



turn to the experts™ 



# 30HXC-HP

Water-to-water Screw Heat Pump

30HXC-HP

Different histories, cultures, and values influence different places of the world in different ways,  
But one thing remains in common:  
Carrier Air-conditioning systems are installed in all these places.

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The Great Hall of the People,  
Beijing, China



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## Model Number Nomenclature

3 0 H X C 1 3 0 A - H P 2

Max. Leaving Water Temperature (Heating Mode)  
1 for 47°C, 2 for 60°C

Water-to-Water Screw Heat Pump

3<sup>rd</sup> Generation Global Water Cooled Chiller

Nominal Capacity (USRT)

Carrier Product Code

## Nominal Heating Capacity / Nominal Cooling Capacity

Nominal Heating Capacity: 498~1591 kW.

Nominal Cooling Capacity: 460~1283 kW

## Introduction

Ground-source Heat Pump system (including groundwater source, buried loop source and surface water source), known for its energy saving, Environmental friendly and high reliability, are becoming more and more popular in air-conditioning system handling choice). Designed specifically for environmentally preferred HFC-134a refrigerant, Carrier 30HXC-HP Water-to-Water Heat Pump integrates high efficiency, energy saving, operating high reliability, and simple to service together, can get use of groundwater/surface water/geothermal source as heating or cooling source, is the best choice of Ground-Source Heat Pump System.

# Features

## Designed exclusively for R134a

- R134a has zero ozone depletion potential.
- R134a production is annually increasing, and has no expire date.

## Full/part load mode is more cost saving

- 06N twin-screw compressor achieves high efficiency.
- Carrier patent high efficiency flood evaporator increase heat transfer efficiency.
- Multiple compressors allow flexible adjustment according to user's load, ensuring higher part-load efficiency.
- Electronic expansion valve ensures high control precision.

## High reliability

- Two independent refrigerant circuits minimize unit shut down.
- Multiple compressors provide back up for each other.
- Complete protection function ensures the unit running smooth.
- Each unit has a trial run in the factory.

## Easy installation

- Compact design requires minimal indoor space.
- The maximum width reaches only 1015mm, which allows the unit to fit through a standard door opening without disassembly.
- Evaporator and condenser short steel pipes and flanges are supplied by factory.
- Refrigeration and lubrication is filled ex-factory.
- The on-site installation requires only connection to water and power supply.

## Simple to service

- Graphical operational interface makes it clear and easy to operate.
- Screw compressor with few components requires low maintenance cost.

## Triple sound reduction

- Built-in sound reduction device can effectively reduce noises as result of high pressure air discharge fluttering by diverting the air in an appropriate way.
- New external muffler installed on the discharge pipe on the compressor can transform part of acoustic energy into heat and greatly reduce noise. (See the picture below) .
- Sound reduction cabinet provides another sound-proofing barrier, and reduces the noise transferring to the machine room. (See the picture below) .



Muffler on Discharge Pipe



2<sup>nd</sup> Generation Sound Reduction Cabinet



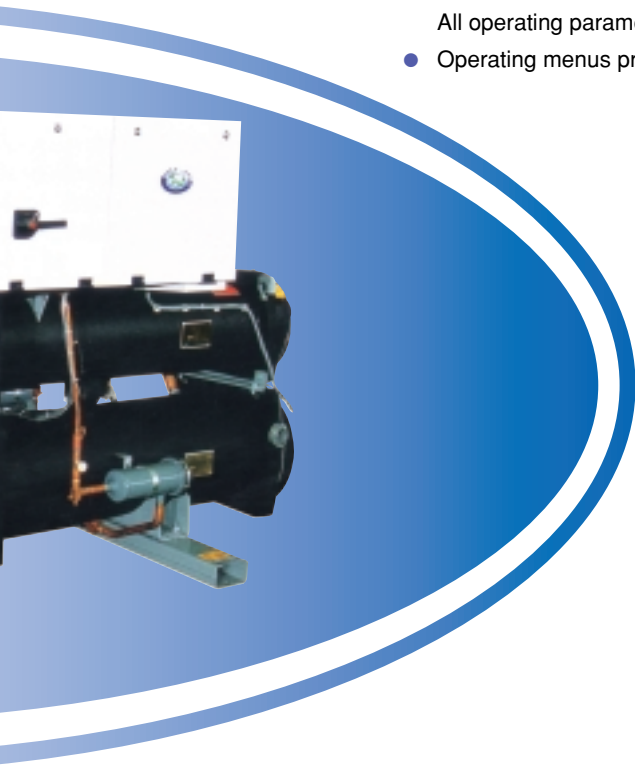
## PRO-DIALOG Plus Control

PRO-DIALOG Plus is an advanced numeric control system that combines intelligence with great operating simplicity. The PID control algorithm with permanent compensation for the difference between the heat exchanger entering and leaving temperature, anticipates load variations, guarantees leaving water temperature stability and prevent unnecessary compressor cycling.



### PRO-DIALOG offers extended communications capabilities

- Graphical interface, LED numeric displays make it clear and easy to understand.
- Touch keys are well-positioned on the schematic chiller diagram, providing clear view of operation flow. All operating parameters such as pressures, temperatures, operating hours etc are easy to use.
- Operating menus provide direct access to acquiring and modifying parameters.



### PRO-DIALOG has advanced control functions

- Allows local mode, remote mode and CCN mode to start/stop the unit.
- The long-stroke electronic expansion valve (EXV), allows a significant energy efficiency improvement at part load conditions, and faultless chiller operation in a wider temperature range.
- Automatic control of refrigerant circuits and compressors on/off status and loading sequence, thus equalizing compressor operating hours.
- Interlock control between the unit, chilled water pump and cooling water pump, contributing to safe and high efficiency performance.
- "Demand Limit" limits the maximum chiller capacity to a predefined value. This function is specially designed for multicompressor management, it aims to achieve the best running efficiency by imposing different chiller capacity limit to different compressors.
- Evaporator leaving water temperature drop speed is controlled within the adjustable range (0.1~1.1°C/min) so as to avoid energy waste, improve ERR and increase unit life.
- Provides a negative revision to cooling water leaving temperature according to outdoor temperature or return water temperature trend, so as to save energy and improve ERR by quickly fitting the wave trend of external load decrease.

### Safety Protection Function

- Protection on low cooling water leaving temperature, low oil pressure, high refrigerant pressure, electric leak, compressor overload, high/low electrical voltage and phase lack.

### Multiple remote control

- The communication bus between RS485 port of 30HXC and the Carrier Comfort Net (need purchase) offers multiple remote control; the communication bus between 30HXC and DATAPORT communication module provided by Carrier (need purchase) realizes the connection with other building automatics.

## Physical Data

30HXC-HP2		130A	140A	155A	190A	230A	260A	285A	310A	345A	375A
<b>Net nominal cooling capacity</b>	kW	460	504	542	640	798	873	964	1085	1163	1283
<b>Net nominal heating capacity</b>	kW	498	549	599	774	874	972	1169	1192	1289	1591
<b>Compressors</b>		Semi-hermetic, twin-screw POWER <sup>3</sup>									
Quantity-Circuit A		1	1	1	1	2	2	2	2	2	2
Quantity-Circuit B		1	1	1	1	1	1	1	2	2	2
No. of control steps		6	6	6	6	8	8	8	10	10	10
Minimum step capacity	%	19	17	19	21	14	14	14	10	10	10
<b>Evaporator</b>		Shell and tube with internally finned copper tubes									
Entering water temperature	°C	12 (Cooling mode)/ 15 (Heating mode)									
Leaving water temperature	°C	7									
Net water volume	l	65	75	75	88	155	170	170	191	208	208
Inlet/outlet	in	5	5	5	5	6	6	6	8	8	8
Max.water side operating pressure	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Condenser</b>		Shell and tube with internally finned copper tubes									
Entering water temperature	°C	30(Cooling mode)/ 50 (Heating mode)									
Leaving water temperature	°C	35(Cooling mode)/ 55 (Heating mode)									
Net water volume	l	78	90	90	108	190	190	190	255	255	255
Inlet/outlet	in	5	5	5	6	8	8	8	8	8	8
Max.water side operating pressure	kPa	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
<b>Refrigerant charge</b>		HFC-134a									
Circuit A	kg	51	48	54	70	117	117	132	109	96	119
Circuit B	kg	47	48	57	70	75	75	80	106	109	137
<b>Dimensions</b>											
Length	mm	3278	3278	3278	3278	3912	3912	3912	4521	4521	4521
Width	mm	980	980	980	980	1015	1015	1015	1015	1015	1015
Height	mm	1816	1816	1816	1941	2060	2060	2060	2112	2112	2112
<b>Net weight</b>	kg	2474	2537	2547	2983	4242	4296	4416	5014	5090	5258
<b>Operating weight</b>	kg	2617	2702	2712	3179	4602	4656	4776	5477	5553	5721

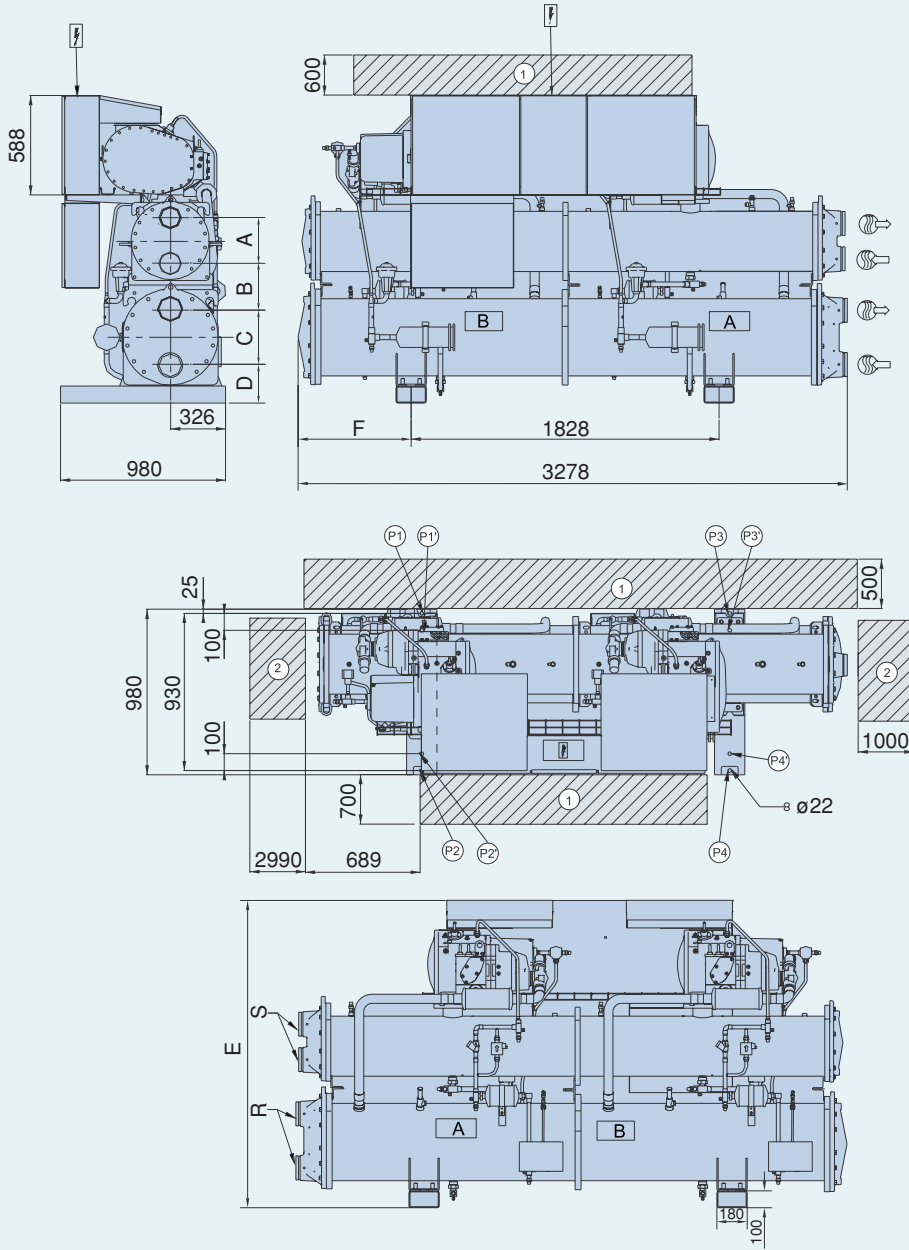
## Electrical Data

30HXC-HP2		130A	140A	155A	190A	230A	260A	285A	310A	345A	375A
<b>Power circuit</b>											
Nominal power supply	V-ph-Hz										
Voltage range	V										
<b>Nominal power input (Cooling)*</b>	kW	100	112	125	148	181	208	227	250	275	300
<b>Nominal power input (Heating)*</b>	kW	137	151	169	210	244	277	322	338	367	425
<b>Nominal current drawn (Cooling)*</b>	A	164	184	205	243	297	341	372	410	451	492
<b>Nominal current drawn (Heating)*</b>	A	225	248	277	344	400	454	528	554	602	697
<b>Max. starting current</b>	A	437	521	548	635	1549	1603	1734	1737	1792	1969

- Standard cooling conditions: Evaporator entering/leaving water temperature 12°C and 7°C. Condenser entering/leaving water temperature 30°C/ 35°C. Fouling factor=0.000044m<sup>2</sup>K/W
- Standard heating conditions: Evaporator entering/leaving water temperature 15°C and 7°C. Condenser entering/leaving water temperature 50°C/55°C. Fouling factor=0.000044m<sup>2</sup>K/W
- Effective power input = power input of the compressors + the control circuit + the power input of the pump to overcome the evaporator pressure drop.
- Net cooling capacity = gross cooling capacity minus the water pump heat against the internal evaporator pressure drop.
- Short steel pipes factory-supplied, to be installed on site for evaporator and condenser water connections.

# Dimensions/Clearances

## 30HXC 130A-190A



	A	B	C	D	E	F	S	R
30HXC130A								
30HXC140A	210	318	320	235	1816	656	Dg125	Dg125
30HXC155A								
30HXC190A	272	332	304	283	1941	666	Dg125	Dg150

Ⓞ Required clearances for maintenance

Ⓟ Recommended space for tube removal (clearance 2990 and 1000 can be either on the right or the left side).



Water outlet



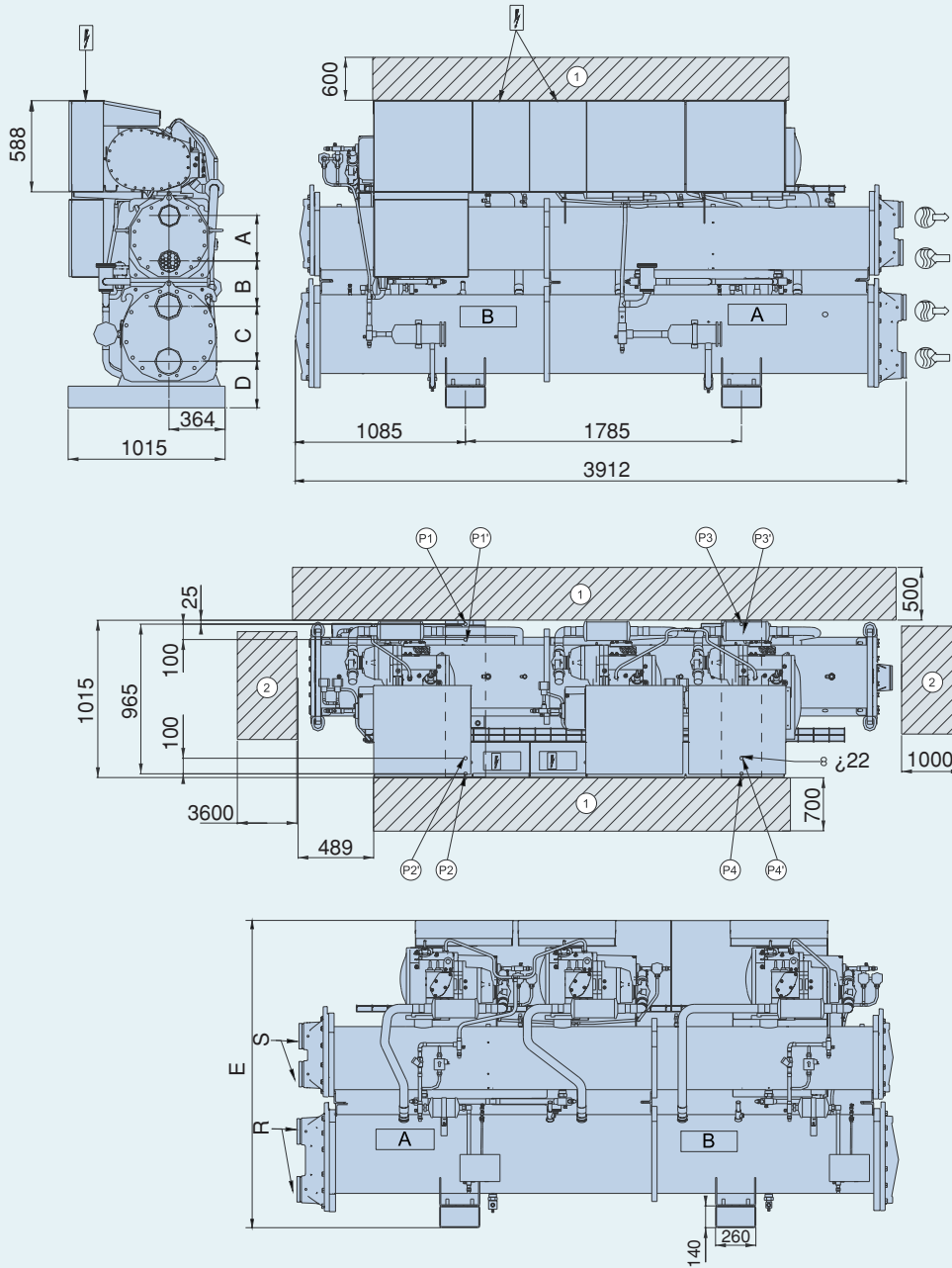
Water inlet



Power supply

# Dimensions/Clearances

## 30HXC 230A-285A



	A	B	C	D	E	S	R
30HXC230A							
30HXC260A	306	340	357.5	284	2060	Dg200	Dg150
30HXC285A							

⊙ Required clearances for maintenance

⊚ Recommended space for tube removal (clearance 3600 and 1000 can be either on the right or the left side).



Water outlet



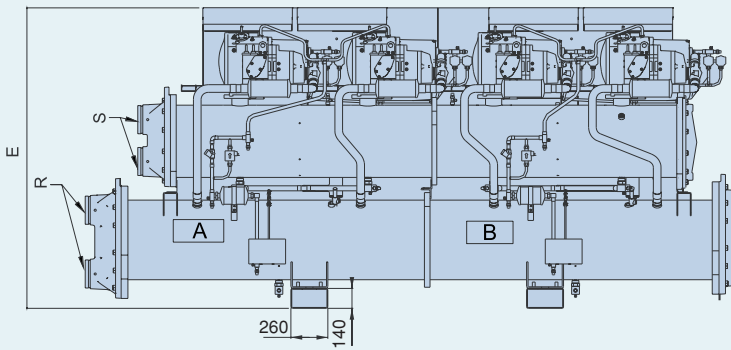
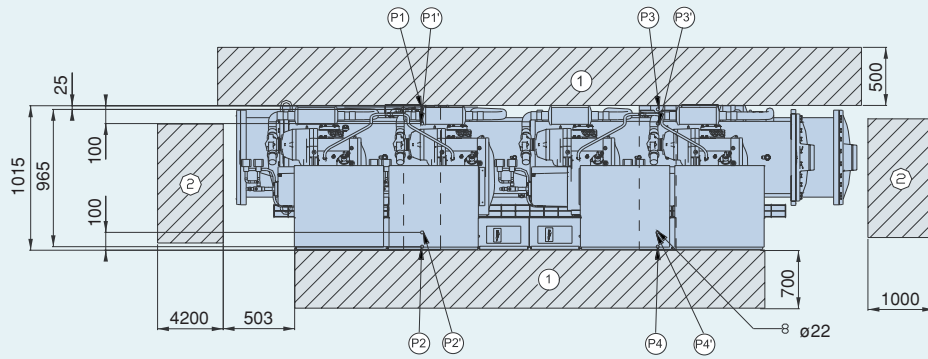
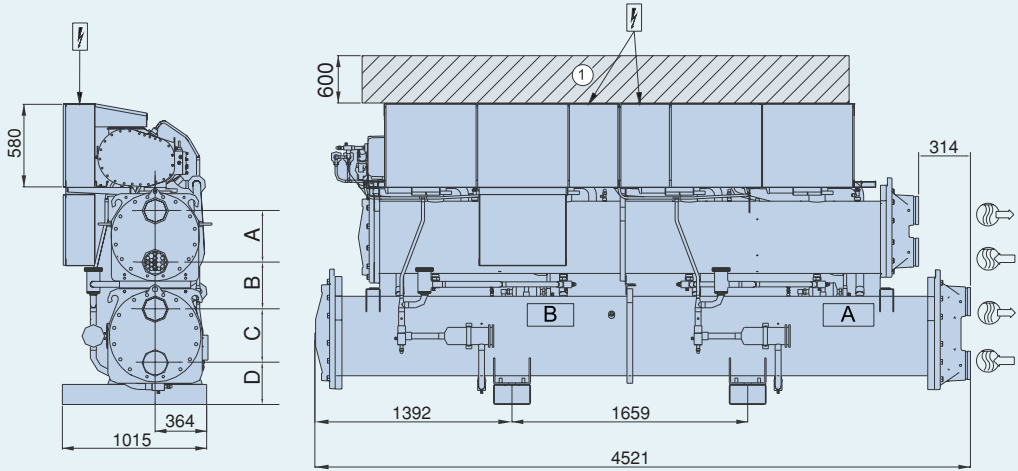
Water inlet



Power supply



# 30HXC 310A-375A



	A	B	C	D	E	S	R
30HXC310A							
30HXC345A	290	379	340	306	2112	Dg200	Dg200
30HXC375A							

⊙ Required clearances for maintenance

⊚ Recommended space for tube removal (clearance 4200 and 1000 can be either on the right or the left side).



Water outlet

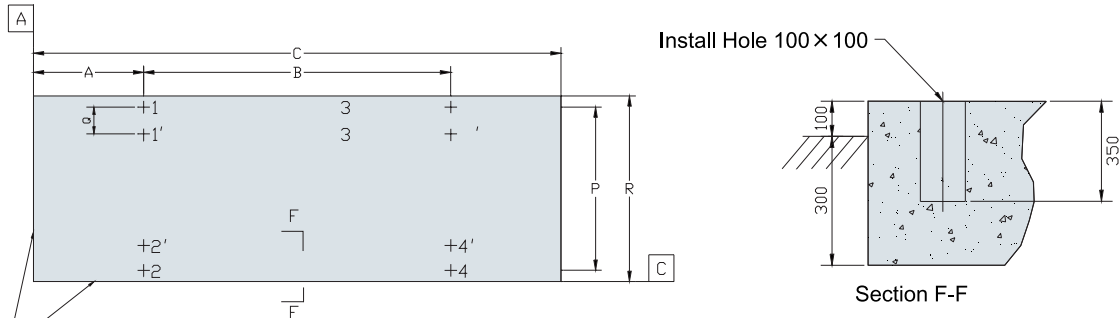


Water inlet



Power supply

# Chiller Footprint

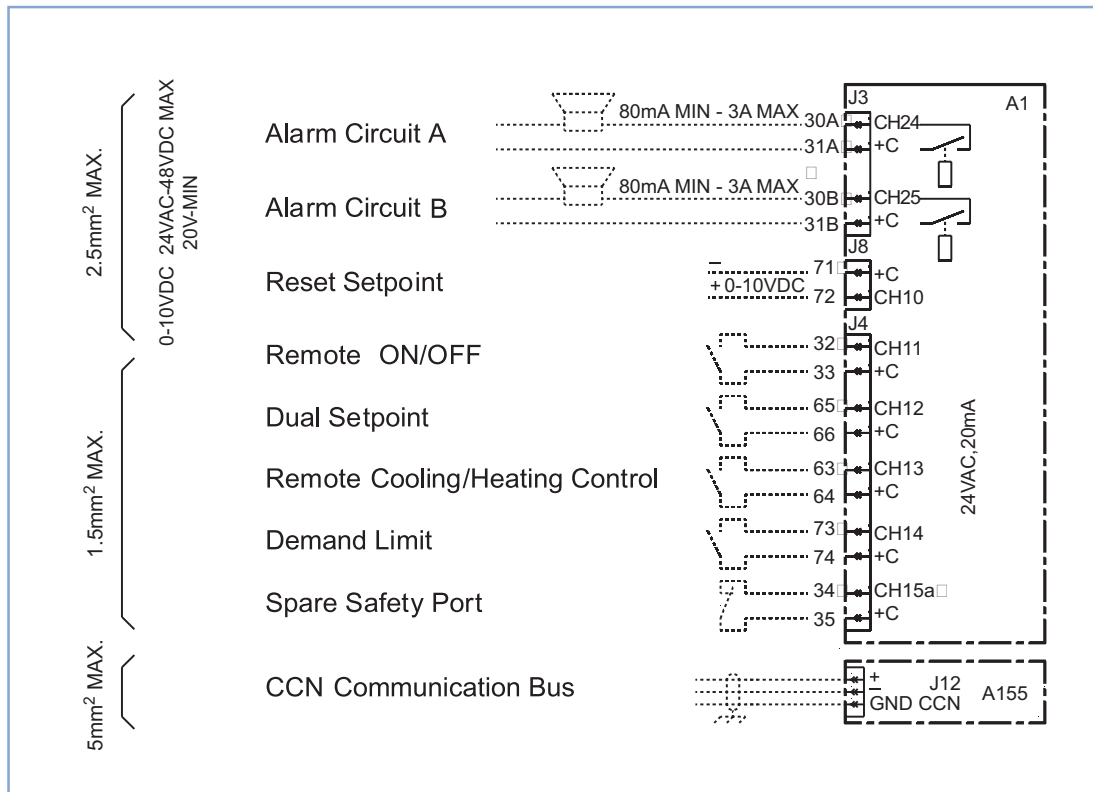


Machine figure dimension, basement need additional clearance.

Dimension(mm)	A	B	C	P	Q	R
30HXC130A						
30HXC140A						
30HXC155A	685	1828	3278	930	100	980
30HXC190A						
30HXC230A						
30HXC260A	1092	1785	3912	965	100	1015
30HXC285A						
30HXC310A						
30HXC345A	1399	1659	4521	965	100	1015
30HXC375A						

Load(kg)	1	2	3	4	1'	2'	3'	4'	Operating Weight
30HXC130A	812	549	749	507	848	512	782	475	2617
30HXC140A	840	567	774	523	876	530	808	488	702
30HXC155A	842	569	776	525	880	532	810	490	2712
30HXC190A	987	667	910	615	1030	623	950	576	3179
30HXC230A	1348	958	1342	954	1399	907	1393	903	4602
30HXC260A	1364	970	1358	964	1415	918	1408	915	4656
30HXC285A	1399	995	1392	990	1452	942	1445	937	4776
30HXC310A	1786	1303	1381	1007	1850	1239	1430	958	5477
30HXC345A	1811	1321	1400	1021	1875	1256	1450	972	5553
30HXC375A	1865	1361	1443	1052	1931	1295	1494	1001	5721

# Field Wiring



## Standard Accessories

Item	Description	Quantity
a	Flow monitor switch for evaporator	1
b	M20 × 300 hex screw	4
c	Handle of disconnect switch	2
d	Couplings	4
e	Short steel pipes	4

## Main Options

Option	Description	Remark
1	Single circuit units (for 30HXC130~30HXC190)	
107E	Reversed evaporator water inlet/outlet	
104A16	Condenser and evaporator maximum water-side operating pressure of 21 bar	
107C	Reversed condenser water inlet/outlet	
ACC3	RS485 communications interface with open protocol	



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.

