



# 30XW

## Water-Cooled Liquid Chiller

30XW

Carrier makes the world a better place to live by creating a comfortable, productive and healthy environment regardless of climate. It is our mission to be customer's first choice for air conditioning, heating and refrigeration solutions everywhere around the world.

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The Great Hall of the People,  
Beijing, China



Kremlin, Moscow, Russia

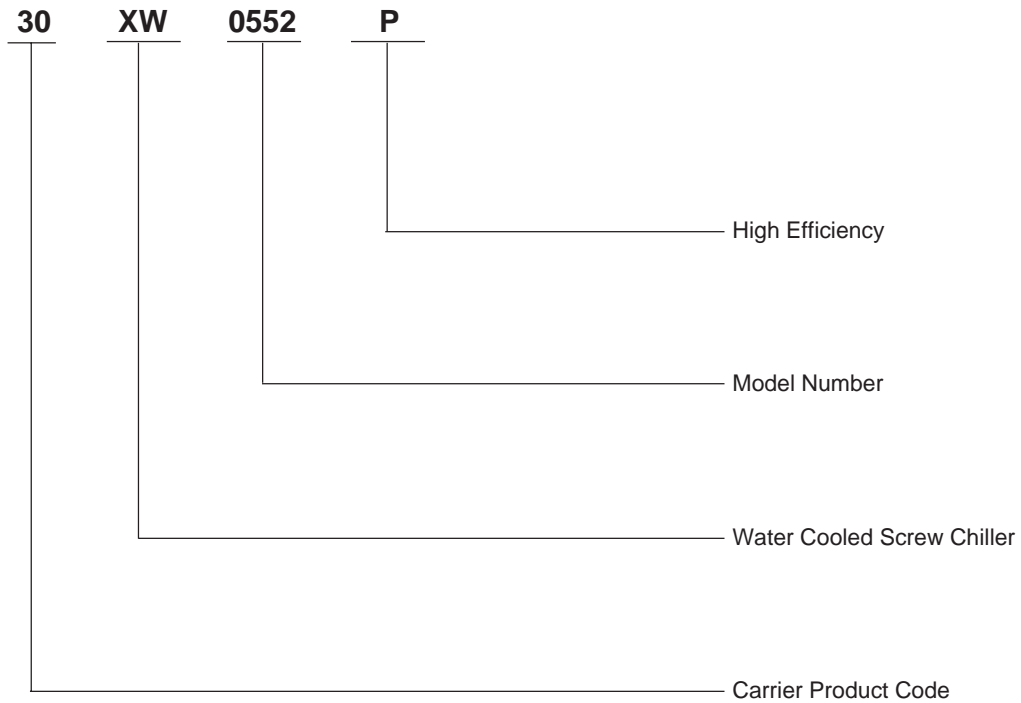


White House, Washington DC, USA



Imperial Palace, Tokyo, Japan

## Model Number Nomenclature



## Cooling Capacity

472~1156kW

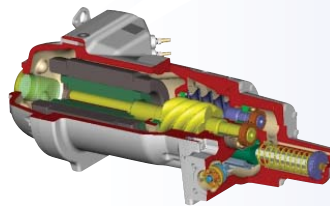
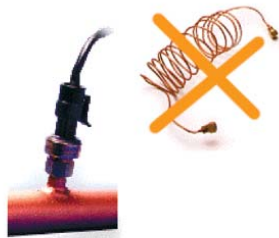
## Features and Benefits

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 and operating sound levels. They are manufactured with the best technologies available today to create the best values and benefits for the customers.

### Premium full load and part load performance

30XW water cooled liquid chiller is the most efficient model of Carrier's. It is one of the most affordable water cooled chillers to operate and maintain. High-efficiency rotary screw compressors with infinitely variable slide valves allow the chillers to exactly match actual load conditions. An electronic expansion device optimizes the evaporator refrigerant charge to maximize the use of heat exchange surfaces - a Carrier patent. The evaporator has a low pressure drop-which results in reduced cost of water pump. The 30XW chillers deliver superior efficiency through the entire operating range to keep costs and required charges down. This exceptional performance has a significant influence on energy saving and cost of Ownership.



### Built in reliability

30XW water cooled liquid chillers were developed under one of the most exacting qualification programs ever used for chiller products. The compressors are virtually maintenance-free and protected by an auto-adaptive control that minimizes compressor wear. The hermetic design eliminates the potential for shaft seal leaks and refrigerant / oil loss. Electronic expansion valve allows for precise control through all operating conditions. Double-grooved tube sheet holes eliminate the possibility of leaks between the water and refrigerant system. Electronic thermal-dispersion flow switch is factory installed , tested and contains no moving parts for high reliability. The features above are provided to ensure chillers' ultimate reliability.

### Environmentally sound

At last a refrigerant that is right for today, tomorrow and for the world around us. HFC-134a Stands for safety and simplicity at all times. It is safe because it is non-toxic and non-flammable. It does not contain chlorine, which means no effect on the ozone layer. The green house effect is reduced by 25% compared with that of R22. HFC-134a is the ideal solution for medium and high Capacities.

### The minimum space concept

The 30XW chiller is the smallest of the large chillers. Small in size, but great in performance. In contrast with its size, it has the real technological power. Space is significantly saved with 10% less required in the plant. Maximum width for 331TR unit is only 1070mm which could be transported through a single door. It needs minimal installation space. Compactness is the key word for a unique and unprecedented concept. The condenser incorporates the oil separator which saves space for service and maintenance.

### A complete system

The 30XW chiller is equipped with the complete control box. All electrical and control components are factory installed. Refrigerant and oil are pre-charged before the chiller delivery. There is no surprise that 30XW chiller has quick commissioning and easy installation.

### Comfortlink controls for ease of use

The controls communicate in easy-to-understand English, to monitor and control each chiller as easy as possible while accurately maintaining fluid temperatures. Carrier's TouchPilot display is an easy-to-use touch screen display that provides simple navigation for configuration and control of units. All units are ready to be used with Carrier Comfort Network@ (CCN) devices.



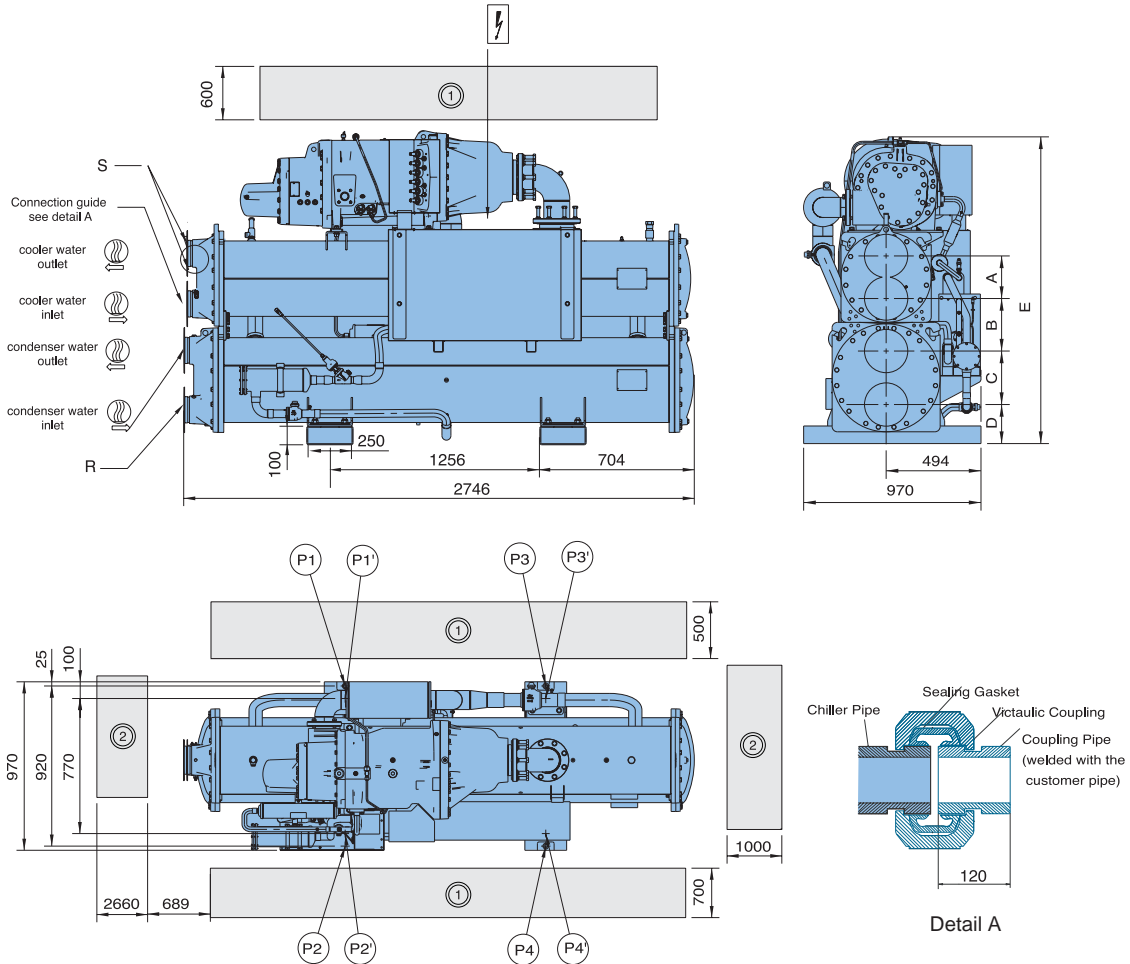
## Technical Data

Model			30XW									
			0452	0502	0552	1002	1052	1152	0502P	0552P	1002P	1152P
Capacity		kW	472	517	536	1004	1052	1131	503	572	1013	1156
		USRT	134	147	152	285	299	322	143	163	288	329
Compressor	Circuit A	No.	1	1	1	1	1	1	1	1	1	1
	Circuit B	No.				1	1	1			1	1
Evaporator		Inlet/outlet tem.	°C									
		Flow rate	L/S									
		Water pressure drop	KPa									
		Water connection	Dg									
		Fouling factor	m <sup>2</sup> ·°C/kW									
Condenser		Inlet/outlet tem.	°C									
		Flow rate	L/S									
		Water pressure drop	KPa									
		Water connection	Dg									
		Fouling factor	m <sup>2</sup> ·°C/kW									
Motor		Power	400V, 50Hz									
		Input power	kW	86	97	100	185	197	201	86	97	172
Shipping weight (with refrigerant)		kg	2946	2983	3132	5454	5491	5781	3250	3312	6674	6749
Operating weight		kg	2580	2617	2666	5161	5198	5553	2963	3025	6609	6684
Dimension	Length	mm	2746	2746	2746	4008	4008	4008	3055	3055	4694	4694
	Width	mm	970	970	970	1050	1050	1050	1008	1008	1070	1070
	Height	mm	1693	1693	1693	1846	1846	1896	1743	1743	1998	1998

Note: Water pressure for condenser and cooler is 1.0 MPa  
Two passes for water box.

# Dimensions

## 30XW0452 / 30XW0502



A	B	C	D	E	S	R
272	251	320	189	1693	Dg125	Dg125

### Weight Distribution (kg)

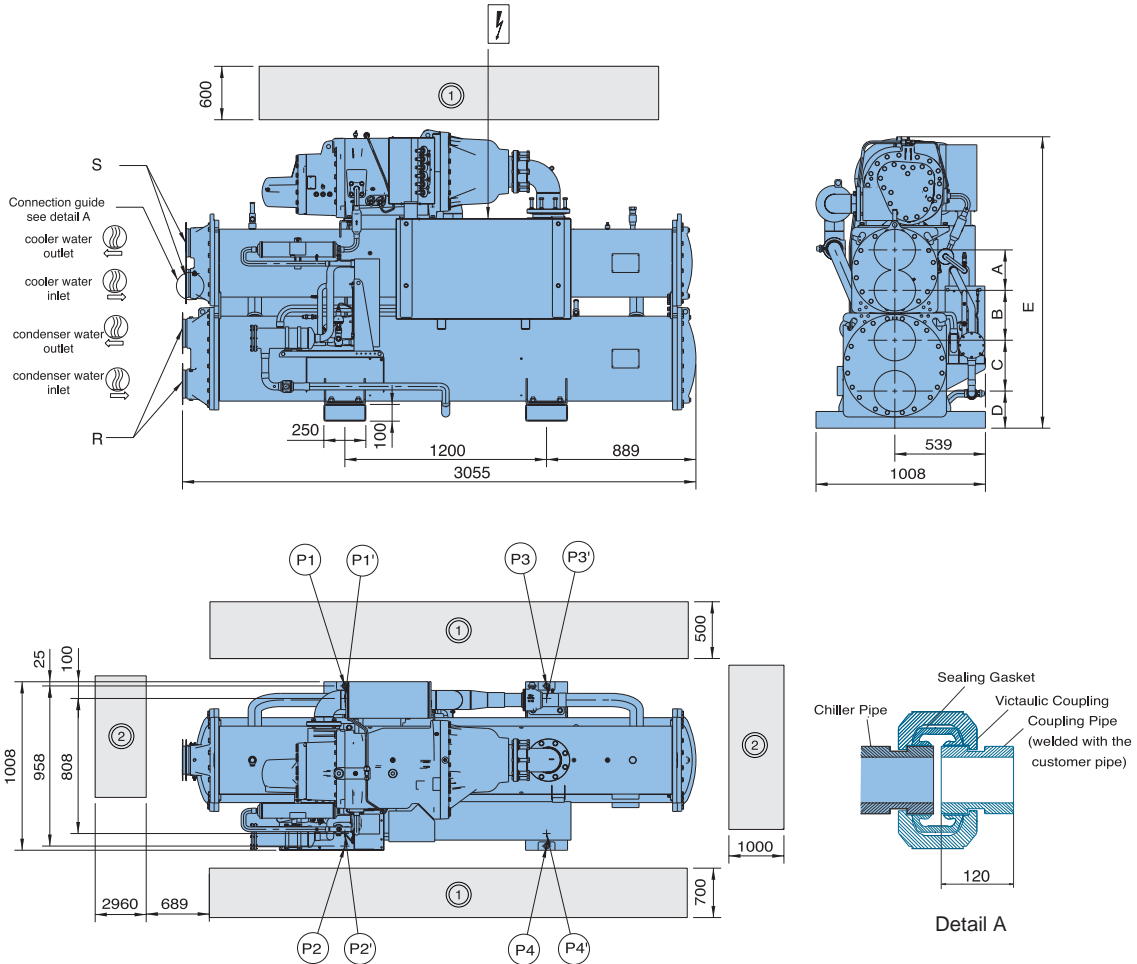
Model	P1	P2	P3	P4	P1'	P2'	P3'	P4'	PT
30XW0452	744	809	492	535	738	815	488	539	2580
30XW0502	766	852	473	526	758	860	468	531	2617

### Legend

- All dimensions are given in mm
  - Required clearances to maintenance
  - Recommended space for tube removal (Clearance can be either on the right or the left side)
- Pi and Pi' are two groups of bolts to fix the chiller, either group can be selected.
- The water pipe connector is the Victaulic coupling. The Victaulic and the pipe are supplied with the chiller, the pipe length is 120mm.

# Dimensions

## 30XW0502P / 30XW0552P



A	B	C	D	E	S	R
242	299	304	222	1743	Dg150	Dg150

### Weight Distribution (kg)

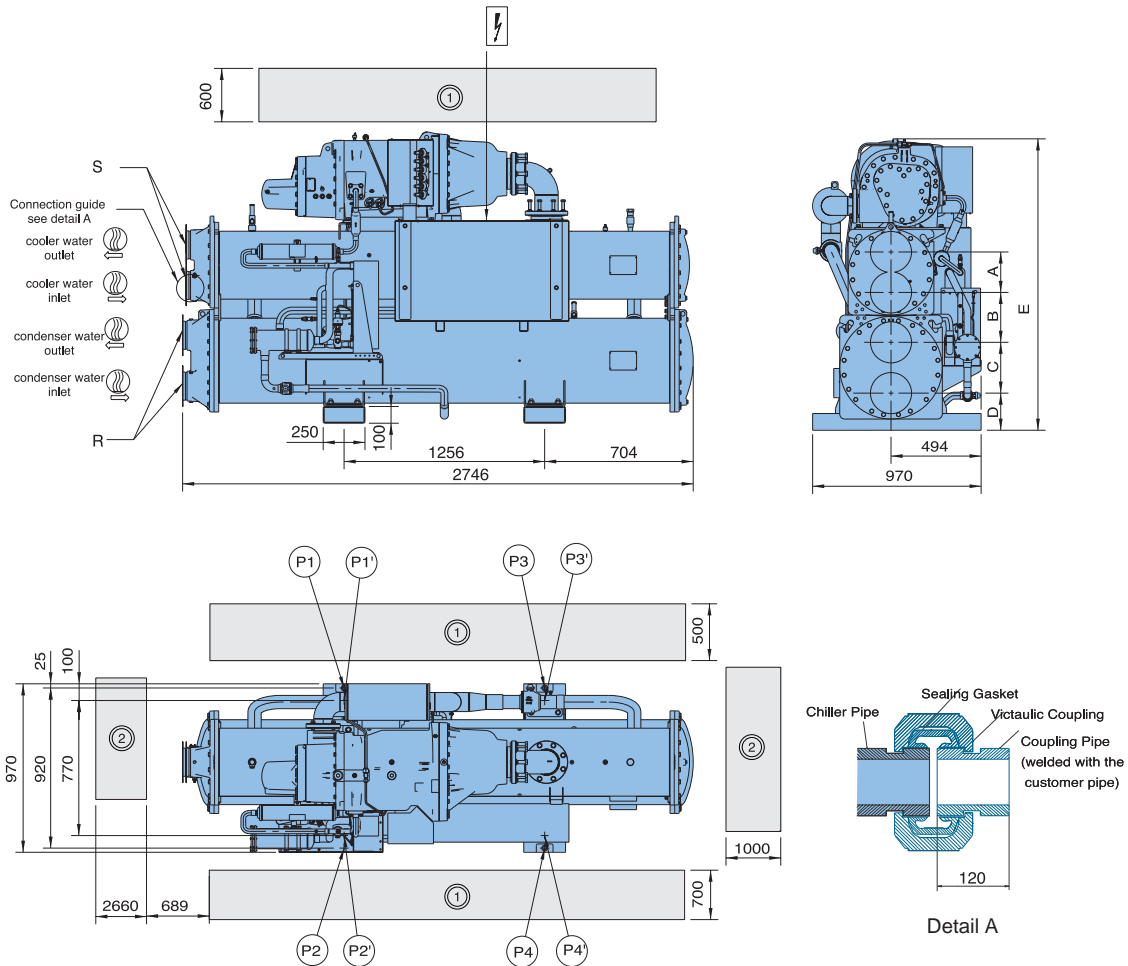
Model	P1	P2	P3	P4	P1'	P2'	P3'	P4'	PT
30XW0502P	891	885	596	592	892	884	596	591	2963
30XW0552P	952	962	552	558	951	963	552	559	3025

### Legend

- All dimensions are given in mm
  - Required clearances to maintenance
  - Recommended space for tube removal (Clearance can be either on the right or the left side)
- Pi and Pi' are two group of bolts to fix the chiller, either group can be selected.
- The water pipe connector is the Victaulic coupling. The Victaulic and the pipe are supplied with the chiller, the pipe length is 120mm.



### 30XW0552



A	B	C	D	E	S	R
272	251	320	189	1693	Dg125	Dg125

#### Weight Distribution (kg)

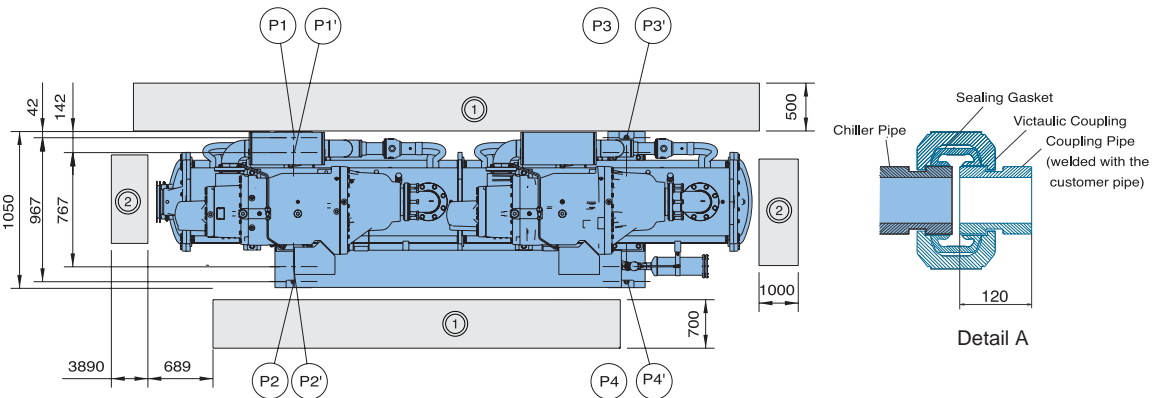
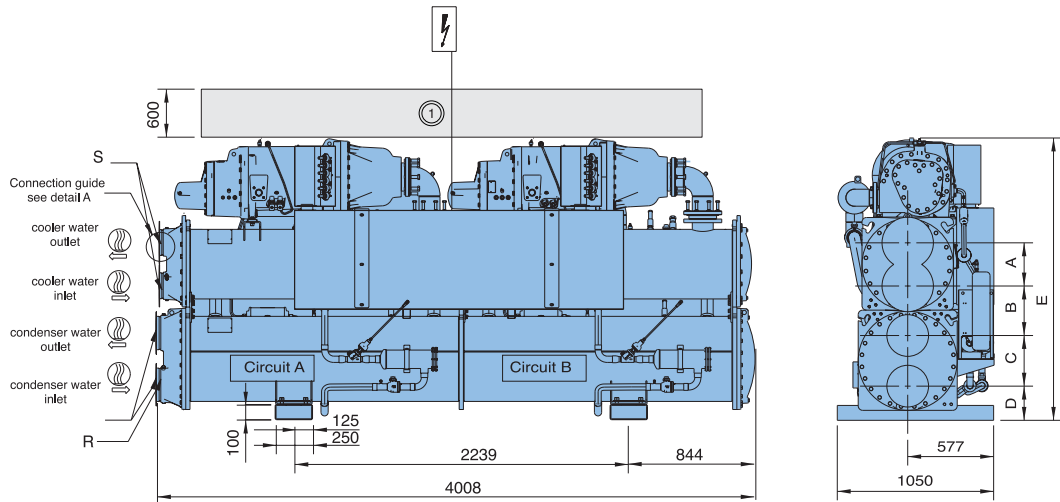
Model	P1	P2	P3	P4	P1'	P2'	P3'	P4'	PT
30XW0552	780	891	464	530	769	902	458	537	2666

#### Legend

- All dimensions are given in mm
  - Required clearances to maintenance
  - Recommended space for tube removal (Clearance can be either on the right or the left side)
- Pi and Pi' are two group of bolts to fix the chiller, either group can be selected.
- The water pipe connector is the Victaulic coupling. The Victaulic and the pipe are supplied with the chiller, the pipe length is 120mm.

# Dimensions

## 30XW1002 / 30XW1052



A	B	C	D	E	S	R
284	311	340	230	1846	Dg150	Dg200

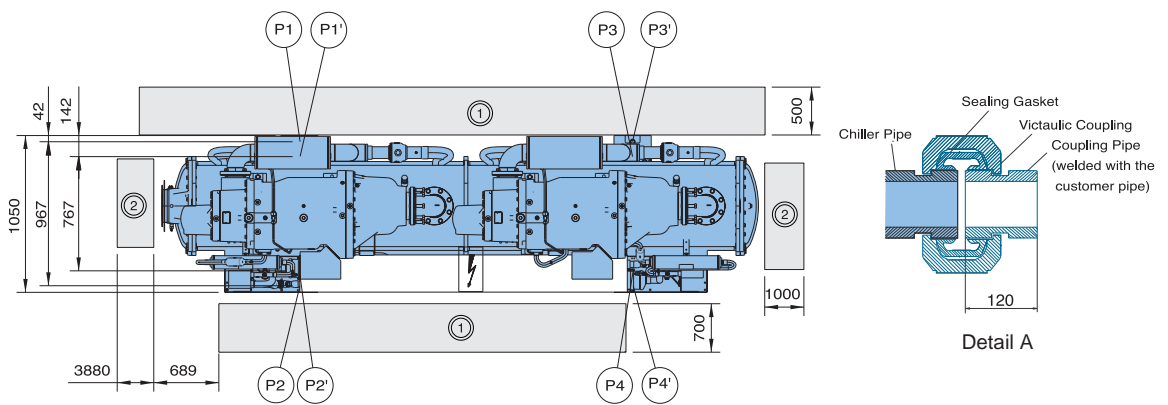
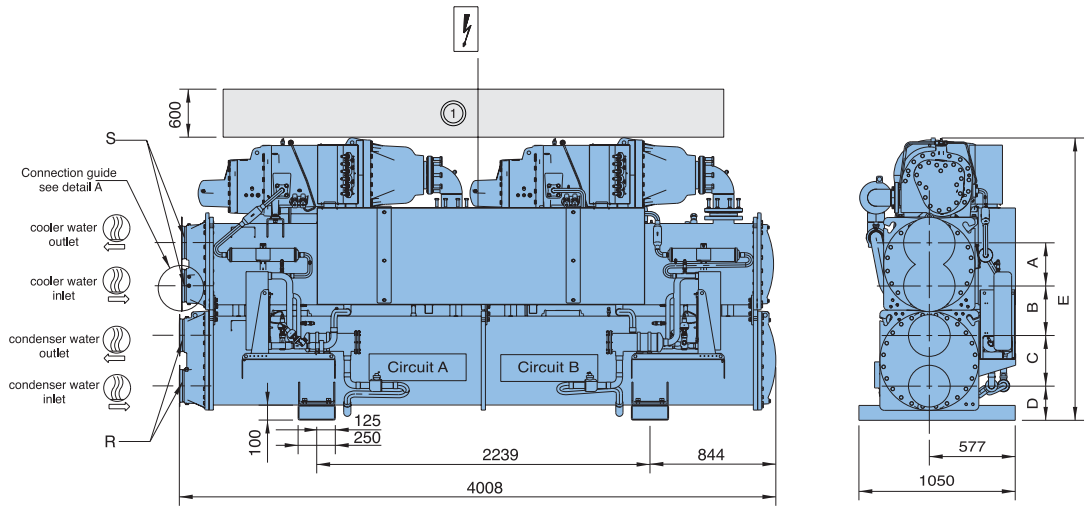
### Weight Distribution (kg)

Model	P1	P2	P3	P4	P1'	P2'	P3'	P4'	PT
30XW1002	1491	1360	1208	1102	1508	1343	1222	1088	5161
30XW1052	1498	1381	1207	1113	1513	1366	1219	1100	5198

### Legend

- All dimensions are given in mm
  - Required clearances to maintenance
  - Recommended space for tube removal (Clearance can be either on the right or the left side)
- Pi and Pi' are two group of bolts to fix the chiller, either group can be selected.
- The water pipe connector is the Victaulic coupling. The Victaulic and the pipe are supplied with the chiller, the pipe length is 120mm.

# 30XW1152



A	B	C	D	E	S	R
290	333	340	230	1896	Dg200	Dg200

### Weight Distribution (kg)

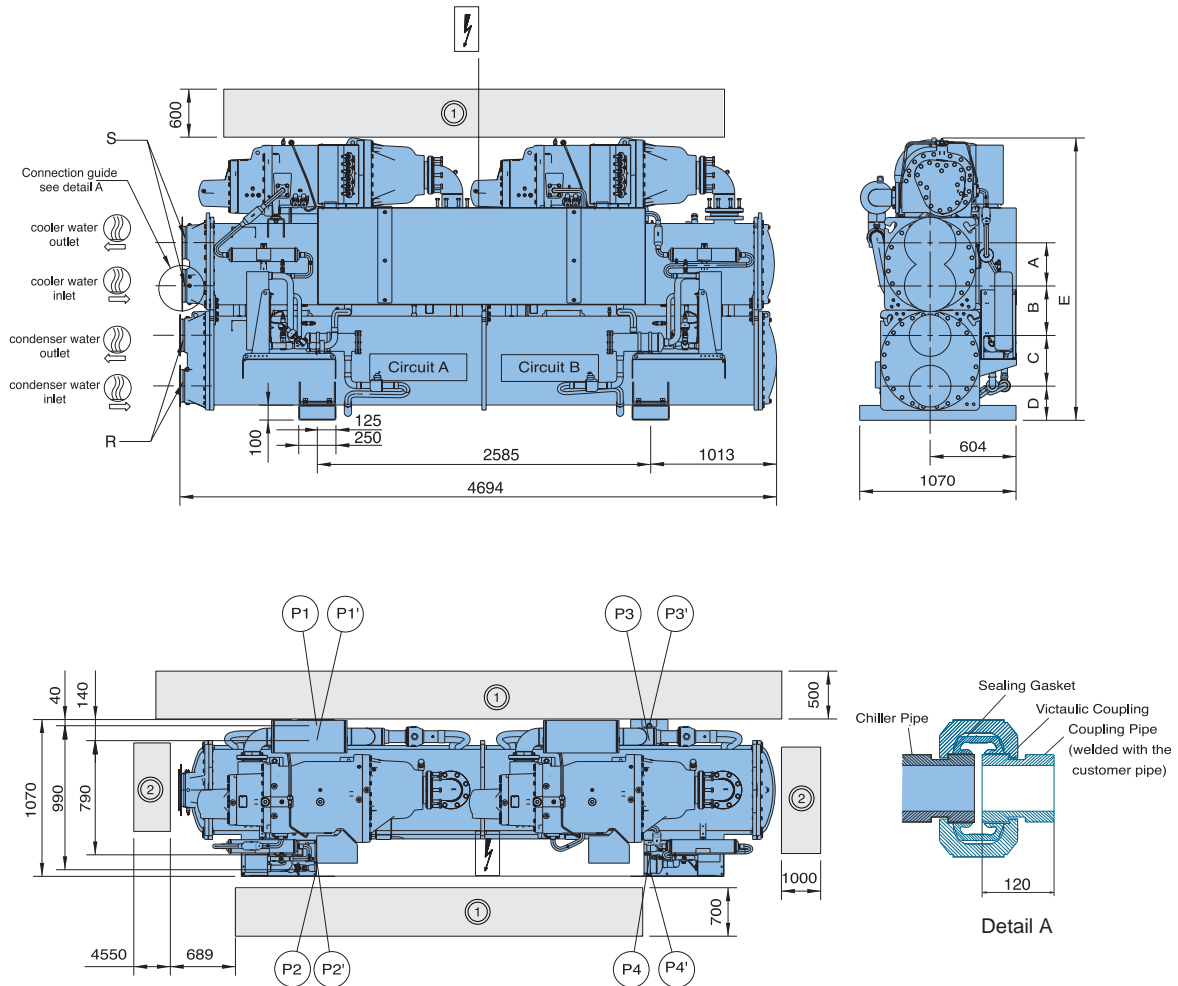
Model	P1	P2	P3	P4	P1'	P2'	P3'	P4'	PT
30XW1152	1562	1468	1283	1221	1572	1477	1291	1213	5553

### Legend

- All dimensions are given in mm
  - ① Required clearances to maintenance
  - ② Recommended space for tube removal (Clearance can be either on the right or the left side)
- Pi and Pi' are two group of bolts to fix the chiller, either group can be selected.
- The water pipe connector is the Victaulic coupling. The Victaulic and the pipe are supplied with the chiller, the pipe length is 120mm.

# Dimensions

## 30XW1002P / 30XW1152P



A	B	C	D	E	S	R
340	359	340	255	1998	Dg200	Dg200

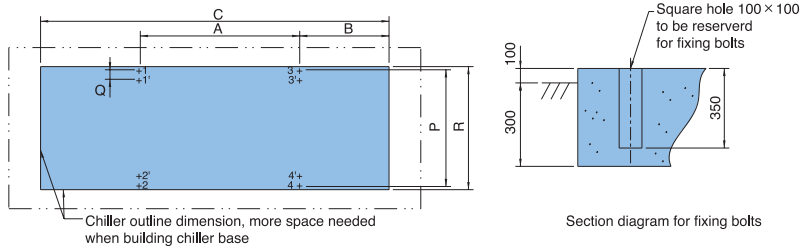
### Weight Distribution (kg)

Model	P1	P2	P3	P4	P1'	P2'	P3'	P4'	PT
30XW1002P	1963	1688	1590	1368	1998	1653	1619	1339	6609
30XW1152P	1987	1736	1580	1381	2019	1704	1608	1355	6684

### Legend

- All dimensions are given in mm
  - Required clearances to maintenance
  - Recommended space for tube removal (Clearance can be either on the right or the left side)
- Pi and Pi' are two group of bolts to fix the chiller, either group can be selected.
- The water pipe connector is the Victaulic coupling. The Victaulic and the pipe are supplied with the chiller, the pipe length is 120mm.

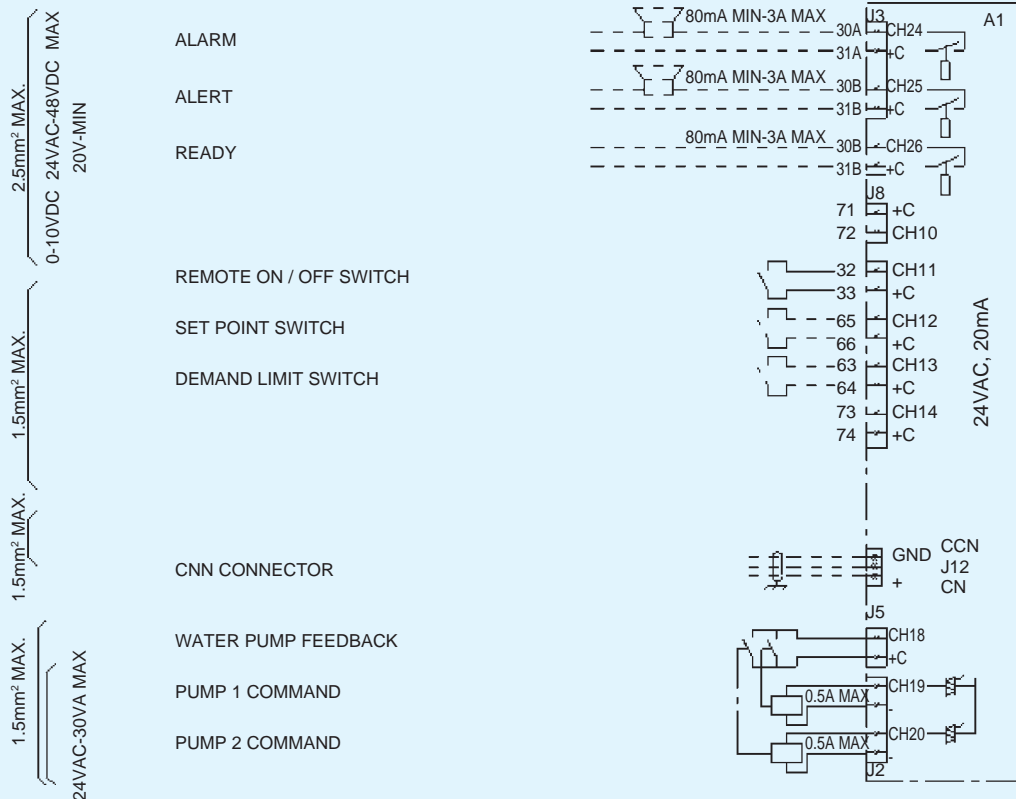
# Foundation



- Notes:
1. 4 bolts used for fix chiller, bolt size M20 × 300.
  2. User can select 1,2,3,4 or 1',2',3',4' as a group to fix bolts.

Model	Dimension (mm)					
	A	B	C	P	Q	R
30XW0452	1256	704	2746	920	75	970
30XW0502	1256	704	2746	920	75	970
30XW0552	1256	704	2746	920	75	970
30XW1002	2239	844	4008	967	100	1050
30XW1052	2239	844	4008	967	100	1050
30XW1152	2239	844	4008	967	100	1050
30XW0502P	1200	889	3055	958	75	1008
30XW0552P	1200	889	3055	958	75	1008
30XW1002P	2585	1013	4694	990	100	1070
30XW1152P	2585	1013	4694	990	100	1070

# Wiring Diagram



# Guide Specifications

## General

### 1 SYSTEM DESCRIPTION

Microprocessor controlled, water-cooled liquid chiller utilizing screw compressors.

### 2 QUALITY ASSURANCE

- A. Unit shall be manufactured in a facility certified by ISO 9001:2000 Manufacturing Quality Standard.
- B. Unit shall be test run in full load at the factory.

### 3 DELIVERY, STORAGE AND HANDLING

Unit shall be stored and handled as per unit manufacturer's recommendations.

## Products

### 1 EQUIPMENT

#### A. General:

Factory assembled, single-piece, water-cooled liquid chiller. What shall be contained in the unit cabinet are all factory wiring, piping, controls, refrigerant charge (R-134a), and special features required prior to site start-up.

#### B. Compressor/Compressor Assembly:

- 1. It is composed of semi-hermetic twin screw type compressors.
- 2. Compressor motor shall be suction gas cooled motor with direct drive of 2960rpm, which shall be protected by the motor temperature sensor.
- 3. Capacity control shall utilize an infinitely modulating slide valve to modulate capacity within 100% to 15% full load.

#### C. Cooler/Condenser:

- 1. There shall be a mechanically cleanable tube in a shell-and-tube type cooler with removable heads.
- 2. Tubes shall be internally reinforced seamless copper type rolled into tube sheets.
- 3. Shall be equipped with Victaulic-type water connections.
- 4. Shall be designed to incorporate a minimum of 1 or 2 independent refrigerant circuits.
- 5. Shall have a drain and vent.

#### D. Refrigeration Components:

Refrigerant circuit components shall include replaceable-core filter drier, moisture indicating sight glass, electronic expansion valve, liquid line service valves, and complete operating charge of both refrigerant R-134a and compressor oil.

#### E. Controls, Safeties, and Diagnostics:

Unit controls shall include the following functions:

- 1. Automatic circuit lead/lag.
- 2. Capacity control based on leaving chilled fluid temperature and compensated by change rate of return-fluid temperature with temperature set point accuracy to 0.1°F (0.05°C).
- 3. Limiting the chilled fluid temperature pull-down rate at start-up to an adjustable range of 0.2°F to 2°F (0.1 to 1.1°C) per minute to prevent excessive demand spikes at start-up.
- 4. Seven-day time schedule.
- 5. Leaving chilled fluid temperature reset from return fluid temperature.
- 6. Chilled water pump start/stop control.

7. Chiller control for parallel chiller applications without addition of hardware modules and control panels (requires thermistors).
8. Timed maintenance scheduling to signal maintenance activities for strainer maintenance and user-defined maintenance activities.
9. Low ambient protection to energize cooler heaters.
10. Single step demand limit control activated by remote contact closure.

## **2 Diagnostics**

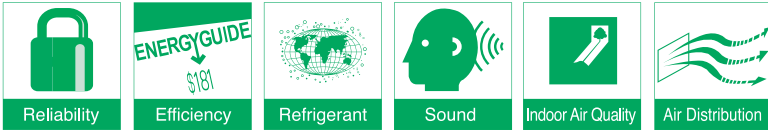
- A. The control panel shall include, as standard, a display:
  1. Touch screen display consisting of 1/4 VGA LCD (liquid crystal display) with adjustable contrast and backlighting.
  2. Display shall allow a user to navigate through menus, select desired options and modify data.
- B. Features of the display shall include:
  1. Display shall be customizable and allow up to 72 data points.
  2. Display shall support both local equipment and network made for remote mount.
  3. Display shall be made accessible to configuration, maintenance, service, set point, time schedules, alarm history and status data.
  4. Display shall have one button for chiller on/off.
  5. Display shall include three levels of password protection against unauthorized access to configuration and maintenance information, and shall be able to display set up parameters.
  6. Display shall allow for easy connection of a portable hand-held technician tool to access information and upload and/ or download chiller settings.
  7. Display shall be compatible with the Carrier Comfort Network (CCN) system and provide network alarm acknowledgement or indication and provide capability to fully monitor and control chiller.
  8. Display alarms and parameters shall be capable of being displayed in full text.
  9. Display shall be capable of displaying the last 50 alarms and storing a snapshot of a minimum of 20 status data parameters for each alarm.
  10. Compressor run hours.
  11. Number of started compressors.
  12. Compressor current.

## **3 Safeties**

Unit shall be equipped with thermistors and all necessary components in conjunction with the control system to protect the unit against the following conditions:

- A. Loss of refrigerant charge.
- B. Reverse rotation.
- C. Low chilled fluid temperature.
- D. Motor overtemperature.
- E. High pressure.
- F. Electrical overload.
- G. Loss of phase.
- H. Loss of chilled water flow.

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



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