



# 30XA

## Air cooled liquid chiller

278~495kW



## Carrier China

Headquartered in Farmington, Connecticut, USA, Carrier Corporation is the world's largest provider of heating, air conditioning and refrigeration solutions, with operations in more than 170 countries including China.

Ever since Dr. Willis Carrier, founder of Carrier Corporation, invented modern air conditioning in 1902, Carrier has stayed at the forefront of the air-conditioning industry for more than 100 years. Regarded as the leader and expert in air conditioning, Carrier has several thousand patents in the air-conditioning industry and eleven lead design centers worldwide, including one in China.

Carrier's products are manufactured at numerous facilities on six continents. The company has approximately 41,000 employees around the world. In 2008, Carrier's revenues were US\$14.9 billion, leading the Heating, Ventilation, Air-conditioning and Refrigeration (HVACR) industry.

Carrier set up its first joint venture in Shanghai in 1987. Now Carrier has more than 2,200 employees. Carrier products are distributed in China through a network of more than 40 sales and service offices.

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## Features

The 30XA liquid chillers are designed to address current and future demands over energy efficiency, operating sound levels and reliability. Many cutting edge technologies are adopted by this product, including: Twin-rotor screw compressors with a variable capacity valve, HFC-134a refrigerant with zero ozone depletion potential, low-noise generation IV Flying Bird fans made of composite material, aluminium micro-channel heat exchangers (MCHX), electronic expansion valve (EXV), economizer system and Pro-Dialog Plus control system etc.

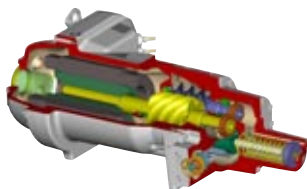
### Economical operation

- New twin-rotor screw compressor equipped with a high efficiency motor and a variable capacity valve that ensures accurate matching of the cooling capacity to the load.
- All aluminium condenser with micro-channels (option) provide superior cooling performance.
- Flooded multi-pipe evaporator to increase the heat exchange efficiency, configured with aluminium cladding (standard) to improve thermal insulation and prevent energy loss
- Electronic expansion device allows operation at a lower condensing pressure and improved utilization of the evaporator heat exchange surface (superheat control).
- Economizer system with electronic expansion device to achieve enhanced cooling capacity and efficiency.
- Average COP of 3.2 at nominal conditions and average integrated part load value (IPLV) of 4.4(high efficiency).



### Low operating sound level

- Semi-hermetic screw compressor with discharge dampers integrated in the oil separator (Carrier patent) reduces discharge gas pulsations for much quieter operation.
- Condenser coils in V-shape with an open angle, allowing quieter air flow across the coil.
- Low-noise 4th generation Flying Bird fans (Carrier patent) enjoy quieter operation and never generate intrusive low-frequency noise.
- Rigid fan mounting preventing start-up noise (Carrier patent).



## Environmental sound

- HFC-134a refrigerant
  - Refrigerant of the HFC group with zero ozone depletion potential
  - 30% reduction in the refrigerant charge through applying micro-channel heat exchangers (option).
- 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.

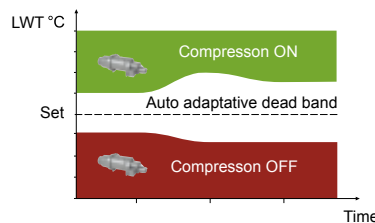


## Easy and fast installation

- Victaulic water connections ensure convenient installation and can also cut off the vibration transmission.
- Electronic water flow switch and related connections will be installed before product delivery to save on-site installation time.
- Quick-test function for step-by-step verification of the instruments, expansion devices, fans and compressors.

## Absolute reliability

- Industrial-type screw compressors with oversized bearings and motor cooled by suction gas, Oil circuit without pump, All compressor components are easily accessible on site with minimized down-time.
- Auto-adaptive control algorithm (Carrier patent) prevents excessive compressor cycling; Automatic compressor unloading based on the condensing pressure; the 30XA continues to operate at a reduced capacity if the outside temperature is too high, the condenser coil is fouled or if there is a fan fault, .
- Cooperation with specialized laboratories and use of limit simulation tools (finite element calculation) for the design of critical components.
- Exceptional endurance tests, transport simulation test and salt mist corrosion resistance test to ensure superior reliability.



## Pro-Dialog Plus Control

**Pro-Dialog Plus combines advanced control logic with simple operation. The control system monitors all operation parameters all the time and precisely manages the operation of compressors, electronic expansion devices, fans for optimized energy efficiency.**

### User-friendly interface

- Large touch screen user interface (120 x 99 mm) offers intuitive access to the operating parameters. The information is in clear text and can be displayed in English.
- Unit is capable of displaying set points, system status including temperatures, pressures, current for each compressor, run time etc.



### Advanced control function

- Unit provides different control mode including LOCAL/REMOTE/CCN.
- Line control function including: Unit ON/OFF, dual set point control, 2-level demand limit control, user safety interlock, water pump operation control, operation indication, circuit alarm and alert etc.
- Automatic reset of leaving water temperature based on return water temperature or outside air temperature to ensure optimized energy efficiency.
- Auto-adaptive control prevents excessive compressor cycling.

### Powerful Diagnostics

- A quick test of all unit components and control points to verify the correct operation of every switch, circuit breaker, contactor etc. at the start of the chiller.
- Real-time monitor all the operation parameter, and alarm when necessary.
- Control system is facilitated with RS485 serial communication port for remote diagnosis or special diagnosis tools.

### Sufficient safety measures

- Password protection in case of mishandling.
- Unit is protected against: Loss of refrigerant charge, reverse rotation, low chilled water temperature, low oil pressure (per compressor), current imbalance, compressor thermal overload, excessive air temperature, high pressure, electrical overload, loss of phase.

### Group control

- Master/slave control of two chillers connected to automatically balance operating times, and also automatically conduct change-over in case of a unit fault.
- Communication with other Building Automation System (BAS) by selecting BACnet/Modbus/Lonwork gateway.

## Micro-channel Heat Exchanger (option)

Being already utilized in the automobile and aeronautical industries for many years, the MCHX applied in the 30XA is entirely made of aluminium.

As for energy efficiency point-of-view the MCHX heat exchanger is more efficient than a traditional coil and allows a 30% reduction in the amount of refrigerant used in the chiller. The low thickness of the MCHX reduces air pressure losses by 50% and makes it less susceptible to fouling by sand than a traditional coil. Cleaning of the MCHX heat exchanger is very convenient by using a high-pressure washer.



## Technical Specifications

Unit with Cu/Al condenser coils

30XA		0282PT254	0342PT254	0442PT254	0482PT254
Nominal cooling capacity	kW	278	329	444	495
Compressor input power	kW	79.8	91.5	131.5	144.8
COP		3.2	3.3	3.1	3.2
Refrigerant		HFC-134a			
Charge amount	kg	90	95	102	108
Compressors		06T semi-hermetic screw compressor			
Quantity		1	1	1	1
Capacity range		30%~100%			
Control		Pro-Dialog Plus, electronic expansion valve (EXV)			
Condensers		Cu/Al heat exchanger			
Fans		Axial Flying Bird 4 with rotating shroud			
Quantity		5	6	7	8
Total air flow	l/s	22570	27084	31598	36112
Fan speed	rpm	950	950	950	950
Evaporator		Flooded multi-pipe type			
Water content	l	49	54	76	77
Nominal water flow	m <sup>3</sup> /h	48.4	56.7	75.9	84.6
Nominal water pressure drop	kPa	20	27	38	36
Maximum water-side pressure	kPa	1000	1000	1000	1000
Water connections		Victaulic			
Diameter	in	5	5	5	5
Outside diameter	mm	141	141	141	141
Electrical data		400V-3Ph-50Hz			
Nominal power supply		Single connection			
Main power connections		Star-delta start			
Start up method		Provide by main power supply through internal transformer			
Control power supply					
Nominal unit current draw	A	147	173	262	273
Maximum unit current draw	A	180	229	314	367
Maximum start-up current	A	275	308	504	587
Fan and control power	kW	7.4	8.9	10.3	11.8
Unit length	mm	3604	3604	4798	4798
Unit width	mm	2253	2253	2253	2253
Unit height	mm	2297	2297	2297	2297
Unit weight	kg	3523	3820	4571	4900
Operating weight	kg	3578	3875	4641	4984

\* Nominal conditions - evaporator entering/leaving water temperature = 12/7 °C, outdoor air temperature = 35 °C, fouling factor = 0.018m<sup>2</sup>K/kW.

## Technical Specifications

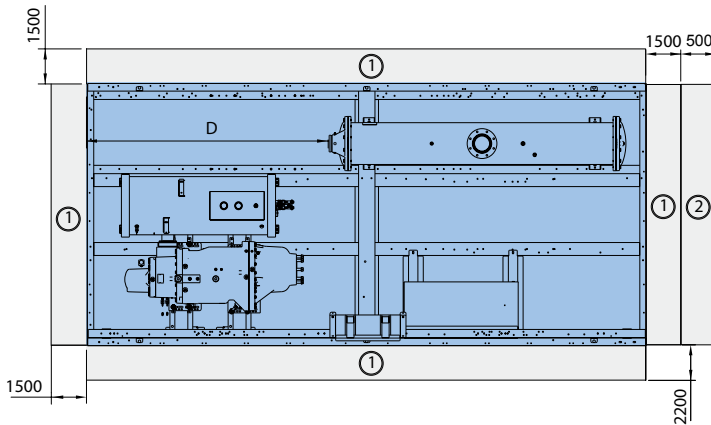
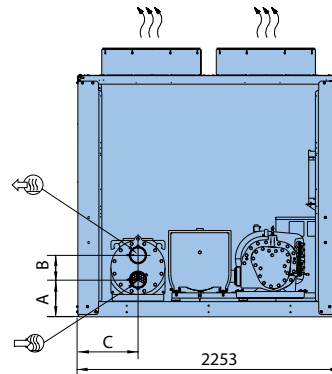
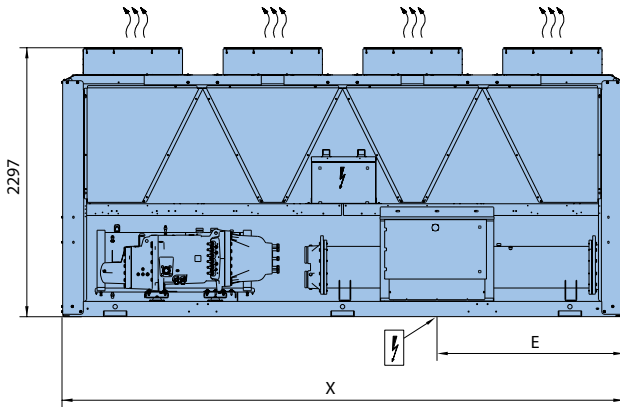
Unit with MCHX bare coils

30XA		0282PT018	0342PT018	0442PT018	0482PT018
Nominal cooling capacity	kW	278	329	444	495
Compressor input power	kW	79.0	90.6	130.2	143.4
COP		3.2	3.3	3.2	3.2
Refrigerant		HFC-134a			
Charge amount	kg	64	68	73	77
Compressors		06T semi-hermetic screw compressor			
Quantity		1	1	1	1
Capacity range		30%~100%			
Control		Pro-Dialog Plus, electronic expansion valve (EXV)			
Condensers		Aluminium micro-channel heat exchanger			
Fans		Axial Flying Bird 4 with rotating shroud			
Quantity		5	6	7	8
Total air flow	l/s	22570	27084	31598	36112
Fan speed	rpm	950	950	950	950
Evaporator		Flooded multi-pipe type			
Water content	l	49	54	76	77
Nominal water flow	m <sup>3</sup> /h	48.4	56.7	75.9	84.6
Nominal water pressure drop	kPa	20	27	38	36
Maximum water-side pressure	kPa	1000	1000	1000	1000
Water connections		Victaulic			
Diameter	in	5	5	5	5
Outside diameter	mm	141	141	141	141
Electrical data		400V-3Ph-50Hz			
Nominal power supply		Single connection			
Main power connections		Star-delta start			
Start up method		Provide by main power supply through internal transformer			
Control power supply					
Nominal unit current draw	A	147	173	262	273
Maximum unit current draw	A	180	229	314	367
Maximum start-up current	A	275	308	504	587
Fan and control power	kW	7.4	8.9	10.3	11.8
Unit length	mm	3604	3604	4798	4798
Unit width	mm	2253	2253	2253	2253
Unit height	mm	2297	2297	2297	2297
Unit weight	kg	3203	3500	4171	4500
Operating weight	kg	3258	3555	4241	4584

\* Nominal conditions - evaporator entering/leaving water temperature = 12/7 °C, outdoor air temperature = 35 °C, fouling factor = 0.018m<sup>2</sup>K/kW.

# Dimensions/Clearance

## 30XA 0282~0482

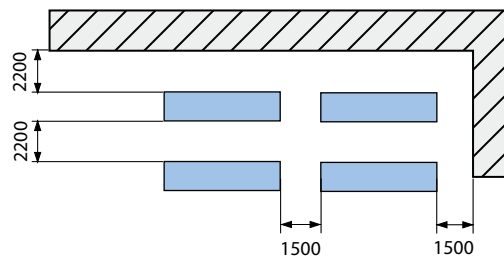
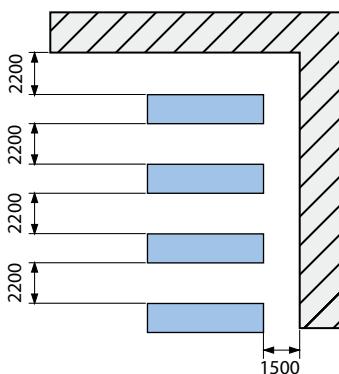


**NOTE:**  
30XA units have a single power connection on the bottom of the units, so the height at minimum of 120mm is required between the ground and the chassis (installed on a pedestal or cut a groove for wiring)

- ① Required clearances for maintenance and air flow
- ② Recommended space for evaporator
- ← Water outlet
- Water inlet
- ⚡ Power supply connection
- ☼ Air outlet - do not obstruct

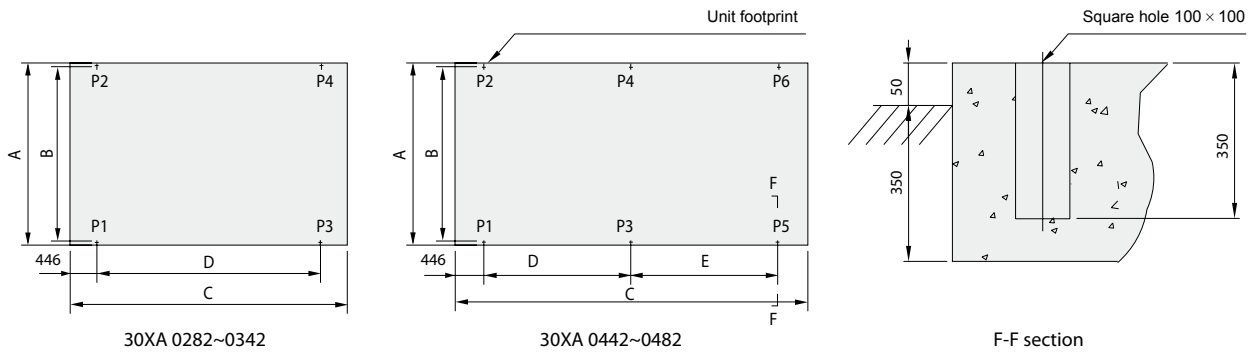
30XA	A	B	C	D	E	X
0282+PT254	317	210	515	1371	734	3604
0342+PT254	317	210	515	1371	734	3604
0442+PT254	346	272	438	2182	768	4798
0482+PT254	346	272	438	2182	768	4798
0282+PT018	317	210	515	1371	734	3604
0342+PT018	317	210	515	1371	734	3604
0442+PT018	346	272	438	2182	768	4798
0482+PT018	346	272	438	2182	768	4798

# Multiple Chiller Installation



**Note:**  
If the height of the wall exceeds 2m, please contact local Carrier Sales & Service Corporation

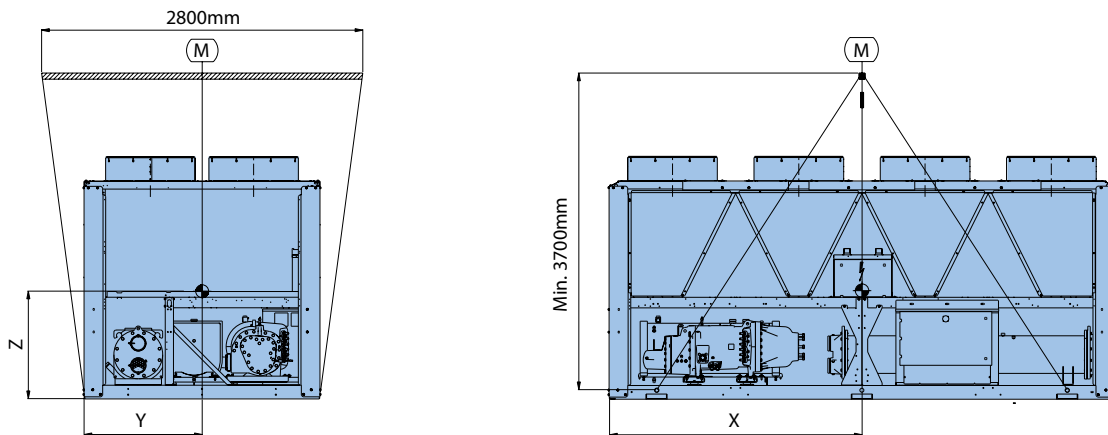
# Weight Distribution



30XA	Foundation dimension mm					Weight distribution kg						
	A	B	C	D	E	P1	P2	P3	P4	P5	P6	Operating weight
0282+PT254	2231	2157	3582	2690	-	865	775	1015	923	-	-	3578
0342+PT254	2231	2157	3582	2690	-	930	840	1100	1005	-	-	3875
0442+PT254	2231	2157	4776	1942	1942	991	887	785	701	665	612	4641
0482+PT254	2231	2157	4776	1942	1942	1080	976	874	790	663	601	4984
0282+PT018	2231	2157	3582	2690	-	795	705	925	833	-	-	3258
0342+PT018	2231	2157	3582	2690	-	860	770	1010	915	-	-	3555
0442+PT018	2231	2157	4776	1942	1942	903	808	715	638	612	565	4241
0482+PT018	2231	2157	4776	1942	1942	992	897	804	727	610	554	4584

# Hoisting Method

## 30XA 0282~0482



Models	X	Y	Z
30XA 0282~0342	2023	999	737
30XA 0442~0482	1420	993	752

⊕ Center of gravity

## System Minimum Water Volume

For whichever system, the minimum capacity of water loop is given by the formula:

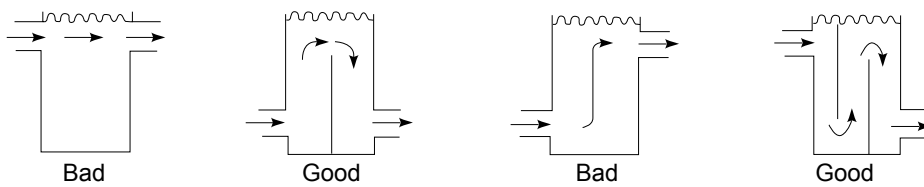
$$\text{Capacity} = \text{Cap (kW)} \times N \text{ Liters}$$

Application		N
Normal air conditioning	30XA 0282~0482	3.25
Process cooling	30XA 0282~0482	6.5

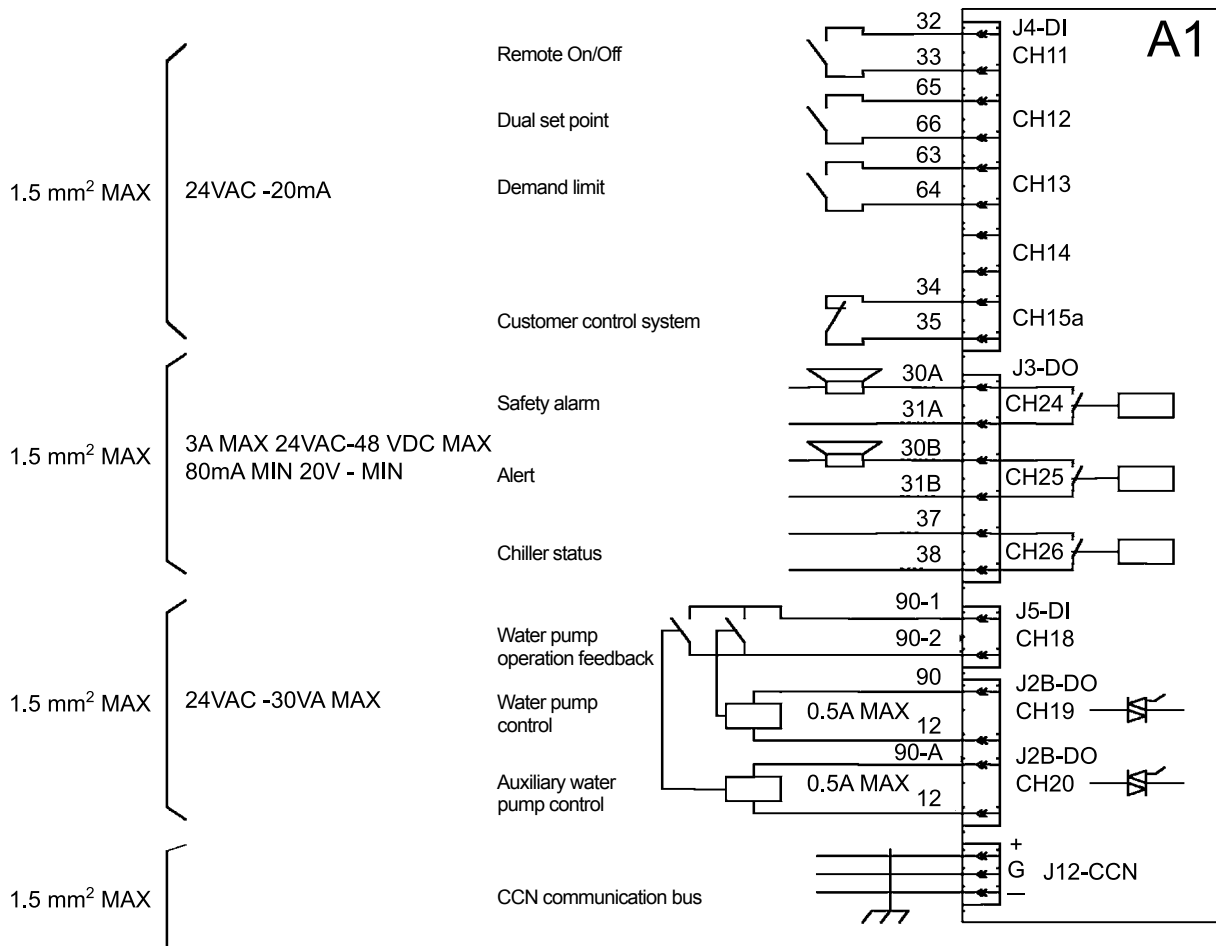
Where Cap is the nominal system cooling capacity (kW) at the nominal operating conditions of the installation.

This volume is necessary for stable operation and accurate temperature control.

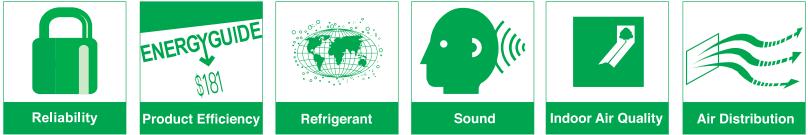
It is often necessary to add a buffer water tank to the circuit in order to achieve the required volume. The tank must be internally baffled in order to ensure proper mixing of the liquid (water or brine). Refer to the examples below.



## Field Control Wiring



Carrier Corporation identified six specific areas of concentration that directly impact how we, as a world manufacturer, balance our customer' needs for comfort with the environment's needs for responsible consumption.



Welcome to Carrier Website  
[www.carrier.com.cn](http://www.carrier.com.cn)

