



30XW/30XW-P 30XWH/30XWHP

WATER-COOLED SCREW
CHILLERS
WATER-SOURCED SCREW
HEAT PUMPS



AQUAFORCE

Nominal cooling capacity
269-1736 kW
Nominal heating capacity
317-2019 kW

LOW ENERGY CONSUMPTION
HIGH RELIABILITY
EASY AND FAST INSTALLATION
LOW OPERATING SOUND LEVELS
ENVIRONMENTAL CARE

The 30XW liquid chillers are the premium solution for industrial and commercial applications where installers, consultants and building owners require optimal performances and maximum quality.

The 30XW liquid chillers are designed to meet current and future requirements in terms of energy efficiency, flexibility of use and compactness. They use the most reliable technologies available today:

- Twin-rotor screw compressors with a variable capacity valve
- Refrigerant R134a
- Flooded heat exchangers that are mechanically cleanable
- Carrier SmartVu™ control with color touch screen user interface that includes 10 languages

To meet to all environmental and economic requirements, the 30XW is available in two efficiency classes:

- Entry-level efficiency 30XW units that offer an optimised balance of technical and economical aspects,
- Premium-efficiency 30XW-P units that offer unequalled energy efficiency to satisfy the most stringent demands of building owners wanting to reduce operating costs to the minimum.

The 30XW Aquaforce range is also split into two versions:

- 30XW for air conditioning and refrigeration applications
- 30XWH for heating applications

As standard, the unit can provide an evaporator leaving temperature down to 3,3°C (-12°C optional), and when operating as a heat pump, it can deliver up to 50°C (63°C optional) on the condenser side.



CARRIER participates in the ECP programme
for LCP-HP Check ongoing validity of
certificate:
www.eurovent-certification.com

CUSTOMER BENEFITS

Low energy consumption

- SEPR up to 9,1 and SEER up to 7,7
- The high energy efficiency is reached through:
 - Twin-rotor screw compressor equipped with a high-efficiency motor and a variable capacity valve that permits exact matching of the cooling capacity to the load.
 - Flooded multi-pipe heat exchangers for increased heat exchange efficiency.
 - Electronic expansion device permitting operation at a lower condensing pressure and improved utilisation of the evaporator heat exchange surface.
 - Economizer system with electronic expansion device for increased cooling capacity (30XW-P).

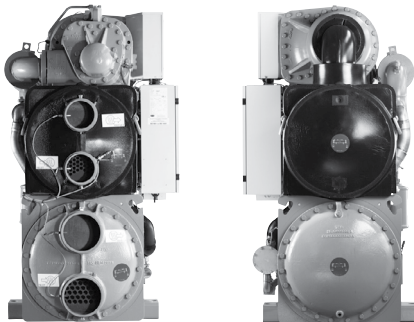
Low operating sound levels

- Standard unit features include:
 - Silencers on the compressors discharge line.
 - Silencers on the economiser return line.
 - Acoustic insulation on the components that are most subjected to radiated noise.
 - Option 257 further reduces the global unit sound level.

Easy and fast installation

- Compact design
 - The 30XW units are designed to offer the most compact dimensions on the market.
 - With a width of approximately 1 m up to 1600 kW the units can pass through standard door openings and only require minimum floor space in the plant room.

Compact, accessible unit - side view - sizes up to 1600 KW



- Simplified electrical connections
 - Main disconnect switch with high trip capacity
 - Transformer to supply the integrated control circuit (400/24 V)
- Simplified hydraulic connections
 - Victaulic connections on the evaporator and condenser
 - Practical reference marks for entering and leaving water connections
 - Possibility to reverse the heat exchanger water inlet and outlet at the factory
 - Possibility to modify the number of heat exchanger passes
- Fast commissioning
 - Systematic factory operation test before shipment
 - Quick-test function for step-by-step verification of the instruments, expansion devices and compressors.

Environmental care

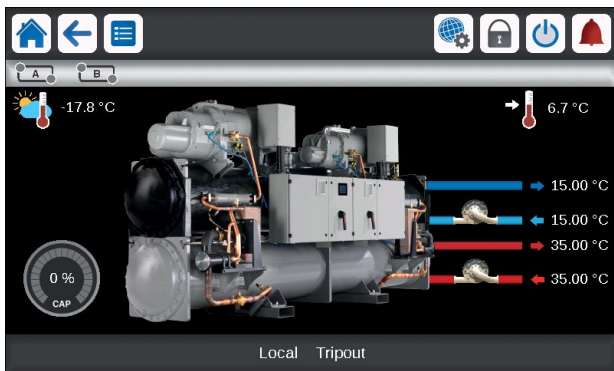
- R-134a refrigerant
 - HFC refrigerant with zero ozone depletion potential
- Leak-tight refrigerant circuit
 - Reduction of leaks as no capillary tubes and flare connections are used
 - Verification of pressure transducers and temperature sensors without transferring refrigerant charge
 - Discharge line shut-off valve and liquid line service valve for simplified maintenance.

High reliability and easy servicing

- The 30XW units offer increased global performance as well as Carrier's acclaimed product quality and reliability.
- Major components are selected and tested to minimize failures possibility, as well as many design choices have been taken in this perspective.
- Screw compressors
 - Industrial-type screw compressors with oversized bearings and motor cooled by suction gas.
 - All compressor components are easily accessible on site minimising down-time.
- Refrigerant circuit
 - Two independent refrigerant circuits (from 1000 kW upwards); the second one automatically takes over, if the first one develops a fault, maintaining partial cooling under all circumstances.
- Evaporator
 - Electronic paddle-free flow switch. Auto-setting according to cooler size and fluid type.
- Auto-adaptive control
 - Control algorithm prevents excessive compressor cycling (Carrier patent)
 - Automatic compressor unloading in case of abnormally high condensing pressure.
- Exceptional endurance tests
 - Partnerships with specialised laboratories and use of limit simulation tools (finite element calculation) for the design of critical components.
 - Transport simulation test in the laboratory on a vibrating table and then on an endurance circuit (based on a military standard).

TECHNICAL INSIGHTS

SmartVu™



- New innovative smart control features :
 - An intuitive and user-friendly, coloured, 4.3" interface
 - 1 languages available on choice: DE, EN, ES, FR, T, NL, PT, TR, TU + one additional customer choice
 - Screen-shots with concise and clear information in local languages
 - Complete menu, customised for different users (end user, service personnel and Carrier-factory technicians)
 - Setpoint offset based on the outside air temperature
 - Safe operation and unit setting: Password protection ensures that unauthorised people cannot modify any advanced parameters
 - Simple and "smart" intelligence uses data collection from the constant monitoring of all machine parameters to optimise unit operation
 - Night-mode: Cooling capacity management for reduced noise level.
 - With hydraulic module: Water pressure display and water flow rate calculation.
- Energy management :
 - Internal time schedule clock controls chiller on/off times and operation at a second set-point
 - The DCT (Data Collection Tool) records the alarms history to simplify and facilitate service operations.
- Maintenance functions :
 - F-Gas regulation leak check reminder alert
 - Maintenance alert can be configured to days, months or hours of operation
- Advanced communication features :
 - Easy and high-speed communication technology over Ethernet (IP) to a centralised building management system
 - Access to multiple unit parameters.

Remote Management (Standard)

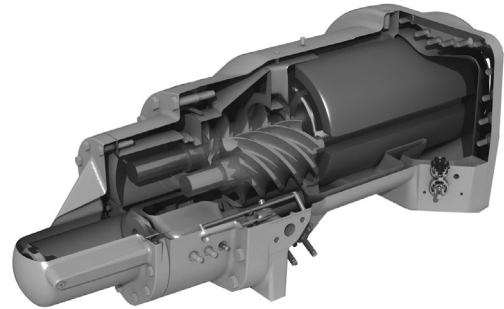
- Units with SmartVu™ control can be easily accessed from the internet, using a PC with an Ethernet connection. This makes remote control quick and easy and offers significant advantages for service operations.
- Aquaforce with Greenspeed® Intelligence is equipped with an RS485 serial port that offers multiple remote control, monitoring and diagnostic possibilities. When networked with other Carrier equipment through the CCN (Carrier Comfort Network - proprietary protocol), all components form a HVAC system fully-integrated and balanced through one of the Carrier's network system products, like the Chiller System anager or the Plant System anager (optional).
- The 30XW/P™ also communicates with other building management systems via optional communication gateways (BACnet, LON or JBus).
- The following commands/visualisations are possible from remote connection:
 - Start/Stop of the machine
 - Dual set-point management: Through a dedicated contact is possible to activate a second set-point (example, unoccupied mode)
 - Demand limit setting: To limit the maximum chiller capacity to a predefined value
 - Water pump control: These outputs control the contactors of one/two evaporator water pumps.
 - Water pumps changeover (only with hydraulic module options): These contacts are used to detect a water pump operation fault and automatically change over to the other pump.
 - Operation visualisation: indication if the unit is operating or if it is in stand-by (no cooling load)
 - Alarm visualisation.

TECHNICAL INSIGHTS

Remote management (EMM option)

- The Energy Management Module offers extended remote control possibilities:
 - Room temperature: Permits set-point reset based on the building indoor air temperature (if Carrier thermostats are installed)
 - Set-point reset: Allows reset of the cooling set-point based on a 4-20 mA or 0-10 V signal
 - Demand limit: Permits limitation of the maximum chiller capacity based on 0-10 V signal
 - Demand limit 1 and 2: Closing of these contacts limits the maximum chiller capacity to two predefined values.
 - User safety: This contact can be used for any customer safety loop; opening the contact generates a specific alarm.
 - Ice storage end: When ice storage has finished, this input permits return to the second set-point (unoccupied mode).
 - Time schedule override: Closing of this contact cancels the programmed time schedule.
 - Out of service: This signal indicates that the chiller is completely out of service.
 - Chiller capacity: This analogue output (-1 gives an immediate indication of the chiller capacity).
 - Alert indication: This volt-free contact indicates the necessity to carry out a maintenance operation or the presence of a minor fault.
 - Compressors running status: Set of outputs (as many as the compressors number) indicating which compressors are running.

06T screw compressor



The new generation of the Carrier 06T screw compressors benefits from Carrier's long experience in the development of twin-rotor screw compressors. The compressor is equipped with bearings with oversized rollers, oil pressure lubricated for reliable and durable operation, even at maximum load.

A variable control valve controlled by the oil pressure permits infinitely variable cooling capacity. This system allows optimal adjustment of the compressor cooling capacity and ensures exceptionally high stability of the chilled water leaving temperature.

Among the other advantages: if a fault occurs e.g. if the condenser is fouled or at very high water temperature, the compressor does not switch off, but continues operation with a reduced capacity (unloaded mode).

The silencer in the discharge line considerably reduces discharge gas pulsations for much quieter operation.

The condenser includes an oil separator that minimises the amount of oil in circulation in the refrigerant circuit and re-directs it to the compressor function.

Digit number

1	2	3	4	5	6	7	8	9	1	1	1	1	1	1	1	1	1
3	0	X	W	-	-	0	2	5	4	B	0	0	0	1	-		

Legend:

- Digit 1 to 4 : Water-cooled chiller with screw compressor
- Digit 5 : Application type, - = Cooling, H = Heating
- Digit 6 : Efficiency, - = standard, P = premium
- Digit 7 to 10 : Model number based on cooling capacity in kW
- Digit 11 : Index for major product modification (visible impact for customer)
- Digit 12 to 15 : Counter used to generate a one time product code
- Digit 16 : Not used

PHYSICAL DATA, STANDARD UNITS

High-efficiency units

30XW-P/30XWHP		512	562	712	812	862	1012	1162	1314	1464	1612	1762		
Heating														
Standard unit Full load performances*	HW1	Nominal capacity	kW	586	667	851	912	995	1201	1327	1522	1680	1863	2019
		COP	kW/kW	6,36	6,30	6,52	6,29	6,27	6,35	6,24	6,29	6,06	6,38	6,27
	HW2	Nominal capacity	kW	573	654	836	896	970	1179	1296	1489	1643	1823	1964
		COP	kW/kW	4,82	4,78	4,92	4,74	4,78	4,85	4,77	4,82	4,66	4,84	4,81
Seasonal energy efficiency**	HW1	SCOP _{30/35°C}	kWh/kWh	6,58	6,59	6,48	6,27	6,48	6,72	6,85	6,75	6,38	6,73	6,71
		η _{s heat 30/35°C}	%	255	256	251	243	251	261	266	262	247	261	260
		P _{rated}	kW	694	791	1009	1081	1180	1424	1572	1805	1993	2210	2395
Cooling														
Standard unit Full load performances*	CW1	Nominal capacity	kW	502	569	727	776	850	1025	1143	1308	1435	1606	1736
		EER	kW/kW	5,63	5,57	5,75	5,55	5,59	5,67	5,71	5,74	5,53	5,80	5,72
	CW2	Nominal capacity	kW	546	643	788	859	886	1217	1251	1554	1687	1802	1865
		EER	kW/kW	6,36	6,38	6,62	6,44	6,28	7,29	6,30	8,19	6,69	6,75	6,54
Seasonal energy efficiency**		SEER_{12/7°C} Comfort low temp.	kWh/kWh	7,00	7,12	7,05	6,82	7,24	7,34	7,78	7,69	7,29	7,79	7,86
		η _{s cool 12/7°C}	%	277	282	279	270	287	291	308	304	289	309	311
		SEPR _{12/7°C} Process high temp.	kWh/kWh	8,42	8,50	9,23	8,33	8,54	8,50	8,85	9,00	8,89	8,82	8,83
Integrated Part Load Value	IPLV,SI	kW/kW	7,391	7,473	7,556	7,301	7,538	7,639	8,053	8,150	7,485	7,757	8,089	
Sound levels - standard unit														
Sound power level ⁽¹⁾		dB(A)	99	99	99	99	99	102	102	102	102	102	102	
Sound pressure level at 1 m ⁽²⁾		dB(A)	82	82	81	81	81	83	83	83	83	83	83	
Sound levels - standard unit + option 257⁽³⁾														
Sound power level ⁽¹⁾		dB(A)	96	96	96	96	96	99	99	99	99	99	99	
Sound pressure level at 1 m ⁽²⁾		dB(A)	78	78	78	78	78	80	80	80	80	80	80	

* In accordance with standard EN14511-3:2022.
 ** In accordance with standard EN14825:2022, average climate
 HW1 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m². k/W
 HW2 Heating mode conditions: Evaporator entering/leaving water temperature 10°C/7°C, condenser entering/leaving water temperature 40°C/45°C, evaporator and condenser fouling factor 0 m². k/W
 CW1 Cooling mode conditions: Evaporator water entering/leaving temperature 12°C/7°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².K/W
 CW2 Cooling mode conditions: Evaporator water entering/leaving temperature 23°C/18°C, condenser entering/leaving water temperature 30°C/35°C, evaporator and condenser fouling factor 0 m².K/W
 η_{s heat 30/35°C} & SCOP_{30/35°C} Values calculated in accordance with EN14825:2022
 η_{s cool 12/7°C} & SEER_{12/7°C} **Bold values compliant to Ecodesign regulation: (EU) No 2016/2281 for Comfort application**
 SEPR_{12/7°C} Values calculated in accordance with EN14825:2022
 IPLV,SI Calculations according to standard performances AHRI 551-591 (SI).
 (1) In dB ref=10⁻¹² W, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). Measured in accordance with ISO 9614-1 and certified by Eurovent.
 (2) In dB ref 20μPa, (A) weighting. Declared dualnumber noise emission values in accordance with ISO 4871 (with an associated uncertainty of +/-3dB(A)). For information, calculated from the sound power level Lw(A).
 (3) Option 257 = Low noise level.



Eurovent certified values



AHRI certified values
30XW-only

CARRIER participates in the ECP programme for LCP-HP Check ongoing validity of certificate: www.eurovent-certification.com

PHYSICAL DATA, STANDARD UNITS

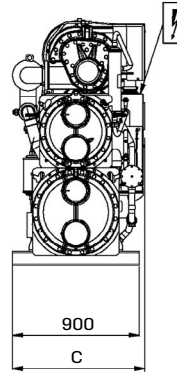
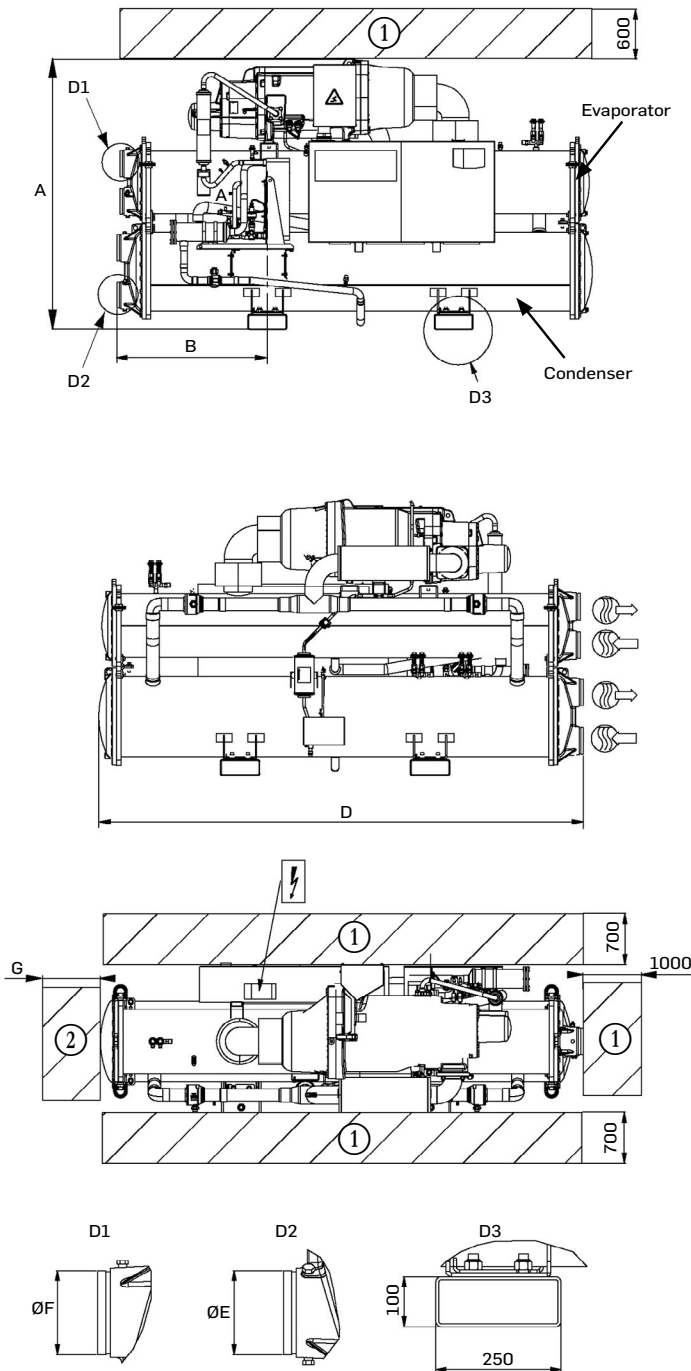
30XW-P/30XWHP		512	562	712	812	862	1012	1162	1314	1464	1612	1762
Dimensions - standard unit												
Length	mm	3059	3059	3290	3290	3290	4730	4730	4730	4730	4832	4832
Width	mm	936	936	1069	1069	1069	1039	1039	1162	1162	2129	2129
Height	mm	1743	1743	1950	1950	1950	1997	1997	2051	2051	1562	1562
Operating weight⁽⁴⁾	kg	2981	3020	3912	3947	3965	6872	6950	7542	7752	10910	10946
Compressors Semi-hermetic 06T screw compressors, 50 r/s												
Circuit A	-	1	1	1	1	1	1	1	1	1	1	1
Circuit B	-	-	-	-	-	-	1	1	1	1	1	1
Refrigerant⁽⁴⁾ R-134a												
Circuit A	kg	130	130	180	175	177	120	120	130	130	240	250
	teqCO ₂	186	186	257	250	253	172	172	186	186	343	358
Circuit B	kg	-	-	-	-	-	120	120	150	130	240	250
	teqCO ₂	-	-	-	-	-	172	172	215	186	343	358
Oil - standard unit												
Circuit A	l	32	32	36	36	36	32	32	36	36	36	36
Circuit B	l	-	-	-	-	-	32	32	32	36	36	36
Capacity control SmartVu™, electronic expansion valves (EXV)												
Minimum capacity ⁽⁵⁾	%	30	30	15	15	30	30	30	15	15	15	30
Evaporator Multi-pipe flooded type												
Water volume	l	101	101	154	154	154	293	293	321	321	473	473
Water connections (Victaulic)	in	6	6	8	8	8	8	8	8	8	10	10
Drain and vent connections (NPT)	in	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Max. water-side operating pressure	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Condenser Multi-pipe flooded type												
Water volume	l	103	103	148	148	148	316	316	340	340	623	623
Water connections (Victaulic)	in	6	6	8	8	8	8	8	8	8	10	10
Drain and vent connections (NPT)	in	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8	3/8
Max. water-side operating pressure	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

(4) Weight shown is guideline only. Please refer to the unit nameplate.

(5) Minimum unit capacity corresponds to a physical state of the unit and is given for indication only. The actual capacity at this stage depends on operating conditions.

DIMENSIONS/CLEARANCES

30XW--/30XWH- 254-852
30XW-P/30XWHP 512-862



	Dimensions in mm						
	A	B	C	D	E	F	G

Standard-efficiency units 30XW--/30XWH-							
254	1567	800	928	2724	141,3	141,3	2600
304	1567	800	928	2724	141,3	141,3	2600
354	1567	800	928	2724	141,3	141,3	2600
402	1693	810	936	2742	141,3	141,3	2600
452	1693	810	936	2742	141,3	141,3	2600
552	1693	810	936	2742	141,3	141,3	2600
602	1693	810	936	2742	141,3	141,3	2600
652	1848	968	1044	3059	168,3	168,3	2800
702	1848	968	1044	3059	168,3	168,3	2800
802	1848	968	1044	3059	168,3	168,3	2800
852	1898	828	1044	2780	219,1	168,3	2600

High-efficiency units 30XW-P/30XWHP							
512	1743	968	936	3059	168,3	168,3	2800
562	1743	968	936	3059	168,3	168,3	2800
712	1950	1083	1065	3290	219,1	219,1	3100
812	1950	1083	1070	3290	219,1	219,1	3100
862	1950	1083	1070	3290	219,1	219,1	3100

Standard-efficiency units 30XW--/30XWH- (option 150)							
254	1567	800	928	2724	141,3	141,3	2600
304	1567	800	928	2724	141,3	141,3	2600
354	1567	800	928	2724	141,3	141,3	2600
402	1693	810	936	2742	141,3	141,3	2600
452	1693	810	936	2742	141,3	141,3	2600
552	1693	810	936	2742	141,3	141,3	2600
602	1693	810	936	2742	141,3	141,3	2600
652	1868	968	1090	3059	168,3	168,3	2800
702	1868	968	1090	3059	168,3	168,3	2800
802	1868	968	1090	3059	168,3	168,3	2800
852	1920	828	1090	2780	168,3	219,1	2600

High-efficiency units 30XW-P/30XWHP (option 150)							
512	1743	968	936	3059	168,3	168,3	2800
562	1743	968	936	3059	168,3	168,3	2800
712	1970	1083	1105	3290	219,1	219,1	3100
812	1970	1083	1105	3290	219,1	219,1	3100
862	1970	1083	1105	3290	219,1	219,1	3100

Legend

All dimensions are given in mm.

- ① Required clearance for maintenance
- ② Recommended clearance for tube removal
- ← Water inlet
- Water outlet
- ⋯ Air outlet – do not obstruct
- ⚡ Power supply connection

■ Option 6 has same dimensions as option 150.

■ Option 20 (IP44) has same dimensions as option 150 on units 652, 712, 802, 852, 862. Option 20 has same dimensions as standard on the other units.

NOTE: Drawings are not contractually binding. Before designing an installation, consult the certified dimensional drawings, available on request.