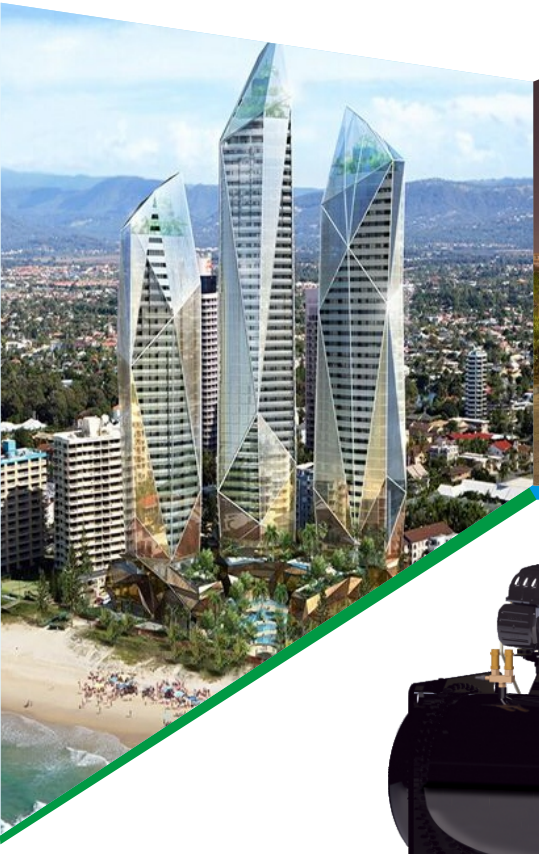
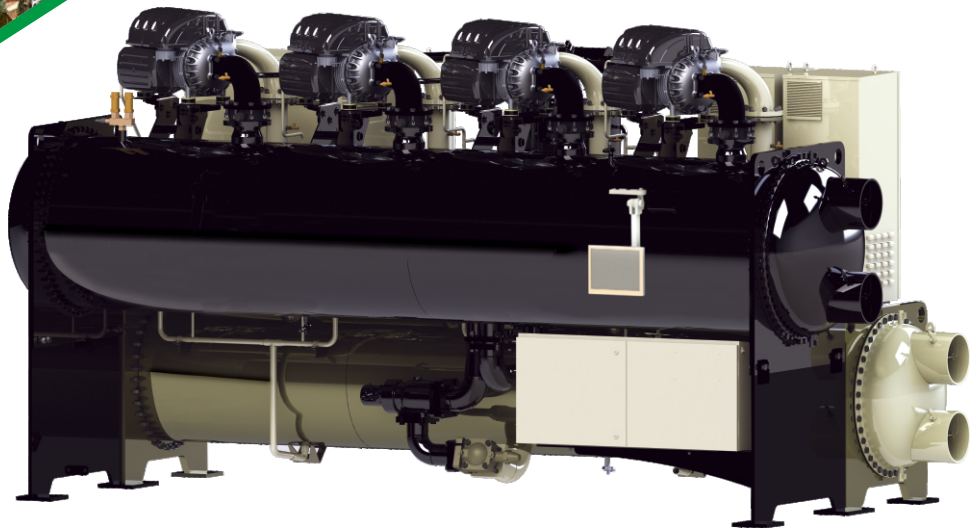
DAIKIN

High Efficiency Magnetic Bearing Centrifugal Chiller

HXE





100~800Tons

GB/T 19001 CQM-42-1998-0263-0001 MANAGEMENT SYSTEM CNAS C002-M	GB/T 24001 CQM-42-1998-0263-0002 MANAGEMENT SYSTEM CNAS C002-M	GB/T 28001 CQM-42-1998-0263-0003 MANAGEMENT SYSTEM CNAS C002-M	TESTING CNAS L7576	XK06-015-00425
ISO9001	ISO14001	OHSAS18001		

Contents

Introduction

World-Class Design Leader

Daikin, as one of the largest air condition company in the world, has earned a worldwide reputation for providing high quality products and expertise to meet variable requirements from different customers. Our customers benefit from maximum energy savings, lower installation and operation costs, quiet operation, superior indoor air quality. HXE chiller which applys advanced technology can help qualify your building with green building certification.Daikin has been dedicating to the ongoing commitment of products development and technology innovation and also offers industrical-leading and excellent performance products as always.

Nomenclature

HXE V 400 T S TT F / E2614 P H 2 / C2614 J K 2

- HXE: High-efficiency magnetic centrifugal chiller
- V: Start model code: V- VFD control
- 400: Compressor code: 350/400/700
- T: Number of compressor: S-Single(1)/D-Dual(2) T-Triple(3)/Q-Quadra(4)
- S: Number of refrigerant circuit: S-Single
- TT: Compressor series
- F: Power supply: F-380V/50Hz U-380V/60Hz G-400V/50Hz 7-400V/60Hz R-460V/60Hz
- E2614: Evaporator Code
- P: Evaporator Tube Count Code
- H: Evaporator Tube Type Code: H-0.635mm, J-0.711mm
- 2: Number of Passes(1,2,3)
- C2614: Condenser Code
- J: Condenser Tube Count Code
- K: Condenser Tube Type Code: K-0.635mm, M-0.711mm
- 2: Number of Passes(1,2,3)

Technology Features

Superior Efficiency

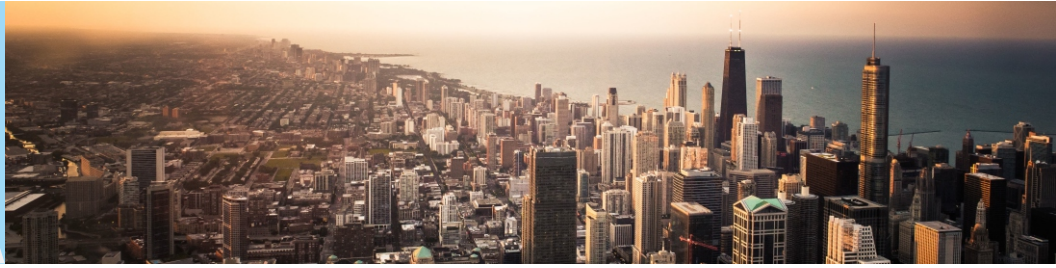
As the global HVAC leader, Daikin has perfectly combined the most advanced technology with water cooled chillers to provide excellent performance.

Magnetic bearing centrifugal chiller has been designed with oil free system, resulting in eliminating oil contamination in the refrigerant and heat transfer surfaces to provide outstanding operating efficiency without any performance penalty compared to conventional oil-system chiller. Our magnetic bearing centrifugal chiller also integrates VFD technology. It allows the compressor to unload smoothly from maximum to minimum load for superior part-load performance in comfort cooling applications. An additional flash tank type economizer has contributed to efficiency improved by operating the two-stage compression system. It makes chiller efficiency higher to 6.8kW/kW (0.52kW/ton) and IPLV higher to 12.1kW/kW (0.29kW/ton).

Reliable And Sustainable While Efficient

Daikin chiller offers a full package of features for total owner satisfaction, such as reliability and sustainability.

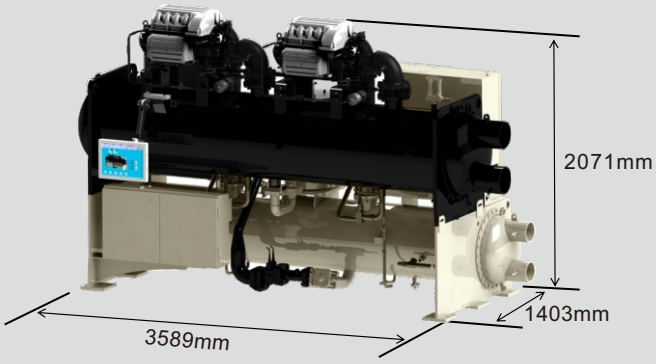
- HFC-134a, with no Ozone Depletion Potential (ODP) according to the Montreal Protocol is applied in HXE chiller.
- The magnetic bearing compressor greatly improves performance, reliability and reduces service requirements as compared with the conventional centrifugal compressor design. Moreover, magnetic bearings technology eliminates mechanical seals and wear surfaces for maximum machine life.
- The simplicity of a direct-drive motor and shaft don't need gears, slide valves and extra parts to enhance reliability.
- Reduced starting inrush current by utilizing a VFD and prolong motor lifespan.
- Oil-free design is no need for oil management systems to effectively improve compressor and system reliability and also avoid performance degradation because of no oil contamination in the refrigerant.



Trouble-free Ownership

Low Noise

- The chiller sound pressure level is as low as 77.5 dB(A), creating a quiet environment. No mechanical noise makes the chiller become the quietest chiller. Therefore, this quiet operation makes this ideal option for sound sensitive environments such as schools, concert halls and museums.



Dimension base on HXED/E2210/C2210

Compact Design

- The compact size of the chiller makes it available for replacement, retrofit and energy upgrade projects. In addition, the smaller footprint saves the chiller plant room space.

Lowest Total Cost

Over the life of the equipment, the total maintenance savings could be significant and depend on maintenance practices, age and efficiency of other equipment, energy prices, etc.

Energy Cost

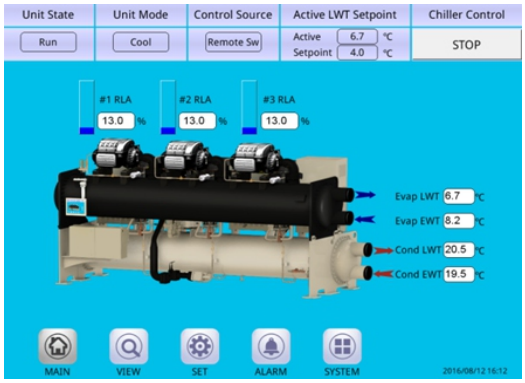
- Reduced annual energy costs due to outstanding part-load efficiency since chillers spend about 99% of their operating hours at part-load conditions.
- This chiller has been proven effective in thousands of installations around the world. It is more energy efficient than normal centrifugal chillers.

Operational Cost

- Sustainable performance assured for the operating life of the chiller. The positive pressure, oil-free design eliminates performance degradation because of no oil contamination in the refrigerant.
- Magnetic bearing chiller is oil free system without any need for oil charge, oil replacement, oil filter replacement, etc. The results are reduced operational costs and maintenance savings every year.

Control Features

Daikin employs microprocessor technology into the MicroTech V control system to provide the optimum chiller control. MicroTech controller incorporate microprocessor provides all monitor and control function for the efficient and safety operation. The control contains many energy-saving features to keep your chiller running efficiently day after day.



User-friendly Operation

HXE provides an easy operator interface, with key operating parameters on the screen. Operation Simplicity allows you to change the set points easily by pressing set button from any screen.

Alarm History For Easy Troubleshooting

Alarm history is easily accessed through intuitive touch-screen buttons. Operator can monitor all operating conditions by using the unit-mounted HMI. The occurred Alarms are retained in the controller's memory to aid in troubleshooting and fault analysis. Alarm history lists the alarms with the most current on top with date stamp, action taken and the cause of the alarm. You can download the chiller operating manual via USB.

Building Automation System

All MicroTech V controllers offer simple and inexpensive flexibility to use the Building Automation System. The exclusive control feature provides seamless integration and comprehensive monitoring, control, and two-way data exchange with industry standard protocols such as LONWORKS, Modbus or BACnet. The BAS communication module can be ordered factory mounted with your chiller. It is easy to integrate into your building automation system, providing comprehensive data exchange and point list for system integration, equipment monitoring and alarm notification.

HXE Rapid Restart

Rapid Restart Feature

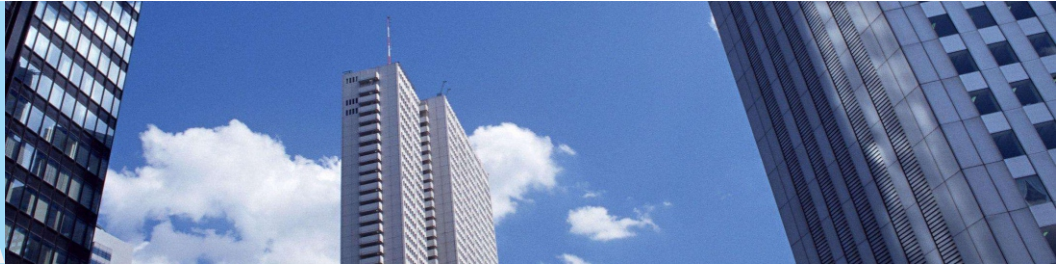
For uninterruptible cooling supply demand, the rapid restart option could be selected. Temperature-sensitive operations such as data center, pharmaceutical, and manufacturing facilities require constant cooling for equipment and processes. Normal standard chiller needs 180s at least for restart. If power loss and cooling is interrupted, critical operations may also face the risk of loss millions of dollars in equipment failure and operational downtime.

Now DAIKIN magnetic bearing centrifugal chillers, the rapid restart feature reduce the risk of cooling disruption. This feature for HXE can save you both time and money by:

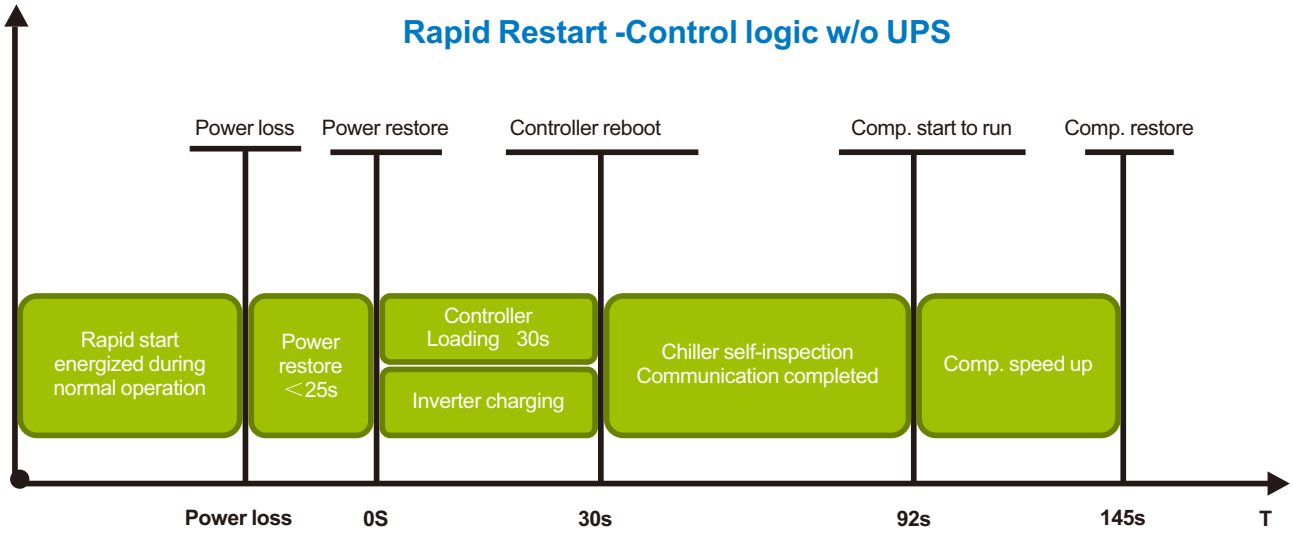
- Reducing time for chiller restart after power loss
- Rapidly restore chilled-water temperature
- Keeping process equipment cooled
- Reducing risks of expensive downtime
- Providing a faster initial start

How HXE Delivers Rapid Restart

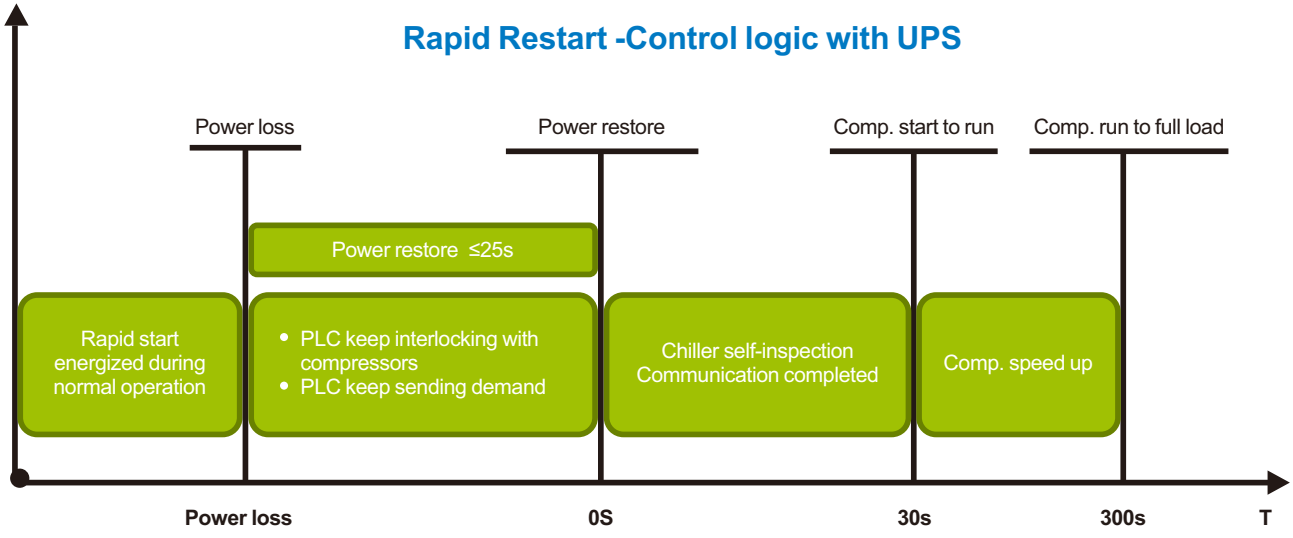
- DAIKIN HVAC system design is optimized for rapid restart
- Advanced features and functionality are built into HXE chillers
- HXE chiller controls are designed and engineered for rapid restart
- Proven operational procedures get the system back online as quickly as possible
- The UPS keeps HXE chiller control circuits energized until the emergency generator is activated, which eliminates the need for control panel reboot.



Rapid Restart Logic Improvement:



W/O UPS, the rapid restart time has been proven at 92s from power back to compressor start to run. It will take 145s for comp. restore to the previous working condition.



The optional UPS (keeps chiller control circuits energized during power loss); the rapid restart time has been proven at 30s from power restore to compressor start to run. It will take around 300s for comp. run to full load.

Compressor speed up time may vary depending on different condition

Note:
1. If power back takes more than 25s, the compressor will enter into a normal startup procedure.
2. T means the time between power loss and power back.

For details on how the rapid restart feature can protect your application, or learn more about it, contact your local DAIKIN sales office today.

Technical Data

Model	Cooling capacity		Power Consumption	Efficiency		Evap.		Cond.		Rated Load Amps	Chiller Weight	Operation Weight
						Flow Rate	Pressure Drop	Flow Rate	Pressure Drop			
	ton_R	kW	kW	kW/ton_R	COP	L/s	kPa	L/s	kPa	A	kg	kg
HXEV350SSTTF/E2209-RH/C2009-MK	100.0	351.7	54.26	0.5426	6.481	15.09	15.5	18.90	13.3	97.27	2927	3358
HXEV400SSTTF/E2209-QH/C2009-KK	150.0	527.5	90.77	0.6052	5.811	22.66	21.1	28.76	22.5	151.3	2990	3463
HXEV700SSTTF/E2209-PH/C2009-JK	200.0	703.4	118.3	0.5915	5.946	30.19	26.1	38.25	27.5	196.5	3068	3605
HXEV350DSTTF/E2210-PH/C2210-KK	200.0	703.4	109.0	0.5447	6.455	30.19	28.5	37.81	28.1	195.2	3881	4425
HXEV400DSTTF/E2212-QH/C2212-KK	250.0	879.2	135.6	0.5425	6.482	37.73	65.4	47.24	46.8	229.8	4128	4715
HXEV700DSTTF/E2612-PH/C2212-JK	300.0	1055	164.5	0.5483	6.414	45.28	33.8	56.76	49.4	278.0	4777	5583
HXEV700DSTTF/E2612-QH/C2612-KK	350.0	1231	193.1	0.5561	6.376	52.88	55.0	66.24	42.7	323.1	5096	5983
HXEV700DSTTF/E2612-PH/C2612-JK	400.0	1407	229.7	0.5740	6.126	60.45	55.7	76.13	43.6	381.8	5220	6195
HXEV350TSTTF/E2614-RH/C2614-MK	300.0	1055	159.6	0.5319	6.612	45.32	60.8	56.50	46.6	286.7	6091	7004
HXEV400TSTTF/E2614-QH/C2614-MK	350.0	1231	184.0	0.5257	6.690	52.88	63.8	65.82	60.3	314.5	6153	7105
HXEV400TSTTF/E2614-PH/C2614-KK	400.0	1407	217.7	0.5441	6.464	60.45	64.6	75.57	61.8	366.9	6300	7347
HXEV700TSTTF/E2614-PH/C2614-JK	450.0	1583	244.6	0.5434	6.472	68.01	79.2	85.01	60.8	413.7	6390	7497
HXEV700TSTTF/E3014-PH/C2614-JK	500.0	1758	271.2	0.5426	6.482	75.52	55.4	94.39	72.6	455.5	6948	8190
HXEV700TSTTF/E3014-QH/C3014-KK	550.0	1934	302.6	0.5502	6.392	83.09	78.6	104.0	65.8	505.4	7479	8844
HXEV700TSTTF/E3014-PH/C3014-JK	600.0	2110	339.2	0.5653	6.221	90.65	76.0	113.9	66.3	564.1	7639	9100
HXEV700QSTTF/E3614-EK/C3014-KK	650.0	2286	356.5	0.5485	6.412	98.11	29.5	123.0	87.3	599.3	9235	11024
HXEV700QSTTF/E3614-SK/C3014-JK	700.0	2462	384.9	0.5498	6.397	105.8	29.0	132.4	85.5	644.2	9420	11336
HXEV700QSTTF/E3614-EK/C3614-KK	750.0	2638	418.9	0.5585	6.297	113.3	38.2	142.2	60.7	698.6	10031	12170
HXEV700QSTTF/E3614-SK/C3614-JK	800.0	2813	452.0	0.5650	6.224	120.8	36.9	151.9	55.3	751.7	10288	12533

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Water-Cooled Water Chilling and Heat Pump Water-Heating Packages AHRI Standards 550/590 and 551/591

Notes:

1. Above chiller cooling capacity is based on AHRI standard condition:
   ELWT: 6.67°C, EEWT: 12.22°C; CEWT: 29.44°C, CLWT: 34.61°C;
   Evaporator/Condenser water side fouling factor: 0.0176/ 0.0440 °C.m^2/kW;
2. Power Supply: 380V/50Hz/3P;
3. Above chiller is recommended, please contact local sales for other specific models;
4. The starting current is smaller than full load current; the power distribution should according to the full load current;
5. Start-up In-rush Current : 2 Amps;
6. Above selection based on HXE program 1.1.2.

Technical Data

Model	Cooling capacity		Power Consumption	Efficiency		Evap.		Cond.		Rated Load Amps	Chiller Weight	Operation Weight
						Flow Rate	Pressure Drop	Flow Rate	Pressure Drop			
	ton_R	kW	kW	kW/ton_R	COP	L/s	kPa	L/s	kPa	A	kg	kg
HXEV350SSTTF/E2209-RH/C2009-MK	100.0	351.7	57.82	0.5782	6.083	16.77	18.5	19.71	14.0	102.9	2927	3358
HXEV400SSTTF/E2209-QH/C2009-KK	150.0	527.5	95.64	0.6376	5.515	25.16	25.3	30.00	23.8	159.1	2990	3463
HXEV700SSTTF/E2209-PH/C2009-JK	200.0	703.4	125.9	0.6294	5.588	33.54	31.3	39.92	29.1	197.2	3068	3605
HXEV350DSTTF/E2210-PH/C2210-KK	200.0	703.4	116.2	0.5809	6.055	33.54	34.2	39.45	29.8	206.6	3881	4425
HXEV400DSTTF/E2212-QH/C2212-KK	250.0	879.2	144.9	0.5796	6.068	41.93	78.4	49.30	49.5	244.3	4128	4715
HXEV700DSTTF/E2612-PH/C2212-JK	300.0	1055	178.5	0.5952	5.909	50.31	40.5	59.38	52.4	300.1	4777	5583
HXEV700DSTTF/E2612-QH/C2612-KK	350.0	1231	207.3	0.5923	5.938	58.70	65.8	69.24	45.3	345.8	5096	5983
HXEV700DSTTF/E2612-PH/C2612-JK	400.0	1407	243.2	0.6078	5.786	67.10	66.7	79.44	46.1	403.6	5220	6195
HXEV350TSTTF/E2614-RH/C2614-MK	300.0	1055	170.7	0.5690	6.181	50.31	72.8	59.00	49.3	304.3	6091	7004
HXEV400TSTTF/E2614-QH/C2614-MK	350.0	1231	197.4	0.5640	6.235	58.70	76.3	68.76	63.9	335.3	6153	7105
HXEV400TSTTF/E2614-PH/C2614-KK	400.0	1407	231.9	0.5759	6.068	67.10	77.4	78.89	65.4	389.3	6300	7347
HXEV700TSTTF/E2614-PH/C2614-JK	450.0	1583	265.6	0.5901	5.960	75.49	94.8	88.99	64.7	446.7	6390	7497
HXEV700TSTTF/E3014-PH/C2614-JK	500.0	1758	292.5	0.5851	6.010	83.83	66.4	98.71	77.0	489.3	6948	8190
HXEV700TSTTF/E3014-QH/C3014-KK	550.0	1934	323.5	0.5883	5.977	92.23	94.1	108.7	69.7	538.9	7479	8844
HXEV700TSTTF/E3014-PH/C3014-JK	600.0	2110	359.8	0.5997	5.864	100.6	91.0	118.9	70.1	597.4	7639	9100
HXEV700QSTTF/E3614-EK/C3014-KK	650.0	2286	385.4	0.5930	5.931	109.0	35.6	128.6	92.6	645.1	9235	11024
HXEV700QSTTF/E3614-SK/C3014-JK	700.0	2462	413.7	0.5909	5.951	117.4	35.0	138.4	90.7	690.2	9420	11336
HXEV700QSTTF/E3614-EK/C3614-KK	750.0	2638	446.7	0.5956	5.905	125.8	46.1	148.2	64.3	743.3	10031	12170
HXEV700QSTTF/E3614-SK/C3614-JK	800.0	2813	478.7	0.5984	5.877	134.1	44.5	158.5	58.4	794.8	10288	12533

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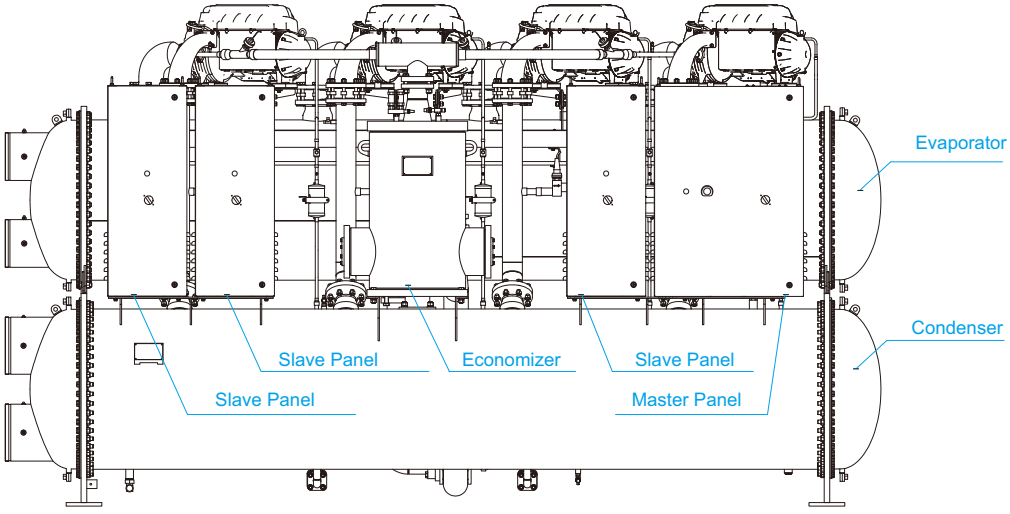
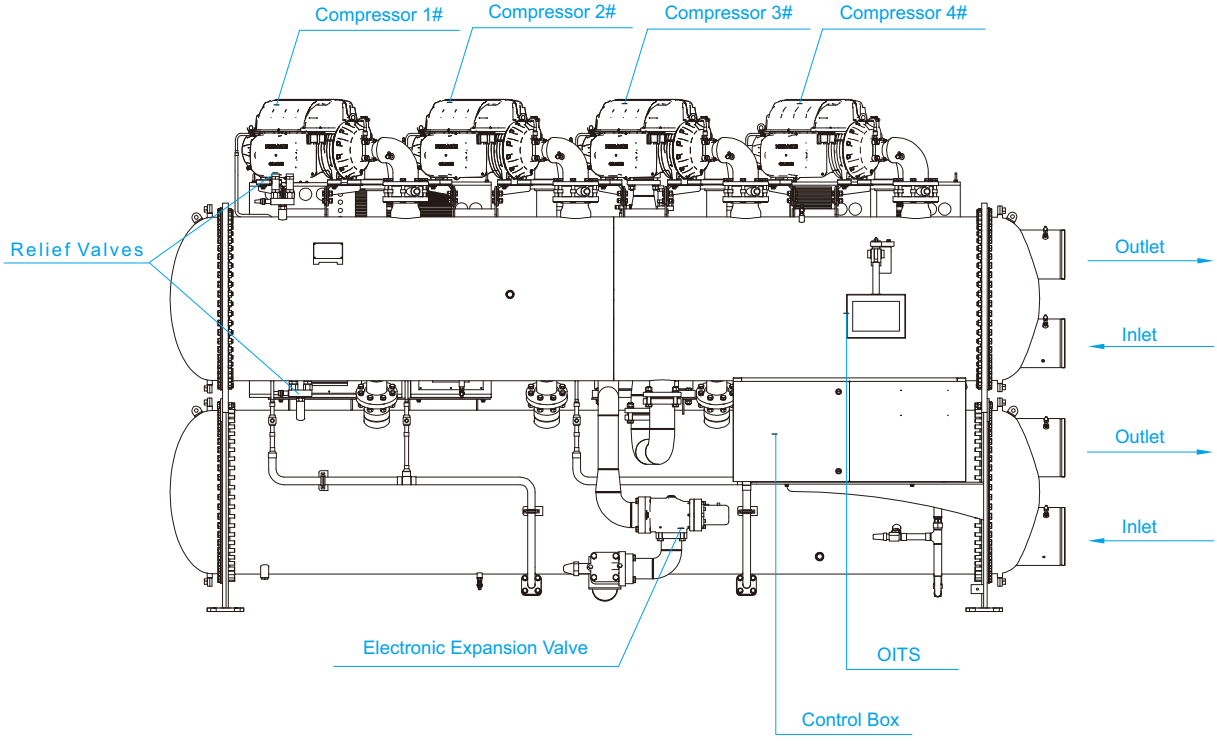
Notes:

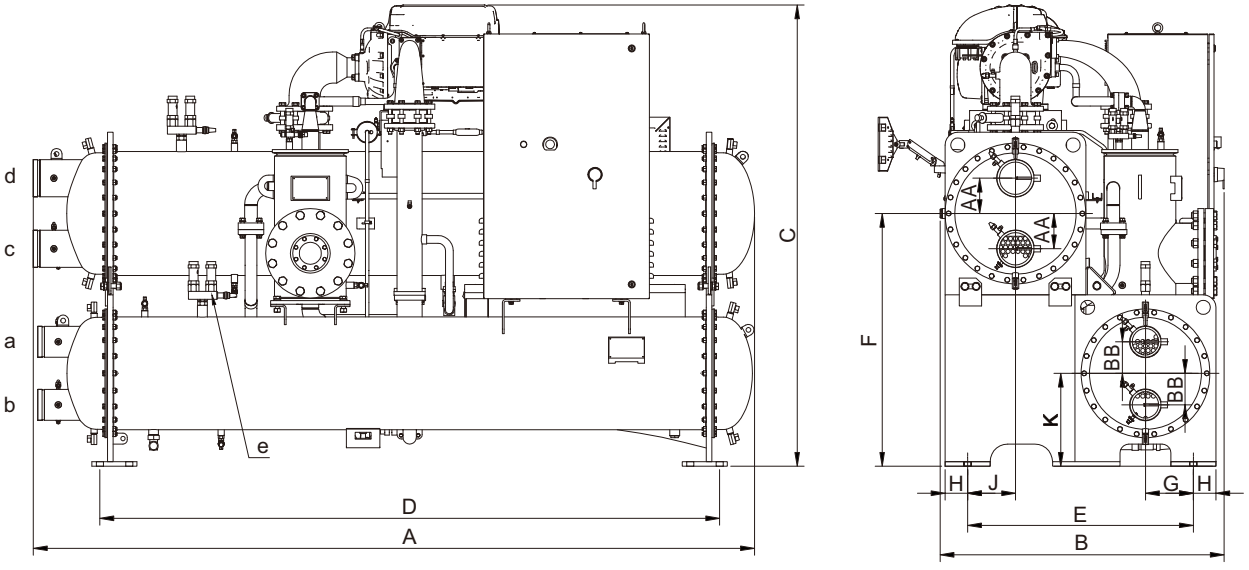
1. Above chiller cooling capacity is based on below condition:
   ELWT: 7.00°C, EEWT: 12.00°C; CEWT: 32.00°C, CLWT: 37.00°C;
   Evaporator/Condenser water side fouling factor: 0.0176/ 0.0440 °C.m^2/kW;
2. Power Supply: 380V/50Hz/3P;
3. Above chiller is recommended, please contact local sales for other specific models;
4. The starting current is smaller than full load current; the power distribution should according to the full load current;
5. Start-up In-rush Current : 2 Amps;
6. Above selection based on HXE program 1.1.2.

Major Components





Dimensions



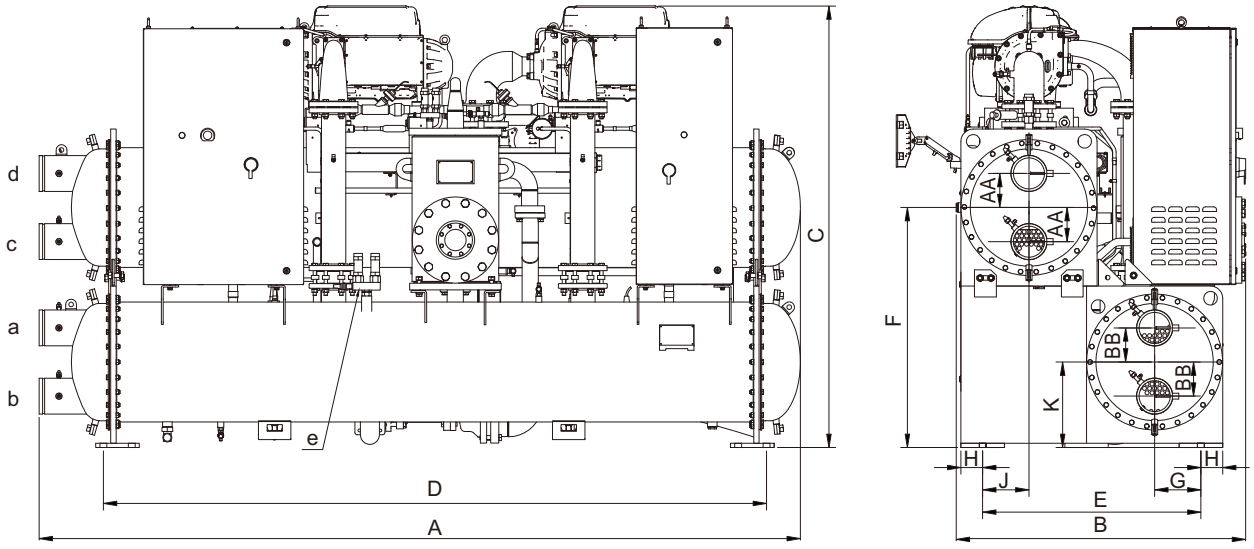
Dimensions of **Single Compressor Units**

Dimensions, Connection and Foundation Drawing Sizes														
Model	Dimensions(mm)						Locating Size of Evaporator Connection(mm)				Locating Size of Condenser Connection(mm)			
	A	B	C	D	E	H	F	J	AA	OD	G	K	BB	OD
HXEV***SSTT*/E2209/C2009	3288	1313	2091	2808	1023	102	1146	217	160	168	217	421	143	140

Notes:

1. a: Condenser outlet; b: Condenser inlet; c: Evaporator inlet; d: Evaporator outlet; e: Relief valve NPT1;
2. A、B、C dimension deviation ± 13mm ;
3. Above dimension base on 2 pass water flow, Please contact your Daikin representative for other passes.
4. The dimension include 20mm insulation for the evaporator.

Dimensions



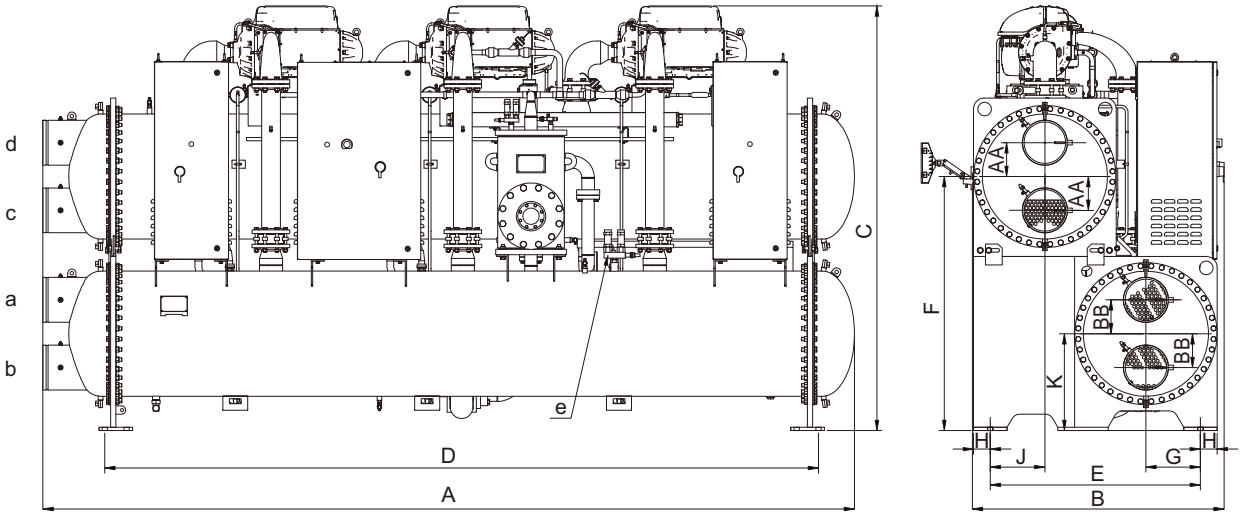
Dimensions of **Dual Compressors Units**

Dimensions, Connection and Foundation Drawing Sizes														
Model	Dimensions(mm)						Locating Size of Evaporator Connection(mm)				Locating Size of Condenser Connection(mm)			
	A	B	C	D	E	H	F	J	AA	OD	G	K	BB	OD
HXEV***DSTT*/E2210/C2210	3589	1403	2071	3108	1023	102	1126	217	160	168	217	401	160	168
HXEV***DSTT*/E2610/C2210	3685	1478	2238	3108	1110	102	1264	305	180	219	217	401	160	168
HXEV***DSTT*/E2610/C2610	3685	1483	2389	3109	1198	102	1415	305	180	219	304	489	180	219
HXEV***DSTT*/E2212/C2212	4174	1403	2071	3694	1023	102	1126	217	160	168	217	401	160	168
HXEV***DSTT*/E2612/C2212	4270	1478	2238	3693	1110	102	1264	305	180	219	217	401	160	168
HXEV***DSTT*/E2612/C2612	4270	1483	2389	3694	1198	102	1415	305	180	219	304	489	180	219

Notes:

1. a: Condenser outlet; b: Condenser inlet; c: Evaporator inlet; d: Evaporator outlet; e: Relief valve NPT1;
2. A、B、C dimension deviation ± 13mm ;
3. Above dimension base on 2 pass water flow, Please contact your Daikin representative for other passes.
4. The dimension include 20mm insulation for the evaporator.

Dimensions

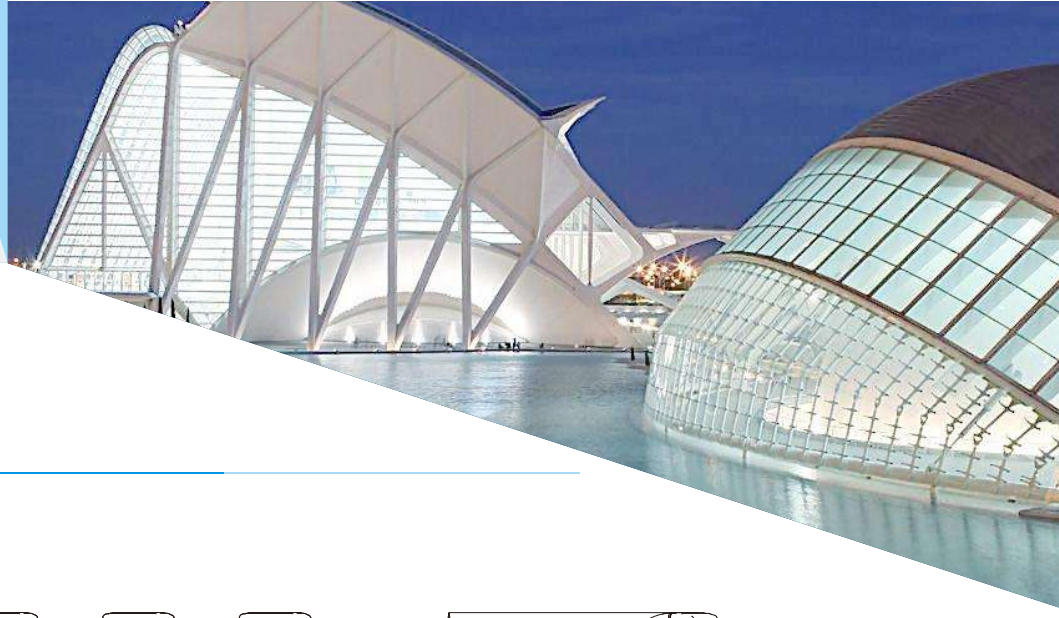


Dimensions of **Triple Compressors Units**

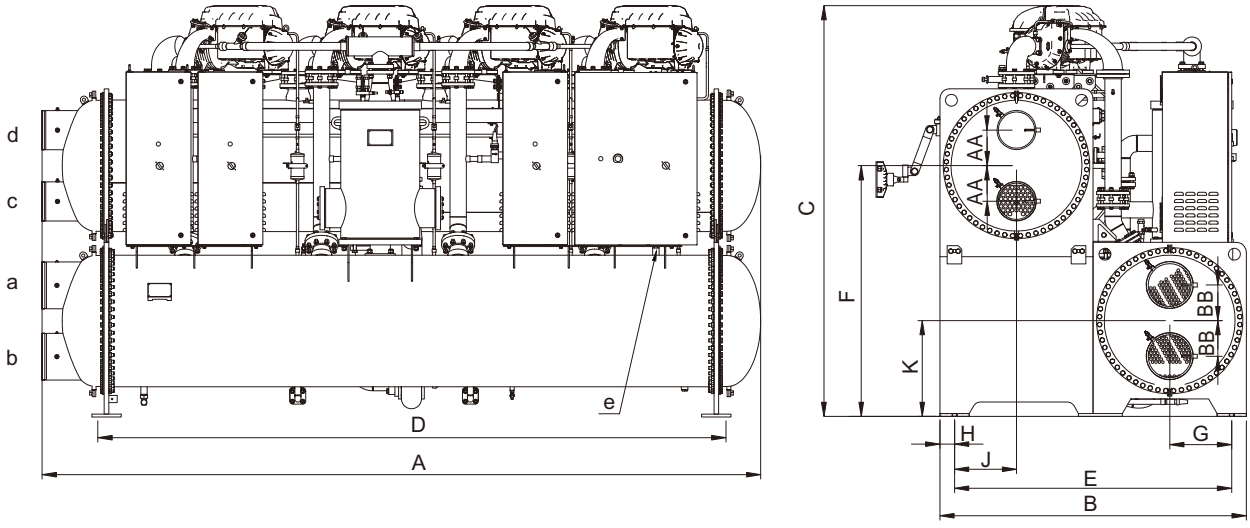
Model	Dimension(mm)						Locating Size of Evaporator Connection(mm)				Locating Size of Condenser Connection(mm)			
	A	B	C	D	E	H	F	J	AA	OD	G	K	BB	OD
HXEV***TSTT*/E2614/C2614	4919	1504	2423	4345	1198	102	1435	305	180	219	304	509	180	219
HXEV***TSTT*/E3014/C2614	4960	1554	2454	4345	1226	102	1415	332	206	273	304	509	180	219
HXEV***TSTT*/E3014/C3014	4960	1589	2586	4345	1279	102	1547	332	206	273	332	590	206	273

Notes:

1. a: Condenser outlet; b: Condenser inlet; c: Evaporator inlet; d: Evaporator outlet; e: Relief valve NPT1;
2. A、B、C dimension deviation ± 13mm ;
3. Above dimension base on 2 pass water flow, Please contact your Daikin representative for other passes.
4. The dimension include 20mm insulation for the evaporator.



Dimensions

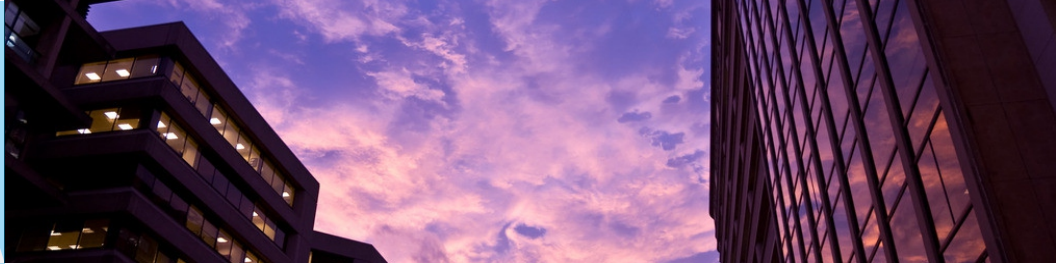


Dimensions of **Quadra Compressors Units**

Model	Dimension(mm)						Locating Size of Evaporator Connection(mm)				Locating Size of Condenser Connection(mm)			
	A	B	C	D	E	H	F	J	AA	OD	G	K	BB	OD
HXEV***QSTT*/E3614/C3014	5017	2074	2553	4374	1831	102	1438	432	248	325	432	590	248	273
HXEV***QSTT*/E3614/C3614	5017	2154	2863	4374	1930	102	1748	432	248	325	432	668	248	325

Notes:

1. a: Condenser outlet; b: Condenser inlet; c: Evaporator inlet; d: Evaporator outlet; e: Relief valve NPT1;
2. A、B、C dimension deviation ± 13mm ;
3. Above dimension base on 2 pass water flow, Please contact your Daikin representative for other passes.
4. The dimension include 20mm insulation for the evaporator.

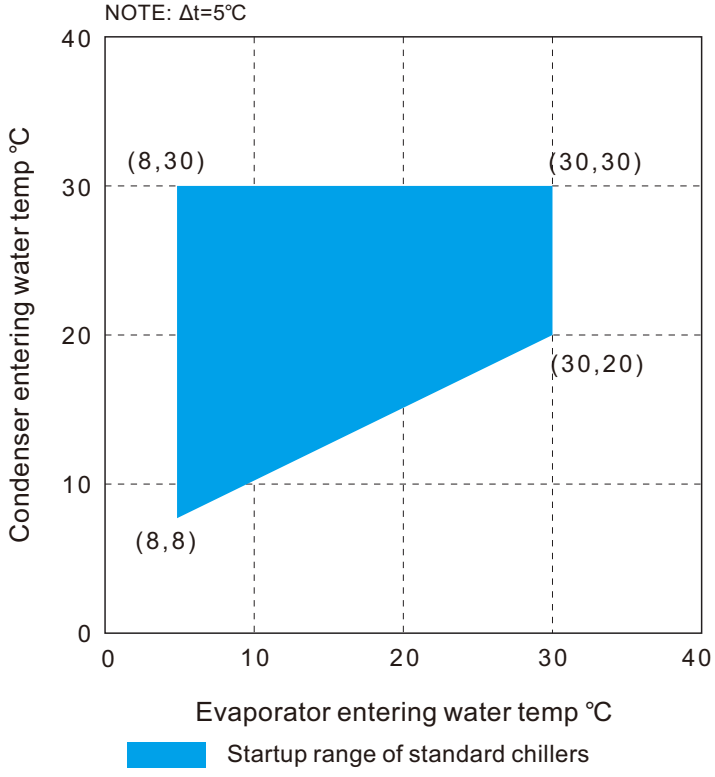


Options

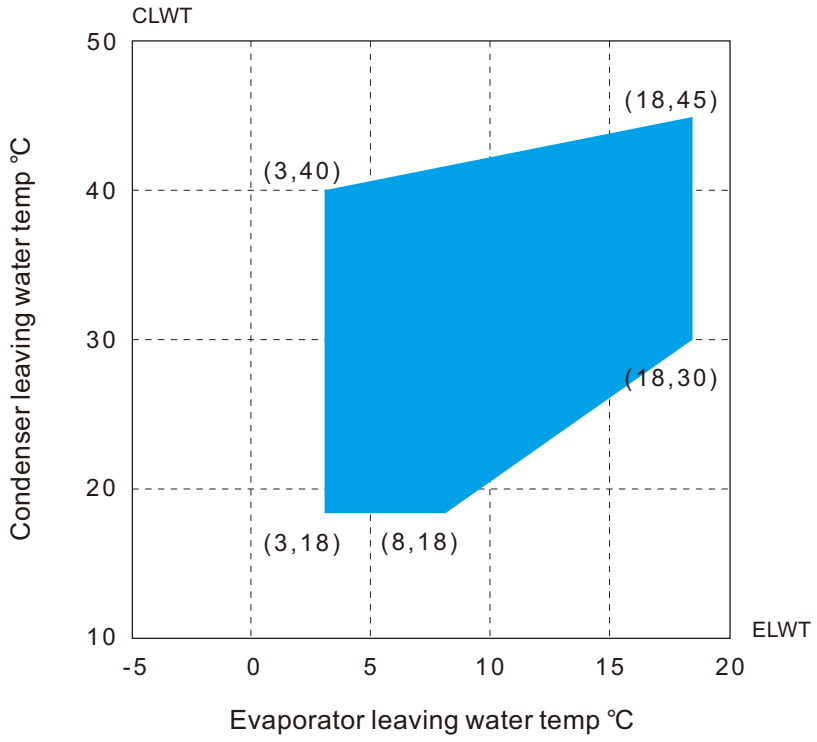
Items	Standard	Options
Vessel Code	GB	ASME
Water Connection	Victaulic Groove	ANSI Flange
Water Box	Compact Water Cover (1.0MPa)	Marine Water Box
Insulation	20mm Insulation on Evaporator and Cold Surface	40mm Insulation on Evaporator①
Flow Switch	Thermal Flow Switch	Pressure Differential / Paddle Type
Anti-vibration	Rubber Cushion	Spring Isolator
Warranty Extension	None	1 to 4 Year
Factory Test	Full Load Test	1-4 Point Witness Test
Filter	None	Active Power Filter / Passive Filter②
Rapid Restart	None	Option

Notes:
① 40mm Insulation on evaporator shell and 20mm on water head cap.
② Active power filter is unit mounted. Passive filter is free standing.

Startup Range



Operation Range



Application Standard

The standard running condition of the water chiller is as follows:

Supply Voltage	Rated voltage ± 10%	
Phase Unbalance Rate	±2%	
Frequency	Rated frequency ± 2%Hz	
Operating Temperature	3~40℃	
Relative Humidity	≤90%	
Explosion-proof Grade	None	
Atmospheric Corrosive Gas Contents	Sulfur dioxide	≤10 mg/m^3
	Hydrogen fluoride	≤5 mg/m^3
	Hydrogen sulfide	≤5 mg/m^3
	Nitrogen oxide	≤5 mg/m^3
	Nitrogen	≤1 mg/m^3
	Hydrogen chloride	≤5 mg/m^3
Installation	Indoor installation,no rain or direct sunlight(for installations of the outdoor,seaside,chemical plant,or place of high concentration of corrosive gas,please contact the local Daikin branch office and dealers)	
Water Temperature Range of Water Chiller	See IOMM 13.2	
Water Capacity Range	See IOMM 13.3	
Heat Exchange Tube Waterside Pressure	Standard chiller 1.0MPa (may be designed follow the customer's requirements)	

Water Quality Management

During the unit running, the water quality of the cooling and chilled water will directly affect the machine's performance and lifetime, so it is necessary to survey the water quality beforehand and conduct water quality control as the unit runs.
The following table contains some parameters of the water quality of open system:

Item		Unit	Reference Value	Item	
				Corrosion	Scaling
Base Items	PH (25℃)	–	<6.5~8.0	O	O
	Electrical Conductivity(25℃)	μs/cm	<800	O	O
	Chloridion Cl^-	mg(Cl^-)/L	<200	O	
	Sulfateion SO_4^{2-}	mgSO_4^{2-}/L	<200	O	
	Acid Consumption (PH=4.8	mg($CaCO_3$)/L	<100		O
	Full Hardness	mg($CaCO_3$)/L	<200		O
Reference Items	Iron Fe	mg(Fe)/L	<1.0	O	O
	Sulphion S^{2-}	mg(S^{2-})/L	Not Detected	O	
	Ammoniumion NH_4^+	mg(NH_4^+)/L	<1.0	O	
	Silicon Oxide SiO_2	mg(SiO_2)/L	<50		O

Notes:

1. The “O” in the table indicates the relevant factors with corrosion or scaling.
2. We recommend you add water process device and contact Daikin professional servicer to deal with it.

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Subject to change without notice

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