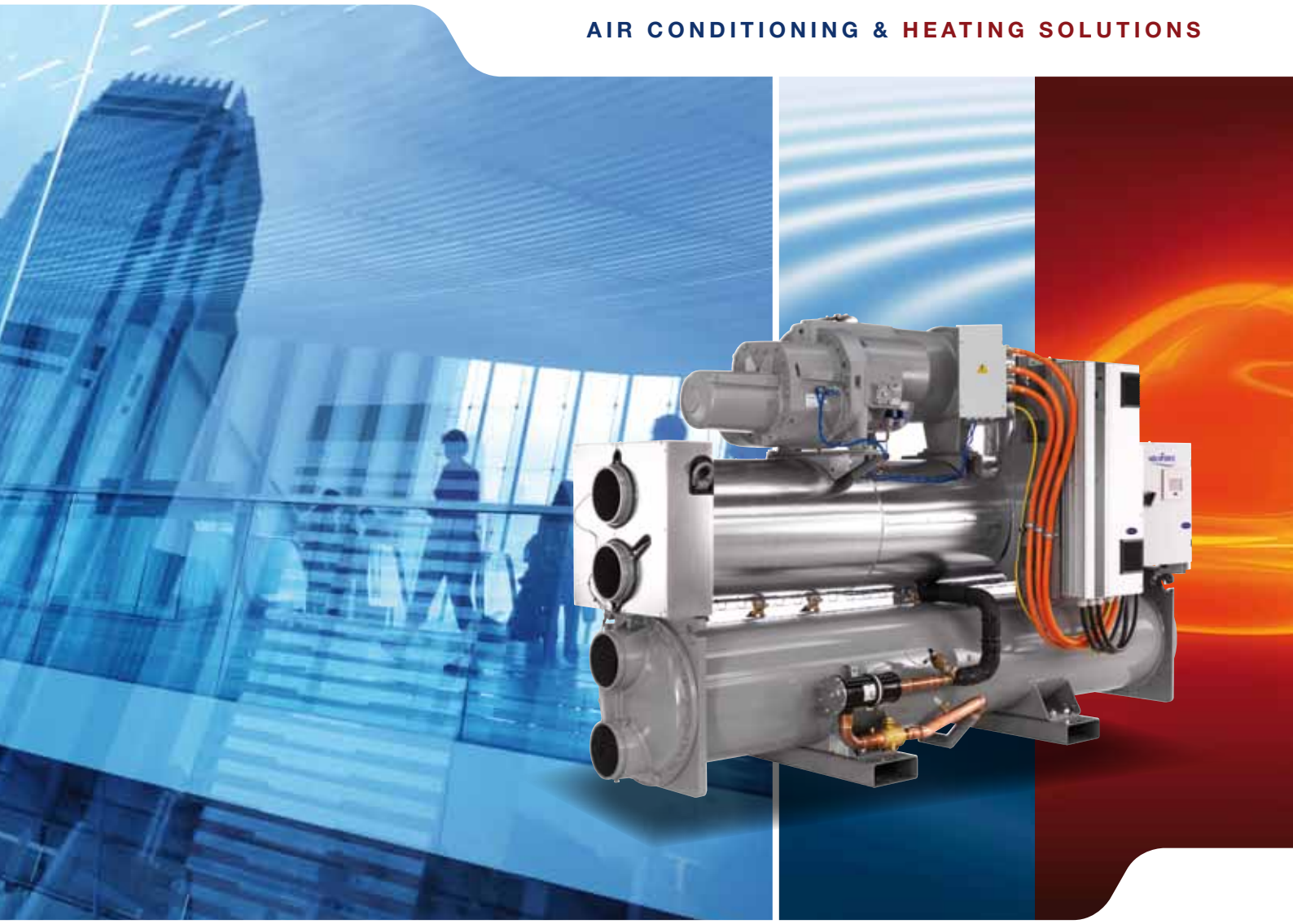
Carrier®

AIR CONDITIONING & HEATING SOLUTIONS



Variable-speed, water-cooled chillers and heat pumps

580 – 1750 kW

30XW-V/30XWHV

greenspeed AQUAFORCE

The latest AquaForce generation: Carrier expertise **turned**

Greenspeed technology enhances the renowned AquaForce line features for variable-load building demands

Carrier has developed its own state-of-the-art answer to market-challenging requirements: a complete product range featuring new inverter-driven screw compressors, based on the successful AquaForce series. The new line with Greenspeed technology offers increased global performance as well as Carrier's acclaimed product quality, reliability and customer service support.

Quality: simply in Carrier's culture

Carrier is committed to delivering perfect operational products to every customer. Components and processes are accurately defined, tested and monitored during the entire product development process. In addition, Eurovent regularly tests our products to certify their accurate performance.

Rely on Carrier commitment long after the sale

Our commitment to our products extends far beyond the factory gate. Carrier continues to support you, offering a variety of service maintenance contracts and control solution packages. These services ensure that the equipment always operates at peak efficiency and offer added advantages of faster fault diagnosis, minimising the risk of operational downtime.

EUROVENT CERTIFIED PERFORMANCE
eurovent-certification.com

Carrier participates in the ECC programme for Liquid Chilling Packages.
Check ongoing certification validity:
www.eurovent-certification.com
or www.certiflash.com

Carrier GREEN

30XW-V/30XWHV: the air conditioning and heating solution for green buildings

Sustainability is the issue that most affects the real-estate value of modern buildings. A high-efficiency air conditioning system with a low carbon footprint is a must to support green building design, gaining points with current sustainability protocols such as LEED® or GreenStar. To make an air conditioning unit the right choice for a green building it needs to meet a number of requirements: high efficiency, low noise, recyclability, reliability, flexibility. Carrier meets these targets and sets new standards with the new AquaForce line with Greenspeed technology.

to meet customer needs

Seasonal efficiency

The exclusive Carrier Greenspeed technology used for the new AquaForce line ensures high energy efficiency, both at full and part load. The ESEER of the 30XW-V is up to 40% higher than that of traditional fixed-speed units and in line with more recent oil-free centrifugal chillers. High seasonal efficiency means minimised energy consumption and lower electricity bills.

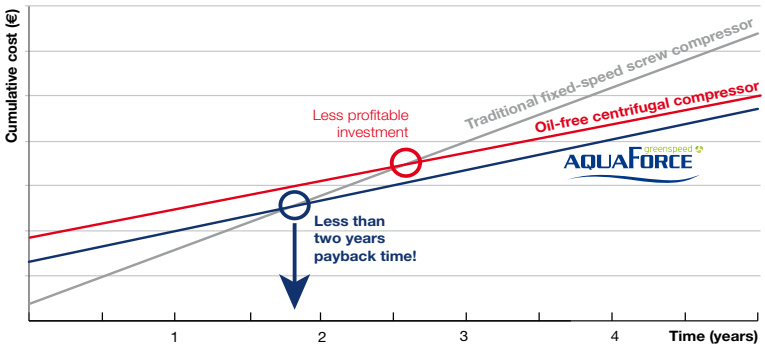
Reliability

For applications such as data centres or industrial processes reliability comes first, but to minimise maintenance and operating costs reliability is always a key point.
The new AquaForce line with Greenspeed technology can operate even at high condensing temperatures without surge risk. The complete range was continually tested during the development stage to ensure exceptional reliability, becoming a preferred solution even for the most critical applications.

Economy

Designing a new building, consultants and owners need to consider budgetary constraints and the return-on-investment analysis. The optimal air conditioning system guarantees lowest total life cycle cost, compared to alternative systems, with a payback time that can be lower than two years.

Carrier helps customers find the best solution for a specific application, and the new AquaForce line with Greenspeed technology offers exceptional cost benefits.



Costs calculated for a typical hospital application (3000 h/year, 0.15 €/kWh) with a cooling demand profile in line with the ESEER base.

Versatility

Each building or application has specific unique air conditioning and heating requirements.
The AquaForce line with Greenspeed technology was developed for heating systems, high-water-column hydronic plants and variable-flow applications. The wide range of unit configurations makes of this new Carrier line the right choice for many different applications.

greenspeed
AQUAFORCE

Designed to use the full potential

INVERTER-DRIVEN SCREW COMPRESSORS

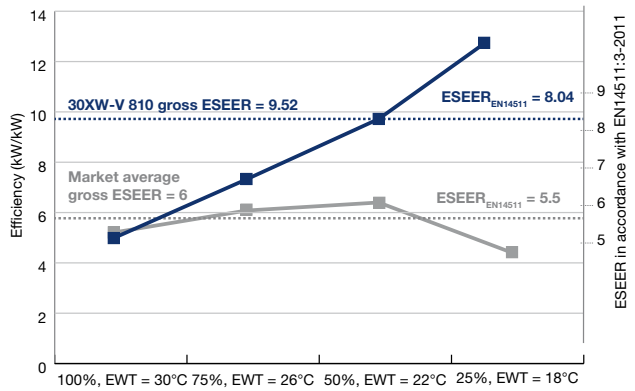
(CARRIER PROPRIETARY TECHNOLOGY)

- Improved efficiency, especially at part load
- Negligible start-up current and high power factor
- Accurate capacity control
- Surge-free, positive-displacement technology

AquaForce line with Greenspeed technology

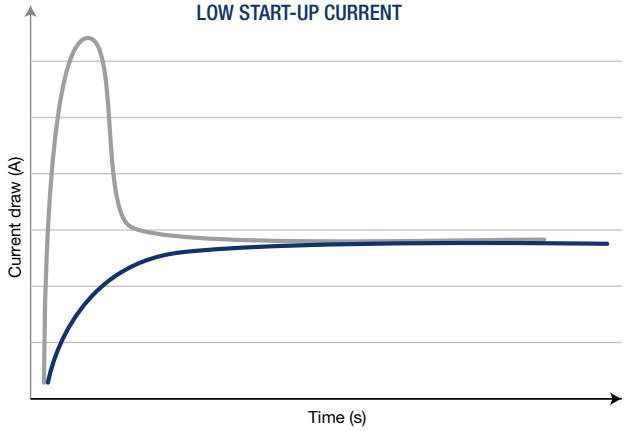
Traditional fixed-speed screw-compressor chiller

PART-LOAD EFFICIENCY



Load [%], condenser EWT [°C] and evaporator LWT [°C] defined by ESEER, European Seasonal Energy Efficiency Ratio index

LOW START-UP CURRENT



Greenspeed technology delivers...

- Seasonal energy efficiency
- Economy
- Reliability
- Versatility

of the latest technologies

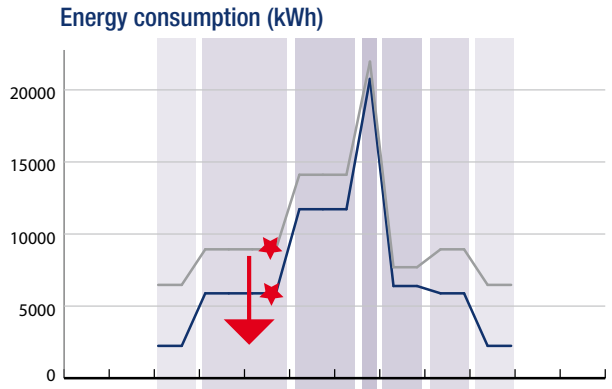
… with all the advantages of the acclaimed AquaForce line

- **Experience**
  Proven technology, demonstrated by thousands of installations world-wide
- **Compactness**
  Compact chillers designed for standard door widths and for easy retrofit installation
- **Efficiency**
  Chillers and heat pumps that exceed Eurovent Class A standards, for reduced building energy consumption and CO_2 emissions

NEW TOUCHPILOT CONTROL

- User-friendly touch screen interface
- Status of all main parameters on one screen
- Direct access to the unit's technical drawings and main service documents
- Easy enhanced remote monitoring via the internet
- Easy access to unit parameters with different security access levels: enter your password and get access to your unique parameters.

Discover AQUAFORCE greenspeed strengths

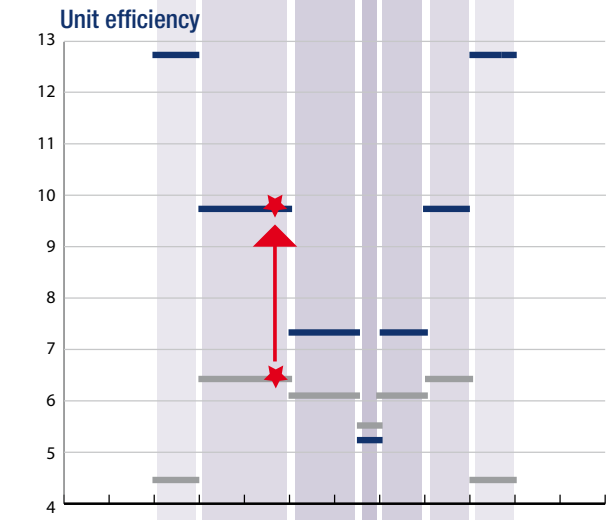


32% yearly energy saving

Energy consumption comparison for a unit that works every day, except Saturdays and Sundays, from 7 am to 8 pm. Assumes two further weeks off during August, the total yearly operating hours are 2158.

Example
month of May, 50% load
> 34% lower energy consumption!

AquaForce chiller with Greenspeed technology
Traditional fixed-speed screw-compressor chiller

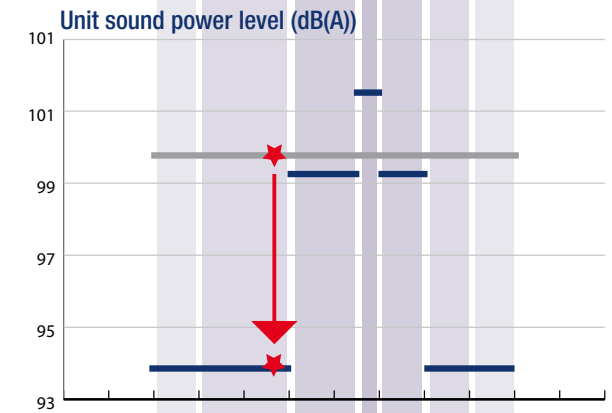


Significantly higher efficiency 97% of year

Energy efficiency comparison at ESEER conditions.

Example
month of May, 50% load
> 9.7 vs 6.4 EER (with ELWT = 7°C, CEWT = 22°C)
> 52% higher efficiency!

AquaForce chiller with Greenspeed technology
Traditional fixed-speed screw-compressor chiller

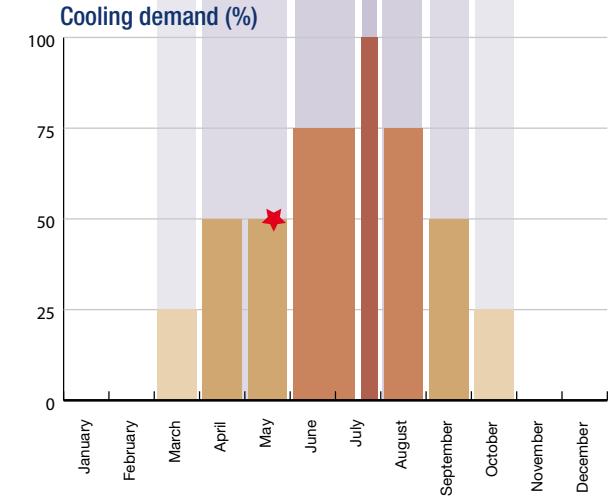


Less noise 64% of year

Sound emission comparison.

Example
month of May, 50% load
> 94 vs 99 dB(A)
> 5 dB(A) less noise!

AquaForce chiller with Greenspeed technology
Traditional fixed-speed screw-compressor chiller



Simplified cooling demand for an office building with load distribution according to ESEER index.

Example
month of May
> building cooling load = 50% of peak load

Physical data

30XW-V/30XWHV		580	630	810	880	1150	1280	1470	1570	1710
Refrigerant		R134a								
Compressor		Inverter-driven screw type								
Number of compressors / circuits		1/1	1/1	1/1	1/1	2 / 2	2 / 2	2 / 2	2 / 2	2 / 2
Capacity control range		20% - 100%				10% - 100%				
EMC compatibility, EN61800-3		«C3»	«C3»	«C3»	«C3»	"C3"	"C3"	"C3"	"C3"	"C3"
Performance in cooling mode										
Air conditioning application - as per EN14511-3:2011										
Cooling capacity*	kW	587	652	812	858	1140	1305	1461	1604	1741
EER*	kW/kW	5,44	5,31	5,25	5,07	5,45	5,50	5,38	5,05	4,94
Eurovent class		A	A	A	A	A	A	A	A	B
ESEER*	kW/kW	7,80	7,60	8,04	7,76	7,79	7,59	7,30	7,15	6,85
Air conditioning application										
Cooling capacity**	kW	588	655	814	861	1144	1311	1469	1614	1754
EER**	kW/kW	5,67	5,56	5,46	5,29	5,68	5,80	5,74	5,41	5,34
ESEER**	kW/kW	9,03	9,04	9,52	9,25	9,08	9,17	9,08	9,16	9,01
Cooling floor application - as per EN14511-3:2011										
Cooling capacity***	kW	791	846	1023	970	1528	1688	1703	2093	2273
EER***	kW/kW	6,96	6,50	6,22	5,63	6,86	6,64	5,99	6,00	6,00
Eurovent class, cooling		A	A	A	A	A	A	A	A	A
Cooling floor application										
Cooling capacity****	kW	794	850	1026	973	1537	1700	1715	2113	2297
EER****	kW/kW	7,50	7,03	6,62	5,93	7,42	7,29	6,53	6,76	6,88
Performance in heating mode										
Air conditioning application - as per EN14511-3:2011										
Heating capacity*	kW	648	719	890	968	1261	1428	1594	1761	1932
COP*	kW/kW	4,64	4,53	4,56	4,43	4,62	4,61	4,55	4,33	4,16
Eurovent class, heating		A	A	A	B	A	A	A	B	B
Air conditioning application										
Heating Capacity**	kW	646	716	887	970	1257	1423	1587	1753	1922
COP**	kW/kW	4,84	4,75	4,75	4,63	4,87	4,93	4,92	4,70	4,56
Heating floor application - as per EN14511-3:2011										
Heating capacity***	kW	687	767	956	1021	1335	1524	1712	1898	2067
COP***	kW/kW	6,15	5,98	5,96	5,81	6,05	6,00	5,82	5,49	5,34
Eurovent class, heating		A	A	A	A	A	A	A	A	A
Heating floor application										
Heating capacity****	kW	685	763	953	1017	1331	1519	1705	1889	2055
COP****	kW/kW	6,59	6,49	6,39	6,25	6,61	6,72	6,66	6,33	6,27
Sound level (at full load)										
Sound power level†	dB(A)	102	102	102	102	103	103	103	103	103
Sound pressure level at 1 m††	dB(A)	84	84	84	84	84	84	84	84	84
Unit dimensions										
Length	mm	3059	3059	3290	3290	4730	4730	4730	4730	4730
Width	mm	1087	1087	1237	1237	1164	1164	1255	1255	1255
Height	mm	1743	1743	1950	1950	1997	1997	2051	2051	2051
Operating weight‡	kg	3152	3190	4157	4161	7322	7398	7574	7770	7808

Main options

- Low-noise option
- EMC EN61800-3 - C2 compliance, for residential applications
- Service valve set
- Customised heat exchangers (one or two passes, 1 or 2.1 MPa water pressure resistance, reversed water boxes)
- Units optimised for cooling tower applications
- Various BMS communication protocols

** Calculations in accordance with standard performances (as per EN14511-3:2011) and certified by Eurovent.*
Conditions in cooling mode: evaporator water entering/leaving temperature 12°C/7°C, condenser water entering/leaving temperature 30°C/35°C, evaporator/condenser fouling factor = 0
Conditions in heating mode: condenser water entering/leaving temperature 40°C/45°C, evaporator water entering/leaving temperature 10°C/7°C, evaporator/condenser fouling factor = 0

*** Conditions in cooling mode: evaporator water entering/leaving temperature 12°C/7°C, condenser water entering/leaving temperature 30°C/35°C, evaporator/condenser fouling factor = 0*
Conditions in heating mode: condenser water entering/leaving temperature 40°C/45°C, evaporator water entering/leaving temperature 10°C/7°C, evaporator/condenser fouling factor = 0
Gross adjusted performances, not taking into account the water pump and heat exchangers pressure drops, that are not certified by Eurovent for 2012, but used for the 2011 gross declaration and given as a reference for comparison

****Calculations in accordance with standard performances (as per EN14511-3:2011) and certified by Eurovent.*
Conditions in cooling mode: evaporator water entering/leaving temperature 23°C/18°C, condenser water entering/leaving temperature 30°C/35°C, evaporator/condenser fouling factor = 0
Conditions in heating mode: condenser water entering/leaving temperature 30°C/35°C, evaporator water entering/leaving temperature 10°C/7°C, evaporator/condenser fouling factor = 0

***** Conditions in cooling mode: evaporator water entering/leaving temperature 23°C/18°C, condenser water entering/leaving temperature 30°C/35°C, evaporator/condenser fouling factor = 0*
Conditions in heating mode: condenser water entering/leaving temperature 30°C/35°C, evaporator water entering/leaving temperature 10°C/7°C, evaporator/condenser fouling factor = 0

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

† 10^{-12} W in accordance with ISO 9614-1. Sound power level with option 257

†† In a free field. Sound pressure level with option 257

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

Carrier, for the environment

Carrier believes that industry leadership demands environmental leadership. In fact, environmental stewardship is one of Carrier's core values. Carrier continuously works to improve the environmental performance of its products and services, operations and culture to help achieve a sustainable society.

Carrier, for performance

Carrier strives for continuous growth to reinforce its leadership position, achieve world-class financial performance and continuously improve the productivity of its assets and resources.

Carrier, for service

The Carrier service delivery model maintains a reputation for high customer satisfaction and delivers service excellence with strong communication channels, industry-leading technicians, continuous improvement of contracts and a highly experienced management team.

Carrier, for innovation

Carrier is a company of ideas, committed to research and development, whose founder inspires the company to reach the next innovative, powerful and marketable idea.

Carrier, to be your expert

Carrier delivers global solutions across the broadest range of heating, cooling and refrigeration applications. With a proven track record of leadership and industry expertise, we are here to meet your needs with our portfolio of market-leading products and services.

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