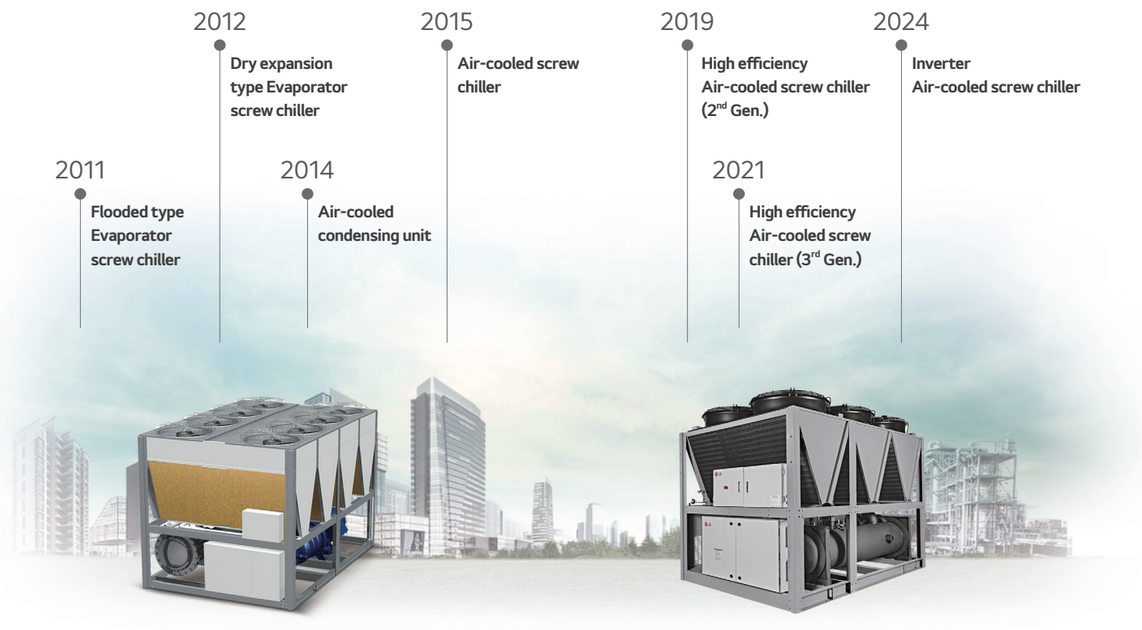
LG HVAC Solution

AIR-COOLED SCREW CHILLER

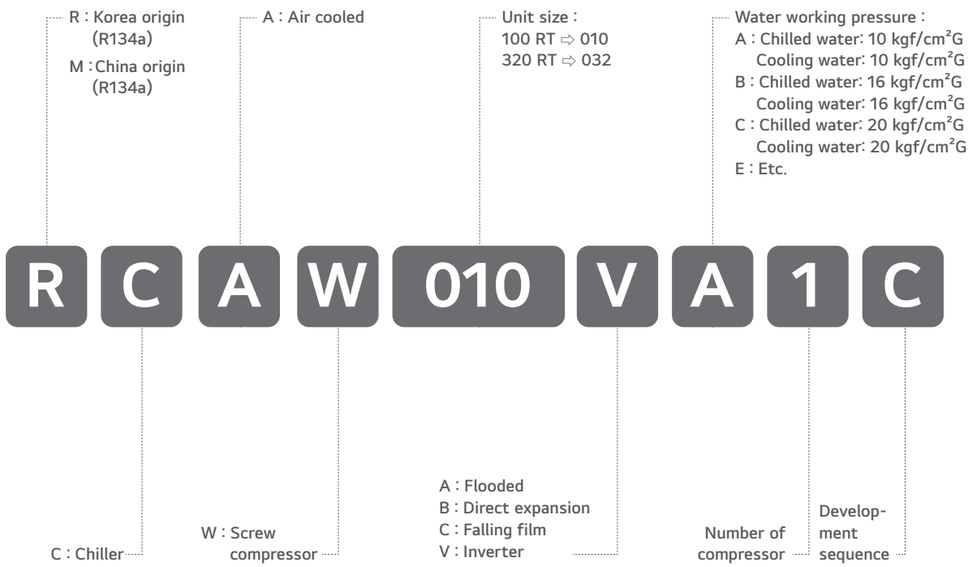
• 2025 LG Electronics. Printed in Korea. Feb. 2025

LG History

LG is a one of leading chiller manufacturer with long experience of manufacturing chillers and advanced technology.



Nomenclature



Line-up

[usRT]

Model		100 150 200 250 300 350 400 450 500
RCAW(C) Series Constant 	50 Hz / 60 Hz	80 — 500
RCAW(V) Series Inverter 	VSD	95 — 510
MCAW(C) Series Constant 	50 Hz / 60 Hz	80 — 500

* @AHRI550/590 condition

※ The above range is based on the nominal tonnage.

LG Air-Cooled Screw Chiller Features

Economical Maintenance Costs
- High efficiency V-shape heat exchanger
- High efficiency wide louver fin

High Reliability
- Anti-corrosion Gold Fin, Black Fin applied
- Back-up operation available with Multi-circuit
- Low noise fan module applied
- Variety safety device with high performance digital sensors

User-friendly
- Wide 15 inch touch screen with variety information
- Convenience use for checking ongoing status, and control & maintance
- Energy saving solution and intelligence building managing available (with LG BMS / BEMS)

Eco-friendly
- ODP* Zero R134a applied to protect ozone layer

* ODP (Ozone Depletion Potential)

LG Constant Screw Chiller Achieve High COP

Gen1
Flooded Type

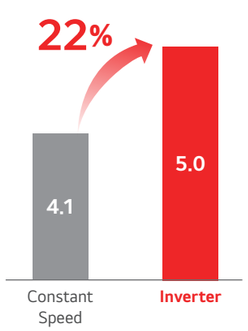
Gen2
High Efficiency Evaporator Applied

Now
Gen3
High Efficiency Compressor Applied

2024 New LG Inverter Air-Cooled Screw Chiller

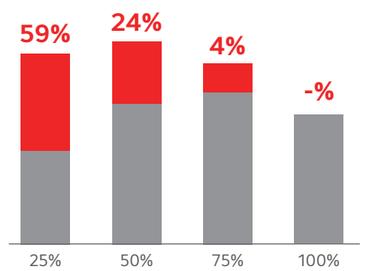
Inverter compressor has strength in partial load. IPLV improved 22%.

• **Higher IPLV**



• **Compressor Performance**

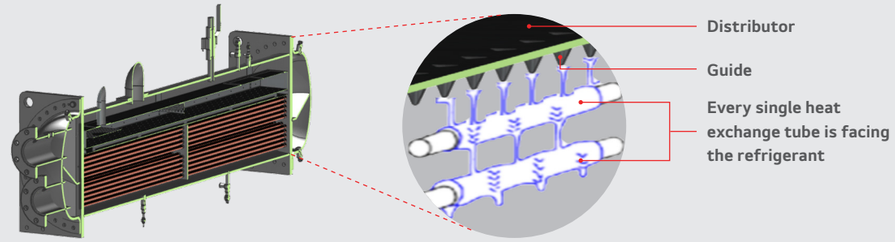
Compared to previous model,compressor has higher efficiency part load conditions.



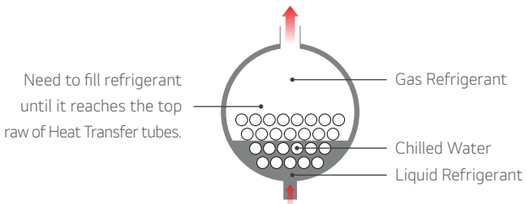
※ 100 RT model tested with AHRI551 / 591 condition

Falling Film Evaporator

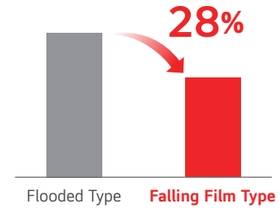
Falling Film type Evaporator offers more stable distribution with low amount of refrigerant.



• **Flooded**



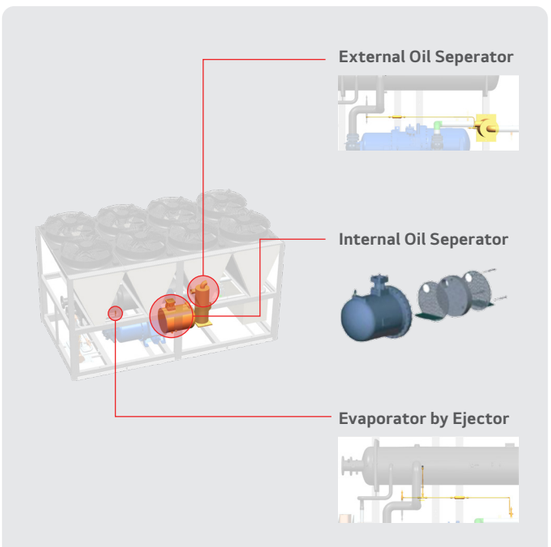
• **Lower Refrigerant Charge**

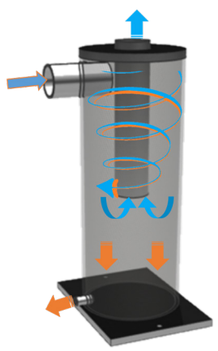


※ Charge amount on average basis

Oil Reclaim System

Total 3 ways to reclaim oil to run cycle & compressor smoothly.

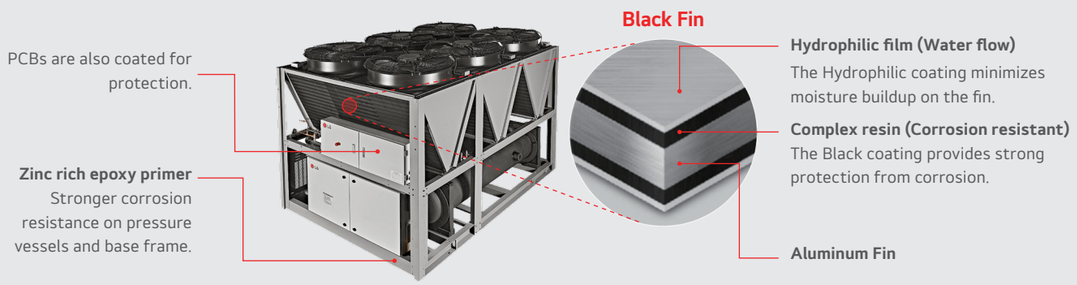




❶ Refrigerant gas & oil from the compressor
❷ Separate refrigerant gas & oil by making cyclone flow
❸ Heavier oil falls down to bottom of oil seperator
❹ Refrigerant gas goes to condenser
❺ Oil goes to compressor suction

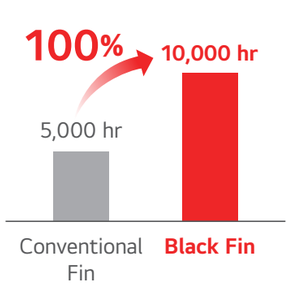
Corrosion Resistance

The black fin is applied for strong protection from various corrosive external conditions such as salt contamination and air pollution including fumes.



• Salt Spray Test (SST)

Less than 0.05% Area of defects compared to initial condition



• Black Fin ⊕ Blygold Coating (Option)

Longer Life Span with Blygold Coating Option.

Apply polyurethane coating contained aluminum fin powder.

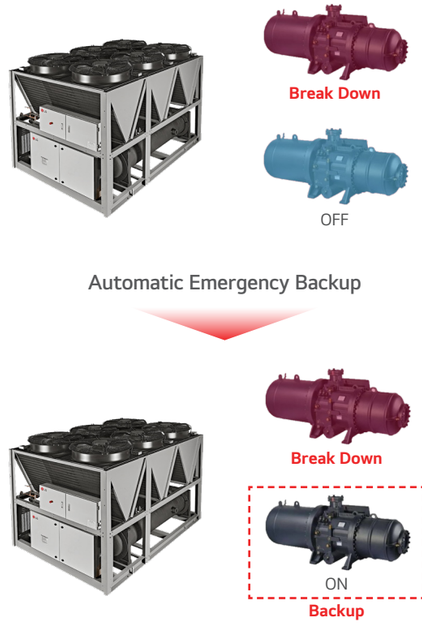
※ Verification of corrosion resistance performance
- ASTM B117 : 10,000 hours (Last updated : Dec. 2020)
- Test Method B of ISO 9227

※ The product is not fully treated for anti-corrosion. To install near the sea, additional treatment must be required.
※ Results may vary depending on the environment.
※ Black Fin is standard for inverter model and Gold Fin is standard for constant speed model.

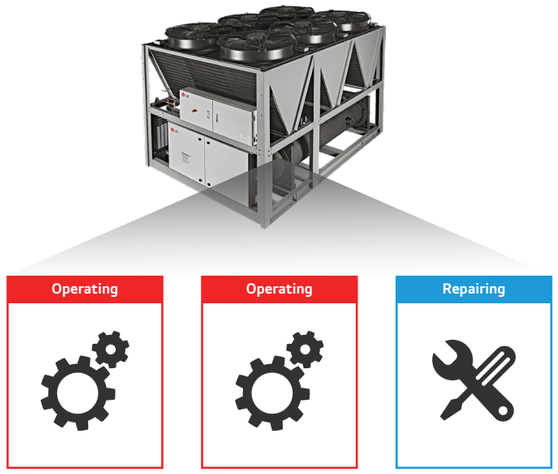
Multi Circuit Back-up Operation

If one compressor or one cycle has a trouble or needs to be repaired, backup operation helps the whole system to operate continuously.

• Compressor Back-up

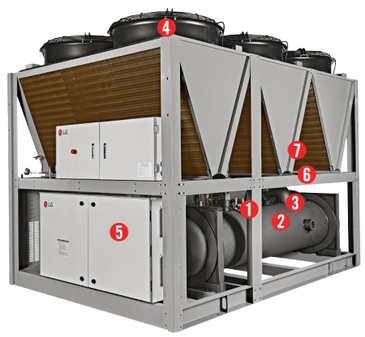


• Cycle Back-up



Product Protection & Safety Devices

High performance sensor and variety safety devices prevent damage to chiller and minimize the malfunction.



❶ Safety device for compressor motor
- Compressor discharge & motor winding temperature detection
- Reverse Phase and Phase Loss detection

❷ Anti-Freezing Device
- Chilled water temperature sensor
- Low pressure sensor

❸ Chilled water flow detection
- Flow switch

❹ Fan motor safety device
- Overcurrent relay

❺ Power Fault Detection Device
- Reverse Phase detection
- Phase Loss detection
- Over current detection
- Low current detection

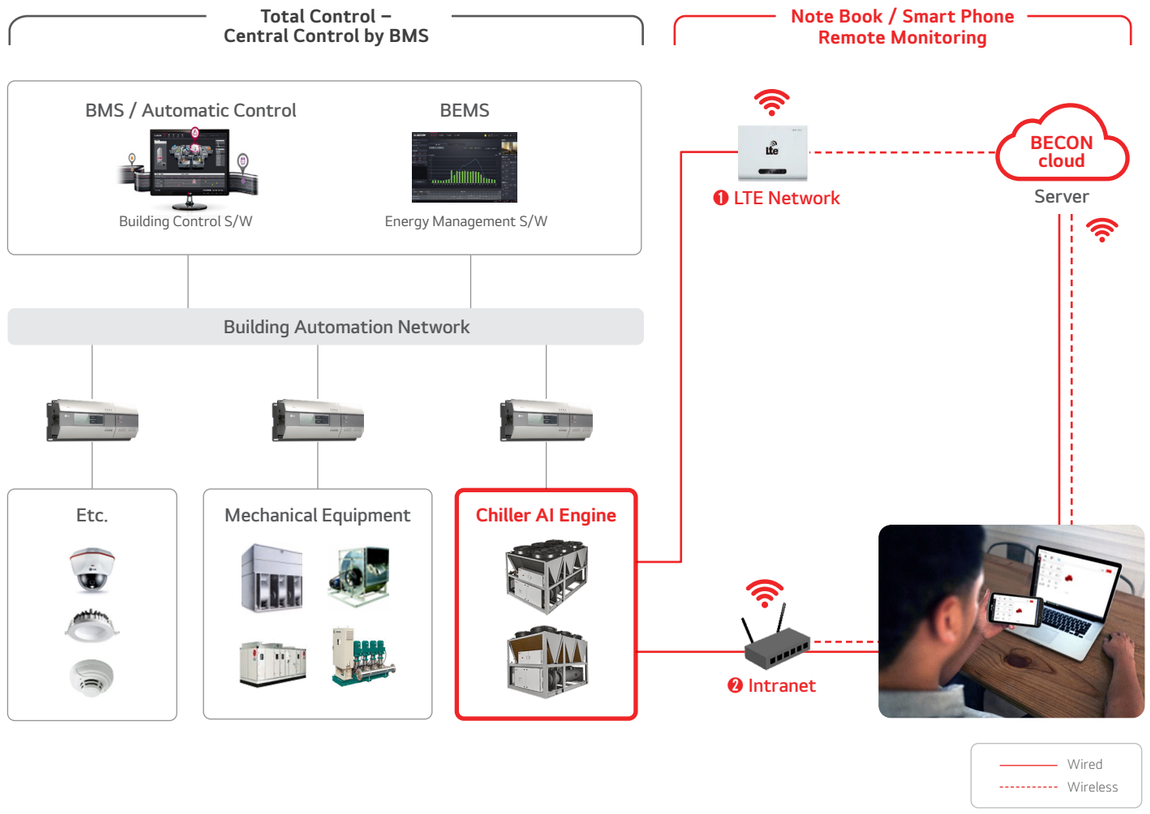
❻ Compressor bearing safety device
- Oil level switch
- Oil heater

❼ Pressure Control & Pressure Block
- High / Low pressure sensor
- Pressure switch

Safety valve
- High / Low pressure relief valve

Various Control Scalability

Provide a control and monitoring environment optimized for customer needs.



❶ LTE Network Remote Monitoring & Maintenance

Remote Monitoring is possible by transmitting operating data using the LTE network.

BECON cloud Monitoring through a separate web screen App push when an alarm occurs (Customer and HIM Solutek)

❷ Remote Monitoring and Control (Intranet)[1)]

Remote Monitoring can be configured with just wiring without adding Separate Equipment.

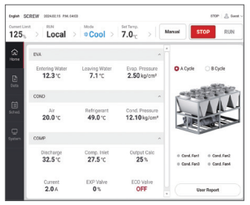
Same Display with HMI

Note:
1) Applied LG Chiller AI Engine.
2) Chiller TMS application varies by countries.

LG Chiller AI Engine

The 15-inch large screen has improved visibility, operability and supports various funsuch as report functions.

❶



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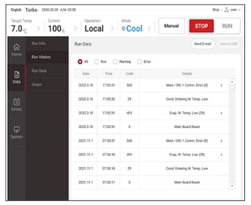

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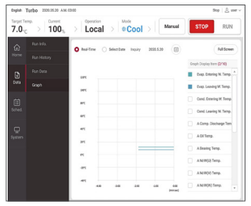

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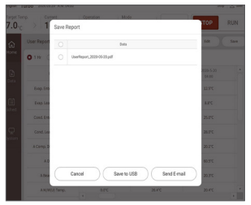


Chiller AI Engine

❶ 15-inch Touch Screen

Visibility has been improved by applying a 15-inch large screen. The pressure-sensitive touch method allows operation even while wearing gloves.

❷ History Management

Displays operating / alarm / abnormal messages. You can check the message occurrence date / error code / detailed information.

❸ Operating Graph

Chiller operation data is displayed as a graph. You can easily understand operation trends by graphing the chiller's operation data in real time and on specific dates.

❹ User Report

Users can conveniently check the data they want (20 selected) on one screen and send it via email[1)] to create a operation log without having to write it down individually on site. (SD card storage is also possible.)

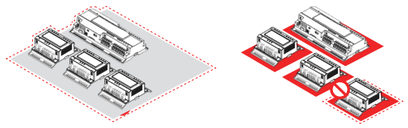
※ Please refer to manual for detailed instructions.

Note:
1) Need to connect network.

By upgrading the parts that make up the controller, you can maintain it quickly and conveniently at low cost.

• Modular Controller

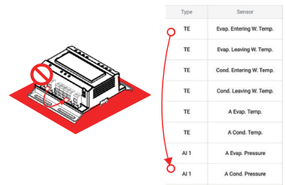
The main controller and IO module are separated, saving repair costs and time by replacing only the broken parts in the event of a breakdown.



Replace / Repair range

• Site Engineering the Sensors

If one IO port breaks down, normal operation is possible immediately by changing the port settings in the control panel without replacing parts, and there is no replacement cost.



• Easy Firmware Update

X30

- Requires cable connection between computer and control panel

Direct Manual

Chiller AI Engine

- Only replace SD card

Direct Manual Simple

- Remote Firmware Update (BECON cloud)

Remote Auto Simple

※ SD cards are not provided to customers for service use, and only service personnel certified by our company are authorized to use them.
※ AI Engine application varies by countries.

AHRI Certificates

LG chiller performance and test facilities has been certified according to international certification agency standards.

AHRI CERTIFIED® www.ahridirectory.org
Air-Cooled Chillers
AHRI Standards 550/590 and 551/591

AHRI 550 / 590 (AHRI 551 / 591) Standard

Performance Evaluation for Vapor Compression Chiller (50 / 60 Hz)

"AHRI performance AWARD" award for 7 consecutive years.


Certificate of Product Ratings

※ Qualification : Pass the 1st round of follow-up test for 3 years

ASME (America Society of Mechanical Engineers)

• ASME Section VIII Boiler and Pressure Vessel code
ASME Section VIII is the section of the ASME Boiler & Pressure Vessel Code (BPVC) that covers pressure vessels. It specifically refers to the pressure vessels that operate at pressures, either internal or external, that exceed 15 psig.


CERTIFICATE OF AUTHORIZATION

ETL (Electrical Testing Laboratory)

• Safety certification mark in the Americas.
ETL is approved by the U.S. federal government, each state government, and each city to provide comprehensive safety testing services, and is a safety mark for electrical and electronic products commonly used in the U.S. with a certification equivalent to the UL certification mark.


AUTHORIZATION TO MARK

CE (Conformité Européenne)

• Safety certification mark in the Europe.
The CE marking means that the product complies with the conditions of European standards related to safety, health, environment and consumer protection.

※ The certification acquisition varies by models.

RCAW(C), MCAW(C) Series (Constant Speed 50 Hz)
EWT12.2℃ (54˚F) LWT6.7℃ (44˚F) Ambient Temperature 35.0℃ (95˚F)

Model		Units	R(M)CAW008CA1C	R(M)CAW010CA1C	R(M)CAW012CA1C	R(M)CAW014CA1C	R(M)CAW016CA1C
Unit Capacity		usRT	81.9	96.8	115.7	134.3	152.8
		kW	288.0	340.6	406.9	472.4	537.4
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	148	176	213	238	281
	Starting Current (380 V)	A	427	512	588	596	710
	RLA (400 V)	A	141	167	203	226	267
	Starting Current (400 V)	A	448	537	616	626	745
	Independent Refrigerant Circuits	EA	1	1	1	1	1
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	44.5	52.7	62.9	73.1	83.1
		gpm	196.1	231.9	277.1	321.7	365.9
	Pressure Drop	mAq	91.5	104	102	48.8	48.4
		ftH2O	300	341	335	160	159
	Connection	Inch	4	4	5	5	5
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	6	6	8	8	10
	Fan Motor Input Power (380 V)	kW	10.8	10.8	14.4	14.4	18.0
	Fan Motor Input Power (400 V)	kW	10.8	10.8	14.4	14.4	18.0
	Total Chiller Airflow	CMM	1,890	1,890	2,520	2,520	3,150
Weight	Shipping Weight	kg	3,200	3,300	3,700	4,700	5,200
		lb	7,056	7,277	8,159	10,364	11,466
	Operating Weight	kg	3,353	3,457	3,899	4,912	5,431
		lb	7,393	7,623	8,597	10,831	11,975
Dimension	Length	mm	3,020	3,020	4,010	4,010	4,990
		Inch	118.9	118.9	157.9	157.9	196.5
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	90	110	120	160	170
		lb	198	243	265	353	375
Oil		L	17	23	26	28	28
		gallon	4.5	6.1	6.9	7.4	7.4

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 50 Hz)
EWT12.2℃ (54˚F) LWT6.7℃ (44˚F) Ambient Temperature 35.0℃ (95˚F)

Model		Units	R(M)CAW016CA2C	R(M)CAW018CA2C	R(M)CAW020CA2C	R(M)CAW022CA2C	R(M)CAW024CA2C
Unit Capacity		usRT	160.5	179.5	203.3	218.6	235.0
		kW	564.6	631.2	714.8	769.0	826.4
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	146 / 146	158 / 158	185 / 185	211 / 192	218 / 218
	Starting Current (380 V)	A	427 / 427	475 / 475	512 / 512	588 / 512	588 / 588
	RLA (400 V)	A	139 / 139	150 / 150	176 / 176	201 / 182	207 / 207
	Starting Current (400 V)	A	448 / 448	498 / 498	537 / 537	616 / 537	616 / 616
	Independent Refrigerant Circuits	EA	2	2	2	2	2
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	87.3	97.6	110.6	118.9	127.8
		gpm	384.5	429.8	487.0	523.5	562.7
	Pressure Drop	mAq	53.0	50.0	55.1	55.7	53.2
		ftH2O	174	164	181	183	174
	Connection	Inch	5	5	5	6	6
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	6 / 6	6 / 6	6 / 6	8 / 6	8 / 8
	Fan Motor Input Power (380 V)	kW	21.6	21.6	21.6	25.2	28.8
	Fan Motor Input Power (400 V)	kW	21.6	21.6	21.6	25.2	28.8
	Total Chiller Airflow	CMM	3,780	3,780	3,780	4,410	5,040
Weight	Shipping Weight	kg	5,200	5,800	5,900	6,300	6,600
		lb	11,466	12,789	13,010	13,892	14,553
	Operating Weight	kg	5,431	6,077	6,183	6,602	6,943
		lb	11,975	13,400	13,634	14,557	15,309
Dimension	Length	mm	5,980	5,980	5,980	6,970	7,950
		Inch	235.4	235.4	235.4	274.4	313.0
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	90 / 90	90 / 90	90 / 90	100 / 100	110 / 110
		lb	198 / 198	198 / 198	198 / 198	221 / 221	243 / 243
Oil		L	17 / 17	19 / 19	23 / 23	26 / 23	26 / 26
		gallon	4.5 / 4.5	5 / 5	6.1 / 6.1	6.9 / 6.9	6.9 / 6.9

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 50 Hz)
EWT12.2℃ (54˚F) LWT6.7℃ (44˚F) Ambient Temperature 35.0℃ (95˚F)

Model		Units	R(M)CAW026CA2C	R(M)CAW028CA2C	R(M)CAW030CA2C	R(M)CAW032CA2C	R(M)CAW036CA3C
Unit Capacity		usRT	250.3	272.1	291.3	309.3	362.2
		kW	880.2	957.0	1,025.0	1,088.0	1,274.0
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	235 / 219	241 / 241	279 / 250	285 / 284	224 / 224 / 224
	Starting Current (380 V)	A	596 / 588	596 / 596	710 / 596	710 / 710	588 / 588 / 588
	RLA (400 V)	A	223 / 208	229 / 229	265 / 237	270 / 270	213 / 213 / 213
	Starting Current (400 V)	A	626 / 616	626 / 626	745 / 626	745 / 745	616 / 616 / 616
	Independent Refrigerant Circuits	EA	2	2	2	2	3
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	136.1	148.0	158.5	168.2	197.0
		gpm	599.2	651.6	697.9	740.6	867.4
	Pressure Drop	mAq	91.1	88.9	81.0	90.6	91.4
		ftH2O	299	292	266	297	300
	Connection	Inch	6	6	6	6	8
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	8 / 8	8 / 8	10 / 8	10 / 10	8 / 8 / 8
	Fan Motor Input Power (380 V)	kW	28.8	28.8	32.4	36.0	43.2
	Fan Motor Input Power (400 V)	kW	28.8	28.8	32.4	36.0	43.2
	Total Chiller Airflow	CMM	5,040	5,040	5,670	6,300	7,560
Weight	Shipping Weight	kg	7,200	7,900	8,400	8,400	10,100
		lb	15,876	17,420	18,522	18,522	22,271
	Operating Weight	kg	7,569	8,328	8,852	8,852	10,697
		lb	16,690	18,363	19,519	19,519	23,587
Dimension	Length	mm	7,950	7,950	8,940	9,920	11,900
		Inch	313.0	313.0	352.0	390.6	468.5
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	120 / 120	140 / 140	140 / 140	140 / 140	120 / 120 / 120
		lb	265 / 265	309 / 309	309 / 309	309 / 309	265 / 265 / 265
Oil		L	28 / 26	28 / 28	28 / 28	28 / 28	26 / 26 / 26
		gallon	7.4 / 7.4	7.4 / 7.4	7.4 / 7.4	7.4 / 7.4	6.9 / 6.9 / 6.9

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
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RCAW(C), MCAW(C) Series (Constant Speed 50 Hz)
EWT12.2℃ (54˚F) LWT6.7℃ (44˚F) Ambient Temperature 35.0℃ (95˚F)

Model		Units	R(M)CAW040CA3C	R(M)CAW044CA4C	R(M)CAW048CA4C	R(M)CAW052CA4C
Unit Capacity		usRT	395.5	437.3	469.9	500.6
		kW	1,391.0	1,538.0	1,653.0	1,760.0
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	244 / 244 / 226	211 / 192 / 211 / 192	218 / 218 / 218 / 218	235 / 219 / 235 / 219
	Starting Current (380 V)	A	596 / 596 / 588	588 / 512 / 588 / 512	588 / 588 / 588 / 588	596 / 588 / 596 / 588
	RLA (400 V)	A	231 / 231 / 215	201 / 182 / 201 / 182	207 / 207 / 207 / 207	223 / 208 / 223 / 208
	Starting Current (400 V)	A	626 / 626 / 616	616 / 537 / 616 / 537	616 / 616 / 616 / 616	626 / 616 / 626 / 616
	Independent Refrigerant Circuits	EA	3	4	4	4
Evaporator	Type	-	Falling Film Type Evaporator			
	Flow Rate	㎥/h	215.1	237.9	255.6	272.3
		gpm	947.1	1,047.4	1,125.4	1,198.9
	Pressure Drop	mAq	94.7	55.7	53.2	91.1
		ftH2O	311	183	174	299
	Connection	Inch	8	6	6	6
Condenser	Type	-	Fin & Tube Condenser			
Fans	Number	EA	8 / 8 / 8	8 / 6 / 8 / 6	8 / 8 / 8 / 8	8 / 8 / 8 / 8
	Fan Motor Input Power (380 V)	kW	43.2	50.4	57.6	57.6
	Fan Motor Input Power (400 V)	kW	43.2	50.4	57.6	57.6
	Total Chiller Airflow	CMM	7,560	8,820	10,080	10,080
Weight	Shipping Weight	kg	10,700	12,600	13,200	14,400
		lb	23,594	27,783	29,106	31,752
	Operating Weight	kg	11,305	13,204	13,886	15,138
		lb	24,928	29,115	30,619	33,379
Dimension	Length	mm	11,900	13,940	15,900	15,900
		Inch	468.5	548.8	626.0	626.0
	Width	mm	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3
Refrigerant		kg	120 / 120 / 120	100 / 100 / 100 / 100	110 / 110 / 110 / 110	120 / 120 / 120 / 120
		lb	265 / 265 / 265	221 / 221 / 221 / 221	243 / 243 / 243 / 243	265 / 265 / 265 / 265
Oil		L	28 / 28 / 26	26 / 23 / 26 / 23	26 / 26 / 26 / 26	28 / 26 / 28 / 26
		gallon	7.4 / 7.4 / 7.4	6.9 / 6.9 / 6.9 / 6.9	6.9 / 6.9 / 6.9 / 6.9	7.4 / 7.4 / 7.4 / 7.4

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 50 Hz)
EWT12.0℃ (53.6˚F) LWT7.0℃ (44.6˚F) Ambient Temperature 46.0℃ (114.8˚F)

Model		Units	R(M)CAW008CA1C	R(M)CAW010CA1C	R(M)CAW012CA1C	R(M)CAW014CA1C	R(M)CAW016CA1C
Unit Capacity		usRT	70.9	84.5	101.0	116.4	133.9
		kW	249.2	297.0	355.1	409.4	471.0
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	177	208	254	284	330
	Starting Current (380 V)	A	427	512	588	596	710
	RLA (400 V)	A	177	208	254	284	330
	Starting Current (400 V)	A	427	512	588	596	710
	Independent Refrigerant Circuits	EA	1	1	1	1	1
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	42.77	51.00	60.95	70.28	80.86
		gpm	188.3	224.5	268.4	309.4	356.0
	Pressure Drop	mAq	84.8	97.9	96.1	45.4	45.9
		ftH2O	278	321	315	149	151
	Connection	Inch	4	4	5	5	5
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	6	6	8	8	10
	Fan Motor Input Power (380 V)	kW	10.8	10.8	14.4	14.4	18.0
	Fan Motor Input Power (400 V)	kW	10.8	10.8	14.4	14.4	18.0
	Total Chiller Airflow	CMM	1,890	1,890	2,520	2,520	3,150
Weight	Shipping Weight	kg	3,200	3,300	3,700	4,700	5,200
		lb	7,056	7,277	8,159	10,364	11,466
	Operating Weight	kg	3,353	3,457	3,899	4,912	5,431
		lb	7,393	7,623	8,597	10,831	11,975
Dimension	Length	mm	3,020	3,020	4,010	4,010	4,990
		Inch	118.9	118.9	157.9	157.9	196.5
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	90	110	120	160	170
		lb	198	243	265	353	375
Oil		L	17	23	26	28	28
		gallon	4.5	6.1	6.9	7.4	7.4

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 50 Hz)
EWT12.0℃ (53.6˚F) LWT7.0℃ (44.6˚F) Ambient Temperature 46.0℃ (114.8˚F)

Model		Units	R(M)CAW016CA2C	R(M)CAW018CA2C	R(M)CAW020CA2C	R(M)CAW022CA2C	R(M)CAW024CA2C
Unit Capacity		usRT	139.1	155.5	177.3	191.0	205.1
		kW	489.3	546.8	623.6	671.7	721.4
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	174 / 174	188 / 188	219 / 219	253 / 226	260 / 260
	Starting Current (380 V)	A	427 / 427	475 / 475	512 / 512	588 / 512	588 / 588
	RLA (400 V)	A	174 / 174	188 / 188	219 / 219	253 / 226	260 / 260
	Starting Current (400 V)	A	427 / 427	475 / 475	512 / 512	588 / 512	588 / 588
	Independent Refrigerant Circuits	EA	2	2	2	2	2
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	84.01	93.88	107.1	115.3	123.8
		gpm	369.9	413.3	471.5	507.7	545.1
	Pressure Drop	mAq	49.3	46.5	51.9	52.5	50.1
		ftH2O	162	153	170	172	164
	Connection	Inch	5	5	5	6	6
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	6 / 6	6 / 6	6 / 6	8 / 6	8 / 8
	Fan Motor Input Power (380 V)	kW	21.6	21.6	21.6	25.2	28.8
	Fan Motor Input Power (400 V)	kW	21.6	21.6	21.6	25.2	28.8
	Total Chiller Airflow	CMM	3,780	3,780	3,780	4,410	5,040
Weight	Shipping Weight	kg	5,200	5,800	5,900	6,300	6,600
		lb	11,466	12,789	13,010	13,892	14,553
	Operating Weight	kg	5,431	6,077	6,183	6,602	6,943
		lb	11,975	13,400	13,634	14,557	15,309
Dimension	Length	mm	5,980	5,980	5,980	6,970	7,950
		Inch	235.4	235.4	235.4	274.4	313.0
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	90 / 90	90 / 90	90 / 90	100 / 100	110 / 110
		lb	198 / 198	198 / 198	198 / 198	221 / 221	243 / 243
Oil		L	17 / 17	19 / 19	23 / 23	26 / 23	26 / 26
		gallon	4.5 / 4.5	5 / 5	6.1 / 6.1	6.9 / 6.9	6.9 / 6.9

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 50 Hz)
EWT12.0℃ (53.6˚F) LWT7.0℃ (44.6˚F) Ambient Temperature 46.0℃ (114.8˚F)

Model		Units	R(M)CAW026CA2C	R(M)CAW028CA2C	R(M)CAW030CA2C	R(M)CAW032CA2C	R(M)CAW036CA3C
Unit Capacity		usRT	217.6	235.7	253.7	271.1	315.5
		kW	765.3	828.9	892.1	953.3	1,109.0
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	282 / 259	288 / 288	329 / 297	334 / 334	267 / 267 / 267
	Starting Current (380 V)	A	596 / 588	596 / 596	710 / 596	710 / 710	588 / 588 / 588
	RLA (400 V)	A	282 / 259	288 / 288	329 / 297	334 / 334	267 / 267 / 267
	Starting Current (400 V)	A	596 / 588	596 / 596	710 / 596	710 / 710	588 / 588 / 588
	Independent Refrigerant Circuits	EA	2	2	2	2	3
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	131.4	142.3	153.2	163.7	190.5
		gpm	578.5	626.5	674.5	720.7	838.7
	Pressure Drop	mAq	85.2	82.6	76.0	86.0	85.8
		ftH2O	279	271	249	282	281
	Connection	Inch	6	6	6	6	8
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	8 / 8	8 / 8	10 / 8	10 / 10	8 / 8 / 8
	Fan Motor Input Power (380 V)	kW	28.8	28.8	32.4	36.0	43.2
	Fan Motor Input Power (400 V)	kW	28.8	28.8	32.4	36.0	43.2
	Total Chiller Airflow	CMM	5,040	5,040	5,670	6,300	7,560
Weight	Shipping Weight	kg	7,200	7,900	8,400	8,400	10,100
		lb	15,876	17,420	18,522	18,522	22,271
	Operating Weight	kg	7,569	8,328	8,852	8,852	10,697
		lb	16,690	18,363	19,519	19,519	23,587
Dimension	Length	mm	7,950	7,950	8,940	9,920	11,900
		Inch	313.0	313.0	3,52.0	390.6	468.5
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	120 / 120	140 / 140	140 / 140	140 / 140	120 / 120 / 120
		lb	265 / 265	309 / 309	309 / 309	309 / 309	265 / 265 / 265
Oil		L	28 / 26	28 / 28	28 / 28	28 / 28	26 / 26 / 26
		gallon	7.4 / 7.4	7.4 / 7.4	7.4 / 7.4	7.4 / 7.4	6.9 / 6.9 / 6.9

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 50 Hz)
EWT12.0℃ (53.6˚F) LWT7.0℃ (44.6˚F) Ambient Temperature 46.0℃ (114.8˚F)

Model		Units	R(M)CAW040CA3C	R(M)CAW044CA4C	R(M)CAW048CA4C	R(M)CAW052CA4C
Unit Capacity		usRT	343.0	382.0	410.2	435.2
		kW	1,206.0	1,343.0	1,443.0	1,531.0
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	292 / 292 / 268	253 / 226 / 253 / 226	260 / 260 / 260 / 260	282 / 259 / 282 / 259
	Starting Current (380 V)	A	596 / 596 / 588	588 / 512 / 588 / 512	588 / 588 / 588 / 588	596 / 588 / 596 / 588
	RLA (400 V)	A	292 / 292 / 268	253 / 226 / 253 / 226	260 / 260 / 260 / 260	282 / 259 / 282 / 259
	Starting Current (400 V)	A	596 / 596 / 588	588 / 512 / 588 / 512	588 / 588 / 588 / 588	596 / 588 / 596 / 588
	Independent Refrigerant Circuits	EA	3	4	4	4
Evaporator	Type	-	Falling Film Type Evaporator			
	Flow Rate	㎥/h	207.1	230.6	247.7	262.8
		gpm	911.8	1,015.3	1,090.6	1,157.1
	Pressure Drop	mAq	88.2	52.5	50.1	85.2
		ftH2O	289	172	164	279
	Connection	Inch	8	6	6	6
Condenser	Type	-	Fin & Tube Condenser			
Fans	Number	EA	8 / 8 / 8	8 / 6 / 8 / 6	8 / 8 / 8 / 8	8 / 8 / 8 / 8
	Fan Motor Input Power (380 V)	kW	43.2	50.4	57.6	57.6
	Fan Motor Input Power (400 V)	kW	43.2	50.4	57.6	57.6
	Total Chiller Airflow	CMM	7,560	8,820	10,080	10,080
Weight	Shipping Weight	kg	10,700	12,600	13,200	14,400
		lb	23,594	27,783	29,106	31,752
	Operating Weight	kg	11,305	13,204	13,886	15,138
		lb	24,928	29,115	30,619	33,379
Dimension	Length	mm	11,900	13,940	15,900	15,900
		Inch	468.5	548.8	626.0	626.0
	Width	mm	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3
Refrigerant		kg	120 / 120 / 120	100 / 100 / 100 / 100	110 / 110 / 110 / 110	120 / 120 / 120 / 120
		lb	265 / 265 / 265	221 / 221 / 221 / 221	243 / 243 / 243 / 243	265 / 265 / 265 / 265
Oil		L	28 / 28 / 26	26 / 23 / 26 / 23	26 / 26 / 26 / 26	28 / 26 / 28 / 26
		gallon	7.4 / 7.4 / 7.4	6.9 / 6.9 / 6.9 / 6.9	6.9 / 6.9 / 6.9 / 6.9	7.4 / 7.4 / 7.4 / 7.4

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 60 Hz)
EWT12.2℃ (54˚F) LWT6.7℃ (44˚F) Ambient Temperature 35.0℃ (95˚F)

Model		Units	R(M)CAW008CA1C	R(M)CAW010CA1C	R(M)CAW012CA1C	R(M)CAW014CA1C	R(M)CAW016CA1C
Unit Capacity		usRT	81.3	91.7	117.2	134.8	153.9
		kW	286.0	322.3	412.0	474.0	541.3
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	137	158	198	237	256
	Starting Current (380 V)	A	483	523	633	654	716
	RLA (460 V)	A	113	130	164	196	211
	Starting Current (460 V)	A	419	445	542	612	630
	Independent Refrigerant Circuits	EA	1	1	1	1	1
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	44.2	49.9	63.7	73.3	83.7
		gpm	194.8	219.5	280.6	322.8	368.6
	Pressure Drop	mAq	90.3	93.8	104	49.1	49.0
		ftH2O	296	308	341	161	161
	Connection	Inch	4	4	5	5	5
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	6	6	8	8	10
	Fan Motor Input Power (380 V)	kW	12.6	12.6	16.8	16.8	21.0
	Fan Motor Input Power (400 V)	kW	13.5	13.5	18.0	18.0	22.5
	Total Chiller Airflow	CMM	1,890	1,890	2,520	2,520	3,150
Weight	Shipping Weight	kg	3,000	3,200	3,700	4,500	4,900
		lb	6,615	7,056	8,159	9,923	10,805
	Operating Weight	kg	3,151	3,356	3,898	4,710	5,127
		lb	6,948	7,400	8,595	10,386	11,305
Dimension	Length	mm	3,020	3,020	4,010	4,010	4,990
		Inch	118.9	118.9	157.9	157.9	196.5
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	90	110	120	160	170
		lb	198	243	265	353	375
Oil		L	16	17	23	26	28
		gallon	4.2	4.5	6.1	6.9	7.4

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 60 Hz)
EWT12.2℃ (54˚F) LWT6.7℃ (44˚F) Ambient Temperature 35.0℃ (95˚F)

Model		Units	R(M)CAW016CA2C	R(M)CAW018CA2C	R(M)CAW020CA2C	R(M)CAW022CA2C	R(M)CAW024CA2C
Unit Capacity		usRT	159.3	171.3	194.4	209.1	238.1
		kW	560.3	602.6	683.8	735.4	837.4
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	134 / 134	155 / 137	173 / 156	196 / 162	201 / 201
	Starting Current (380 V)	A	483 / 483	523 / 483	576 / 523	633 / 523	633 / 633
	RLA (460 V)	A	111 / 111	128 / 113	143 / 129	162 / 134	166 / 166
	Starting Current (460 V)	A	419 / 419	445 / 419	495 / 445	542 / 445	542 / 542
	Independent Refrigerant Circuits	EA	2	2	2	2	2
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	86.7	93.2	105.8	113.7	129.5
		gpm	381.5	410.3	465.8	500.6	570.2
	Pressure Drop	mAq	52.3	45.8	50.7	51.2	54.5
		ftH2O	172	150	166	168	179
	Connection	Inch	5	5	5	6	6
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	6 / 6	6 / 6	6 / 6	8 / 6	8 / 8
	Fan Motor Input Power (380 V)	kW	25.2	25.2	25.2	29.4	33.6
	Fan Motor Input Power (400 V)	kW	27.0	27.0	27.0	31.5	36.0
	Total Chiller Airflow	CMM	3,780	3,780	3,780	4,410	5,040
Weight	Shipping Weight	kg	4,900	5,600	5,800	6,100	6,400
		lb	10,805	12,348	12,789	13,451	14,112
	Operating Weight	kg	5,127	5,875	6,081	6,402	6,742
		lb	11,305	12,954	13,409	14,116	14,866
Dimension	Length	mm	5,980	5,980	5,980	6,970	7,950
		Inch	235.4	235.4	235.4	274.4	313.0
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	90 / 90	90 / 90	90 / 90	100 / 100	110 / 110
		lb	198 / 198	198 / 198	198 / 198	221 / 221	243 / 243
Oil		L	16 / 16	17 / 16	23 / 23	23 / 17	23 / 23
		gallon	4.2 / 4.2	4.5 / 4.5	5 / 5	6.1 / 6.1	6.1 / 6.1

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 60 Hz)
EWT12.2℃ (54˚F) LWT6.7℃ (44˚F) Ambient Temperature 35.0℃ (95˚F)

Model		Units	R(M)CAW026CA2C	R(M)CAW028CA2C	R(M)CAW030CA2C	R(M)CAW032CA2C	R(M)CAW036CA3C
Unit Capacity		usRT	252.0	273.1	292.2	308.5	363.7
		kW	886.3	960.6	1,028.0	1,085.0	1,279.0
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	235 / 201	241 / 241	255 / 248	257 / 257	207 / 207 / 207
	Starting Current (380 V)	A	654 / 633	654 / 654	716 / 654	716 / 716	633 / 633 / 633
	RLA (460 V)	A	194 / 166	199 / 199	211 / 205	212 / 212	171 / 171 / 171
	Starting Current (460 V)	A	612 / 542	612 / 612	630 / 612	630 / 630	542 / 542 / 542
	Independent Refrigerant Circuits	EA	2	2	2	2	3
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	137.1	148.6	158.9	167.8	197.8
		gpm	603.6	654.3	699.6	738.8	870.9
	Pressure Drop	mAq	92.2	89.5	81.5	90.2	92.1
		ftH2O	302	294	267	296	302
	Connection	Inch	6	6	6	6	8
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	8 / 8	8 / 8	10 / 8	10 / 10	8 / 8 / 8
	Fan Motor Input Power (380 V)	kW	33.6	33.6	37.8	42.0	50.4
	Fan Motor Input Power (400 V)	kW	36.0	36.0	40.5	45.0	54.0
	Total Chiller Airflow	CMM	5,040	5,040	5,670	6,300	7,560
Weight	Shipping Weight	kg	6,700	7,500	8,100	8,100	9,500
		lb	14,774	16,538	17,861	17,861	20,948
	Operating Weight	kg	7,066	7,925	8,548	8,548	10,074
		lb	15,581	17,475	18,848	18,848	22,213
Dimension	Length	mm	7,950	7,950	8,940	9,920	11,900
		Inch	313.0	313.0	352.0	390.6	468.5
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	120 / 120	140 / 140	140 / 140	140 / 140	120 / 120 / 120
		lb	265 / 265	309 / 309	309 / 309	309 / 309	265 / 265 / 265
Oil		L	26 / 23	26 / 26	28 / 26	28 / 28	23 / 23 / 23
		gallon	6.9 / 6.9	6.9 / 6.9	7.4 / 7.4	7.4 / 7.4	6.1 / 6.1 / 6.1

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 60 Hz)
EWT12.2℃ (54˚F) LWT6.7℃ (44˚F) Ambient Temperature 35.0℃ (95˚F)

Model		Units	R(M)CAW040CA3C	R(M)CAW044CA4C	R(M)CAW048CA4C	R(M)CAW052CA4C
Unit Capacity		usRT	400.2	418.2	476.2	504.0
		kW	1,408.0	1,471.0	1,675.0	1,773.0
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	234 / 234 / 234	196 / 162 / 196 / 162	201 / 201 / 201 / 201	235 / 201 / 235 / 201
	Starting Current (380 V)	A	654 / 654 / 654	633 / 523 / 633 / 523	633 / 633 / 633 / 633	654 / 633 / 654 / 633
	RLA (460 V)	A	193 / 193 / 193	162 / 134 / 162 / 134	166 / 166 / 166 / 166	194 / 166 / 194 / 166
	Starting Current (460 V)	A	612 / 612 / 612	542 / 445 / 542 / 445	542 / 542 / 542 / 542	612 / 542 / 612 / 542
	Independent Refrigerant Circuits	EA	3	4	4	4
Evaporator	Type	-	Falling Film Type Evaporator			
	Flow Rate	㎥/h	217.7	227.5	259.0	274.1
		gpm	958.5	1,001.7	1,140.3	1,206.8
	Pressure Drop	mAq	96.8	51.2	54.5	92.2
		ftH2O	318	168	179	302
	Connection	Inch	8	6	6	6
Condenser	Type	-	Fin & Tube Condenser			
Fans	Number	EA	8 / 8 / 8	8 / 6 / 8 / 6	8 / 8 / 8 / 8	8 / 8 / 8 / 8
	Fan Motor Input Power (380 V)	kW	50.4	58.8	67.2	67.2
	Fan Motor Input Power (400 V)	kW	54.0	63.0	72.0	72.0
	Total Chiller Airflow	CMM	7,560	8,820	10,080	10,080
Weight	Shipping Weight	kg	10,000	12,200	12,800	13,400
		lb	22,050	26,901	28,224	29,547
	Operating Weight	kg	10,602	12,804	13,484	14,132
		lb	23,377	28,233	29,732	31,161
Dimension	Length	mm	11,900	13,940	15,900	15,900
		Inch	468.5	548.8	626.0	626.0
	Width	mm	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3
Refrigerant		kg	120 / 120 / 120	100 / 100 / 100 / 100	110 / 110 / 110 / 110	120 / 120 / 120 / 120
		lb	265 / 265 / 265	221 / 221 / 221 / 221	243 / 243 / 243 / 243	265 / 265 / 265 / 265
Oil		L	26 / 26 / 26	23 / 17 / 23 / 17	23 / 23 / 23 / 23	26 / 23 / 26 / 23
		gallon	6.9 / 6.9 / 6.9	6.1 / 6.1 / 6.1 / 6.1	6.1 / 6.1 / 6.1 / 6.1	6.9 / 6.9 / 6.9 / 6.9

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 60 Hz)
EWT12.0℃ (53.6˚F) LWT7.0℃ (44.6˚F) Ambient Temperature 46.0℃ (114.8˚F)

Model		Units	R(M)CAW008CA1C	R(M)CAW010CA1C	R(M)CAW012CA1C	R(M)CAW014CA1C	R(M)CAW016CA1C
Unit Capacity		usRT	70.7	79.2	102.2	117.6	133.7
		kW	248.6	278.5	359.6	413.5	470.1
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	167	188	238	282	309
	Starting Current (380 V)	A	483	523	633	654	716
	RLA (460 V)	A	138	155	197	233	255
	Starting Current (460 V)	A	419	445	542	612	630
	Independent Refrigerant Circuits	EA	1	1	1	1	1
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	42.7	47.8	61.7	71.0	80.7
		gpm	187.9	210.5	271.8	312.6	355.3
	Pressure Drop	mAq	84.4	86.8	98.4	46.2	45.8
		ftH2O	277	285	323	152	150
	Connection	Inch	4	4	5	5	5
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	6	6	8	8	10
	Fan Motor Input Power (380 V)	kW	12.6	12.6	16.8	16.8	21.0
	Fan Motor Input Power (400 V)	kW	13.5	13.5	18.0	18.0	22.5
	Total Chiller Airflow	CMM	1,890	1,890	2,520	2,520	3,150
Weight	Shipping Weight	kg	3,000	3,200	3,700	4,500	4,900
		lb	6,615	7,056	8,159	9,923	10,805
	Operating Weight	kg	3,151	3,356	3,898	4,710	5,127
		lb	6,948	7,400	8,595	10,386	11,305
Dimension	Length	mm	3,020	3,020	4,010	4,010	4,990
		Inch	118.9	118.9	157.9	157.9	196.5
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	90	110	120	160	170
		lb	198	243	265	353	375
Oil		L	16	17	23	26	28
		gallon	4.2	4.5	6.1	6.9	7.4

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 60 Hz)
EWT12.0℃ (53.6˚F) LWT7.0℃ (44.6˚F) Ambient Temperature 46.0℃ (114.8˚F)

Model		Units	R(M)CAW016CA2C	R(M)CAW018CA2C	R(M)CAW020CA2C	R(M)CAW022CA2C	R(M)CAW024CA2C
Unit Capacity		usRT	138.8	148.5	168.3	182.1	208.0
		kW	488.0	522.3	591.9	640.4	731.7
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	162 / 162	186 / 166	207 / 186	237 / 193	242 / 242
	Starting Current (380 V)	A	483 / 483	523 / 483	576 / 523	633 / 523	633 / 633
	RLA (460 V)	A	134 / 134	153 / 137	171 / 153	196 / 159	200 / 200
	Starting Current (460 V)	A	419 / 419	445 / 419	495 / 445	542 / 445	542 / 542
	Independent Refrigerant Circuits	EA	2	2	2	2	2
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	83.8	89.7	101.6	109.9	125.6
		gpm	368.9	394.8	447.3	483.9	553.0
	Pressure Drop	mAq	49.1	42.6	47.1	48.1	51.5
		ftH2O	161	140	154	158	169
	Connection	Inch	5	5	5	6	6
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	6 / 6	6 / 6	6 / 6	8 / 6	8 / 8
	Fan Motor Input Power (380 V)	kW	25.2	25.2	25.2	29.4	33.6
	Fan Motor Input Power (400 V)	kW	27.0	27.0	27.0	31.5	36.0
	Total Chiller Airflow	CMM	3,780	3,780	3,780	4,410	5,040
Weight	Shipping Weight	kg	4,900	5,600	5,800	6,100	6,400
		lb	10,805	12,348	12,789	13,451	14,112
	Operating Weight	kg	5,127	5,875	6,081	6,402	6,742
		lb	11,305	12,954	13,409	14,116	14,866
Dimension	Length	mm	5,980	5,980	5,980	6,970	7,950
		Inch	235.4	235.4	235.4	274.4	313.0
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	90 / 90	90 / 90	90 / 90	100 / 100	110 / 110
		lb	198 / 198	198 / 198	198 / 198	221 / 221	243 / 243
Oil		L	16 / 16	17 / 16	19 / 17	23 / 17	23 / 23
		gallon	4.2 / 4.2	4.5 / 4.5	5 / 5	6.1 / 6.1	6.1 / 6.1

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 60 Hz)
EWT12.0℃ (53.6˚F) LWT7.0℃ (44.6˚F) Ambient Temperature 46.0℃ (114.8˚F)

Model		Units	R(M)CAW026CA2C	R(M)CAW028CA2C	R(M)CAW030CA2C	R(M)CAW032CA2C	R(M)CAW036CA3C
Unit Capacity		usRT	219.8	238.0	253.7	267.5	316.9
		kW	773.0	837.2	892.3	940.8	1,115.0
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	280 / 240	285 / 285	310 / 292	310 / 310	249 / 249 / 249
	Starting Current (380 V)	A	654 / 633	654 / 654	716 / 654	716 / 716	633 / 633 / 633
	RLA (460 V)	A	231 / 199	236 / 236	256 / 241	256 / 256	205 / 205 / 205
	Starting Current (460 V)	A	612 / 542	612 / 612	630 / 612	630 / 630	542 / 542 / 542
	Independent Refrigerant Circuits	EA	2	2	2	2	3
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	132.7	143.7	153.2	161.5	191.3
		gpm	584.3	632.7	674.5	711.1	842.3
	Pressure Drop	mAq	86.8	84.1	76.1	84.0	86.5
		ftH2O	285	276	250	276	284
	Connection	Inch	6	6	6	6	8
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	8 / 8	8 / 8	10 / 8	10 / 10	8 / 8 / 8
	Fan Motor Input Power (380 V)	kW	33.6	33.6	37.8	42.0	50.4
	Fan Motor Input Power (400 V)	kW	36.0	36.0	40.5	45.0	54.0
	Total Chiller Airflow	CMM	5,040	5,040	5,670	6,300	7,560
Weight	Shipping Weight	kg	6,700	7,500	8,100	8,100	9,500
		lb	14,774	16,538	17,861	17,861	20,948
	Operating Weight	kg	7,066	7,925	8,548	8,548	10,074
		lb	15,581	17,475	18,848	18,848	22,213
Dimension	Length	mm	7,950	7,950	8,940	9,920	11,900
		Inch	313.0	313.0	352.0	390.6	468.5
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	120 / 120	140 / 140	140 / 140	140 / 140	120 / 120 / 120
		lb	265 / 265	309 / 309	309 / 309	309 / 309	265 / 265 / 265
Oil		L	26 / 23	26 / 26	28 / 26	28 / 28	23 / 23 / 23
		gallon	6.9 / 6.9	6.9 / 6.9	7.4 / 7.4	7.4/7.4	6.1 / 6.1 / 6.1

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(C), MCAW(C) Series (Constant Speed 60 Hz)
EWT12.0℃ (53.6˚F) LWT7.0℃ (44.6˚F) Ambient Temperature 46.0℃ (114.8˚F)

Model		Units	R(M)CAW040CA3C	R(M)CAW044CA4C	R(M)CAW048CA4C	R(M)CAW052CA4C
Unit Capacity		usRT	348.4	364.2	416.1	439.6
		kW	1,225.0	1,281.0	1,463.0	1,546.0
Compressors	Starter Type	-	Y-DELTA	Y-DELTA	Y-DELTA	Y-DELTA
	RLA (380 V)	A	277 / 277 / 277	237 / 193 / 237 / 193	242 / 242 / 242 / 242	280 / 240 / 280 / 240
	Starting Current (380 V)	A	654 / 654 / 654	633 / 523 / 633 / 523	633 / 633/ 633 / 633	654 / 633 / 654 / 633
	RLA (460 V)	A	229 / 229 / 229	196 / 159 / 196 / 159	200 / 200 / 200 / 200	231 / 199 / 231 / 199
	Starting Current (460 V)	A	612 / 612 / 612	542 / 445 / 542 / 445	542 / 542 / 542 / 542	612 / 542 / 612 / 542
	Independent Refrigerant Circuits	EA	3	4	4	4
Evaporator	Type	-	Falling Film Type Evaporator			
	Flow Rate	㎥/h	210.3	219.9	251.2	265.4
		gpm	925.9	968.2	1,106.0	1,168.5
	Pressure Drop	mAq	90.8	48.1	51.5	86.8
		ftH2O	298	158	169	285
	Connection	Inch	8	6	6	6
Condenser	Type	-	Fin & Tube Condenser			
Fans	Number	EA	8 / 8 / 8	8 / 6 / 8 / 6	8 / 8 / 8 / 8	8 / 8 / 8 / 8
	Fan Motor Input Power (380 V)	kW	50.4	58.8	67.2	67.2
	Fan Motor Input Power (400 V)	kW	54.0	63.0	72.0	72.0
	Total Chiller Airflow	CMM	7,560	8,820	10,080	10,080
Weight	Shipping Weight	kg	10,000	12,200	12,800	13,400
		lb	22,050	26,901	28,224	29,547
	Operating Weight	kg	10,602	12,804	13,484	14,132
		lb	23,377	28,233	29,732	31,161
Dimension	Length	mm	11,900	13,940	15,900	15,900
		Inch	468.5	548.8	626.0	626.0
	Width	mm	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3
Refrigerant		kg	120 / 120 / 120	100 / 100 / 100 / 100	110 / 110 / 110 / 110	120 / 120 / 120 / 120
		lb	265 / 265 / 265	221 / 221 / 221 / 221	243 / 243 / 243 / 243	265 / 265 / 265 / 265
Oil		L	26 / 26 / 26	23 / 17 / 23 / 17	23 / 23 / 23 / 23	26 / 23 / 26 / 23
		gallon	6.9 / 6.9 / 6.9	6.1 / 6.1 / 6.1 / 6.1	6.1 / 6.1 / 6.1 / 6.1	6.9 / 6.9 / 6.9 / 6.9

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(V) Series (Inverter)
EWT12.2℃ (54˚F) LWT6.7℃ (44˚F) Ambient Temperature 35.0℃ (95˚F)

Model		Units	RCAW010VA1C	RCAW012VA1C	RCAW014VA1C	RCAW015VA1C	RCAW017VA1C
Unit Capacity		usRT	96.5	111.7	130.6	148.1	171.4
		kW	339.5	392.7	459.2	520.8	602.6
Compressors	Starter Type	-	VSD	VSD	VSD	VSD	VSD
	RLA (380 V)	A	179	199	243	276	310
	Starting Current (380 V 50 Hz)	A	28	38	38	47	47
	Starting Current (380 V 60 Hz)	A	25	33	33	41	41
	RLA (400 V)	A	170	189	231	262	295
	Starting Current (400 V 50 Hz)	A	28	38	38	47	47
	RLA (460 V)	A	148	165	201	228	256
	Starting Current (460 V 60 Hz)	A	25	34	34	42	42
	Independent Refrigerant Circuits	EA	1	1	1	1	1
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	52.5	60.7	71.0	80.5	93.2
		gpm	231.2	267.4	312.7	354.6	410.3
	Pressure Drop	mAq	103	95.4	21.2	26.9	45.8
		ftH2O	338	313	70	88	150
	Connection	Inch	4	4	5	5	5
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	6	6	8	8	10
	Fan Motor Input Power (380 V 50 Hz)	kW	10.8	14.4	14.4	18.0	18.0
	Fan Motor Input Power (400 V 50 Hz)	kW	10.8	14.4	14.4	18.0	18.0
	Fan Motor Input Power (380 V 60 Hz)	kW	12.6	16.8	16.8	21.0	21.0
	Fan Motor Input Power (460 V 60 Hz)	kW	13.5	18.0	18.0	22.5	22.5
	Total Chiller Airflow	CMM	1,890	2,520	2,520	3,150	3,150
Weight	Shipping Weight	kg	3,140	3,540	4,010	4,420	4,550
		lb	6,924	7,806	8,842	9,746	10,033
	Operating Weight	kg	3,599	4,010	4,513	4,923	5,053
		lb	7,936	8,842	9,951	10,855	11,142
Dimension	Length	mm	3,020	4,010	4,010	4,990	4,990
		Inch	118.9	157.9	157.9	196.5	196.5
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	100	120	140	150	180
		lb	221	265	309	331	397
Oil		L	17	19	23	26	28
		gallon	4.5	5.0	6.1	6.9	7.4

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(V) Series (Inverter)
EWT12.2℃ (54˚F) LWT6.7℃ (44˚F) Ambient Temperature 35.0℃ (95˚F)

Model		Units	RCAW020VA2C	RCAW023VA2C	RCAW027VA2C	RCAW030VA2C
Unit Capacity		usRT	190.8	222.8	256.5	298.3
		kW	670.9	783.4	902.1	1,049.0
Compressors	Starter Type	-	VSD	VSD	VSD	VSD
	RLA (380 V)	A	178 / 178	192 / 192	238 / 238	277 / 277
	Starting Current (380 V 50 Hz)	A	28	38	38	47
	Starting Current (380 V 60 Hz)	A	25	33	33	41
	RLA (400 V)	A	169 / 169	183 / 183	226 / 226	263 / 263
	Starting Current (400 V 50 Hz)	A	28	38	38	47
	RLA (460 V)	A	147 / 147	159 / 159	196 / 196	229 / 229
	Starting Current (460 V 60 Hz)	A	25	34	34	42
	Independent Refrigerant Circuits	EA	2	2	2	2
Evaporator	Type	-	Falling Film Type Evaporator			
	Flow Rate	㎥/h	103.8	121.2	139.5	162.3
		gpm	457.0	533.6	614.2	714.6
	Pressure Drop	mAq	43.1	38.6	50.3	84.7
		ftH2O	141	127	165	278
	Connection	Inch	5	6	6	6
Condenser	Type	-	Fin & Tube Condenser			
Fans	Number	EA	6 / 6	8 / 8	8 / 8	10 / 10
	Fan Motor Input Power (380 V 50 Hz)	kW	21.6	28.8	28.8	36.0
	Fan Motor Input Power (400 V 50 Hz)	kW	21.6	28.8	28.8	36.0
	Fan Motor Input Power (380 V 60 Hz)	kW	25.2	33.6	33.6	42.0
	Fan Motor Input Power (460 V 60 Hz)	kW	27.0	36.0	36.0	45.0
	Total Chiller Airflow	CMM	3,780	5,040	5,040	6,300
Weight	Shipping Weight	kg	5,780	6,510	6,950	8,030
		lb	12,745	14,355	15,325	17,706
	Operating Weight	kg	6,283	7,049	7,489	8,604
		lb	13,854	15,543	16,513	18,972
Dimension	Length	mm	5,980	7,950	7,950	9,920
		Inch	235.4	313.0	313.0	390.6
	Width	mm	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3
Refrigerant		kg	100 / 100	120 / 120	140 / 140	150 / 150
		lb	221 / 221	265 / 265	309 / 309	331 / 331
Oil		L	17 / 17	19 / 19	23 / 23	26 / 26
		gallon	4.5 / 4.5	5 / 5	6.1 / 6.1	6.9 / 6.9

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(V) Series (Inverter)
EWT12.2℃ (54˚F) LWT6.7℃ (44˚F) Ambient Temperature 35.0℃ (95˚F)

Model		Units	RCAW034VA2C	RCAW040VA3C	RCAW046VA4C	RCAW054VA4C
Unit Capacity		usRT	346.9	394.8	445.6	513.0
		kW	1,220.0	1,388.0	1,566.8	1,804.2
Compressors	Starter Type	-	VSD	VSD	VSD	VSD
	RLA (380 V)	A	312 / 312	245 / 245 / 245	192 / 192 / 192 / 192	238 / 238 / 238 / 238
	Starting Current (380 V 50 Hz)	A	47	38	38	38
	Starting Current (380 V 60 Hz)	A	41	33	33	33
	RLA (400 V)	A	296 / 296	233 / 233 / 233	183 / 183 / 183 / 183	226 / 226 / 226 / 226
	Starting Current (400 V 50 Hz)	A	47	38	38	38
	RLA (460 V)	A	257 / 257	202 / 202 / 202	159 / 159 / 159 / 159	196 / 196 / 196 / 196
	Starting Current (460 V 60 Hz)	A	42	34	34	34
	Independent Refrigerant Circuits	EA	2	3	4	4
Evaporator	Type	-	Falling Film Type Evaporator			
	Flow Rate	㎥/h	188.7	214.7	242.4	279.0
		gpm	830.8	945.3	1,067.3	1,228.4
	Pressure Drop	mAq	66.7	94.4	38.6	50.3
		ftH2O	219	310	127	165
	Connection	Inch	8	8	6	6
Condenser	Type	-	Fin & Tube Condenser			
Fans	Number	EA	10 / 10	8 / 8 / 8	8 / 8 / 8 / 8	8 / 8 / 8 / 8
	Fan Motor Input Power (380 V 50 Hz)	kW	36.0	43.2	57.6	57.6
	Fan Motor Input Power (400 V 50 Hz)	kW	36.0	43.2	57.6	57.6
	Fan Motor Input Power (380 V 60 Hz)	kW	42.0	50.4	67.2	67.2
	Fan Motor Input Power (460 V 60 Hz)	kW	45.0	54.0	72.0	72.0
	Total Chiller Airflow	CMM	6,300	7,560	10,080	10,080
Weight	Shipping Weight	kg	8,560	9,570	13,020	13,900
		lb	18,875	21,102	28,709	30,650
	Operating Weight	kg	9,200	10,234	14,098	14,978
		lb	20,286	22,566	31,086	33,026
Dimension	Length	mm	9,920	11,900	15,900	15,900
		Inch	390.6	468.5	626.0	626.0
	Width	mm	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3
Refrigerant		kg	180 / 180	140 / 140 / 140	120 / 120 / 120 / 120	140 / 140 / 140 / 140
		lb	397 / 397	309 / 309 / 309	265 / 265 / 265 / 265	309 / 309 / 309 / 309
Oil		L	28 / 28	23 / 23 / 23	19 / 19 / 19 / 19	23 / 23 / 23 / 23
		gallon	7.4 / 7.4	6.1 / 6.1 / 6.1	5 / 5 / 5 / 5	6.1 / 6.1 / 6.1 / 6.1

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(V) Series (Inverter)
EWT12.0℃ (53.6˚F) LWT7.0℃ (44.6˚F) Ambient Temperature 46.0℃ (114.8˚F)

Model		Units	RCAW010VA1C	RCAW012VA1C	RCAW014VA1C	RCAW015VA1C	RCAW017VA1C
Unit Capacity		usRT	86.1	99.5	115.6	131.1	152.2
		kW	302.8	350.0	406.6	461.0	535.2
Compressors	Starter Type	-	VSD	VSD	VSD	VSD	VSD
	RLA (380 V)	A	214	240	286	323	366
	Starting Current (380 V 50 Hz)	A	28	38	38	47	47
	Starting Current (380 V 60 Hz)	A	25	33	33	41	41
	RLA (400 V)	A	203	228	271	307	347
	Starting Current (400 V 50 Hz)	A	28	38	38	47	47
	RLA (460 V)	A	148	165	201	228	256
	Starting Current (460 V 60 Hz)	A	25	34	34	42	42
	Independent Refrigerant Circuits	EA	1	1	1	1	1
Evaporator	Type	-	Falling Film Type Evaporator				
	Flow Rate	㎥/h	52.0	60.1	69.8	79.1	91.9
		gpm	228.9	264.5	307.4	348.4	404.6
	Pressure Drop	mAq	101	93.5	20.6	26.0	44.6
		ftH2O	331	307	68	85	146
	Connection	Inch	4	5	5	5	5
Condenser	Type	-	Fin & Tube Condenser				
Fans	Number	EA	6	6	8	8	10
	Fan Motor Input Power (380 V 50 Hz)	kW	10.8	14.4	14.4	18.0	18.0
	Fan Motor Input Power (400 V 50 Hz)	kW	10.8	14.4	14.4	18.0	18.0
	Fan Motor Input Power (380 V 60 Hz)	kW	12.6	16.8	16.8	21.0	21.0
	Fan Motor Input Power (460 V 60 Hz)	kW	13.5	18.0	18.0	22.5	22.5
	Total Chiller Airflow	CMM	1,890	2,520	2,520	3,150	3,150
Weight	Shipping Weight	kg	3,140	3,540	4,010	4,420	4,550
		lb	6,924	7,806	8,842	9,746	10,033
	Operating Weight	kg	3,599	4,010	4,513	4,923	5,053
		lb	7,936	8,842	9,951	10,855	11,142
Dimension	Length	mm	3,020	4,010	4,010	4,990	4,990
		Inch	118.9	157.9	157.9	196.5	196.5
	Width	mm	2,150	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3	91.3
Refrigerant		kg	100	120	140	150	180
		lb	221	265	309	331	397
Oil		L	17	19	23	26	28
		gallon	4.5	5.0	6.1	6.9	7.4

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(V) Series (Inverter)
EWT12.0℃ (53.6˚F) LWT7.0℃ (44.6˚F) Ambient Temperature 46.0℃ (114.8˚F)

Model		Units	RCAW020VA2C	RCAW023VA2C	RCAW027VA2C	RCAW030VA2C
Unit Capacity		usRT	170.2	198.6	227.9	264.4
		kW	598.6	698.5	801.4	929.9
Compressors	Starter Type	-	VSD	VSD	VSD	VSD
	RLA (380 V)	A	213 / 213	232 / 231	280 / 280	324 / 324
	Starting Current (380 V 50 Hz)	A	28	38	38	47
	Starting Current (380 V 60 Hz)	A	25	33	33	41
	RLA (400 V)	A	202 / 202	220 / 220	266 / 266	308 / 308
	Starting Current (400 V 50 Hz)	A	28	38	38	47
	RLA (460 V)	A	147 / 147	159 / 159	196 / 196	229 / 229
	Starting Current (460 V 60 Hz)	A	25	34	34	42
	Independent Refrigerant Circuits	EA	2	2	2	2
Evaporator	Type	-	Falling Film Type Evaporator			
	Flow Rate	㎥/h	102.8	119.9	137.6	159.6
		gpm	452.6	527.9	605.8	702.7
	Pressure Drop	mAq	42.4	37.9	49.0	82.1
		ftH2O	139	124	161	269
	Connection	Inch	5	6	6	6
Condenser	Type	-	Fin & Tube Condenser			
Fans	Number	EA	6 / 6	8 / 8	8 / 8	10 / 10
	Fan Motor Input Power (380 V 50 Hz)	kW	21.6	28.8	28.8	36.0
	Fan Motor Input Power (400 V 50 Hz)	kW	21.6	28.8	28.8	36.0
	Fan Motor Input Power (380 V 60 Hz)	kW	25.2	33.6	33.6	42.0
	Fan Motor Input Power (460 V 60 Hz)	kW	27.0	36.0	36.0	45.0
	Total Chiller Airflow	CMM	3,780	5,040	5,040	6,300
Weight	Shipping Weight	kg	5,780	6,510	6,950	8,030
		lb	12,745	14,355	15,325	17,706
	Operating Weight	kg	6,283	7,049	7,489	8,604
		lb	13,854	15,543	16,513	18,972
Dimension	Length	mm	5,980	7,950	7,950	9,920
		Inch	235.4	313.0	313.0	390.6
	Width	mm	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3
Refrigerant		kg	100 / 100	120 / 120	140 / 140	150 / 150
		lb	221 / 221	265 / 265	309 / 309	331 / 331
Oil		L	17 / 17	19 / 19	23 / 23	26 / 26
		gallon	4.5 / 4.5	5 / 5	6.1 / 6.1	6.9 / 6.9

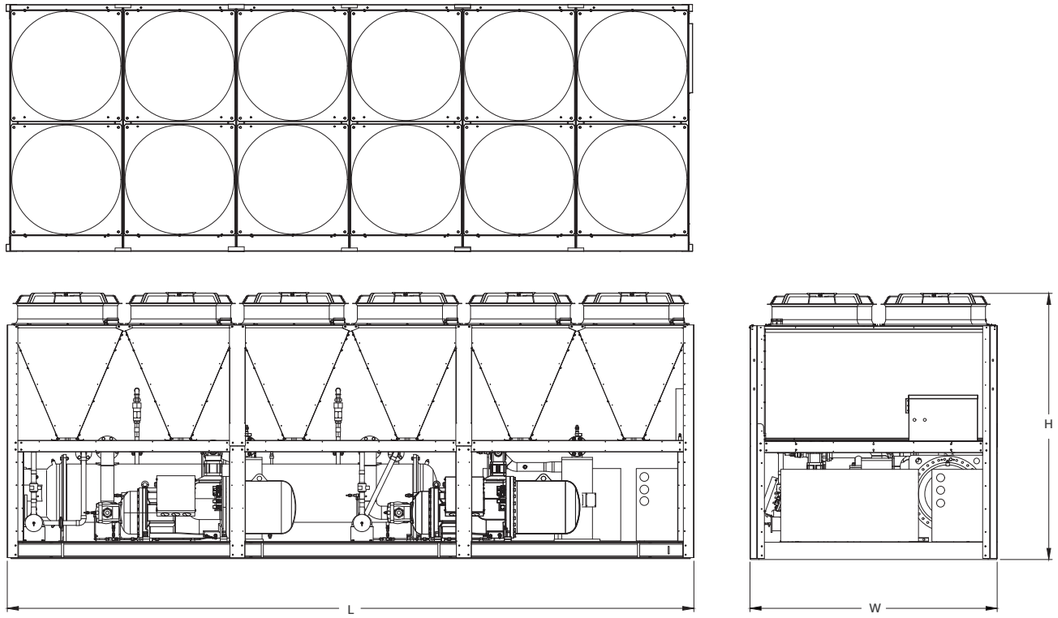
Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

RCAW(V) Series (Inverter)
EWT12.0℃ (53.6˚F) LWT7.0℃ (44.6˚F) Ambient Temperature 46.0℃ (114.8˚F)

Model		Units	RCAW034VA2C	RCAW040VA3C	RCAW046VA4C	RCAW054VA4C
Unit Capacity		usRT	307.5	349.8	397.2	455.8
		kW	1,082.0	1,230.0	1,397.0	1,602.8
Compressors	Starter Type	-	VSD	VSD	VSD	VSD
	RLA (380 V)	A	367 / 367	288 / 288 / 288	232 / 231 / 232 / 231	280 / 280 / 280 / 280
	Starting Current (380 V 50 Hz)	A	47	38	38	38
	Starting Current (380 V 60 Hz)	A	41	33	33	33
	RLA (400 V)	A	349 / 348	274 / 274 / 274	220 / 220 / 220 / 220	266 / 266 / 266 / 266
	Starting Current (400 V 50 Hz)	A	47	38	38	38
	RLA (460 V)	A	257 / 257	202 / 202 / 202	159 / 159 / 159 / 159	196 / 196 / 196 / 196
	Starting Current (460 V 60 Hz)	A	42	34	34	34
	Independent Refrigerant Circuits	EA	2	3	4	4
Evaporator	Type	-	Falling Film Type Evaporator			
	Flow Rate	㎥/h	185.7	211.2	239.8	275.2
		gpm	817.6	929.9	1,055.8	1,211.7
	Pressure Drop	mAq	64.7	91.5	37.9	49.0
		ftH2O	212	300	124	161
	Connection	Inch	8	8	6	6
Condenser	Type	-	Fin & Tube Condenser			
Fans	Number	EA	10 / 10	8 / 8 / 8	8 / 8 / 8 / 8	8 / 8 / 8 / 8
	Fan Motor Input Power (380 V 50 Hz)	kW	36.0	43.2	57.6	57.6
	Fan Motor Input Power (400 V 50 Hz)	kW	36.0	43.2	57.6	57.6
	Fan Motor Input Power (380 V 60 Hz)	kW	42.0	50.4	67.2	67.2
	Fan Motor Input Power (460 V 60 Hz)	kW	45.0	54.0	72.0	72.0
	Total Chiller Airflow	CMM	6,300	7,560	10,080	10,080
Weight	Shipping Weight	kg	8,560	9,570	13,020	13,900
		lb	18,875	21,102	28,709	30,650
	Operating Weight	kg	9,200	10,234	14,098	14,978
		lb	20,286	22,566	31,086	33,026
Dimension	Length	mm	9,920	11,900	15,900	15,900
		Inch	390.6	468.5	626.0	626.0
	Width	mm	2,150	2,150	2,150	2,150
		Inch	84.6	84.6	84.6	84.6
	Height	mm	2,320	2,320	2,320	2,320
		Inch	91.3	91.3	91.3	91.3
Refrigerant		kg	180 / 180	140 / 140 / 140	120 / 120 / 120 / 120	140 / 140 / 140 / 140
		lb	397 / 397	309 / 309 / 309	265 / 265 / 265 / 265	309 / 309 / 309 / 309
Oil		L	28 / 28	23 / 23 / 23	19 / 19 / 19 / 19	23 / 23 / 23 / 23
		gallon	7.4 / 7.4	6.1 / 6.1 / 6.1	5 / 5 / 5 / 5	6.1 / 6.1 / 6.1 / 6.1

Note:
1. 1usRT = 3,024kcal/hr = 3.517kW, 1mH2O = 9.8kPa
2. Fouling factor of water in evaporator is 0.0176m2·°C/kW
3. Due to our policy of innovation some specifications may be changed without prior notification.
4. Please contact LG for any inquiries regarding additional voltages or specification requirements.

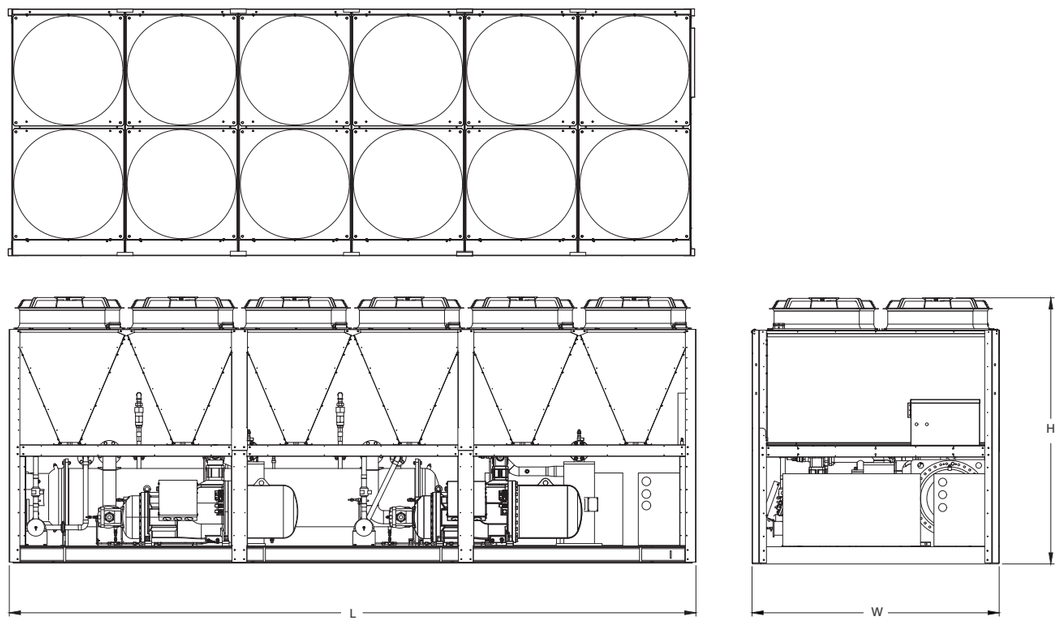
RCAW(C), MCAW(C) Series (Constant Speed)



[Tolerance : Chiller Dimension (SI) ± 50 mm (IP) ± 2 inch]

Model	Chiller Dimension						Fan Number
	L		W		H		
	mm	Inch	mm	Inch	mm	Inch	
R(M)CAW008CA1C	3,020	118.9	2,150	84.6	2,320	91.3	6
R(M)CAW010CA1C	3,020	118.9					6
R(M)CAW012CA1C	4,010	157.9					8
R(M)CAW014CA1C	4,010	157.9					8
R(M)CAW016CA1C	4,990	196.5					10
R(M)CAW016CA2C	5,980	235.4					6 / 6
R(M)CAW018CA2C	5,980	235.4					6 / 6
R(M)CAW020CA2C	5,980	235.4					6 / 6
R(M)CAW022CA2C	6,970	274.4					8 / 6
R(M)CAW024CA2C	7,950	313.0					8 / 8
R(M)CAW026CA2C	7,950	313.0					8 / 8
R(M)CAW028CA2C	7,950	313.0					8 / 8
R(M)CAW030CA2C	8,940	352.0					10 / 8
R(M)CAW032CA2C	9,920	390.6					10 / 10
R(M)CAW036CA3C	11,900	468.5					8 / 8 / 8
R(M)CAW040CA3C	11,900	468.5					8 / 8 / 8
R(M)CAW044CA4C	13,940	548.8					8 / 6 / 8 / 6
R(M)CAW048CA4C	15,900	626.0					8 / 8 / 8 / 8
R(M)CAW052CA4C	15,900	626.0					8 / 8 / 8 / 8

RCAW(V) Series (Inverter)

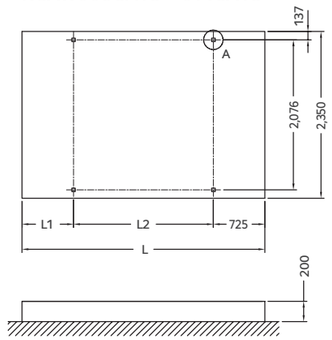


[Tolerance : Chiller Dimension (SI) ± 50 mm (IP) ± 2 inch]

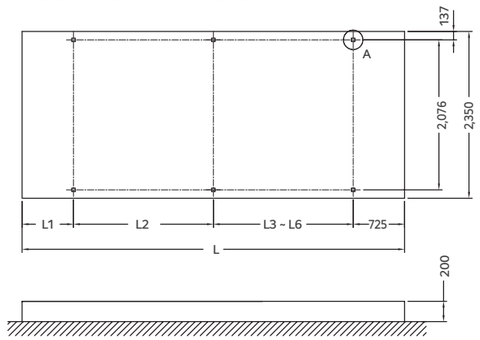
Model	Chiller Dimension						Fan Number
	L		W		H		
	mm	Inch	mm	Inch	mm	Inch	
RCAW010VA1C	3,020	118.9	2,150	84.6	2,320	91.3	6
RCAW012VA1C	4,010	157.9					8
RCAW014VA1C	4,010	157.9					8
RCAW015VA1C	4,990	196.5					10
RCAW017VA1C	4,990	196.5					10
RCAW020VA2C	5,980	235.4					6 / 6
RCAW023VA2C	7,950	313.0					8 / 8
RCAW027VA2C	7,950	313.0					8 / 8
RCAW030VA2C	9,920	390.6					10 / 10
RCAW034VA2C	9,920	390.6					10 / 10
RCAW040VA3C	11,900	468.5					8 / 8 / 8
RCAW046VA4C	15,900	626.0					8 / 8 / 8 / 8
RCAW054VA4C	15,900	626.0					8 / 8 / 8 / 8

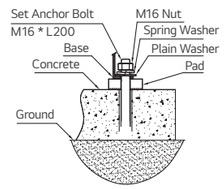
RCAW(C) Series (Constant Speed) SI Unit (mm)

RCAW008CA1C ~ 014CA1C

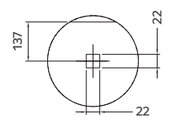


RCAW016CA1C ~ 040CA3C



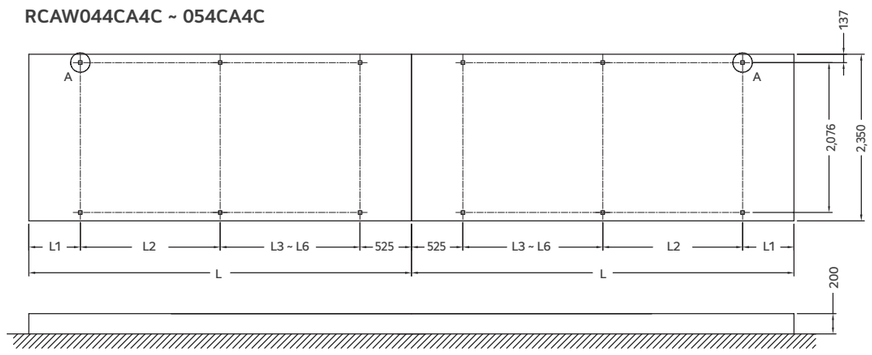


Anchor Bolt Installation



Detail A

RCAW044CA4C ~ 054CA4C

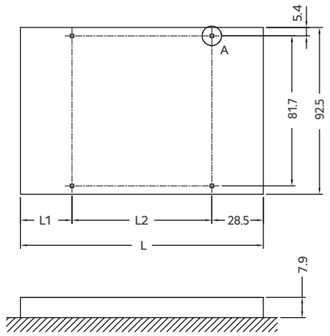


[Unit : mm]

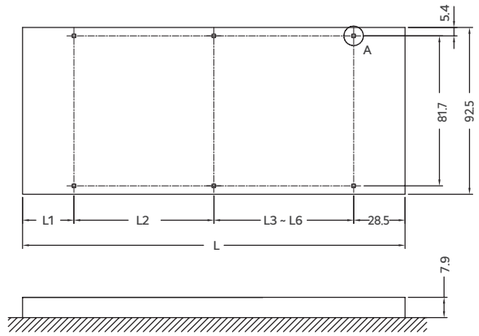
Model	L	L1	L2	L3	L4	L5	L6
RCAW008CA1C	3,422	725	1,972				
RCAW010CA1C	3,422	725	1,972				
RCAW012CA1C	4,408	725	2,958				
RCAW014CA1C	4,408	725	2,958				
RCAW016CA1C	5,394	725	1,972	1,972			
RCAW016CA2C	6,380	725	1,972	2,958			
RCAW018CA2C	6,380	725	1,972	2,958			
RCAW020CA2C	6,380	725	1,972	2,958			
RCAW022CA2C	7,366	725	1,972	1,972	1,972		
RCAW024CA2C	8,352	725	1,972	1,329	1,629	1,972	
RCAW026CA2C	8,352	725	1,972	1,329	1,629	1,972	
RCAW028CA2C	8,352	725	1,972	1,329	1,629	1,972	
RCAW030CA2C	9,338	725	1,972	1,972	1,972	1,972	
RCAW032CA2C	10,324	725	1,972	1,972	2,958	1,972	
RCAW036CA3C	12,296	725	1,972	1,972	2,958	1,972	1,972
RCAW040CA3C	12,296	725	1,972	1,972	2,958	1,972	1,972
RCAW044CA4C	7,166	725	1,972	1,972	1,972		
RCAW048CA4C	8,152	725	1,972	1,329	1,629	1,972	
RCAW052CA4C	8,152	725	1,972	1,329	1,629	1,972	

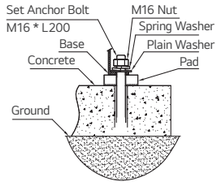
RCAW(C) Series (Constant Speed) IP Unit (inch)

RCAW008CA1C ~ 014CA1C

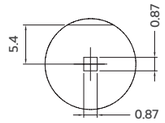


RCAW016CA1C ~ 040CA3C



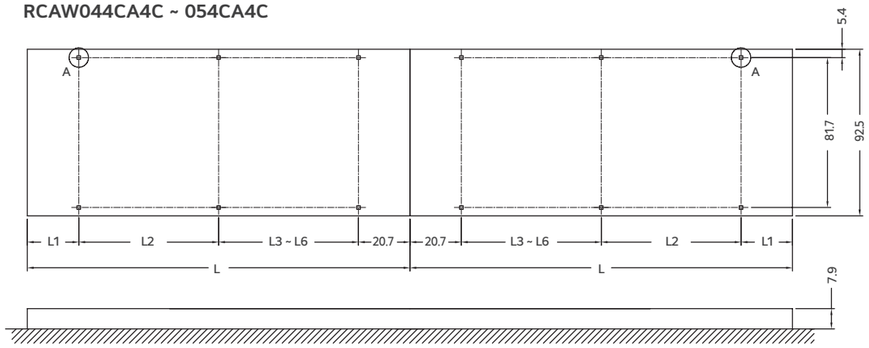


Anchor Bolt Installation



Detail A

RCAW044CA4C ~ 054CA4C

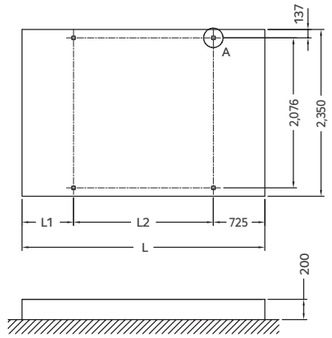


[Unit : inch]

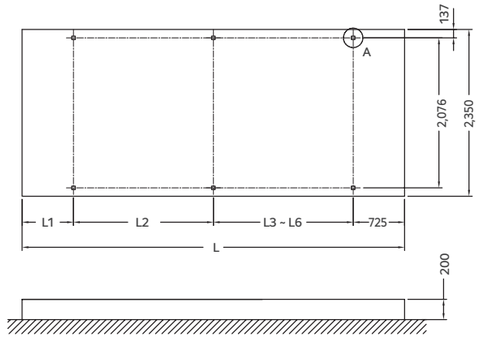
Model	L	L1	L2	L3	L4	L5	L6
RCAW008CA1C	134.7	28.5	77.6				
RCAW010CA1C	134.7	28.5	77.6				
RCAW012CA1C	173.5	28.5	116.5				
RCAW014CA1C	173.5	28.5	116.5				
RCAW016CA1C	212.4	28.5	77.6	77.6			
RCAW016CA2C	251.2	28.5	77.6	116.5			
RCAW018CA2C	251.2	28.5	77.6	116.5			
RCAW020CA2C	251.2	28.5	77.6	116.5			
RCAW022CA2C	290.0	28.5	77.6	77.6	77.6		
RCAW024CA2C	328.8	28.5	77.6	52.3	64.1	77.6	
RCAW026CA2C	328.8	28.5	77.6	52.3	64.1	77.6	
RCAW028CA2C	328.8	28.5	77.6	52.3	64.1	77.6	
RCAW030CA2C	367.6	28.5	77.6	77.6	77.6	77.6	
RCAW032CA2C	406.5	28.5	77.6	77.6	116.5	77.6	
RCAW036CA3C	484.1	28.5	77.6	77.6	116.5	77.6	77.6
RCAW040CA3C	484.1	28.5	77.6	77.6	116.5	77.6	77.6
RCAW044CA4C	282.1	28.5	77.6	77.6	77.6		
RCAW048CA4C	320.9	28.5	77.6	52.3	64.1	77.6	
RCAW052CA4C	320.9	28.5	77.6	52.3	64.1	77.6	

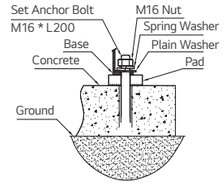
RCAW(V) Series (Inverter) SI Unit (mm)

RCAW010VA1C ~ 014VA1C

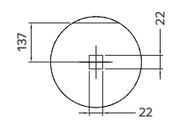


RCAW015VA1C ~ 040VA3C



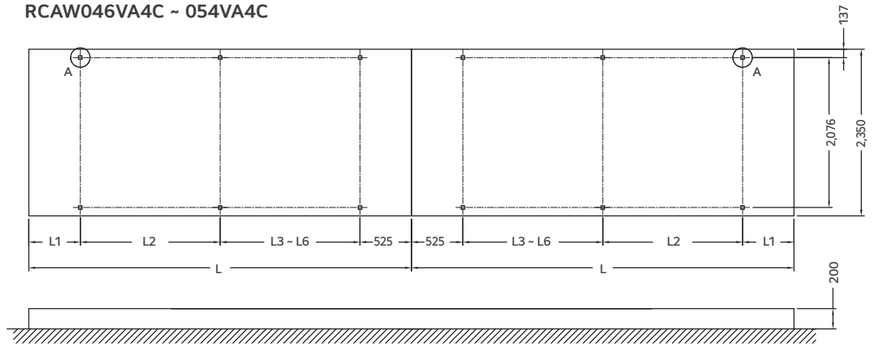


Anchor Bolt Installation



Detail A

RCAW046VA4C ~ 054VA4C

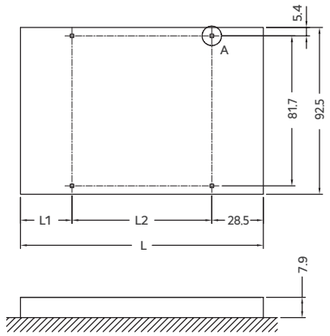


[Unit : mm]

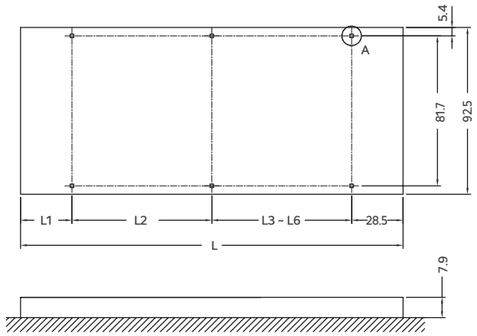
Model	L	L1	L2	L3	L4	L5	L6
RCAW010VA1C	3,422	725	1,972				
RCAW012VA1C	4,408	725	2,958				
RCAW014VA1C	4,408	725	2,958				
RCAW015VA1C	5,394	725	1,972	1,972			
RCAW017VA1C	5,394	725	1,972	1,972			
RCAW020VA2C	6,380	725	1,972	2,958			
RCAW023VA2C	8,352	725	1,972	1,329	1,629	1,972	
RCAW027VA2C	8,352	725	1,972	1,329	1,629	1,972	
RCAW030VA2C	10,324	725	1,972	1,972	2,958	1,972	
RCAW034VA2C	10,324	725	1,972	1,972	2,958	1,972	
RCAW040VA3C	12,296	725	1,972	1,972	2,958	1,972	1,972
RCAW046VA4C	8,152	725	1,972	1,329	1,629	1,972	
RCAW054VA4C	8,152	725	1,972	1,329	1,629	1,972	

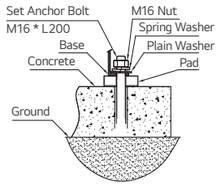
RCAW(V) Series (Inverter) IP Unit (inch)

RCAW010VA1C ~ 014VA1C

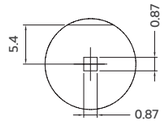


RCAW015VA1C ~ 040VA3C



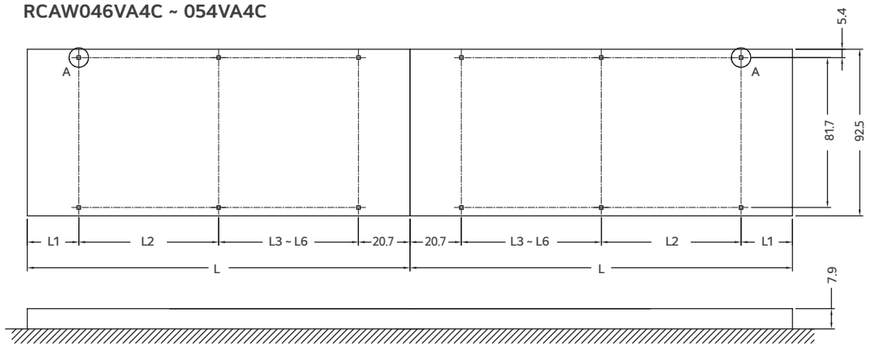


Anchor Bolt Installation



Detail A

RCAW046VA4C ~ 054VA4C

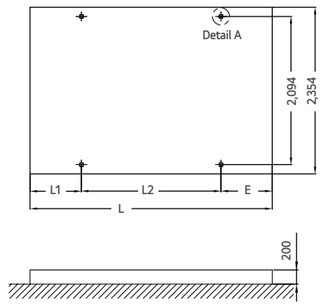


[Unit : inch]

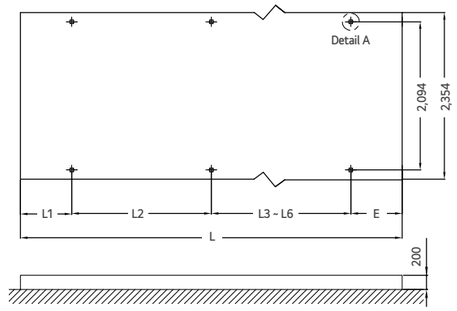
Model	L	L1	L2	L3	L4	L5	L6
RCAW010VA1C	134.7	28.5	77.6				
RCAW012VA1C	173.5	28.5	116.5				
RCAW014VA1C	173.5	28.5	116.5				
RCAW015VA1C	212.4	28.5	77.6	77.6			
RCAW017VA1C	212.4	28.5	77.6	77.6			
RCAW020VA2C	251.2	28.5	77.6	116.5			
RCAW023VA2C	328.8	28.5	77.6	52.3	64.1	77.6	
RCAW027VA2C	328.8	28.5	77.6	52.3	64.1	77.6	
RCAW030VA2C	406.5	28.5	77.6	77.6	116.5	77.6	
RCAW034VA2C	406.5	28.5	77.6	77.6	116.5	77.6	
RCAW040VA3C	484.1	28.5	77.6	77.6	116.5	77.6	77.6
RCAW046VA4C	320.9	28.5	77.6	52.3	64.1	77.6	
RCAW054VA4C	320.9	28.5	77.6	52.3	64.1	77.6	

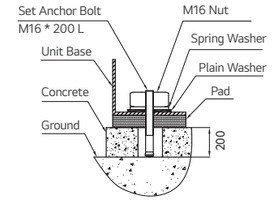
MCAW(C) Series (Constant Speed) SI Unit (mm)

MCAW008CA1C, MCAW010CA1C

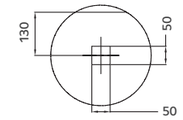


MCAW012CA1C ~ 040CA3C



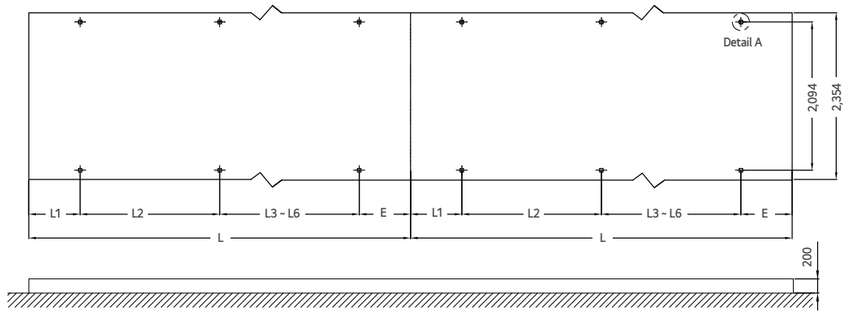


Expansion Anchor Bolt Installation



Detail A

MCAW044CA4C ~ 052CA4C

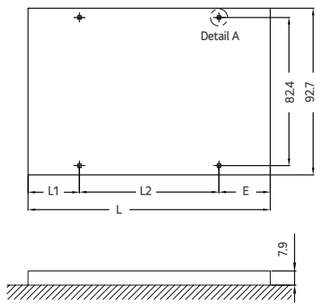


[Unit : mm]

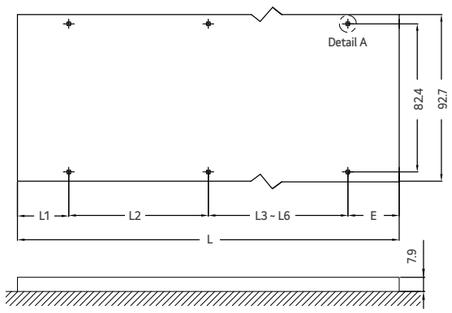
Model	L	L1	L2	L3	L4	L5	L6	E
MCAW008CA1C	3,422	725	1,972					725
MCAW010CA1C	3,422	725	1,972					725
MCAW012CA1C	4,408	725	1,985	1,015				683
MCAW014CA1C	4,408	725	1,985	1,015				683
MCAW016CA1C	5,394	725	1,972	1,972				725
MCAW016CA2C	6,380	565	1,750	1,750	1,750			565
MCAW018CA2C	6,380	565	1,750	1,750	1,750			565
MCAW020CA2C	6,380	565	1,750	1,750	1,750			565
MCAW022CA2C	7,366	725	1,972	1,972	1,972			725
MCAW024CA2C	8,352	565	1,750	1,750	1,750	1,750		787
MCAW026CA2C	8,352	565	1,750	1,750	1,750	1,750		787
MCAW028CA2C	8,352	565	1,750	1,750	1,750	1,750		787
MCAW030CA2C	9,338	725	1,972	1,972	1,972	1,972		725
MCAW032CA2C	10,800	1,456	1,972	1,972	1,972	1,972		1,456
MCAW036CA3C	12,296	1,218	1,972	1,972	1,972	1,972	1,972	1,218
MCAW040CA3C	12,296	1,218	1,972	1,972	1,972	1,972	1,972	1,218
MCAW044CA4C	7,366	725	1,972	1,972	1,972			725
MCAW048CA4C	8,352	565	1,750	1,750	1,750	1,750		787
MCAW052CA4C	8,352	565	1,750	1,750	1,750	1,750		787

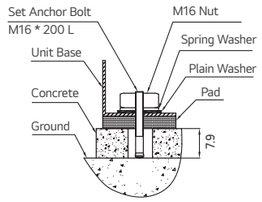
MCAW(C) Series (Constant Speed) IP Unit (inch)

MCAW008CA1C, MCAW010CA1C

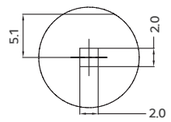


MCAW012CA1C ~ 040CA3C



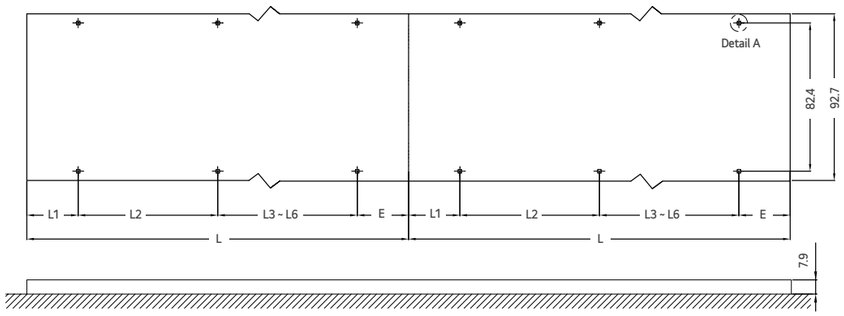


Expansion Anchor Bolt Installation



Detail A

MCAW044CA4C ~ 052CA4C



[Unit : inch]

Model	L	L1	L2	L3	L4	L5	L6	E
MCAW008CA1C	134.7	28.5	77.6					28.5
MCAW010CA1C	134.7	28.5	77.6					28.5
MCAW012CA1C	173.5	28.5	78.1	40.0				26.9
MCAW014CA1C	173.5	28.5	78.1	40.0				26.9
MCAW016CA1C	212.4	28.5	77.6	77.6				28.5
MCAW016CA2C	251.2	22.2	68.9	68.9	68.9			22.2
MCAW018CA2C	251.2	22.2	68.9	68.9	68.9			22.2
MCAW020CA2C	251.2	22.2	68.9	68.9	68.9			22.2
MCAW022CA2C	290.0	28.5	77.6	77.6	77.6			28.5
MCAW024CA2C	328.8	22.2	68.9	68.9	68.9	68.9		31.0
MCAW026CA2C	328.8	22.2	68.9	68.9	68.9	68.9		31.0
MCAW028CA2C	328.8	22.2	68.9	68.9	68.9	68.9		31.0
MCAW030CA2C	367.6	28.5	77.6	77.6	77.6	77.6		28.5
MCAW032CA2C	425.2	57.3	77.6	77.6	77.6	77.6		57.3
MCAW036CA3C	484.1	48.0	77.6	77.6	77.6	77.6	77.6	48.0
MCAW040CA3C	484.1	48.0	77.6	77.6	77.6	77.6	77.6	48.0
MCAW044CA4C	290.0	28.5	77.6	77.6	77.6			28.5
MCAW048CA4C	328.8	22.2	68.9	68.9	68.9	68.9		31.0
MCAW052CA4C	328.8	22.2	68.9	68.9	68.9	68.9		31.0

Select Installation Location

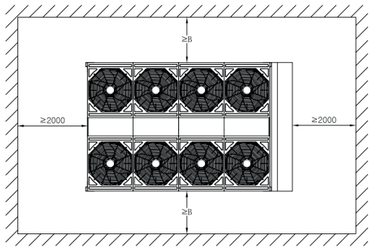
Select space for installation air-cooled unit, which will meet the following conditions

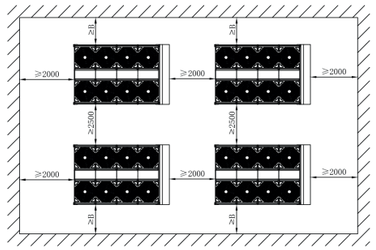
- With strength which bears weight of unit
- With space for air passage and service work, don't install the unit at the space where generation, inflow, stagnation, and leak of combustible gas is expected.
- Avoid unit installation in a place where acidic solution and spray (Sulfur) are often used.
- Location with no leakage of combustible gas
- Location with installation or service work space (Refer to required space)
- Do not use the air-cooled unit under any special environment where oil, steam and sulfuric gas exist.
  - Establish an anti-freeze plan for the water supply when the product is stopped during the winter.
- The floor of the machine room must be water proof.
- In order to prevent the condensed water from being produced, both the evaporator and the pipe connected to it should be insulated.
  Install a floor slope to make the drainage smooth.
- Avoid installing the air-cooled unit in the location with following conditions.
- Location where corrosive gas such as acidic gas is generated.
  (It may cause the refrigerant leakage by corrosion of the pipe.)
- Location where electromagnetic waves happen.
  (It may cause the abnormal operation by control parts disorder.)
- Location to be able to leak the combustible gas
- Location with carbon fiber or combustible dust.
- Location with the combustible material like thinner or gasoline.
  (It may cause a fire by leaking the gas near the product.)

Installation Space

Air-cooled chiller should be installed on sufficient space for airflow ventilation and product repair.

Installation space

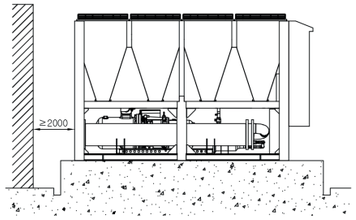




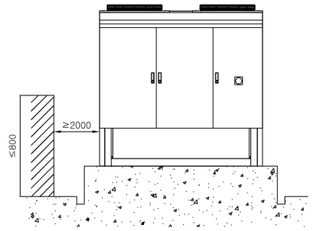
Wall height	B (mm)
≦ 800	≧ 2,000
≧ 800	≧ 3,000

The distance between unit and wall

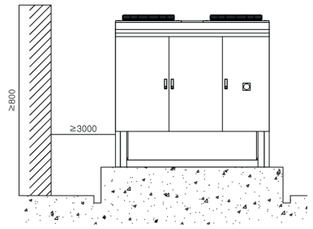
General



Wall height : Under 800 mm

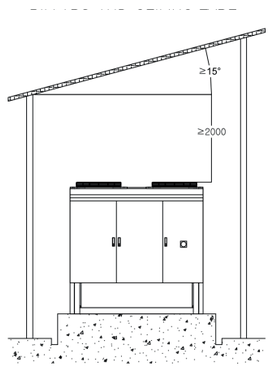


Wall height : Over 800 mm

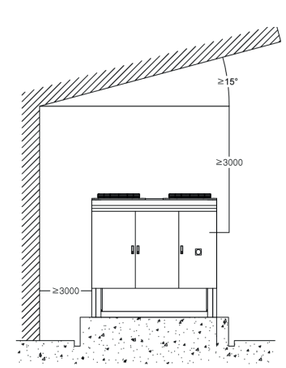


The distance between unit and ceiling

Pillars and ceiling type



Wall and ceiling type



A/C SCREW CHILLER

Doc. No : Date :

PJT Name		**Country / Agent**		**Marketer**	
Model / RT	/	**Q'ty**		**FE**	
***Ex-Factory Day**		**INCO Terms**	☐ Ex-Work ☐ FOB ☐ CIF ☐ DDP		
Construction Type	☐ New ☐ Retrofit			**Contract amount**	k$
Application Type	☐ Commercial ☐ Industrial ☐ Process ☐ Nuclear Plant				
Installation Place	☐ Rooftop ☐ Floors ☐ Machine room ☐ Seaside				
Coastal Area	☐ Within 1 km ☐ 1 ~ 10 km ☐ Exceed 10 km				
Service Condition	Chilled Inlet (℃) Chilled Outlet (℃) Operating Outside Tem. (summer : ℃)				

Dvision		Standard	*Option
Comp.	* Power Supply (3 Ph)	☐ 380 V	☐ 400 V ☐ 415 V ☐ 440 V ☐ 460 V ☐ 480 V
	* Hertz	☐ 50 Hz	☐ 60 Hz
	Capacity Control Type	☐ Step	☐ VSD (Inverter)
Control Panel	Communication	☐ Modbus RTU	☐ BACnet ☐ Modbus TCP ☐ etc. ( )
	Protection Grade	☐ IP54	☐ etc. ( )
Power Connection		☐ Standard (Multi, 2 ~ comp.)	☐ Single Power Connection ☐ Single Power Connection (Including Main C.B)
Factory Wiring		☐ Open Wiring	☐ Flexible Wiring
Starter Panel	* Supplied by	☐ Factory	☐ Supplied by Customer
	* Starter Type	☐ Y-Delta (Open)	☐ VSD Starter ☐ etc. ( )
	* Mounted type	☐ Unit Mounted	☐ etc. ( )
	Misc. Options	☐ N/A	☐ Ground Fault Protection ☐ Power Factor Correction Capacitor ☐ Integrating Watt-meter
	Protection Grade	☐ IP54	☐ etc. ( )
	Internal Inspection Lamp	☐ N/A	☐ Yes
EVAP.	* Waterbox Pressure	☐ 150 psig (10 kg/cm^2)	☐ 230 psig (16 kg/cm^2) ☐ 300 psig (20 kg/cm^2)
	Safety Valve type (Ref.)	☐ Relief V/V (Single)	☐ Relief V/V (Dual)
	Nozzle Type	☐ ANSI - Flange	☐ ANSI - Victaulic ☐ etc. ( )
	Flow Proof Type (Water)	☐ Flow Switch	☐ DP switch
COND.	Fin coating	☐ Standard (Gold Fin)	☐ Black Fin ☐ Gold Fin + Blygold ☐ Black Fin + Blygold
* Refrigerant Charge		☐ Separated Shipping	☐ Factory Charge ☐ Customer Supplied ☐ Local Supplied
Packing		☐ Shrink Film	☐ Wooden Packing
Insulation		☐ 19 mm	☐ 38 mm ☐ N/A
Casing (Shell)		☐ N/A	☐ Yes
Protection Guard		☐ N/A	☐ Lower Grills ☐ Lower + Upper Grills
* Sound Attenuator		☐ N/A	☐ Yes
Isolation		☐ Neoprene PAD	☐ Spring 1 Inch
Anchor Bolt for Foundation		☐ N/A	☐ Yes
Counter Pipe Flange		☐ N/A	☐ Yes
* Certification		☐ Standard (KGS)	☐ ASME Ⅷ Only ☐ CE (PED) ☐ PED ☐ (C) UL (ETL) ☐ GB (China Standard)
Test Procedure		☐ N/A	☐ Report Only ☐ Customer Witness ☐ Process Inspection ☐ Dry Test Report
Factory Performance Test		☐ Possible	☐ Out of Range
Factory Performance Test (Condition)		☐ N/A	☐ 100% ☐ 75% ☐ 50% ☐ 25% ☐ etc. ( )
Factory Performance Test (Quantity)		☐ N/A	☐ 1 EA ☐ 2 EA ☐ etc. ( )
Startup Commissioning		☐ N/A	☐ Supervising Only ☐ Startup Commissioning
Operating Training		☐ N/A	☐ Yes
Warranty - Compressor		☐ 1 yr	☐ etc. ( )
Labor warranty - Comp.		☐ N/A	☐ etc. ( )
Warranty - Ass'y		☐ 1 yr	☐ etc. ( )
Labor warranty - Ass'y		☐ N/A	☐ etc. ( )

Guide Specification

Air-Cooled Screw Chiller (R134a)
RCAW Series Constant

Contents

Part 1 – General

1.01 Scope
Requirements of the General Conditions, Supplementary Conditions and Drawings apply to all work herein.

1.02 System descriptions
Factory packaged air cooled water chillers incorporating low noise twin screw compressor (s) and low noise fans.

1.03 Quality assurance
- ANSI / ASHRAE 34 - number designation and safety classification of refrigerants.
- ANSI / ASHRAE standard 15 safety code
- Manufactured in an EN ISO 9001 accredited organization
- CE : Conform to CE testing services for construction of chillers and provide CE listed mark [Option]
- ASME Boiler and Pressure Vessel Code, Section VIII, Division 1 [Option]
- OSHA – Occupational Safety and Health Act
- Conform to Intertek Testing Services for construction of chillers and provide ETL / cETL Listed Mark [Option]
- The packaged chiller shall be pressure and leak tested.
- Manufacturer shall warrant all equipment and material of its supply against defects in workmanship and material for a period of eighteen (18) months from date of shipment or twelve (12) months from initial start-up, whichever comes first.

1.04 Delivery and handling
Unit shall be delivered to jobsite fully assembled, charged with oil by manufacturer or manufacturer's authorized agent. Refrigerant is charged at job site by manufacturer's appointed local agent. Unit shall be handled, transported and stored in accordance with manufacturer's instructions

Part 2 – Products

2.01 General
The equipment shown on the drawings is based on the model RCAW series air cooled water chiller as manufactured by the LG Electronics.

2.02 Equipment description
Supply and install and commission as shown on the drawings and schedules completely factory assembled, charged and operationally tested air cooled screw compressor chiller (s) as specified herein. Chiller shall include one or more independent refrigeration circuits, semi hermetic twin screw compressors (s), shell and tube water cooler, air cooled condenser, refrigerant R-134a, lubrication system and oil, interconnecting piping and wiring and lockable control center housing safety, operating and capacity controls necessary for the safe automatic operation of the water chiller.

2.03 Operating characteristics
- Unit shall be capable of starting-up and running in outdoor ambient temperatures from 10˚ to 54˚C.
- Unit shall be capable of starting up with fluid entering temperature to the cooler from 8 to 25˚C.

2.04 Unit construction
Unit base frame shall be constructed of 100 to 200mm steel channel sections welded and bolted to form rigid load bearing framework to support all major unit components and safe lifting platform. Frame shall be shot blasted after welding and finished with corrosion resistant primer and air drying epoxy based enamel.
Condenser coil frameworks, cabinet and control center cabinet shall be of heavy gauge galvanized sheet steel with oven baked powder coating capable of withstanding salt spray test

2.05 Compressor
Compressor shall comprise semi-hermetic rotary twin screw directly driven by suction gas cooled semi-hermetic motor at rated RPM. Motor shall have inherent overload protection buried in windings and external current overloads.
Capacity control can be modulated by slide valve, which is factory set to provide 3 or 4 capacity steps (per compressor).
Compressor housing is precisely machined cast iron incorporating and oil separator, lubricating oil sump with auxiliary oil heater are installed.

2.06 Evaporator
Evaporator shall be of the falling film shell and tube type with removable heads and mechanically cleanable tubes of seamless copper with internally and externally enhanced surface. Distributer located on the top side of inside shell, which makesuniform flow of refrigerant. Through distributer refrigerant flows downward by gravity as a uniform and continuous film. Tubes shall be mechanically expanded into multiple grooves in tube sheets. Evaporator will incorporate one, two independent refrigerant circuits with a common chilled liquid

multi-pass circuit arrangement.
[Option] Evaporators will be factory insulated with NBR (Nitrile-Butadiene Rubber)of 19mm black colored with all joints vapor sealed and water drain and vent taps in water box heads.

2.07 Air cooled condenser (s)

Coil structure is to be of internally enhanced seamless copper tubes mechanically bonded to louvered aluminum alloy fins.
Because high-efficiency wide louver fin is applied, heat transfer efficiency is greatly improved compared to the conventional one.
Gold Fin (corrosion-resistant Fin) is applied as a standard to improve corrosion protection.
[Option] Black Fin can be applied to improve corrosion protection.
[Option] Blygold coating can be applied to improve corrosion protection.
Inner hydraulic pressure test of refrigerant side is done at 1.3 times (1.1 times for pneumatic test) of design pressure, which should not make any leakage or deformation. Condenser channel which has been passed the inner pressure test is charged with nitrogen.
To increase product life cycle, high corrosion resistant Al-alloy is adopted and tested for 5,000 hours (Sea Water Acetic Acid Test) to ensure the reliability
• pH 2.8 ~ 3.0 sea water acetic acid spray test
• 4.5 MPa leakage test
Propeller type fan is applied, which should have proper airflow. Also it should have proper strength for rotational speed and be operated stably through balance test.

2.08 Expansion devices

Expansion devices should be installed between condenser and evaporator to enable refrigerant to evaporate from evaporator by decreasing refrigerant pressure. EXV (Electric Expansion Valve) is applied to control refrigerant flow by electric signal.

2.09 Oil separator

Oil which is supplied to compressor shall be circulated by differential pressure of high and low pressure side without extra oil pump. Oil separator should be installed between compressor discharge and condenser inlet for better heat transfer and stable operation.

2.10 Ejector for oil return

To reclaim oil from evaporator to compressor, ejector shall be installed for oil return.

2.11 Refrigeration system components

Shall include replaceable filter drier, moisture indicating sight glass, electronic expansion valve, suction / discharge / liquid line service valves and charge of refrigerant R-134a and lubricating oil.
Each refrigeration circuit in the evaporator shall have relief valves with changeover cock.
[Option] Dual type relief valve is fitted as an option

2.12 Chilled water circuit

a. Chilled water circuit shall be rated for 150 psig (1,034 kPa)
b. Electronic thermal flow switch shall be factory installed and wired. (Option)

2.13 Control center

1) Structure
The control panel shall consist of Micom module (HMI / MASTER / SLAVE), a power supply for supplying stable power, breakers for controlling and safety, an electronic contact, and relays for controlling.
2) HMI / MASTER / SLAVE module
The module shall use the high-performance microprocessor to perform the control function optimized for the equipment. The high-precision analog/digital (A/D) converter shall monitor the values of the temperature sensors to display the values on the screen, and apply them to the controlling. The RS-485 communication port is embedded by default to support the remote monitoring and controlling by customers. Customers can simply select RS-485 for their building automation.
3) Indication and operation key module
The indication and operation key module consists of a display indicating operating data, set points required for the equipment operation, and data of abnormality in characters; a key input section for entering data or selecting menus; and a LED lamp indicator section showing the equipment operation shutdown conditions for operation of the equipment, operation of compressor, oil pump, oil heater, flow of chilled / cooling water, alarms status, selected manual actuation of vanes, and selected manual operation of oil pump. In particular, the module allows operators to directly access the frequently used keys, and select other operations from the menu for improving convenience of operators. The operation keys consist of : four menu operation keys, three manual operation keys for vanes, three manual operation keys for oil pumps, and two operation / shutdown key for operation and shutdown of the equipment.
If the operation keys are inoperable, operators shall be able to use character display and menu selection keys to operate the equipment from the menu. The display shall show the following operation conditions in Korean, Chinese or English : the temperature of the inlet and the outlet of the chilled water and the cooling water, the compressor discharge temperature, the oil tank temperature, the motor bearing temperature, the condenser pressure, the evaporator pressure, the oil tank pressure, the oil pump pressure, the operating current and the vane opening.
The I/O is composed of a digital input section for monitoring the operating conditions of the switches and a digital output section for controlling the operation of the equipment. A photo coupler is mounted on the I/O section for preventing noises, and receives / transmits all the data through communication with the main module to prevent malfunctions caused by electronic waves generated from the data transmission through the cables.

2.14 Features of controller

1) Convenient operation data management
A wide 7inch Color Graphic LCD (800 x 480) is used to display various pieces of operation information on a single screen, and stores the analog data (e.g., temperature data) up to over 200 cases per channel in the intervals defined by customers for keeping daily operation logs. The real-time display also shows the temperature of the chilled water outlet and the operating current of the compressor motor in graphics for easily identifying the trends of the changes to the temperature and operating current.
2) Self-diagnosis and failure history storing
The Micom monitors the conditions of the equipment during shutdown and operation, and notifies operators of the conditions of the equipment by displaying characters, alarm lamps and buzzers, and stores the time and the log of failures for maintenance.
In particular, the Micom classifies failures into minor failures and major failures. If a minor failure takes place, the micom displays the details of the failure in characters and continues the operation of the equipment to minimize the shutdown of the equipment.
3) Optimized artificial intelligence control algorithm for chiller control
• Digital PID Control
When the manual mode is changed to the auto mode, the digital PID control integrated with the flexible startup shall recognize the optimal PID control points automatically to minimize the unnecessary shutdown of the equipment and reflect them to the control equation to control the temperature stably and precisely.
• Preventive Operation
The temperature and the pressure of the components are measured in real-time during operation and the primary and secondary preventive operations are performed in accordance with the measurement results to prevent the shutdown of the chiller caused by the overload, the high pressure of the condenser, the low pressure of the evaporation.
• Scheduled operation
The scheduled operation function is provided for the convenient operation of the equipment, which allows the selection of the operation / shutdown and the setting of the control temperature per day of the week, per holiday or 11 times a day
• Service functions
The following service functions are supported for easy maintenance:
※ Displaying the count of startups and the total operation hours of the motors mounted on the body.
※ Printing the operation and the trouble data. (Optional)
4) Powerful customer support functions
• Help
The help function memorizes the details of failures and shows the descriptions for corrective actions when the operator selects a particular failure from the menu, in order to improve the convenience for operators.
• Communication for building automation and remote monitoring and control The communication function is embedded by default (RS485 / MODBUS RTU) for connecting the equipment with the monitoring system of customers. The zero-voltage I/O function is provided for remote operation and shutdown by using an simple electric wiring, or for monitoring the operating conditions of the equipment. In addition, BACnet or MODBUS / TCP is optionally mounted for improving the operation of the equipment for the convenience of customers.
5) Indicator lamp
All indications are displayed in characters on the LCD which turns on in the following 8 cases.
• Chiller RUN / STOP
• Compressor operates
• Chilled water flow normal
• Capacity control Valve manual
• LEAD / LAG Manual

2.14 Starter

1) The starter is equipped with the embedded EOCR (Electric Over Current Relay) protective relay for over-current. The starter is mounted with the following components: magnetic contactors, a power indicator lamp, a breaker for protecting circuits.

2) Protective relay
EOCR (Electric Over Current Relay) protective relay should be installed.
※ The Ground fault circuit interrupter is optional and will be installed as required by customers.
3) Operation and instrument panel
Indicator lamps, breaker for protecting circuits

2.15 Safety devices

1) Chilled Water Low Temperature [temperature sensor at chilled water outlet] _ Protect the evaporator from freeze.
2) Evaporator Low Pressure [evaporator pressure sensor] _ Protect evaporator from abnormal low pressure
3) Condenser High Pressure [condenser pressure sensor] _ Protect chiller from abnormal high pressure condenser
6) Oil level Low [interlock with oil level switch] _ Protect compressor from abnormal oil level status.
7) Chilled Water Pump Abnormal [interlock with chilled water pump] _ Protect chiller from chilled water pump
8) Chilled Water Flow Rate Abnormal [chilled water flow switch] _ Protect chiller from abnormal chilled water flow rate
9) Motor Reverse Phase/Phase Loss / Over-Current _ Protect chiller from motor reverse phase / phase loss / over-current (Optional)
10) Safety Valve control [evaporator / condenser] _ Discharge chiller protective refrigerant when the pressure is abnormally high
11) Current Limiting Function [control panel] _ Operation current limited operation, compressor protection / user convenience

2.16 Special features

2.16.1 Modbus translator control
Unit shall be supplied with field-installed interface between the chiller and MODBUS Local Area Network.

2.17 Accessary and option

2.17.1 Compressor acoustic enclosure [Option]
Compressor acoustic enclosure can be provided as an option to reduce compressor sound level. This enclosure is constructed of painted panels and sound absorbing insulation for maximum sound attenuation. The panels and the sound insulation foam provide sound damping effect. This panel fastened with bolt for service. The sound enclosure factory installed is optional.

2.17.2 Pre Coating for condenser [Option]
The condenser coil shall be made of aluminum fins and copper tubes with pre-treated polyurethane coating.

2.17.3 Protection grills (Lower / Upper / Full protection) [Option]
Protect the exposed condenser from particles or debris and also prevent unpermitted access to internal components.

2.17.4 Double thickness insulation [Option]
As a standard, the evaporator shell is insulated with NBR (Nitrile-Butadiene Rubber) of 3 / 4" (19 mm) thickness and black colored. As an option, it can be with NBR (Nitrile-Butadiene Rubber) of 1-1 / 2" (38 mm) and black colored.

2.17.5 Flow switch accessory [Option]
Water flow detection switch is shall be installed to detect water flow. The water flow switch comes with SPDT (Single Pole Double Throw) output function, 1.6 MPa (232 psi) working pressure, -10°C to 120°C (-14°F to 248 °F) with 1"NPT connection for upright mounting in horizontal pipe (This flow switch or equivalent must be furnished with each unit), which is field installed.

2.17.6 Vibration isolation [Option]
For installation on building roofs or in sensitive noise areas (Hospitals, studios and some residential areas) pre-selected spring type isolators with 1" or 2" deflection are available as an option – related parts can be shipped for field installation.

2.17.7 Power factor correction [Option]
Provide equipment with power factor correction capacitors as required to maintain the power factor of 95 % at all load conditions (optional).

2.17.8 MCCB (Molded case circuit breaker) power disconnect switch [Option]
A MCCB is available as a factory-installed option for all units with single / multi point power connection units. For this option, power supply is disconnected during service & repair work.

2.17.9 Suction service isolation valve [Standard]
Suction isolation valves are installed in unit for each refrigerant circuit as a standard.

2.17.10 Single power point connection [Option]
For models installed with 2, 3 and 4 compressors, to minimize job site installation cost and time, single point power connection can be provided as an option.
If optional single point power connection is required, terminal block connections will be supplied at the point of incoming single point connection.

Guide Specification

Air-Cooled Screw Chiller (R134a)
RCAW Series Inverter

Contents

Part 1 – General

1.01 Scope

Requirements of the General Conditions, Supplementary Conditions and Drawings apply to all work herein.

1.02 System descriptions

Factory packaged air cooled water chillers incorporating low noise twin screw compressor(s) and low noise fans.

1.03 Quality assurance

- ANSI / ASHRAE 34 - number designation and safety classification of refrigerants.
- ANSI / ASHRAE standard 15 safety code
- Manufactured in an EN ISO 9001 accredited organization
- OSHA – Occupational Safety and Health Act
- CE : Conform to CE testing services for construction of chillers and provide CE listed mark [Option]
- The packaged chiller shall be pressure and leak tested.
- Manufacturer shall warrant all equipment and material of its supply against defects in workmanship and material for a period of eighteen (18) months from date of shipment or twelve (12) months from initial start-up, whichever comes first.

1.04 Delivery and handling

Unit shall be delivered to jobsite fully assembled, charged with oil by manufacturer or manufacturer's authorized agent. Refrigerant is charged at job site by manufacturer's appointed local agent.
Unit shall be handled, transported and stored in accordance with manufacturer's instructions

Part 2 – Products

2.01 General

The equipment shown on the drawings is based on the model RCAW series air cooled water chiller as manufactured by the LG Electronics.

2.02 Equipment description

Supply and install and commission as shown on the drawings and schedules completely factory assembled, charged and operationally tested air cooled screw compressor chiller (s) as specified herein. Chiller shall include one or more independent refrigeration circuits, semi hermetic twin screw compressors (s), shell and tube water cooler, air cooled condenser, refrigerant R-134a, lubrication system and oil, interconnecting piping and wiring and lockable control center housing safety, operating and capacity controls necessary for the safe automatic operation of the water chiller.

2.03 Operating characteristics

- Unit shall be capable of starting-up and running in outdoor ambient temperatures from 10 to 54˚C.
- Unit shall be capable of starting up with fluid entering temperature to the cooler from 8 to 25˚C.

2.04 Unit construction

Unit base frame shall be constructed of 100 to 200mm steel channel sections welded and bolted to form rigid load bearing framework to support all major unit components and safe lifting platform.
Frame shall be shot blasted after welding and finished with corrosion resistant primer and air drying epoxy based enamel.
Condenser coil frameworks, cabinet and control center cabinet shall be of heavy gauge galvanized sheet steel with oven baked powder coating capable of withstanding salt spray test

2.05 Compressor

Compressor shall comprise semi-hermetic rotary twin screw directly driven by suction gas cooled semi-hermetic motor at rated RPM. Motor shall have inherent overload protection buried in windings and external current overloads.
Capacity is controlled by variable speed frequency (20 ~ 60 Hz).
Compressor housing is precisely machined cast iron incorporating and oil separator, lubricating oil sump with auxiliary oil heater are installed.

2.06 Evaporator

Evaporator shall be of the falling film shell and tube type with removable heads and mechanically cleanable tubes of seamless copper with internally and externally enhanced surface. Distributer located on the top side of inside shell, which makes uniform flow of refrigerant. Through distributer refrigerant flows downward by gravity as a uniform and continuous film. Tubes shall be mechanically expanded into multiple grooves in tube sheets.
Evaporator will incorporate one, two independent refrigerant circuits with a common chilled liquid multi-pass circuit arrangement.
[Option] Evaporators will be factory insulated with NBR (Nitrile-Butadiene Rubber) of 19mm black colored with all joints vapor sealed and water drain and vent taps in water box heads.

2.07 Air cooled condenser (s)

Coil structure is to be of internally enhanced seamless copper tubes mechanically bonded to louvered aluminum alloy fins.
Because high-efficiency wide louver fin is applied, heat transfer efficiency is greatly improved compared to the conventional one.
Black Fin (corrosion-resistant Fin) is applied as a standard to improve corrosion protection.
[Option] Blygold coating can be applied tp improve corrosion protection.
Inner hydraulic pressure test of refrigerant side is done at 1.3 times (1.1 times for pneumatic test) of design pressure, which should not make any leakage or deformation. Condenser channel which has been passed the inner pressure test is charged with nitrogen.
To increase product life cycle, high corrosion resistant Al-alloy is adopted and tested for 10,000 hours (Sea Water Acetic Acid Test) to ensure the reliability

- pH 2.8 ~ 3.0 sea water acetic acid spray test
- 4.5 MPa leakage test

Propeller type fan is applied, which should have proper airflow. Also it should have proper strength for rotational speed and be operated stably through balance test.

2.08 Expansion devices

Expansion devices should be installed between condenser and evaporator to enable refrigerant to evaporate from evaporator by decreasing refrigerant pressure. EXV (Electric Expansion Valve) is applied to control refrigerant flow by electric signal.

2.09 Oil separator

Oil which is supplied to compressor shall be circulated by differential pressure of high and low pressure side without extra oil pump. Oil separator should be installed between compressor discharge and condenser inlet for better heat transfer and stable operation.

2.10 Ejector for oil return

To reclaim oil from evaporator to compressor, ejector shall be installed for oil return.

2.11 Refrigeration system components

Shall include replaceable filter drier, moisture indicating sight glass, electronic expansion valve, suction / discharge / liquid line service valves and charge of refrigerant R-134a and lubricating oil.
Each refrigeration circuit in the evaporator shall have relief valves with changeover cock.
[Option] Dual type relief valve is fitted as an option

2.12 Chilled water circuit

a. Chilled water circuit shall be rated for 150 psig (1,034 kPa)
b. Electronic thermal flow switch shall be factory installed and wired. (Option)

2.13 Control center

1) Structure
The control panel shall consist of Micom module (HMI / MASTER / SLAVE), a power supply for supplying stable power, breakers for controlling and safety, an electronic contact, and relays for controlling.
2) HMI / MASTER / SLAVE module
The module shall use the high-performance microprocessor to perform the control function optimized for the equipment. The high-precision analog/digital (A/D) converter shall monitor the values of the temperature sensors to display the values on the screen, and apply them to the controlling. The RS-485 communication port is embedded by default to support the remote monitoring and controlling by customers. Customers can simply select RS-485 for their building automation.
3) Indication and operation key module
The indication and operation key module consists of a display indicating operating data, set points required for the equipment operation, and data of abnormality in characters; a key input section for entering data or selecting menus; and a LED lamp indicator section showing the equipment operation shutdown conditions for operation of the equipment, operation of compressor, oil pump, oil heater, flow of chilled / cooling water, alarms status, selected manual actuation of vanes, and selected manual operation of oil pump. In particular, the module allows operators to directly access the frequently used keys, and select other operations from the menu for improving convenience of operators. The operation keys consist of : four menu operation keys, three manual operation keys for vanes, three manual operation keys for oil pumps, and two operation/shutdown key for operation and shutdown of the equipment.
If the operation keys are inoperable, operators shall be able to use character display and menu selection keys to operate the equipment from the menu. The display shall show the following operation conditions in Korean, Chinese or English : the temperature of the inlet and the outlet of the chilled water and the cooling water, the compressor discharge temperature, the oil tank temperature, the motor bearing temperature, the condenser pressure, the evaporator pressure, the oil tank pressure, the oil pump pressure, the operating current and the vane opening.
The I/O is composed of a digital input section for monitoring the operating conditions of the switches and a digital output section for controlling the operation of the equipment. A photo coupler is mounted on the I/O section for preventing

noises, and receives/transmits all the data through communication with the main module to prevent malfunctions caused by electronic waves generated from the data transmission through the cables.

2.14 Features of controller

1) Convenient operation data management
A wide 15inch Color Graphic LCD (1024 x 768) is used to display various pieces of operation information on a single screen, and stores the analog data (e.g., temperature data) up to over 200 cases per channel in the intervals defined by customers for keeping daily operation logs. The real-time display also shows the temperature of the chilled water outlet and the operating current of the compressor motor in graphics for easily identifying the trends of the changes to the temperature and operating current.

2) Self-diagnosis and failure history storing
The Micom monitors the conditions of the equipment during shutdown and operation, and notifies operators of the conditions of the equipment by displaying characters, alarm lamps and buzzers, and stores the time and the log of failures for maintenance. In particular, the Micom classifies failures into minor failures and major failures. If a minor failure takes place, the micom displays the details of the failure in characters and continues the operation of the equipment to minimize the shutdown of the equipment.

3) Optimized artificial intelligence control algorithm for chiller control
- Digital PID Control
  When the manual mode is changed to the auto mode, the digital PID control integrated with the flexible startup shall recognize the optimal PID control points automatically to minimize the unnecessary shutdown of the equipment and reflect them to the control equation to control the temperature stably and precisely.
- Preventive Operation
  The temperature and the pressure of the components are measured in real-time during operation and the primary and secondary preventive operations are performed in accordance with the measurement results to prevent the shutdown of the chiller caused by the overload, the high pressure of the condenser, the low pressure of the evaporation.
- Scheduled operation
  The scheduled operation function is provided for the convenient operation of the equipment, which allows the selection of the operation/shutdown and the setting of the control temperature per day of the week, per holiday or 11 times a day
- Service functions
  The following service functions are supported for easy maintenance :
  ※ Displaying the count of startups and the total operation hours of the motors mounted on the body.
  ※ Printing the operation and the trouble data. (Optional)

4) Powerful customer support functions
- Help
  The help function memorizes the details of failures and shows the descriptions for corrective actions when the operator selects a particular failure from the menu, in order to improve the convenience for operators.
- Communication for building automation and remote monitoring and control The communication function is embedded by default (RS485 / MODBUS RTU) for connecting the equipment with the monitoring system of customers. The zero-voltage I/O function is provided for remote operation and shutdown by using an simple electric wiring, or for monitoring the operating conditions of the equipment. In addition, BACnet or MODBUS / TCP is optionally mounted for improving the operation of the equipment for the convenience of customers.

5) Indicator lamp
All indications are displayed in characters on the LCD which turns on in the following 8 cases.
- Chiller RUN / STOP
- Compressor operates
- Chilled water flow normal
- Capacity control Valve manual
- LEAD / LAG Manual

2.14 Starter

1) The starter is equipped with the embedded EOCR (Electric Over Current Relay)
protective relay for over-current. The starter is mounted with the following components: magnetic contactors, a power indicator lamp, a breaker for protecting circuits.

2) Protective relay
EOCR (Electric Over Current Relay) protective relay should be installed.
※ The Ground fault circuit interrupter is optional and will be installed as required by customers.

3) Operation and instrument panel
Indicator lamps, breaker for protecting circuits

2.15 Safety devices

1) Chilled Water Low Temperature [temperature sensor at chilled water outlet] _ Protect the evaporator from freeze.
2) Evaporator Low Pressure [evaporator pressure sensor] _ Protect evaporator from abnormal low pressure
3) Condenser High Pressure [condenser pressure sensor] _ Protect chiller from abnormal high pressure condenser
4) Oil level Low [interlock with oil level switch] _ Protect compressor from abnormal oil level status.
5) Chilled Water Pump Abnormal [interlock with chilled water pump] _ Protect chiller from chilled water pump
6) Chilled Water Flow Rate Abnormal [chilled water flow switch] _ Protect chiller from abnormal chilled water flow rate
7) Motor Reverse Phase / Phase Loss / Over-Current _ Protect chiller from motor reverse phase / phase loss / over-current (Optional)
8) Safety Valve control [evaporator / condenser] _ Discharge chiller protective refrigerant when the pressure is abnormally high
9) Current Limiting Function [control panel] _ Operation current limited operation, compressor protection / user convenience

2.16 Special features

2.16.1 Modbus translator control
Unit shall be supplied with field-installed interface between the chiller and MODBUS Local Area Network.

2.17 Accessary and option

2.17.1 Compressor acoustic enclosure [Option]
Compressor acoustic enclosure can be provided as an option to reduce compressor sound level. This enclosure is constructed of painted panels and sound absorbing insulation for maximum sound attenuation. The panels and the sound insulation foam provide sound damping effect. This panel fastened with bolt for service. The sound enclosure factory installed is optional.

2.17.2 Pre Coating for condenser [Option]
The condenser coil shall be made of aluminum fins and copper tubes with pre-treated polyurethane coating.

2.17.3 Protection grills (Lower / Upper / Full protection) [Option]
Protect the exposed condenser from particles or debris and also prevent unpermitted access to internal components.

2.17.4 Double thickness insulation [Option]
As a standard, the evaporator shell is insulated with NBR (Nitrile-Butadiene Rubber) of 3 / 4" (19mm) thickness and black colored. As an option, it can be with NBR (Nitrile-Butadiene Rubber) of 1-1 / 2" (38mm) and black colored.

2.17.5 Flow switch accessory [Option]
Water flow detection switch is shall be installed to detect water flow. The water flow switch comes with SPDT (Single Pole Double Throw) output function, 1.6 MPa (232 psi) working pressure, -10 °C to 120 °C (-14 °F to 248 °F) with 1"NPT connection for upright mounting in horizontal pipe (This flow switch or equivalent must be furnished with each unit), which is field installed.

2.17.6 Vibration isolation [Option]
For installation on building roofs or in sensitive noise areas (Hospitals, studios and some residential areas) pre-selected spring type isolators with 1" or 2" deflection are available as an option – related parts can be shipped for field installation.

2.17.7 Power factor correction [Option]
Provide equipment with power factor correction capacitors as required to maintain the power factor of 95% at all load conditions (optional).

2.17.8 MCCB (Molded case circuit breaker) power disconnect switch [Option]
A MCCB is available as a factory-installed option for all units with single / multi point power connection units. For this option, power supply is disconnected during service & repair work.

2.17.9 Suction service isolation valve [Standard]
Suction isolation valves are installed in unit for each refrigerant circuit as a standard.

2.17.10 Single power point connection [Option]
For models installed with 2, 3 and 4 compressors, to minimize job site installation cost and time, single point power connection can be provided as an option.
If optional single point power connection is required, terminal block connections will be supplied at the point of incoming single point connection.

Guide Specification

Air Cooled Screw Chiller
MCAW C Series

Contents

1. Range of application

This specification applies to all the model line-up of Air-cooled SCREW MCAW(C) producing and selling at LG Electronics.

2. Equipment features

1) To improve the performance of heat exchange, a falling film device is installed inside falling film type evaporator, and the structure of being able to drip the separated liquid refrigerant uniformly on tube bundle.
2) Chiller is applied the electronic expansion valve to elec-trically control the flow of refrigerant.
3) Cyclone type oil separator with structure that separates oil and refrigerant using vortex and gravity shall be installed.
4) To keep oil concentration inside evaporator at the below standard, oil reclaim system shall be applied.
5) Limit control is implemented to prevent unit stop due to abnormal condition. A control algorithm should be applied to minimize manual reset and restart.
6) This items shall be applied
   - Evaporator pressure transmitter
   - Condenser pressure transmitter
   - High pressure switch
   - Chilled water inlet/outlet temperature sensor
   - Compressor discharge temperature sensor
   - Compressor suction temperature sensor
   - Ambient temperature sensor
7) It is designed to be able to check and set the data with 7inches touch screen controller.
8) An oil level switch should be applied to prevent damage to the compressor in case of insufficient oil.
9) The product shall satisfy the performance requirements of AHRI (Air Conditioning, Heating And Refrigeration Institute) Latest Standard 550-590 / 551-591, the international authorized certified institute, and applies the product get-ting the certification.

3. Eqipment specifications

3.1. System composition

1) The chiller uses the Semi-hermetic, rotary twin screw type compressor, to compressing the refrigerant for cooling and chilled water outlet temperature is PID controlled by microprocessor controller.
2) Steel plate and pipe are performed the surface treat-ment to prevent corrosion.
3) Before shipping and start-up commissioning, the nitrogen gas shall be charged with a pressure of 0.3 ~ 0.5 kg / cm^2G to check whether the product is leaked and prevent the air inflow.
4) Air-cooled screw chiller is all-in-one and produced for convenient installation, operation and maintenance ma-nagement and compactly to minimize the area of in-stallation and space.
5) The customer supplies each power wire for each com-pressor, depending on the compressor quantity.
6) The open wiring method is applied for wiring between the chiller main body and the control panel.

3.2. Performance and quality

1) The product performance should be evaluated com-plying with the standard of AHRI (Air Conditioning, Heating And Refrigeration Institute) Standard 550-590 / 551-591, the international authorized certified institute.
2) The refrigerant, R-134a, environmental refrigerant with Ozone Depleting Potential (ODP) of zero, shall be applied.

3.3. Equipment specification

3.3.1. Equipment composition

1) Screw compressor
2) Evaporator
3) Condenser
4) Expansion devices
5) Oil separator
6) Oil reclaim system
7) Ref. piping
8) Safety devices
9) Control panel
10) Starter panel : The starter panel is supplied by the ma-nufacturer with the chiller. The starter panel is attached and installed to the chiller unit.

3.3.2. Screw compressor

1) The twin rotor / semi-hermetic type compressor and re-frigerant-cooled motor shall be used.
2) A differential pressure type oil lubrication and embedded type filter shall be applied.
3) The compressor embedded type oil separator shall be used and the check valve to prevent the refrigerant from flowing backward on the discharge side shall be installed.
4) By using the slide valve for control the capacity, chiller is used 3 ~ 4 step type controllable for 25 (35)% - 100%.
5) Attaches the Discharge/Suction Shut Off V/V.
6) Install the oil differential pressure switch (For filter)
7) Install the oil level switch (For oil)
8) The power specifications of the motor for compressor is three-phase, 380 V, 50 Hz.
9) The starter type of compressor motor is Y-D.

3.3.3. Evaporator

1) The heat exchanger is manufactured in Shell & Tube type.
2) To improve the performance of heat exchange, a

falling film device is installed inside falling film type evaporator, and the structure of being able to drip the separated liquid refrigerant uniformly on tube bundle.

3) The high-efficiency heat-transfer tubes with seamless phosphorus deoxidized Copper shall be used, and the steel plate or steel pipe are used for Shell.
4) The tubes shall be combined with mechanical expansion on the tube sheet so that it can be replaced.
5) The flow detection switch is installed to prevent the chilled water from freezing on the chilled water side.
6) Install oil reclaim tube from evaporator to compressor, to keep oil concentration inside evaporator at the below standard.
7) The heat-transfer tubes shall be machined to improve heat transfer performance inside and outside the tube and parts in contact with tube sheets and tube support plates shall not be machined. The tube support plates for heat-transfer tubes shall be designed for stable support of heat-transfer tubes in accordance with GB standards.
8) On the top of evaporator, the safety valve should be in-stalled according to GB Code.
9) The design pressure of the evaporator water box is 10 kg / cm^2 (150 psig).
10) It should be a structure available to do air vent on top of the water box and drain at the bottom of the water box.

3.3.4. Condenser

1) The condenser heat-transfer tubes use the seamless phosphorus deoxidized copper tubes, and aluminum fin was attached to copper tube to increase the heat transfer area.(Cross fin & tube type).
2) For efficient heat exchange, aluminum fins must be in contact with the copper tube through mechanical expansion.
3) It should cleaning after complete production.
4) The pressure test on the refrigerant side of high-pressure should be implemented at 1.1 times of design pressure and there should be no abnormalities such as leakage, deformation, etc.
5) The condenser coil passed at the pressure test removes the moisture entirely inside by vacuum drying.
6) The stop valve for refrigerant pump down and the safety valve protecting chillers by discharging refrigerant in case of temperature rising extremely due to fire should be installed on pressure vessel.
7) The fan should use the propeller (propeller type) and should be able to generate enough air volume needed to condense. Also, it shall be had enough strength to the number of rotations and shall be operated at low noise level through the balance test.
8) The fan motor should have F grade of insulation, waterproof grade IP55.
9) The fan and motor should be direct drive type.
10) The Gold Fin applies to improve the corrosion-proof per-formance of the heat exchange pin.

3.3.5. Expansion device

1) Chiller is applied the electronic expansion valve to elec-trically control the flow of refrigerant.

3.3.6. Oil separator

1) A vertical type of pressure vessel shall be manufactured.
2) The material of shell shall be steel pipe.
3) Cyclone type oil separator with structure that separates oil and refrigerant using vortex and gravity shall be installed.

3.3.7. Oil reclaim system

1) To reclaim oil mixed with the refrigerant from the ev-aporator to compressor, it should be installed the ej-ector (Spray ejector) available of oil return without consuming the additional energy.

3.3.8. Refrigerant pipe

1) The refrigerant pipes are installed for refrigerant flow between each composition to be smooth, using the carbon steel pipe for pressure pipe and seamless phosphorus deoxidized copper pipe of more than 99.9% purity.
2) Check valve should be installed in the compressor dis-charge so that discharged refrigerant flow cannot flow backward.
3) By installing the filter dryer at the pipe, It should be absorbed the moisture in the internal pipe and filtered the foreign substance.
4) From the expansion valve to the evaporator, pipe should be applied insulation to prevent the moisture of the pipe surface from condensing and the occurring of flash gas of refrigerant liquid at the same time.
5) After production and run a leak test, vacuuming should be done completely not to have any moisture inside.

3.3.9. Automatic control panel

1) Control device
   a. The composition of control panelThe Protection grade of the control panel is IP54.The control panel consists of microprocessor controller (Main controller and Display), power supply system to supply the stable power, breaker to perform the other control or secure the safety, magnetic contactor, and control relay, and a primary feature of each module is as below.
   b. Main controller
      It is implemented the control feature optimized to the mechanical device by applying the high-performance microprocessor, the high resolution A/D convertor (An-alogue/Digital) shall be applied to display on screen or control by measuring each kind of temperature sensor value in real time.

Also, it makes the customer's building automation ease response because the RS-485 communication port to support the customer's remote surveillance control is embedded in a standard.

It consists of the digital input part to check each kind of operation state of the switch and the digital output part to control the operation of chiller.

Also, the input/output port has a photocoupler blocking each kind of noise. Since all data is trans-mitted and received with the main module through communication, it secures high reliability by preventing the malfunction caused by electromagnetic wave to happen when transmitting and receiving the data of general cable.

   c. Display
      The machine run/stop state important for opera-tion, abnormal state, operation data can be checked on the display, and input setting needed to equipment operating.

Also, it made the operator's operation convenience by choosing and displaying the operation state (Temperature, run/stop and save of the peripheral device) into Korean, Chinese and English on the display part.

2) The feature of control device
   a. The convenient operating data management
      It makes much operation information checked on one screen simultaneously by applying the 7 inches color graphic liquid crystal display. In addition, It also makes analog data (ex : temperature data) used when recording drive operation reports and managing the maintenance by saving 300 cases for each channel in the time interval set by the customer. Also, it makes the trend of temperature change easily identified by displaying the chilled water outlet temperature on a graph in real-time.
   b. The safety control algorism
      It implement the preventive operation without an abnormal stop in advance by detecting the high / low-pressure sensor, discharge temperature sensor, current sensor, which are the safety device of digital output. It is possible to continuous operate without chiller stop because the algorism that removing the inconvenience of manual reset work to restart by minimizing the number of abnormality occurring is implemented.
   c. Self-diagnosis and save of abnormality history
      Micom makes monitor the chiller state during chiller stop or running, making a notice to operator using a me-ssage or buzzer making an auto-saving of failure data and occurring time which can be utilized in repairing conveniently.

Especially, as there is help function on the on the abnormality history, it is possible to respond and make an action promptly because the content about cause of occurrence, inspection and how to react are displayed.

In addition, it is also possible to check the operation/abnormality history on the control device because the history is saved up to 300 in order.

   d. Optimized AI type control algorism.
      Soft start
      It makes the input current gradually control to pre-vent machinery shock caused by sudden increase in load when starting.
      - Advanced digital PID control
      When starting or changing the operating mode from manual to automation, by perceiving the optimized PID control point automatically and reflecting it in the control equation, compared with the conventional analog control, the digital PID control that combined with soft start makes unnecessary machinery stop minimize and makes more stable and precised tem-perature control.
      * The digital transmitter for evaporator pressure/ con-denser pressure monitoring.
      * The Digital Transmitter for current display/ monitoring.
      * Installation of PT 100 Sensor for chilled water/ cooling water temperature
      - Scheduled operating function(Reserved operation)
      It makes the convenience on chiller operation by applying the schedule operation function available to choose the run/stop and control temperature setting for each day, particular holiday, or 11 times a day.
   e. Strong customer support function
      - Communication function for building automation and remote monitoring control.
      It is equipped with the Modbus communication function available to conveniently connected with the customer's monitoring system. The zero voltage input/output shall be provided to run/ stop in the remote or to monitor the run state of the machine using the simple electric wiring.
      - Help function
      If the breakdown occurs, it promote the operator's convenience by recording failure details, and showing clarification of how to respond if the operator selects the type of failure from the menu.
      - Available for support of three languages
      It is supported that the function to select/use Korean, Chinese, and English in the operation menu.
   f. To operate at partial load condition, the step com-pressor capacity control method is applied.

3.3.10. Starter panel

1) The protection grade of starter panel is IP54.
2) NFB (Molded case circuit breaker) including the handle available to control the breaker from the outside of the panel applies.

3.3.11. Safety devices

1) The complete compressor protective function from external electric shock shall be provided by embedding the dual protective device about reverse phase/phase loss / overcurrent.
2) safety device for chilled water
   a. Chilled water pump Interlock point of contact
   b. Chilled water differential pressure switch
   c. Chilled water temperature (low) : below 2.9℃ of chilled water outlet temperature
   d. ※ The run/stop signal and interlock point of contact of the chilled water pump is the important safety device for protecting chilled water freezing and safety accidents, so chiller and chilled water pump should be linked in operation by wiring connection.
   e. For the details, it should be discussed with LG Electronics in advance.
3) The chiller protective device
   a. [The low-pressure sensor] for protection of the chiller in case of abnormal low pressure of evaporator.
   b. [The high-pressure sensor] for protection of the chiller in case of abnormal high pressure of condenser.
   c. [The oil differential pressure switch] for protection of the compressor in case of abnormal oil differential pressure.
   d. [The oil level switch] for protection of the compressor in case of abnormal oil level.
   e. [The chilled water differential pressure switch] for pro-tection of the chiller in case of abnormal chilled water flow.
   f. [The temperature sensor of chilled water inlet/outlet] to protect the chiller in case of abnormal temperature of chilled water inlet/outlet.
   g. [The temperature sensor of compressor discharge] to protect the overheat of the chiller in case of abnormal high discharge temperature.
   h. [The protective relay] to protect the overcurrent.
4) Motor/compressor protective device
   a. Reverse phase/phase loss protective relay
   b. Temperature switch for monitoring of motor winding temperature
   c. Temperature sensor for monitoring of compressor dis-charge temperature
   d. The overcurrent protective relay of fan motor
5) The safety valve[evaporator]_In case of abnormal high pressure, refrigerant is discharged to protect the chiller.

3.3.12. Isolator

1) The vibration proof pad for vibration isolator device is supplied.

4. Scope of construction

Item	Supplied by	Note
Painting	LG Electronics	Main body : Morning gray Starter panel, Control panel : Warm gray
Cold insulation	LG Electronics	Cold-insulate the external side of evaporator, chilled water box, and compressor motor Material : NBR 19mm
Transportation and installation	LG Electronics	Transportation installation of installation place or basis
Leaking test, Insulation test, Put the refrigerant	LG Electronics	The work doing before start-up commissioning at the installation place
External piping	Consumer	Mean the external pipe construction such as chilled water and drain
Building and basis	Consumer	Prepare the basis construction for chiller installation before its installation
Chiller horizontality work	LG Electronics	The work at the time of chiller installation
Start-up commissioning and operating guidance	LG Electronics	Conduct 1 time a day(8 hours) (Supply the necessary electricity, chilled water)
Interlock wiring work for chilled water, cooling water pump	Consumer	Wiring between control panel and pump control panel
Nitrogen gas filling up	Consumer	The gas filling up for local keep (if chiller won't be operated for a long time after start-up commissioning)

5. Supply range

Item	Whether if supply or not	Note
Chiller body	LG Electronics	Refer to the body components
Refrigerant (R-134a)	LG Electronics	Separate delivery
The chiller instruction manual	LG Electronics	Installation and operation manual
Starter panel	LG Electronics	Starter system of compressor motor
Vibration proof pad	LG Electronics	The pad for vibrational absorption
Packing	LG Electronics	Shrink film

6. The warranty and service

6.1. Standard warranty period is 12 Months from date of commissioning or 18 Months from the date of shipment (STD) from factory whichever comes first. It's valid only if start up & commissioning work is carried out by certified LG Electronics service. Also, warranty shall not apply, if the Products have been subjected to misuse, abuse, negligence, improper installation, improper maintenance, improper transportation, accident, alteration or design change by anyone other than LGE.

6.2. Failure, caused by a defect in the parts, material, or operation during the warranty period, will be inspected by LG ELECTRONICS and fixed free of charge if it is agreed that it is defective.

6.3. For the following, LG ELECTRONICS don't fix free of charge.
   1) If a failure occurs after the product is repaired at the shop that is not designated by LG ELECTRONICS.
   2) If the failure is caused by user's mistakes in using and handling the equipment.
   3) The monopoly or handover to other places during the warranty period
   4) If a failure is caused by a fire or a natural disaster.

7. General details

7.1. Before producing the chillers, getting the approval is required by submitting all the details about production to the customer and the production should be implemented after getting a permit in the negotiation with the cu-stomer, as for the details not included marked in these specifications.

7.2. Before the disposal of the product, if you monopoly or hand it over to others, you should inform LG electronics.

8. Caution details

8.1. In case of drain work is progressed after completing the hydraulic pressure test or the circulation test of chilled/cooling water before the start-up and commissioning of the chiller, the chiller should be kept with opening each drain valve of pipe because the freeze and burst can occur by remaining water under the environmental condition of below 0℃ outdoor temperature.(Until filling up the make-up water) It makes much operation information checked on one screen simultaneously by applying the 7 inches color graphic liquid crystal display. In addition, It also makes analog data (ex : temperature data) used when recording drive operation reports and managing the maintenance by saving 300 cases for each channel in the time interval set by the customer. Also, it makes the trend of temperature change easily identified by displaying the chilled water outlet temperature on a graph in real-time.

b. The safety control algorism

It implement the preventive operation without an abnormal stop in advance by detecting the high / low-pressure sensor, discharge temperature sensor, current sensor, which are the safety device of digital output. It is possible to continuous operate without chiller stop because the algorism that removing the inconvenience of manual reset work to restart by minimizing the number of abnormality occurring is implemented.

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