

# 2022 LG INVERTER DIRECT DRIVE PACKAGE



**LG Electronics**

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# WHY LG INVERTER DIRECT DRIVE PACKAGE?

**NEW**

## WORLD TOP LEVEL EFFICIENCY 7.5 ~25RT COOLING & HEATING

LG launches the world top level efficiency  
Inverter Single package

**NEW**

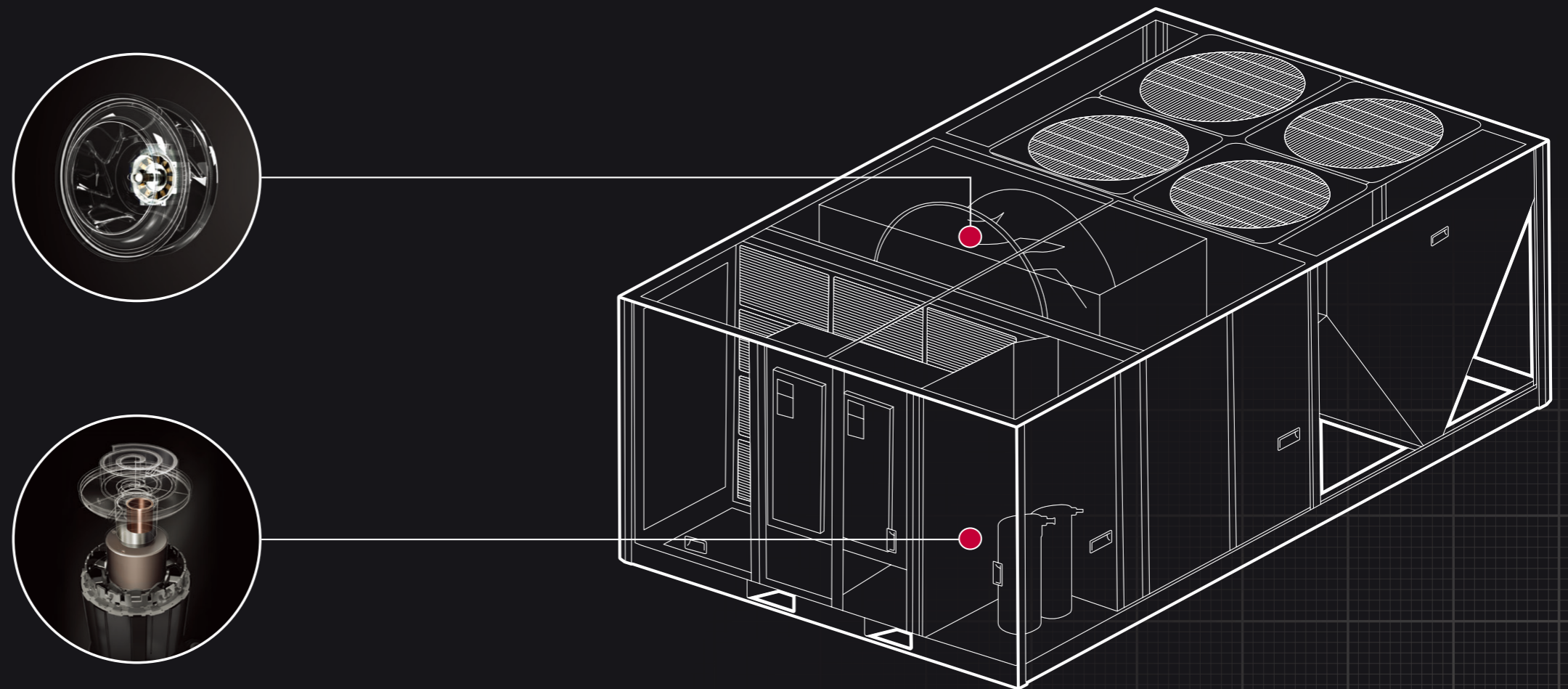
## CONVENIENCE

Direct drive fan motor  
Easy set-up method (by ESP function)

**NEW**







## ULTIMATE PERFORMANCE

Superior efficient ultimate inverter compressor  
Applied BLDC motors for all fans  
Superior level IEER 18.3 (25RT) & 19.0 (20RT)



# LINE UP

## DIRECT DRIVE PACKAGE

		MAIN BUILDING TYPE	
Cooling & Heating	7.5 / 10RT	 Restaurant	 Theater
	12.5 / 15RT	 Warehouse	 Super Market
	20 / 25RT	 Shopping Mall	 Industrial Facility

### COOLING / HEATING 380 - 415, 3, 50/60



AK-W110LH00  
AK-W130LH00

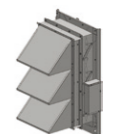


AK-W200LH00



AK-W270LH00  
AK-W320LH00

Economizer [PKEMD1CA0]



\* Economizer can be used from 7.5 to 25 tons.



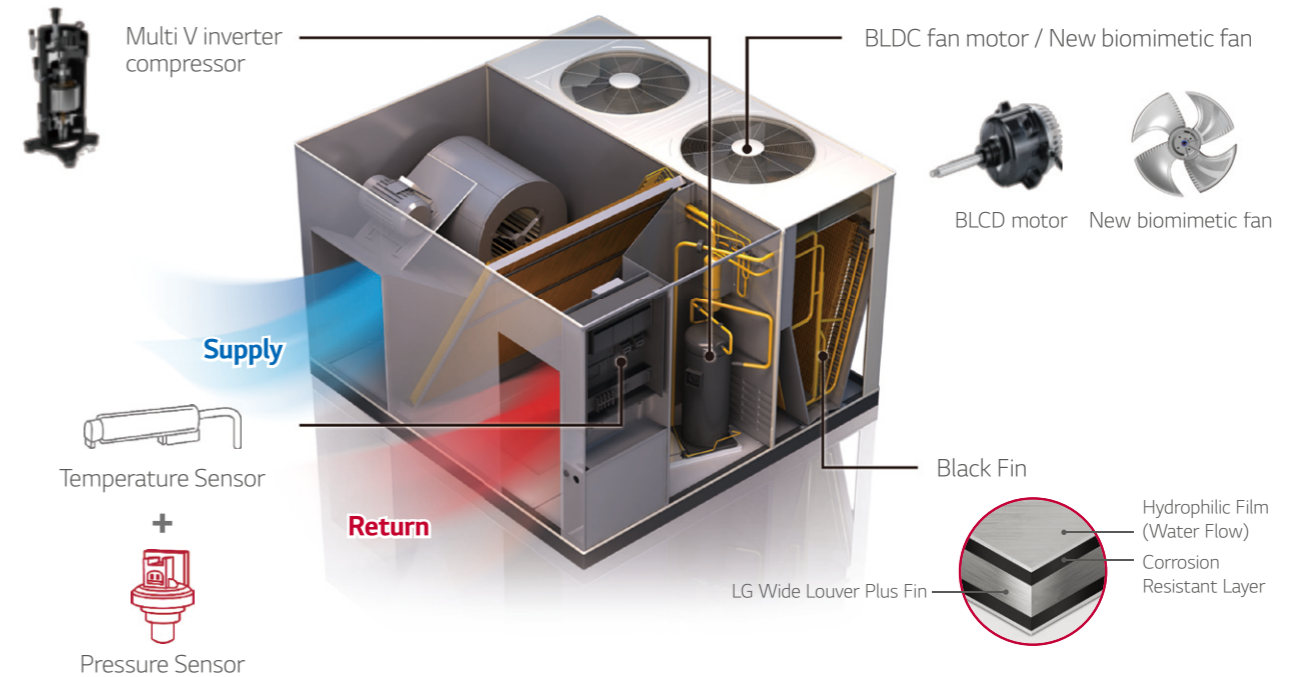
# SUPERIOR EFFICIENCY

- World Top level IEER
- Superior Partial Load Efficiency
- Energy Savings with Linear Control
- Superior Efficiency Cooling & Heating
- Annual Energy Savings Estimation
- Payback
- Dual Sensing Control



## ADVANCED KEY COMPONENTS FOR HIGH ENERGY EFFICIENCY

High energy efficiency with LG's cutting-edge core components and Inverter leading technology.

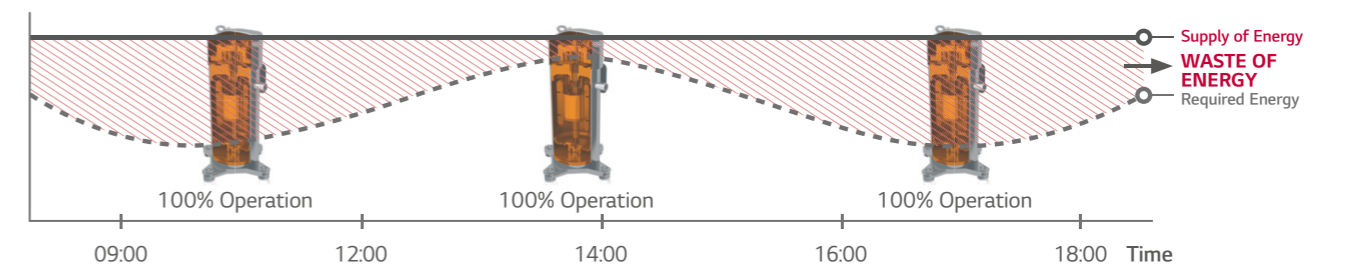


## EXCELLENT PARTIAL LOAD EFFICIENCY

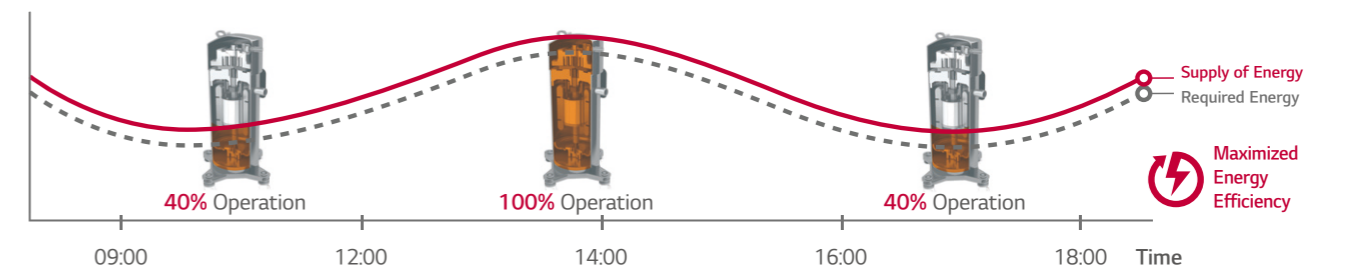
Inverter compressor maximizes energy efficiency through adjusting energy supply as required.

### Energy saving concept comparison

#### Constant Speed Compressor



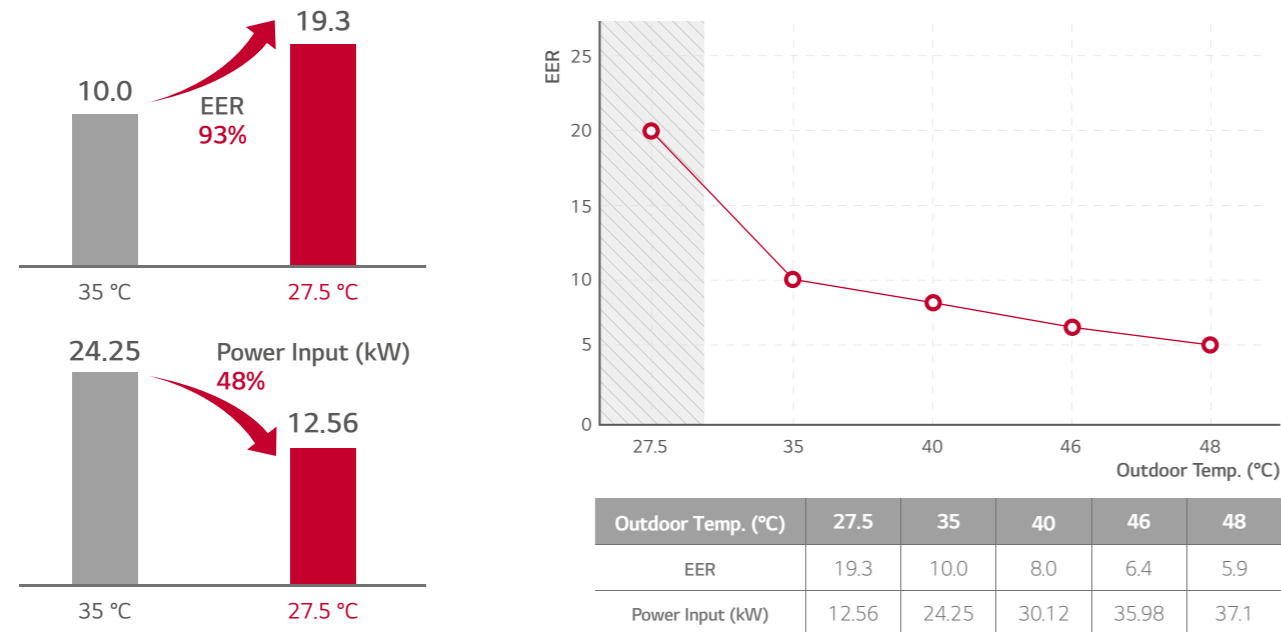
#### Inverter Compressor



# ⚡ SUPERIOR EFFICIENCY

## ANNUAL ENERGY SAVINGS

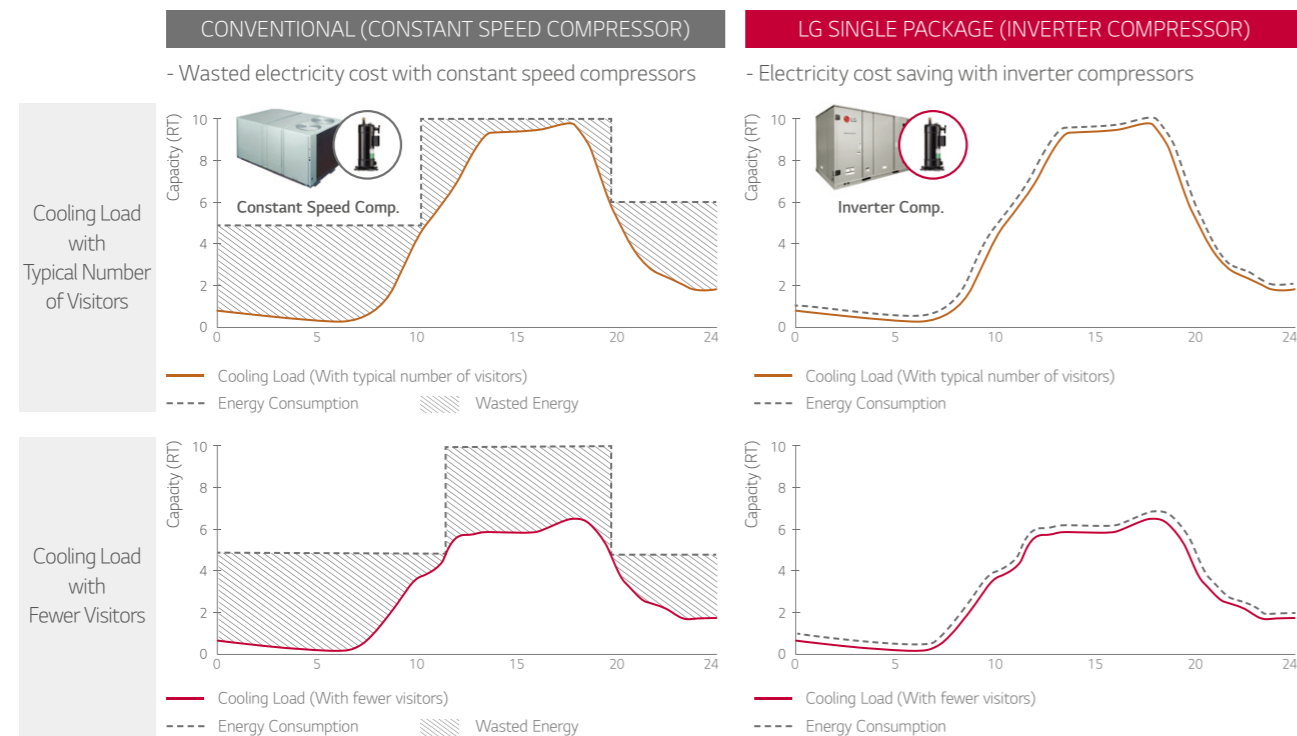
Target low pressure will be adjusted according to cooling load. LG provides energy saving by preventing on/off operation with inverter technology.



※ Model : LG AK-Q300DC01

## ELECTRICITY COST SAVING

During low Demand Periods, customers can save electricity costs because LG Inverter Compressors can match the actual capacity needed without overcooling the space.

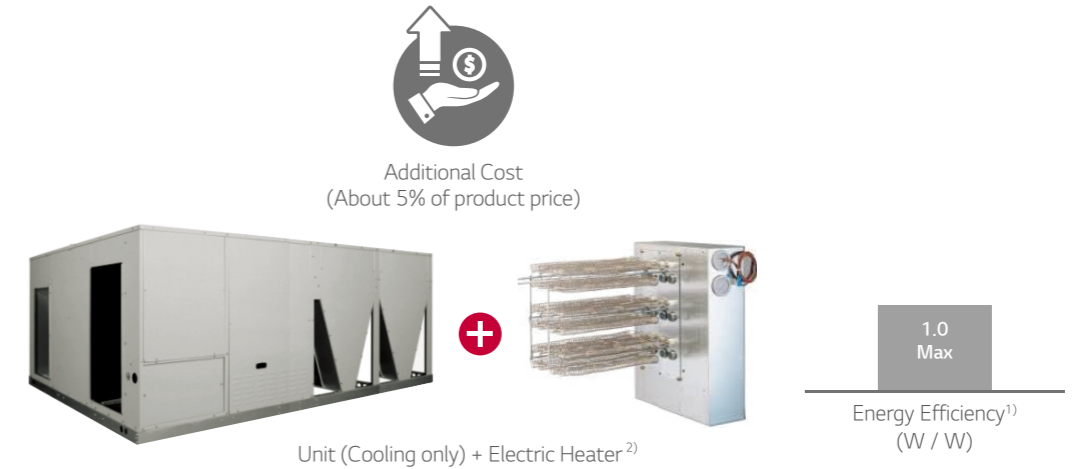


## SUPERIOR EFFICIENCY HEAT PUMP

New inverter single package provides both heating and cooling while saving energy.

### CONVENTIONAL

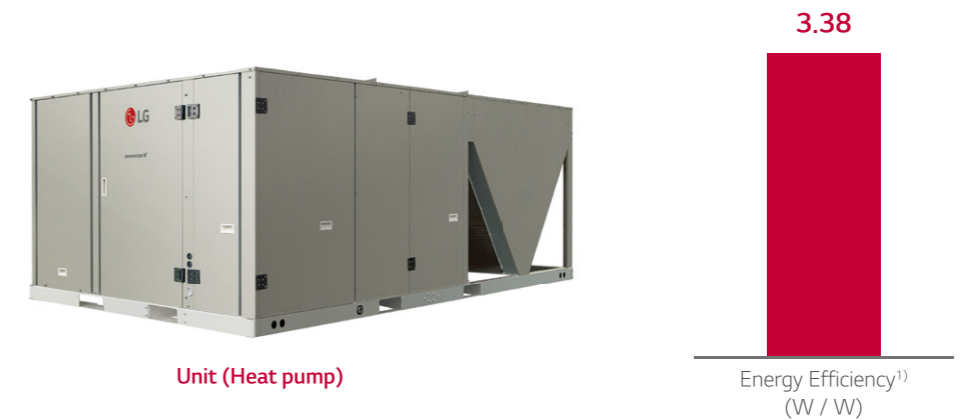
- Superior initial investment cost by installing electric heater for heating
- Superior electricity charges by auxiliary device



- 1) Energy efficiency is based on the following conditions :
- Indoor Temp. 21.1°C (70°F) DB / 15.6°C (60°F) WB
  - Outdoor Temp. 8.3°C (47°F) DB / 6.1°C (43°F) WB
- 2) Specification : 25kW / 460V / 3Ø / 60Hz

### NEW INVERTER

- No additional investment due to no need for heater installation for heating
- Annual energy savings with superior efficiency heat pump system

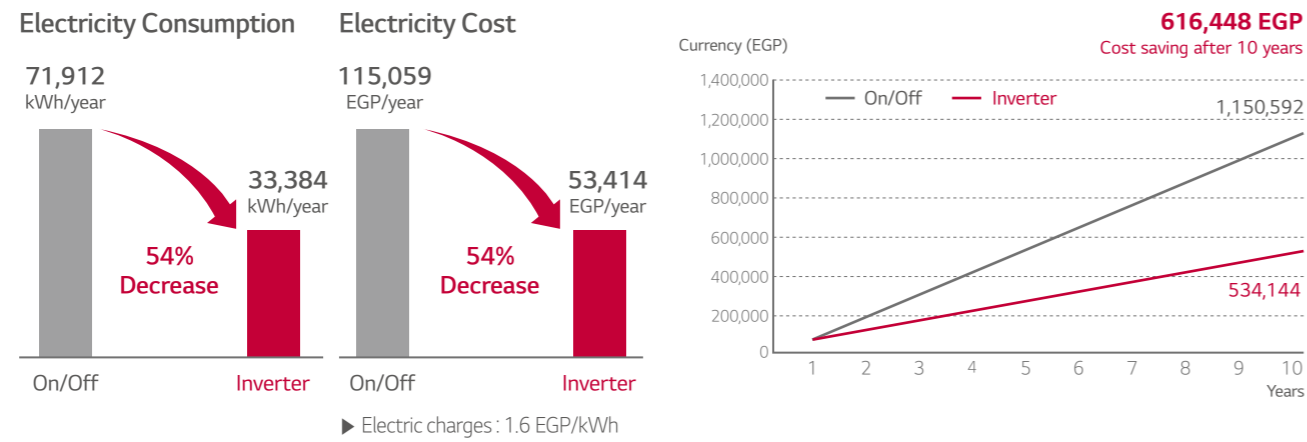


- 1) This result can be different depending on actual environment.  
(In regions with low load condition, the efficiency of H/P product is higher.)

# ⚡ SUPERIOR EFFICIENCY

## ANNUAL ENERGY SAVINGS ESTIMATION (Cairo, Egypt)

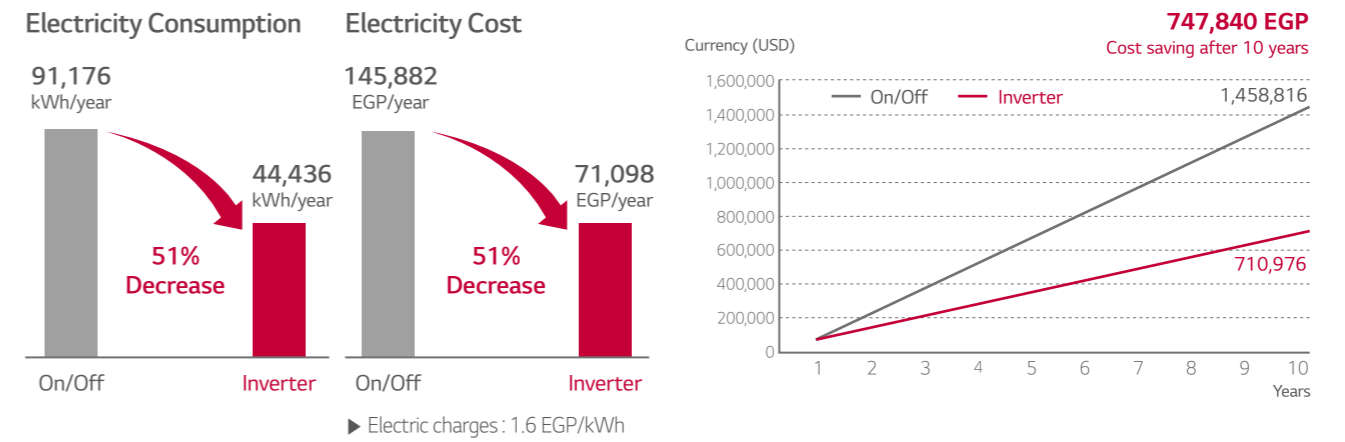
Electricity consumption are expected to decline by 54 % compared to on/off model.



[Condition]  
 - Capacity : 25RT Single Package  
 - Operation time : 8am – 8pm, 12months  
 - Cooling partial load and power consumption calculated based on yearly weather data (target indoor temperature : 24°C)  
 \* This result can be different depending on actual environment

## ANNUAL ENERGY SAVINGS ESTIMATION (Luxor, Egypt)

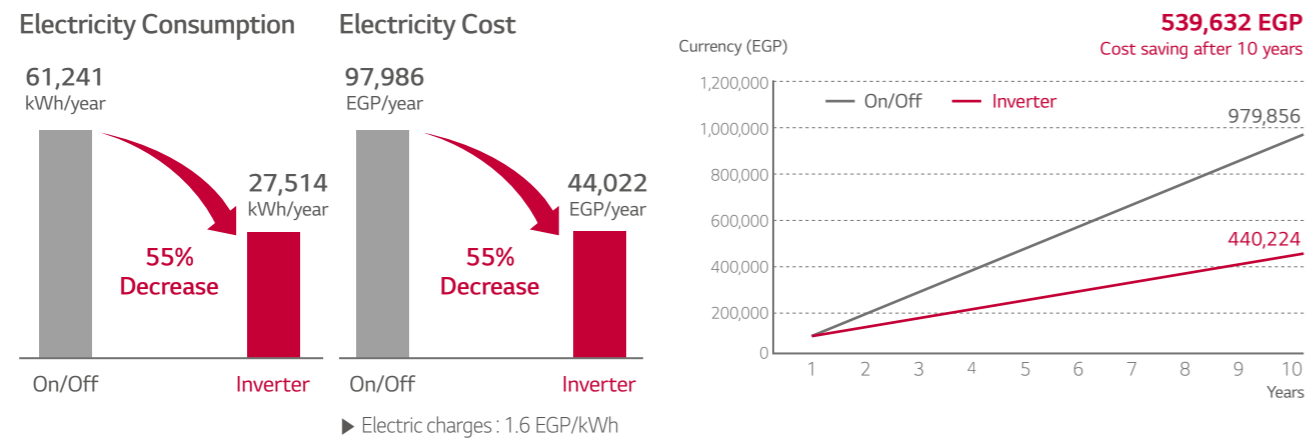
Electricity consumption are expected to decline by 51% compared to on/off model.



[Condition]  
 - Capacity : 25RT Single Package  
 - Operation time : 8am – 8pm, 12months  
 - Cooling partial load and power consumption calculated based on yearly weather data (target indoor temperature : 24°C)  
 \* This result can be different depending on actual environment

## ANNUAL ENERGY SAVINGS ESTIMATION (Alexandria, Egypt)

Electricity consumption are expected to decline by 55 % compared to on/off model.

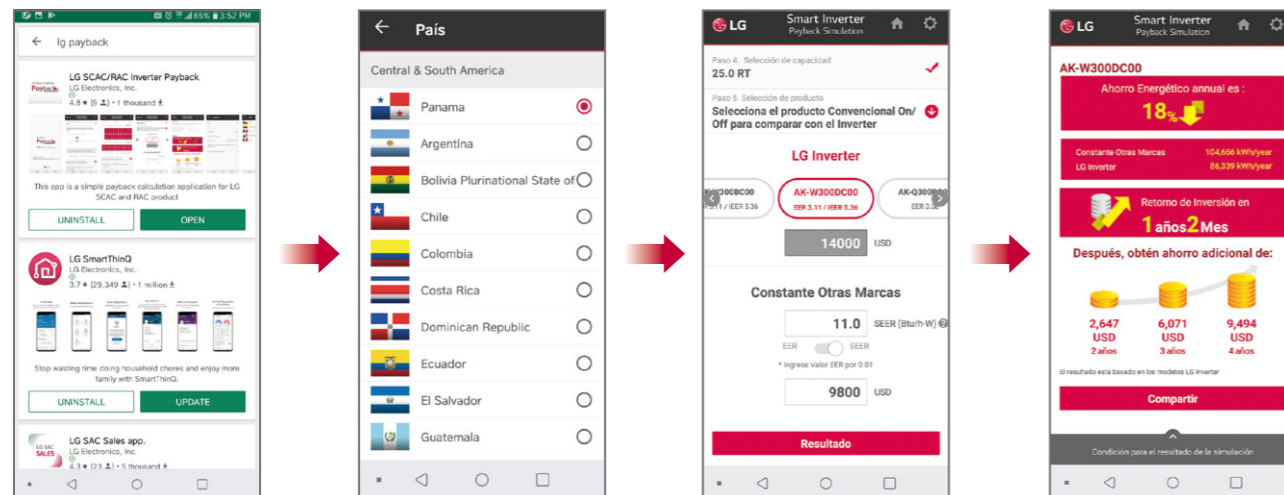


[Condition]  
 - Capacity : 25RT Single Package  
 - Operation time : 8am – 7pm, 12months  
 - Cooling partial load and power consumption calculated based on yearly weather data (target indoor temperature : 24°C)  
 \* This result can be different depending on actual environment

# ⚡ SUPERIOR EFFICIENCY

## APPLICATION – LG INVERTER PAYBACK APP

You can easily simulate on mobile via payback app. (Install "LG SCAC / RAC Inverter Payback")



## DUAL SENSING CONTROL

New model can be operated by dual sensors for comfort and efficient operation. (Temperature & Humidity)

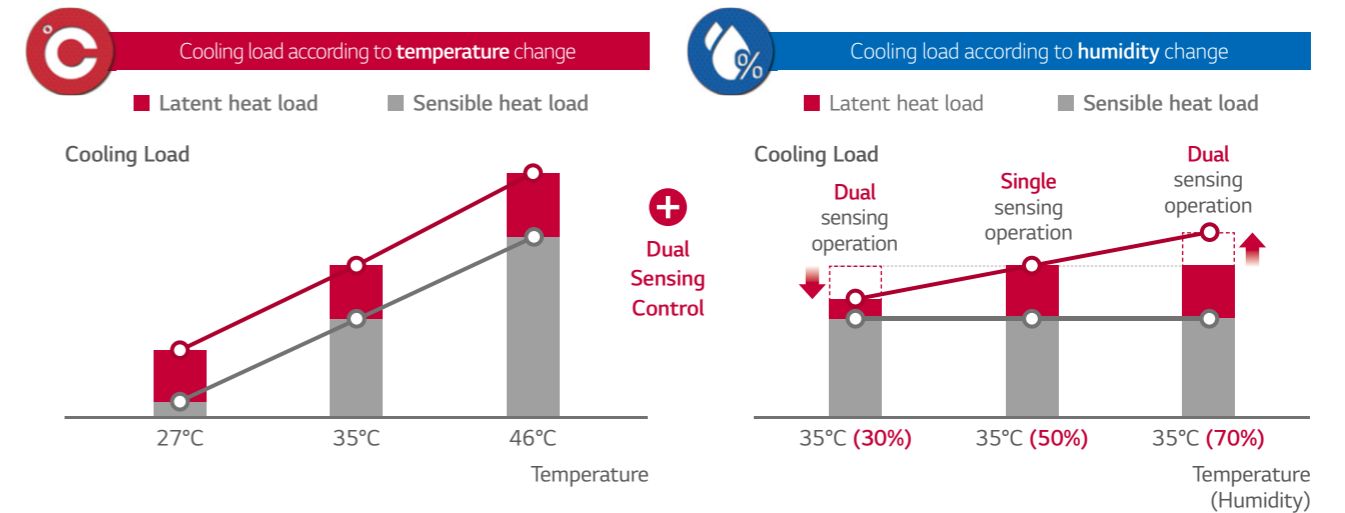
### Why do we need dual sensing?

To provide a comfortable cooling and increase energy savings sensing both temperature and humidity is required.

### Humidity Sensor



## DUAL SENSING CONTROL



### Dry condition

Dual sensing Control is a function that changes evaporation temperature according to temperature & humidity.



### Wet condition

In wet summer season, the system senses the high humidity level and increases operating ratio to decrease humidity level rapidly for making room condition in comfort zone.





# CONVENIENCE

Direct Drive Fan Motor  
Enhanced Structure  
Sliding Type Filter



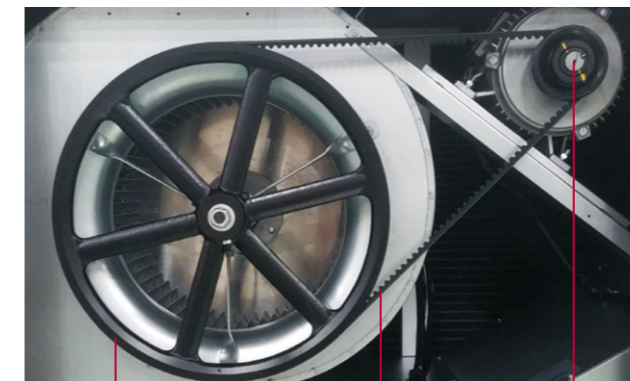
## DIRECT DRIVE FAN MOTOR

### Easy maintenance

Beltless direct drive system is easy to maintain and cost effective.

#### CONVENTIONAL

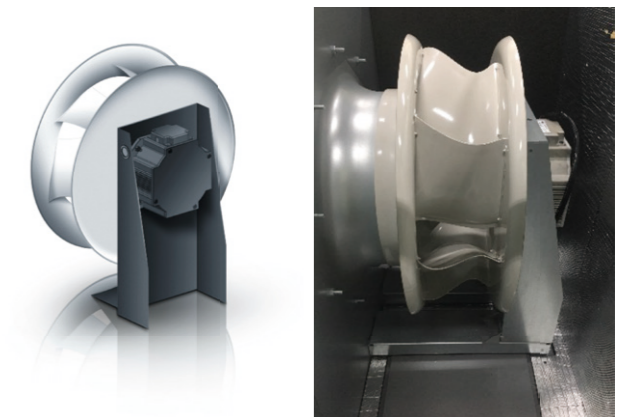
- Motor alignment, pulley and belt adjustment are required
- Grease periodically
- High cost of replacement and repair with large number of parts



Pulley V belt Pulley  
Additional parts

#### NEW INVERTER

- No need to adjust pulley and belt periodically
- No need to grease periodically
- Low cost of replacement and repair with fewer parts



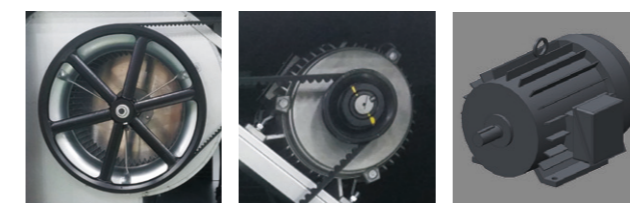
No additional parts  
(Reduced parts and labor costs)

### Easy installation

By applying a high static pressure motor, It has wide E.S.P coverage and easy to set the air volume.

#### CONVENTIONAL

- It is necessary to change the pulley and motor to change airflow



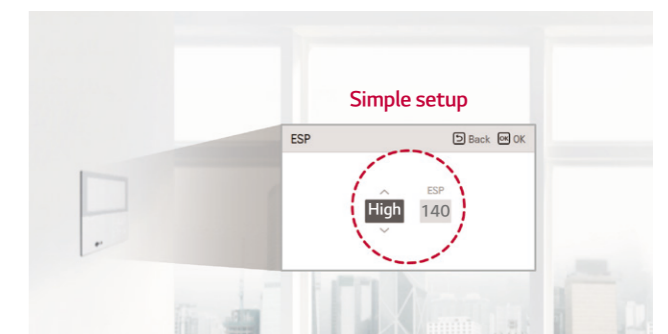
Pulley change  
Turn adjust (Variable pulley)  
Motor change

※ Motor operation range (Based on 9,400 CFM)



#### NEW INVERTER

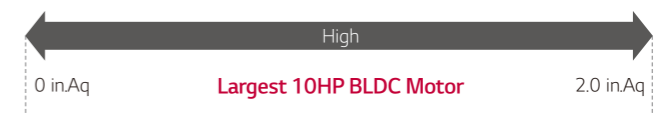
- Set RPM by simple touch on remote control to change airflow



※ ESP setting is available through wired remote controller.

- Standard II (PREMTB100/10)
- Standard III (PREMTB001/01)
- Simple controller (PQRCUC2W)

※ Motor operation range (Based on 9,200 CFM)

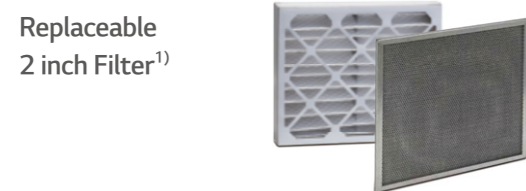
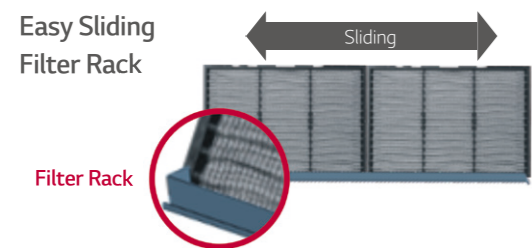




# CONVENIENCE

## SLIDING TYPE FILTER

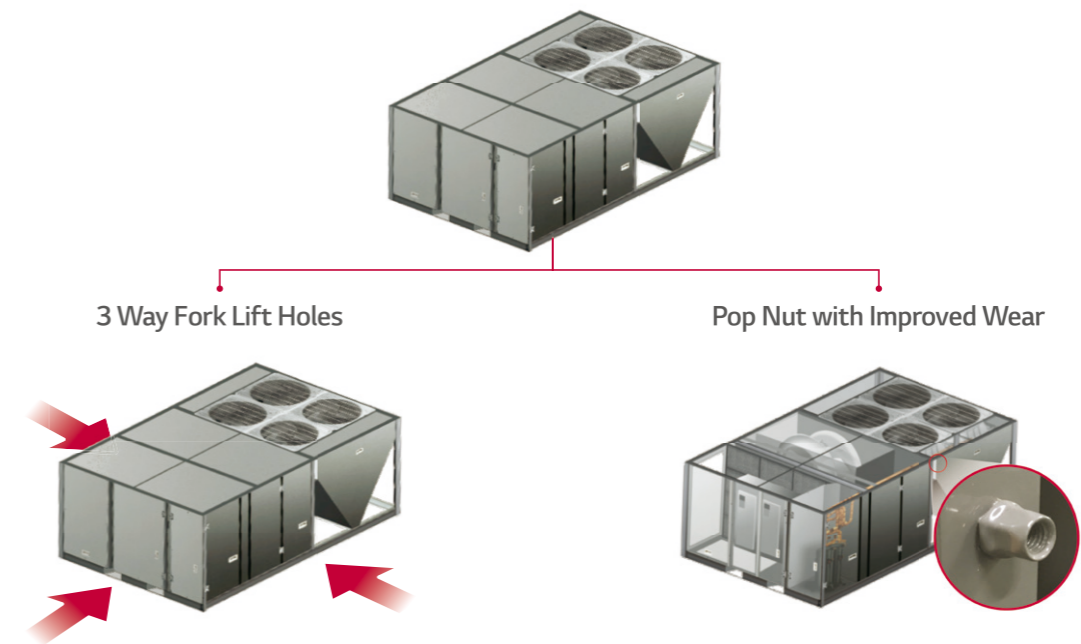
Easy maintenance and extended product life with sliding type filter. The pre-filter is easy to clean with water and replaceable 2 inch filter can also be installed.



1) Specification : 25 x 20 (in.) x 6 (EA)  
 ※ When 2 inch filter is applied, Static pressure drops by 0.142 in.Aq.

## ENHANCED STRUCTURE

3 Way fork lift holes easy to carry the product in various places and pop nut structure increases screw wear reliability.






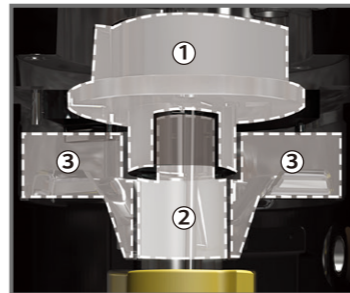

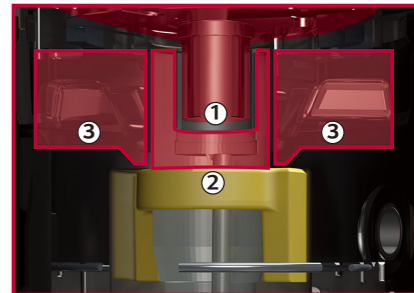
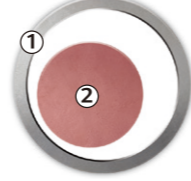
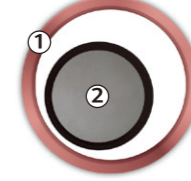
# RELIABILITY

Ultimate Inverter Compressor  
Protection for Voltage Fluctuation  
Black Fin



## ULTIMATE INVERTER COMPRESSOR

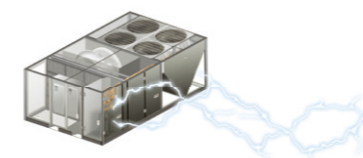
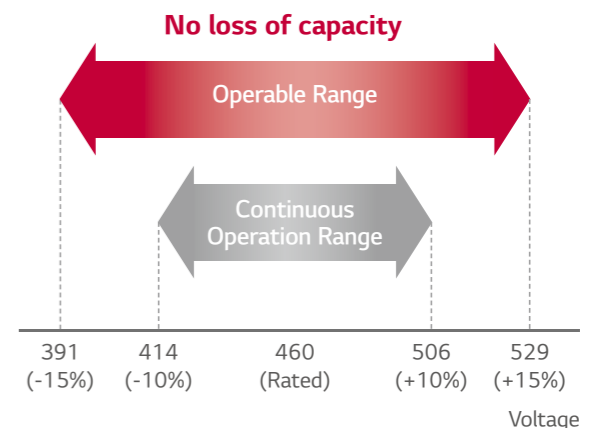
By applying world class technology of Multi V, superior efficient and reliable operation has been achieved. 18 years of inverter technology applied to LG new single package.

CONVENTIONAL		NEW COMPRESSOR	
<ul style="list-style-type: none"> <li>- Inner bearing type</li> <li>- Low speed operation with unstable structure</li> </ul>		<ul style="list-style-type: none"> <li>- Increased durability and reliability with outer bearing type</li> <li>- Superior speed operation with reduction of bearing load and vibration</li> </ul>	
 <p>6.8 HP</p>		 <p>9.6 HP</p>	
	<ul style="list-style-type: none"> <li>① Material : PTFE<sup>1)</sup></li> <li>①+② Structure : Inner Bearing</li> <li>③ Supporter</li> </ul>		<ul style="list-style-type: none"> <li>① Material : PEEK<sup>2)</sup></li> <li>①+② Structure : Outer Bearing</li> <li>③ Supporter</li> </ul>
<p>1) PTFE : Polytetra fluoro ethylene 2) PEEK : Polyether ether ketone ※ Conventional : JBA068MAC (6.8 HP) x 2EA in product New inverter : JBA096MAC (9.6 HP) x 2EA in product</p>			

## PROTECTION FOR VOLTAGE FLUCTUATION

Below low voltage limit, inverter compressor reduces frequency (Hz) and boost DC voltage, over high voltage limit, cuts off the relay to prevent damage of DC capacitor. And inverter is able to operate at a wider voltage range than constant speed model.

	Constant	LG Inverter
Low & High Voltage detection	No protection logic	Automatic detection and blocking
CT (Current transformer) current limit	On/Off operation	Inverter Control without stopping
DC peak detection	No need	Automatic detection and blocking
N phase reverse wiring (3 phase only)	No detection	Automatic detection
Missing phase detection (3 phase only)	No detection	Automatic detection



Product Protection

※ The allowable operation range is ±10% of rated voltage (460V).  
※ This result can be different depending on actual environment.

# RELIABILITY

## BLACK FIN

The black coating with enhanced complex resin is applied for strong protection from various corrosive external conditions such as salt contamination and air pollution including fumes from factories. This improvement in durability prolongs the product's lifespan and lowers both the operational and maintenance costs.

### Longer Lifespan, Lower Maintenance Costs

**Hydrophilic Film (Water Flow)** — The Hydrophilic coating minimizes moisture buildup on the fin.

**Corrosion Resistant Layer** — The Black coating provides strong protection from corrosion.

**LG Wide Louver Plus Fin**

**Verification of Corrosion Resistance Performance Testing**  
 Reference No.: KR201901-001  
 TÜV Rheinland verify that corrosion resistance performance for aluminum sheet of heat exchanger of air conditioner is satisfied requirements at test method B of ISO 21207 standard according to reference no. 50251080 001.  
 Holder: LG Electronics Inc., 84, Wanam-ro, Seongnam-gu, Changwon-si, Gyeongsangnam-do, 51554, Korea  
 Product: Aluminum sheet of heat exchanger of air conditioner  
 Identification: Corrosion improved aluminum fin (Black II)  
 Applicable Standard: Test method B of ISO 21207 (Salt contaminated condition and Severe Industrial or traffic environment)  
 Claim Verified: Resists 27 years of simulated severe corrosion  
 Acceptance Criteria: LG795-E-1026  
 Date: 2019.05.19  
 TÜV Rheinland Korea Ltd. - Seoul 07286 - Republic of Korea

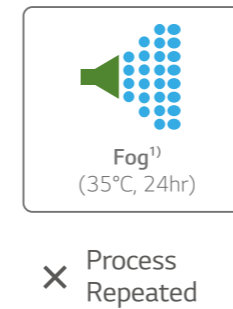
**Verification Corrosion Resistance Performance Testing**  
 Reference No.: KR202046-001  
 TÜV Rheinland verify that the corrosion improved aluminum fin (Black II) of air conditioner heat exchanger has less than 0.05 % corrosion area after 10000 hours salt spray test.  
 Holder: LG Electronics Inc., 84, Wanam-ro, Seongnam-gu, Changwon-si, Gyeongsangnam-do, 51554, Korea  
 Product: Aluminum sheet of air conditioner heat exchanger  
 Identification: Corrosion improved aluminum fin (Black II)  
 Applicable Standard: LG795-E-1026, 2019 ISO 9227:2017, ASTM B117 ISO 10289:1999, KS D 9902:2019  
 Date: 2020.12.04  
 TÜV Rheinland Korea Ltd. - Seoul 07298 - Republic of Korea

※ Verification of corrosion resistance performance.  
 ※ Black Fin is applied for Cooling & Heating model only.

Black Fin's performance of corrosion resistance is improved based on Conventional Fin.

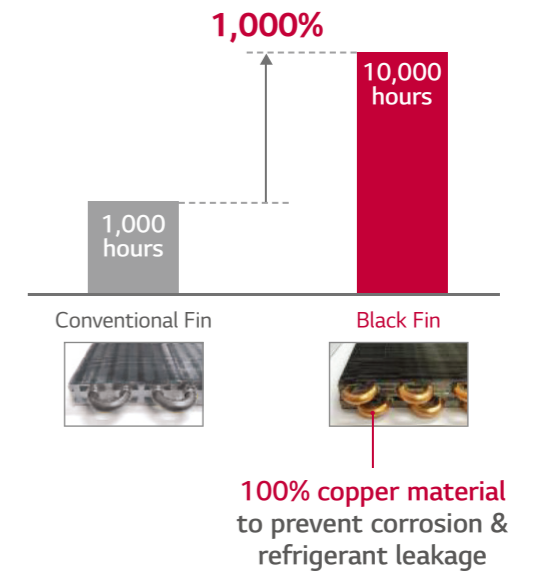
### SST (Salt Spray Test)

Test Process



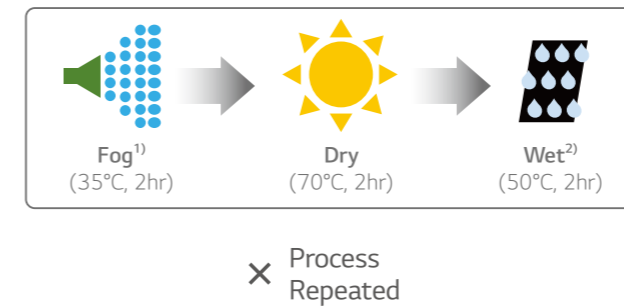
Test process is conducted according to ISO 9227.  
 1) Salty water concentration : NaCl aqueous solution (5%)

Test Result (0.05% Area of defects compared to initial)



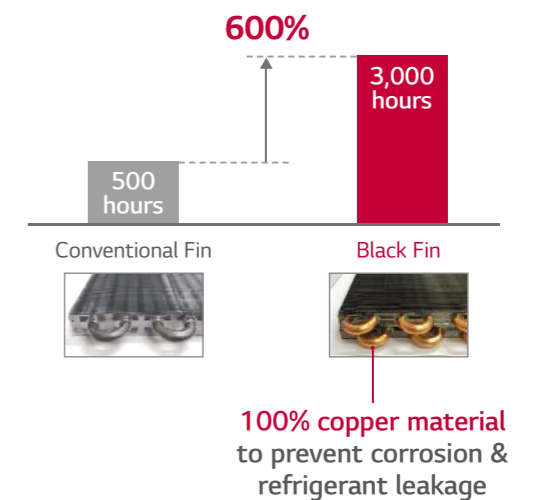
### CCT (Cyclic Corrosion Test)

Test Process



Test process is conducted according to ISO 14933.  
 1) Salty water concentration : NaCl aqueous solution (5%)  
 2) Deionized water  
 ※ Dry condition changed : 60°C, 4hr → 70°C, 2hr

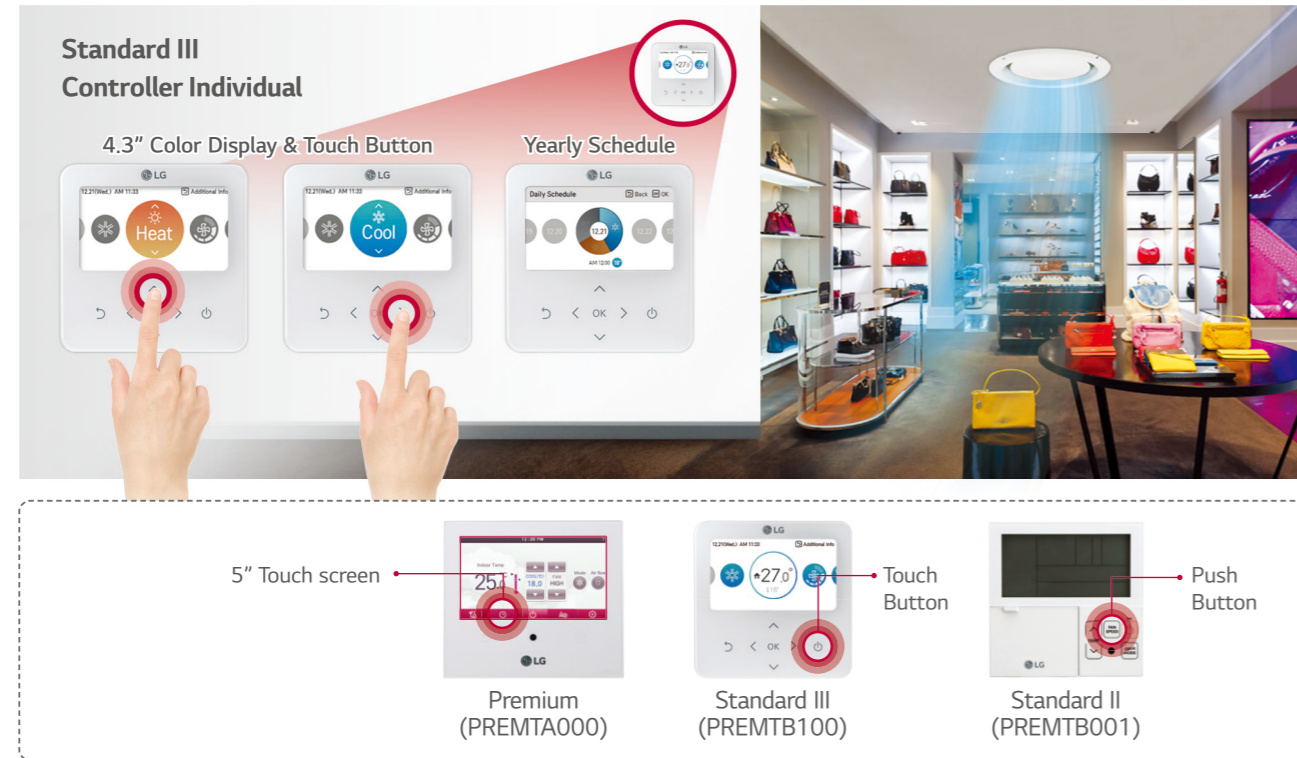
Test Result (0.05% Area of defects compared to initial)



## CUSTOMIZED CONTROL

### NEW DESIGN REMOTE CONTROLLER DESIGN

LG Individual Controller provides intuitive GUI with color LCD and touch type interface button.



※ Installed at field, ordered and purchased separately by the corresponding model name, supplied with separate package.

### GROUP CONTROL

Group Control allows the user to control the operation of multiple units at once. This is the appropriate solution to control a big area as a one zone.



#### Appealing Design

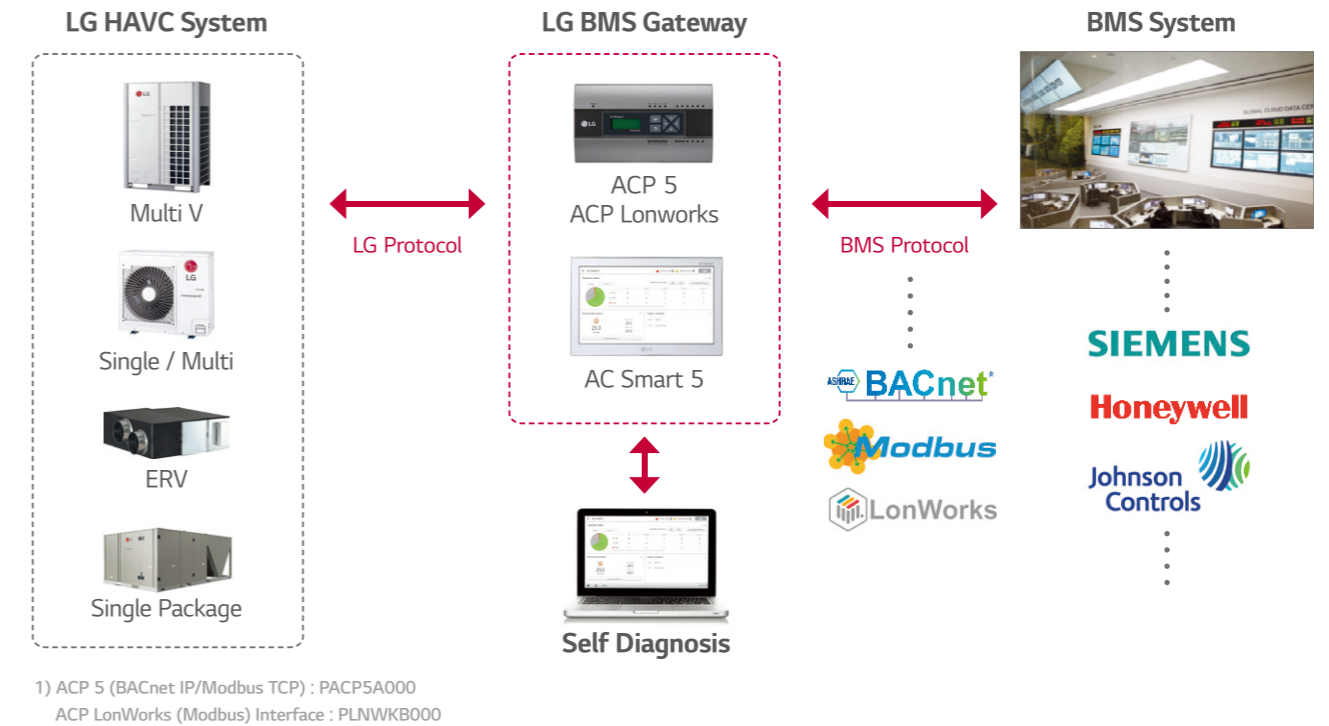


#### Controller & Installation Cost Saving



### 3<sup>rd</sup> PARTY BMS SYSTEM COMPATIBILITY

LG Inverter Single Package can be connected with gateway products for different protocols such as Modbus, BACnet and LonWorks. And gateway product offers self diagnosis interface thanks to smart GUI included.



### ECONOMIZER (MODEL : PKEMD1CA0)

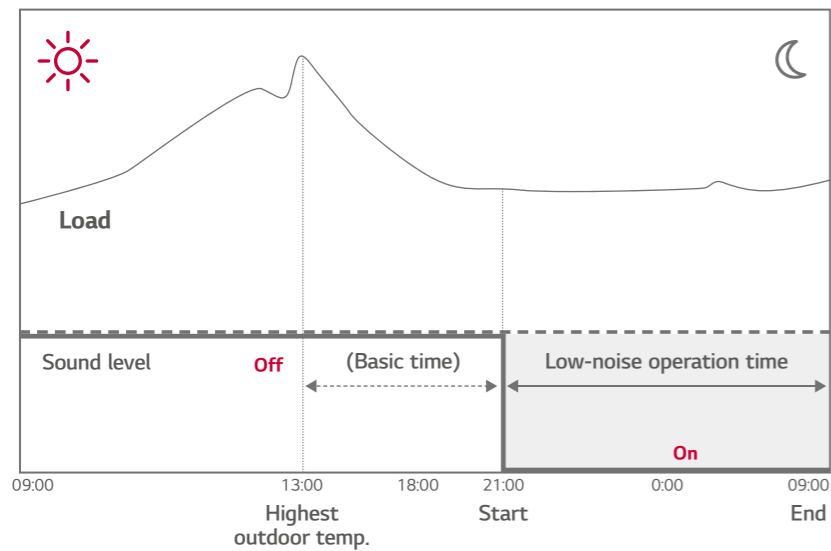
Provides outside air to a room to save energy and improve the air quality indoors.

FUNCTION	SPECIFICATIONS
<ul style="list-style-type: none"> <li>- Differential Enthalpy Control</li> <li>- Includes Outdoor Air Rain Hood</li> <li>- Washable 1" Stainless Filter</li> <li>- Motorized 2-Position and Manual Operation Available</li> <li>- Damper Operation with Wired Remote Controller</li> <li>- AMCA Certified Low Leak Air Damper</li> <li>- Easy maintenance</li> </ul>	<ul style="list-style-type: none"> <li>- Economizer Size : 1,149 x 743 x 597</li> <li>- Filter Efficiency : MERV6</li> <li>- Filter Size : 925 x 508 x 25</li> <li>- Damper Opening Size : 930 x 510</li> </ul>

### LOW NOISE OPERATION

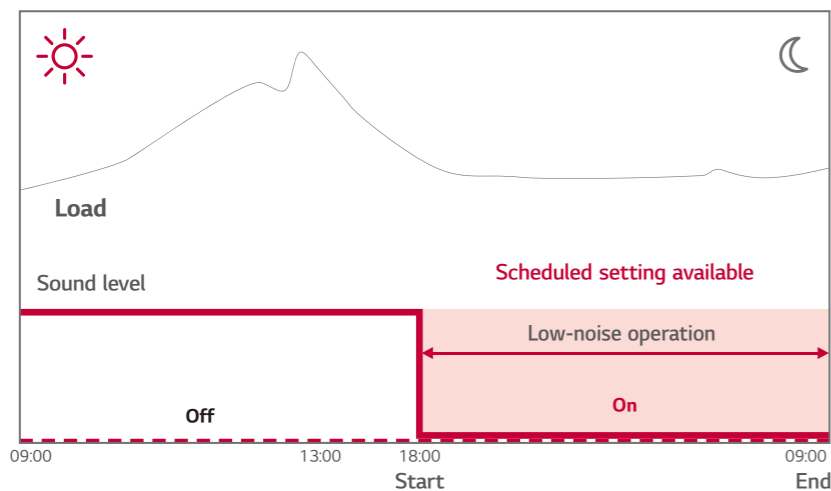
The Low-Noise Operation is possible regardless of the time where noise sensitive areas. Instead of installer setting, the low noise operation is set by a building manager easily.

**Conventional**  
Outdoor Unit setting only



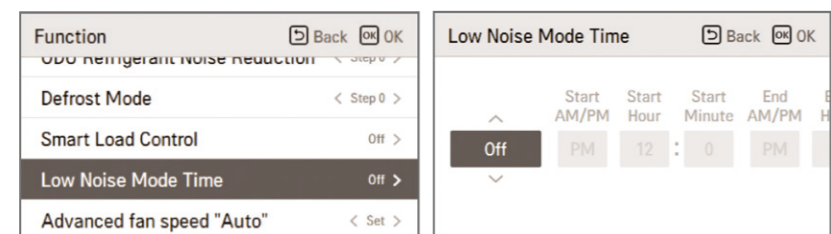
Only outdoor unit dip switch setting is possible.

**New Inverter**  
Standard III wired Remote Controller setting possible



Can be easily activated in the remote controller.

※ Low-Noise Operation requires Standard III wired Remote Controller.



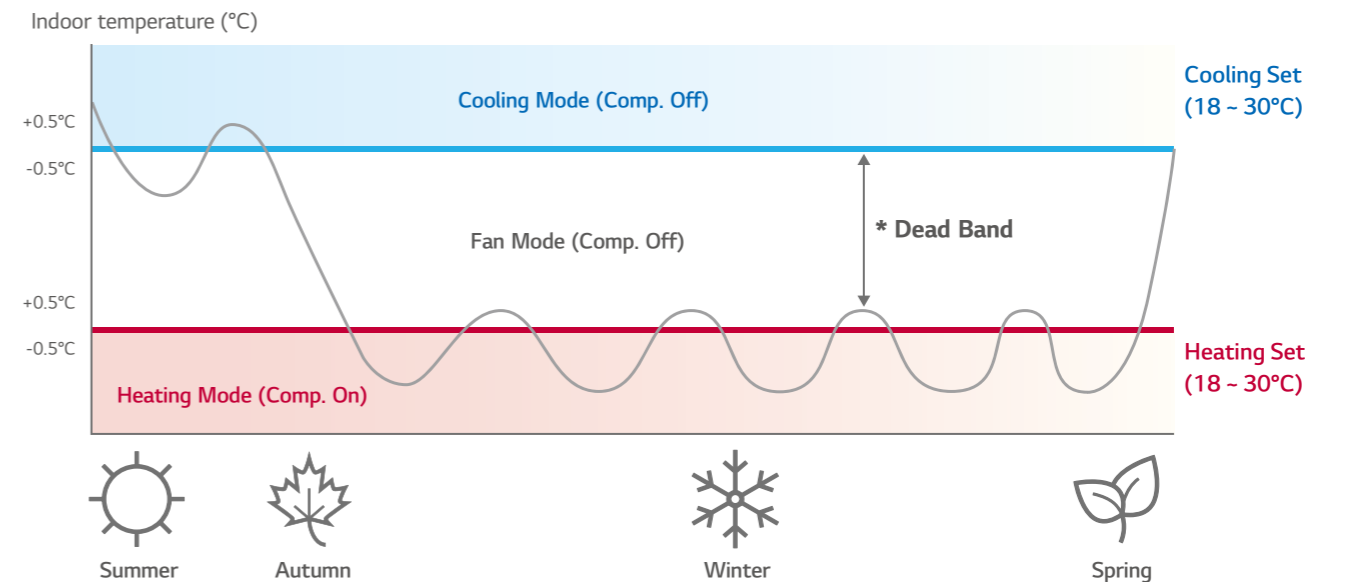
### EASY SCHEDULING

Schedule function allows customers to arrange the operation setting of equipment according to their desired schedule. Customers easily schedule daily, weekly, monthly, yearly plan with a calendar, also an exception date enables patterned schedule.



### 2 SET POINT CONTROL

Auto Changeover can manage room temperature with changing Heating / Cooling mode and Compressor-off automatically. With setting heating and cooling set temperature just one time, comfortable condition will continue at all times. It is also possible to reduce the energy use by broadening the set temperature gap of cooling and heating.



※ 2 Set point Control requires Standard III or Premium wired remote Controller.  
- Model : PREMTB100 (Standard III), PREMTA000 / PREMTA000A / PREMTA000B (Premium)  
\* Minimum temperature gap : Setting value (0 ~ 5°C)

## SPECIFICATION

### COOLING & HEATING



3 Phase, 380 ~ 415V, 50/60Hz

Nominal Capacity			RT	7.5	10	15
Model Name			-	AK-W110LH00	AK-W130LH00	AK-W200LH00
Cooling Capacity	Net Capacity	kW (Rated/Max)	-	26.4 / 34.6	34.3 / 38.1	51.0 / 64.5
		Btu/h (Rated/Max)	-	90,000 / 118,000	117,000 / 130,000	174,000 / 220,000
	Gross Capacity	kW (Rated/Max)	-	27.0 / 35.2	35.2 / 39.0	52.6 / 66.1
		Btu/h (Rated/Max)	-	91,960 / 119,960	120,000 / 133,000	179,500 / 225,500
Power Input	Cooling		kW	7.37 / 15.0	10.08 / 15.5	15.26 / 30.00
EER			Btu/Wh	12.2	11.6	11.4
SEER			Btu/Wh	20	19	18.5
Power Supply			V, ∅, Hz	380-415, 3, 50/60	380-415, 3, 50/60	380-415, 3, 50/60
Running Current	Cooling	Rated	A	11.8	15.9	23.4
Wiring Connections	Power Supply Cable (Included Earth)		No. x mm <sup>2</sup>	4C x 13.3	4C x 13.3	4C x 21.2
Dimensions	W x H x D		mm	1,130 x 1,242 x 2,250	1,130 x 1,242 x 2,250	2,230 x 1,242 x 2,400
	W x H x D		inch	44-1/2 x 48-29/32 x 88-19/32	44-1/2 x 48-29/32 x 88-19/32	87-25/32 x 48-29/32 x 94-1/2
Net Weight			kg (lbs)	440 (970)	440 (970)	705 (1,554)
Compressor (#1, A Cycle)	Type		-	HSS DC SCROLL	HSS DC SCROLL	HSS DC SCROLL
	Motor Output		W x No.	5,500 x 1	5,500 x 1	5,300 x 1
Compressor (#2, B Cycle)	Type		-			HSS DC SCROLL
	Motor Output		W x No.			5,300 x 1
Refrigerant	Type		-	R410A	R410A	R410A
	Precharged Amount (A-circuit)		g	9000	9000	5200.0
	Precharged Amount (B-circuit)					5200.0
	Control		-	EEV	EEV	EEV
Refrigerant Oil	Type		-	FW68D	FW68D	FW68D
	Charged Volume		cc x No.	1,500 x 1	1,500 x 1	1,200 x 1
Indoor Side Fan	Type		-	Plug Fan	Plug Fan	Plug Fan
	Diameter		mm (inch)	Direct	Direct	Direct
	Air Flow Rate	Nominal		m <sup>3</sup> /min	85	113
Nominal			ft <sup>3</sup> /min	3,000	4,000	6,000
Dehumidification Rate			ℓ/h	9.1	12.1	18.1
Outdoor Side Heat Exchanger	Fin Type		-	Black fin / Wide Louver plus	Black fin / Wide Louver plus	Black fin / Wide Louver plus
Outdoor Side Fan	Fan Type		-	Propeller	Propeller	Propeller
	Motor Type		-	BLDC	BLDC	BLDC
Sound Pressure Level	Cooling	Rated	dB(A)	80	80	80
Drain Connection Size			-	Male NPT 3/4"	Male NPT 3/4"	Male NPT 1"
Operation Range (Outdoor Temperature)	Cooling	Min. - Max.	°C DB (°F DB)	-5 - 54 (23.0-129.2)	-5 - 54 (23.0-129.2)	-5 - 54 (23.0-129.2)

\* In case of Heatpump model, AHRI certification program is limited up to 20RT model. so, LG will provide LG laboratory test report of 25RT model.

### COOLING & HEATING



3 Phase, 380 ~ 415V, 50/60Hz

Nominal Capacity			RT	20	25
Model Name			-	AK-W270LH00	AK-W320LH00
Cooling Capacity	Net Capacity	kW (Rated/Max)	-	70.0 / 90.3	81.0 / 101.1
		Btu/h (Rated/Max)	-	240,000 / 308,000	276,000 / 345,000
	Gross Capacity	kW (Rated/Max)	-	72.3 / 92.3	83.6 / 103.8
		Btu/h (Rated/Max)	-	246,900 / 314,900	285,200 / 354,200
Power Input	Cooling		kW	21.3 / 32.1	26.0 / 39.2
EER			Btu/Wh	11.3	10.6
SEER			Btu/Wh	19.0	18.3
Power Supply			V, ∅, Hz	380-415, 3, 50/60	380-415, 3, 50/60
Running Current	Cooling	Rated	A	33.0	40.0
Wiring Connections	Power Supply Cable (Included Earth)		No. x mm <sup>2</sup>	4C x 33.6	4C x 33.6
Dimensions	W x H x D		mm	2,230 x 1,242 x 3,520	2,230 x 1,242 x 3,520
	W x H x D		inch	87-25/32 x 48-29/32 x 138-19/32	87-25/32 x 48-29/32 x 138-19/32
Net Weight			kg (lbs)	915 (2,017)	915 (2,017)
Compressor (#1, A Cycle)	Type		-	HSS DC SCROLL	HSS DC SCROLL
	Motor Output		W x No.	5,500 x 1	5,500 x 1
Compressor (#2, B Cycle)	Type		-	HSS DC SCROLL	HSS DC SCROLL
	Motor Output		W x No.	5,500 x 1	5,500 x 1
Refrigerant	Type		-	R410A	R410A
	Precharged Amount (A-circuit)		g	9000.0	9000.0
	Precharged Amount (B-circuit)			9000.0	9000.0
	Control		-	EEV	EEV
Refrigerant Oil	Type		-	FW68D	FW68D
	Charged Volume		cc x No.	1,500 x 1	1,500 x 1
Indoor Side Fan	Type		-	Plug Fan	Plug Fan
	Diameter		mm (inch)	Direct	Direct
	Air Flow Rate	Nominal		m <sup>3</sup> /min	227
Nominal			ft <sup>3</sup> /min	8,000	9,200
Dehumidification Rate			ℓ/h	24.1	30.1
Outdoor Side Heat Exchanger	Fin Type		-	Black fin / Wide Louver plus	Black fin / Wide Louver plus
Outdoor Side Fan	Fan Type		-	Propeller	Propeller
	Motor Type		-	BLDC	BLDC
Sound Pressure Level	Cooling	Rated	dB(A)	77	77
Drain Connection Size			-	Male NPT 1"	Male NPT 1"
Operation Range (Outdoor Temperature)	Cooling	Min. - Max.	°C DB (°F DB)	-5 - 54 (23.0 - 129.2)	-5 - 54 (23.0 - 129.2)

\* In case of Heatpump model, AHRI certification program is limited up to 20RT model. so, LG will provide LG laboratory test report of 25RT model.