Carrier

United Technologies

turn to the experts

AQUAFORCE®

Water-cooled Liquid Chiller With Total Heat Recovery

Cooling Capacity： 499~1392kW

Heating Capacity： 549~1529kW

Heat Recovery： 466~1303kW

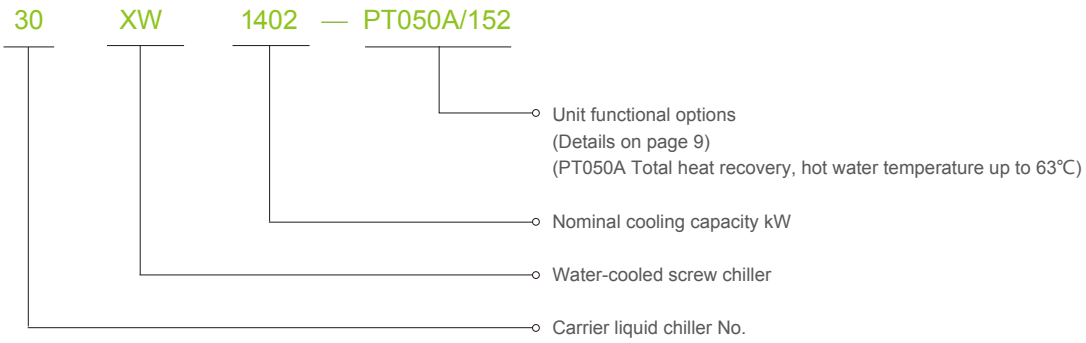
Turn To The Experts

Founded by the inventor of modern air conditioning, Carrier is the world's leader in high-technology heating, air-conditioning and refrigeration solutions. Carrier experts provide sustainable solutions, integrating energy-efficient products, building controls and energy services for residential, commercial, retail, transport and food service customers. Carrier is a part of UTC Build ing & Industrial Systems, a unit of United Technologies Corp., a leading provider to the aerospace and building systems industries worldwide.

With a broad portfolio of advanced technical patent awards, our global R&D center in Shanghai develops innovative heat, ventilation and air-conditioning (HVAC) solutions.

In 1998, Time magazine named Dr. Carrier oneof its 20 most influential builders and titans of the 20th century.

Nomenclature



Operating range

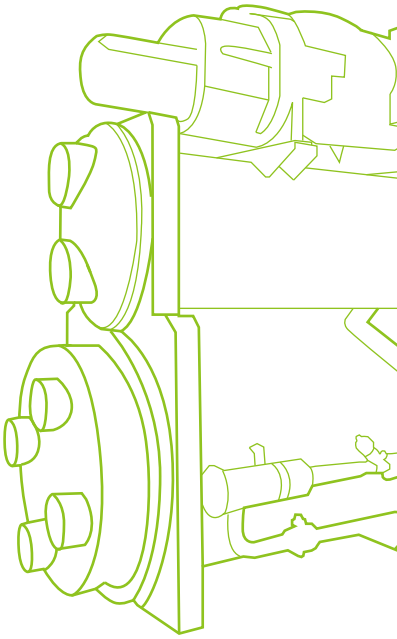
Cooling / heating		
Evaporator temperature	Minimum	Maximum
Inlet water temperature at start-up	-	35˚C
Outlet water temperature during operation	3.3˚C	20˚C
Inlet/outlet temperature difference at full load	2.8˚C	11.1˚C
Condenser temperature	Minimum	Maximum
Inlet water temperature at start-up	13˚C	-
Outlet water temperature during operation	19˚C *	63˚C
Inlet/outlet temperature difference at full load	2.8˚C	11.1˚C
Heat recovery temperature	Minimum	Maximum
Inlet water temperature at start-up	13˚C	-
Outlet water temperature during operation	19˚C *	63˚C
Inlet/outlet temperature difference at full load	2.8˚C	11.1˚C

*If the temperature leaving the condenser is below 19℃,a water flow control valve must be used at the condenser(two or three-way valve).Please refer to option 152 to ensure the correct condensing temperature.

Cooling capacity: 499~1392 kW
Heating capacity: 549~1529 kW
Heat recovery: 466~1303 kW

Inheriting excellent quality of 30XW

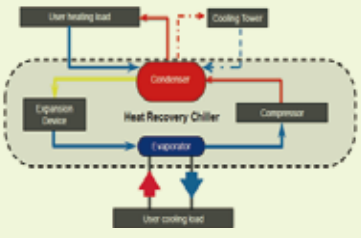
- **Stewardship**
  - · Non-ozone depleting refrigerant HFC-134a and no phase-out data.
  - · Excellent cooling performance and low energy consumption, reduce carbon dioxide emissions.
- **Leading technology and premium efficiency**
  - · New generation 06T twin-screw compressor specifically designed for HFC-134a equipped with high efficiency motor and sliding valves with stepless regulation to precisely match capacity and building load changes.
  - · Patented line-design screw rotors increases compression efficiency.
  - · Motor directly driven compression rotor further enhances the efficiency of the compressor.
  - · Efficient semi-hermetical motor, refrigerant suction and cooling reduce power consumption.
  - · Flooded multi-pipe evaporator and condenser built-in spiral tube that enhance heat transfer efficiency both water and refrigerant side for energy consumption reduction.
  - · Electronic expansion device permits operation at a lower condensing pressure and improved utilization of the evaporator heat exchange surface.
- **Convenient installation**
  - · Victaulic connections on the evaporator and condenser, simplified water connections in job-site.
  - · Standard configuration of electronic flow switch, simplified job-site installation.
  - · Unit is fully charged with refrigerant and lubricating oil, only water pipes and main power supply connection is required at job-site.



Total heat recovery applications, energy saving preferred

- **Traditional water-cooled unit**
  When the chiller is under cooling model, the heat is transferred from the condenser and emitted into the atmosphere directly by cooling tower. It's a huge waste of heat energy for those requires heat, such as hotels, factories, hospitals, etc., and also bring some waste heat pollution to the surrounding environment. Besides, additional boiler is needed for hot water offering.
- **Carrier total heat recovery chiller**
  The total heat recovery chiller is designed by integrated condenser with two separated water loops, one is heating condenser and another is tower/geothermal-source condenser. It can take advantage of the vast amount of free heat energy 100% as the final or primary heat source for those applications of full-year hot water supply and boiler pre-heating. Thus, the wasted heat can be effectively utilized, increased system integrated efficiency. Also it can reduce or replace boiler capacity configured for domestic hot water or heating, and save the operating costs can significantly.

Traditional water-cooled chiller plus boiler



Total heat recovery applications

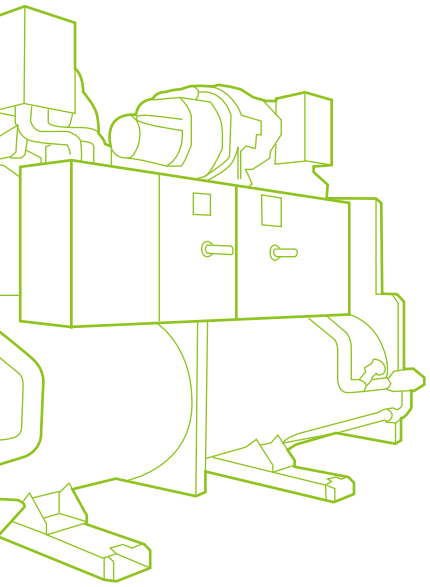
Safe and reliable

- **Water and electricity is … nate the potential dange**
  Hot water and electricity … chiller is completely sepa… safety of users and avoid… to equipment (such as ele… improper use.
- **Fuel is not used to prev…**
  Total heat recovery chille… fuels (such as natural gas… due to operational oversi… and eliminate explosions…

Environmental-friendly

- **Recovery of condensate waste heat alleviate the “heat island effect”**
  During cooling model in summer, condensation waste heat discharged into the atmosphere is 100% recovered by the total heat recovery technology so as to alleviate the urban "heat island effect".
- **Replace the boiler heating to reduce smog and dust pollution**
  Total heat recovery chiller technology uses clean air energy to offer air conditioning and hot water, which replaces the traditional direct-fired boiler and alleviate haze pollution caused by coal burning oil.
- **Geothermal energy with low noisy and sterility**
  During heat recovery of the heat pumps, cooling towers is not required so as to avoid fan noise and mold contamination of cooling tower, and it can keep clean and beautiful environment through using geothermal energy.

Good lifecycle cost



- **Boiler is omitted so as to save investment**
  Saves initial investment and annual inspection costs of boiler system, as well as costs of boiler room design and construction.
- **Free hot water reclaim with high integrated efficiency**
  Due to waste heat recovery, hot water can be made freely in summer, which can dramatically reduce energy consumption and the combined cooling and heating COP can reach up to 9.

Intelligent control

- **A new generation of microcomputer control**
  Provide energy reduction, energy restriction and other functions, easy energy-saving operation; automatically balance compressor operate time of each cooling circuits, and have multiple diagnostic functions to guarantee unit stable operating.
- **Intelligent control can balance cooling, heating and hot water supply adaptively**
  Due to adaptive function, the total heat recovery can balance cooling, heating and hot water supply automatically to meet multiple needs of air-conditioning and hot water based on user requirements.

Space-saving

- **Multifunction applications replace boiler for space-saving**
  Heat pump with total heat recovery function is integrated with cooling, heating and hot water supply, providing year-round hot water solutions. Users do not need to add boilers or other hot water equipments, and space-saving is achieved as a result, which substantially increases the utilization of architectural space and facilitate to increase future investment value.
- **Compact structure**
  Compact design with a width of approximately 1.3 m, the chiller can pass through standard door openings and only require minimum floor space in the plant room due to small footprint.

completely separated to elimi-ers
y power of total heat recovery rated to guarantee the personal the threat of electric shock due ectric boilers) insulation aging or

vent blasting accidents
r systems do not use flammable s, kerosene, etc.), to avoid leaks ght of disrepair for many years , fires and other accidents.

System application

Five operating models

30XW total heat recovery chiller has five operating modes, it can meet hot water needs according to different season and vertical applications

Annual hot water solution
Water temperature up to 63 ℃

Cooling model (Recommend to operate in cooling season, i.e. summer)
Cooling with heat recovery system meets the indoor comfort requirements

Cooling plus heat recovery model (two preferred modes, recommend to operate in cooling season, i.e. summer)
Meet cooling demands, while recovering condensation waste heat for free hot water

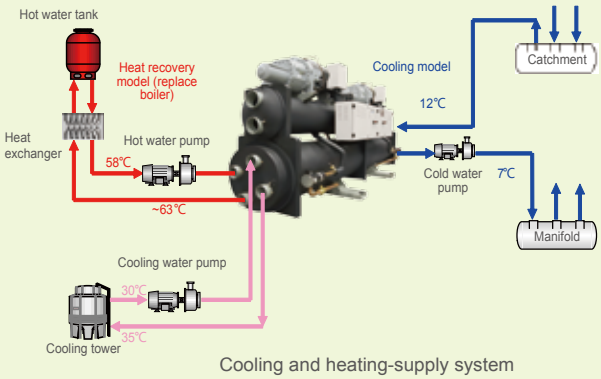
Heat recovery model (Recommend full-year operate)

Heating model (Recommend to operate in heating season, i.e. winter)
Water source heat pump with heat recovery system meets the indoor comfort requirements

Heating plus heat recovery model (two preferred models, recommend to operate in heating season, i.e. winter)
Using time-control technology, it can meet the indoor heating as well as hot water requirements

Cooling with total heat recovery application

30XW cooling with heat recovery applications
This application has 3 operating models, including cooling only, heat recovery and cooling plus heat recovery, except meet the conventional cooling requirements, it can also offer sanitary hot water freely, users only need to connect the heat recovery chiller, hot water tank, cooling tower, water pumps, pipe connections and valves, and cooling season application such as summer is recommended. When heat recovery is required, cooling tower water pump is closed, and all condensed heat is recovered by heating condenser, the hot water is total freely, and the chilled water is supplied at the same time as usual so as to achieve simultaneous applications of heating and cooling, enhance the integrated system efficiency, and the system can auto-detect whether it is necessary to switch to cooling tower model based hot water set temperature
Cooling and heat recovery models can set different priority levels based on actual needs so as to meet different customer requirements.



Cooling and heating-supply system

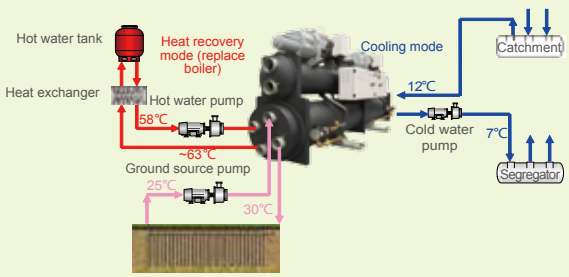
Note: the above schematic is supplied for reference, please check drawings for more details water connection.

Heat pump with total heat recovery application

30XW heat pump with total heat recovery application
This application has five operating models, which are cooling, heat recovery, cooling plus heat recovery, heating, heating plus heat recovery. The chiller can take advantage of a variety of low order heat source, such as water/ground source, river, lake and sea water, in addition to achieve cooling in summer and heating in winter, it can also provide users with a worry-free year-round hot water solutions, and truly reflect a multi-purpose function.

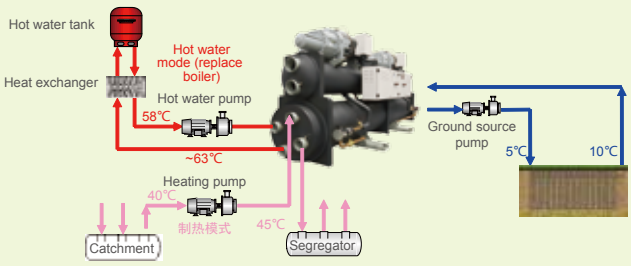
Driven by electric energy, heat pump recovery chiller extracts free energy from low order heat sources. As the temperature of the earth's surface has the characteristics of warm in winter and cool in summer, normally, the input power of 1kW can obtain more than 5kW cooling capacity or more than 4kW heating capacity, and the efficiency is much higher than heating and cooling forms of other central air conditioning. It saves about 30% energy consumption compared with the conventional air-source heat pumps system, and about 70% of energy consumption compared with electric heating modes. Combined with the integrated hot water applications, it saves expensive boiler system, and the system is more energy efficient.

a. Heat pump with heat recovery application in summer
The system has cooling and cooling plus heat recovery functions.
When heat recovery is required, the ground source side pump is closed and hot water pump is turn on to offering hot water freely. Cooling and heat recovery models can set different priority levels based on actual needs so as to meet different customer requirements.



Cooling and heating-supply system

b. Heat pump with heat recovery application in winter and transitional seasons
The system has heating and hot water, heating plus heat recovery functions. It also can set different priority levels of heating and heat recovery based on actual needs.

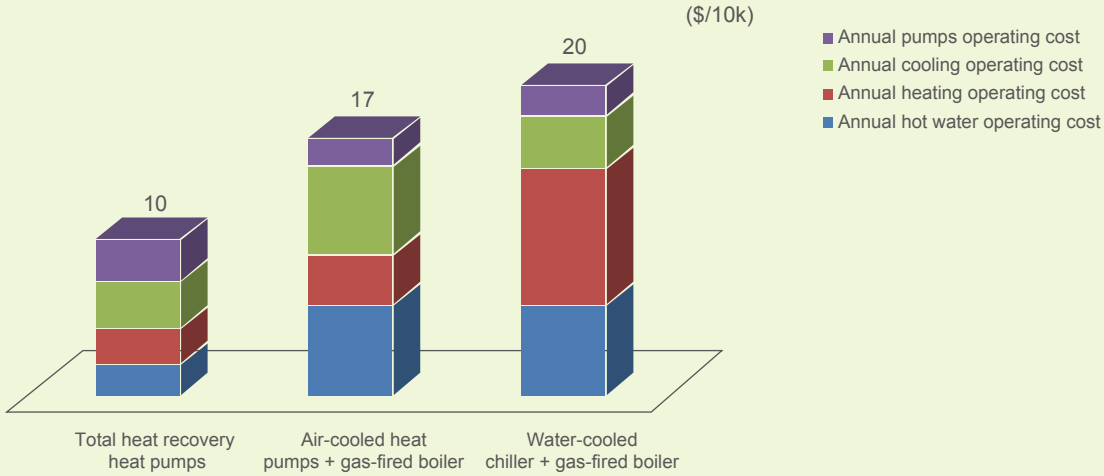


Heating and hot water-supply system

Note: the above schematic is supplied for reference, please check drawings for more details water connection.

Economic Analysis

Take a hotel for example. The hotel can accommodate 300 people, has requirements of cooling, heating and hot water, cooling load is 650kW in summer, heating load is 450kW in winter, daily hot water is amount 150 liters per people, so the daily consumption of hot water is 45 tons, sanitary water is heated from 10℃ to 50℃, and designed heat consumption per hour is 330 kW. The annual operation costs comparisons of different hot water and air-conditioning equipment are as followings. Compared with "air-cooled heat pumps + boiler" and "water-cooled chiller + boiler" solutions, annual operating cost of water source heat pumps with total heat recovery can save 40% and 50% respectively; and annual hot water costs reduce 65%.



Seawater-source total heat recovery heat pump system application

Due to corrosiveness of seawater, as special full heat recovery heat pump system of surface water, higher demand is required by seawater-source heat pump system.
For the open-seawater heat exchange system, seawater enters directly into the heat exchanger of the heat pump unit, and therefore the unit must be equipped copper-nickel alloy pipe with corrosion resistance of Carrier, while the inner wall of the heat exchanger which is in direct contact with the water needs to be embalmed.

Performance data (heat recovery temperature up to 63℃)

Model			30XW (PT050A)					
			0502	0702	0902	1052	1262	1402
Cooling performance								
Cooling capacity		kW	499	700	849	1040	1207	1392
Input power		kW	100	140	170	204	240	278
Evaporator	Water flow	m^3/h	86	120	146	178	207	239
	Water pressure drop	kPa	68	60	83	112	77	89
Condenser	Water flow	m^3/h	102	143	174	212	247	285
	Water pressure drop	kPa	88	101	85	53	65	85
Heating performance								
Heating capacity		kW	549	770	978	1140	1326	1529
Input power			116	162	204	236	278	321
Evaporator	Water flow	m^3/h	76	107	136	159	184	212
	Water pressure drop	kPa	55	48	73	91	62	71
Condenser	Water flow	m^3/h	95	134	170	198	230	266
	Water pressure drop	kPa	74	85	77	44	55	71
Heat recovery performance								
Heat recovery capacity		kW	466	653	909	975	1130	1303
Input power		kW	152	215	283	311	362	420
Heat recoverer	Water flow	m^3/h	82	114	159	170	197	228
	Water pressure drop	kPa	55	67	50	29	36	46
Compressor								
Circuit A		n	1	1	1	1	1	1
Circuit B		n	-	-	-	1	1	1
Minimum capacity		%	30	15	15	15	8	8
HFC-134a refrigerant charge								
Circuit A		kg	135	150	150	90	140	140
Circuit B		kg	-	-	-	90	130	130
Water connection								
Evaporator connection		DN	125	150	150	150	200	200
Condenser connection		DN	100	100	150	150	150	150
Heat recovery connection		DN	100	100	150	150	150	150
Dimension								
Length		mm	3363	3454	3274	4888	4891	4891
Width		mm	1085	1119	1258	1338	1338	1338
Height		mm	1791	1969	2094	2187	2358	2358
Shipping weight (With refrigerant)		kg	4157	5126	5735	9992	11044	11425
Operation weight		kg	3557	4526	5135	8492	9544	9925

Note: 1.Cooling conditions: evaporator entering and leaving temperate is 12/7℃, condenser entering and leaving temperate is 30/35℃, fouling factors are 0.018 / 0.044m2℃/ kW;
2.Heating conditions: evaporator entering and leaving temperate is 12/7℃, condenser entering and leaving temperate is 40/45℃, fouling factors are 0.018 / 0.044m2℃ / kW;
3.Heat recovery conditions: evaporator entering and leaving temperate is - / 7℃, water flow is the same as cooling conditions; condenser entering and leaving temperate is 58 / 63℃, fouling factors are 0.018 / 0.044m2℃ / kW;
4.Chiller heat exchanger is two passes design, and standard water-side pressure is 1.0MPa.

Electrical parameters 30XW total heat recovery

mid efficiency units 30XW-		0502	0702	0902	1052	1262	1402
Power circuit							
Rated Voltage	V-ph-Hz	400-3-50					
Voltage Range	V	360-440					
Control circuit							
Nominal start-up current*							
Circuit A	A	587	772	772	587	772	772
Circuit B	A	-	-	-	587	587	772
Option 81	A	-	-	-	757	943	1015
Maximum start-up current **							
Circuit A	A	587	772	772	587	772	772
Circuit B	A	-	-	-	587	587	772
Option 81	A	-	-	-	887	1072	1202
Cosine Phi							
Nominal ***		0.85	0.86	0.87	0.85	0.86	0.86
Maximum †		0.91	0.90	0.90	0.91	0.91	0.91
Maximum power draw ††							
Circuit A	kW	191	268	286	191	252	271
Circuit B	kW	-	-	-	191	191	252
Option 81	kW	-	-	-	382	443	523
Nominal current draw ***							
Circuit A	A	171	243	256	171	229	243
Circuit B	A	-	-	-	171	171	229
Option 81	A	-	-	-	342	400	472
Maximum current draw (Un) ††							
Circuit A	A	300	430	460	300	400	430
Circuit B	A	-	-	-	300	300	400
Option 81	A	-	-	-	600	700	830
Maximum current draw (Un -10%) †							
Circuit A	A	330	455	476	330	419	455
Circuit B	A	-	-	-	330	330	419
Option 81	A	-	-	-	660	749	874

* Instantaneous start -up current (locked rotor current of the largest compressor + the rated load current of other smaller motors at norminal operating conditions)
Values obtained at operating condition: evaporator temperature entry/leave water = 12°C/7°C, condenser temperature entry/leavewater = 30°C/35°C

** Instantaneous start -up current (locked rotor current of the largest compressor + the maximum load current of other smaller motors at maximum unit conditions)
Values obtained at operation with maximum unit power input

*** Values obtained at operating condition: evaporator temperature entry/leave water = 12°C/7°C, condenser temperature entry/leavewater = 30°C/35°C

† Values obtained at operation with maximum unit power input

†† Values obtained at operation with maximum unit power input
Values given on the name plate

Options & accessories

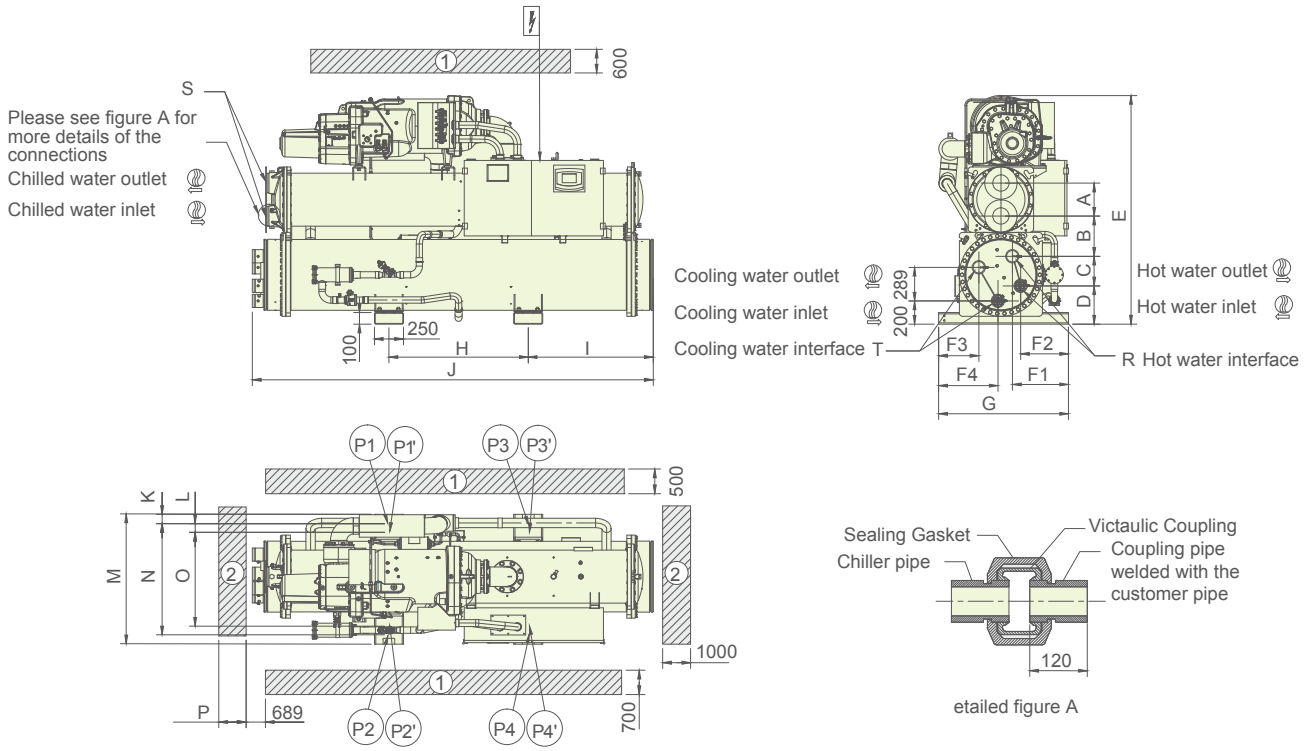
Options	NO	Description	Advantages	Use
Single power connection	81	This option is required to allow to connect on single power supply line to one single location where std machine require two	Quick and easy installation	30XW1052~1402PT050A
Evaporator with reversed water connection	107E	Evaporator with reversed water inlet/outlet	Simplification of the water piping	30XW0502~1402PT050A
CCN to J bus gateway	148B	Two way protocol converter board between CCN and J-Bus for easy connection to BMS. Consist of: - Electronic board mounted in the unit electrical cabinet - Automatic configuration at start up	Easy connection by communication bus to a building management system	30XW0502~1402PT050A
CCN to BAC Net/Modbus gateway	148C	Two way protocol converter board between CCN and BAC Net/ Modbus for easy connection to BMS. Consist of: - Electronic board mounted in the unit electrical cabinet - Automatic configuration at start up	Easy connection by communication bus to a building management system	30XW0502~1402PT050A
CCN to Lon work gateway	148D	Two way protocol converter board between CCN and Lon walk for easy connection to BMS. Consist of: - Electronic board mounted in the unit electrical cabinet - Automatic configuration at start up	Easy connection by communication bus to a building management system	30XW0502~1402PT050A
Heat recovery (Max condenser leaving temp 63℃)	050A	Heat pump control logic to control condenser LWT * Use of air-cooled unit compressors * Increase size of electrical componts according to compressor motor electrical characteristics * Heat pump control logic * Condenser insulation	Allows heating applications with max condenser leaving temp 63℃	30XW0502~1402PT050A
Condenser water valve control (0-10V signal)	152	Output signal (0-10V) to control the condenser water inlet valve Consist of: - One 8DO+4AI/2AO Board - Connector for 3 way valve Note: Power supply for water valve is not included	Used for applications with cold water at the condenser inlet (well water). In this case the valve controls the water entering temperature to maintain an acceptable condensing pressure	30XW0502~1402PT050A
Energy management module	156	Remote control module. Additional contacts for an extension of the unit control functions (without communication bus) Consist of: - Electrinoc board mounted in the unit electrical cabniet	Easy connection by wired connection to a building management system	30XW0502~1402PT050A
Evaporator flanged connections	314E	Victaulic to Flange water connections	Easy installation	30XW0502~1402PT050A
Condenser flanged connections	314C	Victaulic to Flange water connections	Easy installation	30XW0502~1402PT050A
Nitrogen charge	320	Unit nitrogen factory charged.	Less weight. No refrigerant charged	30XW0502~1402PT050A
Discharge shut off valve	321	Allows referigerant to be stored inside the chiller during servicing	Reducing refrigerant loss and eliminating time-consuming transfer procedures	30XW0502~1402PT050A
Low noise	257	Provide 2 to 4 dBA sound attenuation vs std to meet low noise application * Innovative lagging used	Lower operating sound levels	30XW0502~1402PT050A
Soft starter	25	Provide unit soft staring, uninterupted changeover without current peak that would stress power supply * Using a soft starter instead of Wye-Delta starter	Lower peak start-up current	30XW0502~1402PT050A
IP44 Enclosure	20	IP44 Enclosure(Control box & Terminal box)	Higher water & rust protection level for control box & terminal box	30XW0502~1402PT050A
Terminal box condensation free	322	Recommended for tropical environments (hot and humid). Consist of: -Slope bottom of terminal box. -A water drain tube from the bottom of terminal box. -Thermal insulation on the surface of terminal box.	Avoid the condensation appearing on the surface of terminal box and accumulating internally. Also prevent condensation dropping on the control box where bellow the terminal box.	30XW0502~1402PT050A
				30XW0502~1402PT050A

Coding instructions:
When multiple options coexist, the larger number is row on the right, and the options are separated by "/", for example:30XW1402 total heat recovery unit configures single power connection and cooling water valve control, its unit model is: 30XW1402-PT050A / 081/152

Notes:
1. IP44 enclosure PT020 is not compatible with PT025/PT258/PT322.
2. Condenser water valve control option is not include 3 way valve and power supply for water valve.

Dimensions drawing

30XW0502-0902PT050A



Note :

1.① Required clearance for maintenance, ② Recommended space for tube removal

2.Pi and Pi' are two groups of bolts to fix the chiller, either group can be selected.

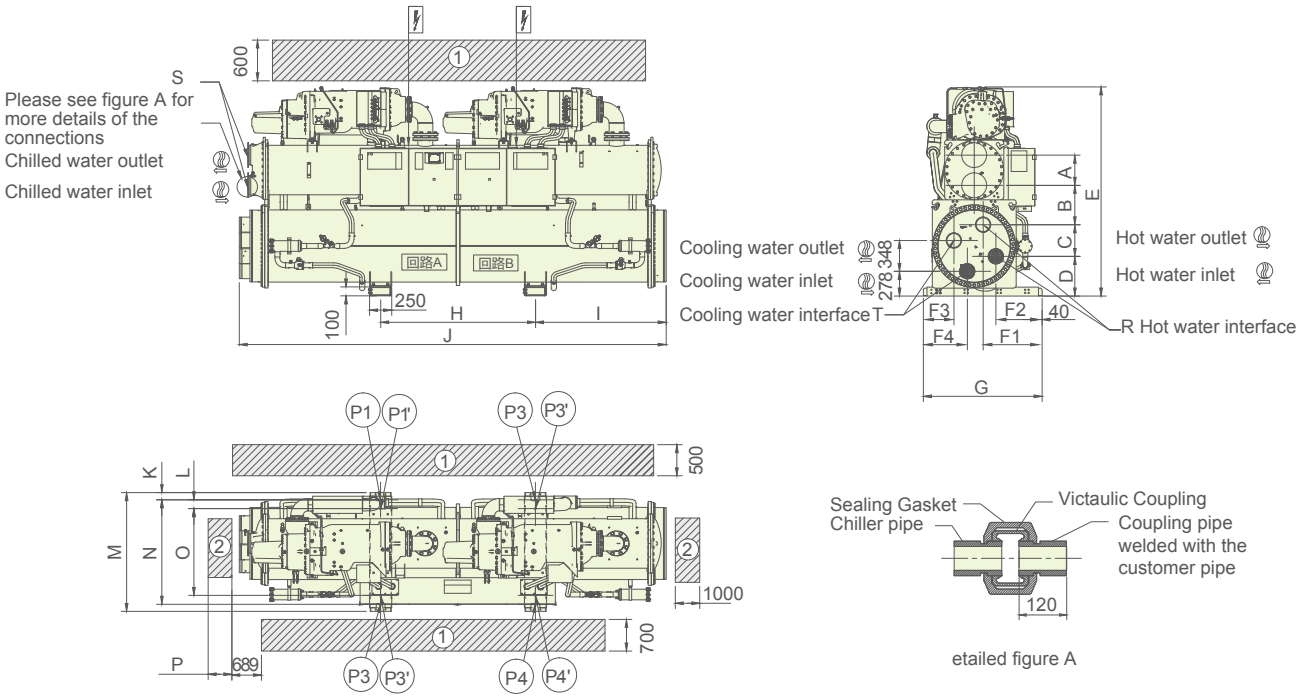
3.The water pipe connector is Victaulic coupling, the Victaulic and the pipe are supplied with the chiller, the pipe length is 120mm

Model	A	B	C	D	E	F1	F2	F3	F4	G	H	I	J	K	L	M	N	O	P	S	R	T
30XW0502PT050A	272	307	264	286	1791	458	399	380	475	1085	1600	832	3363	25	75	1085	1035	885	3160	DN125	DN100	DN100
30XW0702PT050A	284	346	255	330	1969	482	412	347	512	1119	1200	1077	3454	80	75	1119	958	808	3160	DN150	DN100	DN100
30XW0902PT050A	284	337	340	398	2094	625	525	305	465	1258	1500	827	3274	40	100	1258	1178	978	3160	DN150	DN150	DN150

Model	P1	P2	P3	P4	P1′	P2′	P3′	P4′	PT
30XW0502PT050A	1071	1328	517	641	1044	1354	504	654	3557
30XW0702PT050A	1171	1749	644	962	1105	1815	608	999	4526
30XW0902PT050A	1657	1532	1013	933	1672	1516	1022	924	5135

Dimensions drawing

30XW1052-1402PT050A



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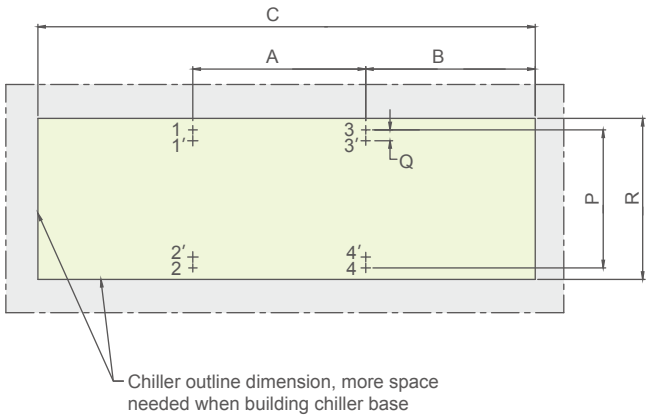
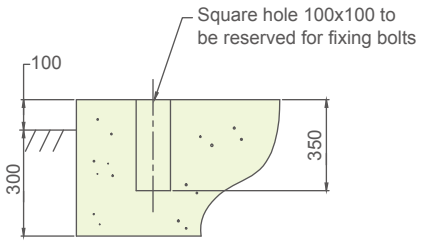
型号	A	B	C	D	E	F1	F2	F3	F4	G	H	I	J	K	L	M	N	O	P	S	R	T
30XW1052PT050A	284	422	356	447	2187	665	520	345	495	1338	1745	1521	4888	80	100	1338	1178	978	4550	DN150	DN150	DN150
30XW1262PT050A	340	445	356	447	2358	625	480	305	455	1338	1745	1522	4891	80	100	1338	1178	978	4550	DN200	DN150	DN150
30XW1402PT050A	340	445	356	447	2358	625	480	305	455	1338	1745	1522	4891	80	100	1338	1178	978	4550	DN200	DN150	DN150

型号	P1	P2	P3	P4	P1′	P2′	P3′	P4′	PT
30XW1052PT050A	2740	2890	1393	1469	2721	2909	1383	1479	8492
30XW1262PT050A	2358	2974	1863	2349	2296	3037	1813	2399	9544
30XW1402PT050A	2378	3030	1986	2530	2312	3097	1930	2586	9925

Basement drawing



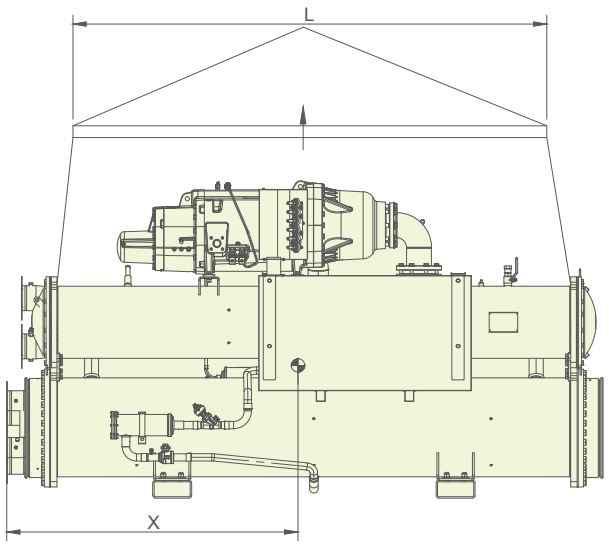


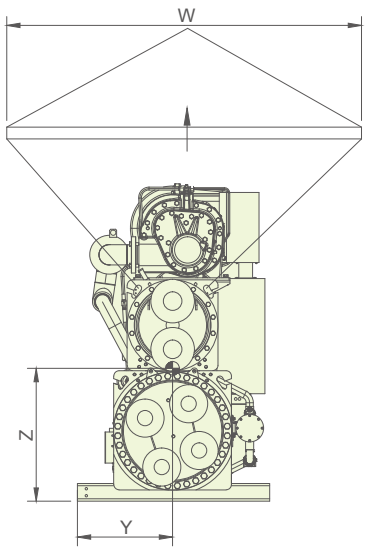
Sectional diagram for fixing bolts

Note:
1.4 bolts used to fix chiller, bolt size M20x300
2.User can select 1, 2. 3, 4 or 1 ', 2', 3 ', 4' as a group to fix bolts

Model	A(mm)	B(mm)	C(mm)	P(mm)	Q(mm)	R(mm)
30XW0502PT050A	1600	832	3365	1035	75	1085
30XW0702PT050A	1200	1177	3454	958	75	1119
30XW0902PT050A	1500	947	3274	1178	100	1258
30XW1052PT050A	1745	1521	4888	1178	100	1338
30XW1262PT050A	1745	1522	4891	1178	100	1338
30XW1402PT050A	1745	1522	4891	1178	100	1338

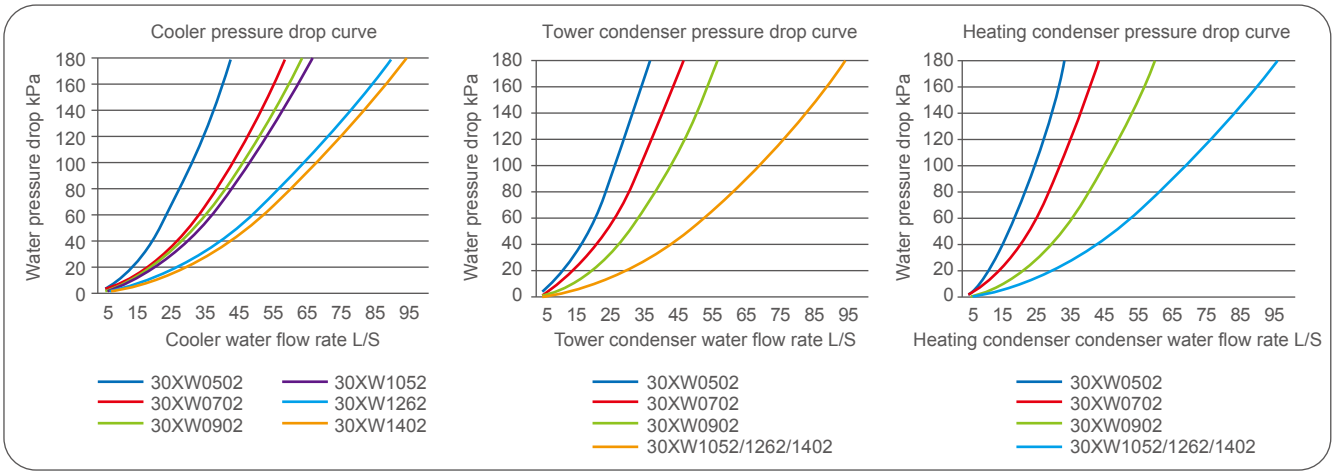
Lifting drawing





Model	X(mm)	Y(mm)	Z(mm)	L(mm) Minimum	W(mm) Minimum
30XW0502PT050A	1622	569	888	2000	1200
30XW0702PT050A	1603	559	938	2000	1200
30XW0902PT050A	1515	571	947	2000	1200
30XW1052PT050A	2434	606	1085	4800	1400
30XW1262PT050A	2394	737	1132	4800	1400
30XW1402PT050A	2418	740	1172	4800	1400

Pressure drop curve of 30XW total heat recovery



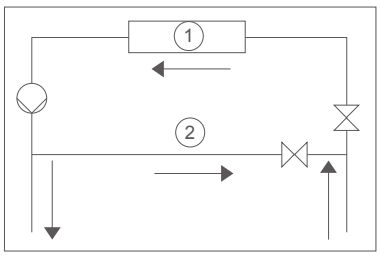
Water flow rate range（L/s）

30XW total heat recorey	Tower/heating condenser		Evaporator	
	min*	max**	min*	max**
0502	4.0	40.8	6.0	36.0
0702	5.1	51.6	8.7	49.3
0902	7.8	67.9	8.7	49.3
1052	7.3	71.8	11.9	66.0
1262	8.6	87.1	14.6	87.3
1402	9.5	96.1	15.3	92.6

* Based on water flow rate was 0.5 (m/s)
** Based on water flow rate was 3.05 (m/s)

Minimum chilled water flow

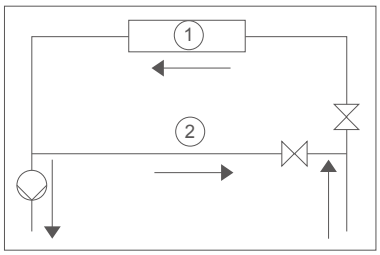
If the system flow is less than the minimum unit flow rate, the evaporator flow can be recirculated, as shown in the diagram.
For minimum chilled water flow rate



1. Evaporator
2. Recirculation

Maximum chilled water flow

The maximum chilled water flow is limited by the permitted pressure drop in the evaporator. Bypass the evaporator as shown in the diagram to obtain a lower evaporator flow rate.
For maximum chilled water flow rate



1. Evaporator
2. Bypass

System minimum water volume

For better control of leaving water temperature, the water loop minimum capacity is given by the formula:

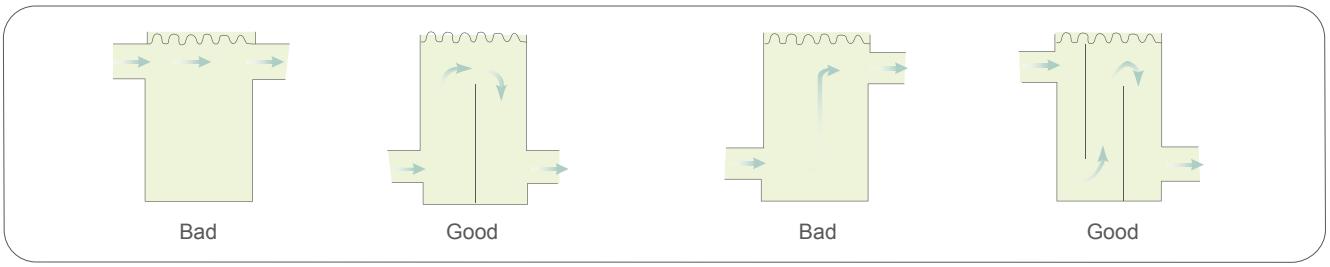
Capacity = CAP (kW) × N Liters

Application	N
Normal air conditioning	3.5
	3.5
Process cooling	6.5
	6.5

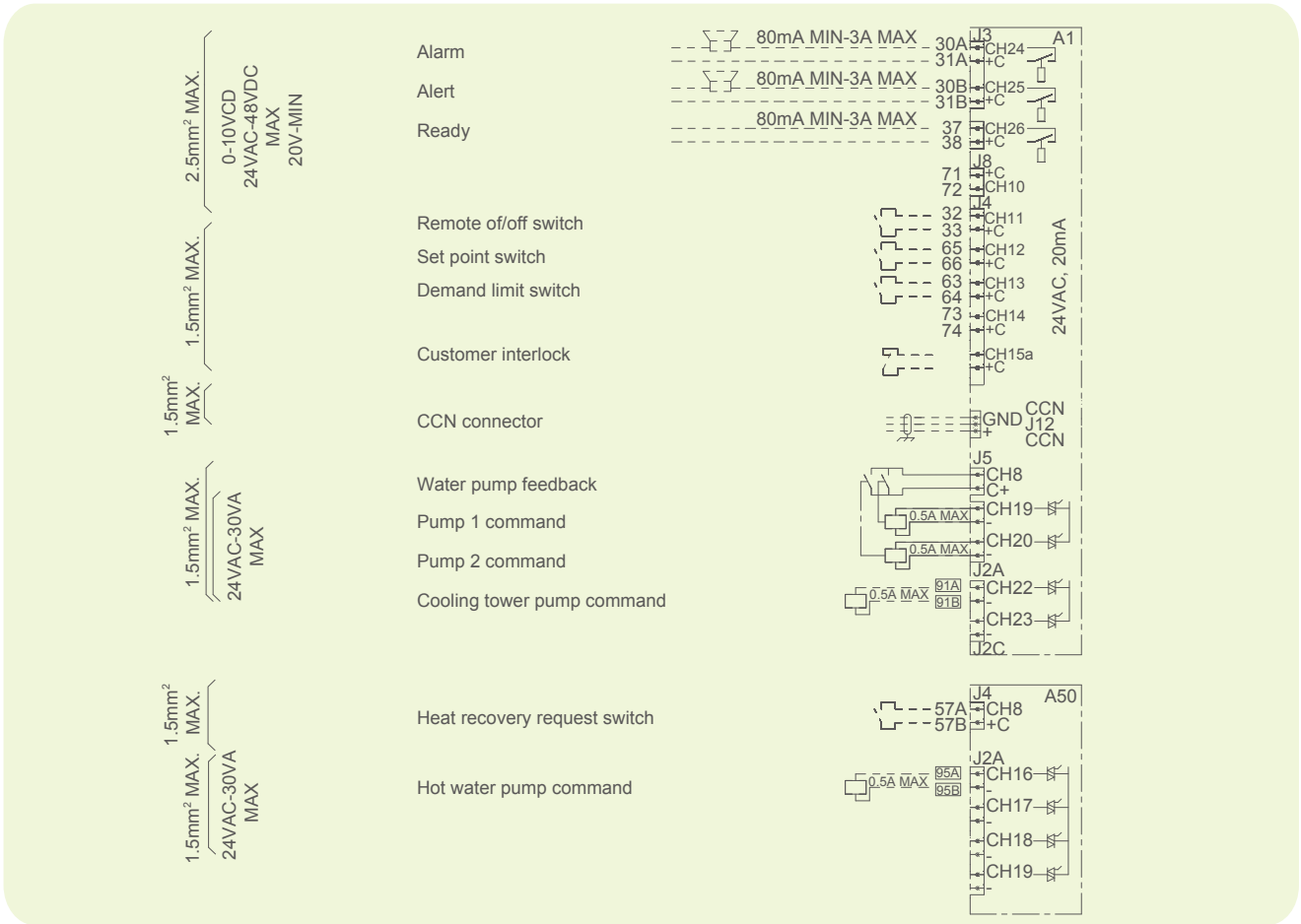
Where Cap is the nominal system cooling capacity (kW) at the nominal operating conditions of the installation.

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.



Wiring diagram



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