



SHANGHAI KING REFRIGERATION INDUSTRY CO.,LTD

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ZHEJIANG KING AIR CONDITIONING EQUIPMENT CO.,LTD

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 3.The specification parameter is changed because the products are improved,

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Screw Water Chiller

Unit Instruction

This product range is mainly constructed by electrical driven screw compressor, high efficiency heat exchanger and advanced throttle device etc., used to provide cooling capacity for centralize air conditioning and industry.

Product Features

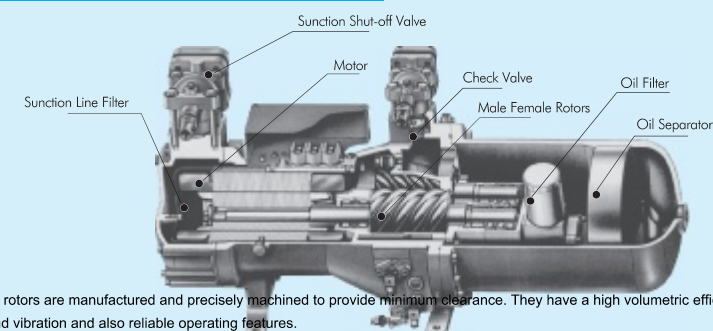
Kingair flooded type high temperature chiller applies reliable screw compressor and new advance heat exchanger, its COP4.89 reduces the operation cost efficiently. It also contributes to environment protection and energy saving. This chiller model's screw compressor design is with high efficiency, low noise level and less wear and tear components. The screw compressor normally does not perform the imbalance inertia force phenomenon (normally happen in reciprocating compressor) nor has unit surging (low load) & low operating efficiency problem. Thus, the unit model can be used in wide range of heating load.

Application

Kingair screw water chiller not only have a strong bonding combination structure but also provide environment energy saving and intelligent control advantages. It is also widely used for hostel, restaurant, school, theater, commercial center, office block, condominium, hospital etc. And more importantly, It can be applied for use nuclear plant station, plastic injection molding, and precision tooling etc process cooling. Thus, with the higher and higher standard of nation building energy saving regulation, Kingair chiller will be more well accepted in the market.

Unit Features

Flooded Type High Temperture Screw Compressor



- Male female rotors are manufactured and precisely machined to provide minimum clearance. They have a high volumetric efficiency, low noise and vibration and also reliable operating features.
- Special internal volumetric ratio design in flooded type evaporating condition has been applied to provide high compression ratio.
- Utilization of branded fluorine endurance motor in the compressor resulted in high efficiency and reliable. Motor is cooled down by the low temperature refrigerant, good thermal release and no leakage.
- Motor is direct driven with less moving components and wear tear. The mechanical drive efficiency is high.
- Oil supply is actuated by the differential pressure without the oil pump provided.
- A slide valve provides fully modulating capacity control to ensure smooth adaptation for the changes of heat load.

Evaporator

- Evaporator is shell and tube heat exchanger. Outside is insulated by water-proof and flame-proof materials. Refrigerant side pressure is 1.8MPa, while water side pressure is 1.25MPa.
- The evaporator internal has been assembled with PP water baffles. The chilled water goes along the baffles to increase the turbulence flow effect. The evaporator inlet is designed specially in order to distribute the refrigerant evenly to every copper tube thus enhancing the over all heat transfer rate of the heat exchanger.
- Apply newest inner groove tube with high efficiency heat exchange. And its heat exchange rate is 1.3 times higher than normal heat exchanger. It ensures good cooling performance.



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Unit Features

Easy Flexible Installation & Commissioning

- Piping connection direction can be changed according to the customer requirement.
- To save the customer wiring cost, our unit control box is provided.
- Refrigerant and lubrication oil are provided to the unit in the factory.
- Each part with active connection,easy for maintenance.

High Quality Component

- Expansion Valve,magnetic valve,contactor controller etc. are all from European,American and Japanese famous brand, safety and stable performance,accurate controlling.

Perfect Control System

- It applies world class branded PLC controller and user-friendly operation screen.
- It has condition display, parameter setting, capacity fuzzy logic control, faulty information etc.
- Multi-control function, to ensure the unit operating safety and reliable.

Reliable System Protection

- Compressor has applied multiple protection devices in order to avoid rotor jam and motor overheated.
- High low pressure, discharge temperature and operating current, water temperature monitoring control are ensuring the unit safe operating
- All the water flow switch, antifreeze protection, low pressure switch and water temperature control devices can eliminate the freezing crack possibility of the evaporator tube.

Twin Compressors Optimize Design

- Provide wider cooling range.
- Compressor is operating in high efficiency section, to improve the part load operation efficiency.
- Standby compressor can improve the stable performance of the unit and extends its lifespan.

Reliable Oil Treatment System

- Oil supply is actuated by differential pressure, no need for oil pump.
- Compressor internal comes with high efficiency oil separator.

Aesthetics Outlook Structure

- Unit assemble setup is tidy and tight combination with smaller unit volume.
- Aesthetic outlook with unique structure.

Friendly User Setting

- The customer can set the parameters according to the real operation condition hence achieving the best operation performance.
- The setting method is easy and direct.
- Provide several methods for water temperature control.

Single Compressor Technical Parameter

Model	KCW	1050B	1060B	1070B	1080B	1090B	1100B	1110B	1130B	1140B	
Cooling Capacity	kW	176	215	235	278	320	350	382	455	480	
	kcal/h	151360	184900	202100	239080	275200	301000	328520	391300	412800	
Input Power	kW	38.8	47.1	51.4	58.5	67.7	73.8	82.2	95.3	100.7	
Rated Current	A	65	78	87	98	114	124	138	161	170	
Capacity Regulating		25%~100%Stage Control or Stepless Control									
Supply Power		380V/3N~/50Hz									
Compressor	Type	5-6Unmatching Gear Type Semi Hermetic Screw Compressor									
	Start Up	Y- Δ									
	Qty	Set	1	1	1	1	1	1	1	1	
Evaporator	Type	High Efficiency Flooded Type Shell and Tube Heat Exchanger									
	Water Flow Rate	m ³ /h	30	37	40	48	55	60	66	78	83
	Pressure Drop	kPa	36	48	56	46	43	50	43	53	58
	Connection		DN100	DN100	DN100	DN125	DN125	DN125	DN150	DN150	DN150
Condenser	Type	Plate Heat Exchanger									
	Water Flow Rate	m ³ /h	38	46	51	60	69	75	82	98	103
	Pressure Drop	kPa	45	42	58	50	50	54	55	55	60
	Connection		DN80	DN100	DN100	DN100	DN100	DN100	DN125	DN125	DN125
Oil	Type	KG5									
	Charged	L	8	14	14	14	14	16	15	18	20
Refrigerant	Type	R22									
	Charged	kg	35	43	47	55	64	70	76	91	96
	Control Method	Thermal Expansion Valve									
Outlook Dimension	Length	mm	2800	2850	2850	2850	2880	2880	3050	3050	3050
	Width	mm	750	800	800	800	800	800	850	850	850
	Height	mm	1750	1800	1800	1850	1850	1850	2000	2000	2050
Weight	Transportation Weight	kg	1300	1600	1600	2000	2100	2100	2350	2500	2500
	Operation Weight	kg	1450	1760	1760	2200	2300	2300	2600	2750	2750

Note:
 1.Design, manufacture and test comply with GB/T18430.1-2007 criterion.
 2.Above capacity based on chilled water outlet temperature 7℃, cooling water inlet temperature 30℃.
 3. Please contact King air for specific type, and we will do our best to meet customer's requirement.

	Chilled Water		Cooling Water	
Nominal Cooling Capacity	Entering Temperature (℃)	Leaving Temperature (℃)	Entering Temperature (℃)	Leaving Temperature (℃)
	—	7	30	—
Safety Operation Range	Leaving Temperature (℃)	Temperature Difference (℃)	Entering Temperature (℃)	Temperature Difference (℃)
	5~15	2.5~8	19~35	3.5~8

Double Compressor Technical Parameter

Model	KCW	2100B	2120B	2140B	2160B	2180B	2200B	2220B
Cooling Capacity	kW	352	430	470	556	640	700	764
	kcal/h	302720	369800	404200	478160	550400	602000	657040
Input Power	kW	77.5	94.2	102.8	116.9	135.4	147.6	164.4
Rated Current	A	130	156	174	196	228	248	276
Capacity Regulating	25%~100%Stage Control or Stepless Control							
Supply Power	380V/3N~/50Hz							
Compressor	Type	5-6Unmatching Gear Type Semi Hermetic Screw Compressor						
	Start Up	Y- Δ						
	Qty	Set	2	2	2	2	2	2
Evaporator	High Efficiency Flooded Type Shell and Tube Heat Exchanger							
	Water Flow Rate	m ³ /h	61	74	81	96	110	120
	Pressure Drop	kPa	40	50	58	48	45	52
Condenser	Connection		DN125	DN125	DN125	DN150	DN150	DN150
	Type	Plate Heat Exchanger						
	Water Flow Rate	m ³ /h	76	92	101	120	138	151
Oil	Pressure Drop	kPa	45	42	48	50	50	54
	Connection		DN80X2	DN100X2	DN100X2	DN100X2	DN100X2	DN125X2
	Type	KG5						
Refrigerant	Charged	L	16	28	28	28	32	30
	Type	R22						
	Charged	kg	35X2	43X2	47X2	55X2	64X2	70X2
Outlook Dimension	Control Method	Thermal Expansion Valve						
	Length	mm	3200	3200	3200	3200	3400	3650
	Width	mm	1700	1700	1700	1750	1750	1850
Weight	Height	mm	2000	2000	2000	2100	2100	2200
	Transportation Weight	kg	3000	3500	3600	4400	4600	5100
	Operation Weight	kg	3300	3850	4000	4850	5050	5600

Note:

1.Design, manufacture and test comply with GB/T18430.1-2007 criterion.

2.Above capacit based on chilled water outlet temperature 7℃, cooling water inlet temperature 30℃ .

3. Please contact King air for specific type, and we will do our best to meet customer's requirement.

	Chilled Water		Cooling Water	
Nominal Cooling Capacity	Entering Temperature (℃)	Leaving Temperature(℃)	Entering Temperature (℃)	Leaving Temperature (℃)
	—	7	30	—
Safety Operation Range	Leaving Temperature (℃)	Temperature Difference (℃)	Entering Temperature (℃)	Temperature Difference (℃)
	5~15	2.5~8	19~35	3.5~8

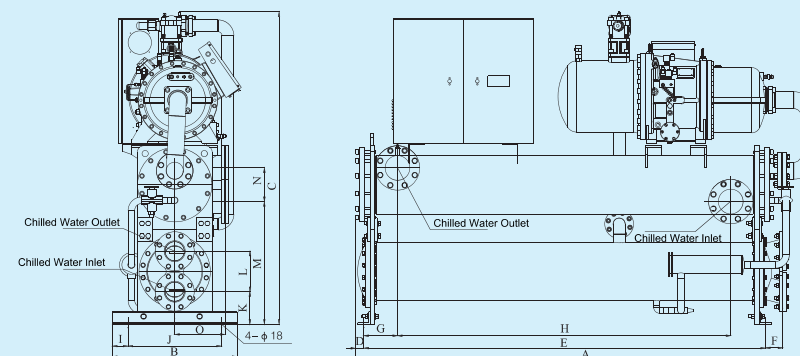
Single Compressor Capacity Correction Table

Model	Chilled Water Inlet Temperature	Cooling Capacity (kW)				Input Power (kW)			
		Chilled Water Leaving Temperature				Chilled Water Leaving Temperature			
		5℃	7℃	9℃	11℃	5℃	7℃	9℃	11℃
1050B	28℃	166	180	194	209	37.1	37.7	38.2	38.8
	30℃	163	176	190	204	38.2	38.8	39.3	39.9
	32℃	159	172	186	199	39.4	40.0	40.6	41.2
1060B	34℃	155	168	181	195	40.7	41.4	41.9	42.6
	28℃	203	220	237	255	45.1	45.8	46.4	47.1
	30℃	199	215	232	249	46.4	47.1	47.8	48.5
1070B	32℃	194	210	227	244	47.8	48.6	49.2	50.0
	34℃	190	205	221	238	49.5	50.2	50.9	51.7
1080B	28℃	222	240	259	279	49.2	50.0	50.7	51.4
	30℃	217	235	254	273	50.6	51.4	52.1	52.9
	32℃	212	230	248	266	52.2	53.0	53.7	54.5
1090B	34℃	207	224	242	260	54.0	54.8	55.6	56.4
	28℃	263	284	307	330	56.0	56.9	57.7	58.5
	30℃	257	278	300	322	57.6	58.5	59.3	60.2
1100B	32℃	251	272	293	315	59.4	60.3	61.2	62.1
	34℃	245	265	286	307	61.4	62.4	63.2	64.2
1110B	28℃	303	327	353	379	64.8	65.8	66.7	67.7
	30℃	296	320	346	371	66.7	67.7	68.6	69.7
	32℃	289	313	338	363	68.8	69.8	70.8	71.8
1120B	34℃	282	305	329	354	71.1	72.2	73.2	74.3
	28℃	331	358	386	415	70.7	71.7	72.7	73.8
	30℃	324	350	378	406	72.7	73.8	74.8	75.9
1130B	32℃	316	342	369	397	74.9	76.1	77.2	78.3
	34℃	309	334	360	387	77.5	78.7	79.8	81.0
1140B	28℃	361	390	422	453	78.7	79.9	81.0	82.2
	30℃	353	382	413	443	81.0	82.2	83.4	84.6
	32℃	345	373	403	433	83.5	84.7	85.9	87.2
1150B	34℃	337	364	393	422	86.3	87.6	88.9	90.2
	28℃	430	465	502	539	91.2	92.6	93.9	95.3
	30℃	421	455	491	528	93.9	95.3	96.6	98.1
1160B	32℃	411	445	480	516	96.8	98.3	99.6	101.1
	34℃	401	434	468	503	100.1	101.6	103.0	104.5
1170B	28℃	454	491	530	569	96.4	97.9	99.3	100.7
	30℃	444	480	518	557	99.2	100.7	102.1	103.6
	32℃	434	469	506	544	102.3	103.8	105.3	106.8
1180B	34℃	423	457	494	531	105.7	107.3	108.8	110.5

Double Compressor Capacity Correction Table

Model KCWF	Chilled Water Inlet Temperature	Cooling Capacity (kW)				Input Power (kW)			
		Chilled Water Leaving Temperature				Chilled Water Leaving Temperature			
		5°C	7°C	9°C	11°C	5°C	7°C	9°C	11°C
2100B	28°C	333	360	389	417	74.2	75.3	76.4	77.5
	30°C	326	352	380	408	76.3	77.5	78.6	79.7
	32°C	318	344	371	399	78.7	79.9	81.0	82.2
	34°C	310	335	362	389	81.4	82.6	83.8	85.0
2120B	28°C	407	439	475	510	90.2	91.6	92.8	94.2
	30°C	398	430	464	499	92.8	94.2	95.5	96.9
	32°C	389	420	454	487	95.7	97.1	98.5	99.9
	34°C	379	410	443	475	98.9	100.4	101.8	103.3
2140B	28°C	444	480	519	557	98.4	99.9	101.3	102.8
	30°C	435	470	508	545	101.3	102.8	104.2	105.8
	32°C	425	459	496	533	104.4	106.0	107.5	109.1
	34°C	414	448	484	520	107.9	109.6	111.1	112.8
2160B	28°C	526	568	614	659	111.9	113.6	115.2	116.9
	30°C	514	556	600	645	115.1	116.9	118.5	120.3
	32°C	502	543	587	630	118.7	120.5	122.2	124.0
	34°C	490	530	572	615	122.7	124.6	126.4	128.2
2180B	28°C	605	654	706	759	129.6	131.6	133.5	135.4
	30°C	592	640	691	742	133.4	135.4	137.3	139.3
	32°C	578	625	675	725	137.5	139.6	141.6	143.6
	34°C	564	610	659	708	142.2	144.3	146.4	148.5
2200B	28°C	662	715	773	830	141.3	143.5	145.5	147.6
	30°C	648	700	756	812	145.4	147.6	149.7	151.9
	32°C	633	684	739	793	149.9	152.2	154.3	156.6
	34°C	617	667	720	774	155.0	157.3	159.5	161.9
2220B	28°C	722	781	843	906	157.4	159.8	162.0	164.4
	30°C	707	764	825	886	161.9	164.4	166.7	169.2
	32°C	690	746	806	866	167.0	169.5	171.9	174.4
	34°C	673	728	786	845	172.6	175.3	177.7	180.3

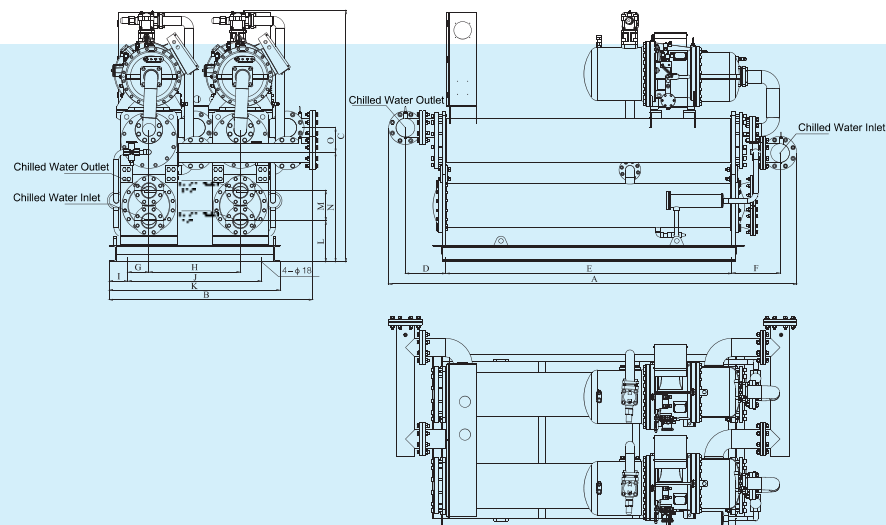
Single Compressor Dimension



KCW1050B-KCW1140B

Model	Dimension mm																Connection	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Evaporator	Condenser
KCW1050B	2800	750	1750	66	2380	331	180	2020	50	650	206.5	160	648	163	290		DN100	DN80
KCW1060B	2850	800	1800	79	2380	341	180	2020	75	650	220	185	700	163	290		DN100	DN100
KCW1070B	2850	800	1800	79	2380	341	180	2020	75	650	220	185	700	163	290		DN100	DN100
KCW1080B	2850	800	1850	79	2380	341	180	2020	75	650	220	185	712	192	310		DN125	DN100
KCW1090B	2880	800	1850	79	2380	341	180	2020	75	650	220	185	712	192	310		DN125	DN100
KCW1100B	2880	800	1850	79	2380	341	180	2020	75	650	220	185	712	192	310		DN125	DN100
KCW1110B	3050	850	2000	92	2580	341	200	2180	75	700	231	215	787	218	330		DN150	DN125
KCW1130B	3050	850	2000	92	2580	341	200	2180	75	700	231	215	787	218	330		DN150	DN125
KCW1140B	3050	850	2050	92	2580	341	200	2180	75	700	231	215	787	218	330		DN150	DN125

Double Compressor Dimension



KCW2100B-KCW2220B

Model	Dimension mm																Connection	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Evaporator	Condenser	
KCW2100B	3200	1700	2000	240	2240	360	125	740	250	950	1450	346.5	160	768	173	DN125	DN80X2	
KCW2120B	3200	1700	2000	240	2240	360	125	740	250	950	1450	360	185	768	173	DN125	DN100X2	
KCW2140B	3200	1700	2000	240	2240	360	125	740	250	950	1450	360	185	768	173	DN125	DN100X2	
KCW2160B	3200	1750	2100	345	2240	445	125	740	250	950	1450	360	185	852	192	DN150	DN100X2	
KCW2180B	3200	1750	2100	345	2240	445	125	740	250	950	1450	360	185	852	192	DN150	DN100X2	
KCW2200B	3400	1750	2100	345	2240	445	125	740	250	950	1450	360	185	852	192	DN150	DN100X2	
KCW2220B	3650	1850	2200	345	2440	445	110	780	280	1000	1560	371	215	928	218	DN150	DN125X2	

Screw Water Chiller With Heat Recover

Unit Instruction

This series of Screw Water Chiller With Heat Recover is designed on the base of Screw Water Chiller. This unit collects part heat from cooling process to provide chilled water, at the same time it offords hot water. Generally, it can use 15%-80% condenser heat, hot water temperature can reach 55°C. Unit's cooling efficiency can increase 5% when heat recovery. This unit is widely used in hotel, restaurant, school, theater, commercial center, office block etc.

Unit Features

Energy Saving and Environment Friendly--- Unit collects the condenser heat to heat water without energy consumption or any pollution.

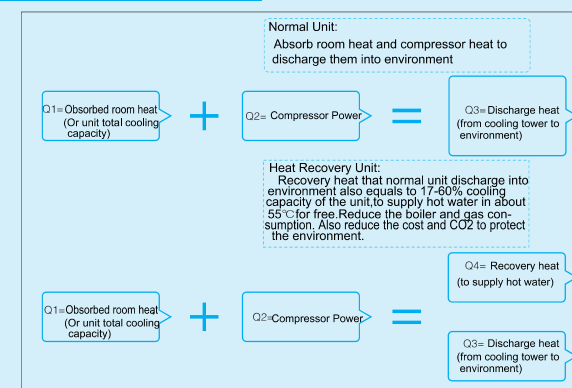
Safety and Reliable--- No gas or boiler, water and electric are absolutly sepearated, hence, there is no explodtion, poisoning or electric leakage.

Economy and Fashion--- Use heat recovery, no cost to have hot water, enter into economized society.

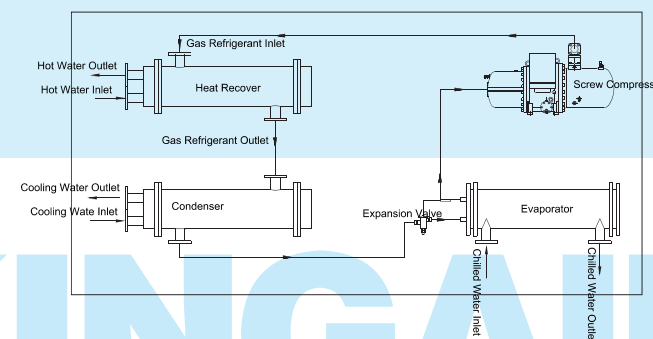
Low Operation Cost--- It can improve unit's working condition when heat recovery, improve operation efficiency, decrease operation cost.

Intelligent Control--- All controlled by microcomputer, to realize remote or centralized control, saving management cost.

Heate Recovery Working Principle



Heate Recovery System Process



Single Compressor Technical Parameter

Model	KCW	1050BH	1060BH	1070BH	1080BH	1090BH	1100BH	1110BH	1130BH	1140BH
Cooling Capacity	kW	176	215	235	278	320	350	382	455	480
	kcal/h	151360	184900	202100	239080	275200	301000	328520	391300	412800
Heat Recovery Capacity	kW	52	65	70	82	96	105	115	136	144
Input Power	kW	38.8	47.1	51.4	58.5	67.7	73.8	82.2	95.3	100.7
Rated Current	A	65	78	87	98	114	124	138	161	170
Capacity Regulating	25%~100%Stage Control or Stepless Control									
Supply Power	380V/3N~/50Hz									
Compressor	Type	5-6Unmatching Gear Type Semi Hermetic Screw Compressor								
	Start Up	Y- Δ								
	Qty	Set	1	1	1	1	1	1	1	1
Evaporator	Type	High Efficiency Flooded Type Shell and Tube Heat Exchanger								
	Water Flow Rate	m ³ /h	30	37	40	48	55	60	66	78
	Pressure Drop	kPa	36	48	56	46	43	50	43	58
	Connection		DN100	DN100	DN100	DN125	DN125	DN125	DN150	DN150
Condenser	Type	High Efficiency Flooded Type Shell and Tube Heat Exchanger								
	Water Flow Rate	m ³ /h	38	46	51	60	69	75	82	98
	Pressure Drop	kPa	45	42	48	50	50	54	55	60
	Connection		DN80	DN100	DN100	DN100	DN100	DN125	DN125	DN125
Heat Recover	Type	Plate Heat Exchanger								
	Water Flow Rate	m ³ /h	9	11	12	14	17	18	20	23
	Pressure Drop	kPa	62	62	62	62	62	62	62	62
	Connection		R2	R2	R2	R2	R2-1/2	R2-1/2	R2-1/2	R2-1/2
Oil	Type	KG5								
	Charged	L	8	14	14	14	14	16	15	18
Refrigerant	Type	R22								
	Charged	kg	35	43	47	55	64	70	76	91
Outlook Dimension	Control Method	Thermal Expansion Valve								
	Length	mm	2800	2850	2850	2850	2880	3050	3050	3050
	Width	mm	750	800	800	800	800	850	850	850
	Height	mm	1750	1800	1800	1850	1850	2000	2000	2050
Weight	Transportation Weight	kg	1300	1600	1600	2000	2100	2100	2350	2500
	Operation Weight	kg	1450	1760	1760	2200	2300	2300	2600	2750

Note:

- Design, manufacture and test comply with GB/T18430.1-2007 criterion.
- Above capacity based on chilled water outlet temperature 7℃ , cooling water inlet temperature 30℃ .
- Please contact King air for specific type, and we will do our best to meet customer's requirement.

	Chilled Water		Cooling Water	
Nominal Cooling Capacity	Entering Temperature (℃)	Leaving Temperature(℃)	Entering Temperature (℃)	Leaving Temperature (℃)
	—	7	30	—
Safety Operation Range	Leaving Temperature (℃)	Temperature Difference (℃)	Entering Temperature (℃)	Temperature Difference (℃)
	5~15	2.5~8	19~35	3.5~8

Double Compressor Technical Parameter

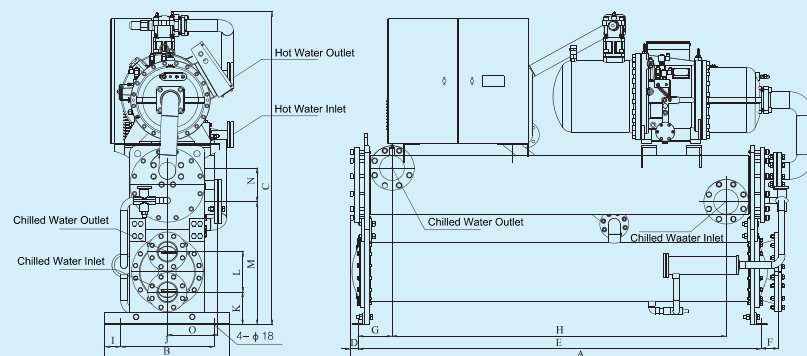
Model	W	2100BH	2120BH	2140BH	2160BH	2180BH	2200BH	2220BH
Cooling Capacity	kW	352	430	470	556	640	700	764
	kcal/h	302720	369800	404200	478160	550400	602000	657040
Heat Recovery Capacity	kW	105	129	141	165	192	210	229
Input Power	kW	77.5	94.2	102.8	116.9	135.4	147.6	164.4
Rated Current	A	130	156	174	196	228	248	276
Capacity Regulating	25%~100%Stage Control or Stepless Control							
Supply Power	380V/3N~/50Hz							
Compressor	Type	5-6Unmatching Gear Type Semi Hermetic Screw Compressor						
	Start Up	Y- Δ						
	Qty	Set	2	2	2	2	2	2
Evaporator	Type	High Efficiency Flooded Type Shell and Tube Heat Exchanger						
	Water Flow Rate	m ³ /h	61	74	81	96	110	120
	Pressure Drop	kPa	40	50	58	48	45	52
	Connection		DN125	DN125	DN125	DN150	DN150	DN150
Condenser	Type	High Efficiency Flooded Type Shell and Tube Heat Exchanger						
	Water Flow Rate	m ³ /h	76	92	101	120	138	151
	Pressure Drop	kPa	45	42	48	50	50	54
	Connection		DN80×2	DN100×2	DN100×2	DN100×2	DN100×2	DN125×2
Heat Recover	Type	Plate Heat Exchanger						
	Water Flow Rate	m ³ /h	18	22	24	28	33	36
	Pressure Drop	kPa	65	65	65	65	65	65
	Connection		DN65	DN65	DN65	DN65	DN65	DN80
Oil	Type	KG5						
	Charged	L	16	28	28	28	28	32
Refrigerant	Type	R22						
	Charged	kg	35×2	43×2	47×2	55×2	64×2	70×2
Outlook Dimension	Control Method	Thermal Expansion Valve						
	Length	mm	3200	3200	3200	3200	3400	3650
	Width	mm	1700	1700	1700	1750	1750	1850
	Height	mm	2000	2000	2000	2100	2100	2200
Weight	Transportation Weight	kg	3000	3500	3600	4400	4600	5100
	Operation Weight	kg	3300	3850	4000	4850	5050	5600

Note:

- Design, manufacture and test comply with GB/T18430.1-2007 criterion.
- Above capacity based on chilled water outlet temperature 7℃ , cooling water inlet temperature 30℃ .
- Please contact King air for specific type, and we will do our best to meet customer's requirement.

	Chilled Water		Cooling Water	
Nominal Cooling Capacity	Entering Temperature (℃)	Leaving Temperature(℃)	Entering Temperature (℃)	Leaving Temperature (℃)
	—	7	30	—
Safety Operation Range	Leaving Temperature (℃)	Temperature Difference (℃)	Entering Temperature (℃)	Temperature Difference (℃)
	5~15	2.5~8	19~35	3.5~8

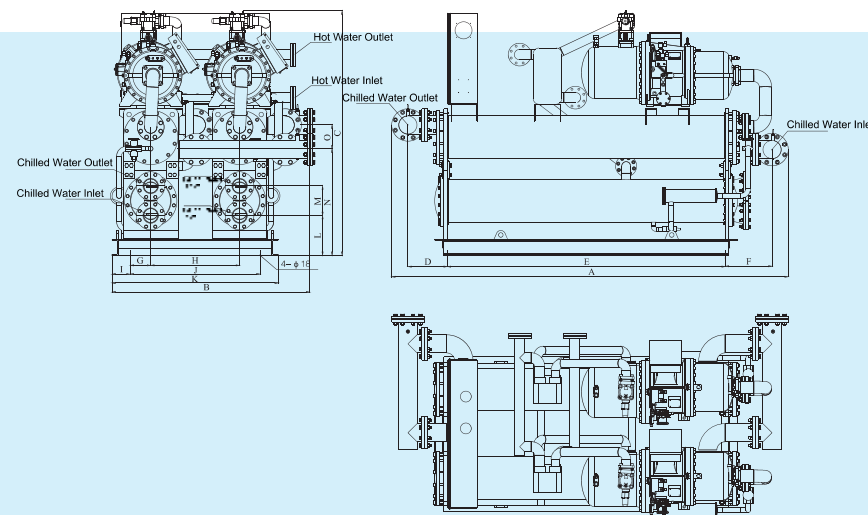
Single Compressor Dimension



KCW1050BH~KCW1140BH

Model	Dimension mm																Connection	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Evaporator	Condenser	
KCW1050BH	2800	750	1750	66	2380	331	180	2020	50	650	206.5	160	648	163	290	DN100	DN80	
KCW1060BH	2850	800	1800	76	2380	341	180	2020	75	650	220	185	700	163	290	DN100	DN100	
KCW1070BH	2850	800	1800	76	2380	341	180	2020	75	650	220	185	700	163	290	DN100	DN100	
KCW1080BH	2850	800	1850	76	2380	341	180	2020	75	650	220	185	712	192	310	DN125	DN100	
KCW1090BH	2880	800	1850	76	2380	341	180	2020	75	650	220	185	712	192	310	DN125	DN100	
KCW1100BH	2880	800	1850	76	2380	341	180	2020	75	650	220	185	712	192	310	DN125	DN100	
KCW1110BH	3050	850	2000	92	2580	341	200	2180	75	700	231	215	787	218	330	DN150	DN125	
KCW1130BH	3050	850	2000	92	2580	341	200	2180	75	700	231	215	787	218	330	DN150	DN125	
KCW1140BH	3050	850	2050	92	2580	341	200	2180	75	700	231	215	787	218	330	DN150	DN125	

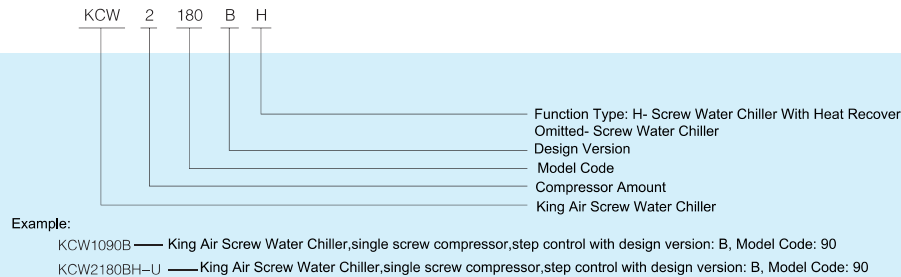
Double Compressor Dimension



KCW2100BH~KCW2220BH

Model	Dimension mm																Connection	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	Evaporator	Condenser	
KCW2100BH	3200	1700	2000	240	2240	360	125	740	250	950	1450	345	160	768	173	DN125	DN80×2	
KCW2120BH	3200	1700	2000	240	2240	360	125	740	250	950	1450	345	185	768	173	DN125	DN100×2	
KCW2140BH	3200	1700	2000	240	2240	360	125	740	250	950	1450	345	185	768	173	DN125	DN100×2	
KCW2160BH	3200	1750	2100	345	2240	445	125	740	250	950	1450	337	185	852	192	DN150	DN100×2	
KCW2180BH	3200	1750	2100	345	2240	445	125	740	250	950	1450	337	185	852	192	DN150	DN100×2	
KCW2200BH	3400	1750	2100	345	2240	445	125	740	250	950	1450	337	185	852	192	DN150	DN100×2	
KCW2220BH	3650	1850	2200	345	2440	445	110	780	280	1000	1560	349	215	928	218	DN150	DN125×2	

Unit Nomenclature

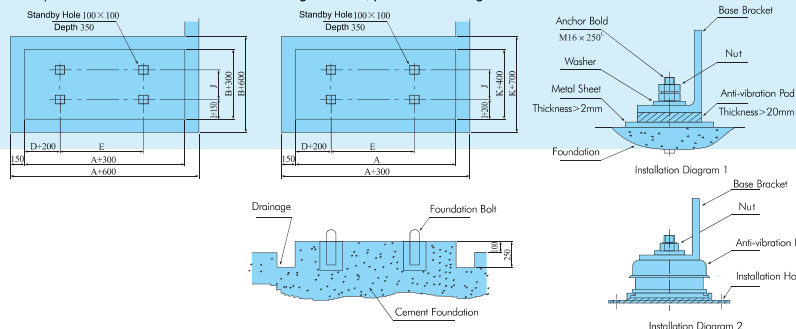


Equipment Room

- The room should have enough space for unit to install and maintain, also, be convience for serviceman to approach the chiller or lift the compressor freely. Enough space to pull out the pipe too.
- The room must have the door which is in good installation, opening outside and the fire resistance over 1H. Make sure that people can thru it safely and freely in emergency.
- The room on the ground should have natural vents whose area is not less than $0.14G^{1/2}$ (square meter). G stands for chiller refrigerant weight(kg). There should be no barriers for airflow in surrounding.
- For the baseroom should be setting Mechanical vent whose displacement is not less than $13.88G^{2/3}$ (L/S). G stands for chiller refrigerant weight. It is recommended to use multispeed fan so as to reduce the displacement in non-emergency. The suction side or pipes of fan should be near the chiller with appropriate protection.
- Outside the room should have an emergency shut off or power down switch, should have a switch for multispeed fan to control emergency operation
- Inflammable and explosive material are not allowed to be stored in the room apart from the refrigerant. But the refrigerant should not be more than 150 KG.
- The room design should be convience for draining. When the safety valve is open, it must be sure that the refrigerant can be discharge sucessfully.
- The room design should meet the level of local noise. Measures should be taken to prevent vibration transference, when install unit and pipes.

Unit Shifting & Lifting Installation

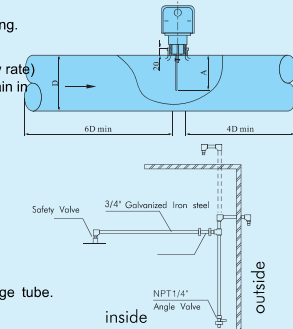
- During unit shifting, please avoid crush onto the floor and directly impact on the unit.
- Avoid refrigerant pipe, insulation and control box to be dented
- Installation Foundation
 - Additional consideration must be taken for the unit installation foundation, especially the intermediate floor or rooftop of the unit. Extra attention must also be paid to strength of the floor slab and noise pollution. Please refer to the architect first before the unit installation.
 - The foundation must come with drainage for cooling water and chilled water discharge.
 - For unit installation foundation and fixing methods, please refer to figures below.



Note: 1) If the fixing method in Installation Diagram 1 is used, the foundation must reserve the base leg bolt installation holes according to the installation diagram.
2) If the fixing method in Installation Diagram 2 is being used, the foundation must prepare the vibration isolator installation bolt holes.

Water Flow Switch Installation

- Water flow switch should be vertically installed in the horizontal pipe section of inlet or outlet pipe.
- When water flow switch is forced to be installed in the horizontal pipe, it should be in the upstream pipe (avoid installing on downstream pipe).
- There must be a straight pipe whose length is 6 times of pipe's diameter at the direction of water flow switch inlet; at the direction of water flow switch outlet, it should be 4 times. And the water flow switch is not allowed to be installed near to the bend pipe, orifice or valve.
- The end of water flow switch should be $\pm 1/3D$ away the center line (A is $1/3D-2/3D$) to ensure the switch flexible. The switch's arrow direction should be match with the water flow direction.
- Discharge the air in the water system in order to avoid water flow switch surging.
- Adjust water flow switch to make sure that it is open when water flow rate is less than minimum water flow rate (minimum water flow rate is 60% of the flow rate)
- When water flow rate meets the requirements, water flow switch should maintain in closed condition.

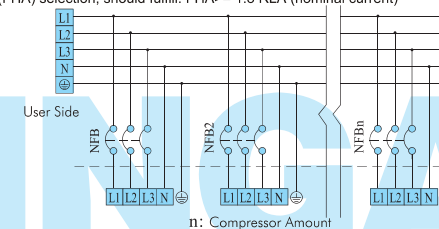


Safety valve Drain Pipe Installation

- Drain pipe diameter should meet the requirement of water flow rate
- Discharge tube for water collection should be equipped.
- The drain pipe out of room should be waterproof and be far away from the room. Any barrier is not allowed around the airvent in 1m
- Don't discharge the refrigerant into the room to avoid asphyxia accident (refrigerant is heavier than atmosphere)
- If more than one unit is installed, every unit should have its own discharge tube.

Wiring

- The power supply voltage must be constant during the chiller operates time. Any voltage drop factors should be under consideration. The working voltage should maintain in the nominal range $\pm 10\%$ range. Too high or too low voltage will affect the performance of the unit.
- Ensure that the differential for the phase's voltage must be less than $\pm 2\%$ of nominal value. The maximum and minimum different must be less than 3% of the nominal voltage. This will prevent the compressor from being overload.
- The power supply frequency should be maintained within $\pm 2\%$ of the nominal frequency.
- The minimum starting voltage should be maintained at 85% above the nominal voltage.
- Using extreme cable length will not start up the compressor. Thus, the cable length used must ensure that the two cable terminal voltage differential is less than 2% of the nominal voltage. If the cable length can not be reduced, then bigger size cable diameter should be selected.
- The input power supply wiring connected to the chiller unit must strictly comply with the electrical standard. All wiring and connection must have good electricity insulation. The connection terminals with the unit must be tested with a 500V high resistance meter to check for any current leakage. The minimum resistance is $5M\Omega$.
- For safety purposes, excellent earth protection setup must follow the electrical standard to avoid current leakage.
- Only allow copper strain cable and 5 cables for wiring connection.
- All wiring and electrical components setup must be executed by the qualified wireman.
- Not allow the put the low voltage control cables ($<30V$) and high voltage cables ($>30V$) in the same cable trucking casing.
- All connection of wires must be tightened to avoid overheated, electric shock and fire incident. Do not apply exceed force for terminal tightening. Insulated the cable to avoid the insulation and related components loosen.
- To reduce electricity short circuit of electrical wiring, to avoid transformer and electrical wiring equipment damages, and to have a separate control of the module compressors, every compressor wiring must be coupled with a non fuse breaker (NFB), as shown below:
- All compressors should apply Y- Δ start-up (according to the customer requirement for soft starter option)
- For site wiring current (FHA) selection, should fulfill: $FHA \geq 1.8 RLA$ (nominal current)
- For circuit breaker (FHA) selection, should fulfill: $FHA \geq 1.8 RLA$ (nominal current)



Water System Piping

- Entering (leaving) piping and valve should be in good insulation to avoid the loss of cooling capacity and condensation
- To ensure water side heat exchanger and piping system have enough water, avoid the heat exchanger high pressure too high water to be freeze inside, low pressure too low and bad oil return system because of lacking water. The leaving side of chilled water and cooling water should establish water switch, which control the system together with compressor
- More than two sets of heat exchanger and chiller used together, avoid deviation flow, the resistance from chiller to each heat exchanger should be equal. A balanced valve is available if necessary
- If evaporimeter piping is closed loop, in order to remiss the expand and shrink of water, avoid the influence of water pressure, it should have an expansion vessel which should be located on the top of piping system and the water level should be higher than the top of piping at least 1m
- Chilled water pump lies in the entering side of evaporimeter
- For the purpose of not leaving air in the pipe, an auto airvent is required at the top of piping. Further more the horizontal piping system should be lean 1/250
- In order to release the shock which will be passed through the pip into the room, soft connection is required at the side of inlet and outlet system. At the same time, the pipe should be good fixed and afford its weight. The connection of pump and pipe should be soft pipe and rubber, avoid the transfering and interference of noise and vibration.
- For the purpose of general checking, the side of entering and leaving water should have thermometer and pressure gage.
- When the unit operation, chilled water flow rate should not less than nominal water flow rate 60%, in the case of accident
- Chilled water and cooling water pipe accessories should be installed the foundation of piping. So that we can separate it from water pipe easily when checking.
- Single water chiller cooling water pipe connection diagram A
- Single water chiller cooling water pipe connection diagram B

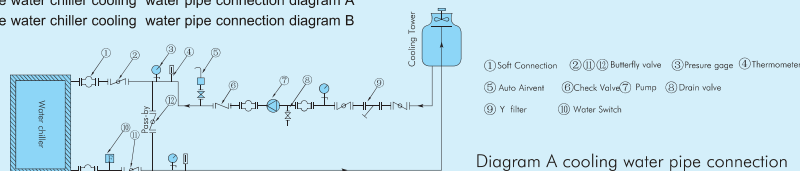


Diagram A cooling water pipe connection

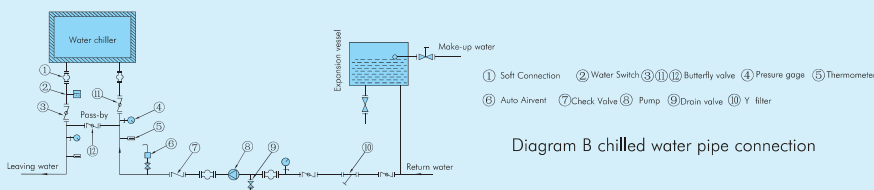
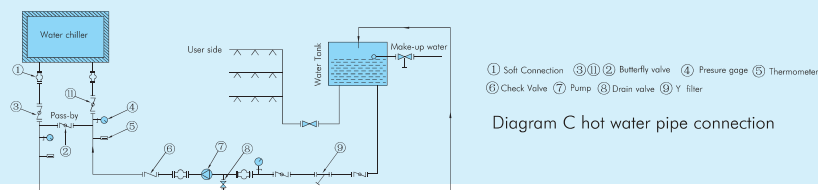


Diagram B chilled water pipe connection



Note: All piping accessories is provided by owner

hot water system installation

- Considering the hot water, usage and storage, a temperature-holder vessel and circulating pump must be installed. Be sure that the temperature is 50~60°C
- The insulation layer must add to the water tank, so as to release heat loss. Its volum is designed by project party based on the place, power usage and customer's requirements.
- In order to keep the hot water temperature, circulating pump must operate for long time and add spare pump
- Hot water in low cost is provided by hot water system whose flow rate, head delivery are designed by requirement. The system is controlled by pressure, operated for 24H. Though the system can offer hot water, it is necessary to add a hot water auxiliary system. Because hot water supply is subjected to usage and season
- Heat recovery water-cooled screw flooded chiller hot water pipe connection please refer to Diagram C

Water Quality Treatment

- Poor chilled water and condenser water quality inside the heat exchanger tube will cause fouling. Not only result in reduced heat transfer efficiency and unit performance, but also causes corrosion (scaling) in the heat exchanger tube which result in unit serious problem. Customer should strictly follow GB50050-1995《Industrial Cycle Cooling Water Treatment Design Specification》standard to carry out water quality treatment. For closed loop chilled water system, it is recommended to use soft water. During unit operating cycle, perform a sample analysis on cooling water (include open type system cooling water). Water quality must satisfy the below requirement:
- If the requirement is not met, should perform water quality treatment. Water quality that is not treated or poorly treated can result in inner tube scaling, friction, corrosion, scaling and growth of mud and algae. If problem is serious, it can result in copper tube cracking. It is recommended to let professional water treatment personnel to carry out treatment. Kingair will not be held responsible for problem as a result of poor treatment or untreated cooling water and chilled water usage. And also the same thing for salt water usage.
- In addition, exchanger tube from freeze cracking and this during winter if unit is idle for a long time, water should be drained out. This is in order to avoid heat damaging the unit.

	ITEM	UNIT	MAKE-UP WATER	CONDENSING (CHILLED) WATER	CORROSION	FOULING
BASIC ITEM	PH (25°C)		6.5~8.0	6.5~8.0	0	0
	Conductivity(25°C)	μS/cm	<200	<800	0	0
	CL ⁻	mg CL ⁻ /L	<50	<200	0	
	SO ₄ ²⁻	mg SO ₄ ²⁻	<50	<200	0	
	Calcium Carbonate (PH4.8)	mg CaCO ₃ /L	<50	<100		0
	Total Hardnes	mg CaCO ₃ /L	<50	<200		0
REFERENCE ITEM	(Fe)	mg Fe/L	<0.3	<1.0	0	0
	S ²⁻	mg S ₂ /L	Not Available	Not Available	0	
	NH ₄ ⁺	mg NH ₄ ⁺ /L	<0.2	<1.0	0	
	SiO ₂	mg SiO ₂ /L	<0.3	<50		0

Standard Equipment Detail

Standard Performance Parameter:

Kingair screw water chiller based on chilled water leaving temperature 7°C, cooling water entering temperature 30°C, water side fouling factor is 0.086(m²·°C /KW), refrigerant is R22. If you have special requirements, the parameters will change, hence, please consult our International Department first.

Standard Equipment:

Unit standard equipment includes condenser, evaporator, compressor, oil separator, control panel, throttle, frozen fittings, and pipe fittings. The unit has been finished testing, filled with refrigerant and refrigerant oil, also equipped with water flow rate switch before delivery. Rubber vibration transmission pad can be provided if required.

Spare Parts list:

To meet the customer's requirement, some spare parts are available such as refrigerant oil, dryer, oil filter and refrigerant.