Carrier

United Technologies

turn to the experts

greenspeed AQUAFORCE®

30XW-V variable-speed water-cooled screw chiller and heat pump

Carrier expertise meets customer needs

The state-of-the-art AquaForce® 30XW-V is designed 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 AquaForce® 30XW-V offers increased global performance as well as Carrier's acclaimed product quality, reliability and customer service support.

Quality is Carrier's uncompromising commitment

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. The AquaForce® 30XW-V is certified in accordance with AHRI standard 550/590 and 551/591.

AHRI CERTIFIED®
www.ahridirectory.org
Water-Cooled Chillers
AHRI Standards 550/590 and 551/591

Customer-focused after sales service

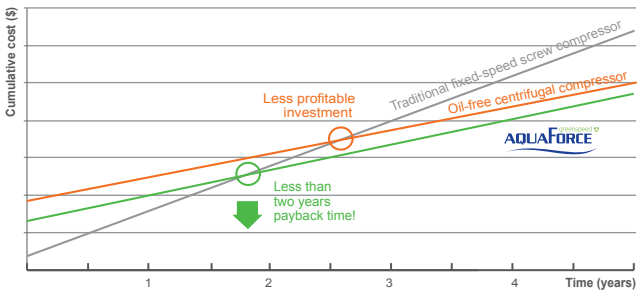
Our commitment to our products extends far beyond the factory gate. Carrier continues to support you, offering a variety of service maintenance contracts and control solution packages. These services ensure that the equipment always operates at peak efficiency and offer added advantages of faster fault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

Efficiency

The exclusive inverter-driven Carrier compressor used for the AquaForce® 30XW-V ensures high energy efficiency, both at full and part load. The IPLV/NPLV* of the AquaForce® 30XW-V is up to 30% higher than that of traditional fixed-speed units and in line with more recent oil-free centrifugal chillers. High part load efficiency means minimized energy consumption and lower electricity bills.

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 AquaForce® 30XW-V offers exceptional cost benefits.



Costs calculated for a typical hospital application (3000h/year, 0.18$/kWh) with a cooling demand profile in line with the IPLV base.

Reliability

For applications such as data centers or industrial processes reliability comes first, but to minimize maintenance and operating costs reliability is always a key point. AquaForce® 30XW-V can operate even at high condensing temperatures without surge risk. The complete range was continually tested during the development stage to ensure exceptional reliability, making AquaForce® 30XW-V a preferred solution even for the most critical applications.

Versatility

Each building or application has specific unique air conditioning and heating requirements. The AquaForce® 30XW-V range was developed for heating systems, high-water-column hydronic plants and variable-flow applications. The wide range of unit configurations makes AquaForce® 30XW-V the right choice for many different applications.

* IPLV(Integrated Part-Load Value), a single number of part-load efficiency, the value is fixed. It's rated at 100%, 75%, 50%, and 25% load relative to the full-load rating net refrigerating capacity at the standard rating AHRI conditions. Condenser EWT is 29.4 ˚C, 23.8˚C,18.3˚C,18.3˚C, respectively. Evaporator LWT is kept constant 6.7˚C.

  NPLV(Non-Standard Part-Load Value), a single number of part-load efficiency referenced to conditions other than IPLV conditions. the value is not fixed. At 100% load, the condenser EWT is user-defined, at 75% load, condenser EWT is vary linearly from the selected EWT at 100% load to 18.3˚C at 50% load, and fixed at 18.3˚C for 50% to 0% load. Evaporator LWT at each load is user-defined too.

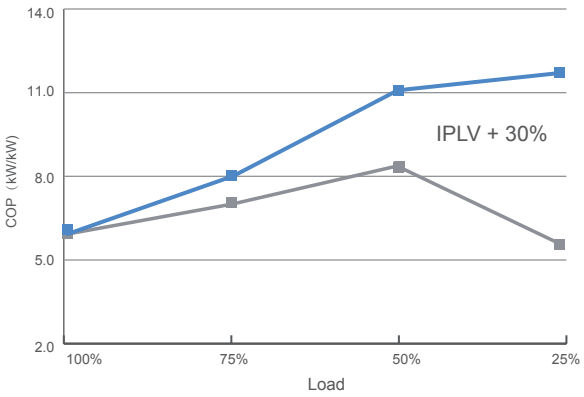
Carrier AquaForce® 30XW-V designed to use the full potential of the latest technologies

Carrier AquaForce® 30XW-V is ideal air conditioning and heating solutions 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®. 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 an innovative new product – AquaForce® 30XW-V.

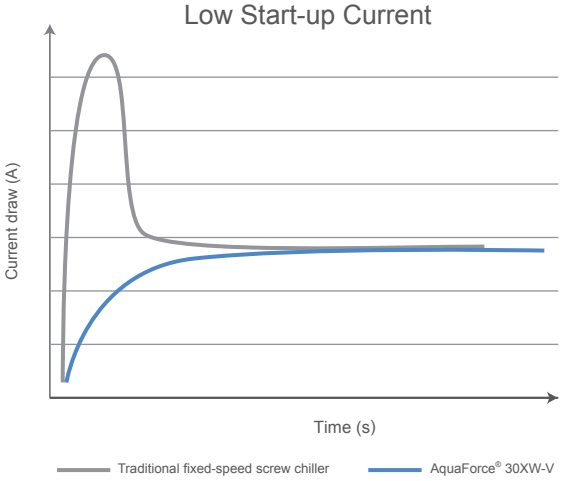
06T inverter-driven, twin-rotor screw compressors (Carrier proprietary technology)

- Improved efficiency, COP up to 6.3 and IPLV up to 10.1 at AHRI condition
- Negligible start-up current and high power-factor
- Accurate capacity control
- Surge-free, positive-displacement technology

Part Load Efficiency (AHRI)



Low Start-up Current



New touchpilot control

- User-friendly Touch Pilot Control with full-colour touch screen interface
- Status of all main parameters on one screen
- 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

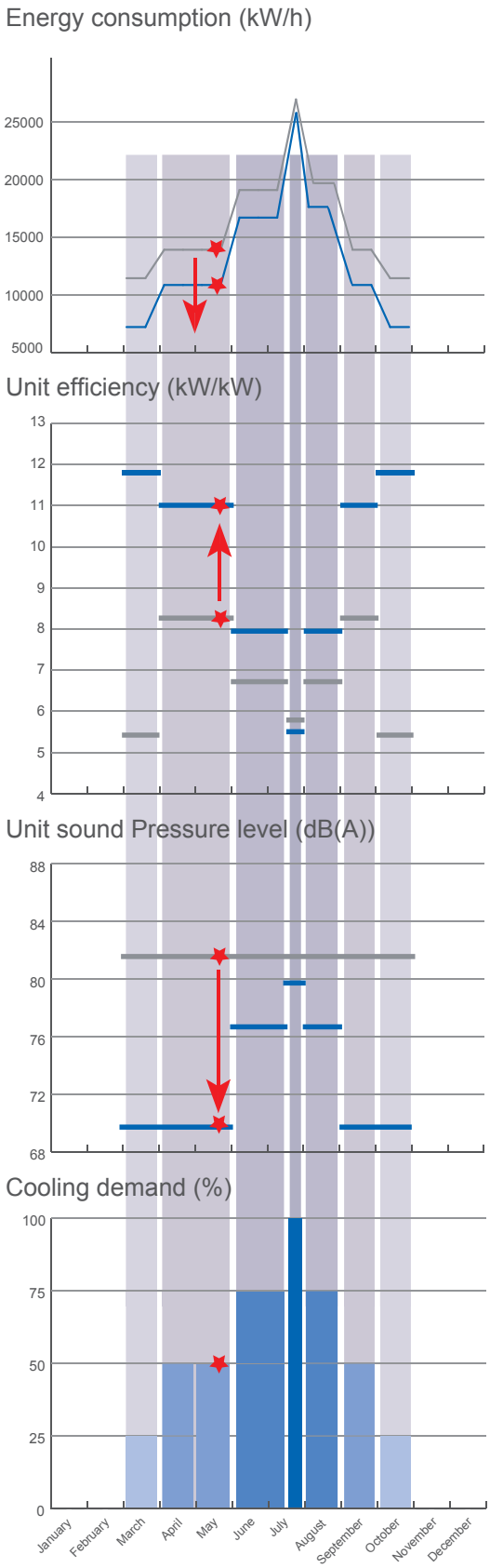
Compact design

- 3.5m^2 footprint, for economic use of space
- 1.2m width, fitting through standard doorway
- Best choice for retrofit projects

Environmental care

- HFC-134a refrigerant with zero ozone depletion potential, has no expire date
- Leak-tight refrigerant circuit, reduction of leaks
- Reduce the electrical energy consumption and CO_2 emissions

Discover new AquaForce® 30XW-V strengths



Lower energy consumption

Energy consumption comparison for a unit that works every day, except Saturdays and Sundays, from 7 am to 8 pm. The total yearly operating hours are 2813.
★ Example
month of May, 50% load = 350kW
30% lower energy consumption!
- AquaForce® 30XW-V
- Traditional fixed-speed screw-compressor chiller

Significantly higher efficiency

Energy efficiency comparison at AHRI conditions.
★ Example
month of May, 50% load
AquaForce® 30XW-V (ELWT = 6.7°C, CEWT = 18.3°C): COP 11.0 Traditional unit (ELWT = 6.7°C, CEWT = 18.3°C): COP 8.3
33% higher efficiency!
- AquaForce® 30XW-V
- Traditional fixed-speed screw-compressor chiller

Less noise

Sound emission comparison.
★ Example
month of May, 50% load
AquaForce® with Greenspeed™ technology : 70 dB(A)
Traditional unit : 82 dB(A)
12dB(A) less noise!
- AquaForce® 30XW-V
- Traditional fixed-speed screw-compressor chiller

Simplified cooling demand for an office building with load distribution according to IPLV index.
★ Example
month of May
building cooling load = 50% of peak load

Performance data

Cooling Chiller

Model 30XW-V	Capacity	Input power	IPLV (AHRI)	Evaporator			Condenser			Min. load	Compressor	HFC-134a Charge	Shipping weight (with refrigerant)	Operation weight	Dimension		
				Water Flow rate	Water Pressure drop	Water connection	Water Flow rate	Water Pressure drop	Water connection	%	No.				Length	Width	Height
	kW	kW	kW/kW	L/s	kPa	DN	L/s	kPa	DN	20	1	kg	kg	kg	mm	mm	mm
30XW-V160	566.6	99.9	9.61	24.4	41.7	150	30.4	68.1	150	20	1	135	3348	3061	3056	1137	1743
30XW-V180	640.7	114.0	9.76	27.6	47.8	150	34.2	80.6	150	20	1	135	3371	3084	3056	1137	1743
30XW-V195	714.9	122.9	9.83	30.7	38.1	200	38.4	47.1	200	20	1	180	4368	4192	3301	1223	1949
30XW-V200	824.0	149.6	9.66	35.4	37.8	200	44.4	59.8	200	20	1	180	4386	4210	3288	1215	1949
30XW-V235	905.0	163.7	9.61	38.9	43.0	200	48.6	66.5	200	20	1	180	4392	4216	3288	1215	1949
30XW-V306	1066.0	198.8	9.46	45.8	36.6	200	57.5	42.3	200	20	1	265	5756	5399	4042	1378	2142
30XW-V326	1150.0	212.4	9.68	49.5	42.5	200	62.0	37.4	200	20	1	295	6254	5974	4088	1396	2251
30XW-V356	1245.0	229.9	9.67	53.5	31.4	200	67.4	38.1	200	20	1	310	6403	6200	4088	1396	2251
30XW-V376	1321.0	241.6	9.48	56.8	34.5	200	71.0	45.9	200	20	1	280	7554	7313	4107	1526	2563
30XW-V406	1408.0	258.0	9.48	60.6	39.7	200	75.8	52.1	200	20	1	280	7554	7313	4107	1526	2563
30XW-V426	1496.0	273.8	9.42	64.3	45.6	200	80.7	47.1	200	20	1	280	7731	7515	4107	1526	2563
30XW-V456	1584.0	292.4	9.43	68.1	51.0	200	85.5	52.2	200	20	1	280	7731	7515	4107	1526	2563
30XW-V308	1076.0	180.5	10.00	46.3	68.3	150	58.1	56.9	200	20	1	330	6544	6384	4166	1396	2321
30XW-V328	1148.0	182.6	9.61	49.4	43.0	200	62.0	47.8	200	20	1	380	8033	7769	4107	1526	2563
30XW-V338	1190.0	204.6	9.98	51.2	64.5	200	64.1	68.3	200	20	1	340	6718	6606	4166	1405	2403
30XW-V368	1233.0	211.8	10.08	53.0	68.3	200	66.4	72.0	200	20	1	340	6718	6606	4166	1405	2403
30XW-V358	1254.0	198.0	9.82	53.9	42.1	200	67.4	40.2	200	20	1	380	8270	8083	4124	1541	2614
30XW-V378	1338.0	211.6	9.96	57.5	53.1	200	72.1	46.7	200	20	1	400	8640	8469	4515	1541	2614
30XW-V408	1437.0	231.1	10.10	61.8	45.0	200	77.2	53.0	200	20	1	400	8751	8628	4515	1541	2614
30XW-V428	1497.0	239.5	10.00	64.4	48.1	200	80.4	56.5	200	20	1	400	8751	8628	4515	1541	2614
30XW-V458	1612.0	255.3	10.10	69.3	49.9	200	86.2	67.6	200	20	1	400	8847	8724	4515	1541	2614

1. Operation condition, Evaporator leaving water temperature 6.7°C, 0.043 l/s·kW,fouling factor=0.018m^2.K/kW; Condenser entering water temperature 29.4°C, 0.054 l/s·kW,fouling factor=0.044m^2.K/kW
2. Power: 400V-3Ph-50Hz/380V-3Ph-60Hz
3. Above are recommended models. Carrier can offer more models and computer selections at required conditions. For details, please contact Carrier local agencies

Heat Pump

Model 30XW-V-PT150D/G	Cooling								Heating							
			Evaporator			Condenser					Condenser			Evaporator		
	Cooling Capacity	Input power	Water Flow rate	Water Pressure drop	Water connection	Water Flow rate	Water Pressure drop	Water connection	Heating Capacity	Input power	Water Flow rate	Water Pressure drop	Water connection	Water Flow rate	Water Pressure drop	Water connection
	kW	kW	L/s	kPa	DN	L/s	kPa	DN	kW	kW	L/s	kPa	DN	L/s	kPa	DN
30XW-V160	607.6	82.3	29.0	55.1	150	17.3	23.4	150	636.2	133.3	29.0	53.4	150	17.3	22.2	150
30XW-V180	686.2	93.1	32.8	63.0	150	19.5	27.6	150	722.5	147.4	32.8	67.9	150	19.5	26.8	150
30XW-V195	779.7	101.6	37.3	59.1	200	22.2	17.7	200	799.3	158.3	37.3	41.4	200	22.2	17.6	200
30XW-V200	905.0	125.2	43.2	59.7	200	25.8	22.7	200	934.8	189.8	43.2	54.7	200	25.8	18.4	200
30XW-V235	991.2	134.4	47.4	67.5	200	28.2	25.2	200	1038.0	213.0	47.4	64.8	200	28.2	22.5	200
30XW-V306	1168.0	157.3	55.8	54.4	200	33.4	16.4	200	1243.0	259.3	55.8	41.0	200	33.4	20.6	200
30XW-V326	1254.0	170.2	59.9	62.6	200	35.8	15.0	200	1335.0	278.1	59.9	35.4	200	35.8	23.3	200
30XW-V356	1355.0	184.4	64.7	46.0	200	38.8	15.0	200	1446.0	300.4	64.7	36.0	200	38.8	17.4	200
30XW-V376	1450.0	196.9	69.3	51.5	200	41.3	18.0	200	1525.0	319.4	69.3	44.6	200	41.3	19.5	200
30XW-V406	1539.0	209.9	73.5	58.6	200	43.9	20.2	200	1538.0	315.8	73.5	49.7	200	43.9	22.0	200
30XW-V308	1183.0	142.1	56.5	102.0	200	33.8	21.9	150	1226.0	238.3	56.5	52.6	150	33.8	37.1	200
30XW-V328	1258.0	150.4	60.1	63.6	200	36.0	17.6	200	1288.0	240.9	60.1	43.5	200	36.0	23.0	200
30XW-V338	1302.0	163.0	62.2	95.2	200	37.2	26.0	200	1360.0	269.6	62.2	62.9	200	37.2	34.7	200
30XW-V368	1350.0	169.1	64.5	101.0	200	38.5	27.5	200	1410.0	278.0	64.5	67.2	200	38.5	37.2	200
30XW-V358	1372.0	163.8	65.6	62.7	200	39.1	15.0	200	1408.0	258.9	65.6	37.7	200	39.1	22.7	200
30XW-V378	1457.0	176.7	69.6	78.3	200	41.6	17.3	200	1503.0	275.0	69.6	43.6	200	41.6	28.6	200
30XW-V408	1565.0	193.6	74.8	65.5	200	44.6	19.6	200	1621.0	299.4	74.8	50.0	200	44.6	24.9	200
30XW-V428	1626.0	200.3	77.7	69.7	200	46.3	20.8	200	1618.0	292.1	77.7	53.7	200	46.3	26.8	200
30XW-V458	1687.0	208.8	80.6	67.9	200	47.8	23.2	200	1862.0	335.4	80.6	57.6	200	47.8	24.1	200

1. Cooling condition: Evaporator entering/leaving water temperature -/7°C, water flow rate is 0.172m^3/(h.kW); Condenser entering/leaving water temperature 18/-°C,water flow rate is 0.103m^3/(h.kW)
2. Heating condition: Evaporator entering/leaving water temperature 15/-°C, water flow is equal to condenser water flow under cooling coniditon; Condenser entering/leaving water temperature -/45°C,water flow is equal to evaporator water flow under cooling coniditon
3. Evaporator fouling factor=0.018m^2K/kW,Condenser fouling factor=0.044m^2K/kW
4. 30XW-V160~235 maximun heating temperature is 50°C, other models maximum heating temperature is 45°C
5. For the dimension and weight etc. of heat pump, please refer the cooling only chiller

Main options

- EMC IEC61800-3 - class C2 compliance, for residential applications
- Discharge shut off valve
- Customized heat exchangers (1.6 or 2.1 MPa water pressure resistance, reversed water boxes)
- Meets Australia government pressure vessel code AS1210 and AS4343
- Various BMS communication protocols

improve buildings™

Carrier improves the world around us; Carrier improves people's lives; our products and services improve building performance; our culture of improvement will not allow us to rest when it comes to the environment.

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United Technologies

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