



INVERTER SCROLL *CHILLER* AIR



LG Electronics

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INVERTER SCROLL CHILLER AIR FEATURES & BENEFITS



High Efficient Inverter Technologies

- EER 2.65 / COP 3.2 / ESEER 4.79 / SCOP 3.2
- All Inverter Scroll Compressor
- Water Outlet Temperature Control Without Hunting
- Enhanced Heating Performance by Vapor Injection Cycle



Reliability & Stability

- Continuous Heating Operation
- Back Up Operation In Emergency Case
- Quick Maintenance Using Black Box Function
- Corrosion Resistance 'Ocean Black Fin'



Convenience

- Smaller Footprint Due to Compact Size
- Low Noise Level
- Silent Operation Function
- 5 Inch HMI Touch Controller with Various Functions



> CONTENTS

- 06 > **HIGH EFFICIENT INVERTER TECHNOLOGIES**
 - All Inverter Scroll Compressor
 - Lower Load Operation
 - Vapor Injection
- 08 > **RELIABILITY & STABILITY**
 - Continuous Heating Operation
 - Back Up Operation
 - Corrosion Resistance (Ocean Black Fin)
 - Black Box Function
- 10 > **CONVENIENCE**
 - Compact Size
 - Low Noise Level
 - Silent Operation Function (Cooling Mode)
 - HMI Touch Controller
 - Centralized Control of LG CHILLER (Option)
 - Easy BMS Interface
- 14 > **APPENDIX**
 - Specification – Heat Pump Model
 - Specification – Cooling Only Model

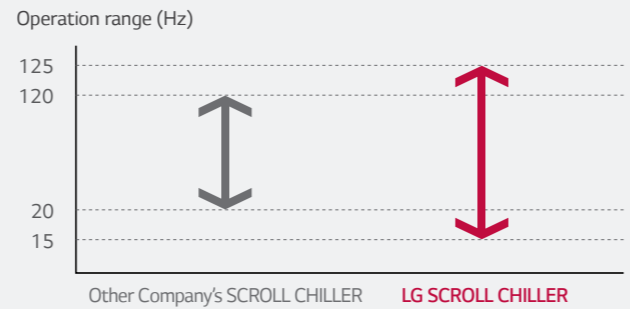
WHY LG INVERTER SCROLL CHILLER?

By applying world class EHP technology of **MULTI V**, high efficient and reliable operation has been achieved.



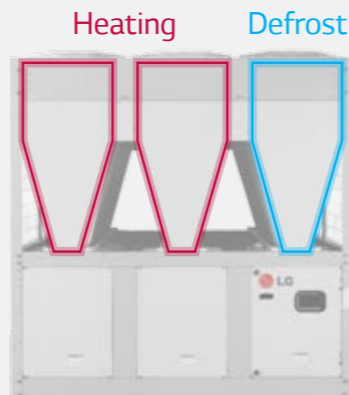
2 Lower Load Operation

- Wide Range of Frequency Down to 15Hz
- Minimum Operation 10%



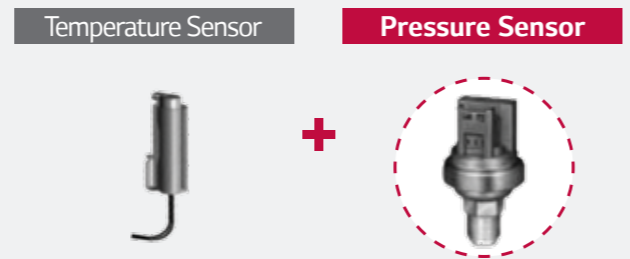
3 Continuous Heating Operation

- Continue Heating When Defrosting



4 Pressure Control

- More Precise and Reliable Operation / Applied to MULTI V Control Logic



5 R-410A Refrigerant

- ODP* = 0, Eco-Friendly Refrigerant
- * ODP : Ozone Depletion Potential

1 Inverter Technologies of LG EHP*

- Vapor Injection and HiPOR™**



* EHP : Electric Heat Pump
** HiPOR™ : High Pressure Oil Return

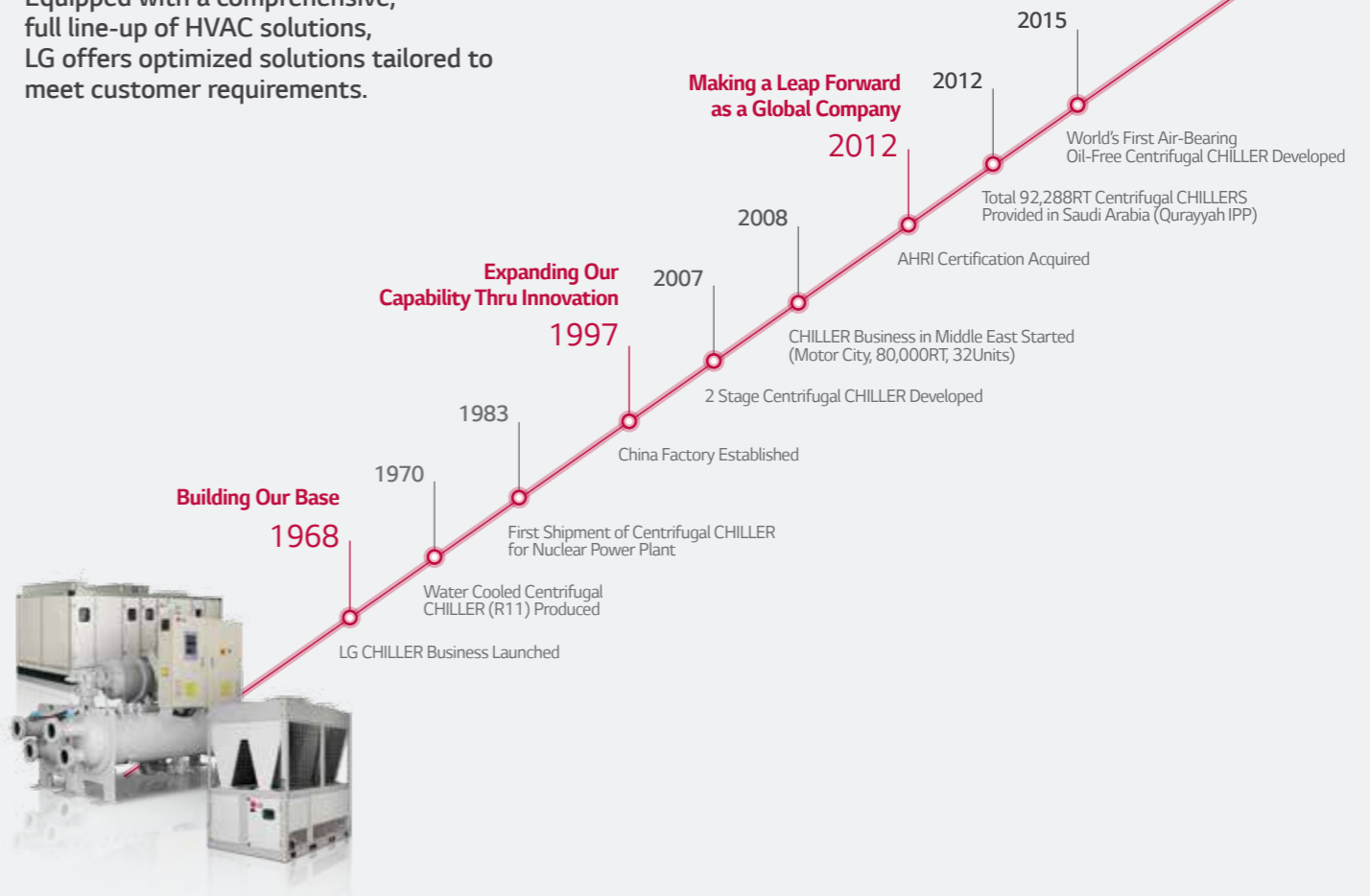
LINE-UP

The capacities of base models are 60 / 123 / 185 kW and Max. 10 CHILLERS can be controlled by 1 central controller up to 1,850kW.

Capacity (kW)	60	123	185
Heat Pump Model (ACHH *** LBAA)			
Cooling Only Model (ACAH *** LBAA)			
Range of Unit Control	<p>Up to 925 kW (5 CHILLERS) by AC Smart Controller</p> <p>Up to 925 kW (5 CHILLERS) by HMI Touch controller</p> <p>Up to 1,850 kW (10 CHILLERS) by ACP (Advanced Control Platform)</p> <p>* Central controller ACP, AC Smart controller are option.</p>		

OUR CHILLER HISTORY

Equipped with a comprehensive, full line-up of HVAC solutions, LG offers optimized solutions tailored to meet customer requirements.



HIGH EFFICIENT INVERTER TECHNOLOGIES

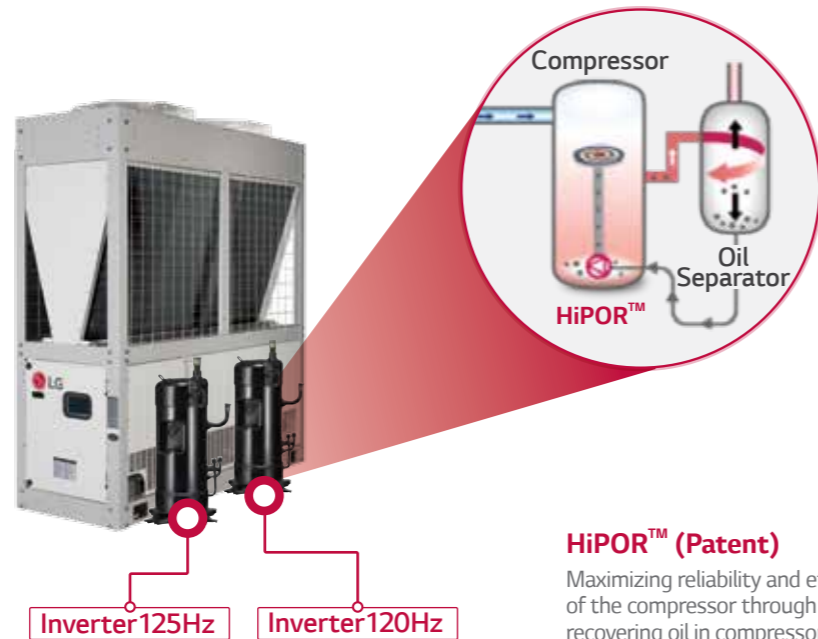
INVERTER SCROLL **CHILLER** AIR

ALL INVERTER SCROLL COMPRESSOR

All inverter scroll compressor with HiPOR™ (Patent) is applied to improve full load and part load energy efficiency.

All Inverter System

Wide operation frequency range 15 ~ 125 Hz



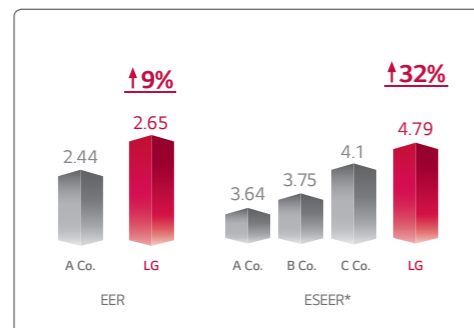
HiPOR™ (Patent)

Maximizing reliability and efficiency of the compressor through recovering oil in compressor directly

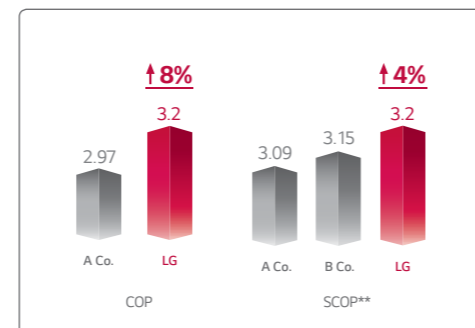
HIGH ENERGY EFFICIENCY

All inverter SCROLL compressors with MULTI V technologies improve energy efficiency.

Cooling Performance



Heating Performance

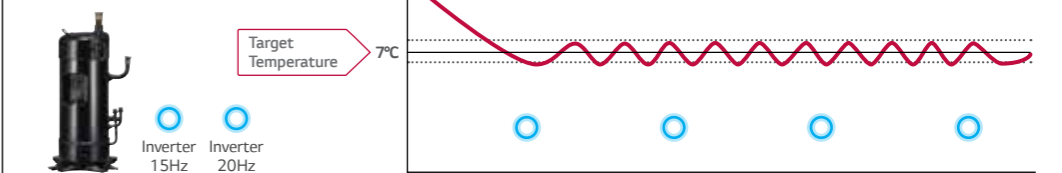


※ 185 kW Heat pump model comparison
* ESEER : European seasonal energy efficiency ratio
** SCOP : Seasonal coefficient of performance

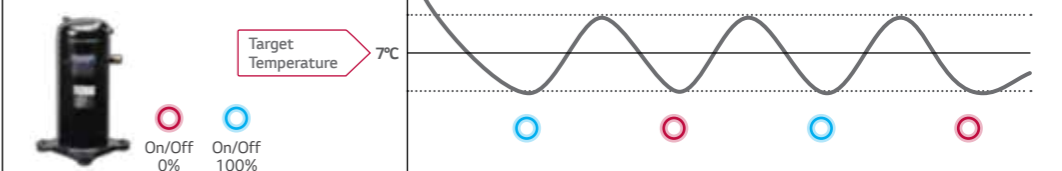
LOWER LOAD OPERATION

10% Part load operation and minimizing water outlet temperature haunting with Inverter scroll compressors.

LG Inverter Scroll Compressor



Normal On/Off Multi Compressor System

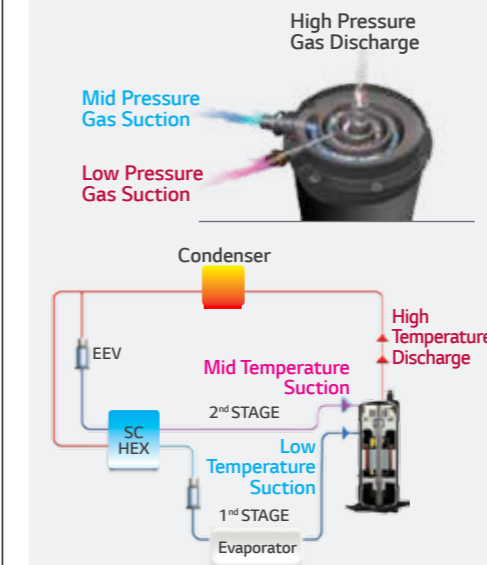


VAPOR INJECTION

Vapor injection technology (2 stage compression effect) improves heating performance by 27% for cold region.

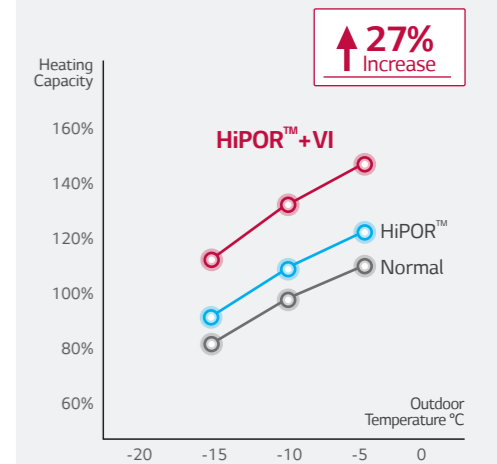
Vapor Injection

- 2 Stage Compression Effect
- Heating Performance ↑
- Energy Efficiency ↑



Improved Heating Performance

- Thanks to Vapor Injection and HiPOR™ Technology, Heating Performance Improved by 27%



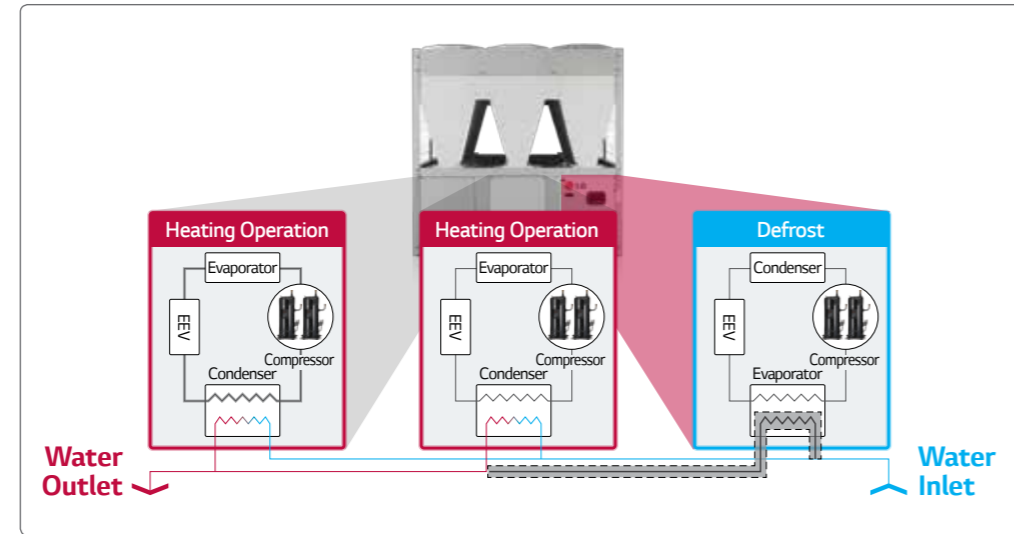
RELIABILITY & STABILITY

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CONTINUOUS HEATING OPERATION

Continuous heating minimizes the decrease of water outlet temperature during defrosting for multi circuit model.

123kW (40 RT) and 185kW (60 RT) model with multi cycle can defrost each cycle individually to supply hot water continuously



CORROSION RESISTANCE (OCEAN BLACK FIN)

'Ocean Black Fin' heat exchanger is highly corrosion resistant, designed to perform in corrosive environments such as contaminated and humid condition.

Ocean Black Fin

- Longer Lifespan, Lower Operational Costs
- Strengthened Corrosion Resistant Coating

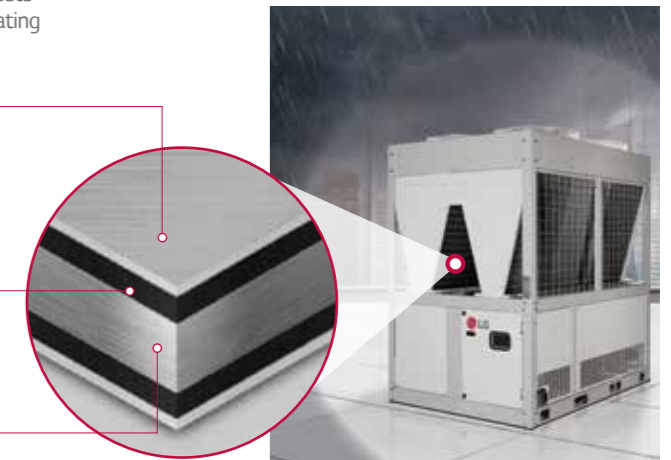
Hydrophilic Coating

The hydrophilic coating minimizes moisture buildup on the fin.

Corrosion Resistant Black Coating

The black coating provides strong protection from corrosion.

Aluminum Fin



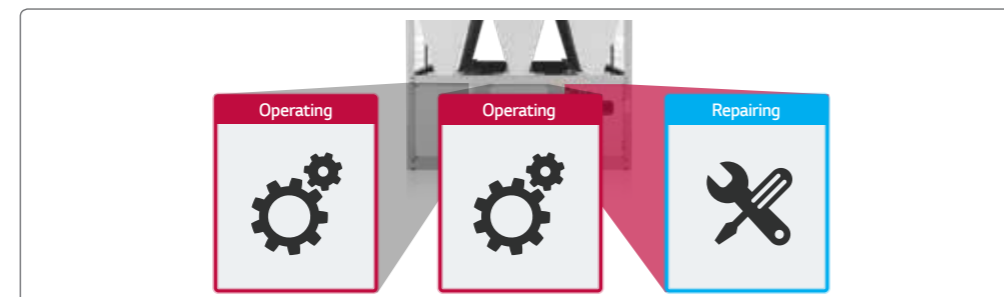
BACK UP OPERATION

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

Between Two Compressors



Among The Cycles



BLACK BOX FUNCTION

Quick service can be done because operation data can be saved for 180 seconds before system failure.

Without Black Box Function

Check many failure causes and error codes in person



Take much service time and undergo trial and error

With Black Box Function

Search for the failure cause conveniently using recorded data



Save service time and diagnose it more accurately

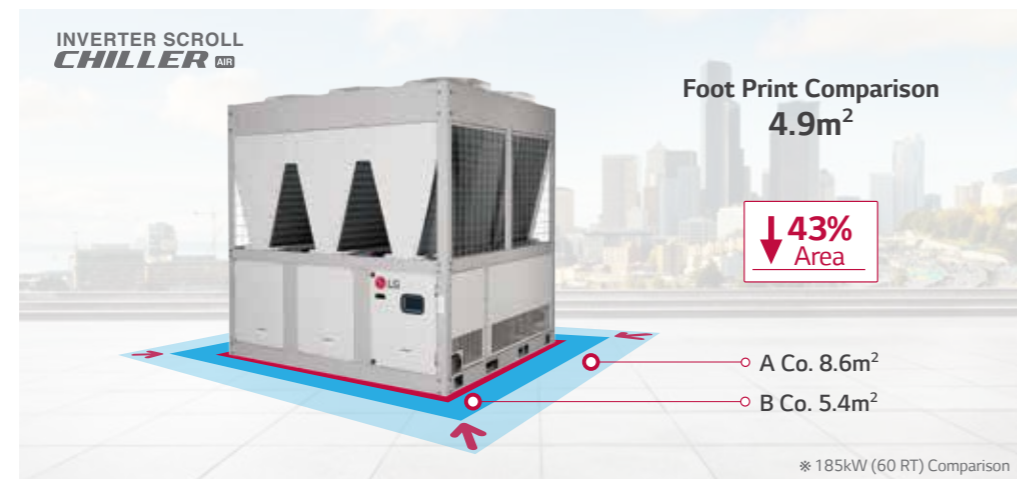


CONVENIENCE

INVERTER SCROLL
CHILLER AIR

COMPACT SIZE

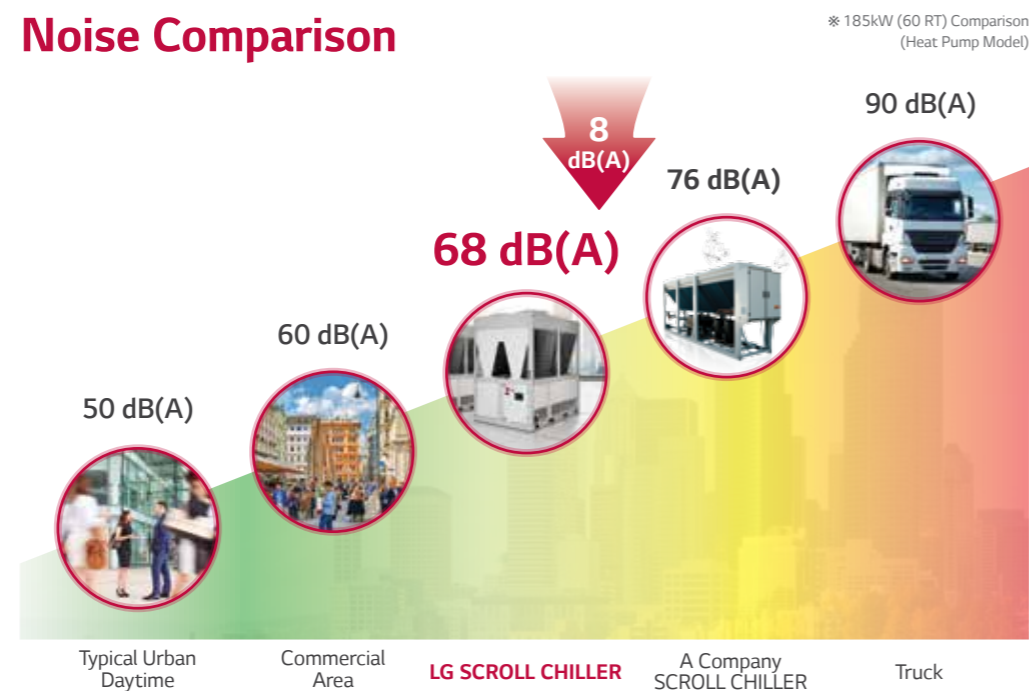
LG SCROLL CHILLER'S installation space is much smaller than A company's due to compact size. (43% Reduction)



LOW NOISE LEVEL

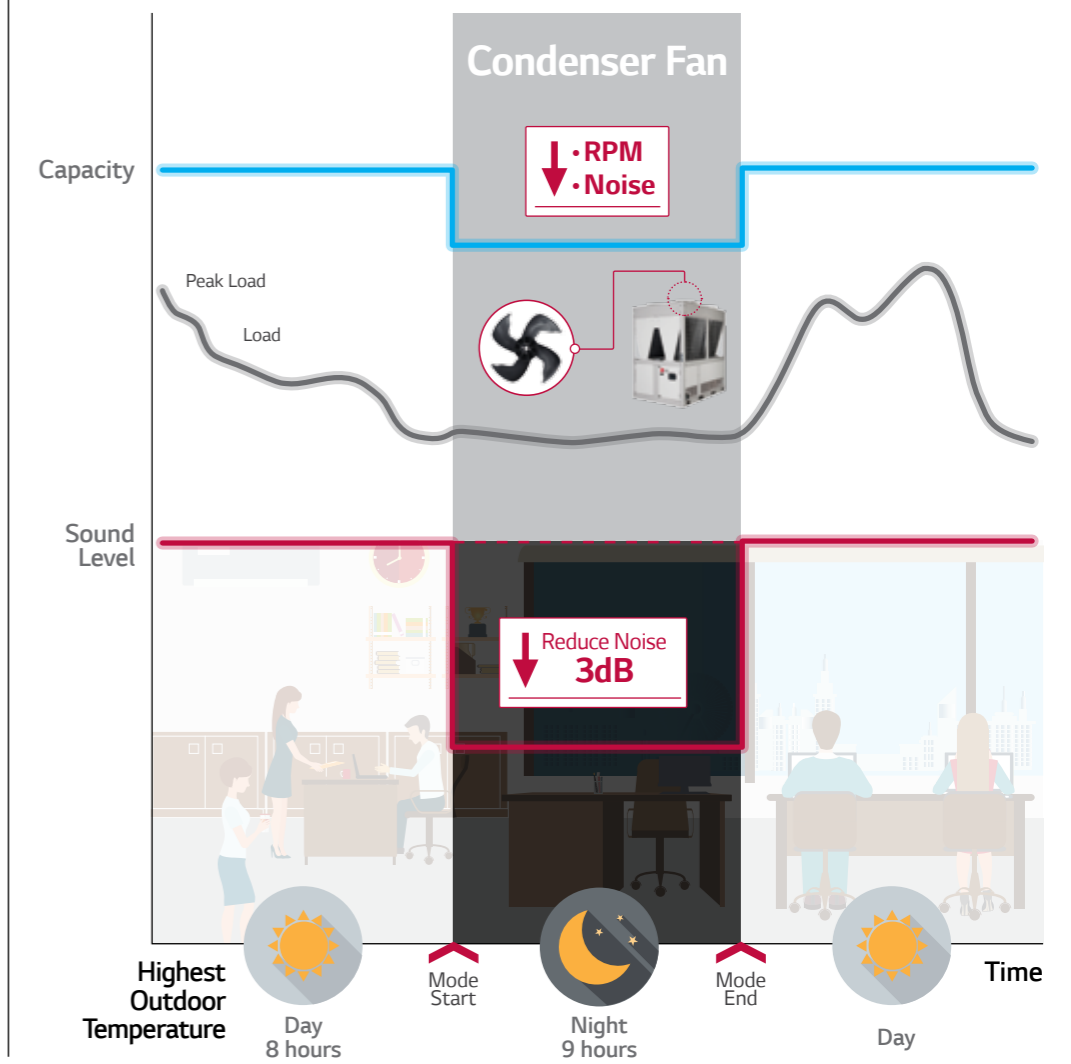
Lower noise can remove complains from noise pollution and provide a quieter environment.

Noise Comparison



SILENT OPERATION FUNCTION (COOLING MODE)

Silent operation function can reduce noise levels at night time by adjusting the fan RPM



CONVENIENCE

INVERTER SCROLL
CHILLER AIR

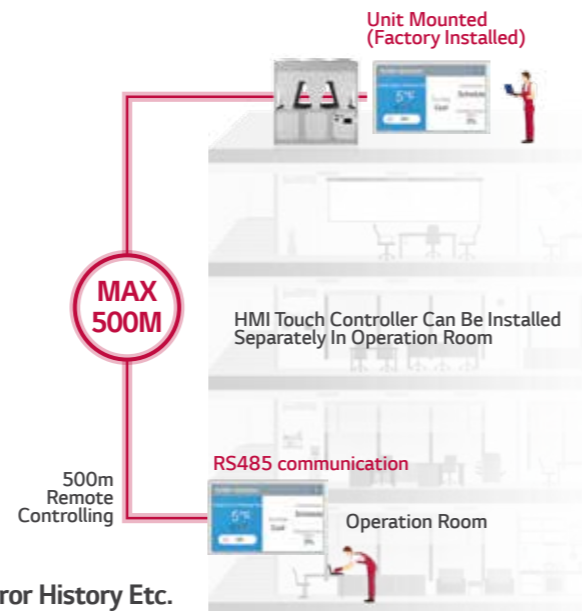
HMI TOUCH CONTROLLER

High level control option is preinstalled such as cycle monitoring, schedule control and demand control with HMI touch controller.

User Friendly HMI Touch Controller



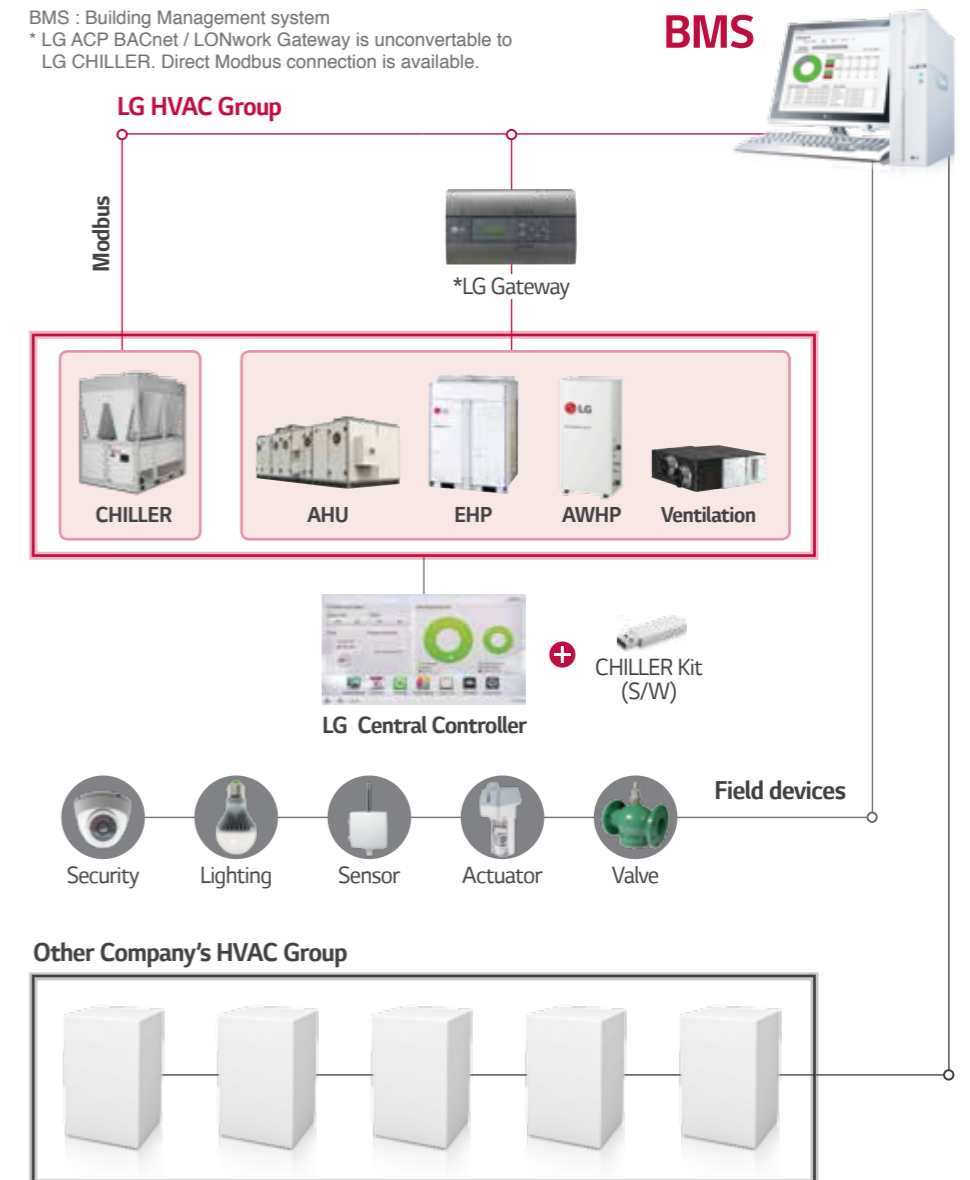
- **Checking CHILLER Information**
(Pump / Flow Status, Pump On / Off, Flow Switch On / Off Etc.)
- **Monitoring CHILLER Operation**
(Each Cycle Operation Status, Air Temperature Etc.)
- **Scheduling Function**
- **Anti-Freezing Function / Displaying Error History Etc.**
- **RS485 1Port, SD Card (Memory)**



EASY BMS INTERFACE

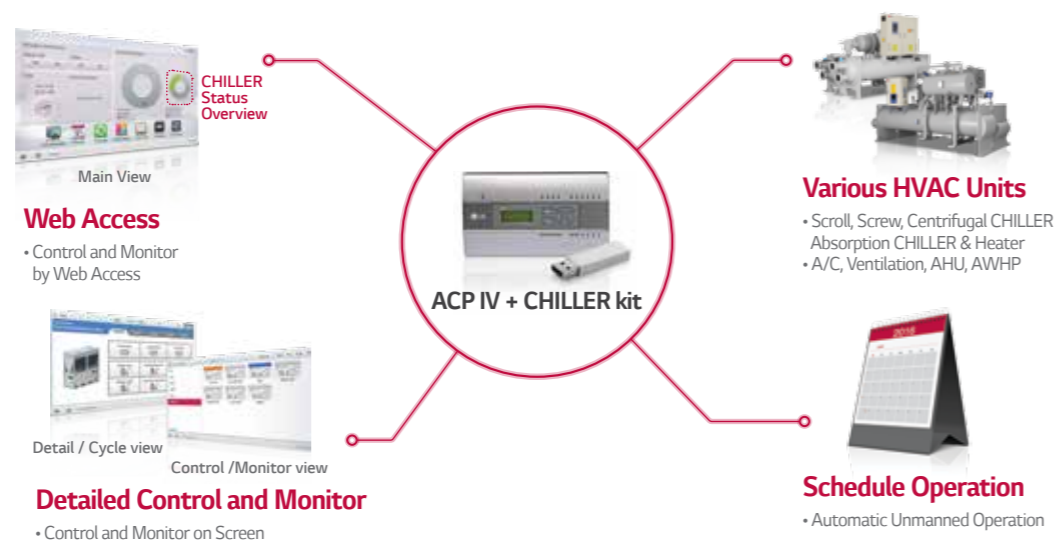
LG provides CHILLER controller system and BMS communication function.

BMS : Building Management system
* LG ACP BACnet / LONwork Gateway is unconvertible to LG CHILLER. Direct Modbus connection is available.



CENTRALIZED CONTROL OF LG CHILLER (OPTION)

LG central CONTROLLER IV series (+CHILLER kit) provide CHILLER remote control and cycle monitoring (ACP IV : Max. 10 CHILLERS, AC SMART IV : Max. 5 CHILLERS).



SPECIFICATION

INVERTER SCROLL CHILLER AIR

HEAT PUMP MODEL



(LG) participates in the ECP programme for (EUROVENT LCP-HP program). Check ongoing validity of certificate: www.eurovent-certification.com

Inverter SCROLL CHILLER		Model	ACHH020LBAA	ACHH040LBAA	ACHH060LBAA
			H/P	H/P	H/P
Power		Phase, Lines, V	3, 4, 380-415	3, 4, 380-415	3, 4, 380-415
Capacity	Cooling	kW	60.0	123.0	185.0
		RT	17	35	53
	Heating	kW	70.3	141.0	211.0
		RT	20	40	60
Input Power	Cooling	kW	22.8	46.4	69.8
	Heating	kW	22.0	43.9	65.9
Max Operating Current		A	52	104	156
Efficiency	Cooling	W/W	2.63	2.65	2.65
	Heating	W/W	3.20	3.20	3.20
	ESEER	W/W	4.79	4.79	4.79
SCOP		W/W	3.20	3.20	3.20
Sound Pressure		dBa	67	68	68
Sound Power	Cooling	dBa	84	91	92
	Heating	dBa	85	92	93
Compressor	Type	-	Scroll	Scroll	Scroll
	No. of Compressor	EA	2	4	6
	Oil Type	-	PVE	PVE	PVE
	Oil Charge	cc	1,400*2	1,400*4	1,400*6
	Sump Heater	W	60*2	60*4	60*6
Refrigerant	Type	-	R410A	R410A	R410A
	Amount of Charged	Kg	14	14*2	14*3
	GWP	-	2087.5	2087.5	2087.5
	t-CO ₂ eq	-	29.23	58.45	87.68
Condenser	Type	-	plate	plate	plate
	Pressure Drop	kPa	58.2	34	34
	Operating Maximum Pressure (Refrigerant / Water)	kg/cm ²	42/10	42/10	42/10
	Standard Flow (Cooling / Heating)	LPM	172/202	353/404	531/604
Fan motor	Inlet / Outlet Diameter (Water Pipe)	mm	40A/40A	65A/65A	65A/65A
	Type	-	BLDC	BLDC	BLDC
	No. of Fan	EA	2	4	6
	No. of Vanes	EA	4	4	4
Dimension	Air Flow Rate	CMM	210*2 @1,000rpm	210*4 @1,000rpm	210*6 @1,000rpm
	Motor Power	W	900*2	900*4	900*6
	Expansion Unit	-	EEV	EEV	EEV
	Weight	kg	540	1,030	1,530
Protection Devices	High / Low Pressure	-	○	○	○
	Anti Frost	-	○	○	○
	Reversed Phase Sensor	-	○	○	○
	Flow Switch	-	○	○	○
Remote Control		-	Modbus	Modbus	Modbus
Power	Power Line	mm ²	25.0mm ² ×5C	50.0mm ² ×5C	95.0mm ² ×5C
Outlet Temperature	Cooling	°C	5-15	5-15	5-15
	Heating	°C	35-55	35-55	35-55
Ambient Temperature	Cooling	°C	-10-48	-10-48	-10-48
	Heating	°C	-15-35	-15-35	-15-35
Earth Leakage Breaker		A	75	125	200

COOLING ONLY MODEL



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Inverter SCROLL CHILLER		Model	ACAH020LBAA	ACAH040LBAA	ACAH060LBAA
			C/O	C/O	C/O
Power		Phase, Lines, V	3, 4, 380-415	3, 4, 380-415	3, 4, 380-415
Capacity	Cooling	kW	60.0	123.0	185.0
		RT	17	35	53
Input Power	Cooling	kW	22.8	46.4	69.8
	Max Operating Current	A	52	104	156
Efficiency	Cooling	W	2.63	2.65	2.65
	ESEER	W/W	4.79	4.79	4.79
Sound Pressure		dBa	67	68	68
Sound power	Cooling	dBa	84	91	92
	Type	-	Scroll	Scroll	Scroll
Compressor	No. of Compressor	EA	2	4	6
	Oil Type	-	PVE	PVE	PVE
	Oil Charge	cc	1,400*2	1,400*4	1,400*6
	Sump Heater	W	60*2	60*4	60*6
	Type	-	R410A	R410A	R410A
Refrigerant	Amount of Charged	Kg	15	15*2	15*3
	GWP	-	2087.5	2087.5	2087.5
	t-CO ₂ eq	-	31.31	62.63	93.94
	Type	-	Plate	Plate	Plate
Condenser	Pressure Drop	kPa	58.2	34	34
	Operating Maximum Pressure (Refrigerant / Water)	kg/cm ²	42/10	42/10	42/10
	Standard Flow (Cooling)	LPM	172	353	531
	Inlet / Outlet diameter (Water pipe)	mm	40A/40A	65A/65A	65A/65A
Fan Motor	Type	-	BLDC	BLDC	BLDC
	No. of Fan	EA	2	4	6
	No. of Vanes	EA	4	4	4
	Air Flow Rate	CMM	210*2 @1,000rpm	210*4 @1,000rpm	210*6 @1,000rpm
Dimension	Motor Power	W	900*2	900*4	900*6
	Expansion Unit	-	EEV	EEV	EEV
	Weight	kg	525	1,000	1,470
	W	mm	765	1,528	2,291
Protection Devices	H	mm	2,351	2,351	2,351
	D	mm	2,154	2,154	2,154
	Footprint	m ² /RT	0.097	0.094	0.094
Remote Control	High / Low Pressure	-	○	○	○
	Reversed Phase Sensor	-	○	○	○
	Flow Switch	-	○	○	○
	Modbus	-	Modbus	Modbus	Modbus
Power	Power Line	mm ²	25.0mm ² ×5C	50.0mm ² ×5C	95.0mm ² ×5C
Outlet Temperature	Cooling	°C	5-15	5-15	5-15
	Heating	°C	35-55	35-55	35-55
Ambient Temperature	Cooling	°C	-10-48	-10-48	-10-48
	Heating	°C	-15-35	-15-35	-15-35
Earth Leakage Breaker		A	75	125	200