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COOLPOINT™
DELIVERING. INNOVATION



Air Cooled Screw Chiller

COOL POINT CENTRAL AIR-CONDITIONING



More than engineering we are about
innovative partnerships



Chiller Features

Modular design is adopted for Air Cooled Screw Liquid Chiller, the suppliers for refrigeration fittings and control components are chosen from world famous manufactures, and the state-of-the-art intelligent control scheme is employed, enabling high-efficiency, energy-saving, stable and reliable operation of the chiller; self-equipped multi-chiller joint control function can realize joint control of 8 chillers at maximum and easily satisfy air conditioning demands of different occasions.

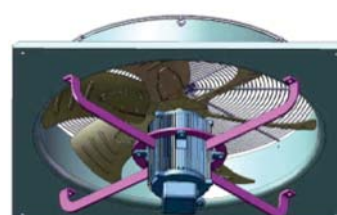
High-efficiency and energy-saving

- The heat exchanger on water side with patented design of counterflow in combination with internal threaded high-efficiency tube can promote heat exchange efficiency by 20% to 30%.
- The unique flow design adopted for the heat exchanger on air side so the refrigerant is at the optimal flow rate under any working condition to decrease the pressure drop of refrigerant inside the heat exchange copper refrigerant pipes on air side to the minimum so as to reduce power consumption of compressor effectively and improve energy efficiency of the chiller.
- New open window aluminum fins are employed, greatly strengthening air perturbation on the surface of heat exchange tubes and fins on air side and improving heat exchange efficiency by approximate 8%.
- Hierarchical control of the chiller fans effectively reduces power consumption of fans when the chiller is in transition season.
- Double degree of superheat control adopted for electronic expansion valve in cooperation with high-precision sensor controls circular flow of refrigerant in the system rapidly and precisely, remarkably improving the operating efficiency of the chiller at full and part of load.
- Unique synergistic control program (for comfortable occasions) can automatically adjust outlet water temperature of the chiller in accordance with changes of outdoor ambient temperature and heating capacity and comfort



Environmental Friendliness

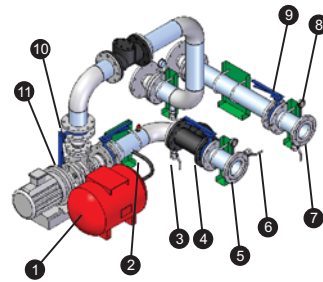
- Adoption of semi-closed twin-screw compressor supported by design of special build-in muffler reduces noise and vibration of compressor.
- Design of the chiller by incorporating finned coil heat exchanger in reverse m-type structure in combination with design of low noise external rotor axial flow fan and flow guide by king-size air duct reduces noise in air flow effectively.



Built in Hydraulic Module System (Optional)

Built-in Hydraulic module system integrate : water pump, filter, expansion tank, flow switch, safety valve, pressure gauge, drain valve, etc.

It is convenient for users to connect water pipe and operate running test. Saving initial investment and make it easy to install the unit. Built-in hydraulic module is controlled by micro computer, users can see the state of unit by screen.



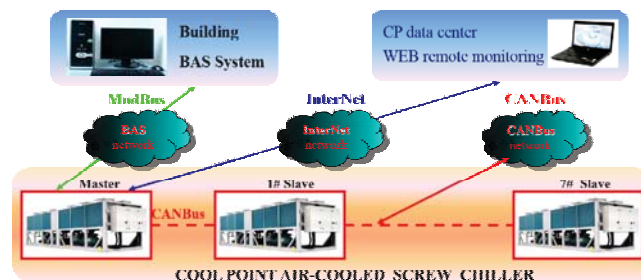
Number	Name
1	Expansion Tank
2	Safety Valve
3	Drain Valve
4	Filter
5	Water Inlet
6	Charging Valve
7	Water Outlet
8	Pressure Gauge
9	Butterfly Valve
10	Soft Rubber Joint
11	Water Pump

Easy Installation

- Lug design enables simple and safe hoisting.
- Water flow switch has been installed on water pipe of heat exchanger on water side, and operation beings after startup, saving the time of site installation.
- Inlet and outlet water pipes are equipped with standard flanges, convenient for site connection.
- Starting cabinet and control cabinet are self-contained in the chiller, and meanwhile refrigerant and refrigerant and refrigeration off have been filled before delivery. so only water pipe and power supply need be connected on site. and the chiller, can be put into operation after sales service personnel of our company conduct initial startup test on site.

Modular design

- Modular design is adopted, and joint control module interface is reserved on microcomputer controller of each chiller. Networking control can be achieved only by connecting lines of communication among multiple chillers and setting the host and save machines.
- Centralized control of all modules selection of number of modules and monitoring of operating data and states can be performed via the host machine.. All modules operate relatively independent to each other and are under centralized control



Reliable Performance

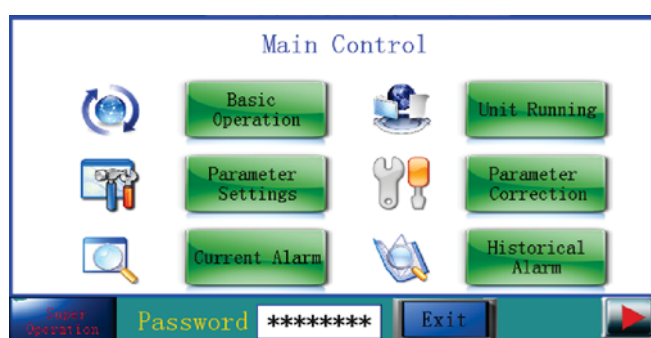
- Cool Point OEM designers conduct optimal design for critical components and system pipelines of the chiller on the basis of existing theories and in combination with internationally advanced design concepts and always put the stability of the chiller in the first place.
- The chiller adopts compressor of international famous brand with high stability.
- Original control by electronic expansion valve effectively solves problems of carrying liquid, throwing oil and system oscillation, etc. during defrosting and enables stable operation of the chiller.
- Balanced design of high precision for distribution of refrigerant in heat exchanger on air side of the chiller guarantees uniform distribution of refrigerant in heat exchanger on air side, enhances heating capacity and improves frosting condition.
- External oil cooler controls of temperature of compressor and enables more stable and reliable heating operation of the chiller at low temperature.
- Long-term simulation tests; including tests for various variable working conditions extreme working conditions, defrosting of heat pump and practical tertiary highway transportation, etc. to verify and optimize performance reliability and structure of the chiller.

Modular design

Industrial microcomputer controller in coordination with liquid crystal touch screen constitutes control core of the chiller, which, in combination with specific auto control technology and meanwhile absorbing advanced control process in the world, enables our controller to possess more power functions.

Leading intelligent control program guarantees precise control of the chiller for water temperature under various working conditions and safe and reliable operation in the mode of maximal energy conservation; in the meantime, advanced anticipatory control functions take corresponding restraint measures in time to avoid sudden shutdown of the chiller due to alarm before occurrence of faults.

The chiller can compile operating schedule with one week as a cycle to realize auto control of startup and stop of the chiller and really achieve unattended and automatic operation.



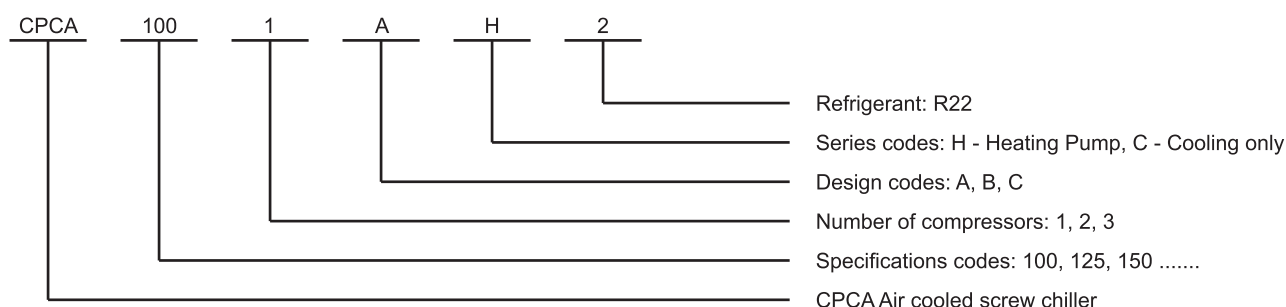
Main functions:

- Local and remote auto control
- Startup / stop control of the chiller
- Real time display of operating states and parameters
- Display and setting of control parameters
- Self check function of the chiller after startup
- Energy adjusting function
- Control for equilibrium operation of compressor
- Control against frequent startup of compressor
- Hierarchical energy saving control of condensate fan
- Intelligent defrosting control
- Water pump interlocking control
- Multi chiller joint control function - real time clock display
- Classified function for operating authority
- Function of automatic shutdown for alarm and fault display
- Historical fault memory function
- R485 communication interface (communication function) etc.

Protective functions:

- Power supply over / under voltage protection
- Power supply open phase, anti phase and phase unbalance protection
- Compressor off level protection
- Compressor oil pressure difference protection
- Compressor motor over temperature protection
- Compressor motor over load protection
- Compressor startup failure protection
- Wrong direction of rotation protection of compressor
- Higher condensing pressure (exhaust) protection
- Lower evaporating pressure (suction) protection
- Suction / exhaust pressure difference unestablished protection
- System pressure early warning protection
- Frost protection
- Cut out protection
- Exhaust over temperature protection
- Water over temperature protection
- Freezing point protection
- Excessive water temperature difference protection
- Communication failure protection

Description of type



CPCA-AC1 (R134a) Air cooled screw chiller specifications

Unit Model CPCA - AC1			110.1	145.1	170.1	210.1	230.2	260.2	285.2	345.2	405.2
Nomlnal Cooling Capacity		kW	385	505	601	730	808	909	1001	1210	1425
		Kkcal/h	331100	434300	516860	627800	694880	781740	860860	1040600	1225500
Cooling Rated Power Input		kW	123	159	189	233	254	285	319	379	464
Cooling Rated Current		A	219	288	341	419	479	507	578	690	840
Max. Starter Current		A	615	845	845	965	1102	1264	1358	1358	1486
Max. Running Current		A	419	513	523	521	900	932	1026	1026	1042
Power Supply		380 V - 3 Ph - 50 Hz									
Evaporator	Type		Tube and Shell Evaporator								
	Flow Rate	m³/h	66	87	13	126	139	156	172	208	245
	Inlet/Outlet DN	DN	125	125	125	150	150	150	150	200	200
	Pressure Drop	kPa	40	53	56	57	68	72	73	70	68
	Max. Pressure	mPa	1	1	1	1	1	1	1	1	1
Compressor	Type		Semi Hermetical Screw Compressor								
	Energy Adjusting		25% - 100% four step control				12.5% - 100% eight step control				
	Starter Mode		Y - Δ								
Fan	Air Flow Rate	m³/h	150000	200000	250000	250000	350000	350000	400000	400000	500000
	Quantity	piece	6	8	10	10	14	14	16	16	20
Refrigerant	Type		R-134a								
	System Quantity		1				2				
Dimension	Length	mm	3787	4792	5797	5797	8707	8707	9712	9712	11700
	Width	mm	2250								
	Helght	mm	2420				2480				
Hydraulic Module (Option)	Built-in-Hydraulic Module		Water pump, expansion tank, filter, safety valve, pressure gauge, butterfly valve etc.								
	Water Pump Type		Centrifugal single pump or twin pump (option)								
New Weight		kg	4350	4690	5500	6050	7850	7980	9200	9550	11800
Running Weight		kg	4550	4910	5750	6340	8190	8340	9590	9980	12400

Note:

- Nominal cooling capacity are based on following conditions. Chilled water inlet/outlet temperature 12/7 °C
Ambient dry bulb temperature 35 °C
- Promised power supply fluctuate range 10%.
- If you need low ambient temperature cooling function, please note.
- When choose built-in hydraulic module, please note pump lifting.
- Due to possible product improvement. COOL POINT reserve the right to make changes in design and construction at any time without notice
- For the details please contact factory.

General Data (R-22) - Cooling Only

Unit Model CPCA - AC2			100.1	125.1	150.1	175.2	200.2
Nominal Cooling Capacity	kW		353	440	519	612	702
	Kkcal/h		303580	378400	446340	526320	603720
Cooling Rated Power Input	kW		117	146	172	204	234
Cooling Rated Current	A		224	280	322	398	448
Max. Starter Current	A		419	655	732	696	736
Max. Running Current	A		289	385	437	515	578
Power Supply		380 V - 3 Ph - 50 Hz					
Evaporator	Type		Direct Expansion Shell & Tube Evaporator				
	Flow Rate	m³/h	61	76	89	105	121
	Inlet/Outlet DN	DN	125	125	200	200	200
	Pressure Drop	kPa	69	53	52	58	40
	Max. Pressure	mPa	1.05	1.05	1.05	1.05	1.05
Compressor	Type		Semi Hermatical Screw Compressor				
	Energy Adjusting		25% - 100% four step control			12.5%-100% 8-step	
	Starter Mode		Y - Δ				
Fan	Air Flow Rate	m³/h	132000	176000	220000	264000	264000
	Quantity	piece	6	8	10	12	12
Refrigerant	Type		R-22				
	System Quantity		1			2	
	Charge Mass	kg	80	90	110	70+80	80+80
Dimension	Length	mm	4072	5172	6272	8172	8172
	Width	mm	2250				
	Height	mm	2462				
New Weight		kg	3600	4200	4800	5700	5900
Running Weight		kg	3800	4400	5100	6000	6200

Note:

- Cooling capacity is based on 12 °C entering and 7 °C leaving water temperature. 35 °C DB ambient temperature.
- Voltage tolerance range 10%.

General Data (R-22) - Heat Pump

Unit Model GPCA - AH2			100.1	125.1	150.1	175.2	200.2
Cooling Capacity		kW	353	440	519	612	702
		Kkcal/h	303580	378400	446340	526320	603720
Power Input (cooling)		kW	117	146	172	204	234
Heating Capacity		kW	386	503	582	675	771
		Kkcal/h	331960	432580	500520	580500	663060
Power Input (heating)		kW	109	141	167	190	217
Cooling Rated Current		A	224	280	322	398	448
Max. Starter Current		A	419	655	732	696	736
Max. Running Current		A	289	385	437	515	578
Power Supply		380 V - 3 Ph - 50 Hz					
Evaporator	Type		Direct Expansion Shell & Tube Evaporator				
	Flow Rate	m³/h	61	76	89	105	121
	Inlet/Outlet DN	DN	125	125	200	200	200
	Pressure Drop	kPa	69	53	52	58	40
	Max. Pressure	mPa	1.05	1.05	1.05	1.05	1.05
Compressor	Type		Semi Hermatical Screw Compressor				
	Energy Adjusting		25% - 100% four step control			12.5%-100% 8-step	
	Starter Mode		Y - Δ				
Fan	Air Flow Rate	m³/h	132000	176000	220000	264000	264000
	Quantity	piece	6	8	10	12	12
Refrigerant	Type		R-22				
	System Quantity		1			2	
	Charge Mass	kg	120	150	170	105+120	120+120
Dimension	Length	mm	4072	5172	6272	8172	8172
	Width	mm	2250				
	Height	mm	2462				
New Weight		kg	3600	4200	4900	5700	5900
Running Weight		kg	3800	4400	5100	6000	6200

Note:

- Cooling capacity is based on 12 °C entering and 7 °C leaving water temperature. 35 °C DB ambient temperature.
Heating capacity is based on 40 °C entering and 45 °C leaving water temperature. 7DB/6WB °C ambient temperature.
- Voltage tolerance range 10%.

Cooling Series General Data (Variable Working Condition)

Model	Leaving Water Temperature	Ambient Temperature (C)													
		15		20		25		30		35		40		43	
		Cooling Capacity kW	Power Input kW	Cooling Capacity kW	Power Input kW	Cooling Capacity kW	Power Input kW	Cooling Capacity kW	Power Input kW	Cooling Capacity kW	Power Input kW	Cooling Capacity kW	Power Input kW	Cooling Capacity kW	Power Input kW
CPCA 110.1 AC1	5	407	79	395	87	384	96	372	107	360	118	349	131	343	139
	7	435	82	422	90	410	100	397	111	385	123	373	136	366	144
	8	448	84	435	92	423	102	410	113	397	125	384	139	377	147
	10	474	87	460	96	447	106	433	118	419	130	405	143	398	151
	12	499	90	484	99	469	110	454	122	439	135	428	148	409	164
	15	533	95	516	105	500	116	483	128	467	141	451	154	432	172
CPCA 145.1 AC1	5	534	102	518	112	503	124	488	138	473	153	458	169	449	180
	7	570	106	554	117	538	129	521	143	505	159	489	176	480	186
	8	588	108	571	119	554	132	537	146	520	162	504	179	494	190
	10	622	112	604	124	586	137	567	152	549	168	532	185	522	196
	12	564	116	635	128	615	142	596	157	576	174	557	191	537	212
	15	699	123	677	135	655	150	633	166	612	182	498	200	567	222
CPCA 170.1 AC1	5	635	121	617	133	599	148	581	164	563	182	545	201	535	213
	7	679	126	659	139	640	154	620	170	601	189	582	209	571	221
	8	700	128	680	142	660	157	639	174	619	193	600	213	588	225
	10	740	133	719	147	697	163	675	181	654	200	633	220	621	233
	12	778	138	755	153	732	169	709	187	685	207	663	227	639	252
	15	831	146	800	161	780	178	754	197	728	217	236	237	674	264
CPCA 210.1 AC1	5	771	149	749	164	727	182	705	202	683	224	662	248	650	263
	7	824	155	801	171	777	189	754	210	730	233	707	258	694	273
	8	850	158	826	174	801	193	776	224	752	238	728	262	715	278
	10	899	164	873	181	847	201	820	223	794	246	769	271	754	287
	12	945	171	918	188	889	208	861	231	833	255	806	280	776	311
	15	1010	180	979	199	947	220	916	243	885	267	286	292	819	326

Cooling Series General Data (Variable Working Condition)

Model	Leaving Water Temperature	Ambient Temperature (C)											
		20		25		30		35		40		45	
		Cooling Capacity KW	Power Input KW	Cooling Capacity KW	Power Input KW	Cooling Capacity KW	Power Input KW	Cooling Capacity KW	Power Input KW	Cooling Capacity KW	Power Input KW	Cooling Capacity KW	Power Input KW
CPCA 100.1 AC2 CPCA 100.1 AH2	5	392	91	373	98	253	105	332	114	310	124	286	136
	7	417	94	397	100	376	108	353	117	329	128	305	140
	8	429	95	409	102	387	110	364	119	339	130	31	142
	10	454	98	433	105	410	113	385	123	360	134	333	147
	12	480	101	458	108	433	117	407	127	380	139	352	152
	15	521	106	496	114	469	123	442	134	412	146	381	161
CPCA 125.1 AC2 CPCA 125.1 AH2	5	489	115	466	122	440	131	414	142	386	154	357	169
	7	519	118	495	126	468	135	440	146	411	159	380	174
	8	535	119	510	127	482	137	453	148	423	161	391	177
	10	566	123	539	131	511	141	480	153	448	167	414	183
	12	599	127	571	135	540	146	508	158	474	172	438	189
	15	649	133	619	142	585	153	550	166	513	182	475	199
CPCA 150.1 AC2 CPCA 150.1 AH2	5	577	136	549	145	520	155	488	167	455	181	421	198
	7	612	140	583	149	552	159	519	172	484	187	448	204
	8	631	141	601	151	569	162	535	175	499	190	461	207
	10	668	145	636	155	603	166	567	180	529	196	489	214
	12	706	150	673	160	637	172	599	186	559	202	517	222
	15	766	157	730	167	690	180	649	195	606	213	561	234
CPCA 175.2 AC2 CPCA 175.2 AH2	5	680	162	647	172	613	184	576	198	537	21	496	234
	7	722	166	688	177	651	189	612	204	57	221	528	242
	8	744	169	709	179	671	192	630	207	588	225	544	245
	10	788	173	750	184	711	197	668	213	624	232	577	253
	12	833	178	794	190	752	204	706	220	659	239	610	262
	15	903	186	860	198	814	214	766	231	714	252	661	275
CPCA 200.2 AC2 CPCA 200.2 AH2	5	780	186	743	197	703	211	661	228	616	247	569	269
	7	828	191	789	203	747	217	702	234	655	254	606	277
	8	853	193	813	205	769	220	723	238	675	258	624	281
	10	903	199	861	211	815	227	767	245	715	266	661	290
	12	955	204	910	218	862	234	810	252	756	274	699	300
	15	1036	213	978	228	934	245	878	265	819	289	758	316

Heating Series General Data (Variable Working Condition)

Model	Leaving Water Temperature (°C)	Ambient Temperature (°C)														
		-10		-5		0		5		7		10		15		2
		Cooling Capacity kW	Power Input kW	Cooling Capacity kW	Power Input kW	Cooling Capacity kW	Power Input kW	Cooling Capacity kW	Power Input kW	Cooling Capacity kW	Power Input kW	Cooling Capacity kW	Power Input kW	Cooling Capacity kW	Power Input kW	Cooling Capacity kW
CPCA 100.1 AH2	30	255	78	294	80	338	83	386	86	408	87	443	90	508	94	596
	35	251	83	289	86	332	88	379	92	401	93	435	96	498	101	584
	40	246	90	284	92	326	95	372	99	393	100	427	103	489	109	572
	45	243	97	279	100	320	103	366	107	386	109	419	112	479	118	560
	50	240	106	276	109	315	112	359	117	379	119	411	123	469	129	549
	55	239	116	273	119	311	123	354	128	373	131	404	135	460	142	537
CPCA 125.1 AH2	30	332	102	383	104	440	108	503	112	532	114	577	117	662	123	776
	35	326	109	376	111	432	115	494	119	522	121	567	124	649	131	761
	40	321	117	370	120	425	123	485	128	513	130	556	134	637	141	745
	45	316	126	364	129	417	134	476	139	503	141	546	145	624	153	730
	50	313	137	359	141	411	145	468	151	494	154	536	158	612	167	715
	55	311	149	356	154	405	159	461	166	486	169	527	174	600	183	700
CPCA 150.1 AH2	30	384	122	443	125	509	128	582	133	615	135	668	139	766	146	898
	35	378	129	435	133	500	137	572	142	604	144	656	148	751	155	881
	40	371	139	428	142	491	147	561	152	593	154	644	159	737	167	863
	45	366	149	421	153	482	158	551	164	582	167	631	172	722	180	844
	50	362	162	416	166	475	172	542	179	572	182	620	187	708	197	827
	55	360	177	411	182	469	188	534	195	563	199	609	205	694	216	810
CPCA 175.2 AH2	30	446	139	514	143	591	147	675	152	713	155	775	159	888	166	1042
	35	438	148	505	152	580	156	663	162	701	164	761	169	871	177	1021
	40	431	158	497	162	570	167	651	173	688	176	747	181	855	190	1000
	45	425	171	489	175	560	180	639	187	675	190	732	195	838	205	979
	50	420	184	482	190	551	196	628	203	664	206	719	212	821	223	959
	55	417	201	477	206	544	213	619	222	653	226	707	232	805	244	939
	30	509	159	588	163	675	168	771	174	815	177	885	181	1015	190	1190

Units Operations condition range

Cooling

Shell and tube heat exchanger		Minimum Temperature	Maximum Temperature
Entering Water Temperature (Starting)		-----	35
Leaving Water Temperature (Operating)		5	15
Fin Heat Exchanger (Condenser)		Minimum Temperature	Minimum Temperature
Entering Air Temperature	R-22	20	45
	R134a	15	43

Heating

Shell and tube heat exchanger (Condenser)		Minimum Temperature	Maximum Temperature
Entering Water Temperature (Starting)		5	-----
Leaving Water Temperature (Operating)		30	55
Fin Heat Exchanger (Evaporator)		Minimum Temperature	Minimum Temperature
Entering Air Temperature		-10	21

Note:

1. If the actual application condition beyond the above correct data, please contact with Cool Point
2. Low ambient cooling: minimum entering air temperature -5 °C

Unit optional parts

Low ambient cooling unit: Units can cooling in low ambient temperature, the minimum entering air temperature -5 °C

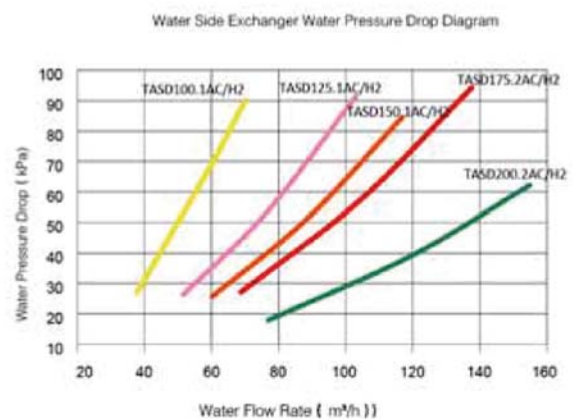
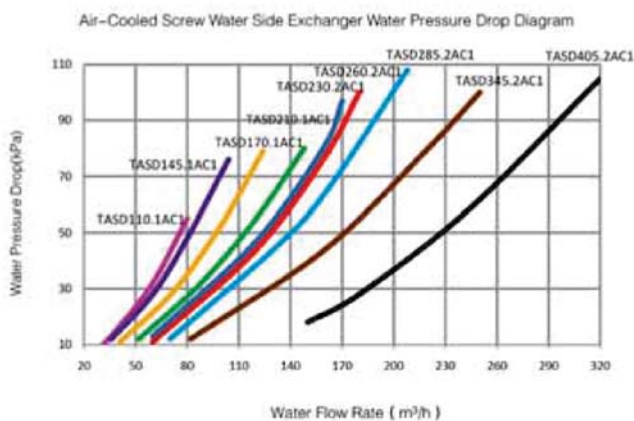
Compressor: sound-proof shield: Reducing the noise of compressor.

Protection fence: Protecting units effectively.

Unit attachments: Spring shock absorption.

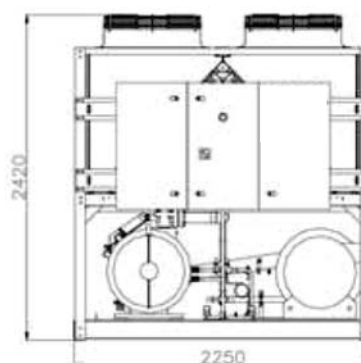
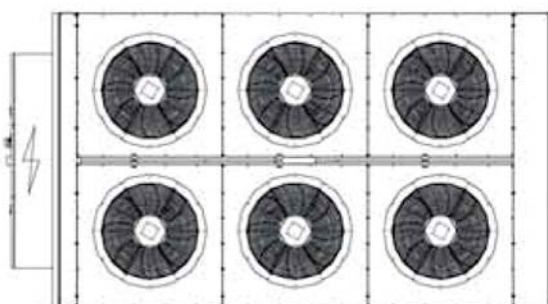
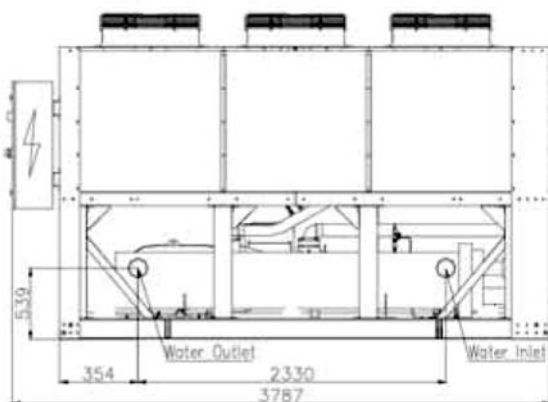
Customizing: Providing required water inlet and outlet temperature according to customers need.

Unit Water Pressure Drop

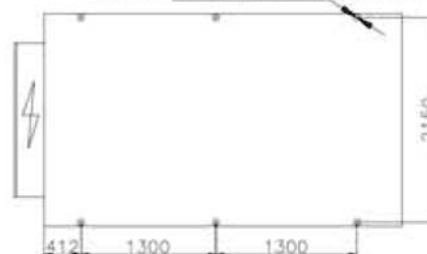


Unit dimension

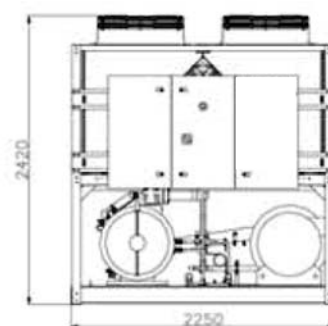
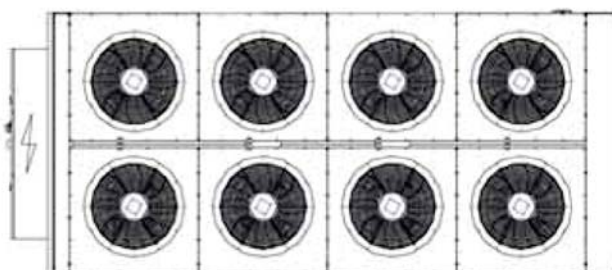
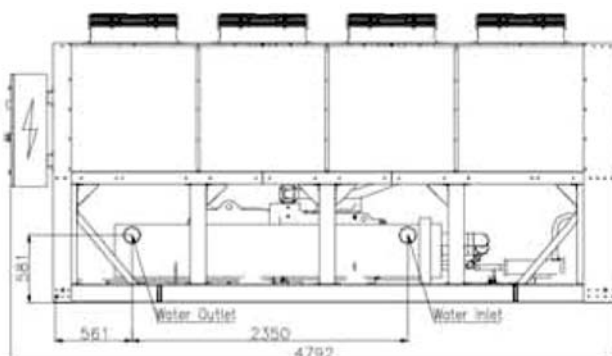
CPCA 110.1 AC1



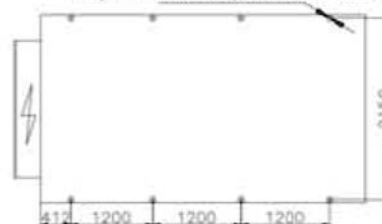
Base vibration absorption installation diagram
6- $\phi 14$ vibration absorption installation hole



CPCA 145.1 AC1

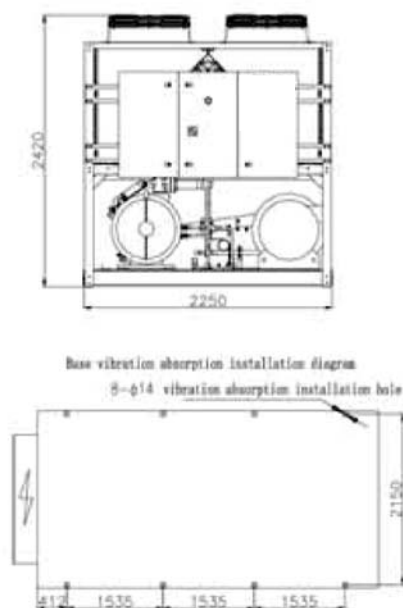
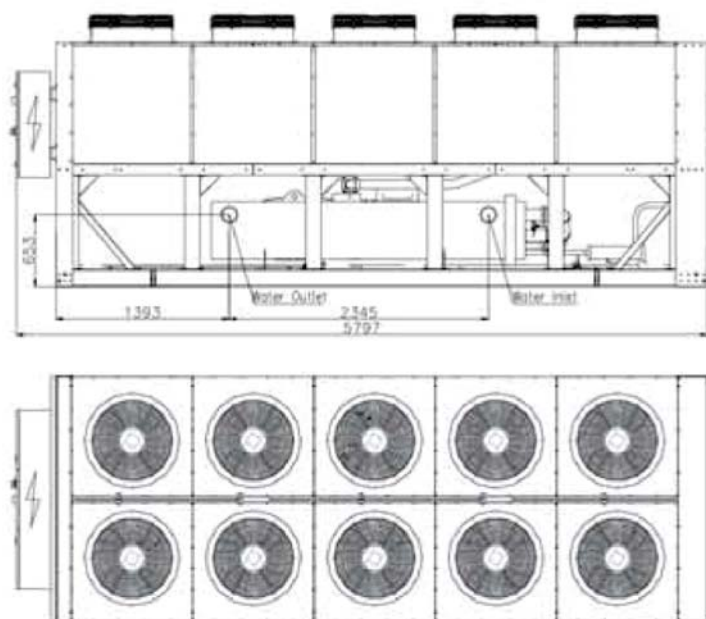


Base vibration absorption installation diagram
8- $\phi 14$ vibration absorption installation hole

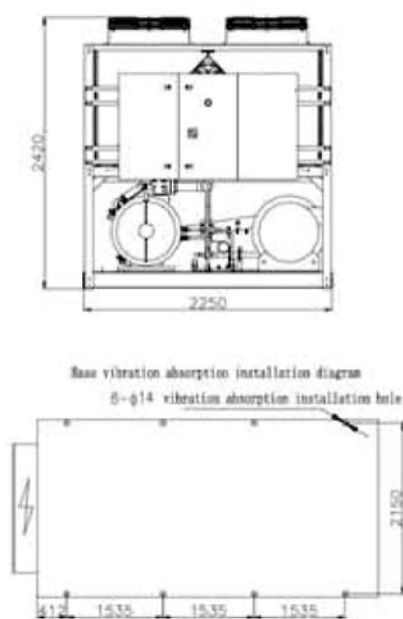
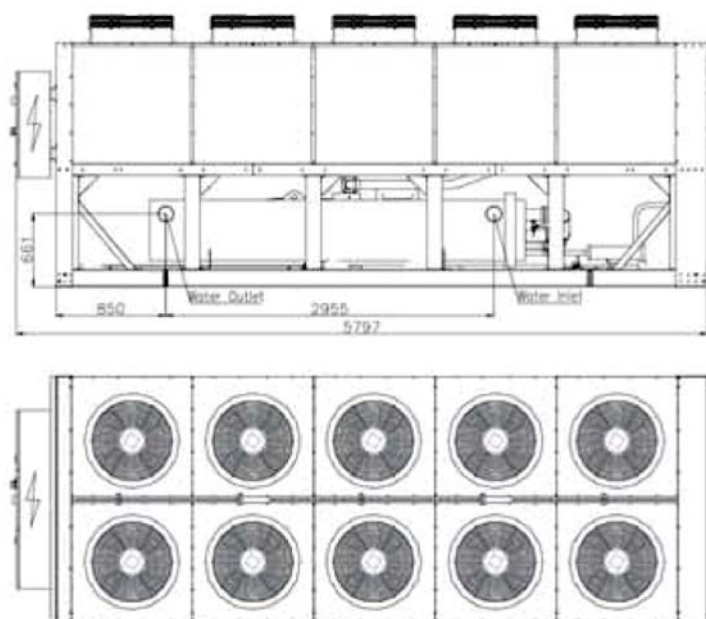


Unit dimension

CPCA 170.1 AC1

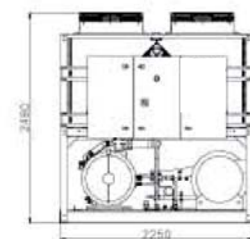
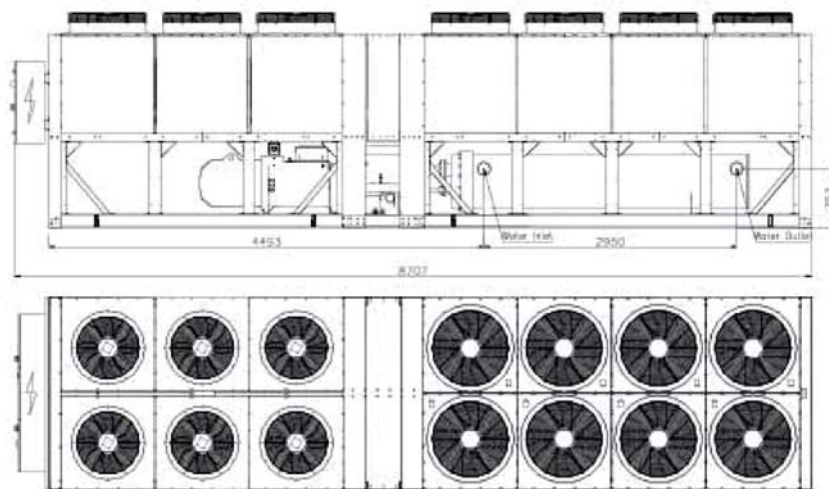


CPCA 210.1 AC1



Unit dimension

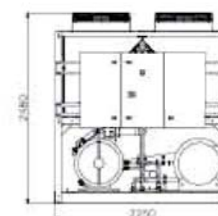
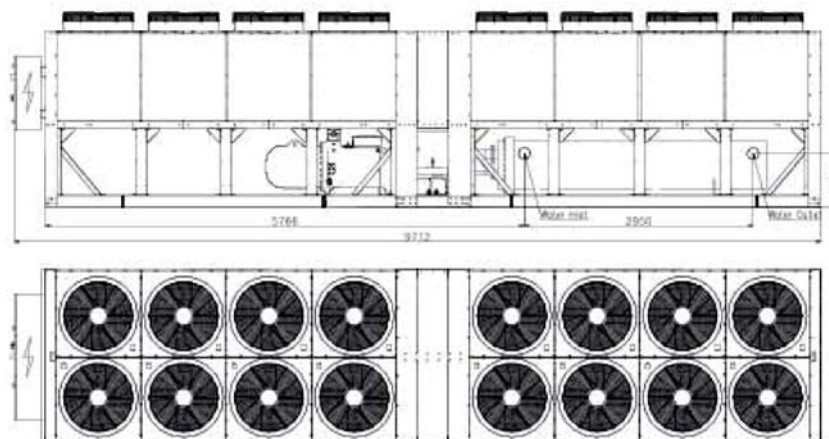
CPCA 230/260.2 AC1



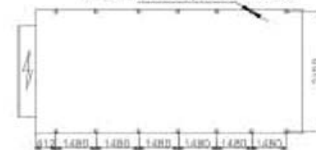
Base vibration absorption installation diagram
12-ø14 vibration absorption installation hole



CPCA 285.2 AC1

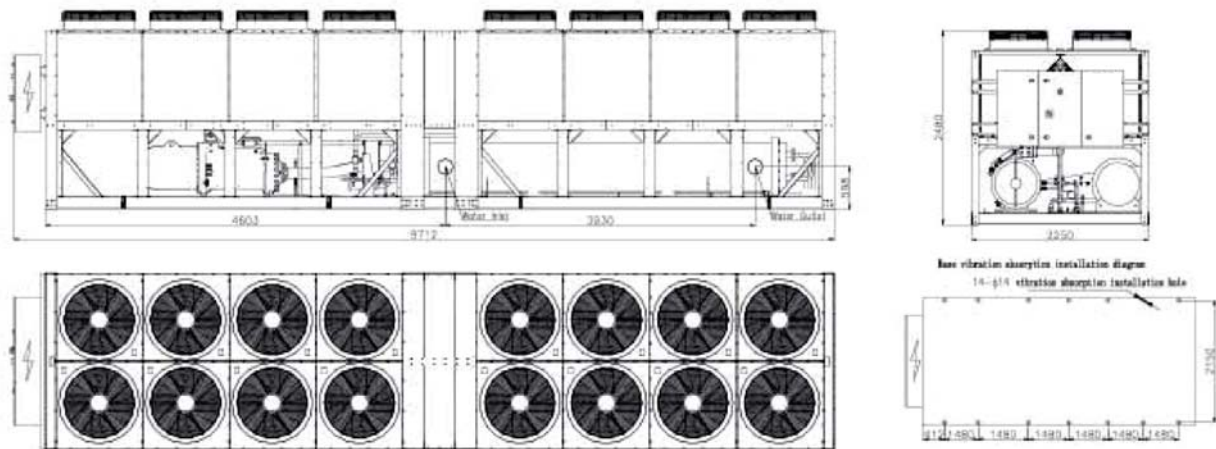


Base vibration absorption installation diagram
14-ø14 vibration absorption installation hole

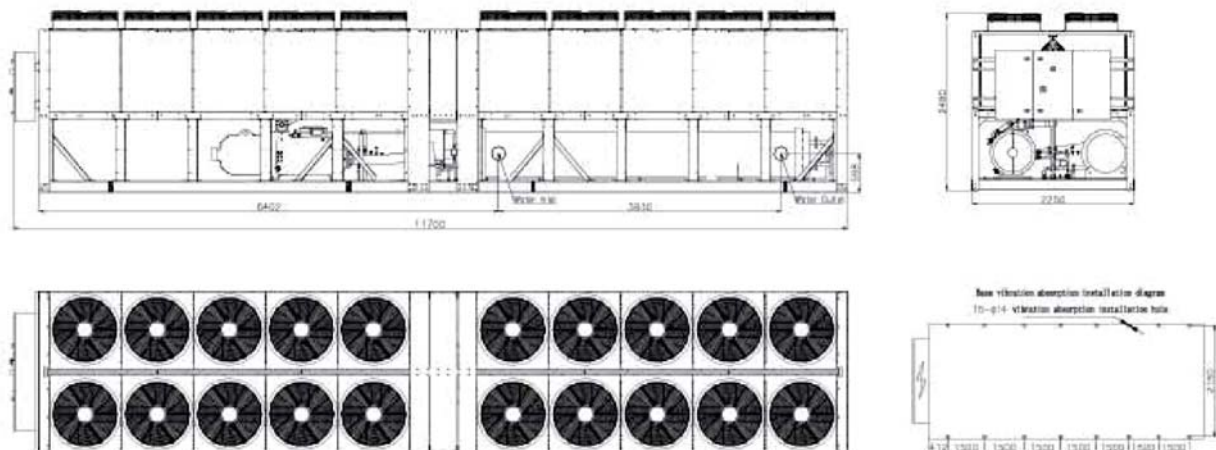


Unit dimension

CPCA 345.2 AC1

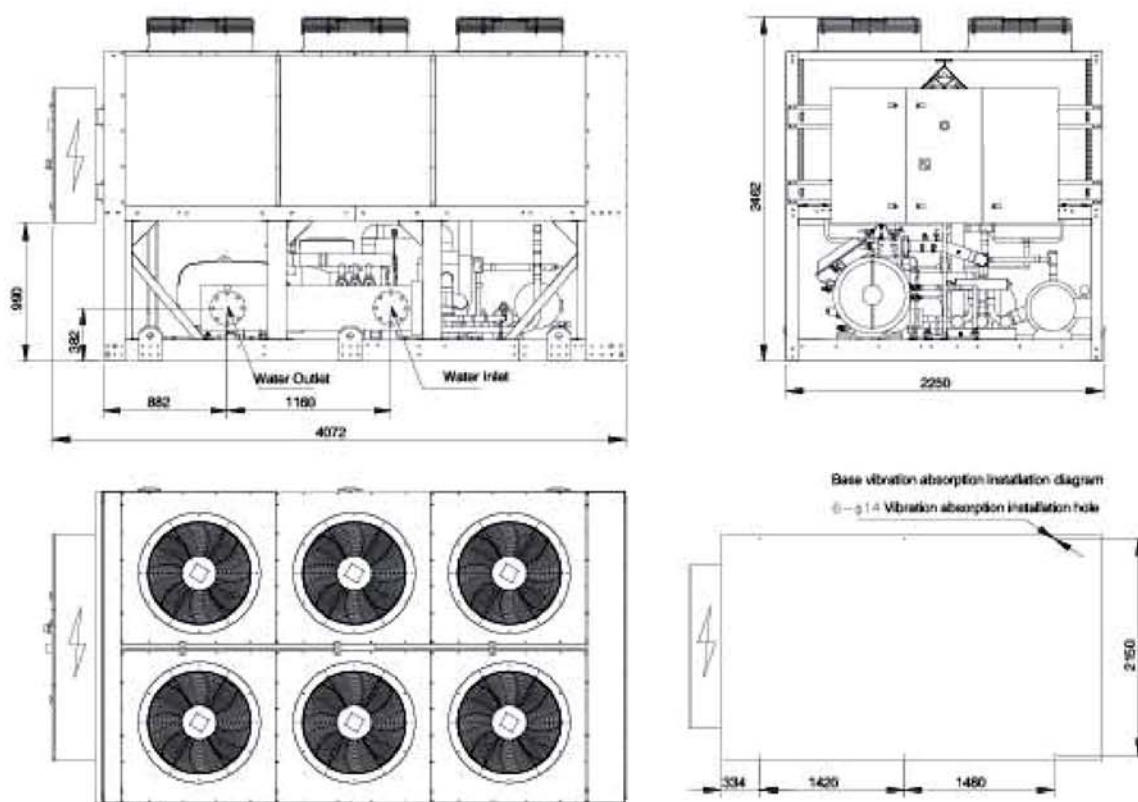


CPCA 405.2 AC1

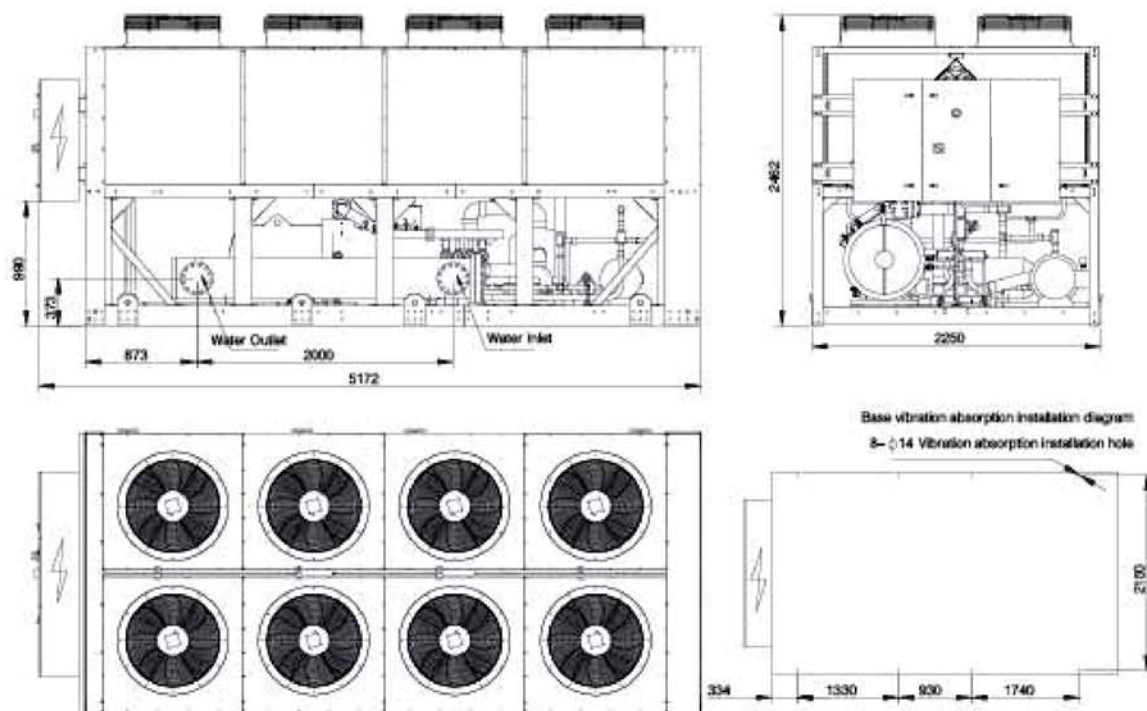


Unit dimension

CPCA 100.1 Ac2 / CPCA 100.1 AH2

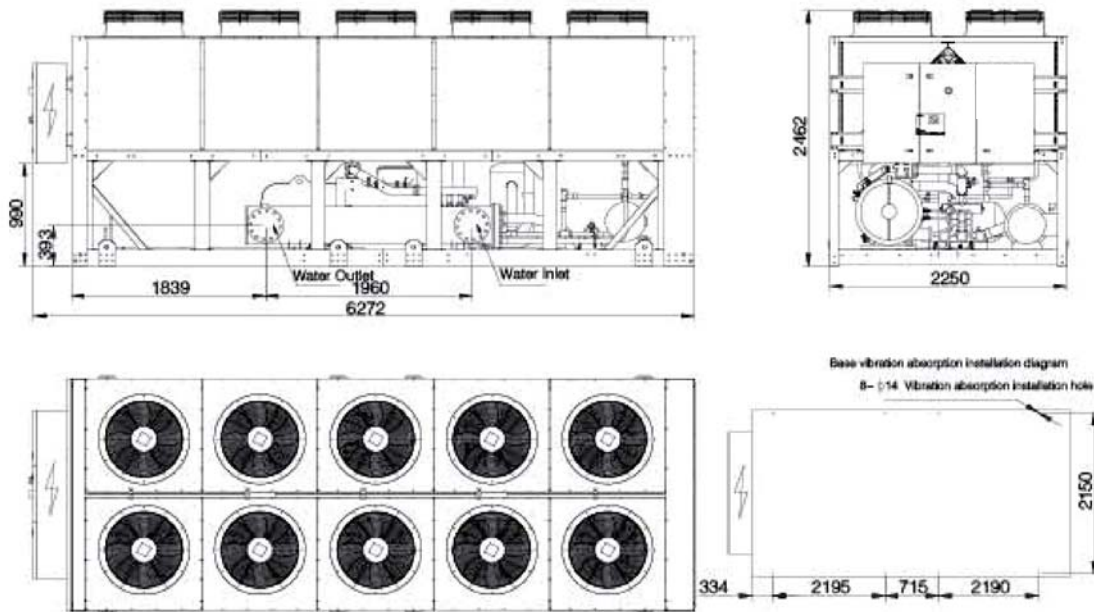


CPCA 125.1 Ac2 / CPCA 125.1 AH2

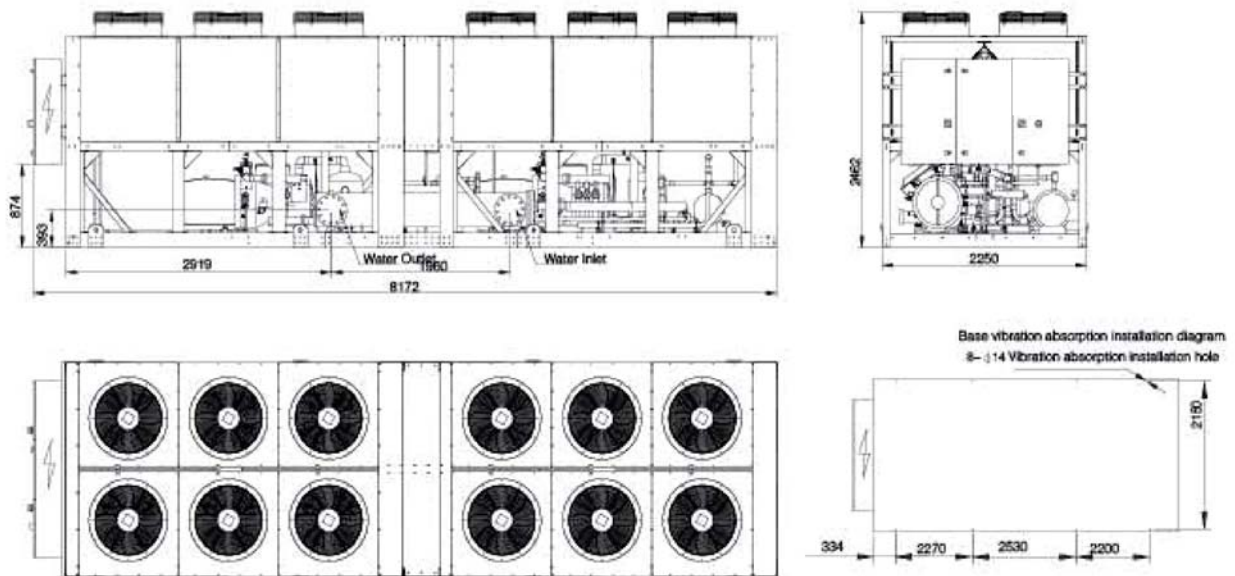


Unit dimension

CPCA 150.1 AC2 / CPCA 150.1 AH2

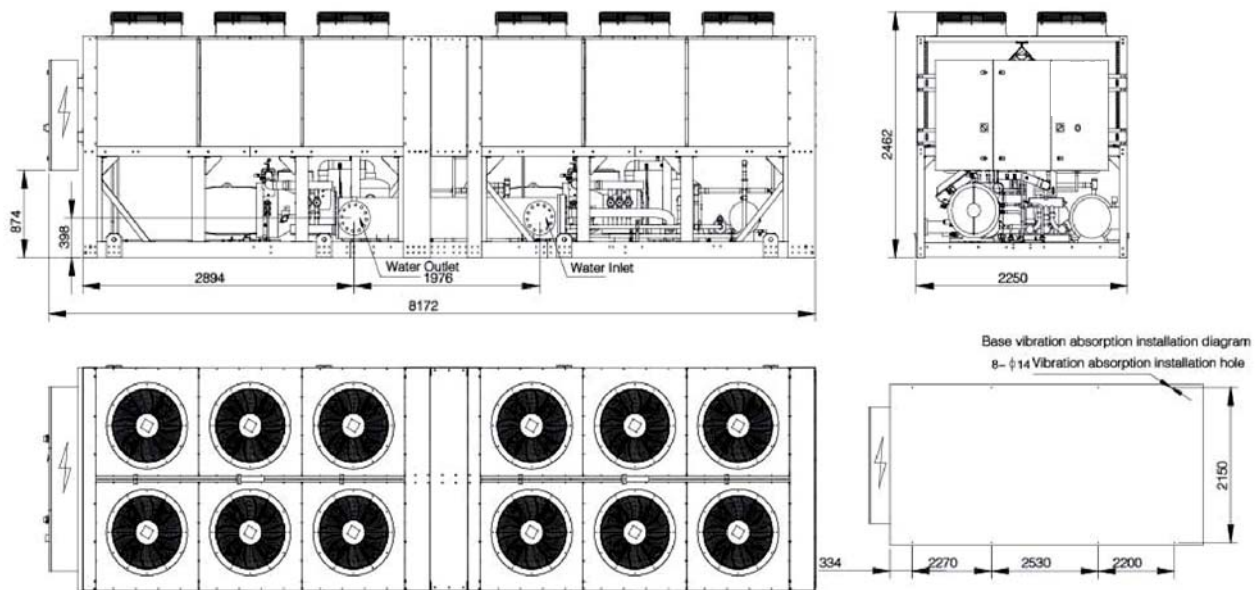


CPCA 175.2 AC2 / CPCA 175.2 AH2



Unit dimension

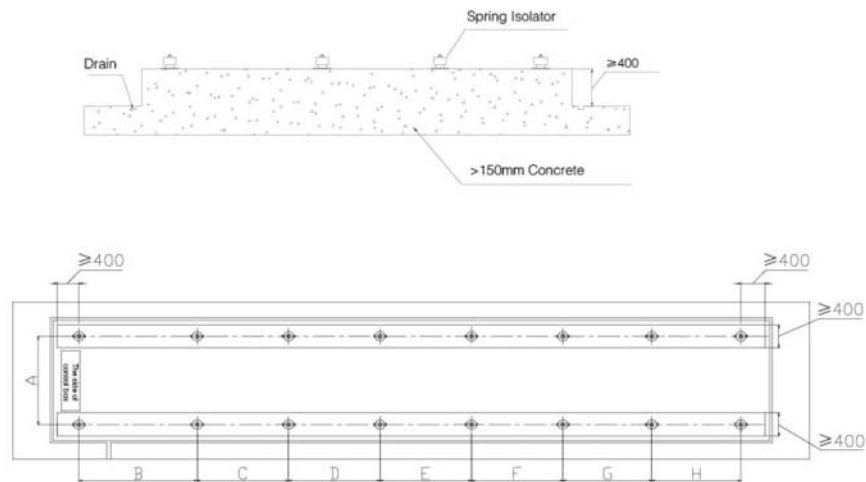
CPCA 150.1 AC2 / CPCA 150.1 AH2



Note:

1. To move or hoist the unit attach ropes to the hoisting hangers (4 pieces) available at the edge of the unit. Apply protection or support to avoid the ropes direct contact with coil and panels are shown in the sketches.
2. If any damage of the unit surface, re-paint is suggested.

Installation Sketch



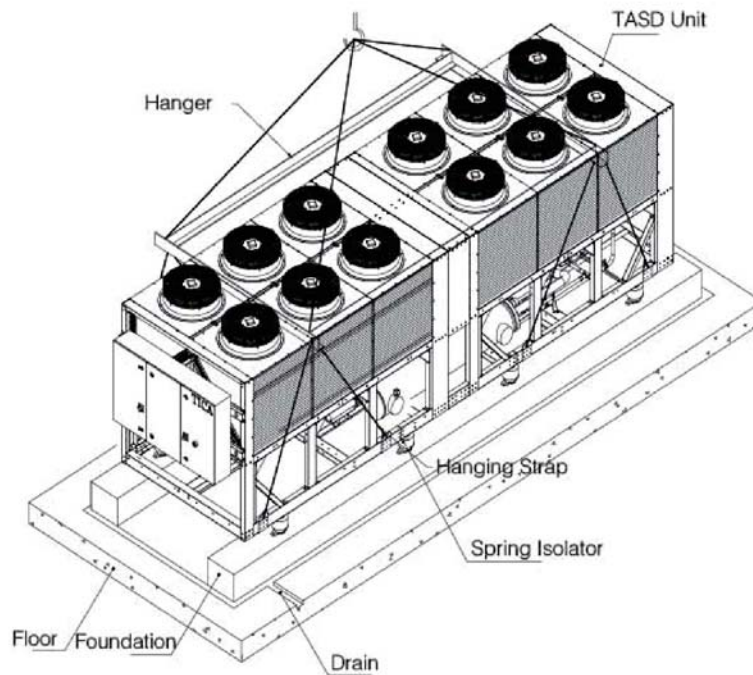
Model	Item (mm)								Spacing Isolator Qty.
	A	B	C	D	E	F	G	H	
CPCA 110.1 AC1	2150	1300	1300	—	—	—	—	—	6
CPCA 145.1 AC1	2150	1200	1200	1200	—	—	—	—	8
CPCA 170.1 AC1	2150	1535	1535	1535	—	—	—	—	8
CPCA 210.1 AC1	2150	1535	1535	1535	—	—	—	—	8
CPCA 230.2 AC1	2150	1575	1575	1575	1575	1575	—	—	12
CPCA 260.2 AC1	2150	1575	1575	1575	1575	1575	—	—	12
CPCA 285.2 AC1	2150	1480	1480	1480	1480	1480	1480	—	14
CPCA 345.2 AC1	2150	1480	1480	1480	1480	1480	1480	—	14
CPCA 405.2 AC1	2150	1500	1500	1500	1500	1500	1500	1500	16

Model	Item (mm)							Spacing Isolator Qty.
	A	B	C	D	E	F	G	
CPCA 110.1 AC1/AH2	2150	1420	1480	—	—	—	—	6
CPCA 125.1 AC1/AH2	2150	1330	930	1740	—	—	—	8
CPCA 150.1 AC1/AH2	2150	2195	715	2190	—	—	—	8
CPCA 175.2 AC1/AH2	2150	2270	2530	2200	—	—	—	8
CPCA 200.2 AC1/AH2	2150	2270	2530	2200	—	—	—	8

Note:

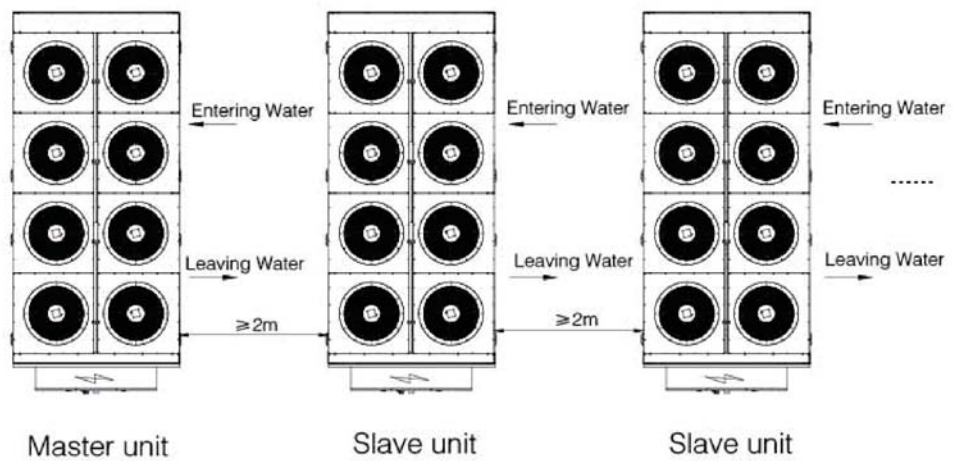
1. The gradient of the foundation should be less than 0.1%.
2. The foundation should be able to support 1.5 times of unit operating weight.
3. Sufficient space must be available for grain barrel.
4. Spring isolator must be installed to prevent excessive vibration and noise.
5. Spring Isolator is optional parts.

Unit Installation

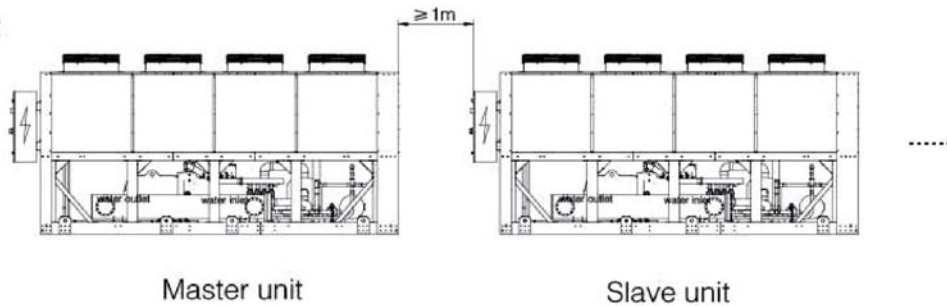


Unit Assembly Methods

Method 1

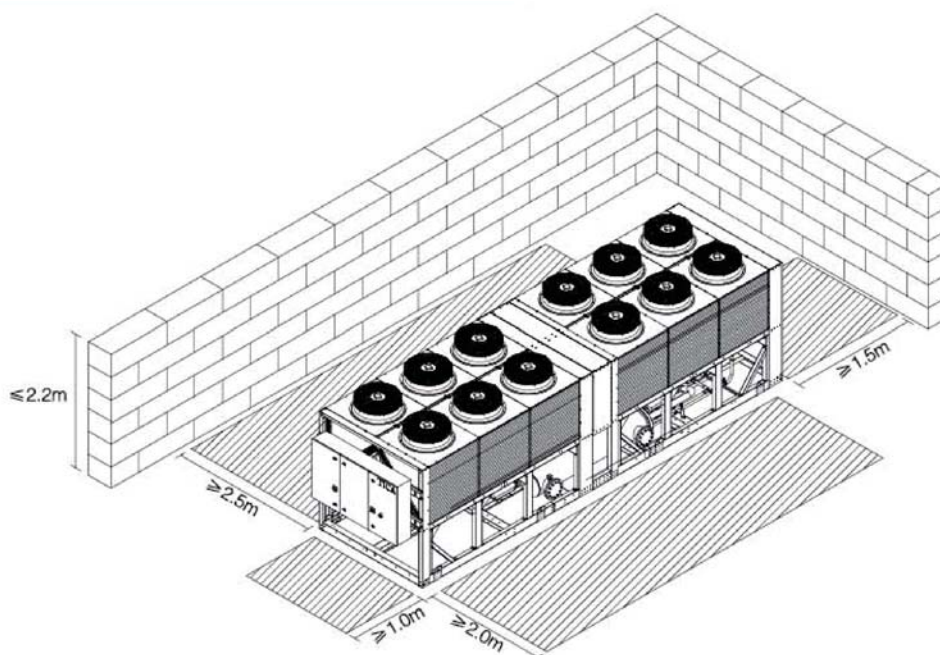


Method 2

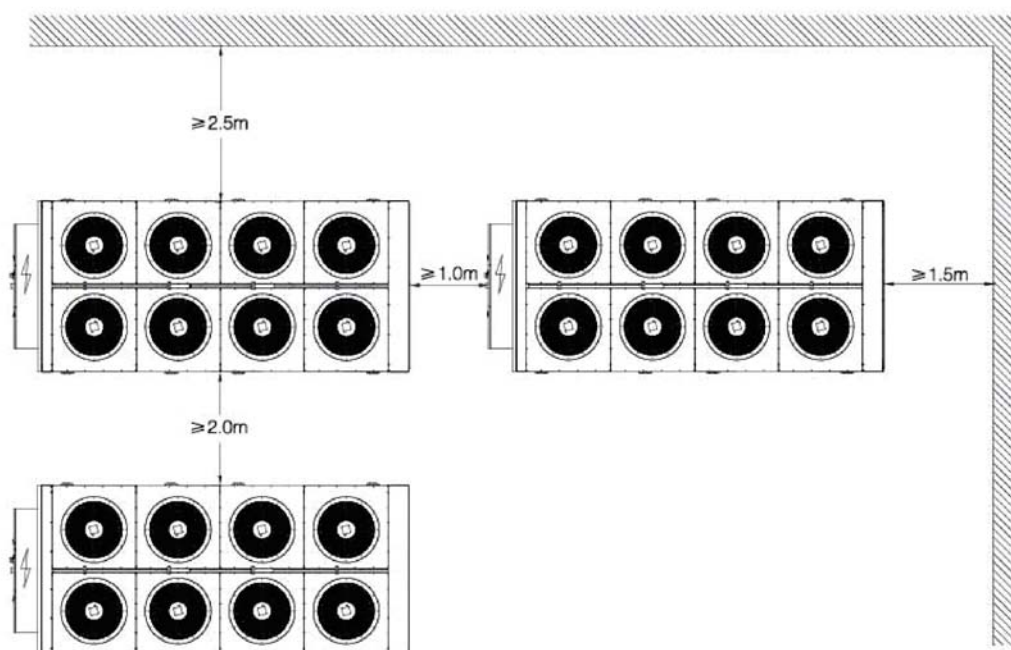


Note: The maximum assembly quantity is 8, the maximum cooling capacity reach to 1600 RT (R-22)

Schematic of installation space



Layout requirements for corners and indentations

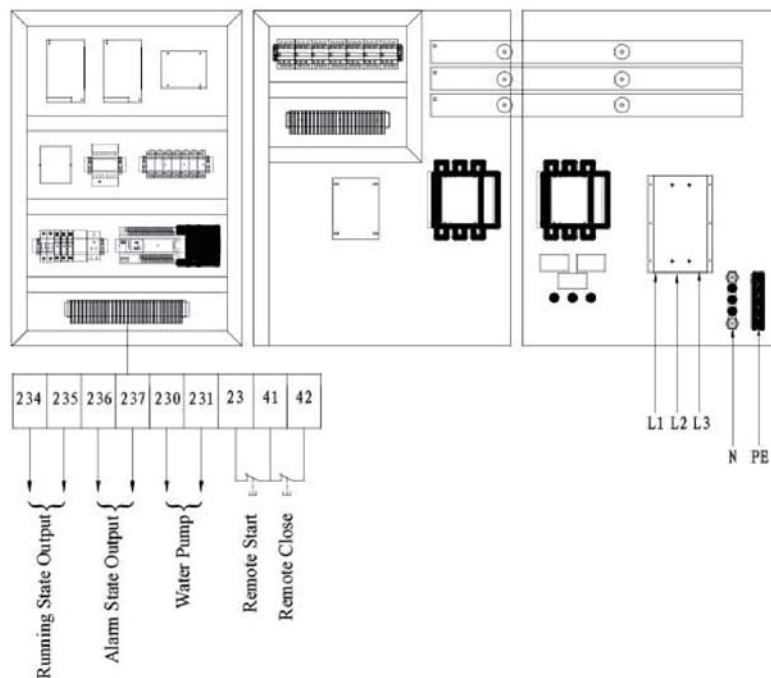


Remarks

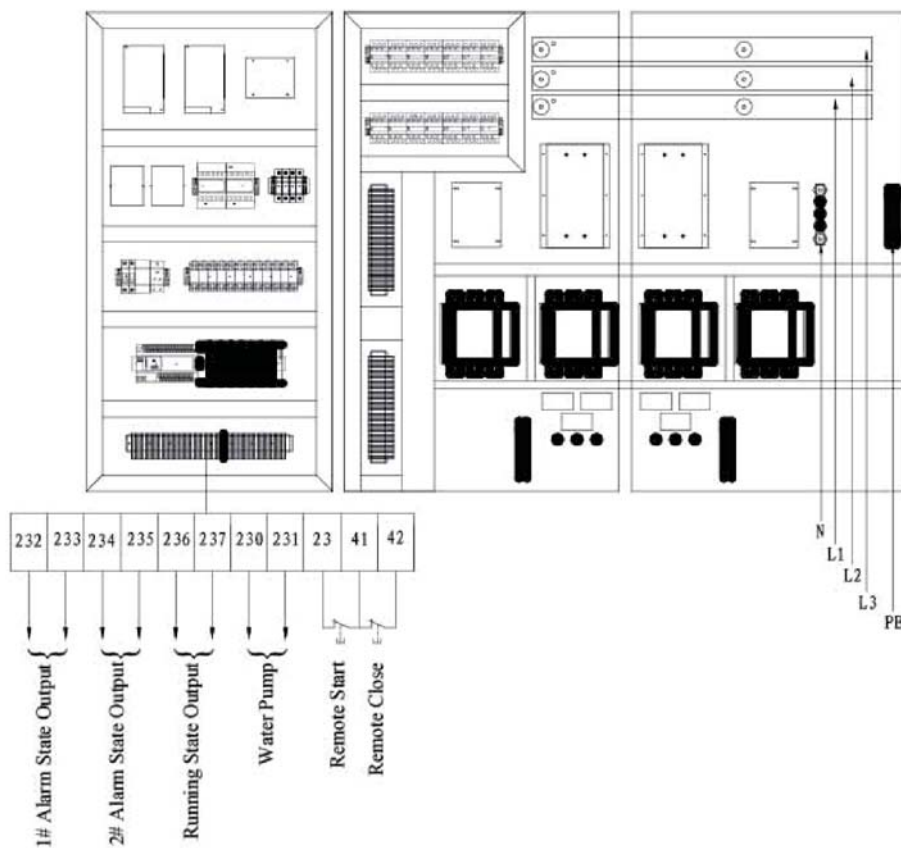
1. The chiller must be installed at site with perfect ventilation and heat dissipation. In order to prevent backflow of condensing air, the lateral spaces of the chiller are recommended as shown in figure above, within which any obstacle should not exist below the chiller.
2. If building shelters exist above the chiller, at least over 3m spatial height should be maintained in case that air flow of the chiller is impeded.
3. Re-circulated hot air will affect energy efficiency ratio of the chiller seriously and may cause higher condensing pressure or failure of fan motor, please be sure to guarantee the requirements for above installation space.

On-site wiring diagram

CPCA 110/145/170/210.1 AC1

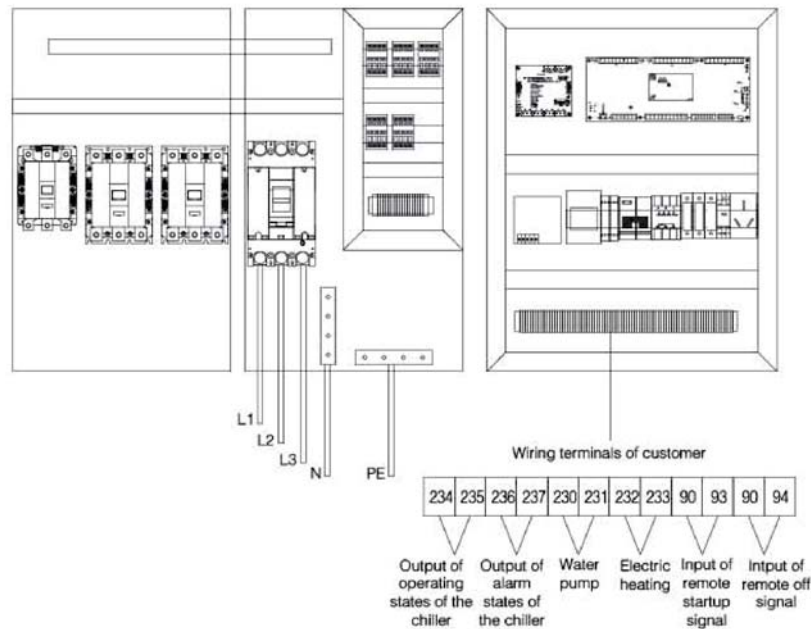


CPCA 230/260/285/335/405.2 AC1

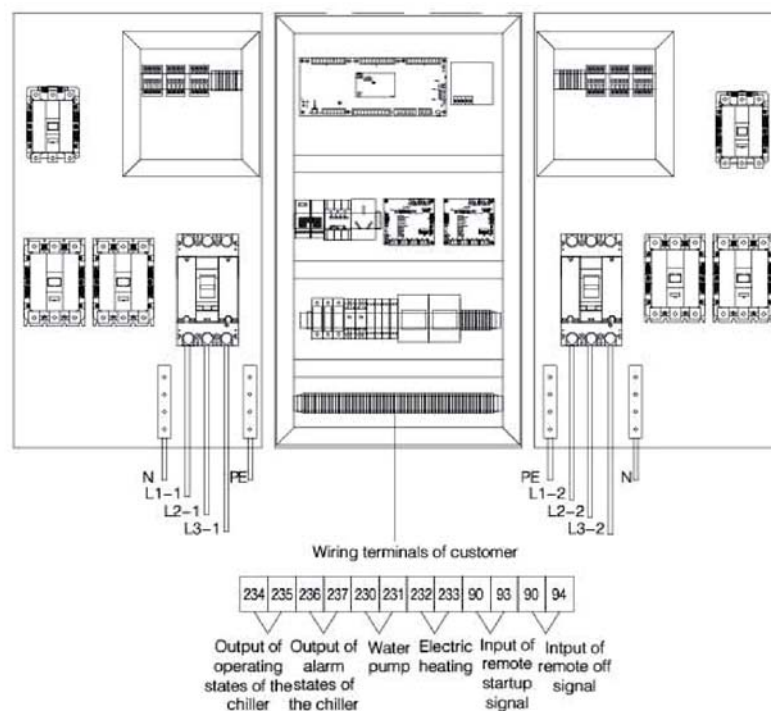


Schematic of installation space

CPCA 100/125/150.1 AC(H)2



CPCA 175/200.2 AC(H)2



Remarks

1. The chiller must be installed at site with perfect ventilation and heat dissipation. In order to prevent backflow of condensing air, the lateral spaces of the chiller are recommended as shown in figure above, within which any obstacle should not exist below the chiller.
2. If building shelters exist above the chiller, at lease over 3m spatial height should be maintained in case that air flow of the chiller is impeded.
3. Re-circulated hot air will affect energy efficiency ratio of the chiller seriously and may cause higher condensing pressure or failure of fan motor, please be sure to guarantee the requirements for above installation space.

Installation and Commissioning

The chiller must be installed and maintained by professionals who have been trained, are familiar with local standards and rules and have practical operating experiences and qualifications for refrigeration equipment. Initial operation of the chiller must be carried out by professional services sectors, otherwise, quality of the chiller cannot be guaranteed.

Handling of the Chiller

The chiller is loaded and transported integrally. The chiller is filled with refrigerant required for normal operation, so special care should be given during loading and transportation to avoid damage to the chiller or leakage of refrigerant due to reckless operations.

Acceptance upon arrival of goods

After arrival of the equipment, carefully check whether all items are complete or not according to the packing list, and whether components and parts are damaged during transportation or not, if damaged, please notify carriers and propose claim for compensation in written form. For any damage after the equipment is qualified by acceptance, our company does not assume any liability for damage.

Hoisting of the chiller

When the chiller is hoisted, the lifting holes on the pedestal of the chiller must be tied fast by mooring ropes or chains with enough bearing capacity to hoist. Hoisting must be operated in accordance with the requirements on hoisting schematic, and panels, fins and other parts of the chiller must be guaranteed not damaged. During hoisting dedicated lifting equipment including spreader bars and hanging brackets, etc. should be used, and inclination of the chiller is strictly forbidden to exceed 30°.

Requirements for foundation

The chiller should be placed on horizontal plane foundation, ground floor or roof that can bear operating weight of the whole equipment, for operating weight, please refer to nameplate of the chiller. For installation on the roof, damping devices such as spring damper, etc. should be equipped to avoid transmission of vibration and noise. If the position of the chiller is too high and not convenient for overhaul by servicemen, proper scaffolds can be erected around the chiller and should be able to withstand the weight of servicemen and equipment. (Some requirements on previous foundation drawing of the chiller can be referred to).

Environmental requirements

It is the best that the installation site of the chiller is open area and enough air should pass the fin coils. Enough space should be reserved around the chiller so that air can flow into fin coils and it can be taken as overhaul channel. (Some requirements on previous schematic of installation space for the chiller can be referred to). The chiller should be used in areas at ambient temperature of over -10 °C. In the areas with snow in winter and the chiller need operate in winter, if accumulated snow is possible on installation site, the installation height must be raised, it is recommended installing snow hold to guarantee normal flow of air through in coils

Requirements for water quality

Since compositions of water quality in different areas are complicated, if the water different from ordinary water is applied, water quality should be inspected before the water enters heat exchanger of the chiller. If water quality is under the requirement for air conditions water, it should be treated. Relevant water treatment can refer to standard "Design Specification for Treatment of Industrial Circulating Cooling Water" or other related standards. The table below can be used as reference index.

Schematic of installation space

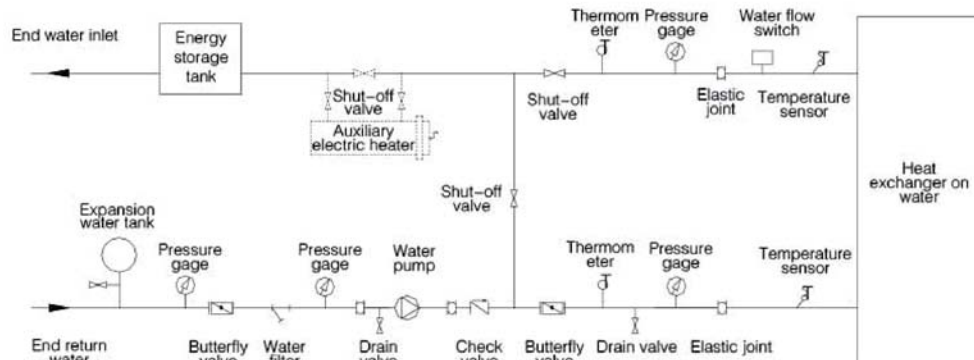
Items	Unit	Requirement for air conditioning water
		Permissive values
Suspended solids	mg/L	< 10
pH value (25 deg C)	mg/L	6.5 - 8.0
Electric conductivity (25 deg C)	u S/L	< 800
Methyl orange alkalinity	mg/L	< 150
Acid consumption (pH = 4.8)	mg/L	< 100
Full hardness CaCO ₂	mg/L	< 200
Fe ²⁺	mg/L	< 1.0
Cl ⁻	mg/L	< 200
SO ₄ ²⁻	mg/L	< 200
SiO ₂	mg/L	< 50
NH ₄ ⁺	mg/L	< 1.0
S ²⁻	mg/L	Not detectable
Free Chlorine	mg/L	< 1.0
Petroleum	mg/L	< 5

Installation of water pipes

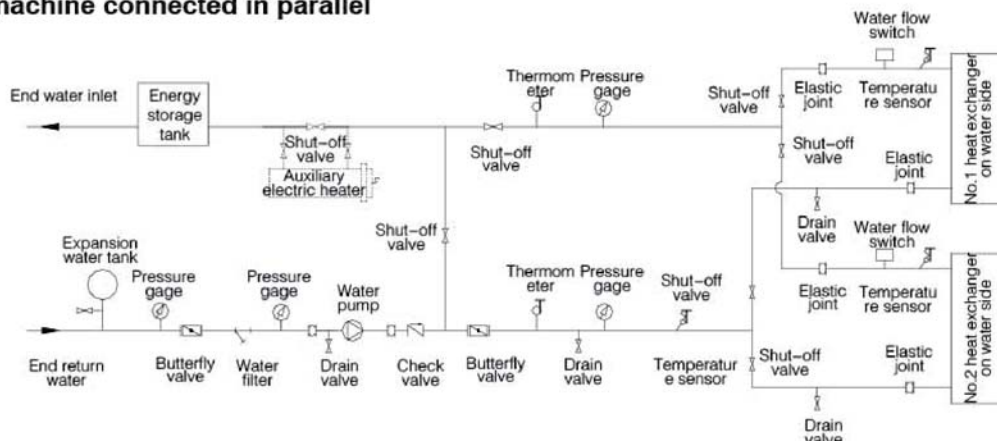
installation of water pipes. safety shutoff valves must be installed at inlet and outlet of the chiller with convenience for regular maintenance of water system. Installation of thermometers and pressure gauges at water inlet and outlet or heat exchanger of the chiller is recommended for regular inspection and maintenance; At inlet of water pump water filter should be installed to avoid entry of impurities into water pump and heat exchanger; before thermal insulation of water pipes and entry of water into the chiller, pipeline sealing should be checked, damping devices should be installed for all pipelines connected with the chiller, flow control devices into compliance with the requirements must be installed; installation and blowdown of water system in air conditioning project should keep away from inlet and outlet water pipelines of heat exchanger of the chiller, otherwise normal use of the chiller will be affected.

Schematic of external water pipe

Single machine



Multi-machine connected in parallel



Precautions in design and installation of pipelines:

1. During joint control of modules in combination, hot pump chiller cannot be combined with single cold chiller.
2. Design of water circulating system should be as simple as possible to avoid excessive elbows, and straight pipelines should be on the same plane as much as possible.
3. Notice the positions of water inlets and outlet of heat exchanger to avoid incorrect connection.
4. Manual or automatic vent valves should be installed on all peaks of water circulating system.
5. Expansion water tank should be made of anti-corrosive and anti-rust materials and must be installed on highest points of the whole pipeline system.
6. Thermometers and pressure gages should be installed at water inlet / outlet.
7. For double head chillers, temperature sensing blind tubes should be reserved by the user on water main for installation of temperature sensor.
8. On the bottom of all local elbows, drain valves should be installed so as to evacuate water in the whole system.
9. Shut-off valves are installed on water pipeline for connection for heat exchanger of the chiller with water pipes of the user.
10. Bypass valves are installed between inlet and outlet water pipelines of heat exchanger of the chiller with convenience for overhaul and flush of pipelines.
11. Installation elastic joints to reduce vibration of pipelines.
12. Impurities in water system will cause scaling of heat exchanger, so filter should be installed before water pump.
13. In order to improve refrigerating (heating) effect and save energy, pipelines should be strictly kept warm.
14. In order to prevent frequent tripping of the chiller due to too small load during operation user is recommended installing energy storage tank.

Selection of water system parts

1. Shut-off valve determined based on water pipe diameter, and in general the valve diameter is selected in consistency with the diameter of pipe connected with the unit.
2. Water filter: play a role of filtering impurities in water system, and in general over 60 mesh filter is selected.
3. Check valve: installed at the outlet of water pump to prevent damage to water pump during backflow of water, the valve diameter consistent with the diameter of pipe connected with the unit.
4. By pass valve: installed between inlet and outlet water pipes of the unit container and opened when cleaning pipeline.
5. Thermometer: convenient for overhaul, maintenance and observation of operating conditions of the unit. in general 0-100 deg C is selected.
6. Water pump: its water yield is selected according to water flow parameter of the unit.
Water yield of pump = L 1.1 (L - Water flow of the unit), the delivery head of water pump is calculated as per the following formula.
Delivery head of water pump = (water resistance of the unit + the most un-favourable pipe length (2% - 5%) + end water resistance of the most un-favourable path).
7. Automatic vent valve: play a role of discharging the air in water system to enable normal operation of the unit and installed at the highest point of the unit.
8. Expansion water tank: play a main role of accommodating excessive water, stabilizing water pressure of the system and replenishing water into the system in general installed at return water pipe higher than water pipeline inside the system to enable normal operation of the unit. Its volume is calculated as per the following formula.
Volume of expansion water tank $V = (0.03-0.034)vc$
 Vc = system water volume
9. Energy storage water tank play a role of regulating energy to reduce frequent start / stop of compressor when system load changes, to improve operating efficiency of the system and meanwhile to extend service life of the unit.
Its volume is calculating as per the following formula.
Volume of energy storage water tank $V (m^3) = Q/27.9n) - Vs$
Q - refrigerating capacity kW
n - number of heads
 Vs - water volume m^3 in pipeline and heat exchanger inside the chilled water system.

Notice

- The value of pipeline pressure test should be over 1.25 times the operating pressure, but not be less than 0.6 Mpa after pressure is maintained for 5 min, the pressure drop is not more than 0.02 Mpa, and the system is qualified if no leakage exists upon inspection.
- Hydrostatic test should not be carried out when air temperature is low than 5 deg C pressure gauge for pressure test is qualified upon inspection with accuracy not less than 1.5 class, and the full scale value is 1.5-2 times the maximum measured pressure.
- During pressure test feed water from low part of the system and exhaust air from high part. For pressure test, water should be fed slowly and uniformly after water reaches the pressure required, stop operation of pump and check the system, and repair work should not be conducted with existence of pressure.
- After qualification by pressure test wash water pipeline over and over (notice not to pass equipment to be qualified until drainage does not carry impurities such as still and scrap iron, etc, and is not turbid).



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