -3 dB(A) (option)
- Service valve set (option)
- Evaporator/condenser arrangement with one pass (option)
- JBus, BacNet and LON gateways (option/accessory)
- Various condensing temperature options (option)
- Energy Management Module EMM (option/accessory)
- Lead-lag kit (accessory)
- Water connection kit for welded or flanged connections (accessory)

Features

- Four sizes with nominal cooling capacities from 298 to 705 kW (at -6°C leaving-water temperature).
- The premium solution for industrial process and food industry applications, with products that can operate either with ethylene or propylene glycol to maximise the operating range.
- Two versions: a medium-temperature range that goes down to 6°C leaving-water temperature and a low-temperature range down to -12°C leaving-water temperature.
- Twin-rotor screw compressors with high-efficiency motor and a variable capacity valve for exact matching of the cooling capacity to the load.
- Use of R-134a refrigerant with zero ozone depletion potential.
- Pro-Dialog control system.
- Flooded mechanically cleanable heat exchangers.
- Exceptional full and part load energy efficiency.
- Economizer system with electronic expansion device for increased cooling capacity (30XW-P).
- Simplified electrical connections.
- Units are run-tested before shipment and include a quick-test function for fast commissioning.
- Leak-tight refrigerant circuit.
- Comprehensive endurance tests.
- Aquaforce offers multiple remote control, monitoring and diagnostic possibilities.





Pro-Dialog+ operator interface



Touch-screen Pro-Dialog operator interface (option)

Physical data, low-temperature units

Standard and high-efficiency 30XW-/30XWH units (options 5 and 6)

		Option 5 (medium temperature)				Option 6 (low temperature)				
Reference number		P0512	P0562	P1012	-1152	P0512	P0562	P1012	-1152	
 Air conditioning application as per EN14511-3 : 2011	Nominal cooling capacity	kW	481	533	1012	1137	472	519	971	1067
	Nominal heating capacity	kW	411	454	855	961	394	433	805	887
	EER (cooling)/COP (heating)	kW/kW	4.8/3.7	4.8/3.7	5.0/3.8	4.9/3.8	4.7/3.5	4.6/3.5	4.7/3.5	4.6/3.5
	ESEER part-load performance, cooling	kW/kW	5.5	5.5	5.8	5.8	5.4	5.3	5.5	5.4
	Air conditioning application (1)									
	Nominal cooling capacity*	kW	298	332	626	705	222	245	452	502
	Nominal heating capacity	kW	376	417	784	880	295	325	601	664
	EER (cooling)/COP (heating)	kW/kW	3.49/4.40	3.56/4.47	3.62/4.53	3.66/4.57	2.76/3.67	2.81/3.72	2.78/3.69	2.81/3.73
	Nominal cooling capacity**	kW	316	354	668	760	245	271	505	558
	Heating capacity	kW	395	440	827	938	320	352	657	724
	EER (cooling)/COP (heating)	kW/kW	3.65/4.56	3.72/4.63	3.80/4.71	3.87/4.78	3.00/3.91	3.04/3.95	3.03/3.94	3.06/3.97
	Heating/cooling floor application as per EN14511-3 : 2011									
Nominal heating capacity	kW	417	462	871	982	408	449	834	921	
EER (cooling)/COP (heating)	kW/kW	4.5	4.5	4.6	4.6	4.2	4.1	4.3	4.2	

NOTE: For EN14511 : 2011 conditions please refer to page 151.

Option 5

* Values based on 25% ethylene glycol, evaporator entering/leaving water temperatures of -2°C/-6°C and condenser entering/leaving water temperatures of 30°C/35°C.

** Values based on 24% propylene glycol, evaporator entering/leaving water temperatures of +1°C/-3°C and condenser entering/leaving water temperatures of 30°C/35°C.

Note: Evaporator with 2 pass configuration with water inlet and outlet on the same side.

Option 6

* Values based on 35% ethylene glycol, evaporator entering/leaving water temperatures of -8°C/-12°C and condenser entering/leaving water temperatures of 30°C/35°C.

** Values based on 30% propylene glycol, evaporator entering/leaving water temperatures of -4°C/-8°C and condenser entering/leaving water temperatures of 30°C/35°C.

Note: Evaporator with 3 pass configuration with water inlet and outlet on opposite sides.

Electrical data

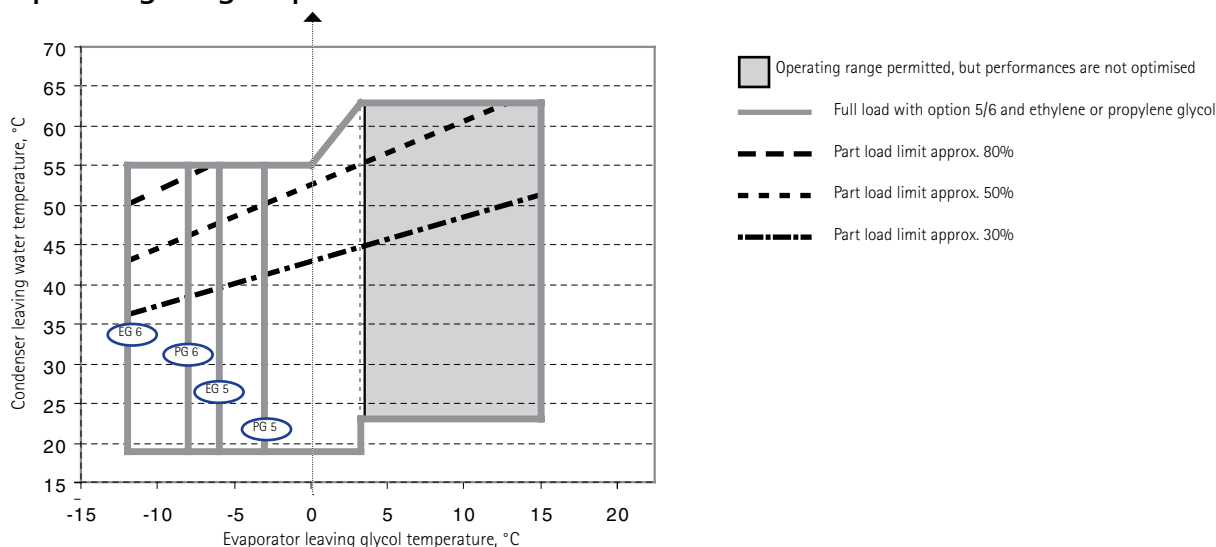
Standard and high-efficiency 30XW-/30XWH units (options 5 and 6)

		Options 5 and 6			
Reference number		P0512	P0562	P1012	-1152
Power circuit					
Nominal power supply	V-ph-Hz	400-3-50 ± 10%			
Control circuit		24 V via the built-in transformer			
Maximum start-up current*					
Circuit A	A	587	587	587	587
Circuit B	-	-	-	587	587
Option 81	A	-	-	862	887
Maximum power input**					
Circuit A	kW	173	191	173	191
Circuit B	-	-	-	173	191
Option 81	kW	-	-	346	382
Maximum current drawn (Un)**					
Circuit A	A	275	300	275	300
Circuit B	-	-	-	275	300
Option 81	A	-	-	550	600

* Instantaneous start-up current (maximum operating current of the smallest compressor(s) + locked rotor current or reduced start-up current of the largest compressor). Values obtained at operation with maximum unit power input.

** Values obtained at operation with maximum unit power input. Values given on the unit name plate.

Operating range, options 5 and 6



CENTRIFUGAL LIQUID CHILLERS



Industrial 19XR/XRV

Options/accessories

- Refrigerant isolation valves allow the refrigerant to be stored inside the chiller during service
- Pumpdown unit, combined with the refrigerant isolation valves, eliminates complex connections to portable transfer systems
- Unit-mounted starter reduces machine installation time and expense
- High-voltage motors available: 3000 V, 3300 V, 6300 V
- CCN/JBus: remote connection
- 21 bar water heat exchanger
- Nozzle with flanges (water inlet/outlet with flanges)
- Delivered in four sections to facilitate the installation

Features

- Nominal cooling capacities from 1000 to 5300 kW.
- Mix-match capabilities – a complete line of compressors and heat exchangers to ensure the optimal combination of machine components regardless of capacity, lift and efficiency specifications.
- Hermetic compressor – elimination of leak risks from the compressor/motor shaft sealing in an open compressor.
- Single-stage compressor with special features – aerodynamically contoured impellers, variable inlet guide vanes and movable diffusers for better product reliability and compressor part and full-load operating efficiency.
- Variable speed compressor capability – improvement of part load efficiency and electrical performance.
- Heat exchangers certified by the European pressure vessels code (PED).
- Carrier numerical product integrated control offers unmatched flexibility and functionality. Each unit integrates directly with the Carrier Comfort Network (CCN), providing a system solution to controls applications.



Numerical control

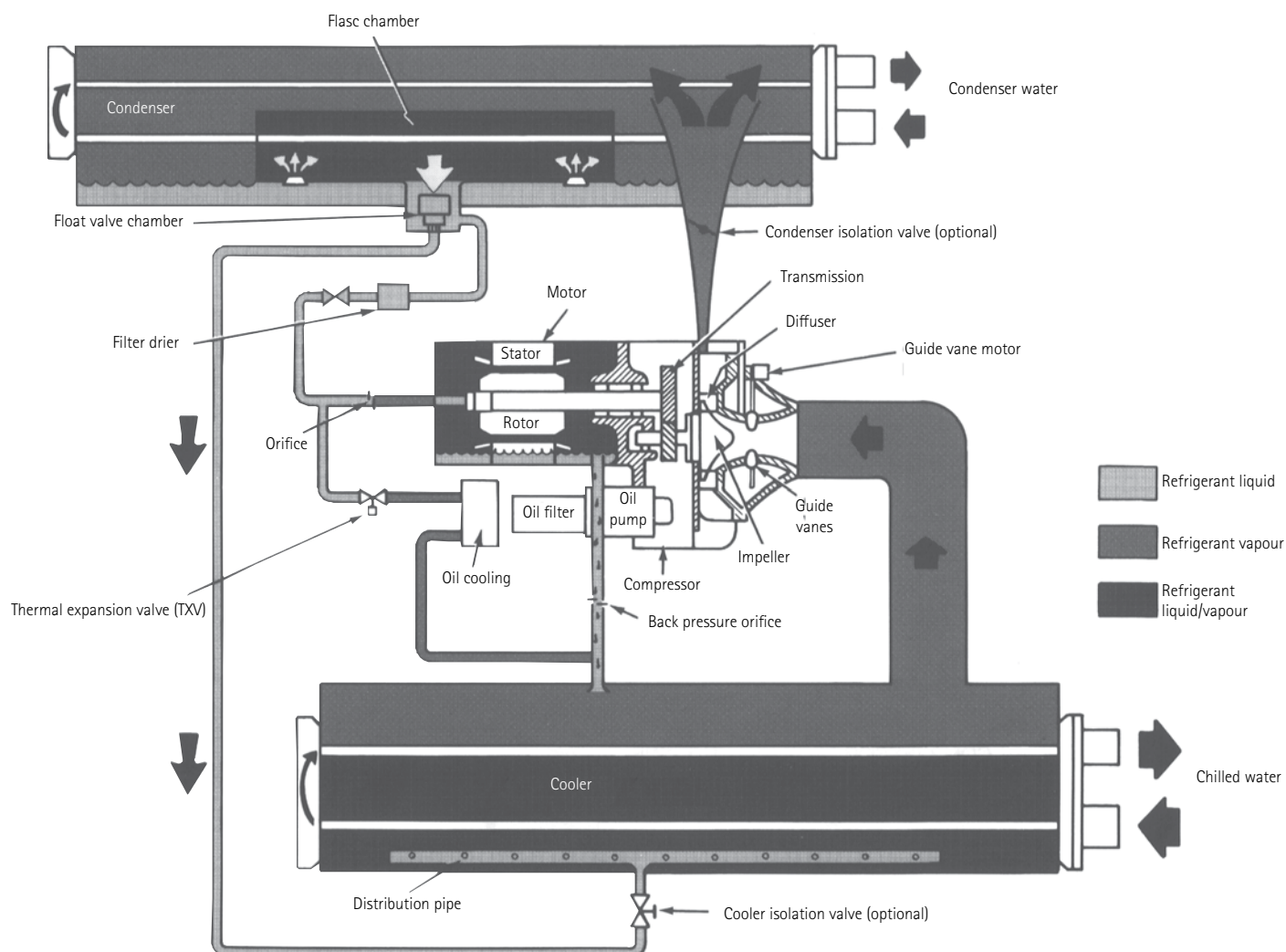
Physical data

Nominal capacity, kW	Heat exchanger size	Dimensions, mm				Average operating weight, kg
		Length* - Standard	Length* - Extended	Width (excl. 19XRV)	Height**	
19XR/XRV	3	4230	4754	1670	2127	8000
1000-5300	4	4230	4754	1880	2294	10204
	5	4230	4754	2054	2781	12698
	6	4230	4754	2124	2879	15420
	7	4919	5525	2530	3276	17765
	8	4919	5525	2530	3343	25712

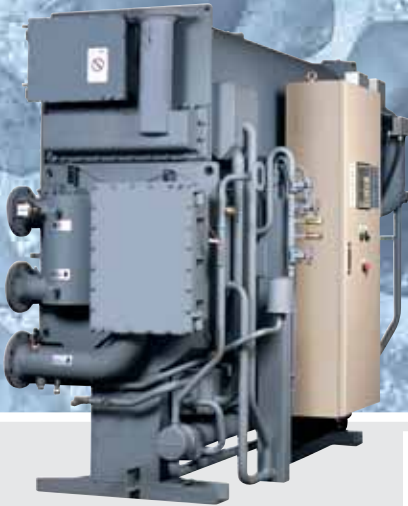
* With two-pass nozzle-in-head water boxes.

** Maximum height

19XR refrigeration cycle



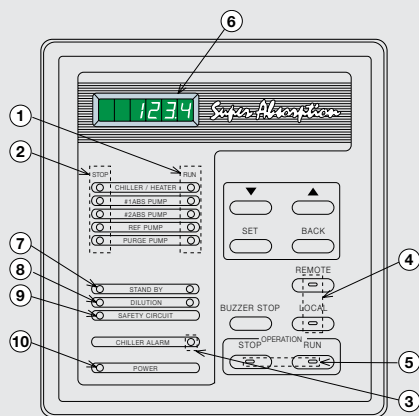
SINGLE-EFFECT STEAM-FIRED ABSORPTION CHILLERS



Industrial
16TJ

SUPER ABSORPTION

Display and control board



- 1 Operation indication
- 2 Stop indication
- 3 Alarm indication
- 4 Remote/local select button
- 5 Operation mode selection
- 6 Data display
- 7 Stand-by indication
- 8 Dilution indication
- 9 Safety circuit indication
- 10 Power indication

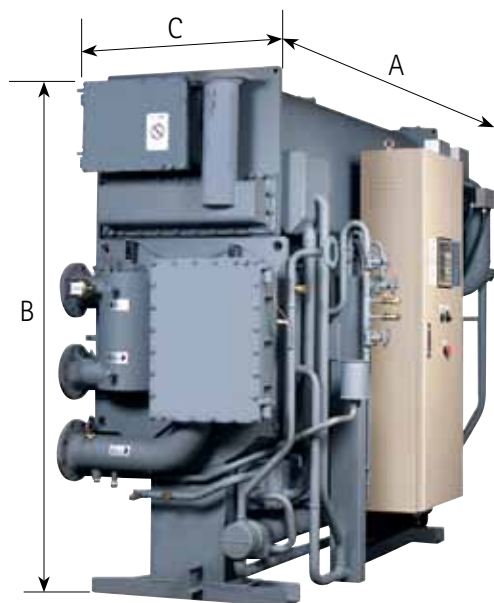
Features

- Fifteen sizes with nominal cooling capacities from 352 to 2461 kW.
- Designed for cooling applications where low-pressure steam is available as waste heat.
- Can tie into district steam systems.
- Allows diversification of critical cooling requirements. Critical cooling loads are met with minimal electrical power input with steam-fired chillers.
- Allows use of smaller emergency generators since the electrical load associated with an absorption chiller is minimal, compared to an electrically driven chiller.
- Ozone-friendly and CFC-free. Cooling requirements are met without chlorine-based refrigerants.
- Minimises global warming effect by greatly reducing power consumption and eliminating the generation of greenhouse gases.
- Reduced noise and vibration levels. The absorption chiller does not use a large motor-compressor, leading to quiet, trouble-free operation.
- Small footprint. The high efficiency associated with these chillers results in a reduction of the required installation space.
- Auto-diagnosis system monitors operating conditions, predicts chiller information and maintains stable operation.
- Advanced high-precision control system.
- Absorption pump with inverter control (option) for energy-saving operation.
- High-performance purge system maintains unit performance and minimises maintenance requirements.
- State-of-the-art protection devices guarantee enhanced operating safety.

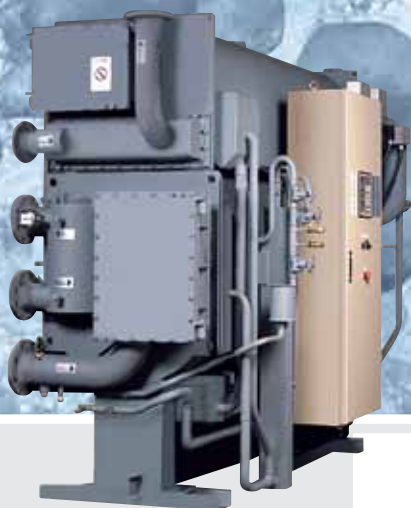
Physical data

16TJ		11	12	13	14	21	22	23	24
Cooling capacity	kW	352	422	527	633	738	844	985	1125
Chilled water system*									
Flow rate	l/s	15.1	18.2	22.7	27.3	31.8	36.3	42.4	48.4
Pressure drop	kPa	49	51	63	66	59	62	41	44
Connection (ANSI)	in	4	4	4	4	5	5	6	6
Retention volume	m ³	0.12	0.13	0.15	0.17	0.22	0.24	0.28	0.30
Cooling water system**									
Flow rate	l/s	22.7	27.3	34.1	40.7	47.7	54.5	63.6	72.7
Pressure drop	kPa	34	36	31	36	31	34	64	69
Connection (ANSI)	in	5	5	5	5	6	6	8	8
Retention volume	m ³	0.35	0.38	0.43	0.48	0.60	0.65	0.73	0.79
Steam system		Saturated steam 100 kPa							
Consumption	kg/h	780	940	1170	1410	1640	1880	2190	2500
Dimensions		mm							
Length A		2680	2680	3690	3690	3770	3770	4850	4850
Height B		2215	2215	2215	2215	2350	2350	2350	2350
Width C		1295	1295	1295	1295	1455	1455	1455	1455
Operating weight	kg	3900	4100	5000	5200	6400	6700	7800	8200
Power supply		V-ph-Hz 400-3-50							
Total current drawn	A	6.2	6.2	6.2	6.2	8.7	8.7	9.0	9.0

16TJ		31	32	41	42	51	52	53
Cooling capacity	kW	1266	1407	1582	1758	1969	2215	2461
Chilled water system*								
Flow rate	l/s	54.5	60.6	68.1	75.7	84.8	95.4	106.0
Pressure drop	kPa	47	51	41	44	38	51	66
Connection (ANSI)	in	6	6	8	8	8	8	8
Retention volume	m ³	0.34	0.36	0.46	0.48	0.65	0.71	0.77
Cooling water system**								
Flow rate	l/s	81.8	90.8	102.2	113.6	127.2	143.1	159.0
Pressure drop	kPa	54	56	59	63	41	54	70
Connection (ANSI)	in	8	8	10	10	12	12	12
Retention volume	m ³	0.99	1.06	1.25	1.35	2.03	2.18	2.32
Steam system		Saturated steam 100 kPa						
Consumption	kg/h	2810	3120	3510	3900	4370	4920	5460
Dimensions		mm						
Length A		4910	4910	4960	4960	5050	5590	6090
Height B		2620	2620	2870	2870	3200	3200	3200
Width C		1515	1515	1615	1615	1950	1950	1950
Operating weight	kg	10100	10500	12200	12700	17400	18800	20100
Power supply		V-ph-Hz 400-3-50						
Total current drawn	A	11.0	11.0	11.0	11.0	11.0	11.0	11.0

* 12.2 → 6.7°C (fouling factor = 0.0176 m² K/kW)** 29.4 → 38.4°C (fouling factor = 0.044 m² K/kW)

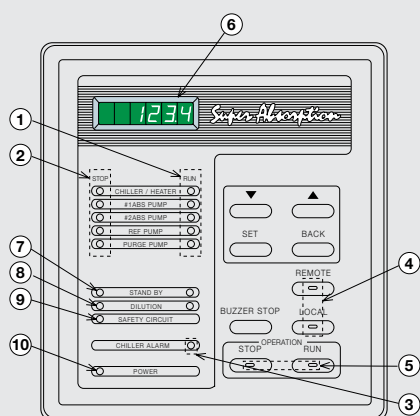
SINGLE-EFFECT HOT WATER-FIRED ABSORPTION CHILLERS



Industrial
16LJ

SUPER ABSORPTION

Display and control board



- 1 Operation indication
- 2 Stop indication
- 3 Alarm indication
- 4 Remote/local select button
- 5 Operation mode selection
- 6 Data display
- 7 Stand-by indication
- 8 Dilution indication
- 9 Safety circuit indication
- 10 Power indication

Features

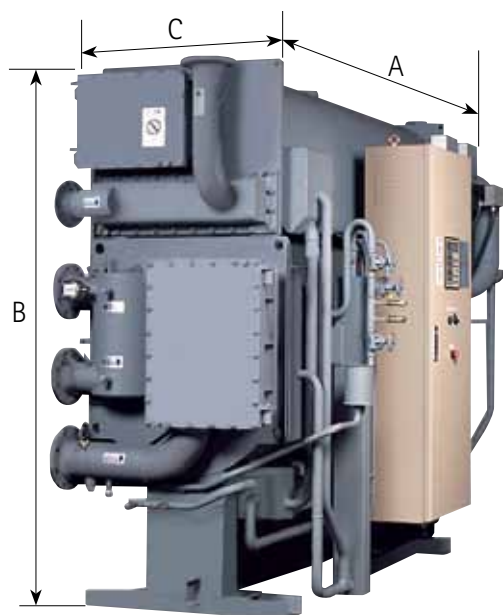
- Fifteen sizes with nominal cooling capacities from 264 to 1846 kW.
- Designed to provide chilled water from waste heat sources, generated from industrial processes and cogeneration systems.
- Allows diversification of critical cooling requirements. Critical cooling loads are met with minimal electrical power input with hot water-fired chillers.
- Allows use of smaller emergency generators since the electrical load associated with an absorption chiller is minimal, compared to an electrically driven chiller.
- Ozone-friendly and CFC-free. Cooling requirements are met without chlorine-based refrigerants.
- Minimises global warming effect by greatly reducing power consumption and eliminating the generation of greenhouse gases.
- Reduced noise and vibration levels. The absorption chiller does not use a large motor-compressor, leading to quiet, trouble-free operation.
- Small footprint. The high efficiency associated with these chillers results in a reduction of the required installation space.
- Auto-diagnosis system monitors operating conditions, predicts chiller information and maintains stable operation.
- Advanced high-precision control system.
- Absorption pump with inverter control (option) for energy-saving operation.
- High-performance purge system maintains unit performance and minimises maintenance requirements.
- State-of-the-art protection devices guarantee enhanced operating safety.

Physical data

16LJ		11	12	13	14	21	22	23	24
Cooling capacity	kW	264	316	387	475	545	633	738	844
Chilled water system*									
Flow rate	l/s	11.4	13.6	16.7	20.4	23.5	27.3	31.8	36.3
Pressure drop	kPa	55	60	36	39	35	37	74	79
Connection (ANSI)	in	3	3	4	4	5	5	5	5
Retention volume	m ³	0.12	0.13	0.15	0.17	0.22	0.24	0.28	0.30
Cooling water system*									
Flow rate	l/s	17.0	20.4	25.0	30.7	35.2	40.9	47.7	54.4
Pressure drop	kPa	36	39	105	111	108	112	103	106
Connection (ANSI)	in	5	5	5	5	6	6	8	8
Retention volume	m ³	0.35	0.38	0.43	0.48	0.60	0.65	0.72	0.79
Hot water system*									
Flow rate	l/s	10.4	12.4	15.2	18.7	21.4	24.9	29.0	33.0
Pressure drop	kPa	31	12	29	32	30	31	30	30
Connection (ANSI)	in	4	4	4	4	5	5	6	6
Retention volume	m ³	0.09	0.10	0.12	0.13	0.17	0.18	0.20	0.22
Dimensions	mm								
Length A		2720	2720	3740	3740	3830	3830	4860	4860
Height B		2215	2215	2215	2215	2350	2350	2350	2350
Width C		1295	1295	1295	1295	1455	1455	1455	1455
Operating weight	kg	4000	4200	5200	5500	6700	7100	8200	8700
Power supply	V-ph-Hz	400-3-50							
Total current drawn	A	6.2	6.2	6.2	6.2	8.9	8.9	9.0	9.0

16LJ		31	32	41	42	51	52	53
Cooling capacity	kW	949	1055	1178	1319	1477	1653	1846
Chilled water system*								
Flow rate	l/s	40.9	45.4	50.7	56.8	63.6	71.2	79.5
Pressure drop	kPa	76	80	75	75	62	32	42
Connection (ANSI)	in	6	6	8	8	8	8	8
Retention volume	m ³	0.34	0.36	0.46	0.48	0.65	0.71	0.77
Cooling water system*								
Flow rate	l/s	61.3	68.1	76.1	85.2	95.4	106.7	119.2
Pressure drop	kPa	97	98	98	102	146	88	117
Connection (ANSI)	in	8	8	10	10	12	12	12
Retention volume	m ³	0.99	1.06	1.25	1.35	2.03	2.18	2.32
Hot water system*								
Flow rate	l/s	37.0	41.0	46.0	52.0	58.0	65.0	73.0
Pressure drop	kPa	29	29	28	28	28	37	49
Connection (ANSI)	in	6	6	8	8	8	8	8
Retention volume	m ³	0.27	0.29	0.34	0.36	0.44	0.48	0.51
Dimensions	mm							
Length A		4990	4990	5070	5070	5200	5740	6240
Height B		2620	2620	2870	2870	3200	3200	3200
Width C		1515	1515	1615	1615	1950	1950	1950
Operating weight	kg	10600	11100	12900	13400	18200	19700	21100
Power supply	V-ph-Hz	400-3-50						
Total current drawn	A	11.0	11.0	11.0	11.0	11.0	11.0	11.0

* 12.2 → 6.7°C (fouling factor = 0.0176 m² K/kW)
29.4 → 38.4°C (fouling factor = 0.044 m² K/kW)
95.0 → 86.0°C (fouling factor = 0.0176 m² K/kW)



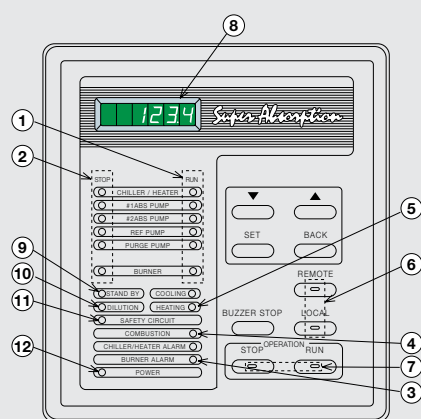
DIRECT-FIRED DOUBLE-EFFECT ABSORPTION CHILLERS/HEATERS



Industrial 16DJ

SUPER ABSORPTION

Display and control board



- 1 Operation indication
- 2 Stop indication
- 3 Alarm indication
- 4 Combustion indication
- 5 Cooling/heating indication
- 6 Remote/local select button
- 7 Operation mode selection
- 8 Data display
- 9 Stand-by indication
- 10 Dilution indication
- 11 Safety circuit indication
- 12 Power indication

Features

- Twenty-three sizes with nominal cooling capacities from 352 to 5274 kW and heating capacities from 268 to 4026 kW.
- The 16DJ absorption chillers/heaters offer building owners a better solution for many new and retrofit applications. Installation of a direct-fired chiller/heater eliminates the need for a boiler, reducing the initial cost of the system.
- Excellent for peak shaving during high electrical demand periods.
- Allows diversification of critical cooling requirements. Critical loads are met with minimal electrical power input.
- Allows use of smaller emergency generators since the electrical load associated with an absorption chiller is minimal.
- Ozone-friendly and CFC-free.
- Minimises global warming effect by greatly reducing power consumption.
- Reduced noise and vibration levels. The absorption chiller does not use a large motor-compressor, leading to quiet, vibration-free operation.
- Small footprint. The high efficiency associated with double-effect chillers results in reducing the required installation space.
- Auto-diagnosis system monitors operating conditions, predicts chiller information and maintains stable operation.
- Advanced high-precision control system.
- Absorption pump with inverter control for efficient, energy-saving operation.
- High-performance purge system minimises maintenance requirements.
- State-of-the-art protection devices guarantee enhanced operating safety.

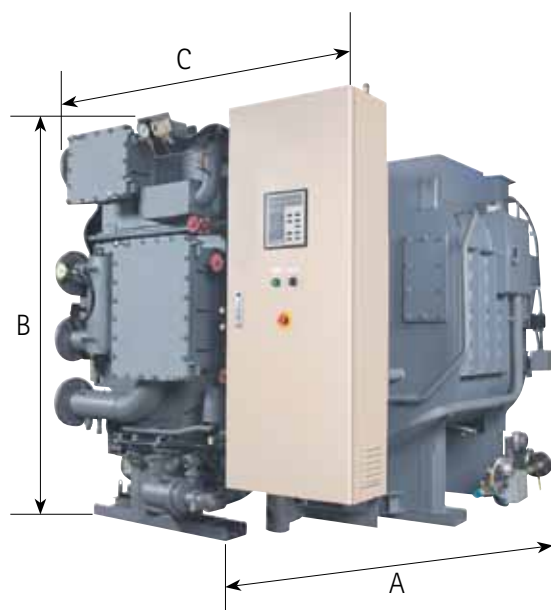
Physical data

16DJ		11	12	13	14	21	22	23	24	31	32	41	42
Cooling capacity	kW	352	422	527	633	738	844	985	1125	1266	1407	1582	1758
Heating capacity	kW	268	322	403	483	564	644	751	859	966	1074	1208	1342
Chilled/hot-water system*													
Flow rate	l/s	15.1	18.2	22.7	27.3	31.8	36.3	42.4	48.4	54.5	60.6	68.1	75.7
Pressure drop	kPa	70	71	90	94	85	89	61	65	69	72	62	65
Connection (ANSI)	in	4	4	4	4	5	5	6	6	6	6	8	8
Retention volume	m ³	0.12	0.13	0.15	0.17	0.22	0.24	0.28	0.30	0.34	0.36	0.46	0.48
Cooling water system*													
Flow rate	l/s	25.2	30.3	37.9	45.4	53.0	60.6	70.7	80.7	90.8	100.9	113.6	126.2
Pressure drop	kPa	33	36	50	56	43	46	88	94	76	80	85	89
Connection (ANSI)	in	5	5	5	5	6	6	8	8	8	8	10	10
Retention volume	m ³	0.31	0.34	0.38	0.42	0.53	0.58	0.63	0.69	0.89	0.95	1.11	1.19
Fuel type													
Consumption (cooling/heating)**	kW	320	384	479	575	671	767	895	1023	1151	1279	1438	1598
Dimensions													
Length A	mm	3080	3080	3810	3810	3980	3980	4980	4980	5000	5000	5040	5040
Height B	mm	1960	1960	1960	1960	2160	2160	2160	2160	2390	2390	2600	2600
Width C	mm	1810	1810	1910	1910	2090	2090	2130	2130	2290	2290	2490	2490
Operating weight	kg	5200	5500	6600	7100	8300	8800	10100	10700	13200	13900	16300	17100
Power supply	V-ph-Hz	400-3-50											
Total current drawn	A	10.8	10.8	10.8	16.3	16.3	16.3	19.2	19.2	19.2	19.2	26.0	32.9

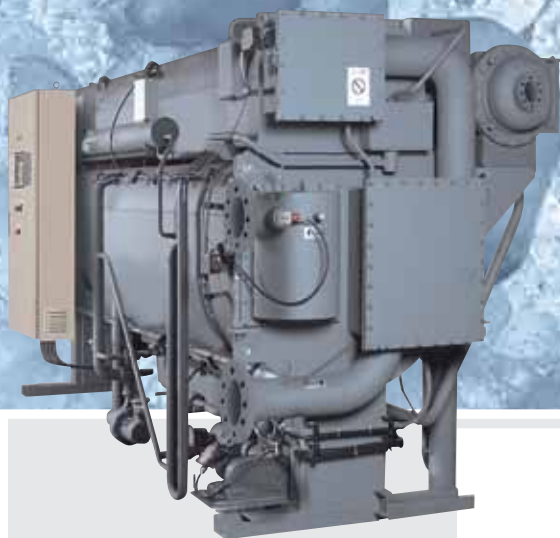
16DJ		51	52	53	61	62	63	71	72	73	81	82
Cooling capacity	kW	1969	2215	2461	2813	3165	3516	3868	4220	4571	4923	5274
Heating capacity	kW	1503	1691	1879	2147	2415	2684	2952	3221	3489	3757	4026
Chilled/hot-water system*												
Flow rate	l/s	84.8	95.4	106.0	121.2	136.3	151.4	166.5	181.7	196.8	212.0	227.1
Pressure drop	kPa	56	75	98	69	91	120	74	94	116	94	115
Connection (ANSI)	in	8	8	8	10	10	10	12	12	12	14	14
Retention volume	m ³	0.65	0.71	0.77	0.99	1.06	1.13	1.41	1.51	1.61	1.83	1.94
Cooling water system*												
Flow rate	l/s	141.3	159.0	176.6	201.9	227.1	252.3	277.6	302.8	328.0	353.3	378.5
Pressure drop	kPa	68	92	121	83	112	146	90	115	142	117	142
Connection (ANSI)	in	12	12	12	14	14	14	16	16	16	16	16
Retention volume	m ³	1.87	2.01	2.14	2.79	2.97	3.15	3.67	3.90	4.11	4.51	4.76
Fuel type												
Consumption (cooling/heating)**	kW	1790	2014	2237	2557	2877	3196	3516	3836	4155	4475	4795
Dimensions												
Length A	mm	5310	5850	6350	6110	6600	7130	6490	7020	7520	7010	7510
Height B	mm	2900	2900	2900	3330	3330	3330	3450	3450	3450	3650	3650
Width C	mm	2990	2990	2990	3250	3250	3250	4100	4100	4100	4450	4450
Operating weight	kg	22800	24600	26300	32700	35200	37900	46100	49500	52500	57200	60200
Power supply	V-ph-Hz	400-3-50										
Total current drawn	A	34.9	34.9	34.9	41.4	48.7	56.7	58.7	58.7	66.8	68.8	68.8

* Cooling per ARI 560 2000:
 12.2 → 6.7°C (fouling factor = 0.0176 m² K/kW)
 29.4 → 35.3°C (fouling factor = 0.044 m² K/kW)
 Heating:
 55.8 → 60°C (fouling factor = 0.0176 m² K/kW)

** Consumption in Nm³/h of gas = $\frac{\text{Consumption}}{\text{High gas calorific value (kW/h/Nm}^3\text{)}}$



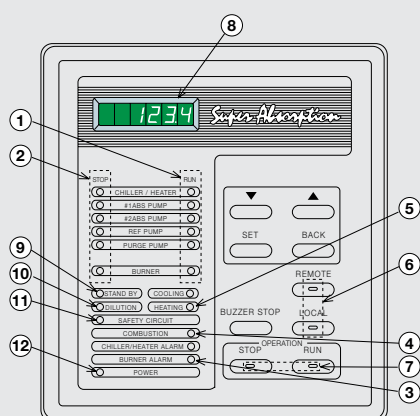
DOUBLE-EFFECT STEAM-FIRED ABSORPTION CHILLERS



Industrial 16NK

SUPER ABSORPTION

Display and control board



- 1 Operation indication
- 2 Stop indication
- 3 Alarm indication
- 4 Combustion indication
- 5 Cooling/heating indication
- 6 Remote/local select button
- 7 Operation mode selection
- 8 Data display
- 9 Stand-by indication
- 10 Dilution indication
- 11 Safety circuit indication
- 12 Power indication

Features

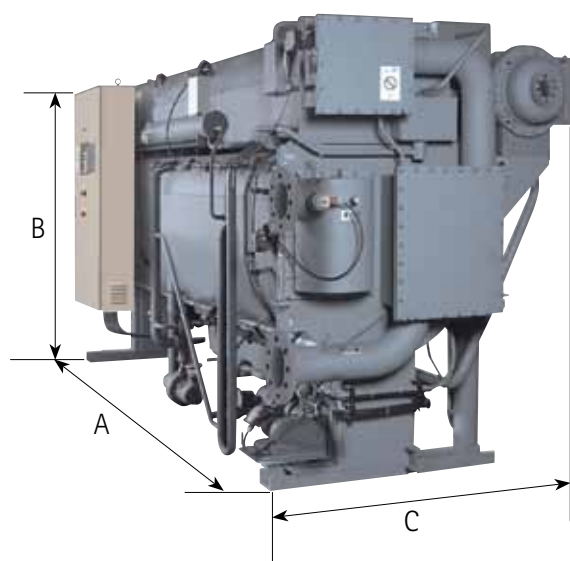
- Eighteen sizes with nominal cooling capacities from 345 to 4652 kW.
- The 16NK absorption chillers are designed for cooling applications where low-pressure steam is available as waste heat.
- Can tie into district steam systems.
- Allows diversification of critical cooling requirements. Critical cooling loads are met with minimal electrical power input.
- Allows use of smaller emergency generators since the electrical load associated with an absorption chiller is minimal.
- Ozone-friendly and CFC-free.
- Minimises global warming effect by greatly reducing power consumption and eliminating the generation of greenhouse gases.
- Reduced noise and vibration levels. The absorption chiller does not use a large motor-compressor, leading to quiet, vibration-free operation.
- Small footprint. The high efficiency associated with double-effect chillers results in a reduction of the required installation space.
- Auto-diagnosis system monitors operating conditions, predicts chiller information and maintains stable operation.
- Advanced high-precision control system.
- Absorption pump with inverter control for efficient, energy-saving operation.
- High-performance purge system minimises maintenance requirements.
- State-of-the-art protection devices guarantee enhanced operating safety.

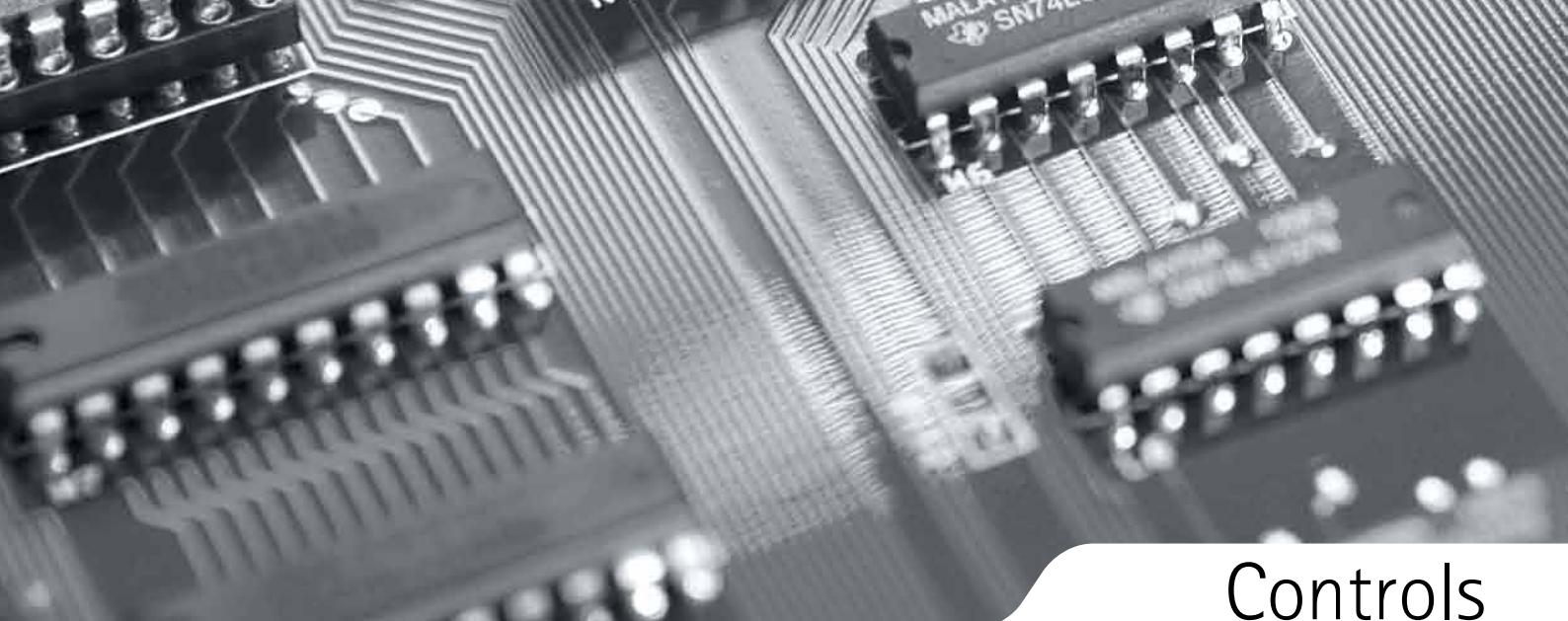
Physical data

16NK		11	12	13	21	22	31	32	41	42
Cooling capacity	kW	345	447	549	689	861	1034	1238	1378	1551
Chilled water system*										
Flow rate	l/s	14.8	19.2	23.6	29.7	37.2	44.4	53.3	59.4	66.7
Pressure drop	kPa	44	64	64	57	42	41	49	46	41
Connection (ANSI)	in	4	4	4	5	6	6	6	8	8
Retention volume	m ³	0.13	0.15	0.17	0.24	0.28	0.34	0.36	0.46	0.48
Cooling water system*										
Flow rate	l/s	24.7	31.9	39.4	49.4	61.9	74.2	88.9	98.9	111.4
Pressure drop	kPa	68	40	49	109	74	53	65	67	73
Connection (ANSI)	in	5	5	5	6	8	8	8	10	10
Retention volume	m ³	0.34	0.38	0.42	0.58	0.63	0.89	0.95	1.11	1.90
Steam system										
Consumption	kg/h	400	510	630	790	980	1180	1410	1570	1770
Dimensions										
Length A	mm	2810	3850	3850	3880	4920	5040	5040	5100	5100
Height B		2200	2200	2200	2250	2250	2390	2390	2600	2600
Width C		2050	1910	1910	2240	2070	2170	2170	2400	2400
Operating weight	kg	4600	5800	6100	7500	8800	11200	11800	13900	14500
Power supply										
Total current drawn	A	10.8	10.8	10.8	13.3	13.3	13.6	13.6	20.7	20.7

16NK		51	52	53	61	62	63	71	72	81
Cooling capacity	kW	1723	1927	2170	2412	2757	3101	3446	3963	4652
Chilled water system*										
Flow rate	l/s	74.2	83.1	93.9	103.9	118.6	133.6	148.3	170.6	200.3
Pressure drop	kPa	98	46	61	123	83	78	54	81	84
Connection (ANSI)	in	8	8	8	10	10	10	12	12	14
Retention volume	m ³	0.65	0.71	0.77	0.99	1.06	1.13	1.41	1.61	1.94
Cooling water system**										
Flow rate	l/s	123.6	138.3	155.6	173.1	197.8	222.5	247.2	284.4	333.9
Pressure drop	kPa	53	71	94	61	83	111	77	113	122
Connection (ANSI)	in	12	12	12	14	14	14	16	16	16
Retention volume	m ³	1.87	2.01	2.14	2.79	2.97	3.15	3.67	4.11	4.76
Steam system										
Consumption	kg/h	1960	2200	2470	2750	3140	3530	3920	4510	5300
Dimensions										
Length A	mm	5330	5870	6370	6100	6190	6710	6440	7460	7460
Height B		2900	2900	2900	3330	3330	3330	3450	3450	3650
Width C		2770	2800	2800	2970	3000	3000	3300	3300	3500
Operating weight	kg	18800	20800	22300	26500	30000	32100	38000	42300	47300
Power supply										
Total current drawn	A	22.7	24.5	24.5	25.5	25.0	25.0	33.5	33.5	33.5

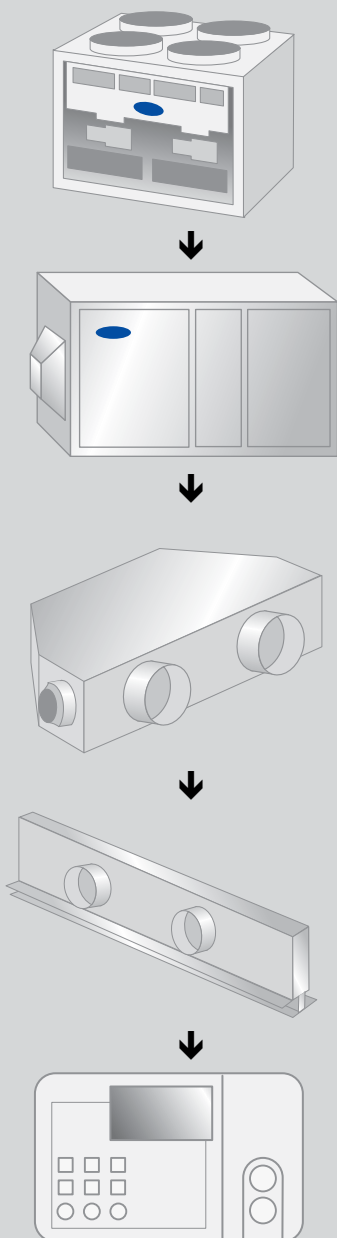
Cooling per ARI 560 2000:

* 12.2 → 6.7°C (fouling factor = 0.0176 m² K/kW)** 29.4 → 35.4°C (fouling factor = 0.044 m² K/kW)



Controls Index

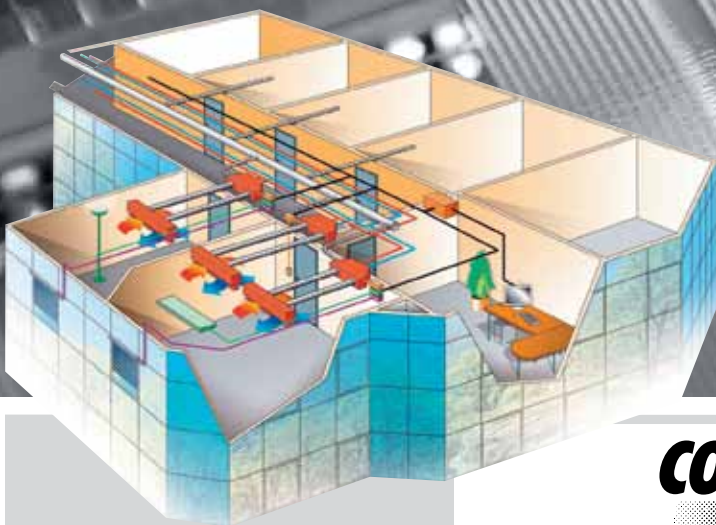
System architecture





Type	Range	Page
Building management system		
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CARRIER COMFORT NETWORK



Controls

**COMFORT
NETWORK**

CCN

Network options

- Cover the essential elements of a Building Management System providing diverse facilities such as remote monitoring, collection of performance data, maintenance management and customized reporting capabilities.
- Performed through individual programs that can be added to the Carrier Comfort Network via individual modules which provide a diverse set of system facilities.
- The following network options are available:
 - Data Collection
 - Network Bridge
 - Network Directory Services
 - Network Repeater NAM
 - TeLink analogue modem for remote connection

Features

- The most advanced technology resulting from Carrier's thorough knowledge of both comfort and controls. It offers the owner, designer and installer:
 - integrated product and control systems
 - single-point responsibility
 - unique control strategies
 - overall lower installation costs
 - enhanced monitoring capabilities
- Whilst each equipment component can operate in a stand-alone mode, all components form a fully-integrated and balanced HVAC system when networked with other Carrier equipment through the Carrier Comfort Network. A three-wire cable is all that is required to connect these products.

ComfortView

- Powerful supervision software package that allows centralised monitoring (local and remote), data collection, report generation and system configuration.
- Designed to run on most PCs running on Windows 2000 or Windows XP.
- Designed for larger scale building management needs with custom graphical representation.

Product-integrated controller

- Factory-installed product with a level of monitoring and diagnostic control that can only be achieved with a factory-integrated device.
- Product-Integrated Controllers are available on chillers, rooftops, air handling units and terminal fan coil units.

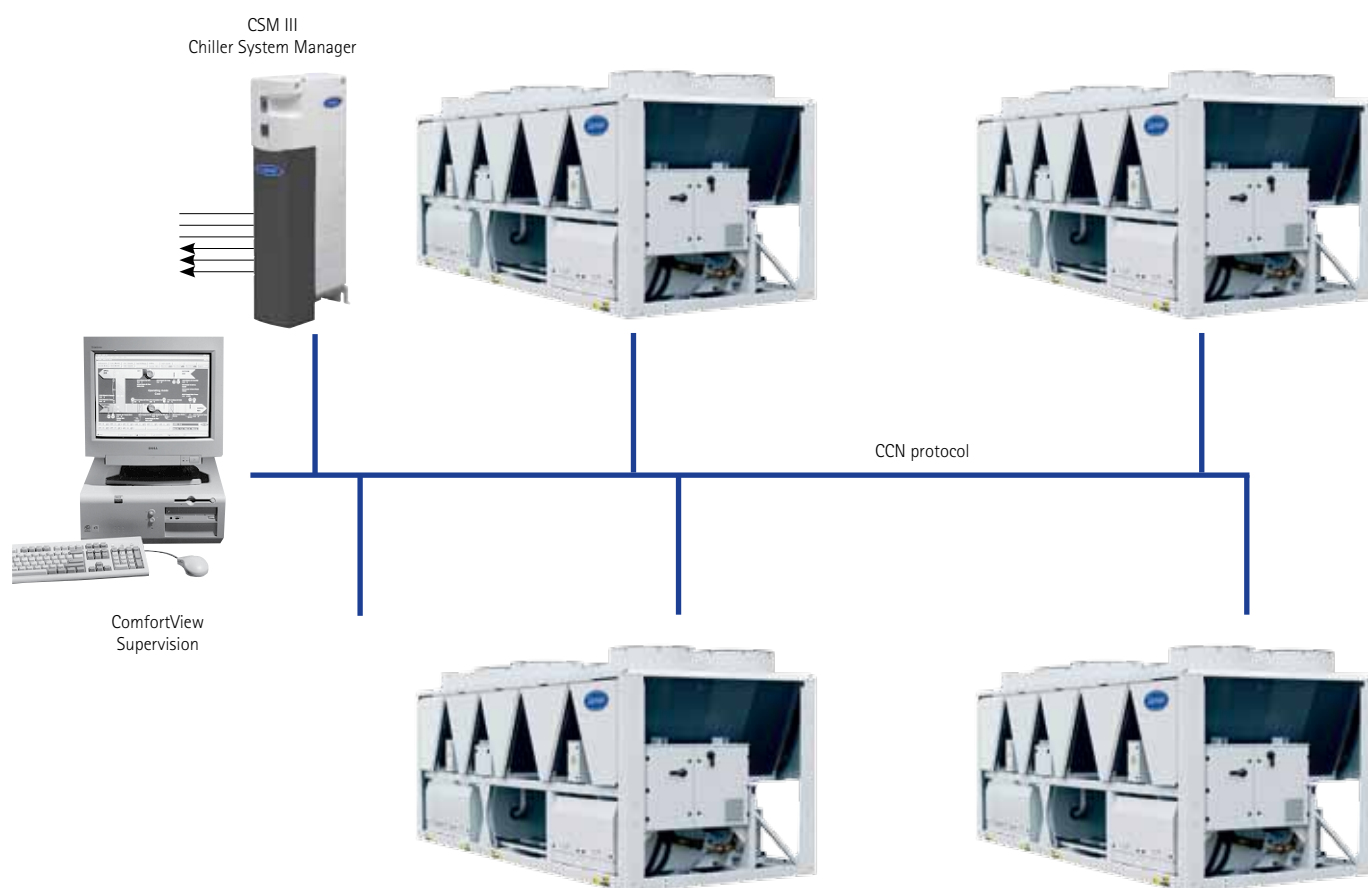
Comfort controller

- Field-installed device which allows non-Carrier equipment such as boilers, cooling towers and pumps to be controlled and integrated into the overall network.
- Fully programmable to suit the application need and optimized control strategies.

System Managers

- Carrier offers a complete line of network system products that tie multiple stand-alone products together for a fully integrated, self-adjusting HVAC system:

Example: Chillervisor System Manager (CSM III) for chiller plant control





Controls

ComfortVIEW

Can perform the following tasks:

- Display dynamic data in text and graphic modes
- Create dynamic trend plots of data from one or multiple controllers
- View, print, and acknowledge alarms from the network
- Configure operating parameters such as time schedules, set-points, and point configuration
- View and configure time and set-point schedules in graphic and text mode
- Download and upload data to and from controllers
- Override the state or value of selected input and output points
- Customise graphics and create custom links between graphics
- Generate reports from system data/operator activity
- Create custom WorkSPACES for each user
- Easily backup all database information to disk
- Obtain on-line operator help
- Custom programming (BEST++)

Features

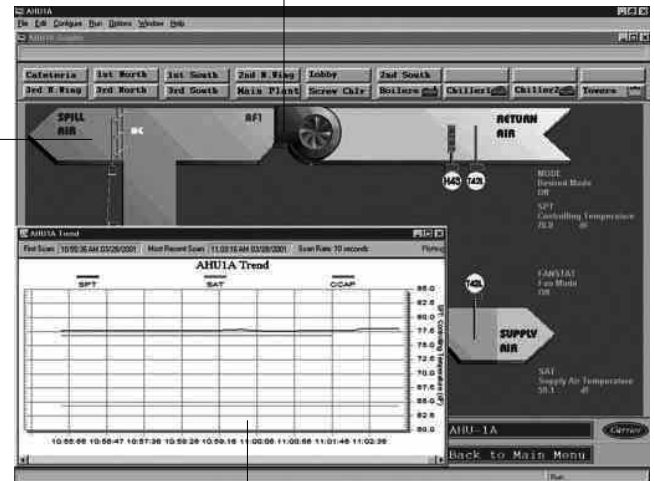
- The primary human interface to the Carrier Comfort Network (CCN).
- Designed to run on any PC utilising the Microsoft® Windows 2000 Professional or Server operating system, or the Windows XP Professional operating system.
- True system multitasking.
- Local Area Network - allows multiple workstations to share a common system database.
- Remote Communications - allows access to remote ComfortVIEW databases.
- Graphical User Interface (GUI) - provides a consistent look and intuitive operation.
- Customised Access Levels.
- Export data into other application software.
- Dynamic Data Exchange (DDE).
- Time and set-point schedule DLL allows third parties access to CCN time and set-point schedules.
- CCN to Ethernet support provides for flexible location of the ComfortVIEW computer.
- Organise and view data in a convenient format and to create your own custom data displays.
- Alarm processing is the automatic and full-time responsibility of ComfortVIEW. Receives, announces, and stores prioritised alarms.
- The Carrier Network Manager allows you to display, modify, and delete the areas, controllers, and data tables in your ComfortVIEW database.
- The Reports function is used to generate reports from network and database data.
- ComfortVIEW report data also allows you to create your own custom reports.

Customise your WorkSPACE screens...

View critical data at once

Because no two buildings are alike, ComfortVIEW offers the flexibility to create custom WorkSPACES, each comprised of multiple ViewSPACES, such as graphics and tables. With a custom WorkSPACE, you can see all the critical information about your system on a single screen. For example, create a WorkSPACE screen with graphics of your main chiller and air handler, plus tables showing key operating data for each one. You can then save the finished WorkSPACE so it is available to access time and again. Multi-element WorkSPACES are troubleshooting time-savers, allowing you to adjust the operation of one unit and see how it affects another part of the system ... all on the same screen.

- With ComfortVIEW you can get the information you need fast. Link WorkSPACE screens in a logical progression customised for your building and management needs.



- With real time trend scanning, you can visually determine how a system is behaving. ComfortVIEW allows you to easily view and record this data.



- Reduce troubleshooting time with ComfortVIEW's on-screen interaction. Change temperature set-points, or force conditions – then view the results and determine action, prior to dispatching a mechanic.

- ViewSPACES can use graphics or photos of your actual equipment, for easier analysis of operating conditions.

- This power plant ViewSPACE shows various equipment operating parameters at a glance.

ELECTRONIC THERMOSTATS



Controls Thermostats

Electronic thermostats:

The Carrier electronic thermostats are designed to control and optimise the operation of hydronic terminal fan coil units. They exist in two versions that match all terminal fan coil configurations:

	Type A	Type B
2-pipe	x	
2-pipe changeover	x	
2-pipe and electric heater		x
2-pipe changeover and electric heater		x
4-pipe		x

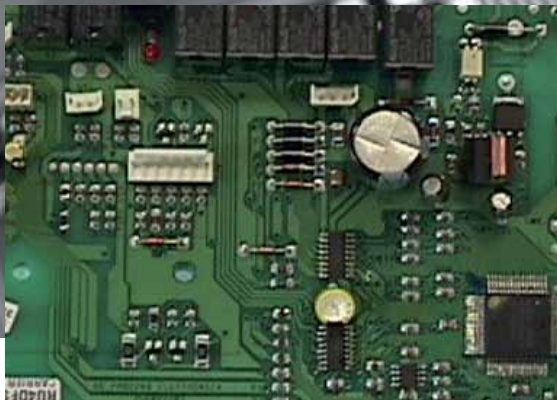
Features

- Fan operation - With the fan speed selector, fan mode can be set either manually or automatically. In the manual mode it is possible to select three fan speeds (low/medium/high) according to personal preference. In the auto mode fan speed is regulated by a microprocessor in the control, based to the temperature chosen.
- Temperature selector - This is designed to maintain the temperature at the desired level. The reference value at the centre of the range is 20°C. By turning the knob towards the symbol (-) the temperature is reduced from the original setting (minimum value is 10°C). By turning the knob towards the symbol (+), the temperature is raised from the original setting (maximum value is 30°C).
- Energy saving mode - This function is especially useful when air conditioning at night or in rooms where the user is likely to be absent for a longer period of time. In this case, pushing the button raises the temperature during cooling by 4°C and lowers it during heating by 4°C.
- Seasonal changeover
 - Manual - Selection of heating/cooling is done manually by pushing the button on the control.
 - Centralised (only for type A control) - Centralised seasonal changeover is possible in two ways:
 - by a switch located on the central control panel that allows heating/cooling mode changeover (to be provided by the installer).
 - by a temperature sensor located in contact with the entering water pipe
 - Automatic, based on air temperature (only for type B control) - The automatic seasonal changeover allows automatic switching of the fan coil operating mode to cooling or heating, depending on the temperature set by the user and on the room temperature.
- External contact - The control has a 230 V input that can be used as window contact or presence detector. When such a signal is activated (presence of line voltage on the terminal block contact) the control is set to OFF mode. As a consequence, all outputs (fan, valves etc.) are disconnected, and only frost protection is active, if switched ON by the appropriate dip-switch.
- Frost-protection - This function keeps the temperature from dropping below 7°C in rooms not used for long periods of time.

Electronic fan coil controllers – quick reference table



	Thermostats	HDB	NTC
Control algorithms			
On-off	x	x	
Proportional-integral			x
Valve management			
Air flow control only (no valve)	x	x	
On-off actuators	x	x	x
Proportional valves			o
Fan control			
Three speeds	x	x	x
Optimum fan speed selection	x	x	x
Variable speed			o
Main functions			
Setpoint control	x	x	x
Occupied/unoccupied mode	x	x	x
Frost protection mode	x	x	x
Window contact input	x	x	x
Measurement of water inlet temperature for automatic seasonal changeover (2 pipes)	Type A	x	x
Automatic seasonal changeover (4 pipes and 2 pipes + electric heater)	Type B	x	x
Manual changeover	x	x	x
Frost protection mode	x	x	x
Continuous ventilation within dead-band	x	x	x
Periodical ventilation within dead-band	x	x	x
Unit grouping		x	x
Louvre control		x	x
On-site configuration		x	x
Supply air temperature monitoring limiting			x
Communication (CCN)			x
Electrical heater loadshed			x
Dirty filter alarm			x
Alarm reporting			x
IAQ control			o
Demand control ventilation (DCV)			o
Free cooling mode			o
User interface			
Digital display		x	x
Automatic or manual fan speed control	x	x	x
Operating mode selection	x	x	x
Occupancy (eco) button	x	x	x



Controls HDB

User interfaces

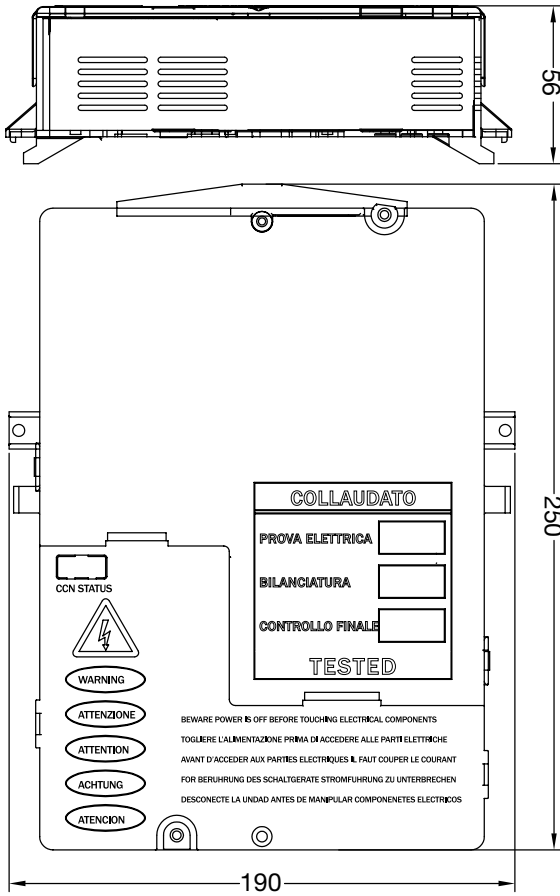
Depending on the application, two user interface types can be selected:

- a wired user interface that can be mounted on the wall or inside compatible terminal fan coils (42N)
- an infrared user interface to be used together with a wall-mounted infrared receiver or a receiver incorporated in compatible terminal fan coils (42GW)



Features

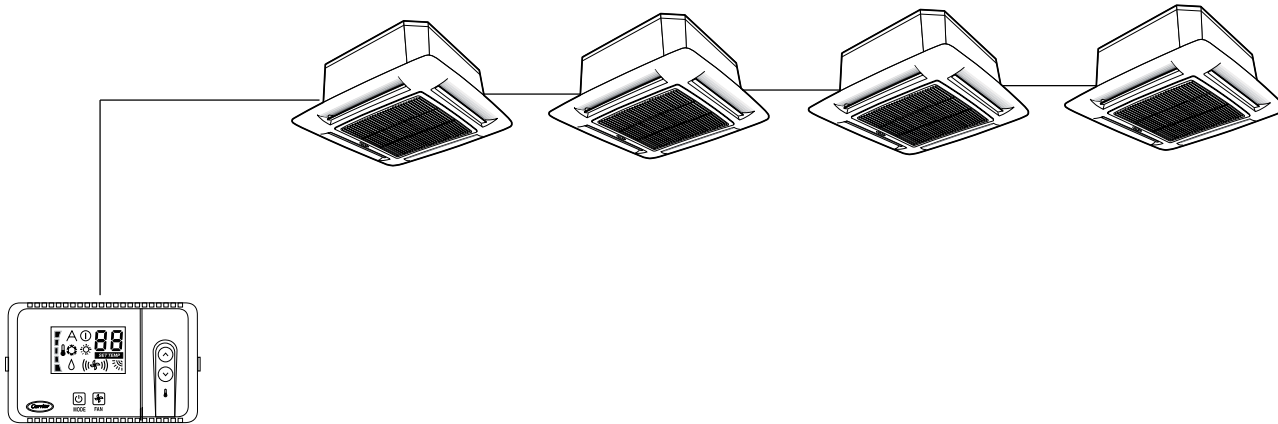
- The HDB controller is a microprocessor-based controller designed to control and optimise the operation of hydronic terminal fan coil units.
- Factory-installed on the terminal fan coil - The controller is factory-installed on the terminal fan coil; the assembly is also tested at the factory. As a result, field installation is extremely simple.
- Ease of grouping - As an option, the HDB control can be equipped with a grouping board that is used to connect up to 15 units with a bus. All units connected together will operate under the same conditions.
- Louvre control - For terminal fan coils equipped with motorised louvres, the HDB controls the louvre position as defined by the user or in swing mode.
- External contact - The control has an input that can be used to remotely set the unit to economy mode.
- Scheduling - If the unit is used with an infrared user interface, unit operation time can be scheduled on a daily basis. Three start times and three stop times can be programmed.
- Timer - If the unit is used with an infrared user interface it can operate for a predefined duration before switching to eco mode or off.



Carrier Room Controller (CRC2)



Infrared Remote Control (IR2)
and receiver



HYDRONIC FAN COIL COMMUNICATING CONTROLLER (NTC)



Controls NTC

Network communication

- The NTC communicating controller can be connected on an RS 485 bus, using the Carrier Comfort Network (CCN) protocol.
- Units equipped with the NTC controller can be part of the Aquasmart Evolution system.

Advanced functions

- Low Energy Consumption (LEC) variable speed control.
- The NTC controller can drive the fan speed continuously within a configurable range for optimal thermal and acoustic comfort.
- Hydronic control - The NTC controls both floating and fixed-point value actuator types (230 V on-off and 230 V three point).
- Demand controller ventilation (DCV) - On fan coils equipped with CO₂ sensors and fresh air dampers, the NTC controller can adjust the amount of fresh air admitted to the room, as required by the occupants.
- IAQ management - The NTC controller can control all features related to Indoor Air Quality that are included in Carrier terminal fan coil units.

Description

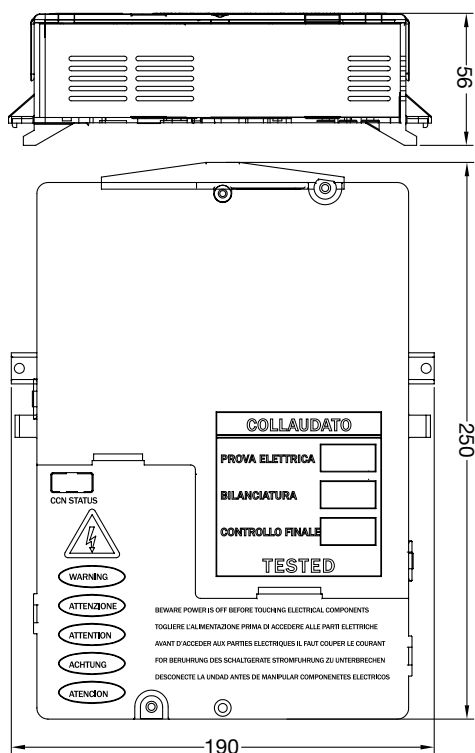
Carrier offers one of the market's most sophisticated and complete communicating controllers for hydronic fan coil ranges, the NTC controller, that is compatible with the full Carrier fan coil range.

For the customer and installer the same controller simplifies and eases installation and service operations whilst covering a wide range of hydronic system types and applications.

The controller can be applied and function as either a standalone control, as part of a larger CCN system application, or at the heart of a Aquasmart system functioning with the Aquasmart Touch Pilot System Manager.

Features

- The NTC controller controls and optimises the operation of hydronic terminal fan coil units. It is a microprocessor-based CCN (Carrier Comfort Network) compatible communicating controller with energy-saving algorithms.
- Energy-saving algorithms manage water valve operation and fan speed control simultaneously to ensure minimum energy consumption whilst maximising comfort conditions for the occupant.
- Factory-installed on terminal fan coils
The NTC controller is factory-installed on the terminal fan coil; the assembly is also factory-tested. As a result, field installation is extremely simple.
- A wide range of user interfaces
Depending on the application, two user interface types can be selected:
 - a simplified wired analogue user interface (SUI) that can be wall-mounted
 - a wired communicating user interface (CRC2) that can be wall-mounted or incorporated in compatible terminal fan coils (42N)
 - an infrared user interface (IR2) for use together with a wall-mounted infrared receiver or a receiver incorporated on compatible terminal fan coils (42GW)
 - a multi-function user interface (ZUI) that can control comfort, lights and blinds within a Carrier system



Carrier Room Controller (CRC2)



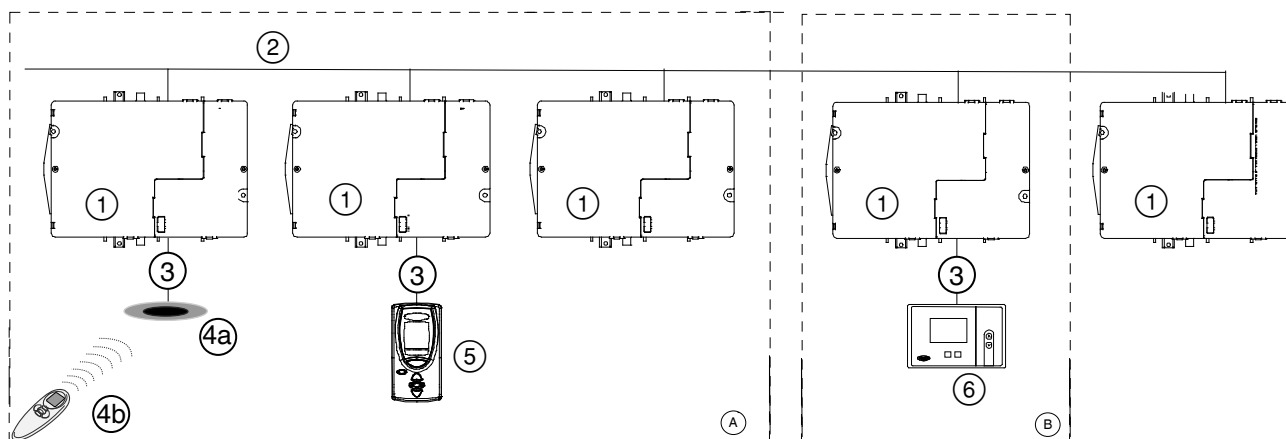
Simplified User Interface (SUI)



Infrared Remote Control (IR2) and receiver



Zone User Interface (ZUI)

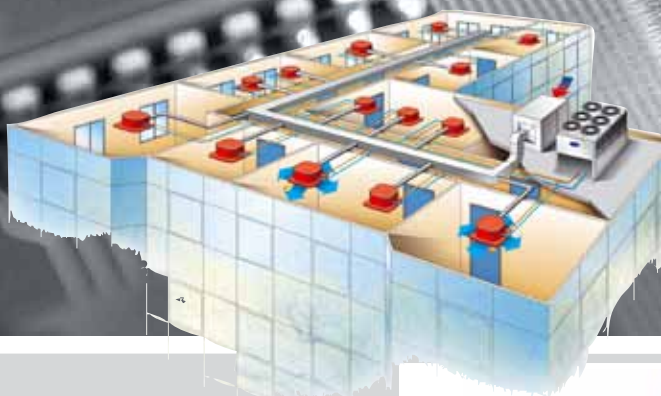


Legend

- 1 NTC controller
- 2 Secondary communication bus
- 3 User interface connection
- 4 IR2
- 5 ZUI2
- 6 CRC2
- A Room A
- B Room B

AQUASMART EVOLUTION

FEATURING THE NEW TOUCH PILOT SYSTEM MANAGER



Controls

Aquasmart



Description

- Aquasmart Evolution is a complete hydronic heating, ventilating and air conditioning (HVAC) system ideal for residential and light commercial applications from offices, commerce to hotels and hospitals. It offers perfect comfort for building occupants whilst optimising economical operation for applications up to 2500 m². Larger installations with multiple systems can be managed and integrated within a single Building Management solution thanks to the new BACnet option capability (available as option in 2012).
- An Aquasmart system consists of up to 128 terminal fan coil units, served by up to two chillers or heat pumps (master-slave), to supply cooling and/or heating to occupied spaces and fresh air handling units. The system manager can fully integrate and control up to eight Carrier fresh air handling units* (39SQ). Each fresh air plant can be associated with specific terminal fan coils and/or zones for optimum building use management with occupancy, controlling and minimising energy use.
- Individual schedules can be set up and managed for each and all air treatment plants. The Aquasmart System Manager supplies building information enabling dynamic and precise control of the 39SQ's night-time free-cooling feature to further reduce building energy consumption.

* If air treatment unit is not supplied by Carrier, integration is limited to control via a digital output for the main fresh-air unit.

Features

- The Aquasmart Evolution system ensures significant energy savings combined with optimised user comfort by managing building zoning, occupancy and room temperatures in accordance with needs.
- Terminal fan coil units can be organised in up to 32 zones to optimise building management by zone requirement and according to building design conditions.
- The Touch Pilot System Manager – the brain and building user interface – was designed to facilitate use and allow rapid access to manage and configure system operation to maximise energy savings at comfort conditions.
- System components are fitted with communicating controls allowing the System Manager to communicate with and obtain feedback on user needs and operation. Based on the system requirements the System Manager coordinates the system heating and cooling modes for maximum comfort and optimal energy consumption, respecting the comfort parameters and occupancy schedules for the building zones.
- The Aquasmart system offers affordable building HVAC system management featuring capabilities usually only available in more expensive solutions and requiring additional building-by-building programming development.

TOUCH
Pilot



System design layout and configuration guide

- The System Manager is connected to the system components via a communication bus, and allows control of all system and individual terminal operating parameters.
- System configuration is simple through easily accessible menus. Unit grouping is managed by the network and requires no specific wiring to allow easy reconfiguration to suit later building layout modifications.
- The Aquasmart Evolution components are delivered complete, configured and factory-tested.

Energy savings

- The Aquasmart system controls offer superior comfort levels. By optimising and controlling the system components building owners and occupants can save energy and reduce their energy bill, contributing to a reduction in building carbon emissions.
- System control saving possibilities are further enhanced with a range of significant energy-saving features available at equipment level, such as the 39SQ plug-and-play fresh air handling unit with heat recovery technology, the use of reversible 30RQ air-to-water heat pumps for space heating, 61AF heat pumps for domestic hot water and a range of fan coil units with EC motor technology and variable fan speed control.
- Energy simulations conducted with a recognised software simulation program indicate that Aquasmart can achieve energy savings over a traditional non-communicating and non-optimised system. Case studies indicate that savings of 25% and beyond are possible. Each project merits its own assessment of the opportunities.



New System Manager

- The Touch Pilot system manager is the user interface and allows building managers to control the Aquasmart system and associated components and features.
 - Intuitive colour touch screen.
 - A system set-up wizard leads installers through a number of easy intuitive steps to identify and configure the system and manage system set-up, operation and maintenance.
 - Icon-driven menus easily and rapidly manage and maintain the HVAC system.
 - Management of system parameters including cooling and heating set points (terminals and cooling and/or heating plants) and occupied and non-occupied periods.
 - Optimisation of energy consumption, monitoring of component operation and reporting of system faults.
 - Management of occupied/unoccupied time schedules and smart start features to ensure that comfort requirements are met from the very beginning of the occupied period.
- The System Manager is compatible with a web browser, allowing user access to the system from a remote location such as a maintenance office within the building or from an off-site location where internet access is available. This facilitates ease-of-access and use and allows service and maintenance companies to offer remote service coverage without visiting the site, thus reducing carbon emissions due to transport.
- The availability of a new Carrier Apple application (HVAC smart browser) extends the accessibility to smart phones and tablets.

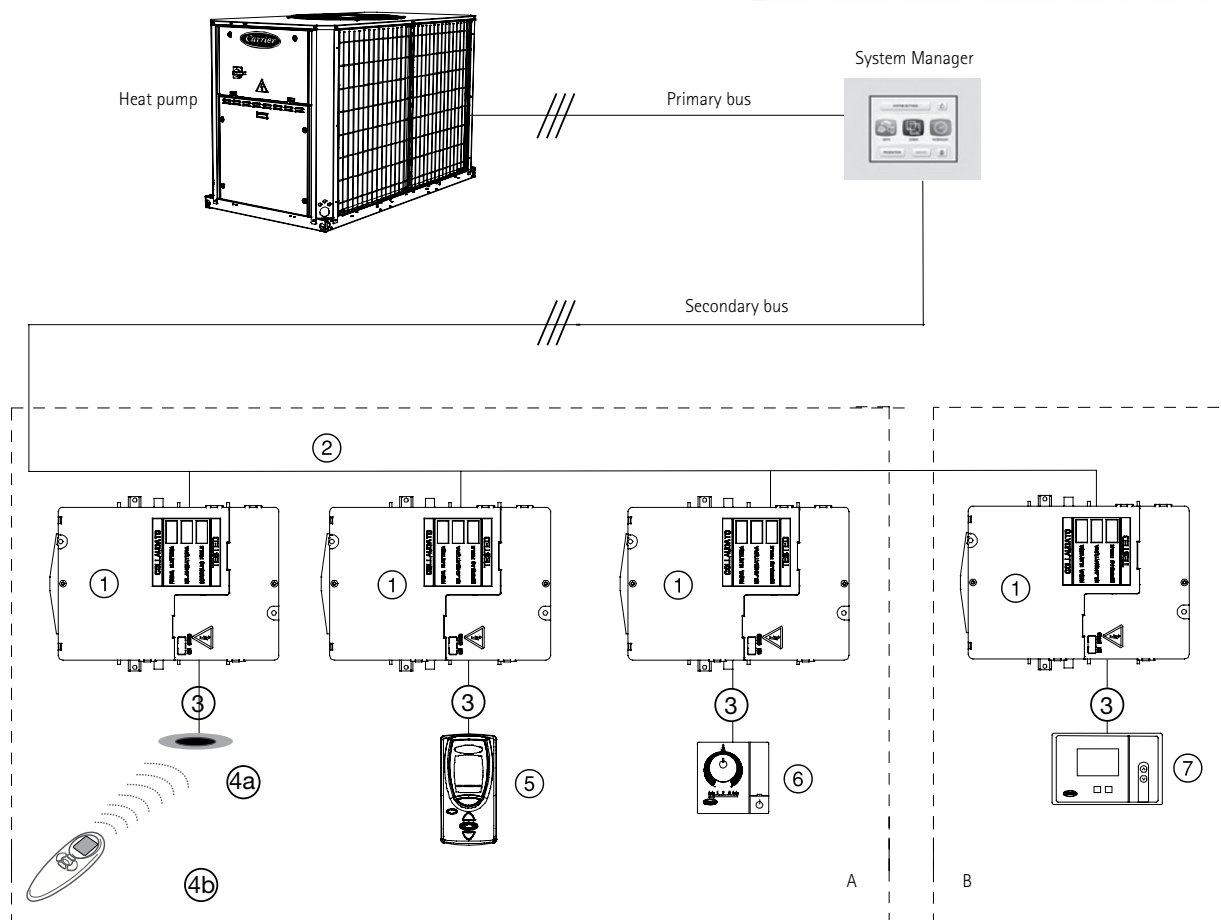
System selection

- The Aquasmart system is easy to select and configure with all units supplied from the factory with pre-installed, pre-configured and pre-tested controls and valves. The installer only needs to adjust the system parameters to the local building or application needs - a task made even easier with the New System Manager.
- Carrier has created a Quick Selection Guide that is available to rapidly identify and select the system components, facilitating the design process and saving time for designers and installers alike.
- Please contact your local sales office for a copy of this guide.



Latest features for 2012

- The latest release of the Aquasmart Touch Pilot system manager enhances the capabilities to integrate Aquasmart systems with Carrier or third-party building management system front-end software. The new BACnet option allows access to read and read/write system parameters from the building management system facilitating integration of Aquasmart within the overall building management.



Legend:

- ① NTC controller
- ② Secondary communication bus
- ③ User interface connection
- ④ Infrared controller IR2
- ⑤ ZUI2

- ⑥ SUI
- ⑦ CRC2
- A Room A
- B Room B

COMFORT ZONE II SYSTEM



Controls

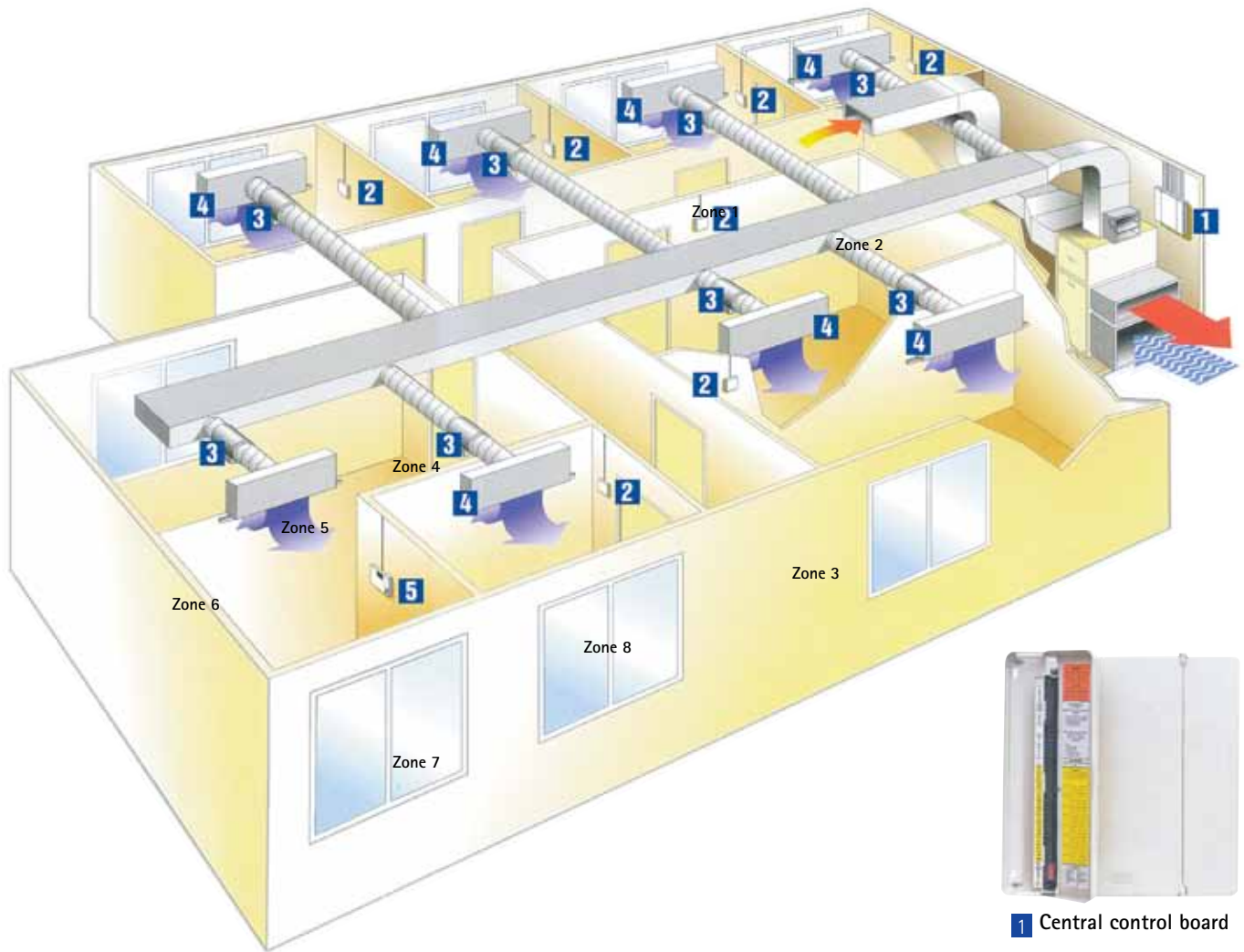
Comfort Zone II

Optional system enhancements

- Programmable controller
- Alarm indicators
- Carrier command centre software
- Mechanical ventilation
- Multiple zone dampers
- Smart sensors
- Electronic air cleaners and central humidifiers
- Humidity control and display
- Outside air temperature display

Features

- A zoning system providing owners of small commercial buildings with a practical way to manage energy and equipment operating costs while providing extremely high levels of comfort.
- Centralised heating and cooling control while providing personalised comfort.
- Comfort Zone II brings individual temperature and time control without the prohibitively high cost of multiple heating and cooling units.
- Energy and operating cost savings, in addition to lower initial cost.
- Easily programmed to suit specific requirements - building occupants can virtually customise the indoor climate to their individual comfort preferences and changing schedules.
- Divides the building into as many as eight independent comfort zones, based on their different heating and cooling requirements and hours of use. Using a network of electronic thermostats, sensors and strategically placed, electronically-controlled dampers, Comfort Zone II maintains a comfortable environment in every zone.



1 Central control board



2 Room temperature sensor



3 Zone damper or bypass damper



4 Linear air diffuser



5 Main thermostat

Other distinctive features

- No batteries are required
- System diagnostic display
- Time Guard to protect HVAC equipment from rapid cycling and minimum ON time feature
- Full system communications
- Barometric or motorised bypass dampers
- Temperature trend staging reduces operating cost
- Backlit display
- Seven-day programme scheduling (four periods a day, 15-minute increments)
- 'Droopless' temperature set-point control
- Automatic changeover
- Clean filter alert message
- Copy feature (copy zone, copy previous period etc.)
- OFF feature (any zone can be turned completely off)
- ALL feature (all zones controlled to same desired temperature)
- OUT feature (zone control to relaxed set-points)
- Equipment protection features (Time Guards, minimum ON time, cycle timers)



Controls Pro-Dialog

Operator interfaces

- Clear and easy to use operator interfaces
- **Pro-Dialog Plus interface**
Organisation of information around 10 menus directly accessible through hard keys
- **Pro-Dialog touch screen interface**
Organisation of information around 12 menus directly accessible through soft keys and possibility to install the touch screen remotely from the chiller
- **Pro-Dialog+ screen interface**

Control features (Pro-Dialog Plus/Pro-Dialog touch screen)

- An advanced numeric control system, combining complex intelligence with great operating simplicity.
- Constantly monitors all machines parameters and safety devices and precisely manages the operation of compressors, fans and water pump.
- PID control algorithm anticipates load variations, guarantees leaving water temperature stability and prevents unnecessary compressor cycling.
- The long stroke electronic expansion valves (EXV) and PID superheat control, together with the head pressure control algorithm, improve energy efficiency at part load conditions and optimise unit operation.
- Automatic reset of the chilled-water temperature set point for optimised power consumption.
- Several capacity loading possibilities for improved start-up at low outdoor temperature and use of one refrigerant circuit as back-up.
- Provides preventive protection and enhanced unit reliability.
- Equalisation of operating time and number of compressor start-ups.
- Monitors all safety parameters. Fault history function and 80 fault code for immediate fault location.
- Parallel control of two units as standard.
- Extensive remote control capabilities allow integration into building management systems.
- RS-485 serial port for connection to the Carrier Comfort Network and any other monitoring system (through gateways).



Pro-Dialog touch screen interface - optional according to range (30XA, 30XW)



Pro-Dialog Plus interface

Pro-Dialog+ screen interface

- Pro-Dialog+ combines intelligence with operating simplicity. The control constantly monitors all machine parameters and precisely manages the operation of compressors, expansion devices, fans and of the water heat exchanger water pump for optimum energy efficiency.

Energy management

- Seven-day internal time schedule clock: permits unit on/off control and operation at a second set point.
- Set point reset based on the outside air temperature or the return water temperature or on the water heat exchanger delta T.
- Master/slave control of two units operating in parallel with operating time equalisation and automatic change-over in case of a unit fault (accessory).
- Change-over based on the outside air temperature.



Pro-Dialog+ interface

Integrated features

- Night mode: capacity and fan speed limitation for reduced noise level.
- With hydronic module: water pressure display and water flow rate calculation.

Ease-of-use

- The new backlit LCD interface includes a manual control potentiometer to ensure legibility under any lighting conditions.
- The information is displayed clearly in English, French, German, Italian and Spanish (for other languages please consult Carrier).
- The Pro-Dialog+ navigation uses intuitive tree-structure menus, similar to the Internet navigators. They are user-friendly and permit quick access to the principal operating parameters: number of compressors operating, suction/discharge pressure, compressor operating hours, set point, air temperature, entering/leaving water temperature.



Controls CSM III

Control functions:

- Automatic chiller start/stop
- Two seasonal chiller start/stop sequencing modes with add/drop capability
- Designated standby chiller support
- Occupancy-based plant operation with configuration override
- Soft loading
- Load balancing
- Bypass valve control
- Chilled water set-point reset
- Loadshed demand limiting
- Chiller fault handling and capacity matching
- System alarm messages and alarm history
- Short- and long-term power failure recovery

Features

- A key component of the Carrier Comfort Network (CCN) Chillervisor System.
- Provides sophisticated multiple chiller control functions to optimise the efficiency of the Carrier chiller plant.
- Coordinates the operation of a chilled water system in which up to eight chillers feed a common chilled water loop.
- Consists of a module equipped with input and output points and specialised control and communication software.
- The CSM III operator interface is ComfortWORKS, Building Supervisor III or a Network Service Tool. With this an operator can:
 - display a list of CSM III points that show the status of the chiller system
 - modify the value or status of selected points and then return them to automatic control
 - display and modify configuration and service data
 - display maintenance data
 - display chiller system graphics (ComfortWORKS or Building Supervisor)
- Additional capabilities possible by combining the CSM III with the following CCN products:
 - Autodial Gateway
 - Remote CCN Service Interface (RCSI)
 - Data Collection Option
 - Comfort Controller
 - Water System Manager (WSM)
 - Loadshed Option
 - Alarm Printer Interface Module (APIM)

Technical data

Power requirements	50 VA @ 24 V ac \pm 15%
Operating temperature	0°C to 60°C
Storage temperature	-40°C to 85°C
Operating humidity	0 to 90%, non-condensing

Dimensions, mm



