LG HEATING

PRODUCT CATALOGUE 2019

LG
Life's Good

LG HEATING PRODUCT

CATALOGUE 2019

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INTRODUCTION

RESIDENTIAL SOLUTION

COMMERCIAL SOLUTION

HEAT PUMP TECHNOLOGY

LG is a true leader of heat pump technology.

As a leading HVAC supplier, LG's heating product portfolio comprises a wide range of highly energy efficient renewable energy systems, Providing the right heating solution for any requirement and building.

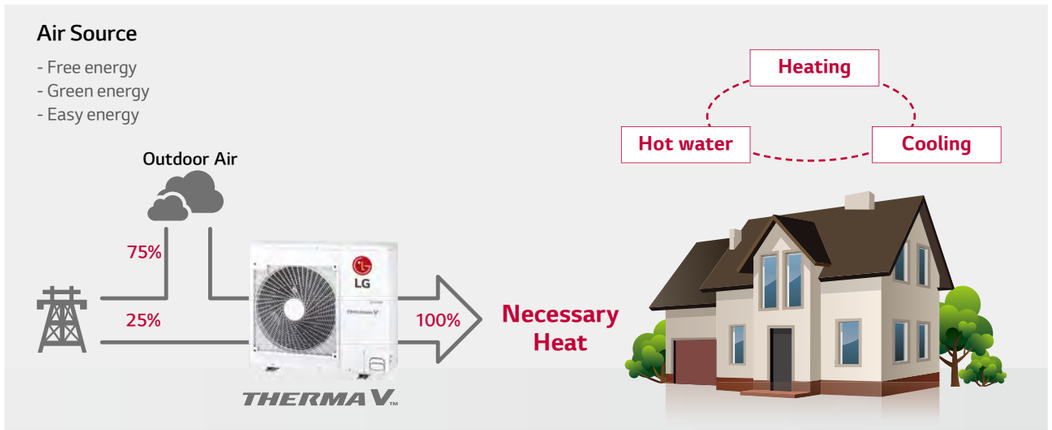
What is Heat Pump System?

Modernized Technology : Replacing conventional boiler

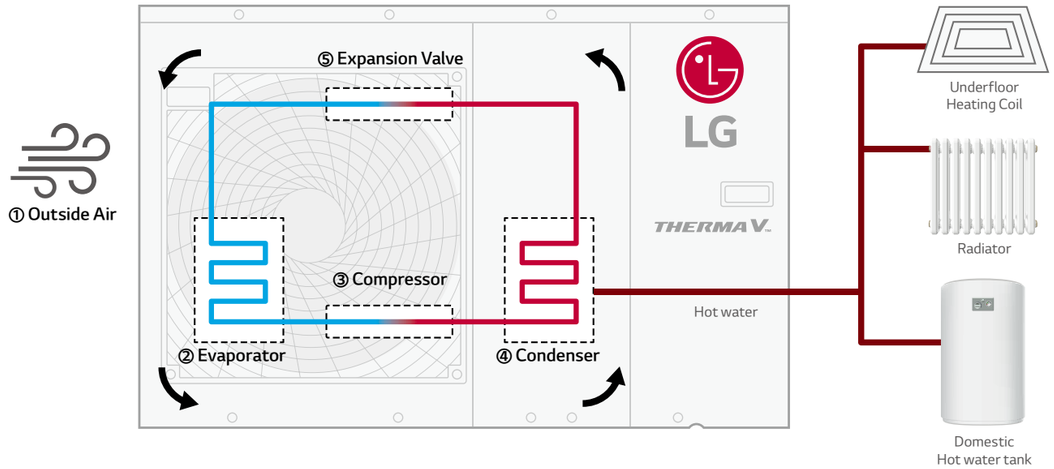
For a long time, conventional heating systems have been used gas, oil, or electric heaters.
In such conventional heating systems, environmental aspects such as fossil fuel use and environmental pollution have been overlooked. In recent years, interest in these environmentally friendly devices has been increasing, and in order to meet these market demands, LG has further developed their heat pump technology to produce the most efficient, environmentally friendly products in the industry.

Renewable Technology : Utilizing renewable energy

The heat pump is a device that transforms energy from the air, ground and water to useful heat.
This transformation is done via the refrigerant cycle. In other words, it refers to a technique for pumping heat from renewable energy resources such as air or water. The energy required to produce the necessary heat compared to boilers using conventional fossil fuels such as gas and oil is one in every four quarters, and the remaining three quarters are utilized in renewable energy such as water and air.



How do Air to Water Heat Pumps Work?



① Outside Air
Heat is extracted from the outside air.

② Evaporator
As low temperature liquid refrigerant absorbs the heat energy from air side, it changes from liquid to vapor phase.

③ Compressor
The vaporized refrigerant flow into compressor. The electric energy to operate the compressor is converted to heat and added to the refrigerant.

④ Condenser
High temperature refrigerant gas flows into the heat exchanger and Convey heat energy to water by heat exchange between refrigerant and water.

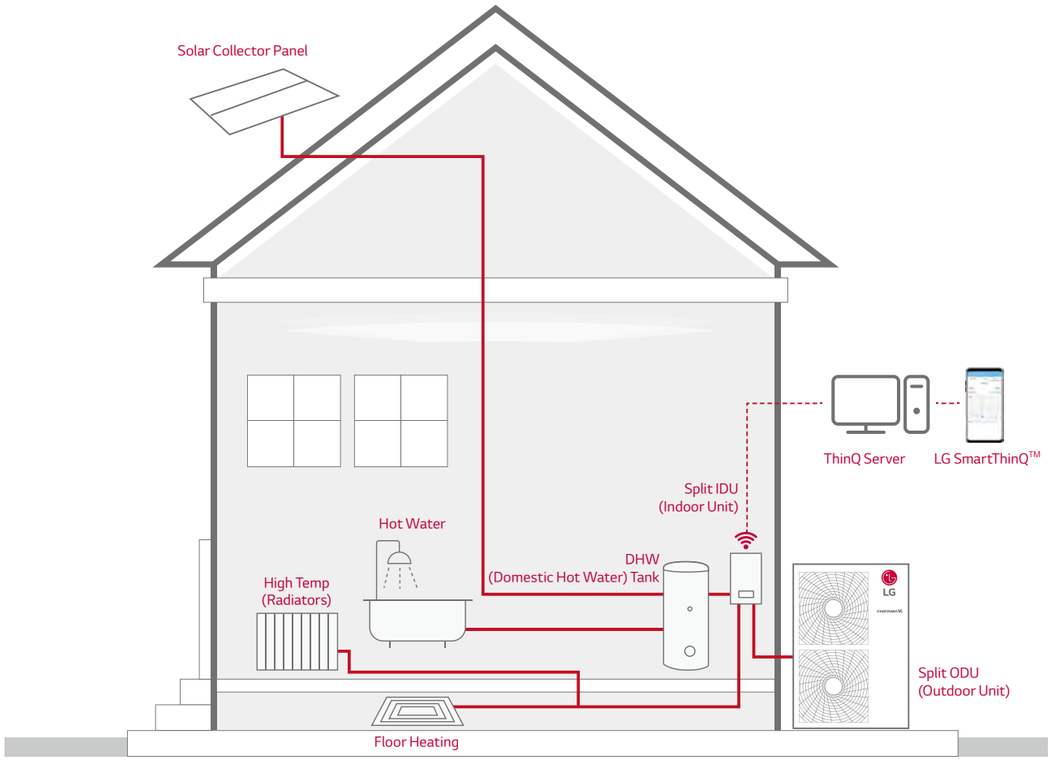
⑤ Expansion Valve
High pressure liquid refrigerant flow through the expansion valve to restore the refrigerant to original condition.

LG HEATING SOLUTION

LG heating solution provide a greener and more energy performance building for your home, and office through continuous research and development of green energy technologies such as R32 refrigerant and R1 scroll compressor.

Residential Building

LG's residential heating solution can cover space heating and hot water demand of house at the same time. Compared to conventional boiler system, it is more efficient and reduces CO_2 emission as it uses renewable energy from the outside air. Furthermore, these heating solutions can be connected with smart control solutions, LG SmartThinQ™.

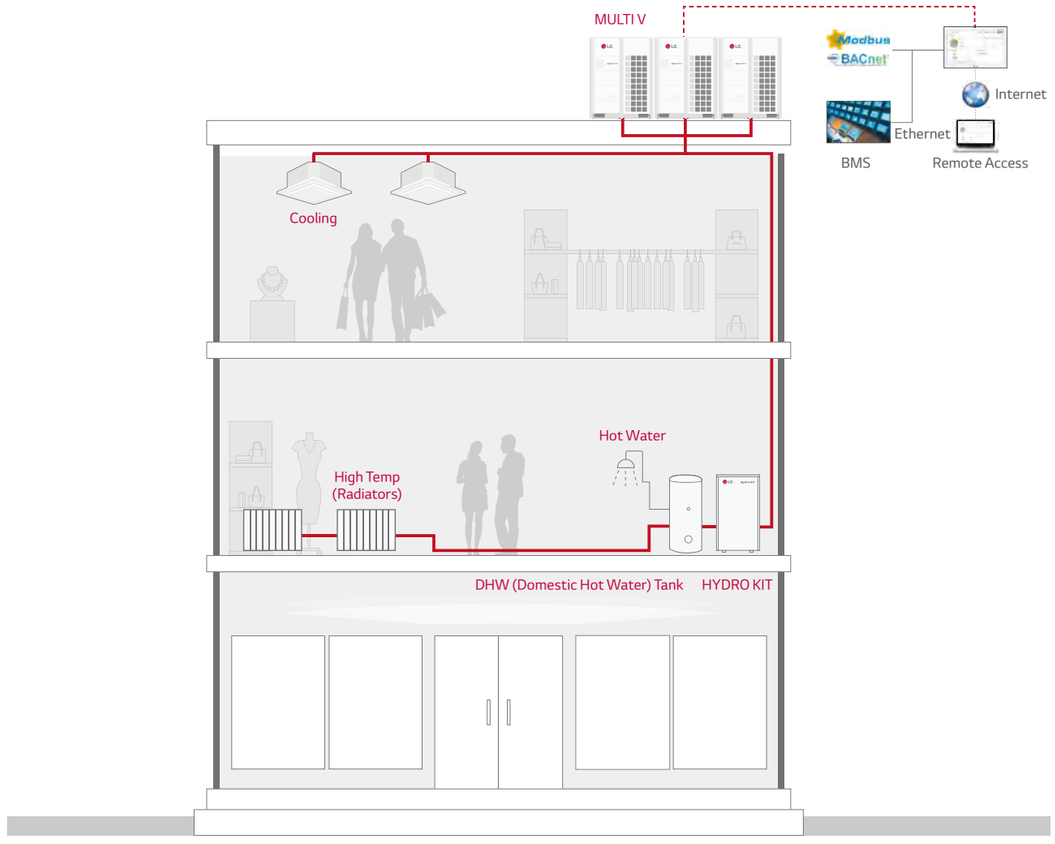


THERMA V (Air to Water Heat Pump)

- Application : Residential
- Heating Capacity (kW) : 1 phase : 5 / 7 / 9 / 12 / 14 / 16
  3 phase : 12 / 14 / 16

Commercial Building

LG's commercial heating solution can be provided for all kinds of commercial applications such as office, hotel, and spa. Our solution reduces energy consumption and CO_2 emission. Regardless of season, heating, hot water, and cooling can be provided at the same time by using LG's high VRF Technology and inverter scroll chiller heat pump.



MULTI V (VRF) with HYDRO KIT

- Application : Commercial
- Heating Capacity (kW) : 22 ~ 268

Inverter Scroll Chiller Heat Pump

- Application : Commercial & Industrial
- Heating Capacity (kW) : 70 ~ 2,460*

* Group control of 10 chiller units.

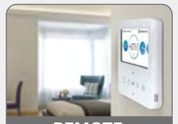
LG HEATING CONTROL SYSTEM

Residential Building

LG's control system provides a variety of solutions that save operational costs and deliver efficient energy control. Remote Standard Controller III (RS3) with relevant accessories offers not only simple interface to make it easier to control but also diverse information and management function.

MOBILE REMOTE CONTROL

- LG Mobile App. control (SmartThinQ™)
- Operation schedule
- Error check



REMOTE CONTROLLER

- 4.3" Color display
- Easy interface
- Multi language

Individual Control

DRY CONTACT FOR THERMOSTAT

- Interface for 3rd party thermostat
- On/Off and operation mode control
- Operation and error status monitor

INTERFACE

- Annual operation schedule
- Operation history
- Easy commissioning

ENERGY MONITOR

- Power consumption check
- Produced heat energy check
- Yearly trend

Commercial Building

As an advanced central controllers, AC Smart 5 offers BMS integration via BACnet IP or Modbus TCP as well as its own smart management function and flexible interface for user's each accessing device.

INTERFACE

- 10.2" Touch screen
- Intuitive interface
- Compact installation
- Error email alarm

MOBILE REMOTE CONTROL

- Web access control based on HTML5
- Optimized interface for PC, tablet and smartphone

ENERGY MONITORING

- Operation trend
- Power consumption check

Centralized Control

CHILLER HEAT PUMP CONTROL

- Chiller heat pump control
- Operation schedule
- Cycle monitor

DEVICE INTERLOCK

- Building facility interlocking with automatic control logic

BMS Integration

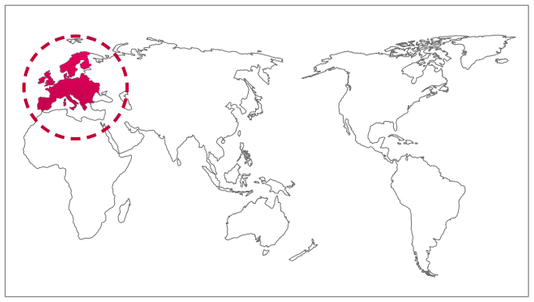
- BACnet IP and Modbus TCP protocol integration

LG AS A TRUSTED PARTNER

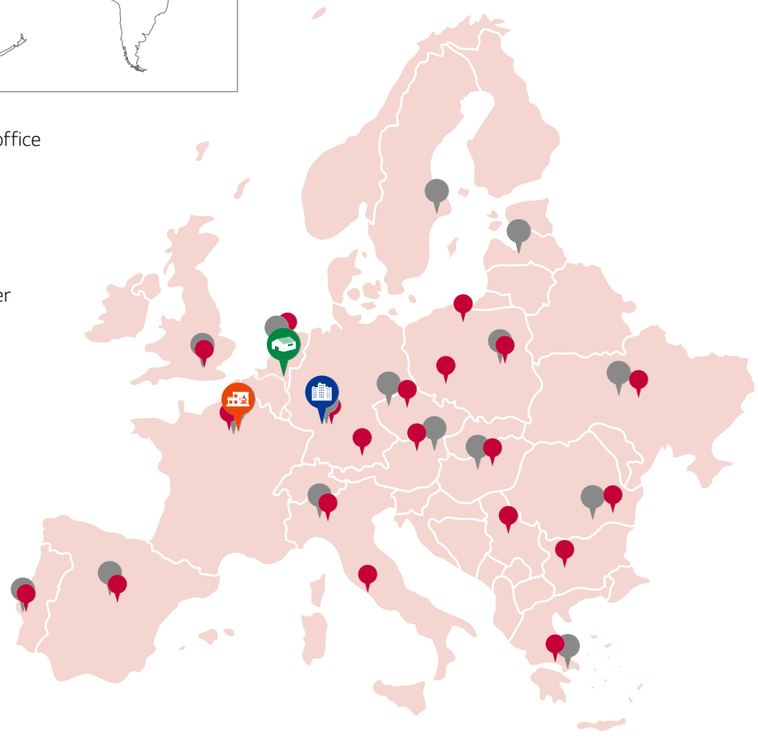
Europe Business Infra & Global Production Site

Most of LG's heat pump products are manufactured in Korea to ensure high quality production.
The highest quality LG provides will be enough to satisfy your customers. In addition, 16 sales offices and 20 academies in Europe are committed to assuring a solid support for your business success.
Our highly competitive products produced in Korea are delivered through the European distribution center, ensuring a stable supply of products.

Through our energy lab in Europe, LG is developing heat pump technology that is optimized for European climate and weather, along with continuous product performance verification.



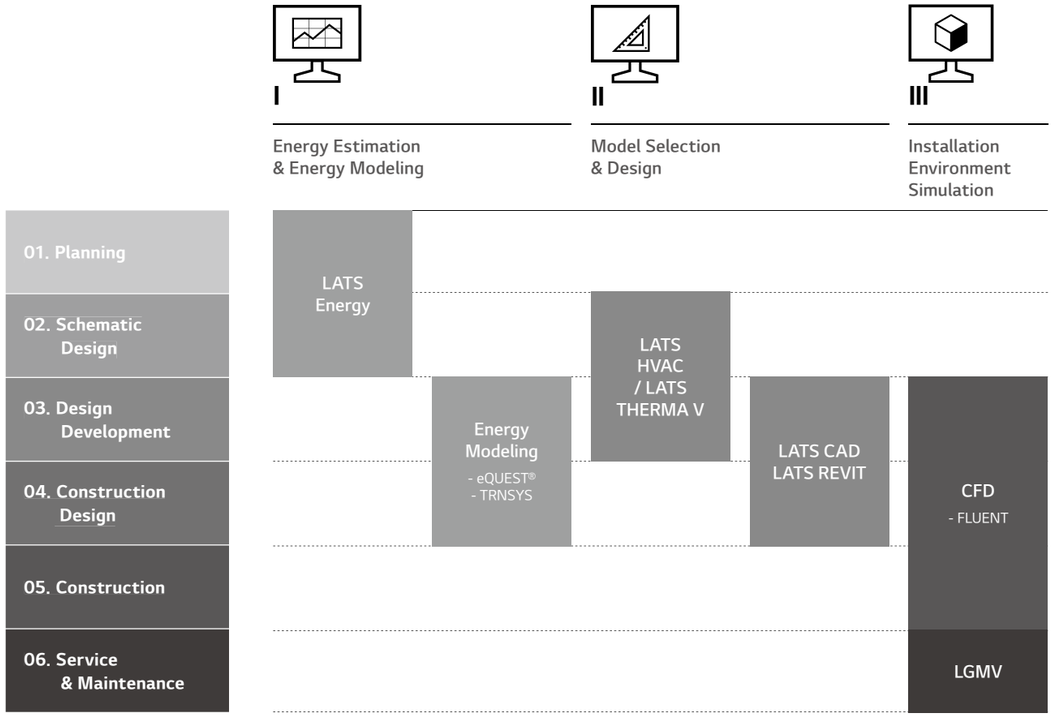
- Europe B2B regional head office
- National sales office
- LG academy
- European distribution center
- Europe energy lab



Professional Engineering Tools

From planning to service & maintenance, a project goes through many stages from the beginning to the end of its lifecycle. Along those stages, various engineering tools are applied to solve the diverse issues happening in each stage, with the most optimal solution possible. Given the usage of such tools, buildings are effectively designed, built, supervised, and maintained throughout their lifecycle. Dedicated to provide the best engineering support, LG electronics offers several engineering tools. The LATS* program series has been developed to offer the best tool for LG heating systems, providing our customers a faster, easier, and a more accurate way in everyday duties of Model-selection, designing, and many more.

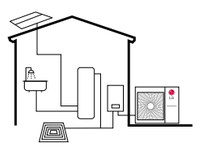
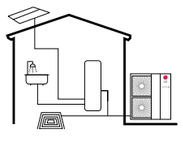
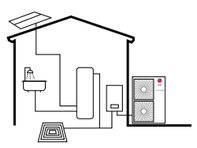
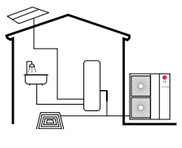
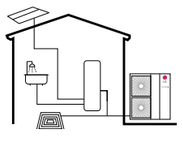
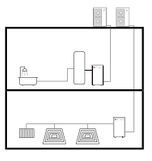
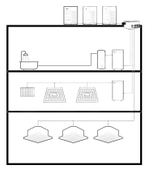
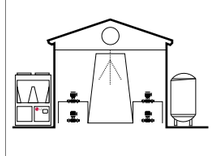
* LATS : LG Air-conditioner Technical Solution.



LATS THERMA V

LATS THERMA V is a model selection program of LG THERMA V products, enabling an accurate and quick selection on the best model suitable to each house.
In addition to model selection, faster energy simulation and cost comparison to other system is possible. Furthermore, customer is easily able to simulate payback comparing conventional system such as gas boiler, electric boiler by using LATS THERMA V.

LG HEATING SOLUTION OVERVIEW

	Residential						Commercial		
Vertical Segment (Target)									
	New Houses		Renovation		Renovation	Apartment & Collective housing	Office Building	Hotel & Hospital	City Farm
Requirement	**For Designer & Installer** - Space heating, domestic hot water, cooling, swimming pool - Easy installation - Energy metering - Ventilation (Option)		**For Designer & Installer** - Space heating, domestic hot water, cooling - Using existing facilities (Radiator, Boiler) - High water temperature - Easy installation		**For User** - High energy efficiency - Silent operation - Control integration (Boiler, AWHP)	**For Designer & Installer** - Space heating, domestic hot water, cooling - Flexible design and application - Easy installation - Energy metering	**For Designer & Installer** - Space heating, domestic hot water, cooling - Flexible design and application - Energy saving with continuously operation	**For Designer & Installer** - Large amount of domestic hot water - Space Heating, domestic hot water, cooling - Flexible design and application - Energy saving with continuously operation	**For Designer & Installer** - Large amount of domestic hot water - Energy saving with continuously operation
	For Designer & Installer - High energy efficiency - Reliable operation - Silent operation - Simple & Easy control					**For User** - Silent operation - High energy efficiency - Reliable operation - Simple & Easy control	**For Designer & Installer** - High energy efficiency - Individual control - Reliable operation	**For Designer & Installer** - High energy efficiency - Individual zone control - Reliable operation	**For Designer & Installer** - High energy efficiency - Reliable operation with proper water temperature
LG Approach	THERMA V (R32 Split M/T, IWT)	THERMA V (R32 Mono M/T)	THERMA V (R410 Split L/T, IWT)	THERMA V (Split H/T)	THERMA V (R32 Mono)	MULTI V S H/R with HYDRO KIT	MULTI V 5 with HYDRO KIT		Inverter Scroll Chiller Heat Pump
									
									
	R32 Mono & Split : 5 / 7 / 9kW (1 phase) IWT : 9kW (1 phase)		12 / 14 / 16kW (1&3 phase)	16kW (1 phase)	12 / 14 / 16kW (1&3 phase)	M/T 14, 32kW (1 phase) H/T 14, 25kW (1 phase)	M/T 14, 32kW (1 phase) H/T 14, 25kW (1 phase) Capacity variation depends on combination of ODU		70 ~ 246kW
	- High energy efficiency - LG own Wi-Fi solution (SmartThinQ™) - Easy commissioning by PC tool (LG heating configurator)	- High energy efficiency - New interface (RS3 remote controller) - All in one concept (No refrigerant piping work)	- High energy efficiency - LG own Wi-Fi solution (SmartThinQ™) - Easy commissioning by PC tool (LG heating configurator)	- Cascade 2 stage compression can produce max. 80°C - Suitable for old radiator	- High energy efficiency - New interface (RS3 remote controller) - All in one concept (No refrigerant piping work)	- Saving cost through high efficiency - Night silent operation - Smartphone monitoring & control	- Energy saving through MULTI V 5 heat recovery - Easy to install as it uses a compact and modular structure - High temperature concept of HYDRO KIT		- High efficient inverter technology - Continuous heating operation - Low noise level
Benefit	- Energy saving by utilizing renewable energy and high efficient equipment - Energy monitoring on time and remote control - Economic support by incentive program		- Hybrid operation with existing facilities (Radiator, Boiler) - Quick and easy installation - Economic support by incentive program			- Operation cost saving - Simultaneous heating and cooling operation - Saving valuable floor space	- Operation cost saving - Simultaneous heating and cooling operation - Applicable for various building type - Convenient installation & maintenance	- Operation cost saving - Simultaneous heating and cooling operation - Applicable for various part load condition - Convenient installation & maintenance	- Operation cost saving - Convenient installation & maintenance

Residential Solution

The Green Choice for Smart Customers : THERMA V

Expecting Ultimate Heating Energy Efficiency, Performance and User Convenience

If you think yourself as smart consumer, you might have faced with some struggles on which AWHP system you should have to choose. The key when choosing would utterly be if it performs well and easily controllable while meeting the strengthened environmental regulations. And considering environmental regulations have been tightened year after year, it's anything but easy for smart consumers – especially for those who are living in Europe – to keep up with the strengthened F-Gas regulations which newly apply across the Europe region since January 1, 2015.

For those who are seeking to meet this tightened regulations, refrigerant R32 takes center stage for the new smart solution as it has much less global warming potential (GWP) than the current refrigerant, R410A. And to live up to smart consumers' needs that energy efficiency comes along with high performance, LG can give smart consumers the crystal clear solution with the THERMA V R32 Products that fulfills the high standard of regulations while bringing additional benefits through increased levels of efficiency and performance.

- Ultimate energy efficiency : A+++ in the ErP energy labelling regulation, Wide operation range, Reduced noise level
- Excellent performance : R1 Compressor embedded, high heating capacity at low ambient temperature
- User convenience : LG SmartThinQ™ Wi-Fi control, Convenient scheduler, Wider connectivity, Energy monitoring

Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.

THERMA V

WHAT IS LG THERMA V?

LG'S Advanced Heating Technology

THERMA V is LG's air to water heat pump system, especially designed for the modernized houses (New and renovated houses). THERMA V can be used as a multi-purpose solution for space heating, cooling and hot water. Even more remarkable thing is LG's advanced heating technology, market leading technology that can minimize energy consumption than any solution in the market.

Space Heating

The wide span THERMA V systems with high efficiency can cover heating loads of various types of houses.

Domestic Hot Water

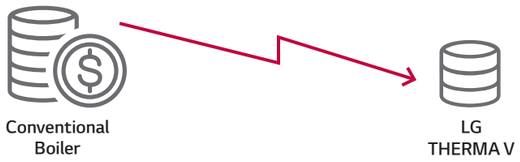
As the hot water efficiency becomes more and more important, THERMA V can provide an optimized solution for this.

Cooling

THERMA V is a single device that can also provide a cooling solution besides the heating and hot water provided by boilers.

High Efficiency and Low CO_2 Emission

Energy Cost Saving



CO_2 Emission

Benefits of LG THERMA V

For House Owner

- Energy saving by utilizing renewable energy and high efficient equipment.
- Simultaneous operation for heating and cooling.
- Reusability existing heating installation with radiator, boiler, etc.
- Economic support by incentive program.
- Lower investment cost.
- Energy monitoring and remote control.

For Installer

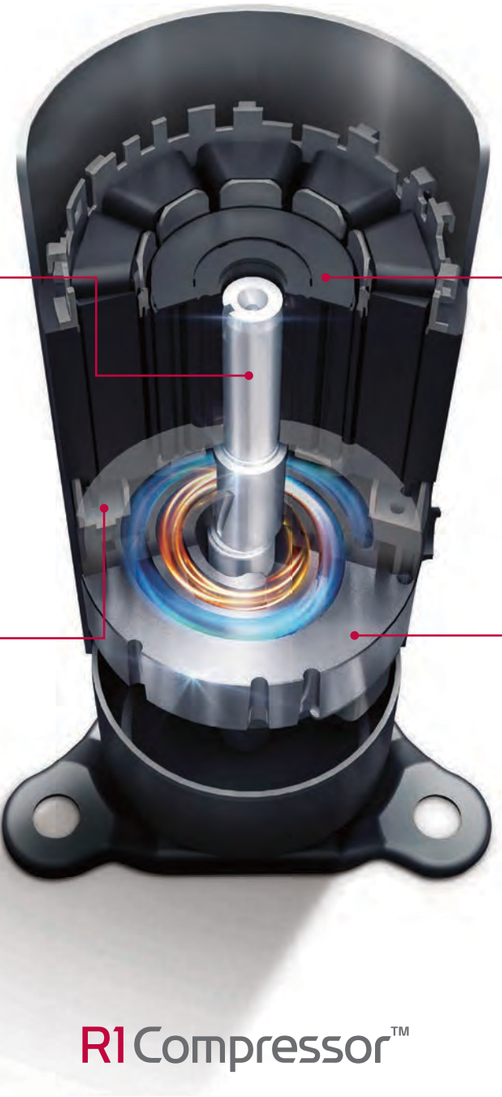
- Time saving by fast & easy installation.
- Simultaneous heating and cooling operation.
- Excellent heating performance at low ambient temperature.
- Less men power for carrying. (2 people)
- Low Repair Cost and less breakdowns with long lasting parts.
  Only 1 controller can handle all our product. (Need to less training)

For End-user

- Simple to use. (Especially for senior people)
- Higher comfort by user-friendly controller.
- Higher reliability by long lasting parts and less breakdowns.
- Reduce the noise level with night silent operation.
- Confidence for the green and sustainable solution. (High efficiency)

R1 COMPRESSOR

R1 Compressor



Shaft-through Structure & Support both ends of shaft

- Solid compressor operation assuring higher durability

Extended Operation Range (Max. 150Hz)

- Higher heating performance

Centrifugal oil return & Oil separating guide for oil discharge reduction

- Higher energy efficiency (*SEER 20% ↑)

Bottom Compression & Simple Structure

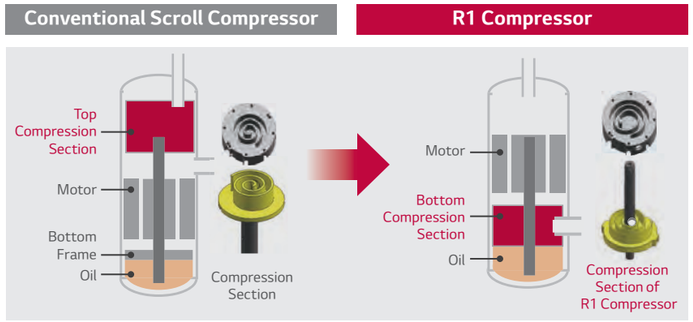
- Lower noise & vibration (**Max. 4dB(A) ↓)
- Less weight (**20% ↓)
- Superior reliability

R1 Compressor™

* LG Internal test result, Based on single split 10kW cassette.
** LG Internal test result, Based on conventional compressor. (Rotary type GPT442M)

R1 Compressor

R1 Compressor is applied for high efficiency and reliability. This compressor is more advanced compared to the conventional one. Especially tilting motion of scroll has been improved. Further, the operation range is improved compared to the conventional type.

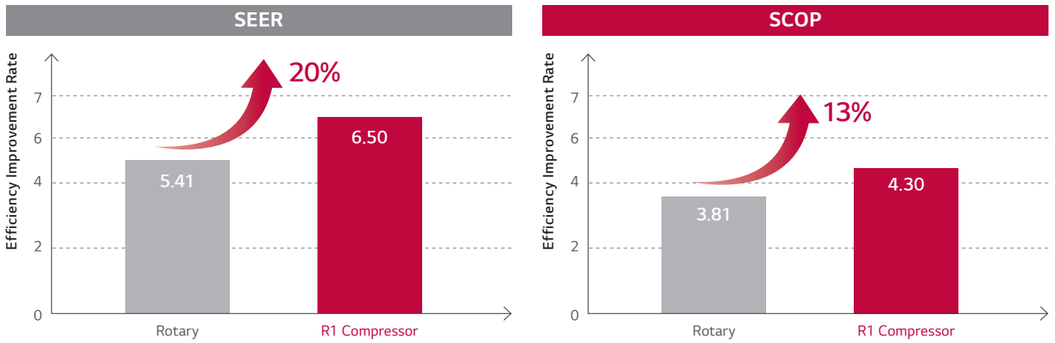


- Scroll compressor with simple structure.
- High efficiency.
  (Low load at low speed / Total efficiency)
- Low noise.
  (High speed possible)
- Improved tilting motion of scroll.
- 20% weight reduction.
  (vs. Conventional compressor)

* Applied models : R32 Monobloc (5 ~ 16kW), R32 split (5 ~ 9kW)

Seasonal Energy Efficiency

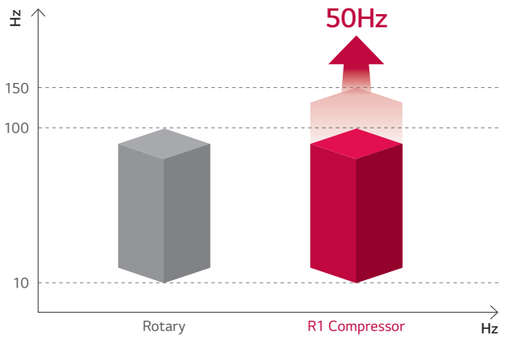
SEER 20%, SCOP 13% improvement. (vs. Rotary)



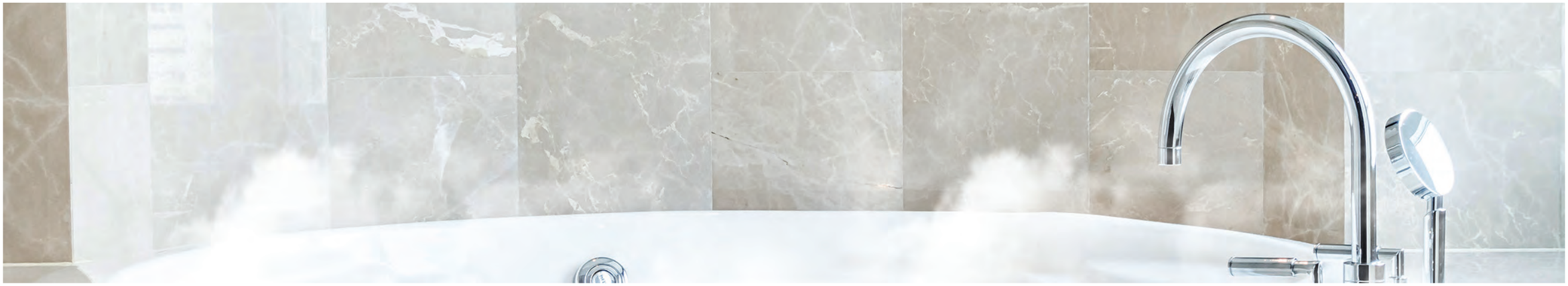
* LG Internal test result, Based on single split 10kW CST.

Wide Operation Range

- Optimized for various cooling & heat load operation.
- World best compressor speed. (Up to 150Hz)
- Optimized for even low load operation. (Down to 10Hz)
  (Efficiency increases / Improved comfort)



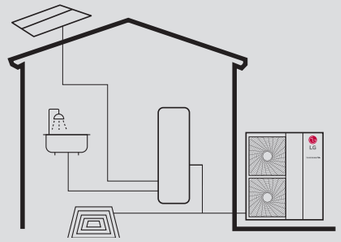
THERMA V™ Line Up



		Refrigerant	Capacity(kW)	5	7	9	12	14	16
Monobloc Mid Temp. (65°C)		R32	1Ø 230V	HM051M.U43	HM071M.U43	HM091M.U43	HM121M.U33	HM141M.U33	HM161M.U33
			3Ø 400V				HM123M.U33	HM143M.U33	HM163M.U33
Split Mid Temp. (65°C)	Hydro Box Type		1Ø 230V	NEW HN0916M.NK4	NEW HN0916M.NK4	NEW HN0916M.NK4			
				NEW HU051MR.U44	NEW HU071MR.U44	NEW HU091MR.U44			
Split Low Temp. (57°C)	Hydro Box Type	R410A	1Ø 230V				HN1616.NK3	HN1616.NK3	HN1616.NK3
							HU121.U33	HU141.U33	HU161.U33
			3Ø 400V				HN1639.NK3	HN1639.NK3	HN1639.NK3
							HU123.U33	HU143.U33	HU163.U33
	DHW Tank Integrated Type		1Ø 230V			HN1616T.NB0	HN1616T.NB0	HN1616T.NB0	HN1616T.NB0
						HU091.U43	HU121.U33	HU141.U33	HU161.U33
			3Ø 400V				HN1616T.NB0	HN1616T.NB0	HN1616T.NB0
							HU123.U33	HU143.U33	HU163.U33
Split High Temp. (80°C)		R410A + R134a	1Ø 230V						NEW HN1610H.NK3
									NEW HU161HA.U33

THERMA V R32

MONOBLOC



Excellent Performance

- High heating performance even at low temperature.
- Wide operation range.
- Reduced noise level.

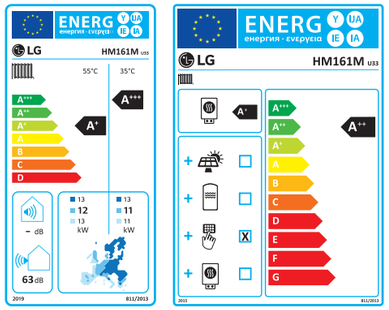
User Convenience

- Controller with intuitive interface.
- Various temperature control options.
- LG own Wi-Fi solution. (SmartThinQ™)
- 2nd Heating circuit.

Easy Installation & Maintenance

- All in one concept. (No refrigerant piping work)
- Easy commissioning by PC tool. (LG heating configurator)

Energy Labeling



* 16kW 1Ø model.
* A+++ to D Scale.

Monobloc Concept

THERMA V Monobloc is a fully packaged piece of equipment, where the indoor and outdoor unit are combined as one module. Therefore, there is no need for refrigerant piping work since Monobloc unit located outside is connected by only water piping. Further, additional water side items such as PHE, expansion tank, water pump are included in the package.

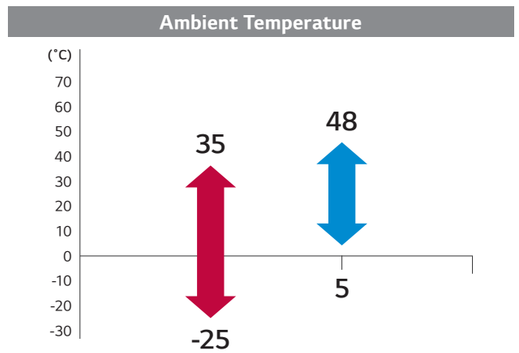
Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.

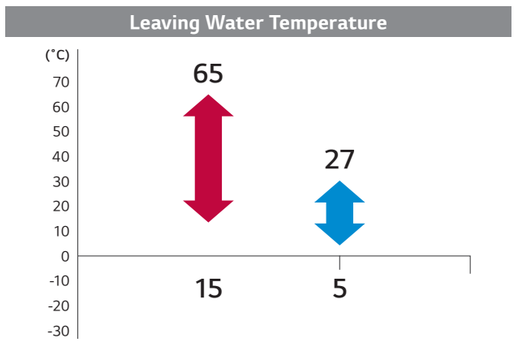
Capacity Range (Heating & Cooling)

Monobloc

Capacity Range [kW]	5	6	7	8	9	10	11	12	13	14	15	16	17
Heating Capacity	●		●		●			●		●		●	
Cooling Capacity	●		●		●			●		●		●	

Operation Range (Heating & Cooling)





EXCELLENT PERFORMANCE

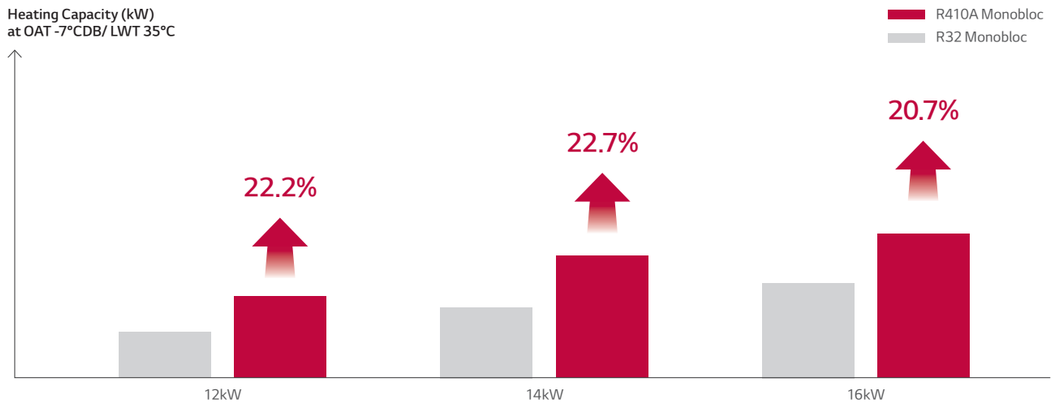
Low GWP Refrigerant R32

Comparison & Benefit

	R32	R410A
GWP Global Warming Potential	675	2088
Less Amount Gas Charge	 20% 	
More System Performance	R32 systems also use less refrigerant per kilowatt of capacity delivered.	
Easy Refrigerant Recycle	Single component	Mixture R32 50% / R125 50%
High Capacity	High refrigerant compression rates lead to high capacity as compared to existing refrigerant R22, and R410A.	

High Heating Performance even at Low Temperature

The R32 Monobloc provides excellent heating performance – especially at low ambient temperature. Heating capacity of R32 Monobloc at low ambient temperature is improved more than 20% compared to R410A Monobloc.

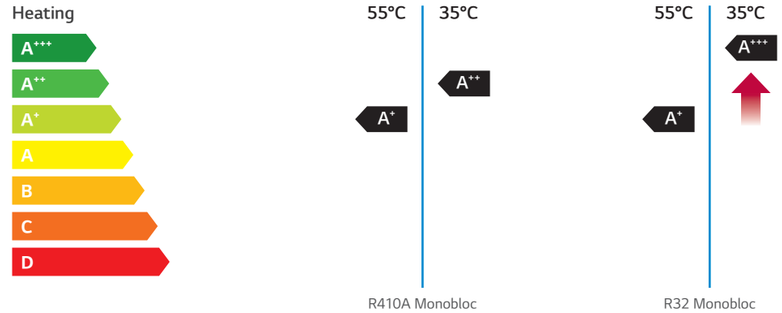


Note
1. LWT : Leaving Water Temperature, OAT : Outdoor Air Temperature.

High Energy Efficiency

The energy label directive is a key factor of selecting heating device in Europe heating market.
The R32 Monobloc type has an energy label rating A+++ in ErP energy labeling regulation.

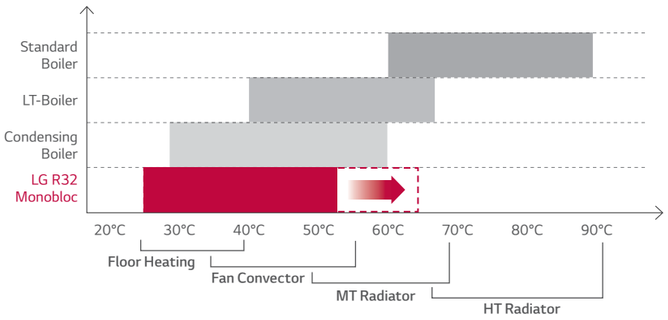
ErP Energy Labeling



Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.

Wide Operation Range

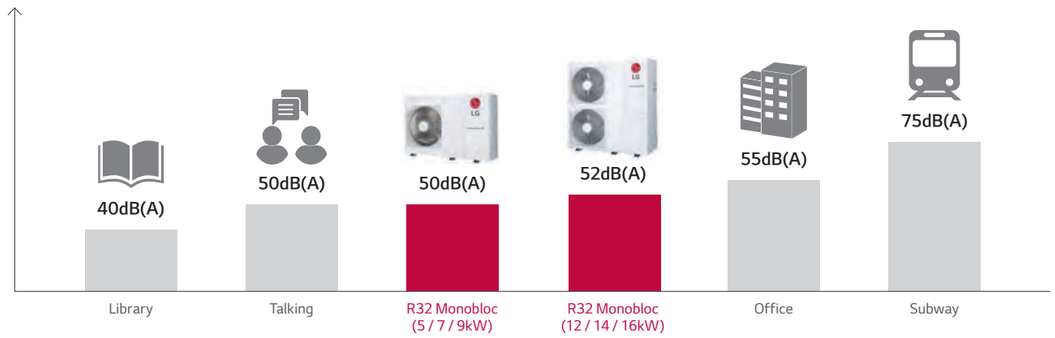
Due to the Leaving Water Temperature (LWT) up to 65°C, mid temperature radiator range can be fully covered. As a result, R32 Monobloc has high competitiveness for replacement case as well as new case.



Reduced Noise Level

The R32 Monobloc reduces noise level compared to previous models.

Sound Pressure Level Comparison



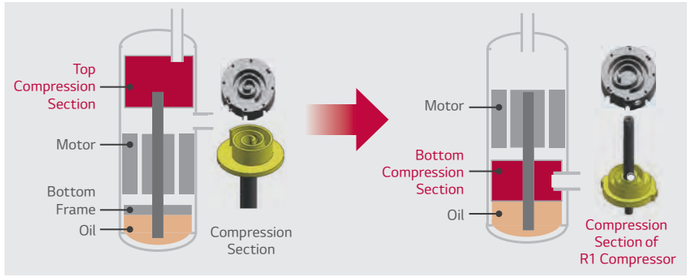
THERMA V R32 MONOBLOC

EXCELLENT PERFORMANCE

R1 Compressor

R1 Compressor is applied for high efficiency and reliability. This compressor is more advanced compressor compared to the conventional scroll compressor, especially tilting motion of scroll has been improved. Further, compressor operation range is improved compared to previous model.

Conventional Scroll Compressor | **R1 Compressor**



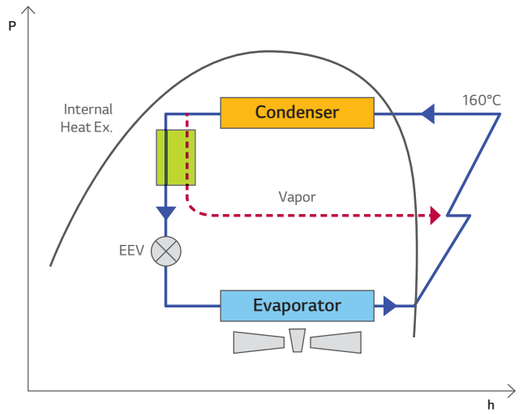
- Scroll compressor with simple structure.
- High efficiency.
  (Low load at low speed / Total efficiency)
- Low noise.
  (High speed possible)
- Improved tilting motion of scroll.
- 20% weight reduction.
  (vs. Conventional compressor)

Flash Gas Injection

In case of R32 refrigerant, it is very important to control discharge temperature of compressor properly. In the R32 Monobloc, flash gas injection technology is applied to control discharge temperature of compressor efficiently. As a result of this technology, heating operation range is expanded and heating performance at low ambient temperature is enhanced.

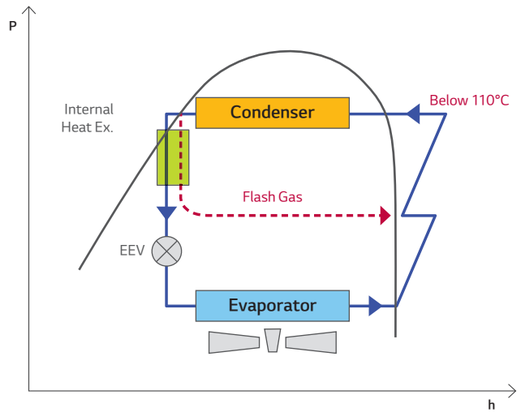
Vapor Injection

- Discharge temperature of compressor is very high. (160°C)
- Failure of injection cycle and compressor operation under protection logic.



Flash Gas Injection

- Discharge temperature of compressor is below. (110°C)
- Good operation of injection cycle.



THERMA V R32 MONOBLOC

USER CONVENIENCE

Controller with Intuitive Interface

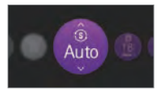
The R32 Monobloc system is equipped with new remote controller.

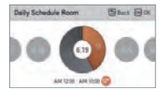
Premium Design

- New modern design 4.3 inch color LCD display.
- Capacitive touch button.
  (Especially On/Off button turn on LED)

User Friendly Interface

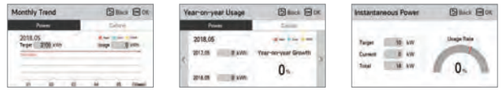
- Information displayed with simple graphic, icon & text.
- Navigation button, easy to use.





Enhanced Energy Information with Simple Interface

- A clear view of instantaneous power consumption against target
- Accumulated power consumption and produced heat energy per week, month, or year.



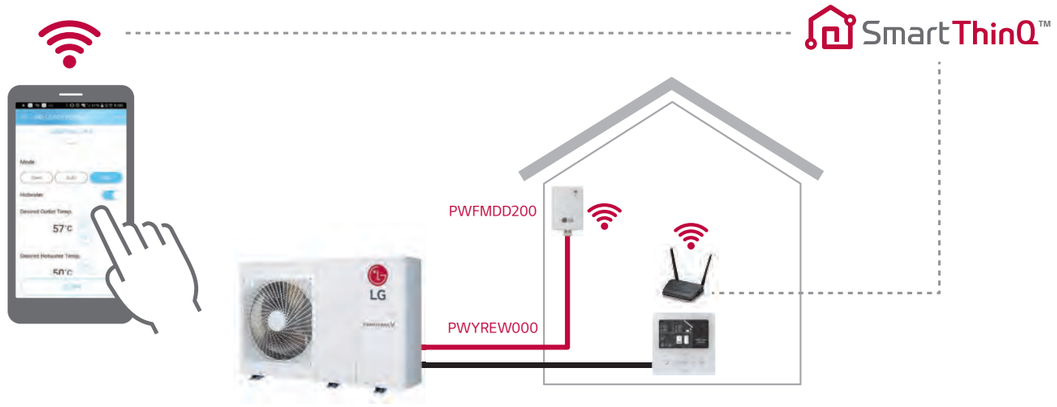
Convenient Functions

- Optimize schedule setting logic.
  - Set the period, date, On/Off time, operation mode, target temp. Easy installation setting.

USER CONVENIENCE

LG Own Wi-Fi Solution

Access your THERMA V anytime from anywhere.



* Search "LG SmartThinQ™" on Google market or App store, then download the app.

Simple Operation for Various Functions

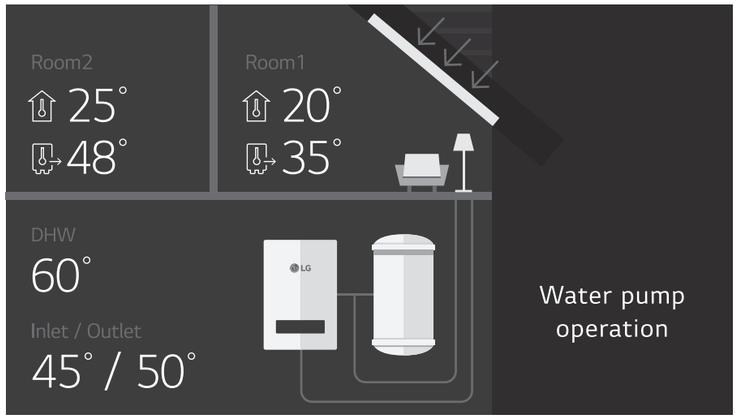
- On/Off
- Operation mode selection
- Current temperature
- Set temperature
- On/Off reservation
- Energy monitoring

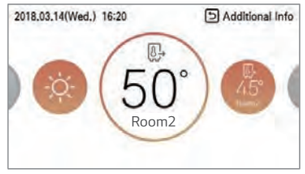
Mandatory accessory :
PWFMDD200 (LG Wi-Fi modem) and
PWYREW000 (10m extension connect cable
in between THERMA V indoor and Wi-Fi module)

2nd Heating Circuit

2 zones (Add / Main zone) temperature control through separate heating circuits is possible with mixing valve kit.

2 Zones Temperature Control

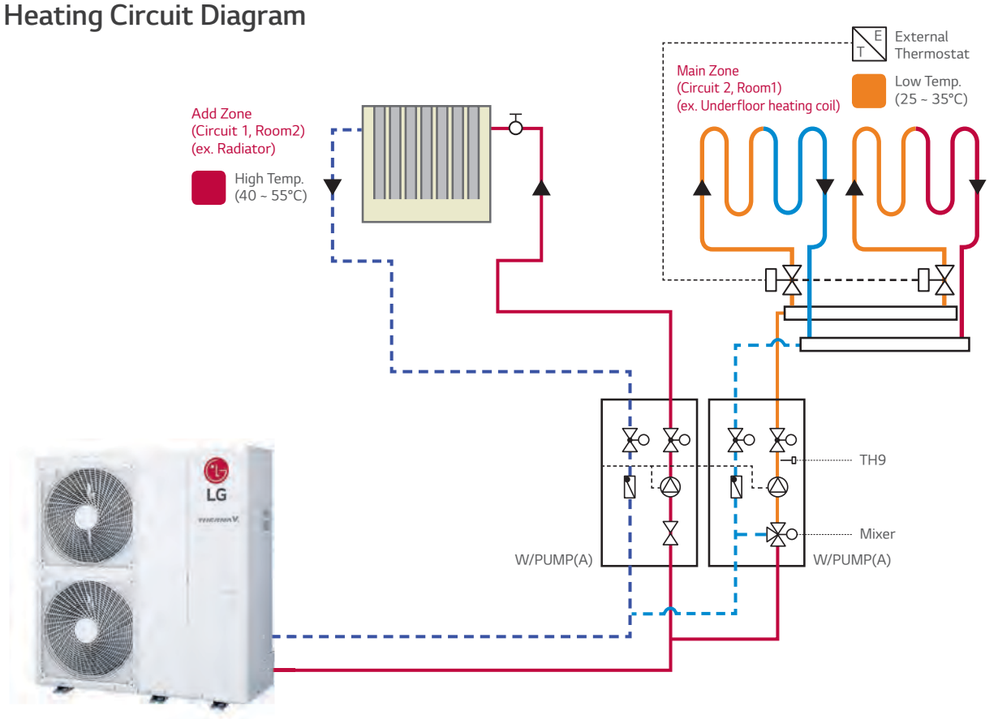




Setting Add Zone Temp.

Setting Main Zone Temp.

2nd Heating Circuit Diagram



THERMA V R32 MONOBLOC

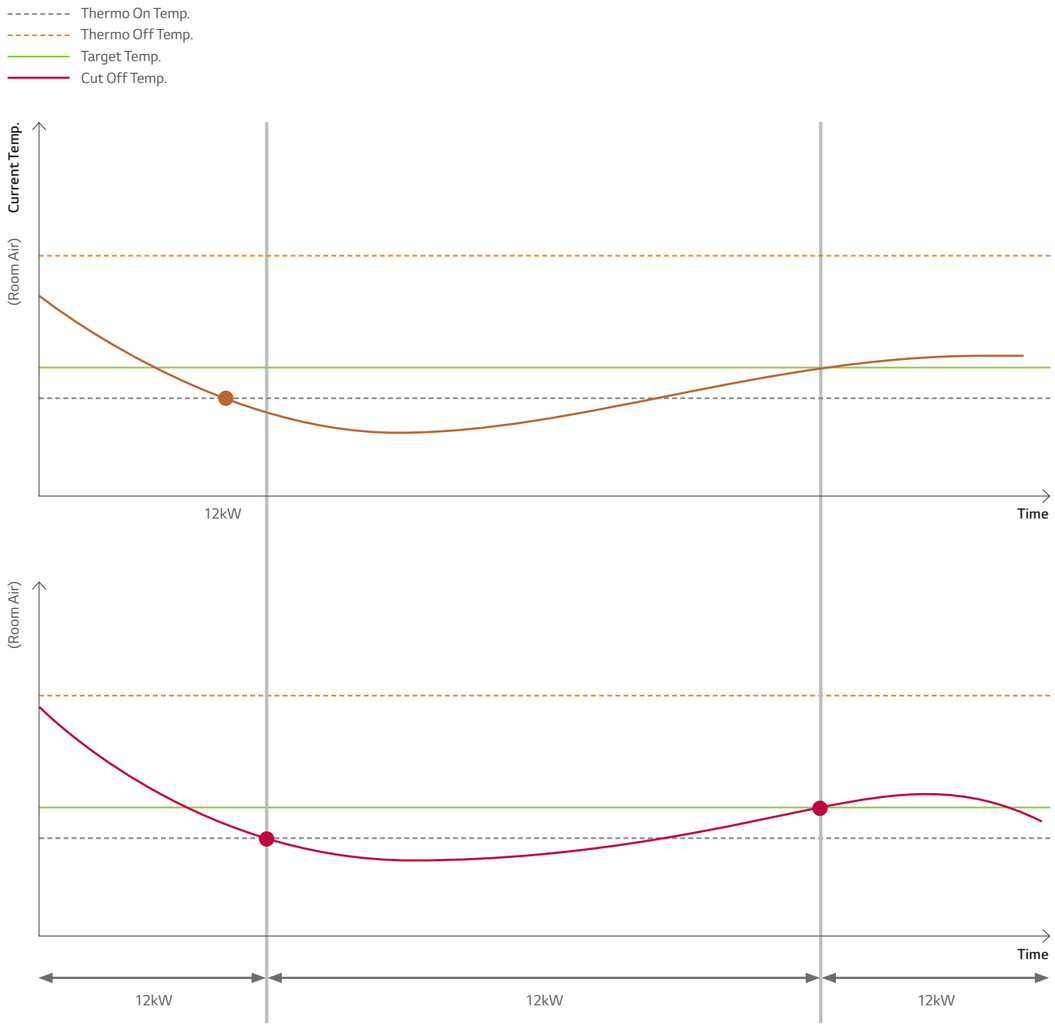
USER CONVENIENCE

Various Temperature Control Options

Various temperature control options are possible for the user's comfort and convenience.
Especially for European life style where thermal comfort is preferred, simultaneous control of room air and water temp. Function is added.

- Control of leaving water temperature.
- Control of entering water temperature.
- Control of room air temperature.
- Simultaneous control of room air and water temp.

- Thermo On : When satisfied both room air temp. condition and water temp. condition
- Thermo Off : When satisfied room air remp. condition or water temp. condition



THERMA V R32 MONOBLOC

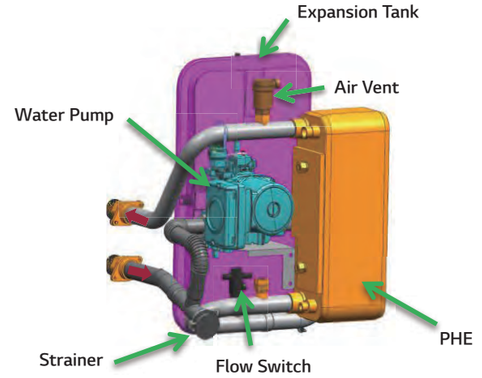
EASY INSTALLATION & MAINTENANCE

All In One Concept

Thanks to all in one concept and reduced weight, easier & quicker installation is possible.

- LG provides fully packaged THERMA V Monobloc that additional water side components are included in the package.
- No need to work refrigerant piping, easier and quicker installation.

THERMA V R32 Monobloc



Easy Commissioning

Pre-Installation Setting

- Based on installation site information, installers can prepare presetting with LG heating configurator and save data into memory card from office.
- At the site, then installers can simply insert memory card at the back of remote controller to activate configuration data.

PRODUCT & SPECIFICATION

Monobloc

HM051M.U43
HM071M.U43
HM091M.U43

011-1W0243

Features

- High energy efficiency (SCOP4.45 / A+++)
- Excellent performance at low ambient temperature (100% @ -7°C)
- Wide operation range (Ambient : -25 ~ 35°C / Water side : 15 ~ 65°C)
- R32 Refrigerant with high performance
- R1 Scroll compressor
- Ocean Black Fin
- SmartThinQ™
- KEYMARK / EHPA certification / MCS / Eurovent certification

Model Line Up

Category	Unit	Model Name		
		Capacity (kW)		
		5.5	7.0	9.0
1 Phase Model 1Ø, 220 ~ 240V, 50Hz	Monobloc Unit	HM051M.U43	HM071M.U43	HM091M.U43

Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.
2. EHPA for Austria.

Seasonal Energy

Description			Unit	HM051M.U43	HM071M.U43	HM091M.U43
Space Heating (According to EN14825)	Average Climate Water Outlet 35°C	SCOP	-	4.45	4.45	4.45
		Rated Heat Output (Prated)	kW	5	6	6
		Seasonal Space Heating Efficiency (ηs)	%	175	175	175
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+++	A+++	A+++
		Annual Energy Consumption	kWh	2,551	2,551	2,551
	Average Climate Water Outlet 55°C	SCOP	-	3.12	3.12	3.12
		Rated Heat Output (Prated)	kW	5	5	5
		Seasonal Space Heating Efficiency (ηs)	%	122	122	122
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+	A+	A+
		Annual Energy Consumption	kWh	3,638	3,638	3,638

Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.

Product Specification

Description		OAT	LWT	Unit	HM051M.U43	HM071M.U43	HM091M.U43
Nominal Capacity	Heating	7°C	35°C	kW	5.50	7.00	9.00
		7°C	55°C	kW	5.50	5.50	5.50
		2°C	35°C	kW	3.30	4.20	5.40
	Cooling	35°C	18°C	kW	5.50	7.00	9.00
		35°C	7°C	kW	5.50	7.00	9.00
Nominal Power Input	Heating	7°C	35°C	kW	1.22	1.56	2.15
		7°C	55°C	kW	2.04	2.04	2.04
		2°C	35°C	kW	0.94	1.20	1.54
	Cooling	35°C	18°C	kW	1.20	1.56	2.14
		35°C	7°C	kW	1.96	2.59	3.46
COP	Heating	7°C	35°C	W/W	4.50	4.50	4.18
		7°C	55°C	W/W	2.70	2.70	2.70
		2°C	35°C	W/W	3.52	3.52	3.50
EER	Cooling	35°C	18°C	W/W	4.60	4.50	4.20
		35°C	7°C	W/W	2.80	2.70	2.60
Operation Range	Heating	Water Side (LWT)		°C	15 ~ 65		
		Ambient (OAT)		°C	-25 ~ 35		
	Cooling	Water Side (LWT)		°C	5 ~ 27		
		Ambient (OAT)		°C	5 ~ 48		
	Domestic Hot Water	Water Side (LWT)		°C	15 ~ 80		
Refrigerant	Type			-	R32		
	GWP (Global Warming Potential)			-	675		
	Charge			kg	1.4		
				tCO_2eq	0.95		
Compressor	Quantity			EA	1		
	Type			-	Scroll		
Water Flow Rate	Min. (Recommended)			LPM	15		
Piping Connections	Water Circuit	Inlet		mm(inch)	Male PT 25(1)		
		Outlet		mm(inch)	Male PT 25(1)		
Dimensions	Unit	W x H x D		mm	1,239 x 834 x 330		
Net Weight	Unit			kg	91		
Sound Pressure Level (at 1m)	Heating	Rated		dB(A)	50		
Sound Power Level	Heating	Rated		dB(A)	60		
Power Supply	Phase / Frequency / Voltage			Ø / Hz / V	1 / 50 / 220 ~ 240		
	Maximum Running Current			A	23		

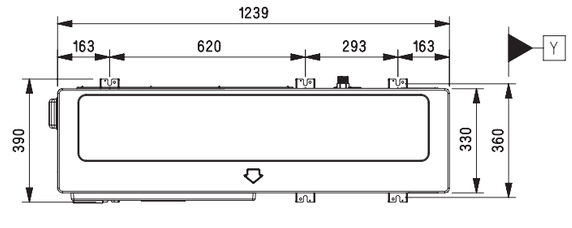
Note
1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound pressure level is measured on the rated condition in the anechoic rooms by ISO 3745 standard. Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.
4. Performances are accordance with EN14511.
5. This product contains fluorinated greenhouse gases.
6. LWT : Leaving Water Temperature, OAT : Outdoor Air Temperature.
7. DHW Heat pump operation : Max. 55°C
   DHW operation with electric heater : Max. 80°C

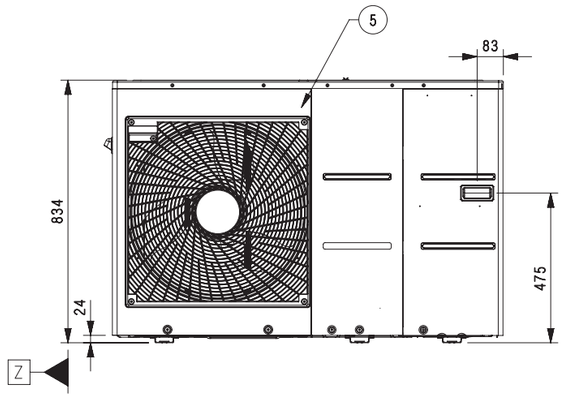
PRODUCT & SPECIFICATION

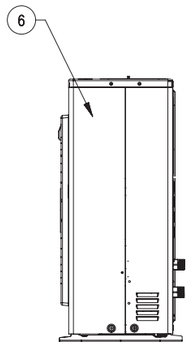
Drawings

Category	Unit	Model Name		
		Capacity (kW)		
		5.5	7.0	9.0
1 Phase Model 1Ø, 220 ~ 240V, 50Hz	Monobloc Unit	HM051M.U43	HM071M.U43	HM091M.U43

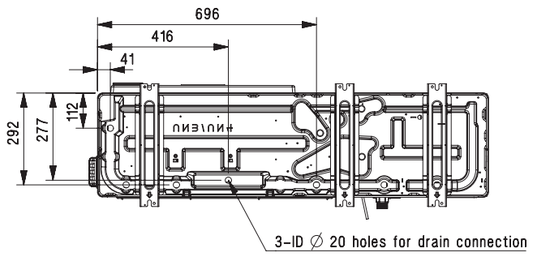
[Unit : mm]

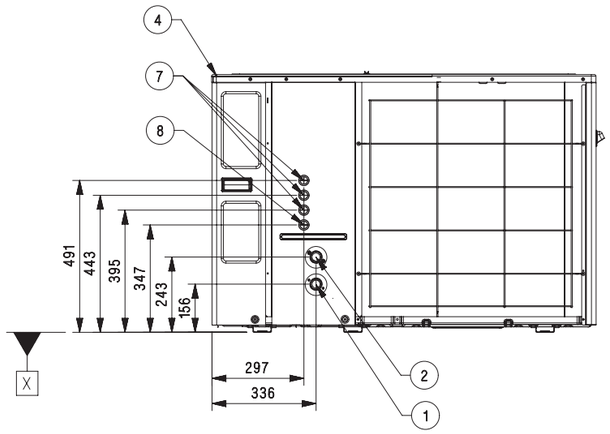


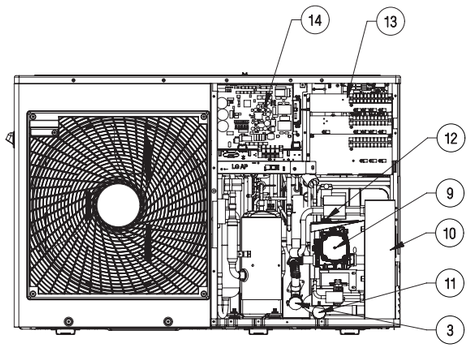




Side View







3D View

No.	Part Name	Description
1	Entering Water Pipe	Male PT 1 inch
2	Leaving Water Pipe	Male PT 1 inch
3	Strainer	Filtering and stacking particles inside circulating water
4	Top Cover	-
5	Front Panel	-
6	Side Panel	-
7	Low Voltage	Accessory Kit cables
8	Unit Power	Outdoor entry power cable
9	Water Pump	-
10	Plate Heat Exchanger	Heat exchange between refrigerant and water
11	Pressure Gauge	Indicates circulating water pressure
12	Safety Valve	Open at water pressure 3bar
13	Indoor Control Box	Indoor PCB and terminal blocks
14	Outdoor Control Box	Outdoor PCB and terminal blocks

PRODUCT & SPECIFICATION

Monobloc

HM121M.U33
HM141M.U33
HM161M.U33
HM123M.U33
HM143M.U33
HM163M.U33

011-1W0244

Features

- High energy efficiency (SCOP 4.45 / A+++)
- Excellent performance at low ambient temperature (100% @ -7°C)
- Wide operation range (Ambient : -25 ~ 35°C / Water side : 15 ~ 65°C)
- R32 Refrigerant with figh performance
- R1 Scroll compressor
- Ocean Black Fin
- SmartThinQ™
- KEYMARK / EHPA certification / MCS / Eurovent certification

Model Line Up

Category	Unit	Model Name		
		Capacity (kW)		
		12.0	14.0	16.0
1 Phase Model 1Ø, 220 ~ 240V, 50Hz	Monobloc Unit	HM121M.U33	HM141M.U33	HM161M.U33
3 Phase Model 3Ø, 380 ~415V, 50Hz		HM123M.U33	HM143M.U33	HM163M.U33

Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.
2. EHPA for Austria.
3. EHPA approval model : HM123M.U33, HM143M.U33, HM163M.U33.

Seasonal Energy

Description			Unit	HM121M.U33 HM123M.U33	HM141M.U33 HM143M.U33	HM161M.U33 HM163M.U33
Space Heating (According to EN14825)	Average Climate Water Outlet 35°C	SCOP	-	4.45	4.45	4.45
		Rated Heat Output (Prated)	kW	10	11	11
		Seasonal Space Heating Efficiency (ηs)	%	175	175	175
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+++	A+++	A+++
		Annual Energy Consumption	kWh	4,642	4,875	5,103
	Average Climate Water Outlet 55°C	SCOP	-	3.18	3.18	3.18
		Rated Heat Output (Prated)	kW	12	12	12
		Seasonal Space Heating Efficiency (ηs)	%	124	124	124
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+	A+	A+
		Annual Energy Consumption	kWh	7,795	7,795	7,795

Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.

Product Specification (1 Phase)

Description		OAT	LWT	Unit	HM121M.U33	HM141M.U33	HM161M.U33
Nominal Capacity	Heating	7°C	35°C	kW	12.00	14.00	16.00
		7°C	55°C	kW	12.00	12.00	12.00
		2°C	35°C	kW	11.00	12.00	13.80
	Cooling	35°C	18°C	kW	14.00	14.00	16.00
		35°C	7°C	kW	14.00	14.00	16.00
Nominal Power Input	Heating	7°C	35°C	kW	2.61	3.11	4.00
		7°C	55°C	kW	4.29	4.29	4.29
		2°C	35°C	kW	3.13	3.42	3.94
	Cooling	35°C	18°C	kW	3.04	3.26	4.00
		35°C	7°C	kW	5.19	5.38	6.40
COP	Heating	7°C	35°C	W/W	4.60	4.50	4.00
		7°C	55°C	W/W	2.80	2.80	2.80
		2°C	35°C	W/W	3.52	3.51	3.50
EER	Cooling	35°C	18°C	W/W	4.60	4.30	4.00
		35°C	7°C	W/W	2.70	2.60	2.50
Operation Range	Heating	Water Side (LTW)		°C	15 ~ 65		
		Ambient (OAT)		°C	-25 ~ 35		
	Cooling	Water Side (LTW)		°C	5 ~ 27		
		Ambient (OAT)		°C	5 ~ 48		
	Domestic Hot Water	Water Side (LTW)		°C	15 ~ 80		
Refrigerant	Type			-	R32		
	GWP (Global Warming Potential)			-	675		
	Charge			kg	2.4		
				tCO_2eq	1.62		
Compressor	Quantity			EA	1		
	Type				Scroll		
Water Flow Rate	Min. (Recommended)			LPM	20		
Piping Connections	Water Circuit	Inlet		mm(inch)	Male PT 25(1)		
		Outlet		mm(inch)	Male PT 25(1)		
Dimensions	Unit	W x H x D		mm	1,239 x 1,380 x 330		
Net Weight	Unit			kg	125		
Sound Pressure Level (at 1m)	Heating	Rated		dB(A)	52		
Sound Power Level	Heating	Rated		dB(A)	63		
Power Supply	Phase / Frequency / Voltage			Ø / Hz / V	1 / 50 / 220 ~ 240		
	Maximum Running Current			A	35		

Note
1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound pressure level is measured on the rated condition in the anechoic rooms by ISO 3745 standard. Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.
4. Performances are accordance with EN14511.
5. This product contains fluorinated greenhouse gases.
6. LWT : Leaving Water Temperature, OAT : Outdoor Air Temperature.
7. DHW heat pump operation : Max. 55°C
   DHW operation with electric heater : Max. 80°C

PRODUCT & SPECIFICATION

Product Specification (3 Phase)

Description		OAT	LWT	Unit	HM123M.U33	HM143M.U33	HM163M.U33
Nominal Capacity	Heating	7°C	35°C	kW	12.00	14.00	16.00
		7°C	55°C	kW	12.00	12.00	12.00
		2°C	35°C	kW	11.00	12.00	13.80
	Cooling	35°C	18°C	kW	14.00	14.00	16.00
		35°C	7°C	kW	14.00	14.00	16.00
Nominal Power Input	Heating	7°C	35°C	kW	2.61	3.11	4.00
		7°C	55°C	kW	4.29	4.29	4.29
		2°C	35°C	kW	3.13	3.42	3.94
	Cooling	35°C	18°C	kW	3.04	3.26	4.00
		35°C	7°C	kW	5.19	5.38	6.40
COP	Heating	7°C	35°C	W/W	4.60	4.50	4.00
		7°C	55°C	W/W	2.80	2.80	2.80
		2°C	35°C	W/W	3.52	3.51	3.50
EER	Cooling	35°C	18°C	W/W	4.60	4.30	4.00
		35°C	7°C	W/W	2.70	2.60	2.50
Operation Range	Heating	Water Side (LTW)		°C	15 ~ 65		
		Ambient (OAT)		°C	-25 ~ 35		
	Cooling	Water Side (LTW)		°C	5 ~ 27		
		Ambient (OAT)		°C	5 ~ 48		
	Domestic Hot Water	Water Side (LTW)		°C	15 ~ 80		
Refrigerant	Type			-	R32		
	GWP (Global Warming Potential)			-	675		
	Charge			kg	2.4		
				tCO_2eq	1.62		
Compressor	Quantity			EA	1		
	Type			-	Scroll		
Water Flow Rate	Min. (Recommended)			LPM	20		
Piping Connections	Water Circuit	Inlet		mm(inch)	Male PT 25(1)		
		Outlet		mm(inch)	Male PT 25(1)		
Dimensions	Unit	W x H x D		mm	1,239 x 1,380 x 330		
Net Weight	Unit			kg	125		
Sound Pressure Level (at 1m)	Heating	Rated		dB(A)	52		
Sound Power Level	Heating	Rated		dB(A)	63		
Power Supply	Phase / Frequency / Voltage			Ø / Hz / V	3 / 50 / 380 ~ 415		
	Maximum Running Current			A	15		

Note
1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound pressure level is measured on the rated condition in the anechoic rooms by ISO 3745 standard. Sound power level is measured on the rated condition in the reverberation rooms by ISO 3741 standard. Therefore, these values can be increased owing to ambient conditions during operation.
4. Performances are accordance with EN14511.
5. This product contains fluorinated greenhouse gases.
6. LWT : Leaving Water Temperature, OAT : Outdoor Air Temperature.
7. DHW heat pump operation : Max. 55°C
   DHW operation with electric heater : Max. 80°C

Electric Back Up Heater

HA031M.E1
HA061M.E1
HA063M.E1

Product Specification

Description		Unit	HA031M.E1	HA061M.E1	HA063M.E1
Back Up Heater	Type	-	Sheath	Sheath	Sheath
	Number of Heating Coil	EA	1	2	3
	Capacity Combination	kW	3.0	3.0 + 3.0	2.0 + 2.0 + 2.0
	Operation	-	Automatic	Automatic	Automatic
	Heating Steps	Step	1	2	1
	Power Supply	V, Ø, Hz	220 ~ 240, 1, 50	220 ~ 240, 1, 50	380 ~ 415, 3, 50
	Maximum Current	A	12.0	24.0	8.7
	Dimensions (W x H x D)	mm	210 x 607 x 220	210 x 607 x 220	210 x 607 x 220
	Net Weight (Unit)	kg	13.0	13.8	14.1
Wiring Connections	Power Cable (Included Earth, H07RN-F)	No. x mm^2	3 x 1.5	3 x 4.0	4 x 2.5
	Communication Cable (H07RN-F)	No. x mm^2	2 x 0.75	4 x 0.75	2 x 0.75

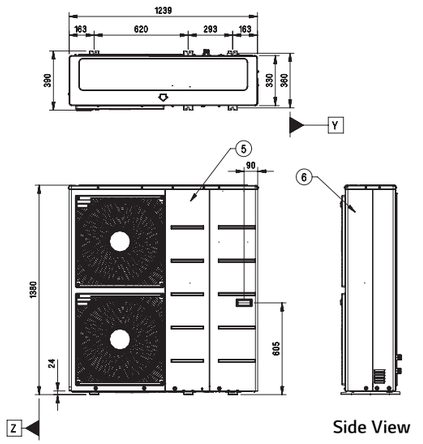
Note
1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes.

PRODUCT & SPECIFICATION

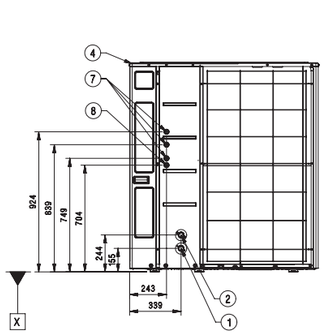
Drawings

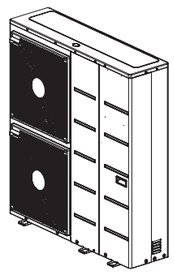
Category	Unit	Model Name		
		Capacity (kW)		
		12.0	14.0	16.0
1 Phase Model 1Ø, 220 ~ 240V, 50Hz	Monobloc Unit	HM121M.U33	HM141M.U33	HM161M.U33
3 Phase Model 3Ø, 380 ~ 415V, 50Hz		HM123M.U33	HM143M.U33	HM163M.U33

[Unit : mm]



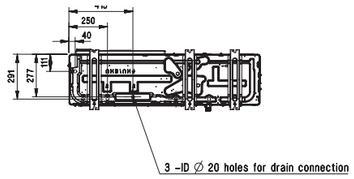
Side View

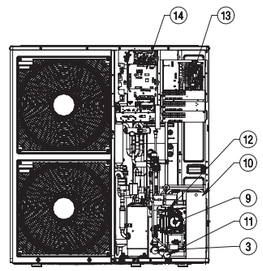




3D View

No.	Part Name	Description
1	Entering Water Pipe	Male PT 1 inch
2	Leaving Water Pipe	Male PT 1 inch
3	Strainer	Filtering and stacking particles inside circulating water
4	Top Cover	-
5	Front Panel	-
6	Side Panel	-
7	Low Voltage	Accessory Kit cables
8	UNIT Power	Outdoor entry power cable
9	Water Pump	-
10	Plate Heat Exchanger	Heat exchange between refrigerant and water
11	Pressure Gauge	Indicates circulating water pressure
12	Safety Valve	Open at water pressure 3bar
13	Indoor Control Box	Indoor PCB and terminal blocks
14	Outdoor Control Box	Outdoor PCB and terminal blocks



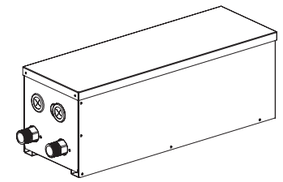


Electric Back Up Heater

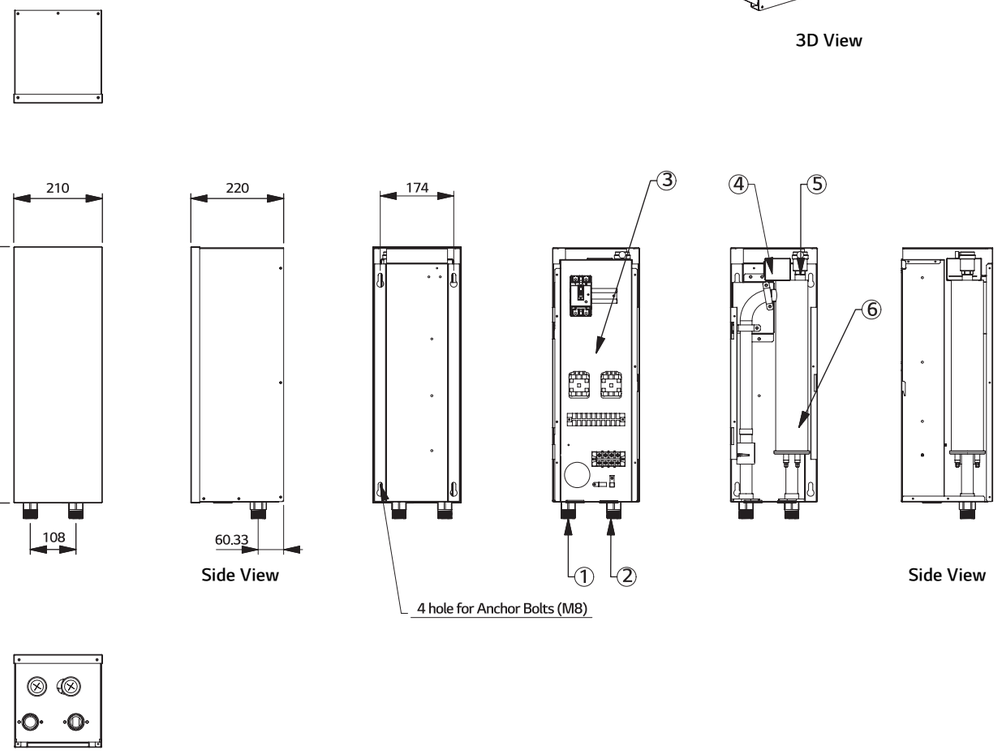
Back Up Heater

HA031M.E1
HA061M.E1
HA063M.E1

[Unit : mm]



3D View



Side View

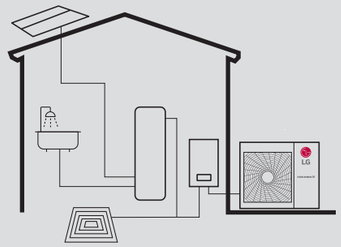
Side View

No.	Part Name	Description
1	Leaving Water Pipe	Male PT 1inch
2	Entering Water Pipe	Male PT 1inch
3	Control Box	Circuit breaker, Magnetic switch, Terminal blocks
4	Thermal Switch	Cut-off power input to E/Heater at 90°C
5	Air Vent	Air purging when charging water
6	Electric Heater	Refer the related information

NEW

THERMA V R32

SPLIT HYDRO BOX TYPE



Excellent Performance

- High heating performance even at low temperature.
- Wide operation range.
- Reduced noise level.

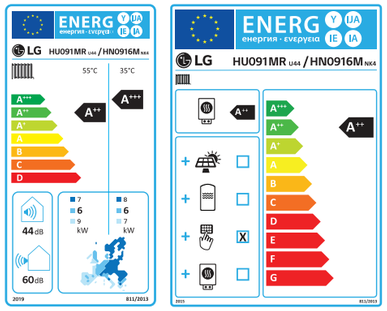
User Convenience

- Controller with intuitive interface.
- LG own Wi-Fi solution. (SmartThinQ™)
- 2nd Heating circuit
- Energy information monitoring.

Easy Installation & Maintenance

- Easy commissioning by PC tool. (LG heating configurator)
- Easy service.

Energy Labeling



* 9kW 1Ø model.
* A+++ to D Scale.

Split Hydro Box Concept

THERMA V Split hydro box type is that the indoor and outdoor unit are separated. These two units are connected by refrigerant piping and water side components such as PHE, expansion tank, water pump are located inside of indoor unit.
Further, all water lines related to the heating are located indoor, so it is easy to withstand freezing issues regardless of outside ambient temperature.

Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.

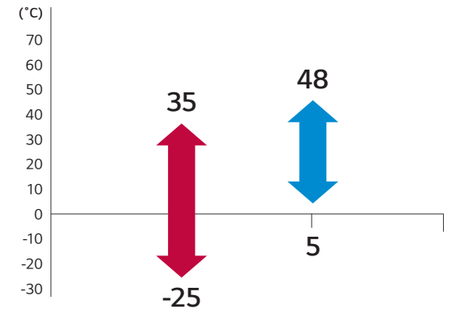
Capacity Range (Heating & Cooling)

Split Hydro Box Type

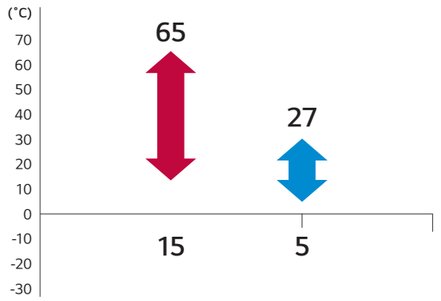
Capacity Range [kW]	5	6	7	8	9	10	11	12	13	14	15	16	17
Heating Capacity	●		●		●								
Cooling Capacity	●		●		●								

Operation Range (Heating & Cooling)

Ambient Temperature



Leaving Water Temperature



EXCELLENT PERFORMANCE

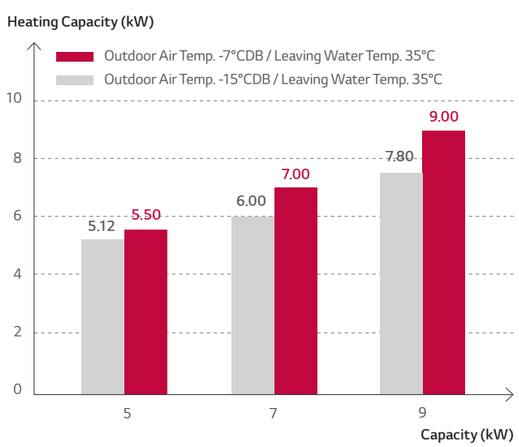
Low GWP Refrigerant R32

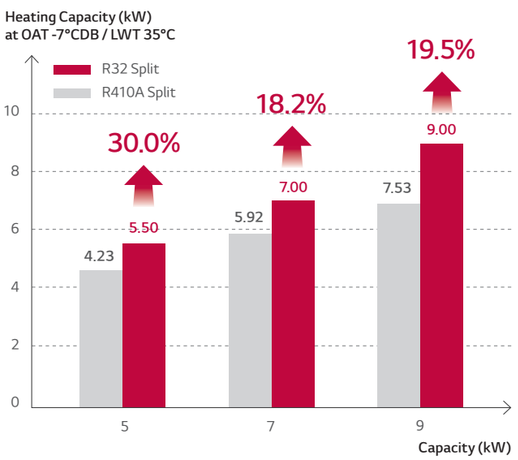
Comparison & Benefit

	R32	R410A
GWP Global Warming Potential	675	2088
Less amount Gas Charge		
More System Performance	R32 systems also use less refrigerant per kilowatt of capacity delivered.	
Easy Refrigerant Recycle	Single component	Mixture R32 50% / R125 50%
High Capacity	High refrigerant compression rates lead to high capacity as compared to existing refrigerant R22, and R410A.	

High Heating Performance even at Low Temperature

The R32 Split provides excellent heating performance – especially at low ambient temperature. Heating capacity at OAT -7°CDB is same as normal capacity and heating capacity at OAT -15°CDB is more than 85% of normal capacity. Heating capacity of R32 Split at low ambient temperature is improved more than 18% compared to R410A Split.



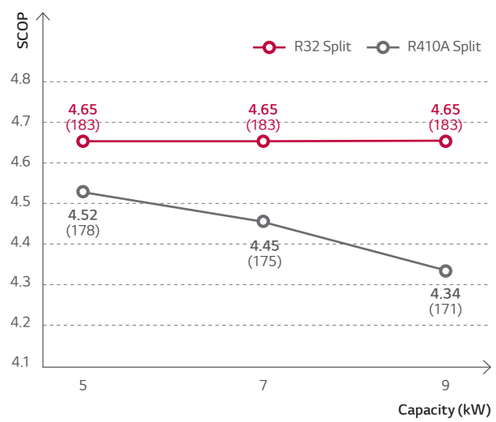


High Energy Efficiency

The energy label directive is a key factor of selecting heating device in Europe heating market.
The R32 Split type has an energy label rating over A+++ in ErP energy labeling regulation.

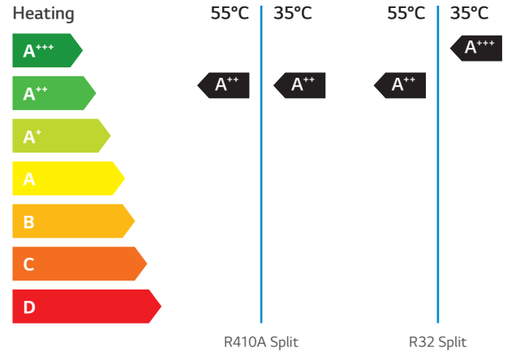
SCOP

Max. 8% SCOP improvement



* Test Condition
Test procedure follows EN14825 (Low temp. average), Based on the single phase model line up.

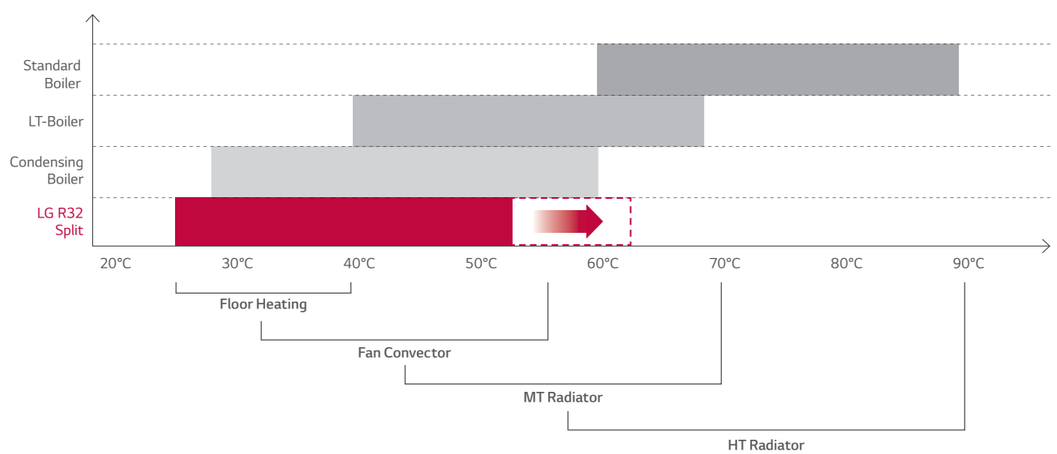
ErP Energy Labeling



Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.

Wide Operation Range

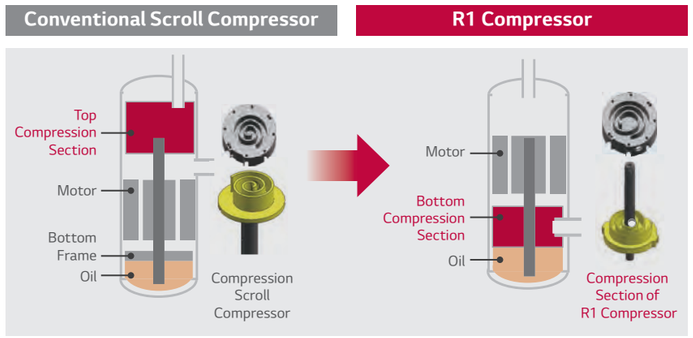
Thanks to the Leaving Water Temperature (LWT) up to 65°C, mid temperature radiator range can be fully covered. As a result, R32 Split has high competitiveness for replacement case as well as new case.



EXCELLENT PERFORMANCE

R1 Compressor

R1 Compressor is applied for high efficiency and reliability. This compressor is more advanced compressor compared to the conventional scroll compressor, especially tilting motion of scroll has been improved. Further, compressor operation range is improved compared to previous model.



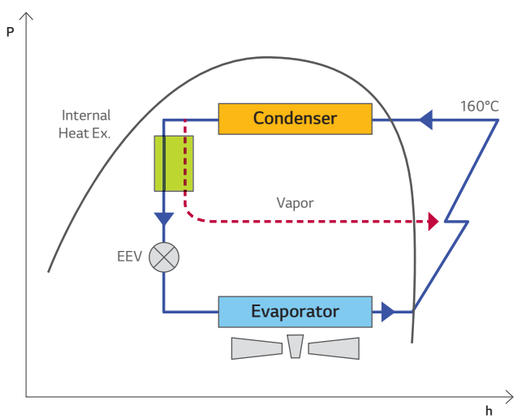
- Scroll compressor with simple structure.
- High efficiency.
  (Low load at low speed / Total efficiency)
- Low noise.
  (High speed possible)
- Improved tilting motion of scroll.
- 20% weight reduction.
  (vs. Conventional compressor)

Flash Gas Injection

In case of R32 Refrigerant, it is very important to control discharge temperature of compressor properly. In the R32 Split, flash gas injection technology is applied to control discharge temperature of compressor efficiently. As a result of this technology, heating operation range is expanded and heating performance at low ambient temperature is enhanced.

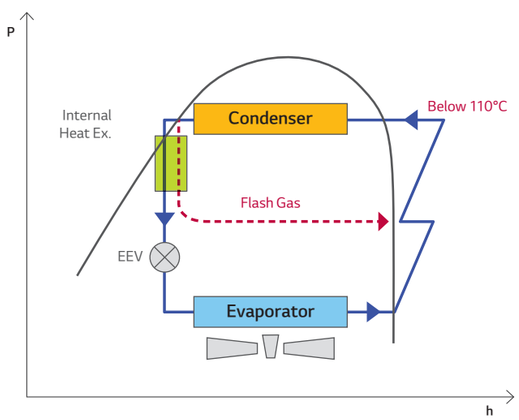
Vapor Injection

- Discharge temperature of compressor is very high. (160°C)
- Failure of injection cycle and compressor operation under protection logic.



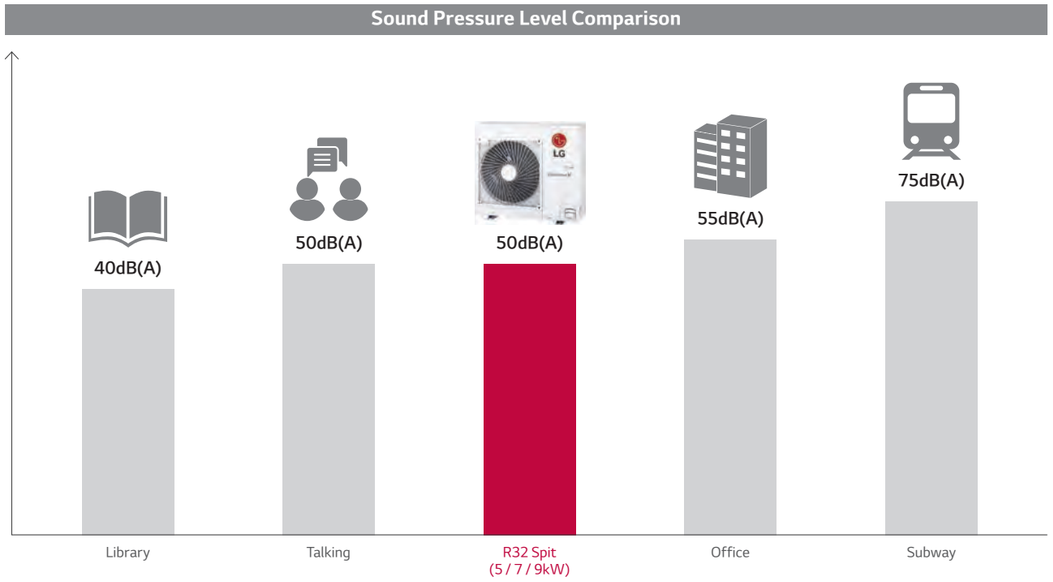
Flash Gas Injection

- Discharge temperature of compressor is below. (110°C)
- Good operation of injection cycle.



Reduced Noise Level

The R32 Split reduces noise level compared to previous models.



Ocean Black Fin

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

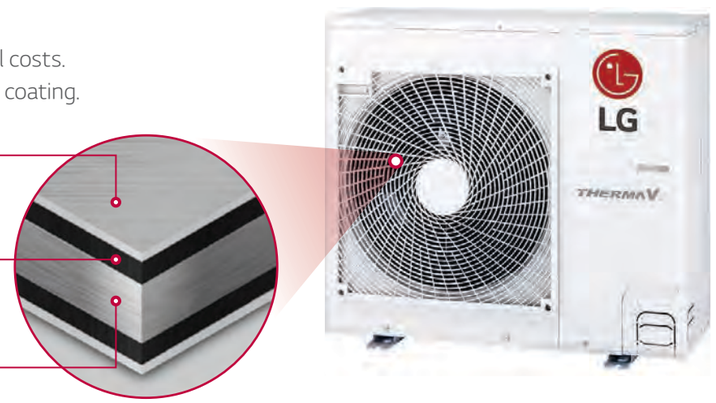
Ocean Black Fin

- Longer lifespan, lower operational costs.
- Strengthened corrosion resistant coating.

Hydrophilic Film (Water flow)
The hydrophilic coating minimizes moisture build up on the fin.

Epoxy Resin (Corrosion Resistant)
The black coating provides strong protection from corrosion.

Aluminum Fin



USER CONVENIENCE

Controller with Intuitive Interface

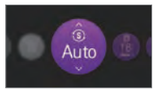
The R32 Split system is equipped with new remote controller.

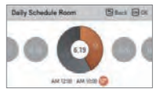
Premium Design

- New modern design 4.3 inch color LCD display.
- Capacitive touch button.
  (Especially On/Off button turn on LED)

User Friendly Interface

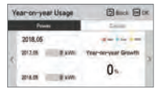
- Information displayed with simple graphic, icon & text.
- Navigation button, easy to use.

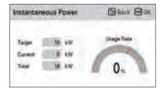




Enhanced Energy Information with Simple Interface

- A clear view of instantaneous power consumption against target
- Accumulated power consumption and produced heat energy per week, month, or year.





Convenient Functions

- Optimize schedule setting logic.
  - Set the period, date, On/Off time, operation mode, target temp. easy installation setting.

LG Own Wi-Fi Solution

Access your THERMA V anytime from anywhere.

Simple Operation for Various Functions

- On/Off
- Operation mode selection
- Current temperature
- Set temperature
- On/Off reservation
- Energy monitoring

Mandatory accessory :
PWFMDD200 (LG Wi-Fi modem).
PWYREW000 (10m extension connect cable in between THERMA V indoor and Wi-Fi module) could be required depends on installation condition.

Embedded Flow Sensor

Flow sensor provides the actual flow rate information in a display of wired remote controller.

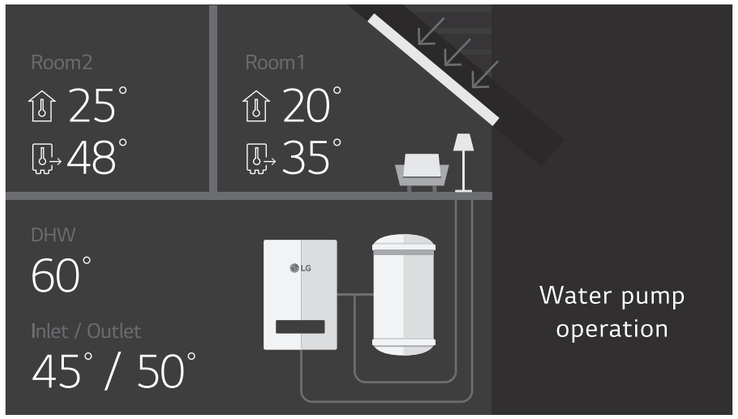
- Flow sensor type : Vortex
- Measuring duration : 1s


USER CONVENIENCE

2nd Heating Circuit

2 zones (Add / Main zone) temperature control through separate heating circuits is possible with mixing valve kit.

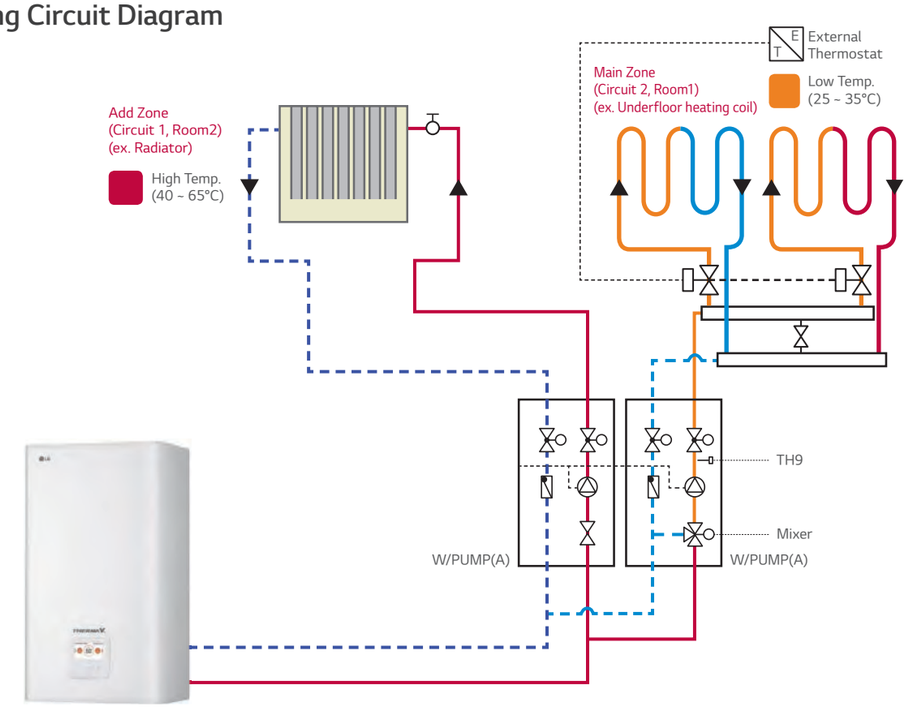
2 Zones Temperature Control



Setting Add Zone Temp.

Setting Main Zone Temp.

2nd Heating Circuit Diagram



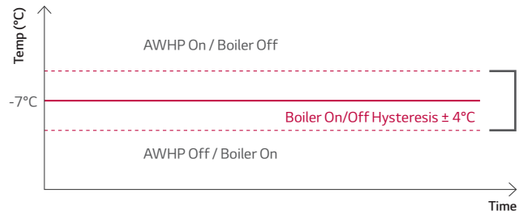
Interlocking Operation with 3rd Party Boiler

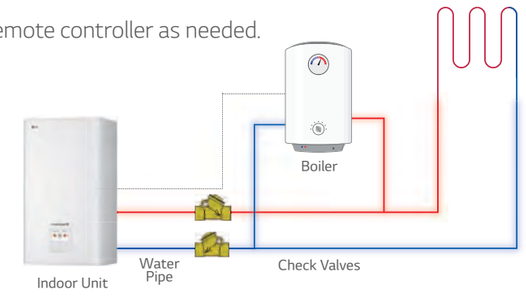
3rd Party boiler can be activated by the R32 Split controller as an auxiliary equipment of AHWP.

Control Mode : Auto / Manual

- Auto control mode :
  In order to protect THERMA V, 3rd party boiler is automatically activated when outdoor temperature is lower than certain temperature instead of THERMA V. (Default : -7°C, Range : -25 ~ 15°C)
- Manual control mode :
  User can manually operate 3rd party boiler via RS3 remote controller as needed.

Auto Control Mode

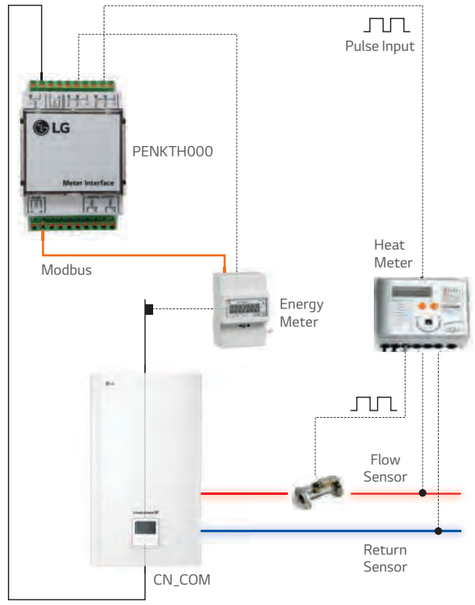




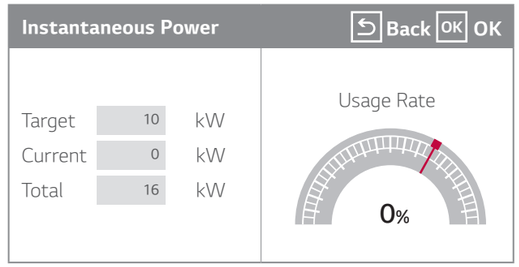
* Boiler should have water pump integrated.

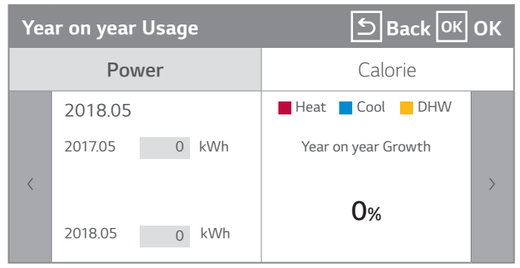
Energy Information Monitoring

Power consumption and heat provided by the AWHP can be measured and monitored on the remote controller using meter interface module.



Mandatory accessory : PENKTH000 (Meter Interface Module)



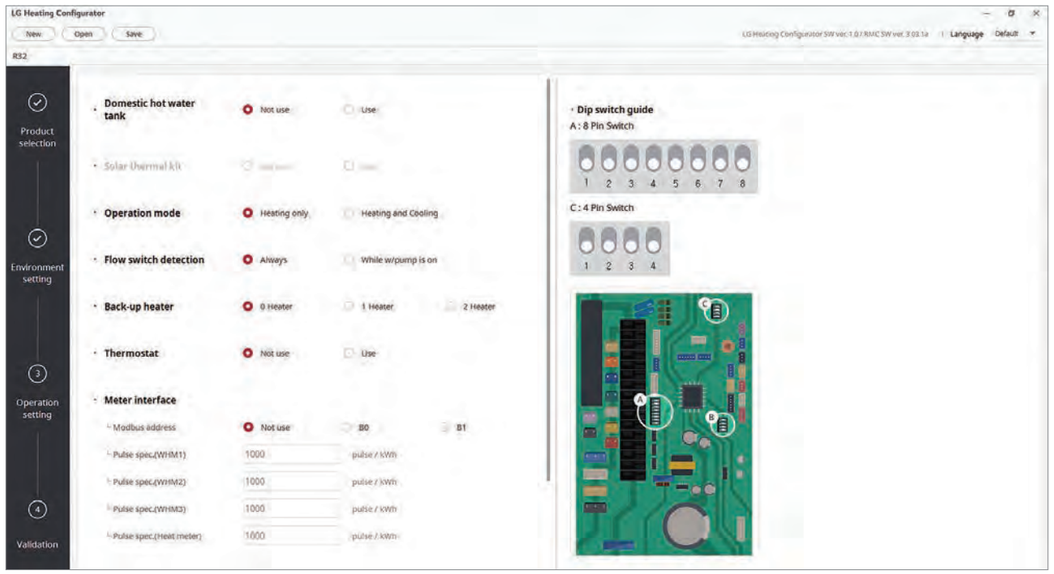


EASY INSTALLATION & MAINTENANCE

Easy Commissioning

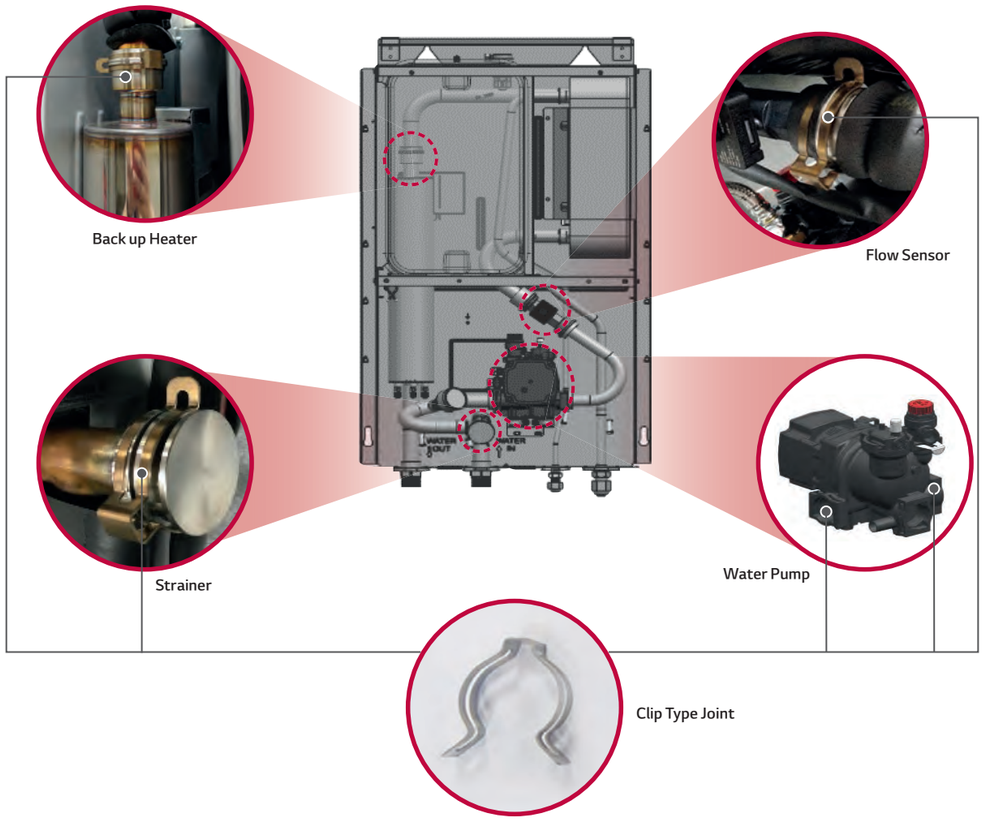
Pre-Installation Setting

- Based on installation site information, installers can prepare presetting with LG heating configurator and save data into memory card from office.
- At the site, then installers can simply insert memory card at the back of remote controller to activate configuration data.



Easy Service

- Easy access to water pump and strainer. (Front panel)
- Clip type connection for components.



3 Way Piping

- The pipes can be connectable in 3 directions.
- Neat & Easy installation by 3 way piping.

PRODUCT & SPECIFICATION

Split Hydro Box Type

IDU

HN0916M NK4

ODU

HU051MR U44

HU071MR U44

HU091MR U44

011-1W0315

Features

- High energy efficiency (SCOP 4.65 / A+++)
- Excellent performance at low ambient temperature (100% @ -7°C)
- Wide operation range (Ambient : -25 ~ 35°C / Water side : 15 ~ 65°C)
- R32 Refrigerant with high performance
- R1 scroll compressor
- Ocean Black Fin
- SmartThinQ™
- KEYMARK / EHPA certification / MCS / Eurovent certification

Model Line Up

Category	Unit	Model Name		
		Capacity (kW)		
		5.5	7.0	9.0
1 Phase Model 1Ø, 220 ~ 240V, 50Hz	Outdoor Unit	HU051MR U44	HU071MR U44	HU091MR U44
	Indoor Unit	HN0916M NK4		

Seasonal Energy

Description			Outdoor Unit	HU051MR U44	HU071MR U44	HU091MR U44
			Indoor Unit	HN0916M NK4		
Space Heating (According to EN14825)	Average Climate Water Outlet 35°C	SCOP	-	4.65	4.65	4.65
		Rated Heat Output (Prated)	kW	6	6	6
		Seasonal Space Heating Efficiency (ηs)	%	183	183	183
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+++	A+++	A+++
		Annual Energy Consumption	kWh	2,444	2,552	2,669
	Average Climate Water Outlet 55°C	SCOP	-	3.23	3.23	3.23
		Rated Heat Output (Prated)	kW	6	6	6
		Seasonal Space Heating Efficiency (ηs)	%	126	126	126
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A++	A++	A++
		Annual Energy Consumption	kWh	3,843	3,843	3,843

Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.
2. EHPA for Austria.

Outdoor Unit Specification

Description			OAT	LWT	Outdoor Unit	HU051MR U44	HU071MR U44	HU091MR U44
					Indoor Unit	HN0916M NK4		
Nominal Capacity	Heating		7°C	35°C	kW	5.50	7.00	9.00
			7°C	55°C	kW	5.50	5.50	5.50
			2°C	35°C	kW	3.30	4.20	5.40
	Cooling		35°C	18°C	kW	5.50	7.00	9.00
			35°C	7°C	kW	5.50	7.00	9.00
Nominal Power Input	Heating		7°C	35°C	kW	1.12	1.43	1.94
			7°C	55°C	kW	1.57	1.57	1.57
			2°C	35°C	kW	0.94	1.20	1.54
	Cooling		35°C	18°C	kW	1.20	1.56	2.14
			35°C	7°C	kW	1.96	2.59	3.46
COP	Heating		7°C	35°C	W/W	4.90	4.90	4.65
			7°C	55°C	W/W	3.50	3.50	3.50
			2°C	35°C	W/W	3.52	3.51	3.50
EER	Cooling		35°C	18°C	W/W	4.60	4.50	4.20
			35°C	7°C	W/W	2.80	2.70	2.60
Operation Range (Outdoor Air)	Heating		Min. ~ Max.		°CDB	-25 ~ 35		
	Cooling		Min. ~ Max.		°CDB	5 ~ 48		
Refrigerant	Type				-	R32		
	GWP (Global Warming Potential)				-	675		
	Charge				kg	1.5		
					tCO_2eq	1.013		
	Chargeless Pipe Length				m	10		
	Additional Charging Volume				g/m	30		
Compressor	Quantity				EA	1		
	Type					Scroll		
Refrigerant Piping Connection	Outer Dia.	Liquid			mm(inch)	9.52 Ø (3/8)		
		Gas			mm(inch)	15.88 Ø (5/8)		
	Length	Standard			m	5		
		Max.			m	50		
	Level Difference (ODU ~ IDU)	Max.			m	30		
Dimensions	Unit	W x H x D			mm	950 x 834 x 330		
Weight	Unit				kg	60		
Sound Power Level	Heating	Rated			dB(A)	60		
Sound Pressure Level (at 1m)	Heating	Rated			dB(A)	50		
Power supply	Phase / Frequency / Voltage				Ø / Hz / V	1 / 50 / 220 ~ 240		
	Maximum Running Current				A	21	22	23
	Recommended Circuit Breaker				A	25		

Note
1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound level values are measured at anechoic chamber. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
4. Performances are based on that interconnected pipe length is standard length and difference of elevation (Outdoor ~ Indoor unit) is zero.
5. This product contains fluorinated greenhouse gases.
6. LWT : Leaving Water Temperature, OAT : Outdoor Air Temperature.

Indoor Unit Specification

Description			Unit	HN0916M.NK4
Operation Range (Leaving Water)	Heating		°C	15 ~ 65
	Cooling	For Fan Coil Unit	°C	5 ~ 27
		For Under Floor	°C	16 ~ 27
Electric Heater	Power Supply	Phase / Frequency / Voltage	Ø / Hz / V	1 / 50 / 220 ~ 240
	Number of Heating Coil		EA	2
	Capacity		kW	3 + 3
	Maximum Running Current		A	32
Water Flow Rate	Min.		LPM	15
Flow Sensor	Type		-	Vortex
	Measuring Range		LPM	5 ~ 80
	Flow (Trigger Point)		LPM	7
Piping Connections	Water Circuit	Inlet	mm(inch)	Male PT 25(1)
		Outlet	mm(inch)	Male PT 25(1)
	Refrigerant Circuit	Gas	mm(inch)	15.88 Ø (5/8)
		Liquid	mm(inch)	9.52 Ø (3/8)
Dimensions	Body	W x H x D	mm	490 x 850 x 315
Net Weight	Body		kg	41
Sound Power Level	Heating	Rated	dB(A)	44

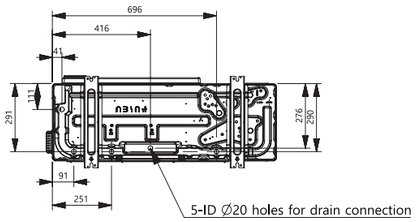
PRODUCT & SPECIFICATION

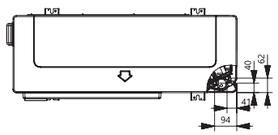
Drawings

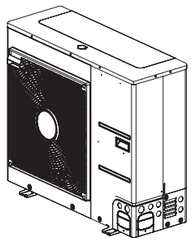
Category	Unit	Model Name		
		Capacity (kW)		
		5.5	7.0	9.0
1 Phase Model 1Ø, 220 ~ 240V, 50Hz	Outdoor Unit	HU051MR U44	HU071MR U44	HU091MR U44
	Indoor Unit	HN0916M NK4		

HU051MR U44 / HU071MR U44 / HU091MR U44

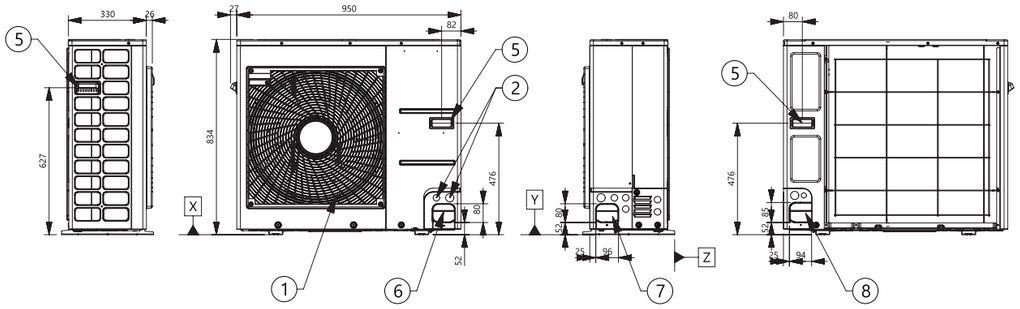
[Unit : mm]



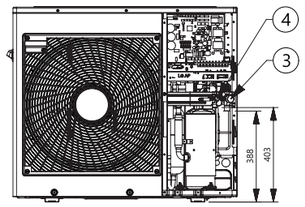




3D View

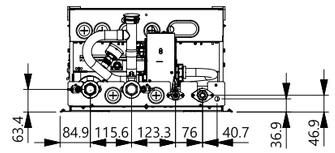


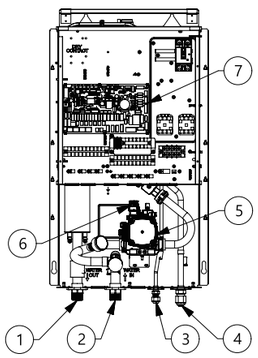
No.	Part Name	Description
1	Air Outlet	-
2	Power and Communication Cable Hole	-
3	Gas Pipe Connection	Flare joint
4	Liquid Pipe Connection	Flare joint
5	Handle	-
6	Pipe Routing Hole (Front)	-
7	Pipe Routing Hole (Side)	-
8	Pipe Routing Hole (Back)	-

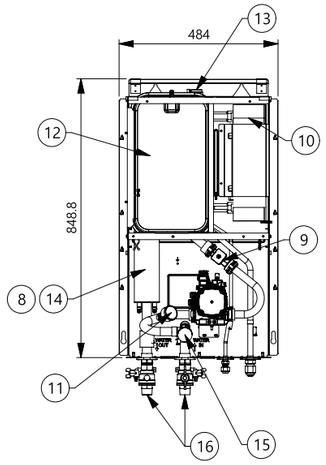


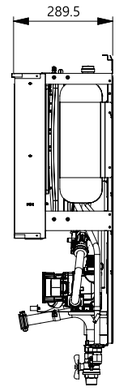
Piping Connection Port

[Unit : mm]



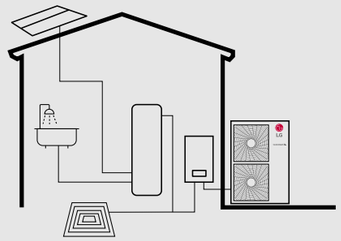






No.	Part Name	Description
1	Leaving Water Pipe	Male PT 1inch
2	Entering Water Pipe	Male PT 1inch
3	Refrigerant Pipe	9.52 Ø (mm)
4	Refrigerant Pipe	15.88 Ø (mm)
5	Water Pump	GROUNDFOS UPM3K 20-75 CHBL
6	Safety Valve	Open at water pressure 3bar
7	Control Box	PCB and terminal blocks
8	Thermal Switch	Cut-off power input to electric heater at 90°C (Manual return at 55°C)
9	Flow Sensor	SIKA VVX20 5-80LPM
10	Plate Heat Exchanger	Heat exchange between refrigerant and water
11	Pressure Gage	Indicates circulating water pressure
12	Expansion Tank	Absorbing Volume change of heated water
13	Air Vent	Air purging when Charging water
14	Electric Heater	6kW
15	Strainer	Filtering and stacking particles inside circulating water
16	Shut-off Valve	To drain or to block water when pipe connecting

SPLIT HYDRO BOX TYPE



Excellent Performance

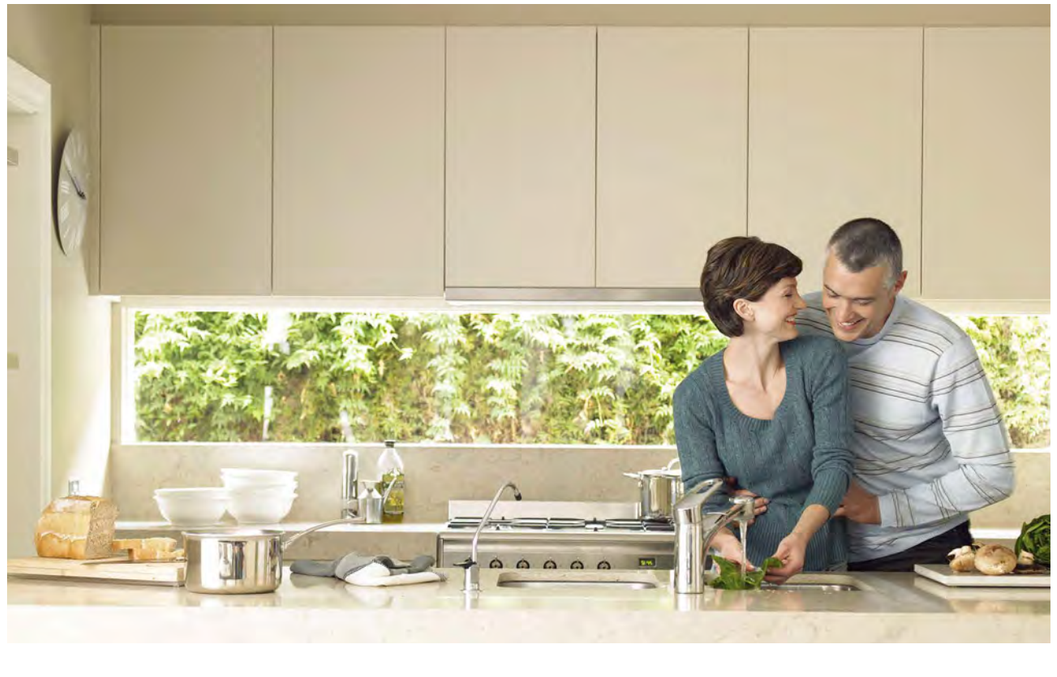
- High energy efficiency.
- Energy efficiency at -2°C.
- Corrosion resistant heat exchanger.

User Convenience

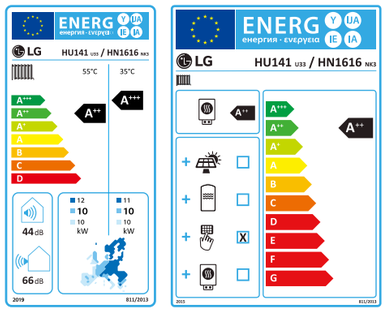
- Controller with intuitive interface.
- LG own Wi-Fi solution. (SmartThinQ™)
- Seasonal auto mode.
- Silent mode & Scheduler.

Easy Installation & Maintenance

- Easy commissioning by PC tool. (LG heating configurator)
- 3 way piping.



Energy Labeling



* 14kW 1Ø model.
* A+++ to D Scale.

Split Hydro Box Concept

THERMA V Split hydro box type is that the indoor and outdoor unit are separated. These two units are connected by refrigerant piping and water side components such as PHE, expansion tank, water pump are located inside of indoor unit.
Further, all water lines related to the heating are located indoor, so it is easy to withstand freezing issues regardless of outside ambient temperature.

Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.

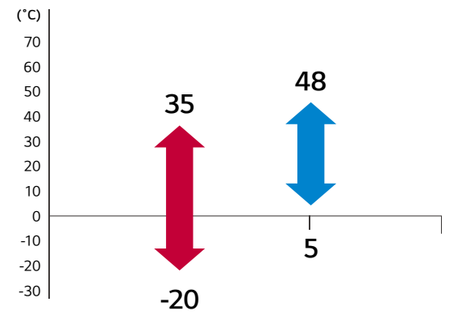
Capacity Range (Heating & Cooling)

Split Hydro Box Type

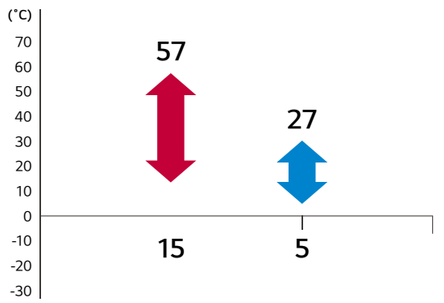
Capacity Range [kW]	6	8	10	11	12	13	14	15	16	17
Heating Capacity					●		●		●	
Cooling Capacity			●		●	●				

Operation Range (Heating & Cooling)

Ambient Temperature



Leaving Water Temperature



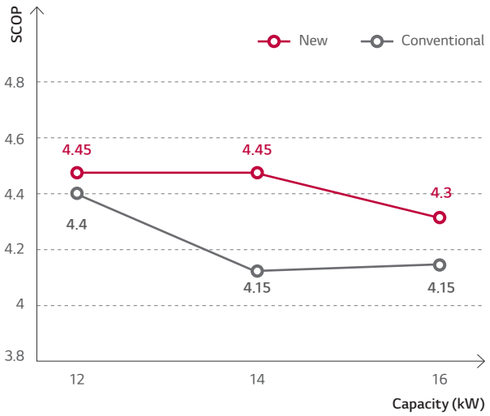
EXCELLENT PERFORMANCE

High Energy Efficiency

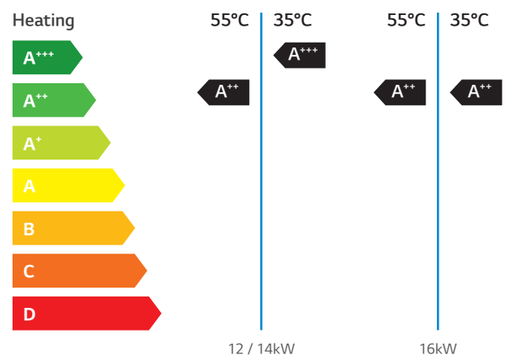
The energy label eirective is a key factor of selecting heating device in Europe heating market.
THERMA V Split type has an energy label rating over A+++ in ErP energy labeling regulation.

SCOP

Max. 8% SCOP improvement



ErP Energy Labeling



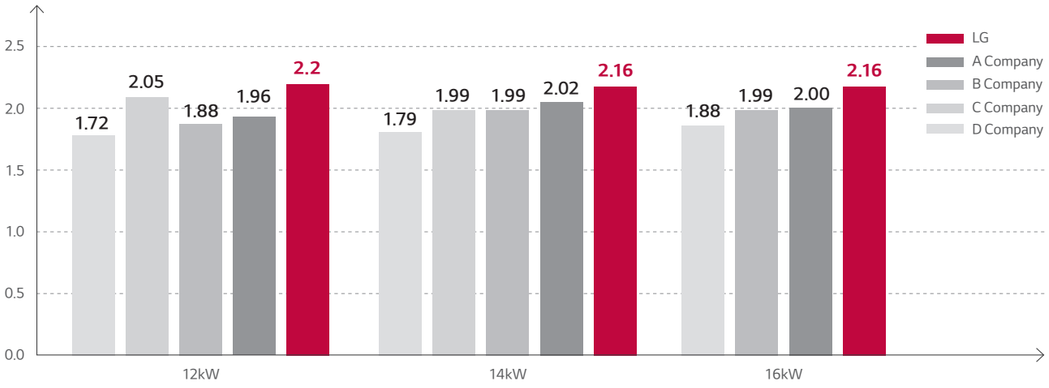
* Test Condition
Test procedure follows EN14825 (Low temp. average), Based on the single phase model line up.

Note
1. Seasonal space heating efficiency class at water outlet 35°C and this A+++ label is available from 26, Sep. 2019

Energy Efficiency at -2°C

Energy efficiency is higher than others. (Condition : Ambient temp. -2°C / Leaving water temp. 55°C)

Heating COP (A -2 / W55)

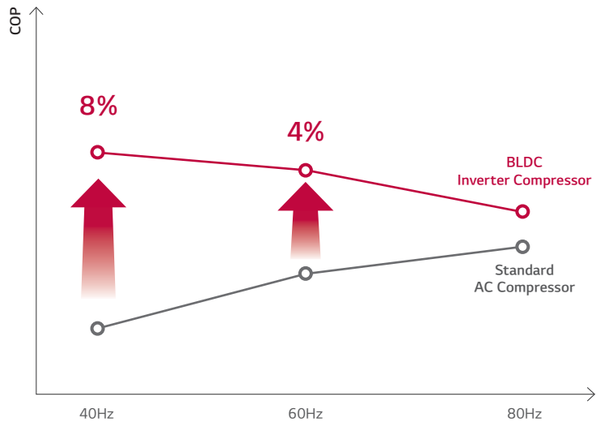


* Peak value / Monobloc models.

BLDC (Brushless Direct Current Motor) Compressor

THERMA V is equipped with a BLDC compressor that uses a strong neodymium magnet.
The compressor has improved efficiency compared to standard AC inverter product and it is optimized for seasonal efficiency.

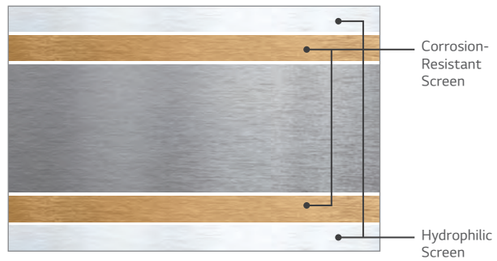
- Minimized oil circulation
- High efficiency motor
- Optimized compression
- Optimized vibration, noise
- High reliability



Corrosion Resistant Heat Exchanger

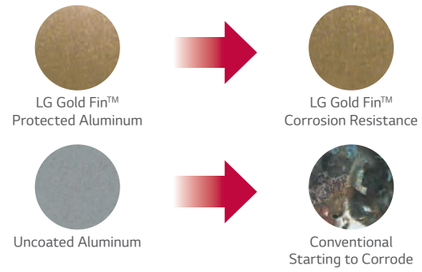
Outdoor heat exchanger is coated with a gold-colored anti-corrosive epoxy treatment on the aluminum coil, to prevent corrosion. This exhibits pre-eminent heat transfer properties of the coil for a lengthy period, whereas non-Gold Fin™ coils progressively lose efficiency due to surface corrosion. Gold Fin™ fin is extremely suitable for areas affected by high pollution and areas exposed to salt water breeze.

Composition of Fin Screens



Aluminum Material

Salt Spray Test for 15 Days



- Gold Fin™ is long lasting, durable and makes the outdoor unit look prestigious.

USER CONVENIENCE

Controller with Intuitive Interface

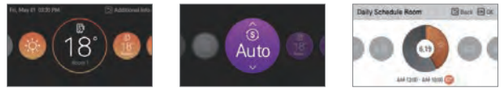
The Split hydro box type is equipped with new remote controller.

Premium Design

- New modern design 4.3 inch color LCD display.
- Capacitive touch button. (Especially On/Off button turn on LED)

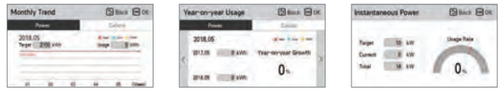
User Friendly Interface

- Information displayed with simple graphic, icon & text.
- Navigation button, easy to use.



Enhanced Energy Information with Simple Interface

- A clear view of instantaneous power consumption against target.
- Accumulated power consumption and produced heat energy per week, month, or year.



Convenient Functions

- Optimize schedule setting logic.
  - Set the period, date, On/Off time, operation mode, target temp. easy installation setting.

LG Own Wi-Fi Solution

Access your THERMA V anytime from anywhere.

Simple Operation for Various Functions

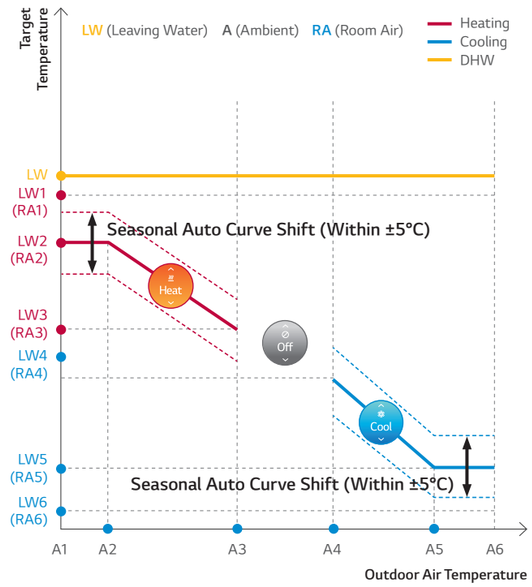
- On/Off
- Operation mode selection
- Current temperature
- Set temperature
- On/Off reservation
- Energy monitoring

Mandatory accessory :
PWFMDD200 (LG Wi-Fi modem).
PWYREW000 (10m extension connect cable in between THERMA V indoor and Wi-Fi module) could be required depends on installation condition.

Seasonal Auto Mode

In this mode, the target temperature will vary according to the outdoor temperature automatically.
This mode adds the cooling season function to the conventional weather dependent operation mode.

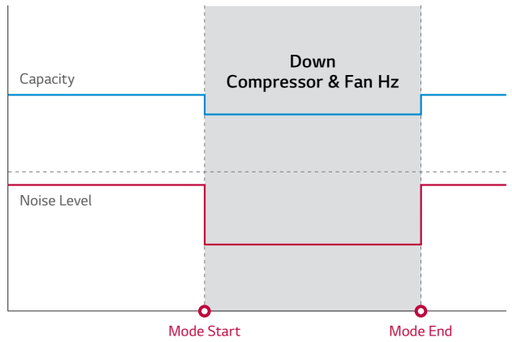
Setting	Description	Range (°C)	Default (°C)
A1	Lowest Ambient Temp.	Fix	-15
A2	Heating Lower Ambient Temp.	-15 ~ 24	-10
A3	Heating Higher Ambient Temp.		16
A4	Cooling Lower Ambient Temp.	10 ~ 43	30
A5	Cooling Higher Ambient Temp.		40
A6	Highest Ambient Temp.	Fix	43
LW1	Heating Highest Water Temp.	15 ~ 57	57
LW2	Heating Higher Water Temp.		35
LW3	Heating Lower Water Temp.		28
LW4	Cooling Higher Water Temp.	5 ~ 25	20
LW5	Cooling Lower Water Temp		16
LW6	Cooling Lowest Water Temp.		16
RA1	Heating Highest Air Temp	16 ~ 30	30
RA2	Heating Higher Air Temp.		30
RA3	Heating Lower Air Temp.		26
RA4	Cooling Higher Air Temp.	18 ~ 30	22
RA5	Cooling Lower Air Temp.		18
RA6	Cooling Lowest Air Temp.		18



Silent Mode & Scheduler

Silent mode operation can reduce the noise level by remote controller and users can set the weekly On/Off schedule too.

Heating Capacity (kW)	Heating Sound Pressure dB(A)	
	(kW)	Silent Mode
5	51	48
7	52	48
9	52	48
12	53	50
14	53	50
16	53	50



EASY INSTALLATION & MAINTENANCE

Easy Commissioning

Pre-Installation Setting

- Based on installation site information, installers can prepare presetting with LG heating configurator and save data into memory card from office.
- At the site, then installers can simply insert memory card at the back of remote controller to activate configuration data.

3 Way Piping

- The pipes can be connectable in 3 directions.
- Neat & Easy installation by 3 way piping.

PRODUCT & SPECIFICATION

Split Hydro Box Type

IDU

HN1616.NK3

HN1639.NK3

ODU

HU121.U33

HU141.U33

HU161.U33

HU123.U33

HU143.U33

HU163.U33

011-1W0253

R410A 57°C A+++ EUROVENT CERTIFIED PERFORMANCE SmartThinQ®

Features

- High energy efficiency
- Maximum 57°C LWT
- Intuitive interface
- SmartThinQ™
- Corrosion resistant heat exchanger
- KEYMARK / EHPA certification / Eurovent certification

Model Line Up

Category	Unit	Model Name		
		Capacity (kW)		
		12.0	14.0	16.0
1 Phase Model 1Ø, 220 ~ 240V, 50Hz	Outdoor Unit	HU121.U33	HU141.U33	HU161.U33
	Indoor Unit	HN1616.NK3		
3 Phase Model 3Ø, 380 ~ 415V, 50Hz	Outdoor Unit	HU123.U33	HU143.U33	HU163.U33
	Indoor Unit	HN1639.NK3		

Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.
2. LWT : Leaving Water Temperature.
3. EHPA for Austria
4. EHPA approval model : HU123.U33, HU143.U33, HU163.U33.

Seasonal Energy

Description			Outdoor Unit	HU121.U33	HU141.U33	HU161.U33	HU123.U33	HU143.U33	HU163.U33
			Indoor Unit	HN1616.NK3			HN1639.NK3		
Space Heating (According to EN14825)	Average Climate Water Outlet 35°C	SCOP	-	4.45	4.45	4.30	4.45	4.45	4.30
		Rated Heat Output (Prated)	kW	9	10	10	9	10	10
		Seasonal Space Heating Efficiency (ηs)	%	175	175	169	175	175	169
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+++	A+++	A++	A+++	A+++	A++
		Annual Energy Consumption	kWh	4,177	4,408	4,802	4,179	4,410	4,804
	Average Climate Water Outlet 55°C	SCOP	-	3.32	3.32	3.32	3.32	3.32	3.32
		Rated Heat Output (Prated)	kW	10	10	10	10	10	10
		Seasonal Space Heating Efficiency (ηs)	%	130	130	130	130	130	130
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A++	A++	A++	A++	A++	A++
		Annual Energy Consumption	kWh	6,154	6,154	6,154	6,156	6,156	6,156

Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.

Outdoor Unit Specification (1 Phase)

Description		OAT	LWT	Outdoor Unit	HU121.U33	HU141.U33	HU161.U33
				Indoor Unit	HN1616.NK3		
Nominal Capacity	Heating	7°C	35°C	kW	12.00	14.00	16.00
		2°C	35°C	kW	10.33	10.83	11.95
		-2°C	50°C	kW	11.89	11.89	11.89
		-7°C	35°C	kW	11.00	12.50	13.50
	Cooling	35°C	18°C	kW	10.40	12.00	13.00
Nominal Power Input	Heating	7°C	35°C	kW	2.64	3.17	3.76
		2°C	35°C	kW	2.93	3.09	3.41
		-2°C	50°C	kW	5.25	5.25	5.25
		-7°C	35°C	kW	3.14	3.73	4.35
	Cooling	35°C	18°C	kW	2.60	3.08	3.60
COP	Heating	7°C	35°C	W/W	4.55	4.41	4.26
		2°C	35°C	W/W	3.52	3.51	3.50
		-2°C	50°C	W/W	2.27	2.27	2.27
		-7°C	35°C	W/W	3.50	3.35	3.10
EER	Cooling	35°C	18°C	W/W	4.00	3.90	3.61
Operation Range (Outdoor Air)	Heating	Min. ~ Max.		°CDB	-20 ~ 35		
	Cooling	Min. ~ Max.		°CDB	5 ~ 48		
Refrigerant	Type			-	R410A		
	GWP (Global Warming Potential)			-	2,088		
	Charge			kg	2.3		
				tCO_2eq	4.8		
	Chargeless Pipe Length			m	7.5		
	Additional Charging Volume			g/m	40		
Compressor	Quantity			EA	1		
	Type			-	Rotary		
Refrigerant Piping Connection	Outer Dia.	Liquid		mm(inch)	9.52 Ø (3/8)		
		Gas		mm(inch)	15.88 Ø (5/8)		
	Length	Min.		m	3		
		Standard		m	7.5		
		Max.		m	50		
	Level Difference (ODU ~ IDU)	Max.		m	30		
Dimensions	Unit	W x H x D		mm	950 x 1,380 x 330		
Weight	Unit			kg	94		
Sound Power Level	Heating	Rated		dB(A)	66		
Power Supply	Phase / Frequency / Voltage			Ø / Hz / V	1 / 50 / 220 ~ 240		
	Maximum Running Current			A	25		
	Recommended Circuit Breaker			A	40		

Note
1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound level values are measured at anechoic chamber. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
4. Performances are based on that interconnected pipe length is standard length and difference of elevation (Outdoor ~ Indoor unit) is zero.
5. This product contains fluorinated greenhouse gases.
6. LWT : Leaving Water Temperature, OAT : Outdoor Air Temperature.

PRODUCT & SPECIFICATION

Indoor Unit Specification (1 Phase)

Description			Unit	HN1616.NK3
Operation Range (Leaving Water)	Heating		°C	15 ~ 57
	Cooling	For Fan Coil Unit	°C	5 ~ 27
		For Under Floor	°C	16 ~ 27
Electric Heater	Power Supply	Phase / Frequency / Voltage	Ø / Hz / V	1 / 50 / 220 ~ 240
	Number of Heating Coil		EA	2
	Capacity		kW	3 + 3
	Maximum Running Current		A	32
Water Flow Rate	Min.		LPM	15
Piping Connections	Water Circuit	Inlet	mm(inch)	Male PT 25(1)
		Outlet	mm(inch)	Male PT 25(1)
	Refrigerant Circuit	Gas	mm(inch)	15.88 Ø (5/8)
		Liquid	mm(inch)	9.52 Ø (3/8)
Dimensions	Body	W x H x D	mm	490 x 850 x 315
Net Weight	Body		kg	43
Sound Power Level	Heating	Rated	dB(A)	44

Outdoor Unit Specification (3 Phase)

Description		OAT	LWT	Outdoor Unit	HU123.U33	HU143.U33	HU163.U33
				Indoor Unit	HN1639.NK3		
Nominal Capacity	Heating	7°C	35°C	kW	12.00	14.00	16.00
		2°C	35°C	kW	10.33	10.83	11.95
		-2°C	50°C	kW	11.89	11.89	11.89
		-7°C	35°C	kW	11.00	12.50	13.50
	Cooling	35°C	18°C	kW	10.40	12.00	13.00
Nominal Power Input	Heating	7°C	35°C	kW	2.64	3.17	3.76
		2°C	35°C	kW	2.93	3.09	3.41
		-2°C	50°C	kW	5.25	5.25	5.25
		-7°C	35°C	kW	3.14	3.73	4.35
	Cooling	35°C	18°C	kW	2.60	3.08	3.60
COP	Heating	7°C	35°C	W/W	4.55	4.41	4.26
		2°C	35°C	W/W	3.52	3.51	3.50
		-2°C	50°C	W/W	2.27	2.27	2.27
		-7°C	35°C	W/W	3.50	3.35	3.10
EER	Cooling	35°C	18°C	W/W	4.00	3.90	3.61
Operation Range (Outdoor Air)	Heating	Min. ~ Max.		°CDB	-20 ~ 35		
	Cooling	Min. ~ Max.		°CDB	5 ~ 48		
Refrigerant	Type			-	R410A		
	GWP (Global Warming Potential)			-	2,088		
	Charge			kg	2.3		
				tCO_2eq	4.8		
	Chargeless Pipe Length			m	7.5		
	Additional Charging Volume			g/m	40		
Compressor	Quantity			EA	1		
	Type			-	Rotary		
Refrigerant Piping Connection	Outer Dia.	Liquid		mm(inch)	9.52 Ø (3/8)		
		Gas		mm(inch)	15.88 Ø (5/8)		
	Length	Min.		m	3		
		Standard		m	7.5		
		Max.		m	50		
	Level Difference (ODU ~ IDU)	Max.		m	30		
Dimensions	Unit	W x H x D		mm	950 x 1,380 x 330		
Weight	Unit			kg	94		
Sound Power Level	Heating	Rated		dB(A)	66		
Power Supply	Phase / Frequency / Voltage			Ø / Hz / V	3 / 50 / 380 ~ 415		
	Maximum Running Current			A	16.1		
	Recommended Circuit Breaker			A	20		

Note
1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes. And "Electric characteristics" chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound level values are measured at anechoic chamber. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
4. Performances are based on that interconnected pipe length is standard length and difference of elevation (Outdoor ~ Indoor unit) is zero.
5. This product contains fluorinated greenhouse gases.
6. LWT : Leaving Water Temperature, OAT : Outdoor Air Temperature.

Indoor Unit Specification (3 Phase)

Description			Unit	HN1639.NK3
Operation Range (Leaving Water)	Heating		°C	15 ~ 57
	Cooling	For Fan Coil Unit	°C	5 ~ 27
		For Under Floor	°C	16 ~ 27
Electric Heater	Power Supply	Phase / Frequency / Voltage	Ø / Hz / V	3 / 50 / 380 ~ 415
	Number of Heating Coil		EA	3
	Capacity		kW	3 + 3 + 3
	Maximum Running Current		A	32
Water Flow Rate	Min.		LPM	15
Piping Connections	Water Circuit	Inlet	mm(inch)	Male PT 25(1)
		Outlet	mm(inch)	Male PT 25(1)
	Refrigerant Circuit	Gas	mm(inch)	15.88 Ø (5/8)
		Liquid	mm(inch)	9.52 Ø (3/8)
Dimensions	Body	W x H x D	mm	490 x 850 x 315
Net Weight	Body		kg	45
Sound Power Level	Heating	Rated	dB(A)	44

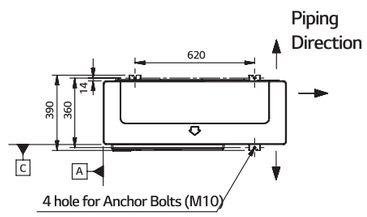
PRODUCT & SPECIFICATION

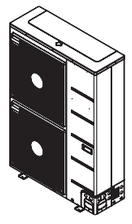
Drawings

Category	Unit	Model Name		
		Capacity (kW)		
		12.0	14.0	16.0
1 Phase Model 1Ø, 220 ~ 240V, 50Hz	Outdoor Unit	HU121.U33	HU141.U33	HU161.U33
	Indoor Unit	HN1616.NK3		
3 Phase Model 3Ø, 380 ~ 415V, 50Hz	Outdoor Unit	HU123.U33	HU143.U33	HU163.U33
	Indoor Unit	HN1639.NK3		

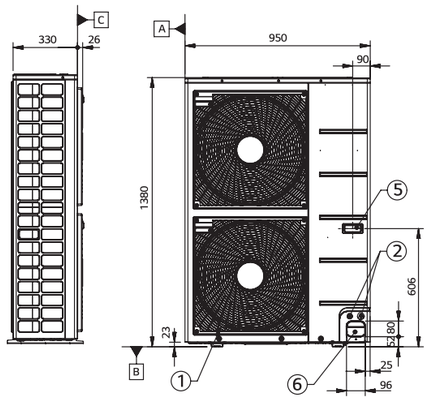
HU121.U33 / HU141.U33 / HU161.U33 / HU123.U33 / HU143.U33 / HU163.U33

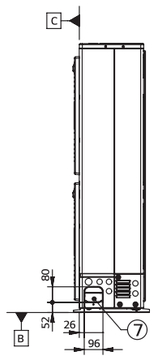
[Unit : mm]

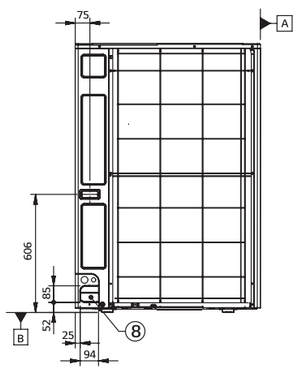




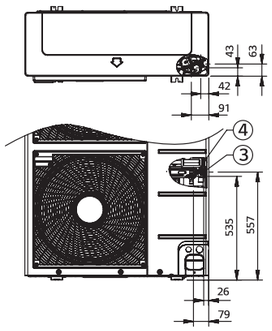
3D View







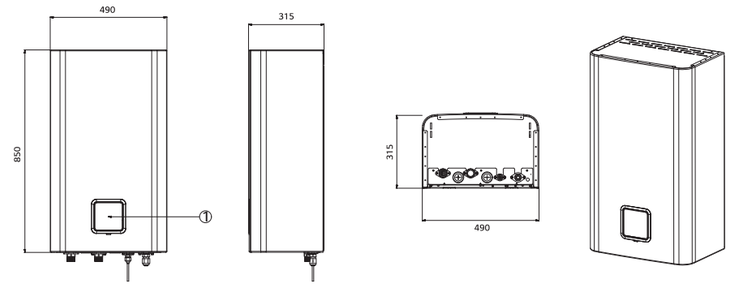
No.	Part Name	Description
1	Air Outlet	-
2	Power and Communication Cable Hole	-
3	Gas Pipe Connection	Flare joint
4	Liquid Pipe Connection	Flare joint
5	Handle	-
6	Pipe Routing Hole (Front)	-
7	Pipe Routing Hole (Side)	-
8	Pipe Routing Hole (Back)	-



Piping Connection Port

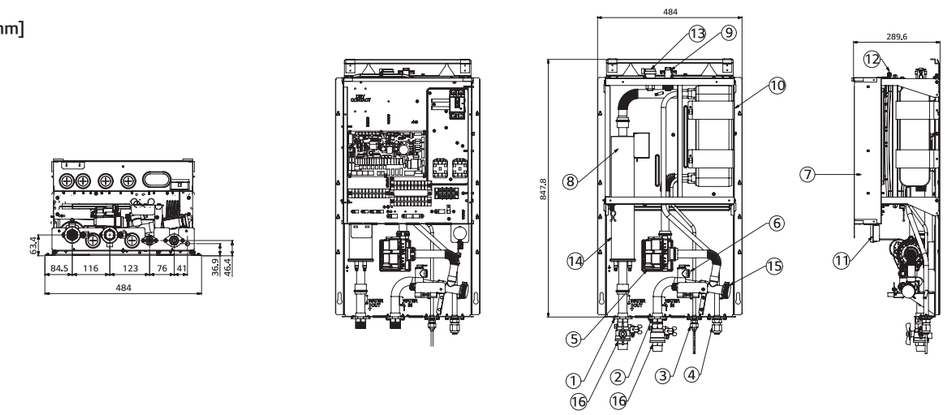
HN1616.NK3 / HN1639.NK3

External
[Unit : mm]



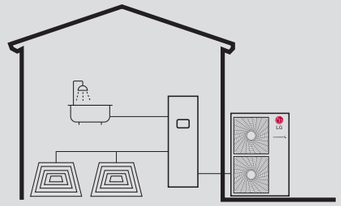
No.	Part Name	Description
1	Control Panel	Built-in Remote Controller

Internal
[Unit : mm]



No.	Part Name	Description
1	Leaving Water Pipe	Male PT 1inch
2	Entering Water pipe	Male PT 1inch
3	Refrigerant Pipe	9.52 Ø (mm)
4	Refrigerant Pipe	15.88 Ø (mm)
5	Water Pump	Max Head 9.5 / 7 / 6m
6	Safety Valve	Open at water pressure 3bar
7	Control Box	PCB and terminal blocks
8	Thermal Switch	Cut-off power input to electric heater at 90°C (Manual return at 55°C)
9	Flow Switch	Minimum operation range at 15LPM
10	Plate Heat Exchanger	Heat exchange between refrigerant and water
11	Pressure Gage	Indicates circulating water pressure
12	Expansion Tank	Absorbing Volume change of heated water
13	Air Vent	Air purging when Charging water
14	Electric Heater	Please refer to the below Page 'Model name and related information'
15	Strainer	Filtering and stacking particles inside circulating water
16	Shut-Off Valve	To drain or to block water when pipe connecting

SPLIT DHW TANK INTEGRATED TYPE



Excellent Performance

- Space heating efficiency.
- Pressure control & Quick operation.

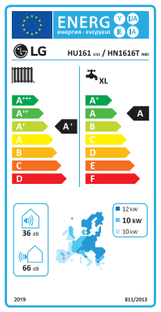
User Convenience

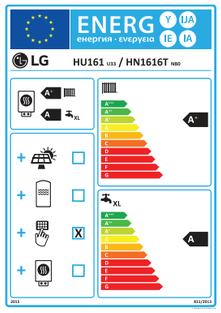
- Sophisticated and harmonious exterior.
- Quiet operation.
- 2nd heating circuit.
- Controller for convenient control.

Easy Installation & Maintenance

- Save space & Time.
- 200 liter DHW tank with extra 40 liter buffer tank.
- Flexible refrigerant piping design.

Energy Labeling

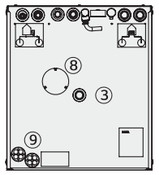


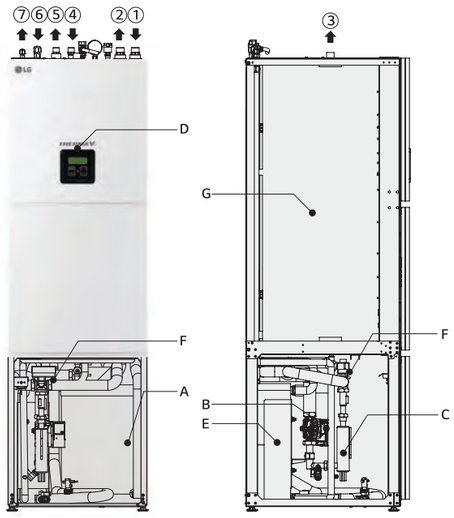


* 16kW 1Ø model.
* A+++ to D Scale.

Split DHW Tank Integrated Concept

THERMA V Split DHW tank integrated type is that indoor unit is combined with domestic hot water tank while outdoor unit is located outside separately. It is more suitable for less indoor space, because water side components such as DHW tank and buffer tank normally installed additionally are combined as one unit.





Key Components

No.	Part Name	No.	Part Name
1	Heating / Cooling Inlet	A	Buffer Tank
2	Heating / Cooling Outlet	B	Circulating Pump
3	Warm Sanitary	C	Electric Flow Heater
4	DHW - Circulation	D	TT3000 Controller
5	Cold Sanitary Water - Supply	E	Condenser
6	Gas Pipe 5/8" - Refrigerant	F	3 Way Valve
7	Liquid Pipe 3/8" - Refrigerant	G	DHW Tank
8	Mg. Anode		

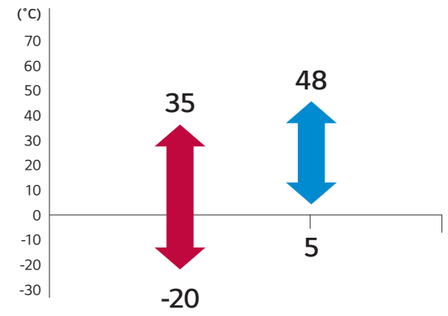
Capacity Range (Heating & Cooling)

Split DHW Tank Integrated Type

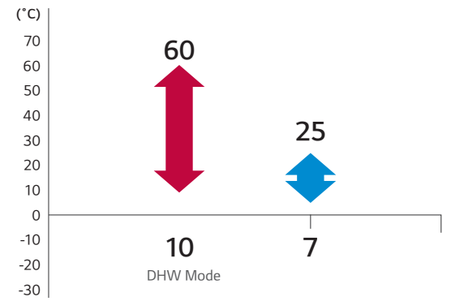
Capacity Range [kW]	5	6	7	8	9	10	11	12	13	14	15	16	17
Heating Capacity					●			●		●		●	
Cooling Capacity					●	●	●	●					

Operation Range (Heating & Cooling)

Ambient Temperature



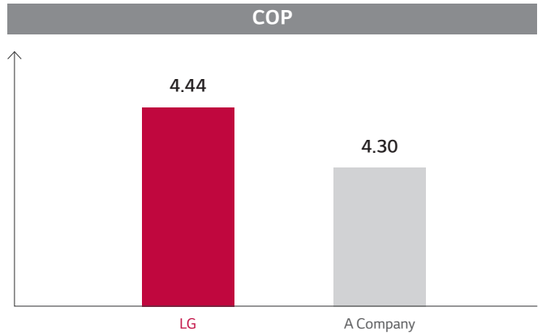
Leaving Water Temperature



EXCELLENT PERFORMANCE

Space Heating Efficiency

The energy label directive is a key factor of selecting heating device in Europe heating market.
THERMA V split DHW tank integrated type has an energy label rating A++ in ErP energy labeling regulation.



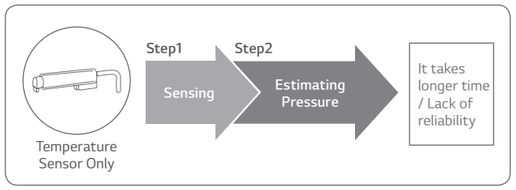
* Test Condition
  Ambient temp. 7°C / Leaving water temp. 35°C, Based on 14kW set.

Pressure Control & Quick Operating

Pressure control secures faster and more exact response than temperature control, so it reduces the time to reach the target water temperature by 44%.

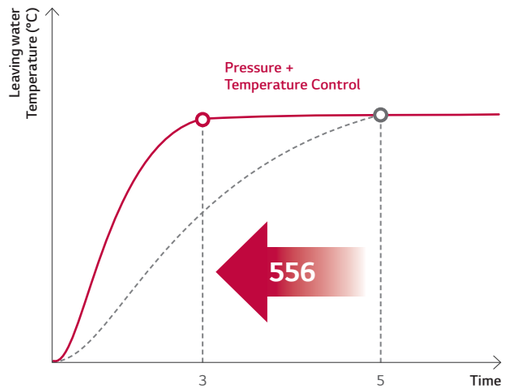
SCOP

- Quick response due to sensing with ready for operation.
- Ensures to reach target performance point without failing to keep a reliable operation.



ErP Energy Labeling

- Pressure control takes up to 44% less time to reach the desired water temperature with a high level of accuracy and stability.



* Based on internal test data.

Sophisticated and Harmonious Exterior

It is good to install in indoor space like utility room, kitchen, etc. due to the sophisticated & harmonious exterior with white color and modern design.

Quiet Operation

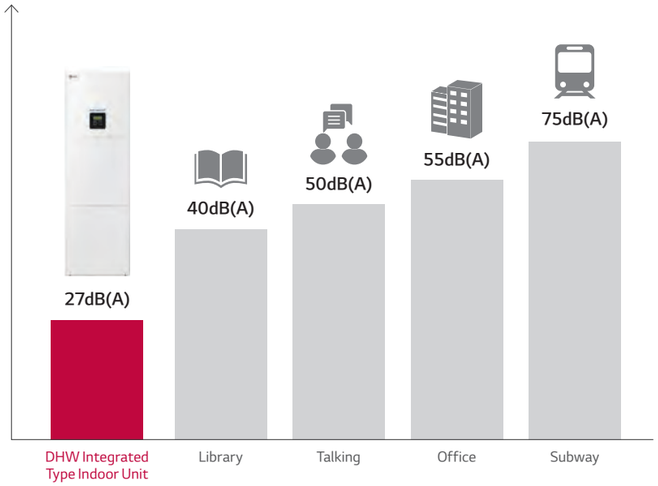
Due to quiet operation, it creates an atmosphere of calm and restfulness in case of indoor installation.

Operation Noise

- Sound power level : 36dB(A)
- Sound pressure level : 27dB(A)

Quiet operation.
Calm and restfulness indoor environment.

Sound Pressure Level Comparison

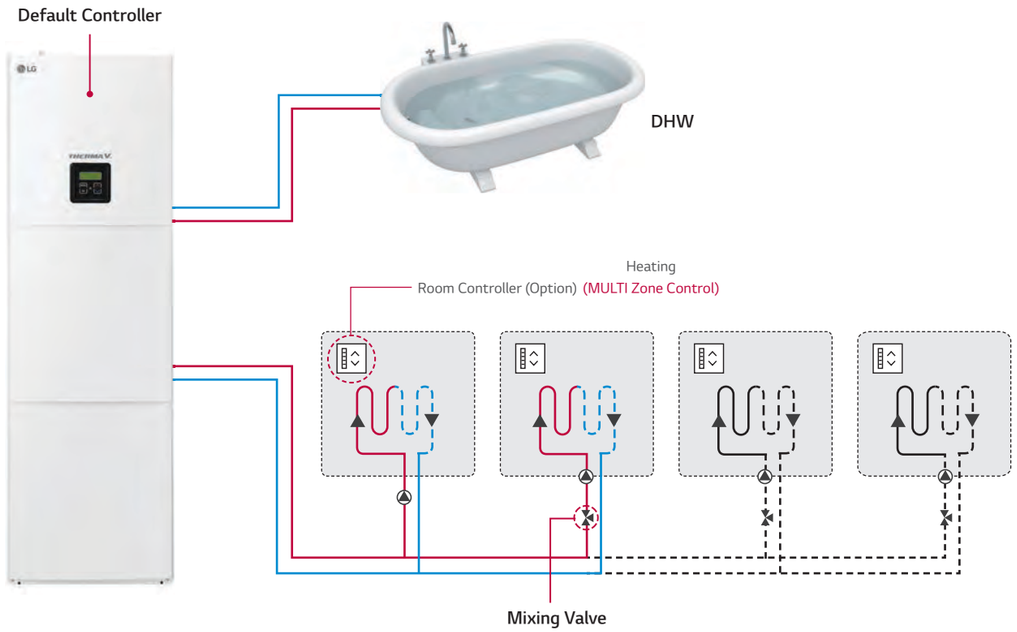


USER CONVENIENCE

2nd Heating Circuit

Possible heating individually through separate heating circuits with a controller and a mixing valve.

Basically 2 heating circuits with individual control.



EASY INSTALLATION & MAINTENANCE

Save Space & Time

Compared with conventional system, easy & quick installation is possible and smaller spaces are required for installation.

Conventional

- Enough rooms for product installation.
- Need to secure the space for water tank.
- More water piping work & More installation time.

New (DHW Tank Integrated Type)

All In One

Small space for product installation
200 liter DHW tank with extra 40 liter.

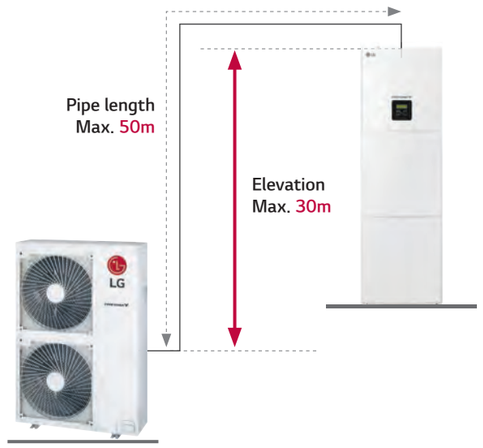
Less Water Piping Work

More easy & Save time.

Flexible Refrigerant Piping Design

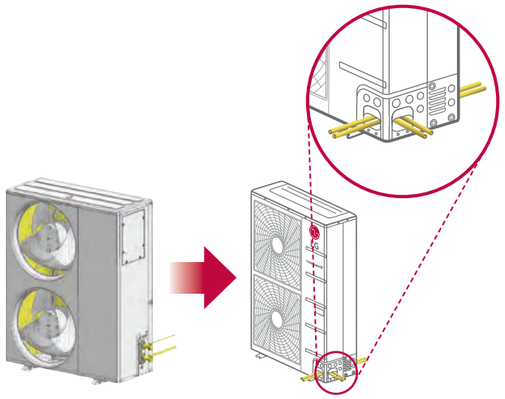
Long piping length and 3 way piping enable flexible design and easy installation.

Piping Capabilities



3 Way Piping

- The pipes can be connected in 3 directions.
- Neat & easy installation by 3 way piping.



PRODUCT & SPECIFICATION

Split DHW Tank Integrated Type

IDU

HN1616T.NB0

ODU

HU091.U43
HU121.U33
HU141.U33
HU161.U33
HU123.U33
HU143.U33
HU163.U33

Mandatory accessory :
PP485B00K.ENCXLEU

R410A 58°C A++

Features

- Space (Floor) heating efficiency with ErP A++ class
- Maximum 58°C LWT
- Corrosion resistant heat exchanger
- EHPA certification

Model Line Up

Category	Unit	Model Name			
		Capacity (kW)			
		9.0	12.0	14.0	16.0
1 Phase Model 1Ø, 220 ~ 240V, 50Hz	Outdoor Unit	HU091.U43	HU121.U33	HU141.U33	HU161.U33
	Indoor Unit	HN1616T.NB0			
3 Phase Model 3Ø, 380 ~ 415V, 50Hz	Outdoor Unit	-	HU123.U33	HU143.U33	HU163.U33
	Indoor Unit	-	HN1616T.NB0		

Note
1. PP485B00K. ENCXLEU is required for communication between outdoor unit and indoor unit. (Install at outdoor unit)
2. LWT : Leaving Water Temperature.
3. EHPA for Austria.
4. EHPA approval model : HU091.U43, HU123.U33, HU143.U33, HU163.U33.

Seasonal Energy

Description			Outdoor Unit	HU091.U43	HU121.U33	HU141.U33	HU161.U33	HU123.U33	HU143.U33	HU163.U33
			Indoor Unit	HN1616T.NB0						
Space Heating (According to EN14825)	Average Climate Water Outlet 35°C	SCOP	-	4.04	4.20	4.15	4.15	4.20	4.15	4.15
		Rated Heat Output (Prated)	kW	7	10	10	11	10	10	11
		Seasonal Space Heating Efficiency (ηs)	%	159	165	163	163	165	163	163
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A++	A++	A++	A++	A++	A++	A++
		Annual Energy Consumption	kWh	3,321	4,820	5,183	5,376	4,820	5,183	5,376
	Average Climate Water Outlet 55°C	SCOP	-	2.88	3.00	3.00	3.00	3.00	3.00	3.00
		Rated Heat Output (Prated)	kW	6	10	10	10	10	10	10
		Seasonal Space Heating Efficiency (ηs)	%	112	117	117	117	117	117	117
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+	A+	A+	A+	A+	A+	A+
		Annual Energy Consumption	kWh	4,020	6,755	6,755	6,755	6,755	6,755	6,755
Domestic Hot Water Heating	General	Declared Load Profile	-	XL	XL	XL	XL	XL	XL	XL
	Average Climate	Water Heating Efficiency (ηwh)	%	98	89	89	89	89	89	89
		Water Heating Energy Eff. Class	-	A	A	A	A	A	A	A

Indoor Unit Specification (200L)

Description			Unit	HN1616T.NB0		
Operation Range (Leaving Water)	Heating		°C	25 ~ 58		
	Cooling		°C	7 ~ 25		
	Domestic Hot Water		°C	10 ~ 60		
Electric Heater	Power Supply	Phase / Frequency / Voltage	Ø / Hz / V	1 / 50 / 220 ~ 240	1 / 50 / 220 ~ 240	3 / 50 / 380 ~ 415
	Number of Heating Coil		EA	1	2	3
	Capacity		kW	2	2 + 2	2 + 2 + 2
	Maximum Running Current		A	11.1	19.9	11.1
	Recommended Circuit Breaker		A	16	20	16
Water Flow Rate	Min.		LPM	13		
Piping Connections	Water Circuit	Inlet	mm(inch)	Male PT 25(1)		
		Outlet	mm(inch)	Male PT 25(1)		
	Refrigerant Circuit	Gas	mm(inch)	15.88 Ø (5/8)		
		Liquid	mm(inch)	9.52 Ø (3/8)		
	DHW Tank Water Circuit	Cold Inlet	mm(inch)	Male PT 19.05 (3/4)		
		Hot Outlet	mm(inch)	Male PT 25 (1)		
		Recirculation	mm(inch)	Male PT 19.05 (3/4)		
DHW Tank	Type		-	Hydro module with integrated boiler		
	Material		-	Enameled steel		
	Water Volume	Rated	ℓ	200		
	Internal Thermal Protect Limit		°C	95		
	Maximum Water Pressure Limit		bar	10		
	Insulation	Material	-	Polyurethane foam		
		Thickness	mm	50		
		Heat Loss (for 24hr)	kWh	1.67		
Buffer Tank	Water Volume	Rated	ℓ	40		
	Material		-	Steel powder coated		
	Insulation Material		-	Closed cell foamed rubber		
Dimensions	Body	W x H x D	mm	607 x 2,079 x 725		
Weight	Body		kg	228		
Sound Power Level	Heating	Rated	dB(A)	36		

PRODUCT & SPECIFICATION

Outdoor Unit Product Specification (1 Phase)

Description		OAT	LWT	Outdoor Unit	HU091.U43	HU121.U33	HU141.U33	HU161.U33
				Indoor Unit	HN1616T.NB0			
Nominal Capacity	Heating	7°C	35°C	kW	9.0	12.0	14.0	16.0
	Cooling	35°C	18°C	kW	9.0	10.4	11.0	12.0
Nominal Power Input	Heating	7°C	35°C	kW	2.23	2.78	3.43	4.18
	Cooling	35°C	18°C	kW	2.88	3.30	3.53	4.00
COP	Heating	7°C	35°C	W/W	4.04	4.32	4.08	3.83
EER	Cooling	35°C	18°C	W/W	3.12	3.15	3.12	3.00
Operation Range (Outdoor Air)	Heating	Min. ~ Max.		°CDB	-20 ~ 35			
	Cooling	Min. ~ Max.		°CDB	5 ~ 48			
Refrigerant	Type			-	R410A			
	GWP (Global Warming Potential)			-	2,088			
	Charge			kg	1.8	2.3		
				tCO_2eq	3.76	4.8		
	Chargeless Pipe Length			m	7.5			
	Additional Charging Volume			g/m	40			
Compressor	Quantity			EA	1			
	Type			-	Rotary			
Refrigerant Piping Connection	Outer Dia.	Liquid		mm(inch)	9.52 Ø (3/8)			
		Gas		mm(inch)	15.88 Ø (5/8)			
	Length	Min.		m	3			
		Standard		m	7.5			
		Max.		m	50			
	Level Difference (ODU ~ IDU)	Max.		m	30			
Dimensions	Unit	W x H x D		mm	950 x 834 x 330	950 x 1,380 x 330		
Weight	Unit			kg	59	94		
Sound Power Level	Heating	Rated		dB(A)	65	66		
Power Supply	Phase / Frequency / Voltage			Ø / Hz / V	1 / 50 / 220 ~ 240			
	Maximum Running Current			A	19	25		
	Recommended Circuit Breaker			A	30	40		

Note
1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes. And “Electric characteristics” chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound level values are measured at anechoic chamber. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
4. Performances are based on that interconnected pipe length is standard length and difference of elevation (Outdoor ~ Indoor unit) is zero.
5. This product contains fluorinated greenhouse gases.
6. LWT : Leaving Water Temperature, OAT : Outdoor Air Temperature.

Outdoor Unit Product Specification (3 Phase)

Description		OAT	LWT	Outdoor Unit	HU121.U33	HU141.U33	HU161.U33
				Indoor Unit	HN1616T.NB0		
Nominal Capacity	Heating	7°C	35°C	kW	12.0	14.0	16.0
	Cooling	35°C	18°C	kW	10.4	11.0	12.0
Nominal Power Input	Heating	7°C	35°C	kW	2.78	3.43	4.18
	Cooling	35°C	18°C	kW	3.30	3.53	4.00
COP	Heating	7°C	35°C	W/W	4.32	4.08	3.83
EER	Cooling	35°C	18°C	W/W	3.15	3.12	3.00
Operation Range (Outdoor Air)	Heating	Min. ~ Max.		°CDB	-20 ~ 35		
	Cooling	Min. ~ Max.		°CDB	5 ~ 48		
Refrigerant	Type			-	R410A		
	GWP (Global Warming Potential)			-	2,088		
	Charge			kg	2.3		
				tCO_2eq	4.8		
	Chargeless Pipe Length			m	7.5		
	Additional Charging Volume			g/m	40		
Compressor	Quantity			EA	1		
	Type			-	Rotary		
Refrigerant Piping Connection	Outer Dia.	Liquid		mm(inch)	9.52 Ø (3/8)		
		Gas		mm(inch)	15.88 Ø (5/8)		
	Length	Min.		m	3		
		Standard		m	7.5		
		Max.		m	50		
	Level Difference (ODU ~ IDU)	Max.		m	30		
Dimensions	Unit	W x H x D		mm	950 x 1,380 x 330		
Weight	Unit			kg	94		
Sound Power Level	Heating	Rated		dB(A)	66		
Power Supply	Phase / Frequency / Voltage			Ø / Hz / V	3 / 50 / 380 ~ 415		
	Maximum Running Current			A	16.1		
	Recommended Circuit Breaker			A	20		

Note
1. Due to our policy of innovation some specifications may be changed without notification.
2. Wiring cable size must comply with the applicable local and national codes. And “Electric characteristics” chapter should be considered for electrical work and design. Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound level values are measured at anechoic chamber. Therefore, these values depend on the ambient conditions and values are normally higher in actual operation.
4. Performances are based on that interconnected pipe length is standard length and difference of elevation (Outdoor ~ Indoor unit) is zero.
5. This product contains fluorinated greenhouse gases.
6. LWT : Leaving Water Temperature, OAT : Outdoor Air Temperature.

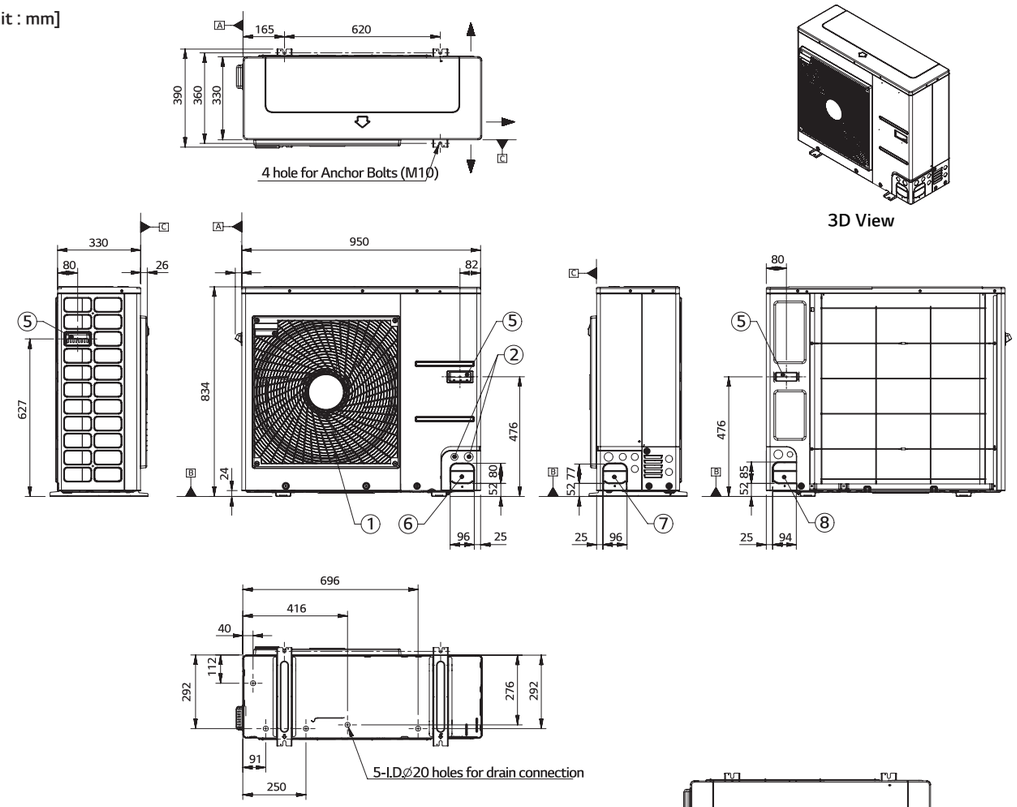
PRODUCT & SPECIFICATION

Drawings

Category	Unit	Model Name			
		Capacity (kW)			
		9.0	12.0	14.0	16.0
1 Phase Model 1Ø, 220 ~ 240V, 50Hz	Outdoor Unit	HU091.U43	HU121.U33	HU141.U33	HU161.U33
	Indoor Unit	HN1616T.NB0			
3 Phase Model 3Ø, 380 ~ 415V, 50Hz	Outdoor Unit	-	HU123.U33	HU143.U33	HU163.U33
	Indoor Unit	-	HN1616T.NB0		

HU091.U43

[Unit : mm]

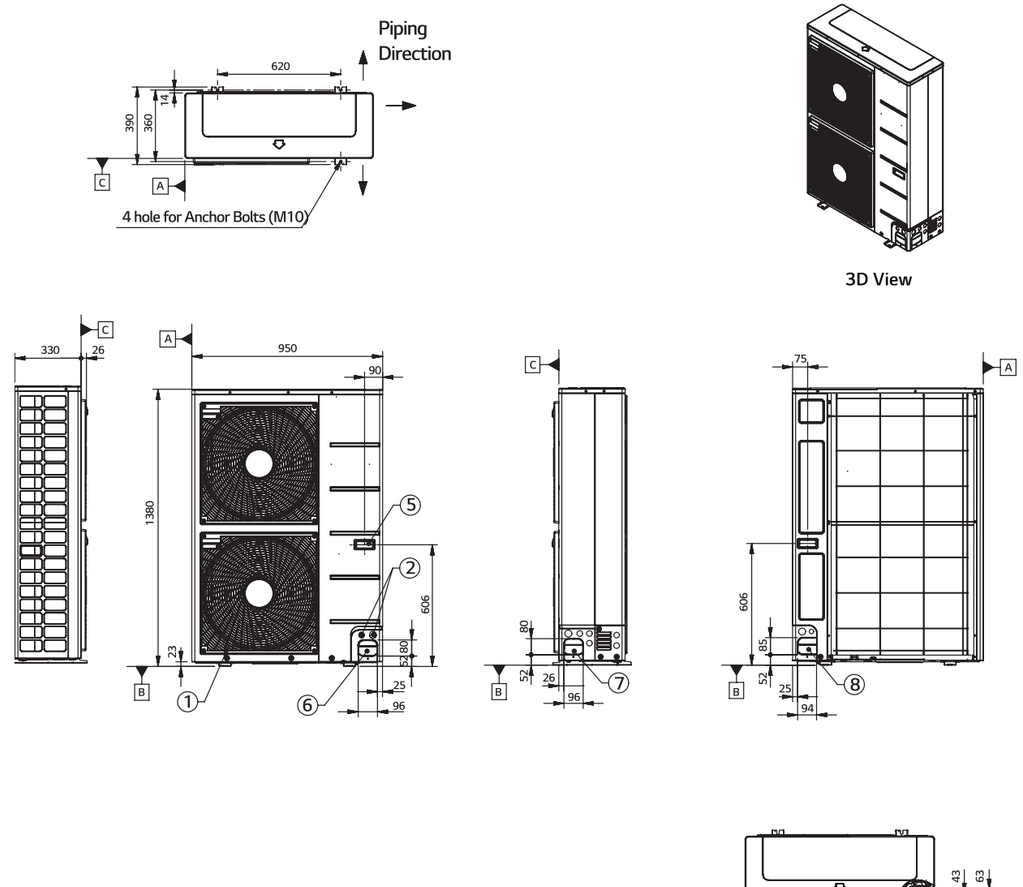


No.	Part Name	Description
1	Air Outlet	-
2	Power and Communication Cable Hole	-
3	Gas Pipe Connection	Flare joint
4	Liquid Pipe Connection	Flare joint
5	Handle	-
6	Pipe Routing Hole (Front)	-
7	Pipe Routing Hole (Side)	-
8	Pipe Routing Hole (Back)	-

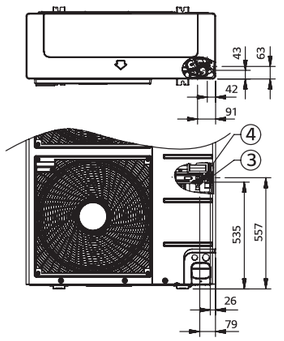
Piping Connection Port

HU121.U33 / HU141.U33 / HU161.U33 / HU123.U33 / HU143.U33 / HU163.U33

[Unit : mm]



No.	Part Name	Description
1	Air Outlet	-
2	Power and Communication Cable Hole	-
3	Gas Pipe Connection	Flare joint
4	Liquid Pipe Connection	Flare joint
5	Handle	-
6	Pipe Routing Hole (Front)	-
7	Pipe Routing Hole (Side)	-
8	Pipe Routing Hole (Back)	-

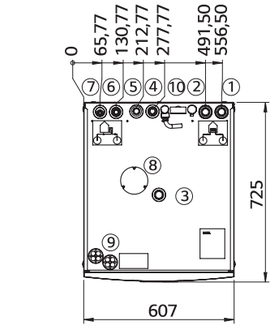


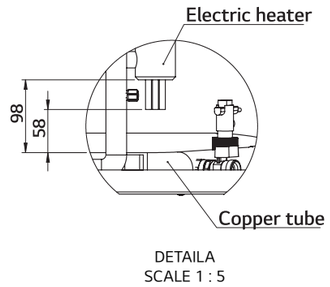
Piping Connection Port

PRODUCT & SPECIFICATION

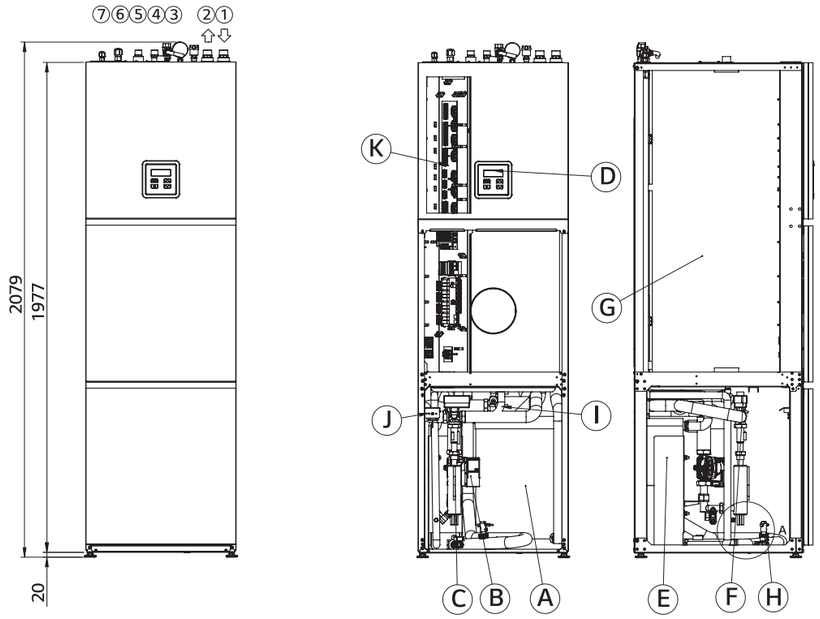
HN1616T.NB0

[Unit : mm]





DETAILA
SCALE 1 : 5

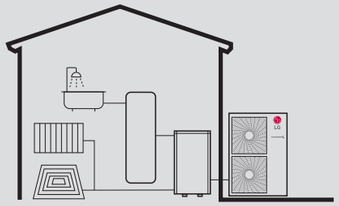


No.	Part Name	No.	Part Name
1	Heating / Cooling Inlet	A	Buffer Tank
2	Heating / Cooling Outlet	B	Circulating Pump
3	Warm Sanitary	C	Electric Flow Heater
4	DHW - Circulation	D	TT3000 Controller
5	Cold Sanitary Water - Supply	E	Condenser
6	Gas Pipe 5/8" - Refrigerant	F	3 Way Valve
7	Liquid Pipe 3/8" - Refrigerant	G	DHW Tank
8	Mg. Anode		

NEW

THERMA V

SPLIT HIGH TEMPERATURE



Excellent Performance

- Higher energy efficiency.
- Enhanced efficiency & Performance.
- Cascade 2 stage compression.

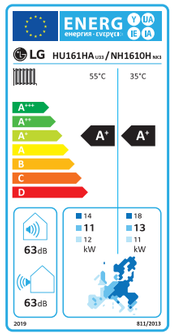
User Convenience

- Suitable for old radiator.
- Low noise.
- Quick defrosting.

Easy Installation & Maintenance

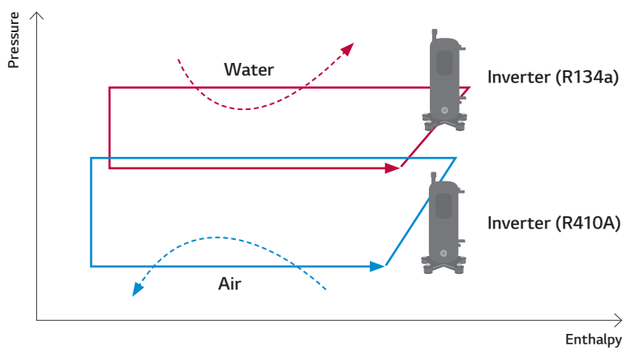
- Efficient & Flexible design.
- Light weight.
- Low current level.

Energy Labeling



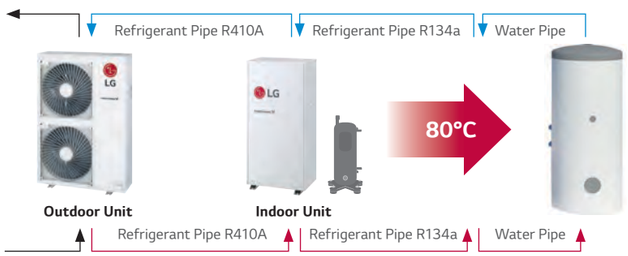
* 16kW 1Ø model.
* A+++ to D Scale.

THERMA V High Temperature Cycle



High Temperature Concept

THERMA V high temperature is suitable for houses which have poor insulation or existing old radiator, or have to meet sanitary water regulation which needs high water temperature.



Note
1. A+++ label is available from 26, Sep. 2019 and should be considered as A++ label until that time.

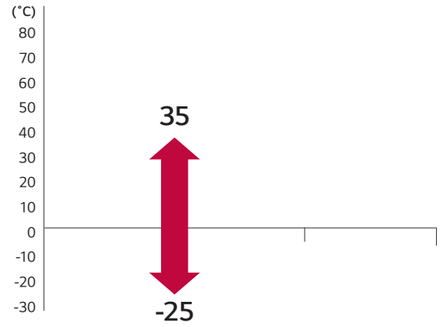
Capacity Range (Heating)

High Temperature Model

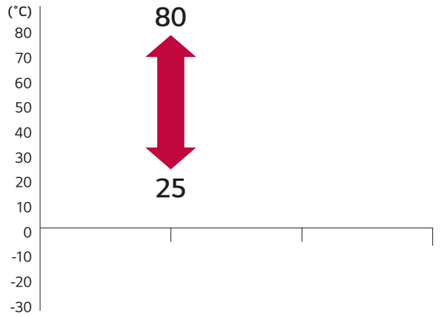
Capacity Range [kW]	5	6	7	8	9	10	11	12	13	14	15	16	17
Heating Capacity												●	

Operation Range (Heating)

Ambient Temperature



Leaving Water Temperature

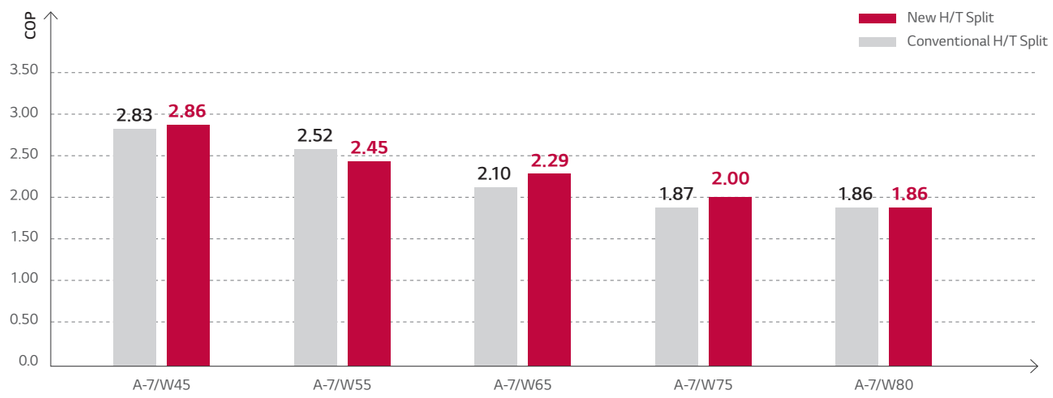


EXCELLENT PERFORMANCE

High Energy Efficiency

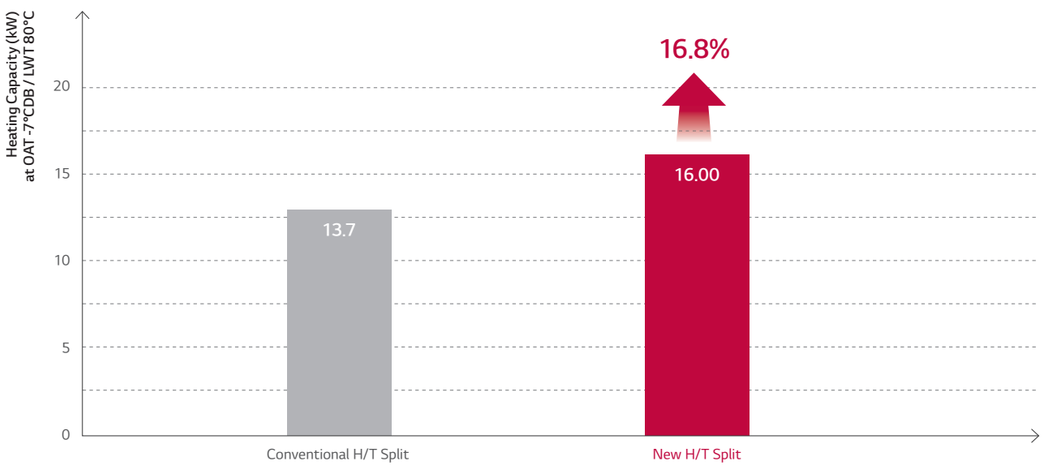
By applying efficient compressor and optimally designed structure, the more energy saving, the lower operating cost make sooner return on initial investment.

Heating COP at -7°C Outdoor Temperature



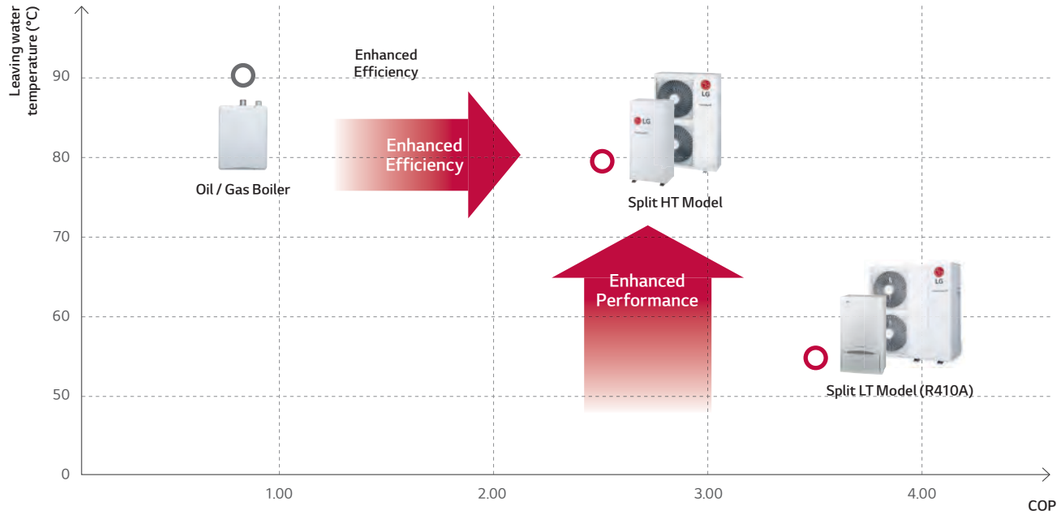
Excellent Performance at LAT

New H/T Split provides excellent heating performance – especially at low ambient remperature.
Even at outside temperatures of -7 °C and LWT of 80 °C, New H/T Split is able to provide 16kW heating capacity improved by 16.8% compared to the previous models.



Enhanced Efficiency & Performance

THERMA V high temp. can produce Max. 80°C hot water with high efficiency through cascade 2 stage compression technology.



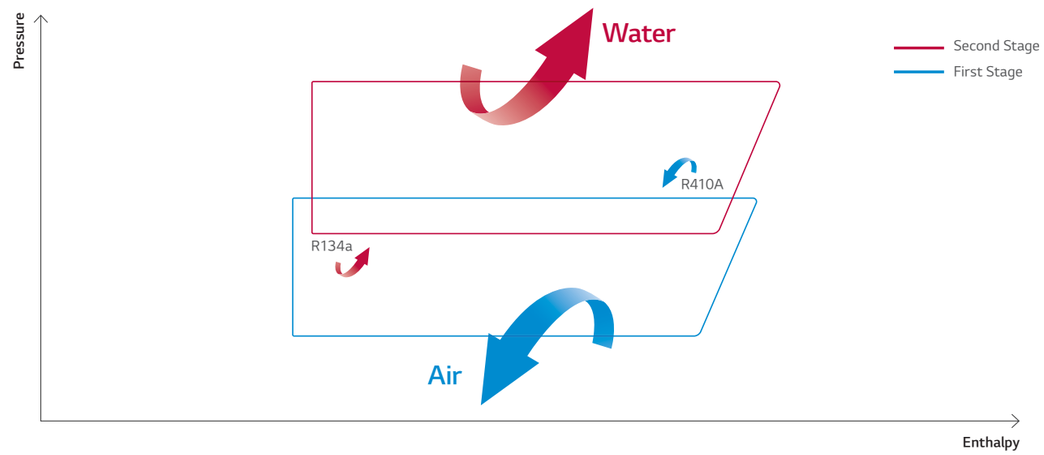
* Condition for HT model : Outdoor air temp. 18°C, Entering water temp. 70°C
* Condition for LT model : Outdoor air temp. 18°C, Entering water temp. 55°C

Note
1. OAT : Outdoor Air Temperature, EWT : Entering Water Temperature, LWT : Leaving Water Temperature.

Cascade 2 Stage Compression Technology

Max. 80°C hot water can be generated through cascade R410A to R134a BLDC compressor technology an disapplicable for existing old boiler heating system which demands hot water supply.

High Temperature through Cascade Cycle Technology



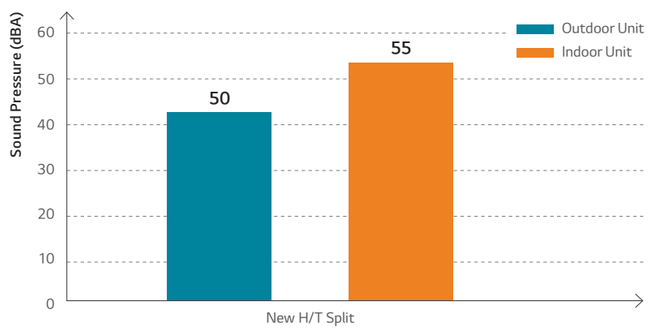
USER CONVENIENCE

Suitable for Old Radiator

THERMA V high temperature is suitable for houses which have poor insulation or existing old radiator, or have to meet sanitary water regulation which needs high water temperature.

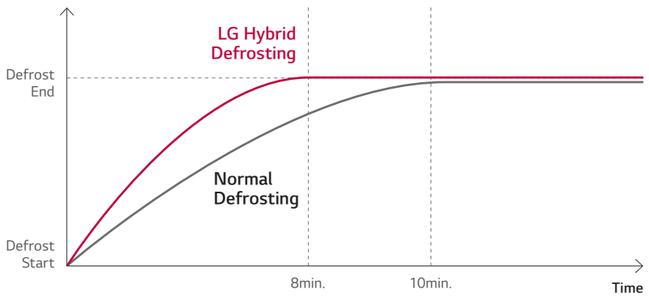
Low Noise Level

Through cutting edge technology for DC inverter compressor, operating noise level of indoor & outdoor unit has been reduced and serves more comfort.



Quick Defrosting

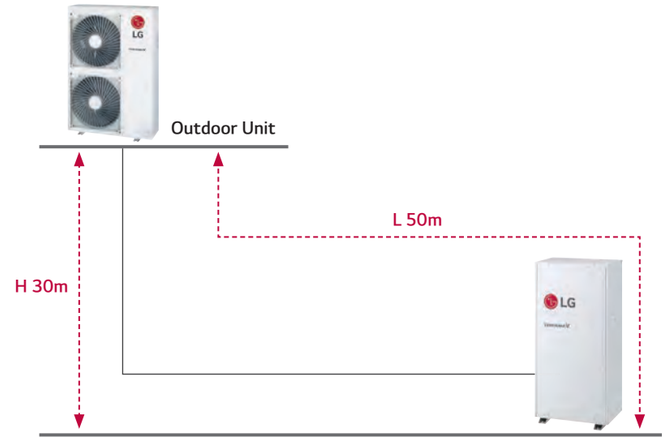
Through R134a compressor controlling technology, necessary time for defrost operation has been minimized effectively. (LG Patent)



EASY INSTALLATION & MAINTENANCE

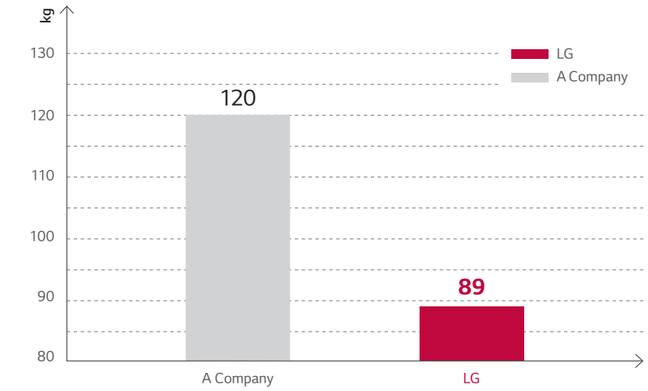
Efficient & Flexible Design

World-class level of ref. piping distance enables more efficient design & flexible installation.



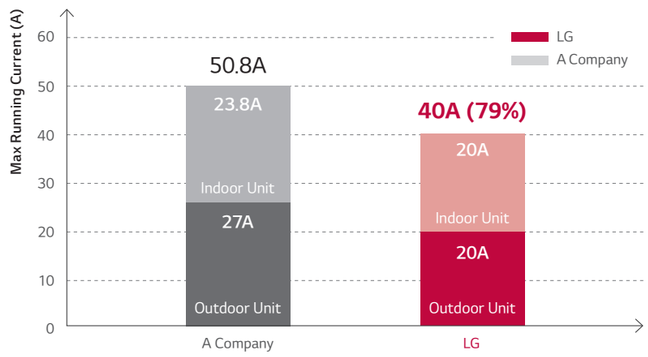
Light Weight

Lighter weight enables easy installation work.



Low Current Level

LG high temperature THERMA V can be easily installed without any incurring any additional costs to the electric connections.



PRODUCT & SPECIFICATION

Split High Temperature

IDU

HN1610H.NK3

ODU

HU161HA.U33

011-1W0336

Features

- Higher energy efficiency
- Cascade 2 stage compression
- Maximum 80°C LWT
- Suitable for old radiator
- Only for heating (No cooling)
- Quick defrosting
- Efficient & Flexible design
- KEYMARK / MCS / Eurovent certification

Model Line Up

Category	Unit	Model Name
		Capacity (kW)
		16.0
1 Phase Model 1Ø, 220 ~ 240V, 50Hz	Outdoor Unit	HU161HA.U33
	Indoor Unit	HN1610H.NK3

Seasonal Energy

Description			Outdoor Unit	HU161HA.U33
			Indoor Unit	HN1610H.NK3
Space Heating (According to EN14825)	Average Climate Water Outlet 35°C	SCOP	-	3.23
		Rated Heat Output (Prated)	kW	13
		Seasonal Space Heating Efficiency (ηs)	%	126
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+
		Annual Energy Consumption	kWh	8,618
	Average Climate Water Outlet 55°C	SCOP	-	3.01
		Rated Heat Output (Prated)	kW	11
		Seasonal Space Heating Efficiency (ηs)	%	117
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+
		Annual Energy Consumption	kWh	7,424

Note
1. LWT : Leaving Water Temperature.

Outdoor Unit Specification

Description		OAT	LWT	Outdoor Unit	HU161HA.U33
Nominal Capacity	Heating	7°C	35°C	kW	16.00
		7°C	55°C	kW	14.00
Nominal Power Input	Heating	7°C	35°C	kW	4.89
		7°C	55°C	kW	5.00
COP	Heating	7°C	35°C	W/W	3.27
		7°C	55°C	W/W	2.80
Operation range (Outdoor Air)	Heating	Min. ~ Max.		°CDB	-25 ~ 35
Refrigerant	Type			-	R410A
	GWP (Global Warming Potential)			-	2088.00
	Charge			kg	3.80
				tCO_2eq	7.90
	Chargeless Pipe Length			m	7.5
	Additional Charging Volume			g/m	40
Compressor	Quantity			EA	1
	Type			-	Scroll
Refrigerant Piping Connection	Outer Dia.	Liquid		mm(inch)	9.52 Ø (3/8)
		Gas		mm(inch)	15.88 Ø (5/8)
	Length	Standard		m	7.5
		Max.		m	50
	Level Difference (ODU ~ IDU)	Max.		m	30
Dimensions	Unit	W x H x D		mm	950 x 1,380 x 330
Weight	Unit			kg	89
Sound Power Level	Heating	Rated		dB(A)	63
Power supply	Phase / Frequency / Voltage			Ø / Hz / V	1 / 50 / 220 ~ 240
	Maximum Running Current			A	20
	Recommended Circuit Breaker			A	25

Note
1. Capacities and power inputs are based on the following conditions :
   - Piping Length : Interconnected pipe Length = 7.5m - Difference limit of elevation (Outdoor ~ Indoor unit) is zero.
2. Wiring cable size must comply with the applicable local and national codes.
3. Due to our policy of innovation some specifications may be changed without notification.
4. Sound level values are measured at anechoic chamber. Therefore, these values can be increased owing to ambient conditions during operation.
5. This product contains fluorinated Greenhouse Gases.
6. LWT : Leaving Water Temperature, OAT : Outdoor Air Temperature.

Indoor Unit Specification

Description			Unit	HN1610H.NK3
Operation Range (Leaving Water)	Heating		°C	25 ~ 80
Refrigerant	Type		-	R134a
	GWP (Global Warming Potential)		-	1,430
	Charge		kg	1.8
			tCO_2eq	2.57
Compressor	Quantity		EA	1
	Type		-	Twin Rotary
Water Flow Rate	Min. (Recommended)		LPM	15
Piping Connections	Water Circuit	Inlet	mm(inch)	Male PT 25(1)
		Outlet	mm(inch)	Male PT 25(1)
	Refrigerant Circuit	Gas	mm(inch)	15.88 Ø (5/8)
		Liquid	mm(inch)	9.52 Ø (3/8)
Dimensions	Body	W x H x D	mm	520 x 1,080 x 330
Net Weight	Body		kg	84
Sound Power Level	Heating	Rated	dB(A)	58 / 63*
Power Supply	Phase / Frequency / Voltage		Ø / Hz / V	1 / 50 / 220 ~ 240
	Maximum Running Current		A	20
	Recommended Circuit Breaker		A	25

Note
1. Wiring cable size must comply with the applicable local and national codes.
2. Due to our policy of innovation some specifications may be changed without notification.
3. Sound level values are measured at anechoic chamber. Therefore, these values can be increased owing to ambient conditions during operation.
   (* This sound power level (63dB(A)) is when AC cooling fan is operated.)
4. This product contains fluorinated greenhouse gases.

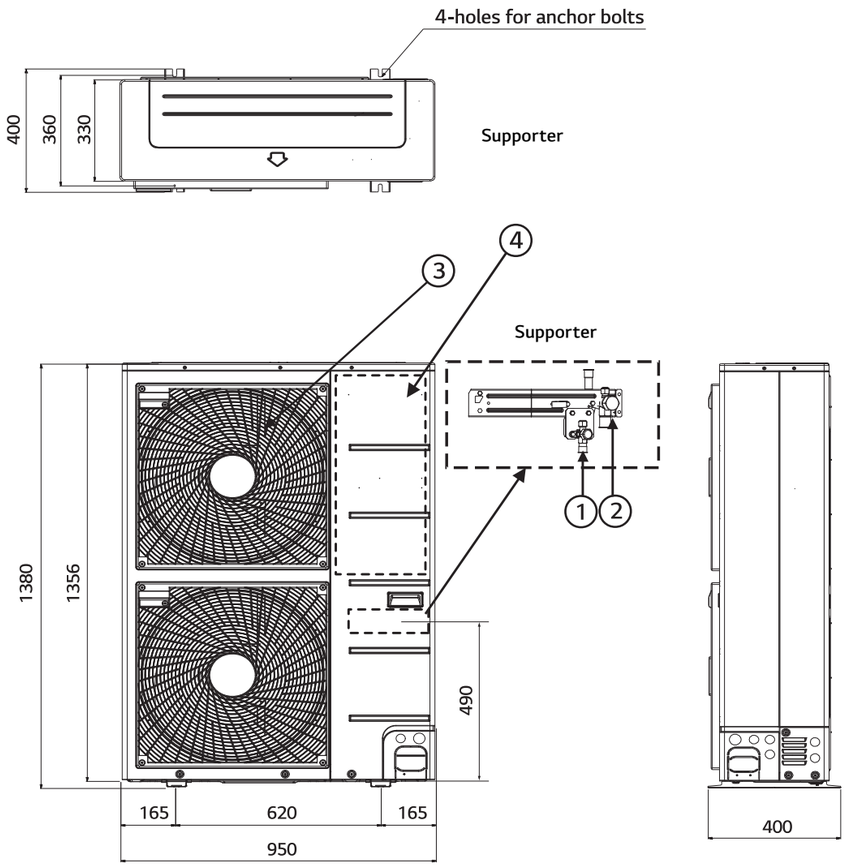
PRODUCT & SPECIFICATION

Drawings

Category	Unit	Model Name
		Capacity (kW)
		16.0
1 Phase Model 1Ø, 220 ~ 240V, 50Hz	Outdoor Unit	HU161HA.U33
	Indoor Unit	HN1610H.NK3

HU161HA.U33

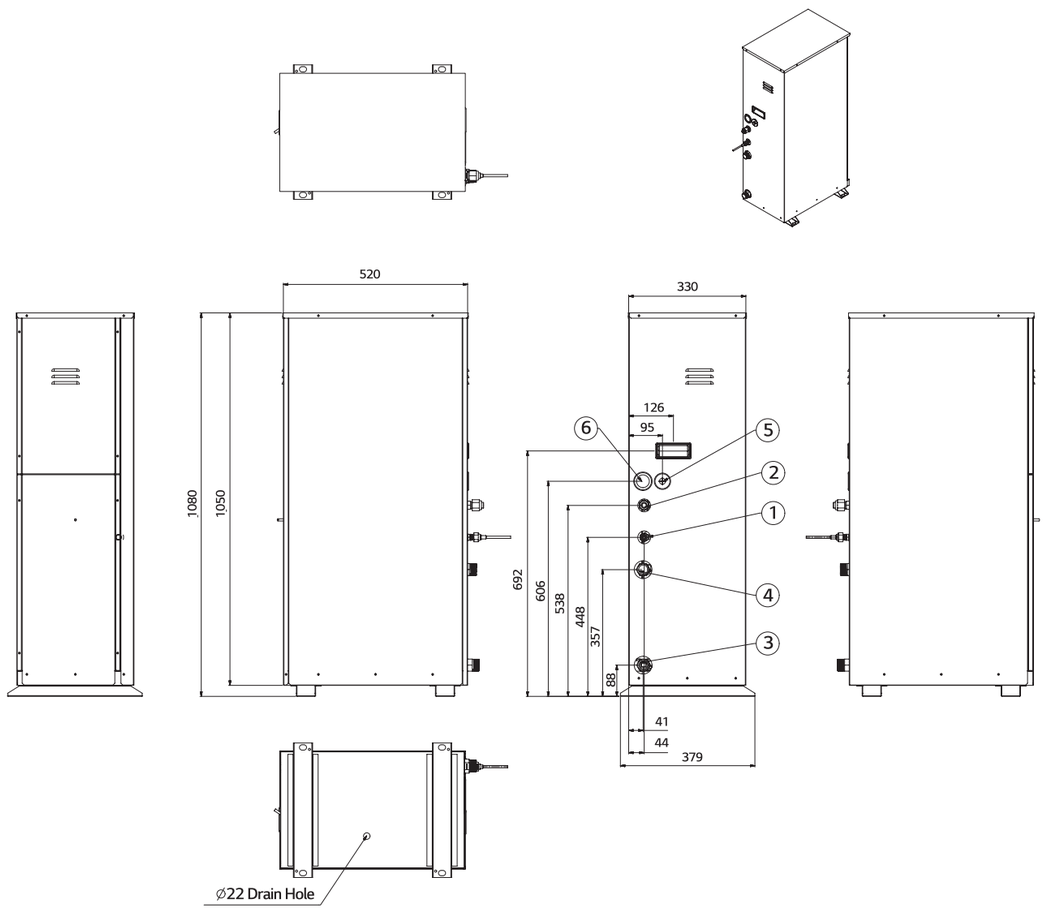
[Unit : mm]



No.	Part Name	Description
1	Liquid Side Service Valve (mm)	-
2	Gas Side Service Valve (mm)	-
3	Air Discharge Grill	-
4	Control Cover	-

HN1610H.NK3

External
[Unit : mm]



No.	Part Name	Description
1	Refrigerant Pipe	15.88 Ø (mm)
2	Refrigerant Pipe	9.52 Ø (mm)
3	Entering Water Pipe	Male PT 1inch
4	Leaving Water Pipe	Male PT 1inch
5	Control Box	PCB and Terminal Blocks
6	Flow Switch	Minimum Operation Range at 23LPM

ACCESSORIES

LG Wi-Fi Modem

PWFMDD200.ENCXLEU

Access LG THERMA V anytime and from anywhere with Wi-Fi equipped device. LG's exclusive Home Appliances control app (SmartThinQ™) is available.
Simple operation for various functions.

- On/Off
- Operation mode selection
- Current temperature
- Set temperature
- On/Off reservation
- Energy monitoring

Model Name	PWFMDD200
Size (mm)	46 x 68 x 14
Interfaceable Products	THERMA V Split & Monobloc
Connection Type	Indoor Unit 1 : 1
Communication Frequency	2.4GHz
Wireless Standards	IEEE 802.11b/g/n
Mobile Application	LG SmartThinQ™ (Android v4.1 (Jellybean) or higher, iPhone iOS 9.0 or higher)
Optional Extension Cable	PWYREW000 (10m extension)

Note

1. Functionality may be different according to each Indoor model. (Split and Monobloc available)
2. User interface of application shall be revised for its design and contents improvement.
3. Application is optimized for smartphone use, so it may not be well functioning with tablet devices.
   - For the compatibility with indoor unit, please contact regional office.

Domestic Hot Water Tank

OSHW-200F.AEU
OSHW-300F.AEU
OSHW-500F.AEU
OSHW-300FD.AEU

Double Coil　　Single Coil

Domestic Hot Water Tank		Unit	OSHW-200F	OSHW-300F	OSHW-500F	OSHW-300FD
General Characteristics	Water Volume	L	200	300	500	300
	Diameter	mm	640	640	640	640
	Height	mm	1,350	1,850	1,900	1,850
	Empty Weight	Kg	61	100	146	106
	Tank Materials	-	STS : F18	STS : F18	STS : F18	STS : F18
	Color	-	Grey	Grey	Grey	Grey
Specification of Electric Back up	Additional Electric Heater	W	2,400	2,400	2,400	2,400
	Power Supply	Ø / V / Hz	1 / 230 / 50 (60)	1 / 230 / 50 (60)	1 / 230 / 50 (60)	1 / 230 / 50 (60)
	Adjustable Thermostat	°C	0 ~ 90	0 ~ 90	0 ~ 90	0 ~ 90
Specification of Heat Exchanger	Exchanger Type	-	Single	Single	Single	Double
	Material Exchanger	-	STS : F18	STS : F18	STS : F18	STS : F18
	Maximum Water Temp	°C	90	90	90	90
	Coil Surface	m^2	2.3	3.1	4.8	3.1 + 0.97
Water Connections	Heat Pump Inlet	inch	1 BSP Female	1 BSP Female	1 ¼ BSP Female	¾ BSP Female (Upper Coil)
	Heat Pump Outlet	inch	1 BSP Female	1 BSP Female	1 ¼ BSP Female	¾ BSP Female (Upper Coil)
	Solar Inlet	inch	-	-	-	1 BSP Female (Lower Coil)
	Solar Outlet	inch	-	-	-	1 BSP Female (Lower Coil)
	City Water Inlet	inch	¾ BSP Male	¾ BSP Male	1 BSP Male	¾ BSP Male
	Hot Water Outlet	inch	¾ BSP Female	1 BSP Female	1 BSP Female	1 BSP Female
Energy Efficiency Class		-	B	B	B	B
Standing Heat Loss		W	61	70	83	70

Mandatory Optional Accessories	
Domestic Hot Water Tank Installation Kit	PHLTA / PHLTB / PHLTC
Optional Accessories	
Mixing Valve (3/4" dn20)	OSHA-MV
Mixing Valve (1" dn25)	OSHA-MV1
3-Way Valve	OSHA-3V

ACCESSORIES

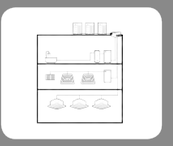
Accessories Provided by LG

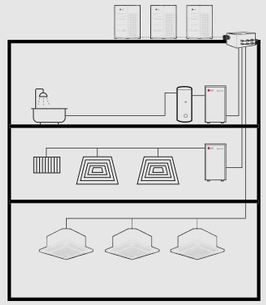
Accessory	Feature
Domestic Hot Water Tank	 OSHW-200F 200 LITRES OSHW-300F 300 LITRES OSHW-500F 500 LITRES Single Coil  OSHW-300FD 300 LITRES Double Coil  OSHA-3V 3 Way Valve  OSHA-MV OSHA-MV1 Mixing Valve
Domestic Hot Water Tank Kit	• PHLTA (1Ø, Split) • PHLTC (3Ø, Split) • PHLTB (Monobloc) **Features** Easy to install the domestic hot water for monobloc. There is a MCCB to protect the product. Dimension (mm) (H x W x D) : 250 x 170 x 110 Weight (kg) : 2.1 To extend THERMA V functionality in generating domestic hot water. * PHLTA, PHLTC is required only when you want to use the electric heater function at the sanitary tank. If not, it's not necessary. THERMA V indoor unit it self already has electric heater (Back up heating) function. * The sensor (PHRSTA0) can be purchased separately in case of using other brand's Domestic tank.  PHLTA / PHLTC  PHLTB
Remote Temperature Sensor	• PQRSTA0 **Features** It can help to detect the exact room temperature. Applied to ceiling cassette, ceiling concealed duct, AWHP and HYDRO KIT. **Parts Included** Remote temperature sensor / Extension cable (15m) / Manual 
Solar Thermal Kit	• PHLLA **Features** To interface solar-thermal system with THERMA V and double coil domestic tank. Installed at the water pipe, between domestic tank and solar-thermal system. Dimension (mm) (H x W x D) : 110 x 55 x 22 
Dry Contact	• PDRYCB000 (Simple Dry Contact) **Features** - 1 SET / 1 IDU - 1 contact point - Input power 220 ~ 240V ~ - 2 output contacts (Operation, Error output : Output voltage AC 220V)  • PDRYCB300 (Dry Contact for Thermostat) **Features** - 1 SET / 1 IDU - 8 contact point - No need for AC input - Target temperature setting is possible - 2 output contacts (Operation, Error output : Non-voltage, only using AC 24V, DC 12V) 
Drain Pan	• PHDPB **Features** Collects condensate water. (When dropping to the base is not possible) and drains the water to a pipe. 

Accessory	Feature
Meter Interface	•PENKTH000 **Features** Energy meter interface to monitor electricity and heat energy. - Max. 3 Watt-hour meter - Max. 1 Heat meter - Pulse width : 40ms ~ 100ms - Size (W x H x D) : 53.6 x 89.7 x 60.7 - Power : DC 12V 
2 Zone Valve Controller	• PZNVVB200 * This accessory is available from Aug. 2019 **Features** It is the controller that controls the valve of each zone interlocking with room temperature sensor or room thermostat. - Individual temperature setting possible. (To be set through wired remote control in room temperature input mode) - Room temperature detection (AI : 2 ports) - 3rd party thermostat interlock input. (DI : 2 port) - Can read one DI or AI for each zone. - Maximum number of connections : Max. 4EA (Expandable up to 8-zone) - Size (W x H x D) : 53.6 x 89.7 x 60.7 - Power : DC 12V 
Modbus RTU	• PMBUSB00A **Features** Modbus RTU communication with Modbus master controller. - Modbus RTU slave (RS485) / 9,600 bps - Size (W x H x D) : 53.6 x 89.7 x 60.7 - Max. 16 IDUs with single module / Max. 64 IDUs with 4 modules - Power : DC 12V 
PI485 Gateway	• PMNFP14A1 (for Monobloc & Split) • PP485B00K (for DHW tank integrated type) **Features** Interface module for LGAP or Modbus communication. - For Monobloc & Split : PMNFP14A1 * This is for LGAP comm. with central controller. - For DHW tank integrated unit : PP485B00K * This is for Modbus comm. with indoor unit  PMNFP14A1  PP485B00K
2nd Circuit Thermistor	• PRSTAT5K10 **Features** Temperature sensor for 2nd circuit control. (Mix zone temp. sensor) - 5kΩ thermistor, 10m 

Commercial Solution

MULTI V™ Hydro Kit





Excellent Performance

- Saving cost through high efficiency.
- Energy saving through heat recovery.

User Convenience

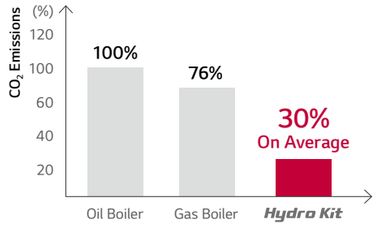
- Space heating and domestic hot water.
- Radiant heating & FCU.
- LG own Wi-Fi solution. (SmartThinQ™)

Easy Installation & Maintenance

- Easy installation.
- Various application.

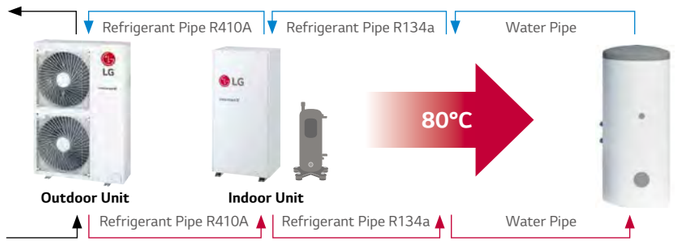
Green Energy Solution

Green energy solution through the reduction of CO_2 emissions.



High Temperature Concept of HYDRO KIT

Provides high temperature up to 80°C with dual inverter cascade cycle, applicable for buildings that require large amount of hot water supply.



Dual Inverter Cascade Cycle Technology

Max. 55% improved capacity compared to mid temp. of HYDRO KIT.
- Max. 20% reduced heating operating cost compared to mid temp. of HYDRO KIT.
- Cascade R410A to R134a BLDC compressor technology.

High Volume of Hot Water

Compared to lower temperature, storing high temperature water in a sanitary tank increases the quantity of mixed water available for the user.

Energy Saving through MULTI V 5 Heat Recovery

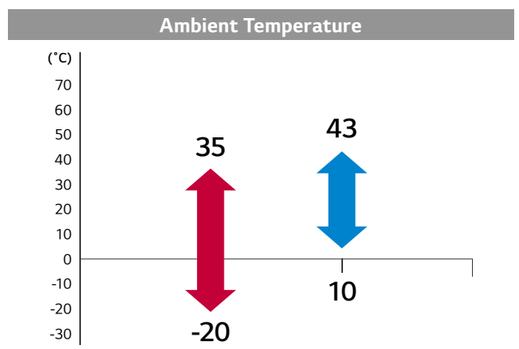
Energy cost can be minimized by reusing the wasted heat from indoor units.

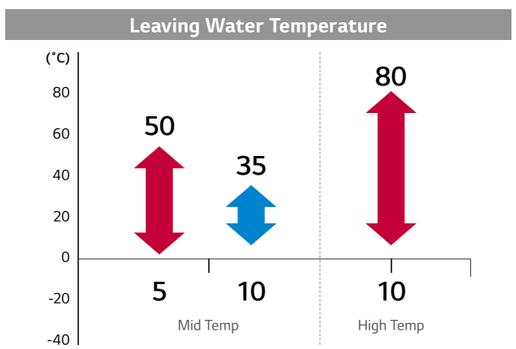
Capacity Range (Heating & Cooling)

Mid Temp. / Cascade 2 Stage Compression For High Temperature

Capacity Range [kW]		12	14	25	28	32
Heating Capacity	Mid temp.		●			●
	High temp.		●	●		
Cooling Capacity	Mid temp.	●			●	

Operation Range (Heating & Cooling)



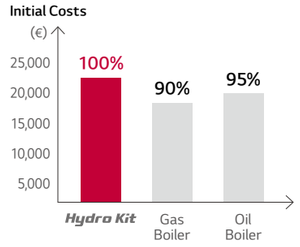


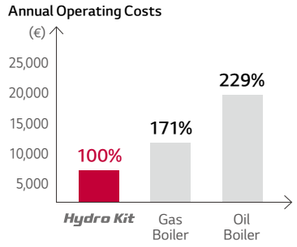
EXCELLENT PERFORMANCE

Saving Cost through High Efficiency

Possible to install with equivalent levels of capital cost as a boiler system and minimize energy bills thanks to lower operation costs.

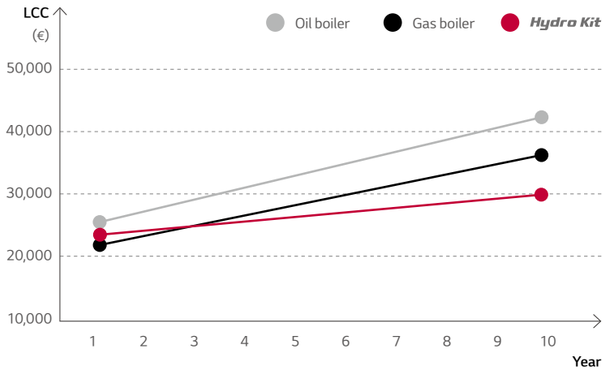
1st Proposal MULTI V 5 HYDRO KIT
(Air conditioning + Hot water supply + Floor heating)
2nd Proposal MULTI V 5 Air conditioning + Gas boiler
(Hot water supply + Floor heating)
3rd Proposal MULTI V 5 Air conditioning + Oil boiler
(Hot water supply + Floor heating)





Analysis Conditions

- Building type : Dormitory, Flats
- Cooling / Floor heating / Sanitary Hot water for 10 years
- Cooling : MULTI V IV indoor unit
- Floor heating : Medium temp. HYDRO KIT (1ea)
- Sanitary hot water : High temp. HYDRO KIT (2ea), Sanitary hot water tanks
- Electricity cost : Average cost in EU
- Gas cost : Average cost in EU
- Oil cost : Average cost in EU

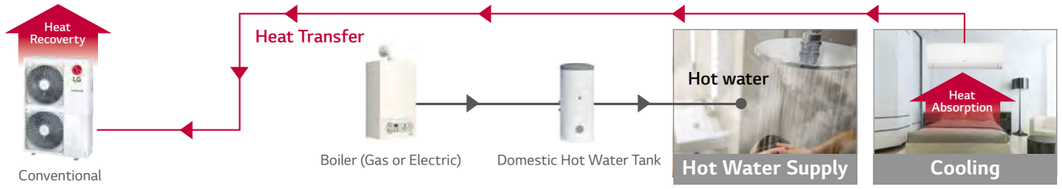


Energy Saving through MULTI V 5 Heat Recovery

Energy costs can be minimized by reusing the wasted heat from indoor units.

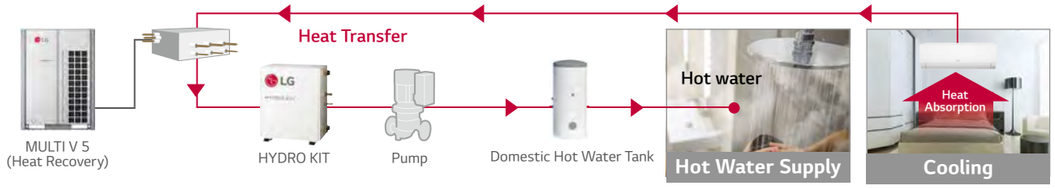
Conventional

Absorbed heat is released to outdoor air.



HYDRO KIT

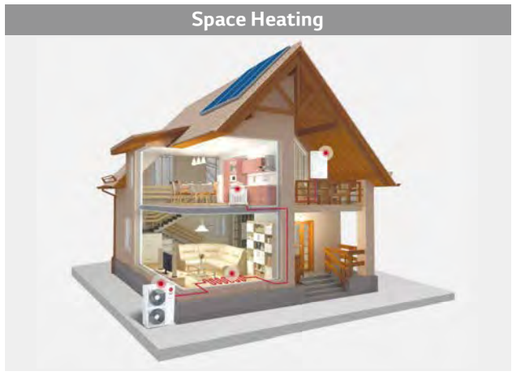
Absorbed heat from indoor space is used for making hot water.



USER CONVENIENCE

Space Heating and Domestic Hot Water

The temperature range of the hot water is usually between 40 and 45°C for bath and shower. Temperature can be adjusted by users for other applications. LG has two models which can provide leaving water temperature possible up to 50°C, and up to 80°C.



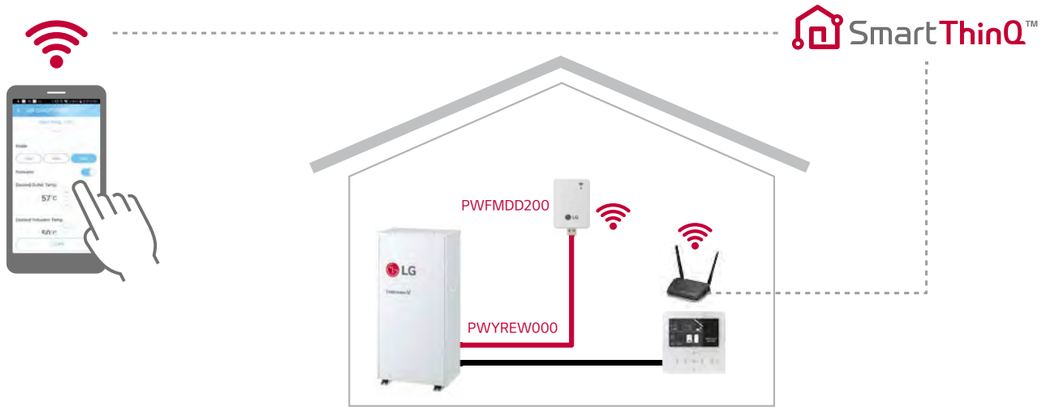
Radiant Heating & FCU

Adaptability to fan coil unit, radiant panel, thermal storage system, heat source of other HVAC system.

USER CONVENIENCE

LG Own Wi-Fi Solution

Access your HYDRO KIT anytime from anywhere.



* In case of Mid. temp HYDRO KIT, Wi-Fi control using SmartThinQ™ is available from 2nd half of 2019.

Simple Operation for Various Functions

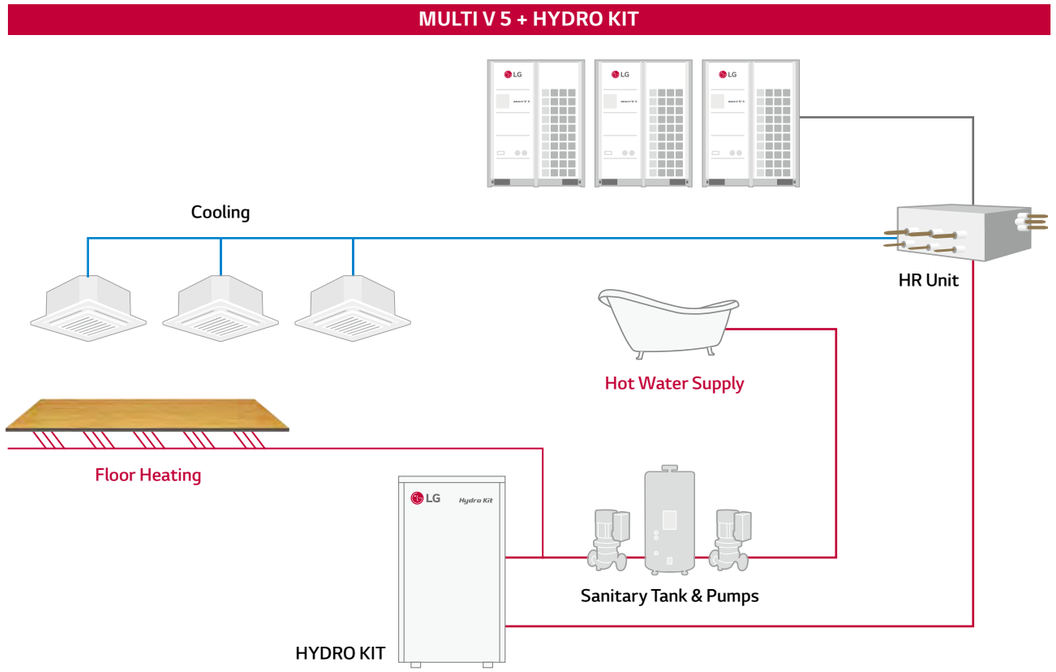
- On/Off
- Operation mode selection
- Current temperature
- Set temperature
- On/Off reservation
- Energy monitoring

Mandatory accessory :
PWFMDD200 (LG Wi-Fi modem) and
PWYREW000 (10m extension connect cable
in between HYDRO KIT indoor and Wi-Fi module)

EASY INSTALLATION & MAINTENANCE

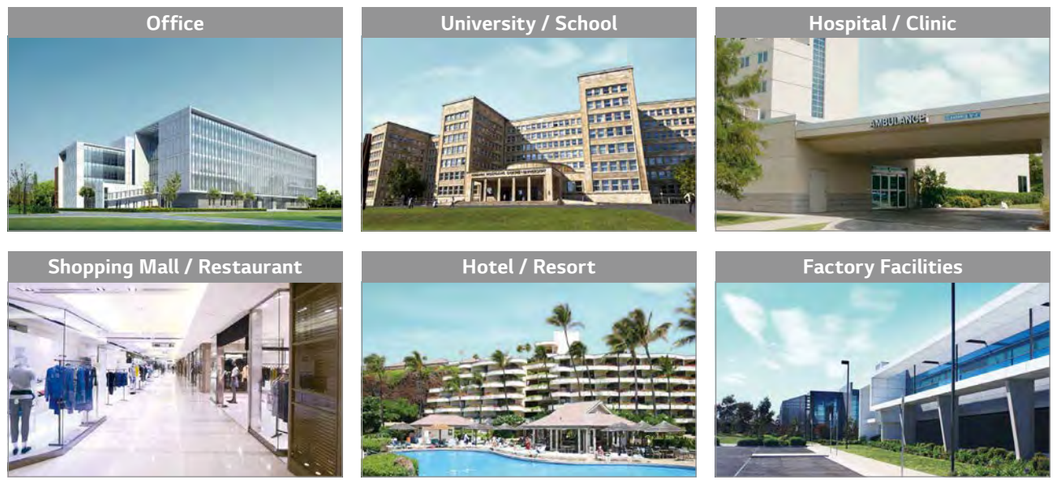
Easy Installation

Easy to install as it uses a compact and modular structure.



Various Applications

Applicable to a variety of facilities including hospitals, residences and resorts that need floor heating and domestic hot water supply.



PRODUCT & SPECIFICATION

HYDRO KIT

EUROVENT CERTIFIED PERFORMANCE

R410A / R134a
For High Temp

80°C

SmartThinQ®

* In case of mid temp. HYDRO KIT, Wi-Fi control using SmartThinQ™ is available from 2nd half of 2019.

Features

- Higher energy efficiency
- Dual inverter cascade cycle technology
- Maximum 80°C LWT
- Intuitive interface
- Suitable for old radiator & FCU
- Easy installation
- Applicable to a variety of facilities
- SmartThinQ™
- Eurovent certification

Model Line Up

Category		Unit	4HP	8HP	10HP
HYDRO KIT	Mid Temp.	Indoor Unit	ARNH04GK2A4	-	ARNH10GK2A4
	High Temp.		ARNH04GK3A4	ARNH08GK3A4	-

Indoor Unit Capacity Index

Category	4HP	8HP	10HP
Unit Capacity (Btu/h)	42k	76k	96k
Capacity Index	12.3	22.4	28.0

Note
1. Capacity Index is same as the capacity. (kW)
2. LWT : Leaving Water Temperature.

Indoor Unit Specification

Type				Mid Temp	
Description			Unit	ARNH04GK2A4	ARNH10GK2A4
Power Supply			V / Ø / Hz	220 ~ 240 / 1 / 50 220 / 1 / 60	220 ~ 240 / 1 / 50 220 / 1 / 60
Capacity (Rated)	Cooling		kW	12.3	28.0
	Heating		kW	13.8	31.5
Power Input (Rated)	Cooling		kW	0.01	0.01
	Heating		kW	0.01	0.01
Water Outlet Temperature	Cooling	Min	°C	5	5
	Heating	Max	°C	50	50
Casing			-	Painted Steel Plate	Painted Steel Plate
Dimensions	Body	W x H x D	mm	520 x 631 x 330	520 x 631 x 330
			inch	20-15 / 32 x 24-27 / 32 x 13	20-15 / 32 x 24-27 / 32 x 13
Net Weight	Body		kg(lbs)	29.2 (64.4)	33.7 (74.3)
Heat Exchanger	Refrigerant to Water	Type	-	Brazed Plate HEX	Brazed Plate HEX
		Quantity	EA	1	1
		Number of Plate	EA	26	48
		Rated Water Flow	ℓ/min	39.6	92.0
		Head Loss	kPa	41.0	69.0
Compressor		Type	-	-	-
Piping Connections	LWT	Inlet	inch	Male PT 1	Male PT 1
		Outlet	inch	Male PT 1	Male PT 1
	Refrigerant Side	Liquid	mm(inch)	9.52 Ø (3/8)	9.52 Ø (3/8)
		Gas	mm(inch)	15.88 Ø (5/8)	22.2 Ø (7/8)
Drain Piping Connection			inch	Male PT 1	Male PT 1
Sound Pressure Level	Cooling		dB(A)	26	26
	Heating		dB(A)	26	26
Transmission Cable			mm^2	1.0 ~ 1.5 x 2C	1.0 ~ 1.5 x 2C
Refrigerant	Refrigerant to Water	Refrigerant Name	-	R410A	R410A
		Precharged Amount	kg(lbs)	-	-
		Control	-	Electronic Expansion Valve	Electronic Expansion Valve

Note
1. Capacities are based on the following conditions :
   - Cooling temperature : Outdoor 35°C (95°F) DB / 24°C (75.2°F) WB, Water Inlet 23°C (73.4°F) / Outlet18°C (64.4°F)
   - Heating temperature : Outdoor 7°C (44.6°F) DB / 6°C (42.8°F) WB, Water Inlet 30°C (86°F) / Outlet 35°C (95°F)
   - Difference limit of elevation (Outdoor ~ Indoor unit) is 0m.
   - Piping length : Interconnected pipe length = 7.5m
2. Wiring cable size must comply with the applicable local and national code.
3. Due to our policy of innovation, some specifications may be changed without notification.
4. Sound pressure level is measured on the rated condition in the anechoic rooms by ISO 3745 standard.
   Therefore, these values can be increased owing to ambient conditions during operation.
5. This product contains fluorinated greenhouse gases. (R410A, GWP (Global warming potential) = 2087.5)

PRODUCT & SPECIFICATION

Indoor Unit Specification

Type				High Temp	
Description			Unit	ARNH04GK3A4	ARNH08GK3A4
Power Supply			V / Ø / Hz	220 ~ 240 / 1 / 50 220 / 1 / 60	220 ~ 240 / 1 / 50 220 / 1 / 60
Capacity (Rated)	Cooling		kW	-	-
	Heating		kW	13.8	25.2
Power Input (Rated)	Cooling		kW	-	-
	Heating		kW	2.30	5.00
Operation Range (Leaving Water)	Cooling	Min	℃	-	-
	Heating	Max	℃	80	80
Casing			-	Painted Steel Plate	Painted Steel Plate
Dimensions	Body	W x H x D	mm	520 x 1,080 x 330	520 x 1,080 x 330
			inch	20-15 / 32 x 42-17 / 32 x 13	20-15 / 32 x 42-17 / 32 x 13
Net Weight	Body		kg(lbs)	87.0 (191.8)	91.0 (200.6)
Heat Exchanger	Refrigerant to Water	Type	-	Brazed Plate HEX	Brazed Plate HEX
		Quantity	EA	1	1
		Number of Plate	EA	76	48
		Rated Water Flow	ℓ/min	19.8	36.0
		Head Loss	kPa	5.0	20.0
	Refrigerant to Refrigerant	Type	-	Brazed Plate HEX	Brazed Plate HEX
		Quantity	EA	1	1
		Number of Plate	EA	50	60
Compressor		Type	-	Twin Rotary inverter	Twin Rotary inverter
		Oil Type	-	FVC68D (PVE)	FVC68D (PVE)
		Oil Charge	cc	1,300	1,300
Piping Connections	LWT	Inlet	inch	Male PT 1	Male PT 1
		Outlet	inch	Male PT 1	Male PT 1
	Refrigerant Side	Liquid	mm(inch)	9.52 Ø (3/8)	9.52 Ø (3/8)
		Gas	mm(inch)	15.88 Ø (5/8)	19.05 Ø (3/4)
Drain Piping Connection			inch	Male PT 1	Male PT 1
Sound Pressure Level	Cooling		dB(A)	-	-
	Heating		dB(A)	44	46
Power Supply Cable			No. x mm^2	3C x CV4.0	3C x CV4.0
Communication cable			No. x mm^2	2C x CVV-SB 1.0 ~ 1.5	2C x CVV-SB 1.0 ~ 1.5
Refrigerant	Refrigerant to Refrigerant	Refrigerant Name	-	R410A	R410A
		Control	-	EEV	EEV
	Refrigerant to Water	Refrigerant Name	-	R134a	R134a
		Precharged Amount	kg(lbs)	2.3 (5.1)	3.0 (6.6)
		Additional Refrigerant Charge Amount	kg(lbs)	0.8 (1.8)	1.0 (2.2)
		tCO_2eq	-	3.29	4.29
		Control	-	Electronic Expansion Valve	Electronic Expansion Valve

Note
1. Capacities are based on the following conditions :
   - Cooling temperature : Outdoor 35°C (95°F) DB / 24°C (75.2°F) WB, Water Inlet 23°C (73.4°F) / Outlet18°C (64.4°F)
   - Heating temperature : Outdoor 7°C (44.6°F) DB / 6°C (42.8°F) WB, Water Inlet 30°C (86°F) / Outlet 35°C (95°F)
   - Difference limit of elevation (Outdoor ~ Indoor unit) is 0m.
   - Piping length : Interconnected pipe length = 7.5m
2. Wiring cable size must comply with the applicable local and national code.
3. Due to our policy of innovation, some specifications may be changed without notification.
4. Sound pressure level is measured on the rated condition in the anechoic rooms by ISO 3745 standard. Therefore, these values can be increased owing to ambient conditions during operation.
5. This product contains fluorinated greenhouse gases. (R410A, GWP (Global warming potential) = 2087.5)

Indoor Unit Combination Ratio

Outdoor Unit Type	Number of Outdoor Unit	Maximum Combination Ratio	
		HYDRO KIT	Total (HYDRO KIT + Indoor Unit)
MULTI V 5* (Heat Pump, Heat Recovery) MULTI V Water IV* (Heat Pump, Heat Recovery)	Single Unit	105%	200%
	2 Units Combination	105%	160%
	3 Units Combination	105%	130%
	4 Units Combination	X	X
MULTI V S * (Heat Pump, Heat Recovery)	Single Unit	105%	160%

Note
1. In case that the number of outdoor units is 4 units combination model, HYDRO KIT can not be combined with that.
2. In case that operating indoor units ratio to rated capacity of outdoor unit is more than 130%, the airflow or capacity of indoor units and HYDRO KIT will be operated as low step in the all indoor units.
3. Sum of capacity index of indoor units and HYDRO KITs is corresponding to the maximum combination ratio of outdoor units. But capacity index of HYDRO KIT can not be over than 105% capacity index of outdoor unit.
4. HYDRO KIT can not be combined with MULTI V S type 4HP (ARU-04-), MULTI V S type 5HP compact model. (ARUN050GSL0)

* ARNH-A4 model can be used in 9600 bps communication with outdoor units manufactured from April 2019, and by that time it can be used after setting up 1200bps communication in outdoor unit. Method to set up communication type, refer to installation manual of outdoor units.

Wiring of Main Power Supply and Equipment Capacity

Model	Type	Hz	Volts	Voltage Range	Power Supply			Input (W)	
					MCA (A)	MFA (A)	FLA (A)	Cooling (W)	Heating (W)
ARNH04GK2A4	Mid Temp.	50	220 ~ 240	Max : 264 Min : 198	0.06	15	0.05	10	10
ARNH10GK2A4			220	Max : 242 Min : 198					

Note
1. Voltage range : Units are suitable for use on electrical system where voltage supplied to unit terminals is not below or above the listed range limits.
2. Maximum allowable voltage unbalance between phase is 2%.
3. MCA/MFA : MCA = 1.25 x FLA / MFA ≤ 4 x FLA. (Next lower standard fuse rating. Minimum 15A)
4. Select wire size based on the MCA.
5. Instead of fuse, use circuit break.

Model	Type	Hz	Volts	Voltage Range	Power Supply			Compressor	
					MCA (A)	TOCA (A)	MFA (A)	MSC (A)	RLA (A)
ARNH04GK3A4	High Temp.	50	220 ~ 240	Max : 264 Min : 198	18.2	20	25	-	10.56
		60	220	Max : 242 Min : 198					
ARNH08GK3A4		50	220 ~ 240	Max : 264 Min : 198	26.2	27	30	-	20.15
		60	220	Max : 242 Min : 198					

Note
1. Voltage supplied to the unit terminals should be within the minimum and maximum range.
2. Maximum allowable voltage unbalance between phase is 2%.
3. MSC means the Max. current during the starting of compressor.
4. MSC and RLA are measured as the compressor only test condition.
5. OFM are measured as the outdoor unit test condition.
6. TOCA means the total over current value of each outdoor unit.
7. Select the wire size based on the larger value among MCA or TOCA.
8. MFA is used to select the circuit breaker and ground fault circuit interrupter, and recommended circuit breaker type is ELCB. (Earth leakage circuit breaker)
9. Select the electrical equipment of combination unit according to the electrical characteristics of individual unit.

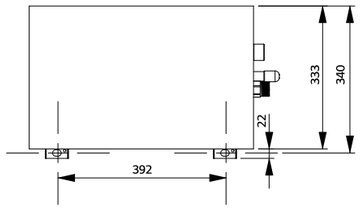
Symbols
MCA : Minimum Circuit Amperes (A)
MFA : Maximum Fuse Amperes
W : Rated Input (W)
FLA : Full Load Amperes (A)
TOCA : Total Over Current Amperes (A)
MSC : Maximum Starting Current (A)
RLA : Rated Load Amperes (A)

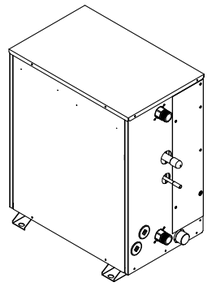
PRODUCT & SPECIFICATION

Drawings

ARNH04GK2A4 / ARNH10GKA4

[Unit : mm]





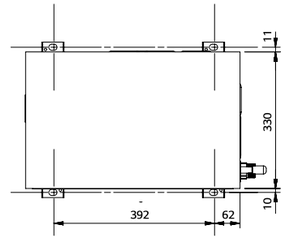
3D View

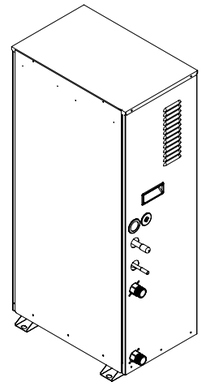
No.	Part Name	Description
1	Liquid Pipe	-
2	Gas Pipe	-
3	Water Inlet	-
4	Water Outlet	-
5	Drain Pipe	-
6	Transmission Cable Routing Hole	30 Ø
7	Power Supply Cable Routing Hole	30 Ø

Note
1. Unit should be installed in compliance with the installation manual in the product box.
2. Unit should be grounded in accordance with the local regulations or applicable national codes.
3. All electrical components and materials to be supplied from the site must comply with the local regulations or international codes.

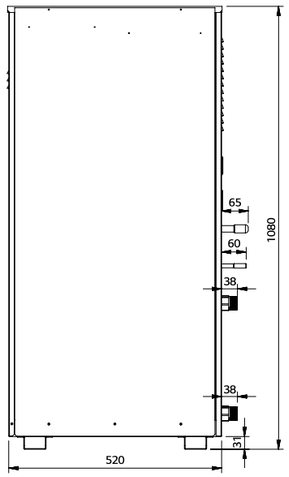
ARNH04GK3A4

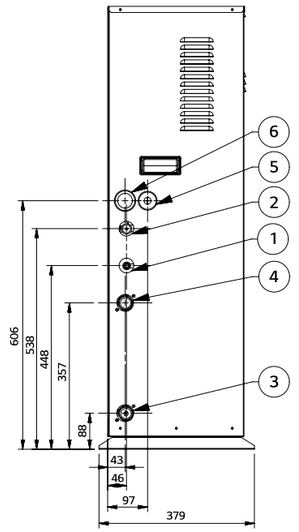
[Unit : mm]





3D View





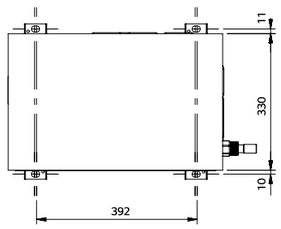
No.	Part Name	Description
1	Liquid Pipe	-
2	Gas Pipe	-
3	Water Inlet	-
4	Water Outlet	-
5	Transmission Cable Routing Hole	30 Ø
6	Power Supply Cable Routing Hole	30 Ø

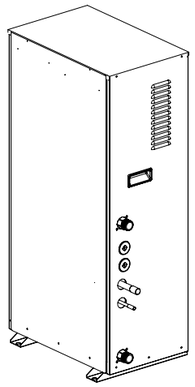
Note
1. Unit should be installed in compliance with the installation manual in the product box.
2. Unit should be grounded in accordance with the local regulations or applicable national codes.
3. All electrical components and materials to be supplied from the site must comply with the local regulations or international codes.

PRODUCT & SPECIFICATION

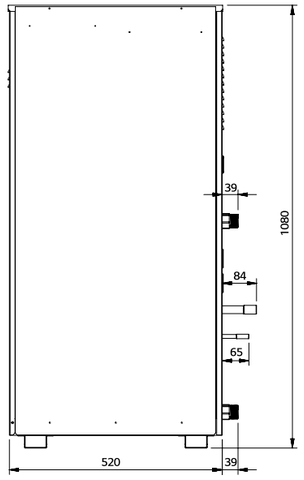
ARNH08GK3A4

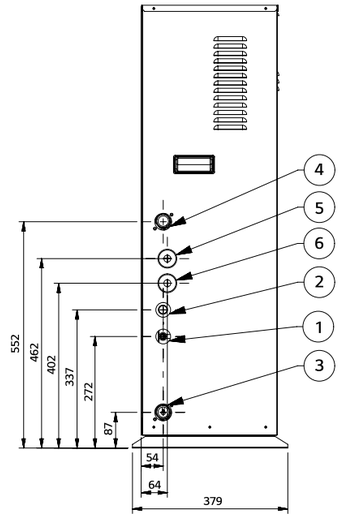
[Unit : mm]





3D View





No.	Part Name	Description
1	Liquid Pipe	-
2	Gas Pipe	-
3	Water Inlet	-
4	Water Outlet	-
5	Transmission Cable Routing Hole	30 Ø
6	Power Supply Cable Routing Hole	30 Ø

Note
1. Unit should be installed in compliance with the installation manual in the product box.
2. Unit should be grounded in accordance with the local regulations or applicable national codes.
3. All electrical components and materials to be supplied from the site must comply with the local regulations or international codes.

PRODUCT & SPECIFICATION

Piping Accessories

Heat Recovery Unit

PRHR022 (2 branch Unit)
PRHR032 (3 branch Unit)
PRHR042 (4 branch Unit)

Features

- Max. 32 indoor units can be connected. (Max. 8 indoor units per branch)
- It is easy to install due to the automatic search algorithm for piping detection.
- Subcooling cycle in HR unit makes the system efficiency maximum.

Models Applied

- MULTI V 5
- MULTI V SYNC II
- MULTI V WATER II heat recovery
- MULTI V IV heat recovery
- MULTI V SYNC
- MULTI V S heat recovery
- MULTI V III heat recovery
- MULTI V WATER IV heat recovery

Specifications

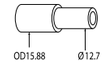
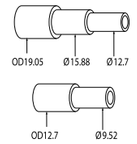
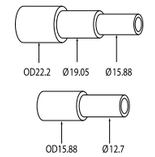
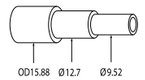
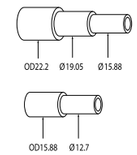
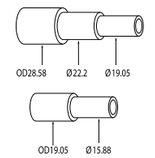
Description				PRHR022	PRHR032	PRHR042
Number of Branch			EA	2	3	4
Maximum Connectable Capacity of Indoor Units (Per branch / Unit)			kW	16 / 32	16 / 48	16 / 58
Maximum Number of Connectable Indoor Units per Branch			EA	8	8	8
Nominal Input	Cooling		kW	0.026	0.040	0.040
	Heating		kW	0.026	0.040	0.040
Net. Weight			kg	18	20	22
Dimensions (W x H x D)			mm	831 x 218 x 617	831 x 218 x 617	831 x 218 x 617
Piping Connections	Indoor Unit	Liquid	mm(inch)	9.52 (3/8)	9.52 (3/8)	9.52 (3/8)
		Gas	mm(inch)	15.88 (5/8)	15.88 (5/8)	15.88 (5/8)
	Outdoor Unit	Liquid	mm(inch)	9.52 (3/8)	9.52 (3/8)	9.52 (3/8)
		Low Pressure	mm(inch)	22.2 (7/8)	28.58 (11/8)	28.58 (11/8)
		High Pressure	mm(inch)	19.05 (3/4)	22.2 (7/8)	22.2 (7/8)
Power Supply			Ø / V / Hz	1 / 220 ~ 240 / 50 1 / 220 / 60	1 / 220 ~ 240 / 50 1 / 220 / 60	1 / 220 ~ 240 / 50 1 / 220 / 60

Parts Included

- HR unit (1EA)
- Washers M10 (8EA)
- Hanging bolts M10 or M8 (4EA)
- Reducers
- Nut M8 or M10 (8EA)

Reducers for Indoor Unit and HR Unit

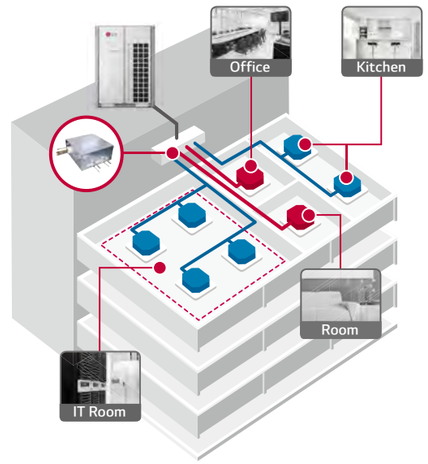
(Unit : mm)

Model Name		Liquid	High Pressure	Low Pressure
Indoor Unit Reducer				
HR Unit Reducer	PRHR022			
	PRHR032 PRHR042			

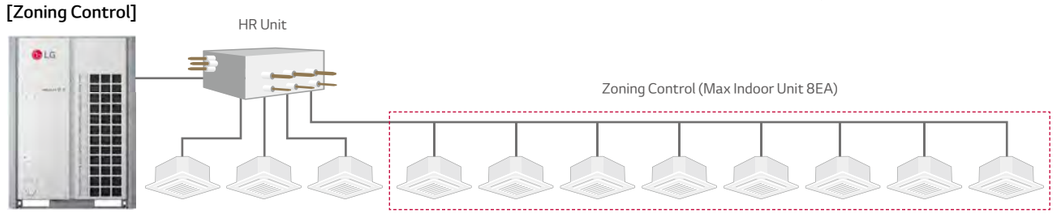
Convenient Free Zoning

MULTI V heat recovery provides flexible control over individual zones for the user's convenience.

- **Individual Control**
  - Perfect individual control over spaces ventilation needed.
- **Zone Control**
  - Max. of 8 indoor units can be connected for one branch.
  - Max. of 32 indoor units can be connected for one HR unit.
  - Same operational model can be operated by indoor units with zone control function installed.
- **Combination of Individual and Zoning Installations**
  - Flexible piping design.
- **Save Product and Installation Cost**



[Zoning Control]

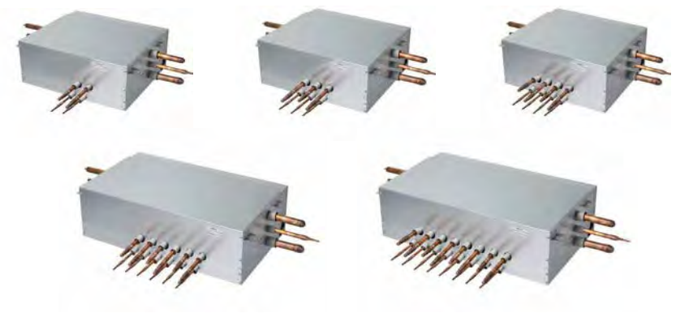


PRODUCT & SPECIFICATION

Piping Accessories

New Heat Recovery Unit

PRHR023 (2 branch Unit)
PRHR033 (3 branch Unit)
PRHR043 (4 branch Unit)
PRHR063 (6 branch Unit)
PRHR083 (8 branch Unit)



Features

- Max. 64 indoor units can be connected. (Max. 8 indoor units per branch)
- It is easy to install due to the automatic search algorithm for piping detection.
- Subcooling cycle in HR unit makes the system efficiency maximum.

Models Applied

- MULTI V 5 heat recovery

Specifications

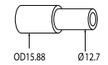
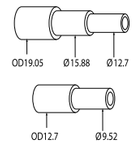
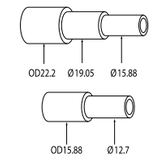
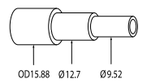
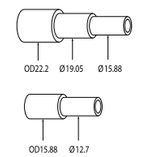
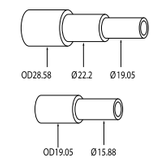
Description				PRHR023	PRHR033	PRHR043	PRHR063	PRHR083
Number of Branch			EA	2	3	4	6	8
Maximum Connectable Capacity of Indoor Units (Per Branch / Unit)			kW	17.5 / 35	17.5 / 52.5	17.5 / 69.5	17.5 / 69.5	17.5 / 69.5
Maximum Number of Connectable Indoor Units Per Branch			EA	8	8	8	8	8
Nominal Input	Cooling		kW	0.040	0.040	0.040	0.076	0.076
	Heating		kW	0.038	0.038	0.038	0.072	0.072
Net. Weight			kg	18.5	20.3	22.0	28.3	31.8
Dimensions (W x H x D)			mm	786 x 218 x 657	786 x 218 x 657	786 x 218 x 657	1,113 x 218 x 657	1,113 x 218 x 657
Piping Connections	Indoor Unit	Liquid	mm(inch)	9.52 (3/8)	9.52 (3/8)	9.52 (3/8)	9.52 (3/8)	9.52 (3/8)
		Gas	mm(inch)	15.88 (5/8)	15.88 (5/8)	15.88 (5/8)	15.88 (5/8)	15.88 (5/8)
	Outdoor Unit	Liquid	mm(inch)	9.52 (3/8)	12.7 (1/2)	15.88 (5/8)	15.88 (5/8)	15.88 (5/8)
		Low Pressure	mm(inch)	22.2 (7/8)	28.58 (11/8)	28.58 (11/8)	28.58 (11/8)	28.58 (11/8)
		High Pressure	mm(inch)	19.05 (3/4)	22.2 (7/8)	22.2 (7/8)	22.2 (7/8)	22.2 (7/8)
Power Supply			Ø / V / Hz	1 / 220 ~ 240 / 50 1 / 220 / 60	1 / 220 ~ 240 / 50 1 / 220 / 60	1 / 220 ~ 240 / 50 1 / 220 / 60	1 / 220 ~ 240 / 50 1 / 220 / 60	1 / 220 ~ 240 / 50 1 / 220 / 60

Parts Included

- HR unit (1EA)
- Washers M10 (8EA)
- Hanging bolts M10 or M8 (4EA)
- Reducers
- Nut M8 or M10 (8EA)

Reducers for Indoor Unit and HR Unit

(Unit : mm)

Model Name		Liquid	High Pressure	Low Pressure
Indoor Unit Reducer				
HR Unit Reducer	PRHR022			
	PRHR033 PRHR043 PRHR063 PRHR083			

Convenient Free Zoning

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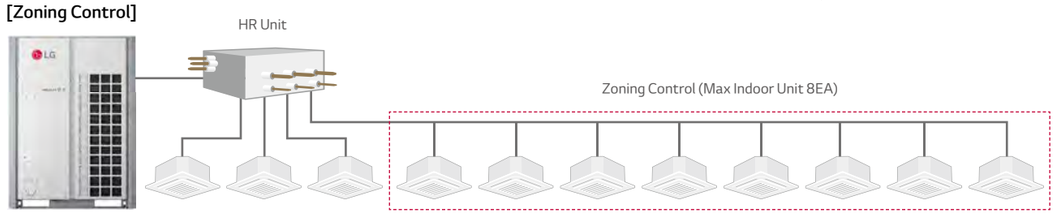
- **Individual Control**
  - Perfect individual control over spaces ventilation needed.
- **Zone Control**
  - Max. of 8 indoor units can be connected for one branch.
  - Max. of 64 indoor units can be connected for one HR unit.
  - Same operational model can be operated by indoor units with zone control function installed.
- **Combination of Individual and Zoning Installations.**
  - Flexible piping design.
- **Save Product and Installation Cost**

[Zoning Control]

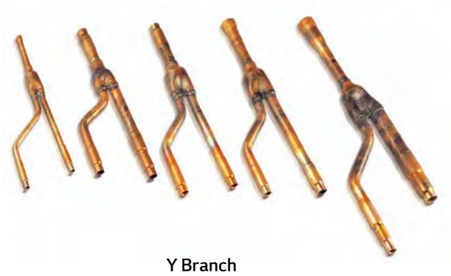


PRODUCT & SPECIFICATION

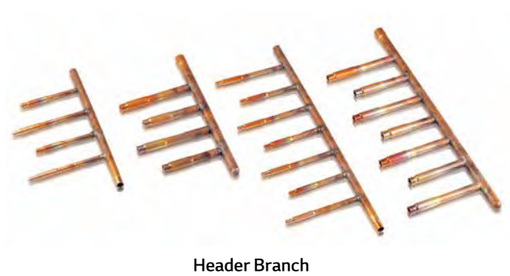
Piping Accessories

Y Branch and Header Branch

For refrigerant distribution of indoor units



Y Branch



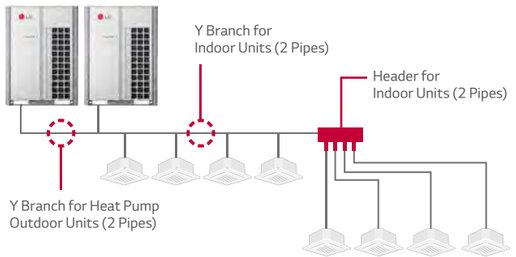
Header Branch

Features

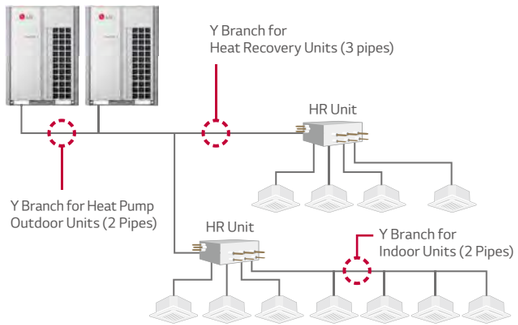
- Various Y branch pipe of different capacities make MULTI V installation much easier.
- Y branch and header branch for both gas and liquid are provided.
- Insulation material is also provided for covering the branches.

Piping Diagram

Heat Pump System



Heat Recovery system



Models Applied

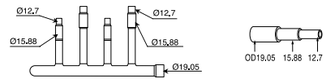
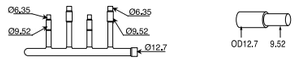
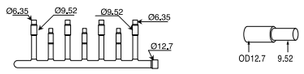
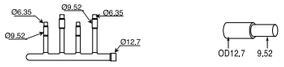
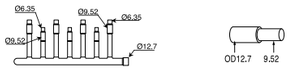
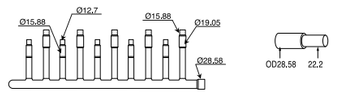
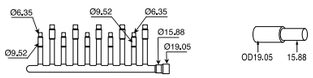
- MULTI V 5
- MULTI V IV
- MULTI V III, MULTI V PLUS II, MULTI V PLUS
- MULTI V S
- MULTI V WATER IV
- MULTI V WATER II
- MULTI V WATER S
- MULTI V SPACE II
- MULTI V MINI

Details of Model Name

Header Branch

R410A

(Unit : mm)

Model Name	Liquid	Low Pressure
4 Branch / ARBL054		
7 Branch / ARBL057		
4 Branch / ARBL104		
7 Branch / ARBL107		
10 Branch / ARBL1010		
10 Branch / ARBL2010		

PRODUCT & SPECIFICATION

Piping Accessories

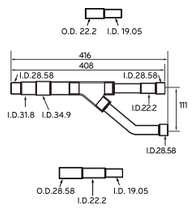
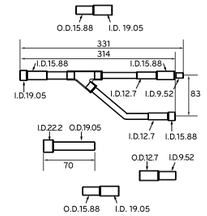
Y Branch Pipe for Connection of Outdoor Units

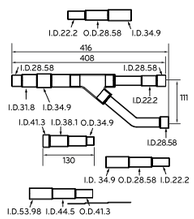
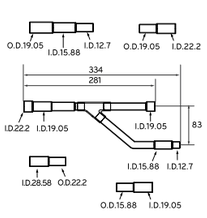
Heat Pump

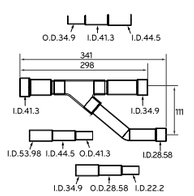
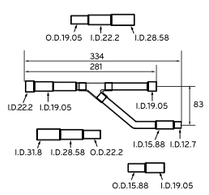
R410A

MULTI V 5, MULTI V IV, MULTI V III, MULTI V WATER IV, MULTI V WATER II

(Unit : mm)

2 Outdoor Units		
Model Name	High Pressure Gas Pipe	Liquid Pipe
ARCNN21		

3 Outdoor Units		
Model Name	High Pressure Gas Pipe	Liquid Pipe
ARCNN31		

4 Outdoor Units		
Model Name	High Pressure Gas Pipe	Liquid Pipe
ARCNN41		

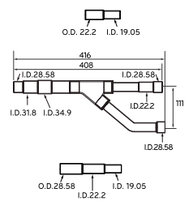
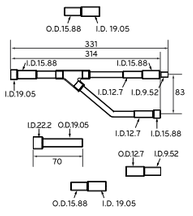
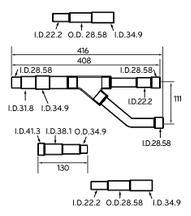
Y Branch Pipe for Connection of Outdoor Units

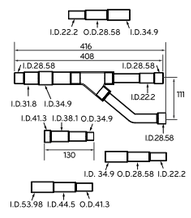
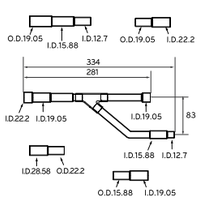
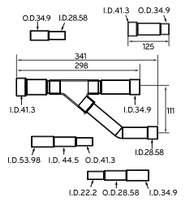
Heat Pump

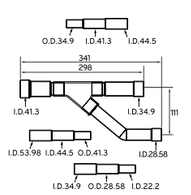
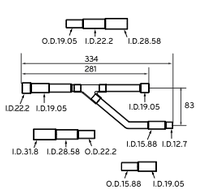
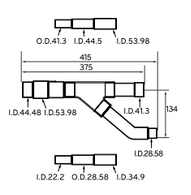
R410A

MULTI V 5, MULTI V IV heat recovery, MULTI V III heat recovery,
MULTI V WATER IV heat recovery, MULTI V WATER II heat recovery

(Unit : mm)

2 Outdoor Units			
Model Name	High Pressure Gas Pipe	Liquid Pipe	Low Pressure Gas Pipe
ARCNB21			

3 Outdoor Units			
Model Name	High Pressure Gas Pipe	Liquid Pipe	Low Pressure Gas Pipe
ARCNB31			

4 Outdoor Units			
Model Name	High Pressure Gas Pipe	Liquid Pipe	Low Pressure Gas Pipe
ARCNB41			

PRODUCT & SPECIFICATION

Piping Accessories

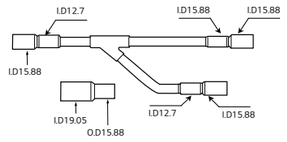
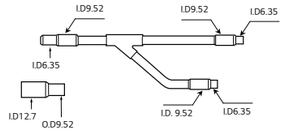
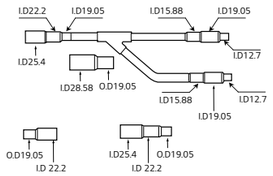
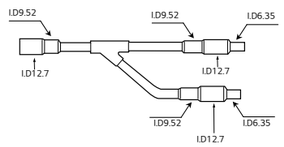
Y Branch Pipe for Connection of Outdoor Units

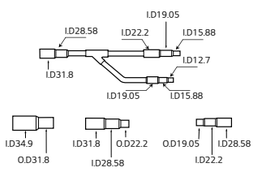
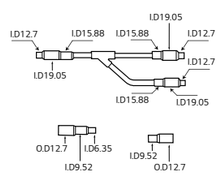
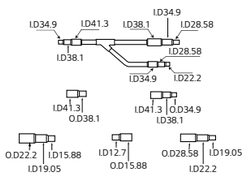
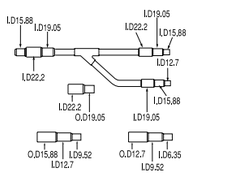
Heat Pump, Heat Recovery zone control

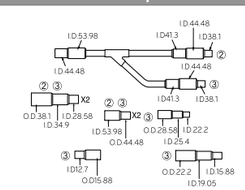
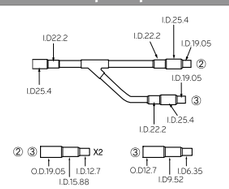
R410A

MULTI V 5, MULTI V IV, MULTI V III, MULTI V PLUS II, MULTI V PLUS, MULTI V S, MULTI V MINI,
MULTI V SPACE II, MULTI V WATER IV, MULTI V WATER S, MULTI V WATER II

(Unit : mm)

Model Name	Gas Pipe	Liquid Pipe
ARBLN01621		
ARBLN03321		

Model Name	Gas Pipe	Liquid Pipe
ARBLN07121		
ARBLN14521		

Model Name	Gas Pipe	Liquid Pipe
ARBLN23220		

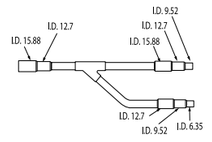
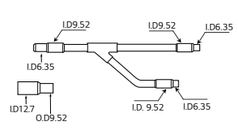
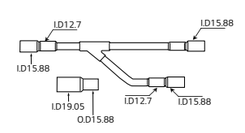
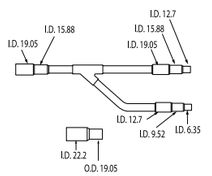
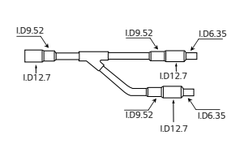
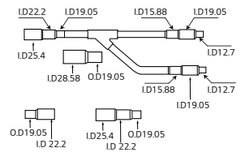
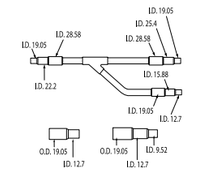
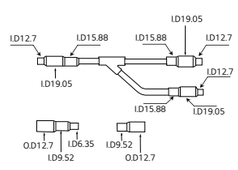
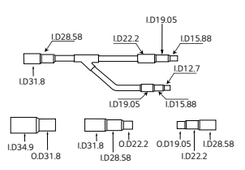
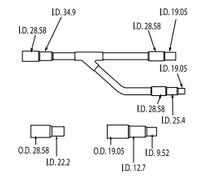
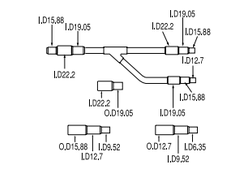
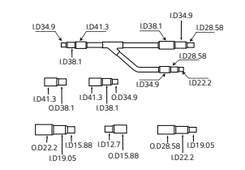
Y Branch Pipe for Connection of Outdoor Units

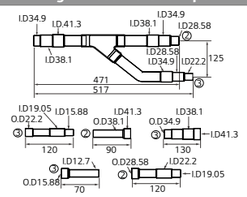
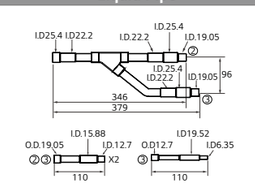
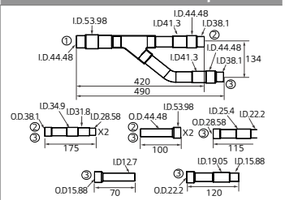
Heat Pump

R410A

MULTI V 5, MULTI V IV heat recovery, MULTI V III heat recovery
MULTI V WATER IV heat recovery, MULTI V WATER II heat recovery

(Unit : mm)

Model Name	High Pressure Gas Pipe	Liquid Pipe	Low Pressure Gas Pipe
ARBLB01621			
ARBLB03321			
ARBLB07121			
ARBLB14521			

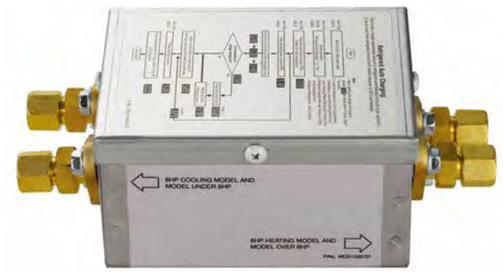
Model Name	High Pressure Gas Pipe	Liquid Pipe	Low Pressure Gas Pipe
ARBLB23220			

PRODUCT & SPECIFICATION

Refrigerant Charging Kit Stopper Valves

Recharging refrigerant after a pump down or when refrigerant is either insufficient or excessive

PRAC1

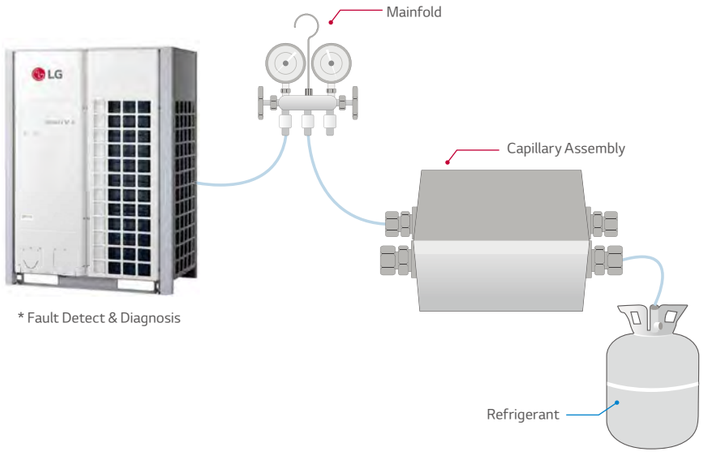


Features

- Arrange manifold, capillary assembly, refrigerant vessel and scale.
- Connect manifold to the gas pipe service valve of outdoor unit as shown in the figure.
- Connect manifold and capillary tube. Use designated capillary assembly only If designated capillary assembly isn't used, the system may get damaged.
- Connect capillary and refrigerant vessel.
- Purge hose and manifold.
- After "568" is displayed, open the valve and charge the refrigerant.

Models Applied

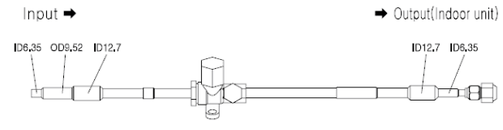
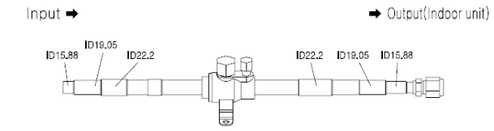
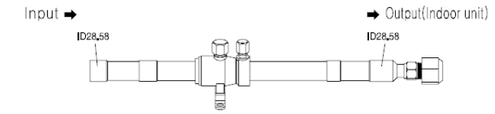
- MULTI V 5
- MULTI V IV heat pump
- MULTI V IV heat recovery
- MULTI V III heat pump
- MULTI V III heat recovery
- MULTI V PLUS II
- MULTI V SYNC II



Stopper Valves

UNDER 1 / 2 (INCH)
PRVT120
UNDER 7 / 8 (INCH)
PRVT780
UNDER 9 / 8 (INCH)
PRVT980

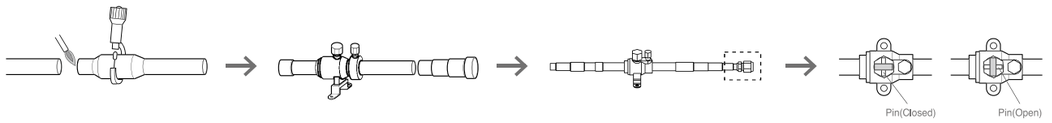
Features

Model Name	Specification
PRVT120	
PRVT780	
PRVT980	

Usage

- This unit can be applied for the additional indoor unit's installation.
- This unit can be applied for each indoor unit's service.

Installation

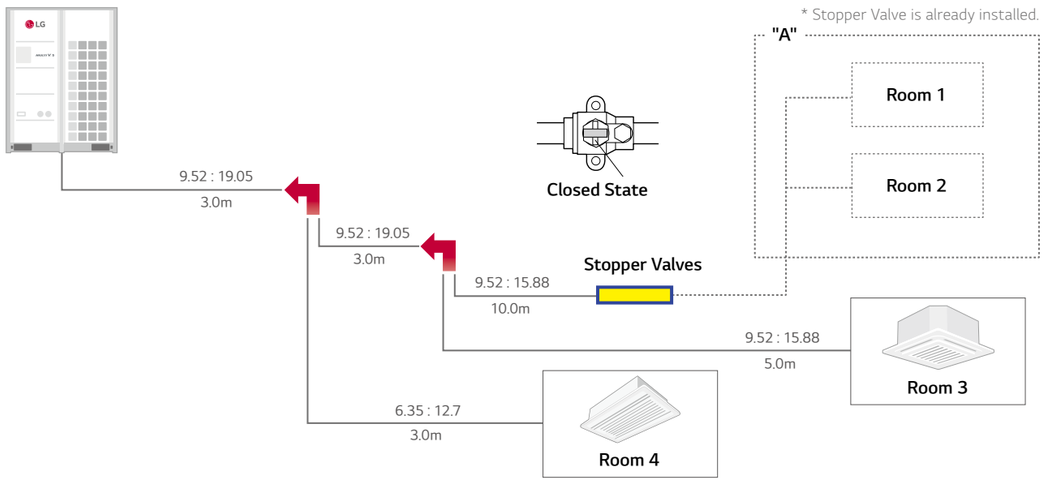


1. Cut the inlet side of the connector, and weld the pipe.
2. If installing additional indoor units, the outlet side connector should be cut according to installation pipe.
3. When installing a stopper valve, the flare part should be facing towards additional indoor unit.
4. When installing an additional indoor unit, the SVC valve should be in closed state.

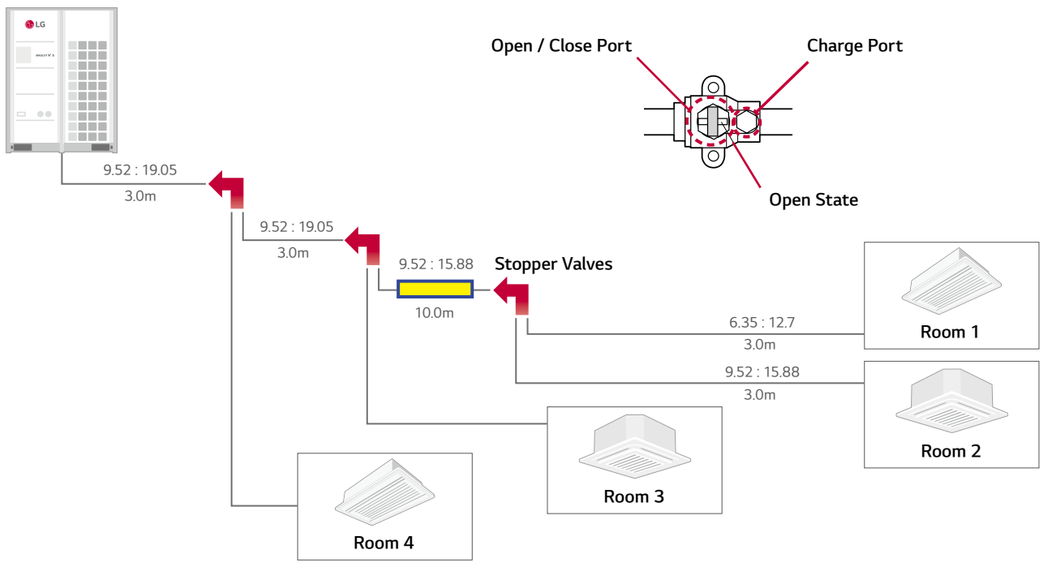
PRODUCT & SPECIFICATION

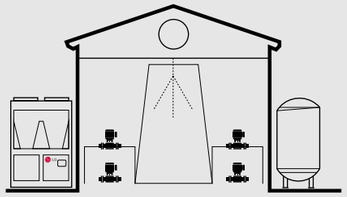
Details of Model Name

• Case1
(Room 3 & 4 : in use / Room 1 & 2 : need to install indoor units)



• In case of installation of additional indoor unit, refrigerant of used indoor unit must be discharged.
(Room 3 & Room 4)
• If stopper valve is already installed, you can install additional indoor unit without refrigerant loss from the entire system.
• After installation of additional indoor unit, you just need refrigerant charging for "A" section.
• Then, open the Stopper Valve.





High Efficiency Inverter Technologies

- Ultimate inverter scroll compressor.
- Benefits of all inverter scroll compressor.
- Low noise level.

Reliability & Stability

- Continuous heating operation.
- Back up operation.
- Corrosion resistance. (Ocean Black Fin)
- Black box function.

User Convenience

- HMI touch controller.
- Centralized control.
- Easy BMS interface.

Inverter Scroll Chiller

Inverter Scroll Chiller Heat Pump Concept

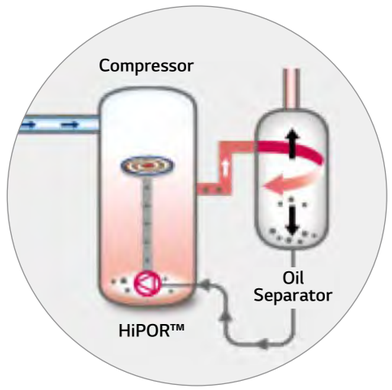
Twin all inverter and HiPOR™*
Improved partial load operation
Wide operation frequency range 30 ~ 130 Hz

* HiPOR™ : High Pressure Oil Return

EUROVENT CERTIFIED PERFORMANCE

HiPOR™ (Patent)

- By accurate oil management and control reliability up.
- Efficiency 15% ↑ (30Hz) when applying HiPOR™ Technology.
- Maximize compressor efficiency by directly returning oil into high pressure compressor.



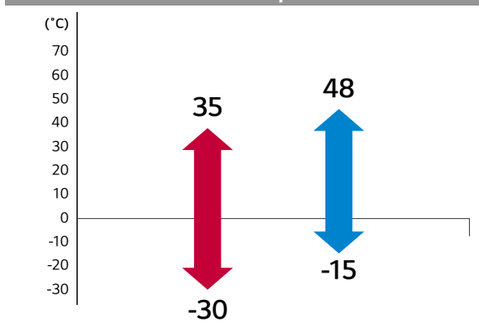
Capacity Range (Heating & Cooling)

The line up of ISC in '18 is expanded from 3 models in '17 to 8 models'.
Max. 10 chillers can be controlled by 1 central controller up to 2,460kW.

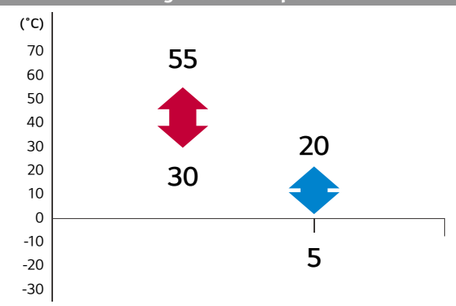
Capacity Range [kW]	65	70	80	110	120	130	140	160	180	200	220	240
Heating Capacity		●	●		●		●	●	●	●	●	●
Cooling Capacity	●	●		●		●	●		●	●	●	

Operation Range (Heating & Cooling)

Ambient Temperature



Leaving Water Temperature



HIGH EFFICIENCY INVERTER TECHNOLOGIES

Ultimate Inverter Compressor

As the core technology of the air conditioning system, the ultimate inverter compressor of MULTI V 5 boasts its ultimate efficiency and durability, designed based on the unique technology and innovation of LG HVAC.

1. All Inverter

Provide high efficiency with low vibration and low noise.

2. Six By-pass Valves

Prevent compressor damage due to excessively.
compressed refrigerant more efficiently than 4 by-pass valves.

3. Vapor Injection

Wide operating range via two-stage compression.

4. Enhanced Bearing with PEEK Material

Newly invented system motivated by PEEK. (Polyetherether ketone)
bearing used for aero engine to increase operation range and durability.

5. Wide Operation Range from 30 to 130Hz

Improved part load efficiency at all operation ranges.

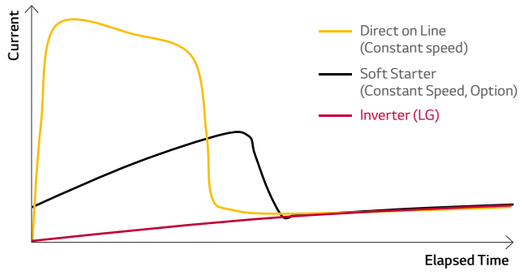
6. HiPOR™ (High Pressure Oil Return)

Resolve compressor efficiency loss caused by oil return with high pressure.

Inverter Comp. vs Constant Speed Comp.

Inverter compressor is more stable and efficient solution than constant speed compressor.

Comparison of Starting Type



Compressor	Starting Type	Starting Current (Is / FLA*, %)
Constant Speed	Direct on Line	About 650 %
	Soft Starter	200 ~ 350 %
Inverter (LG)	Inverter	No inrush current

* FLA : Full load ampere.

Inverter's Feature & Benefits

When Starting

- Reduce starting torque below full load torque.
  → Mechanical wear ↓
- Decrease starting current under FLA.
  → Circuit breaker capacity ↓

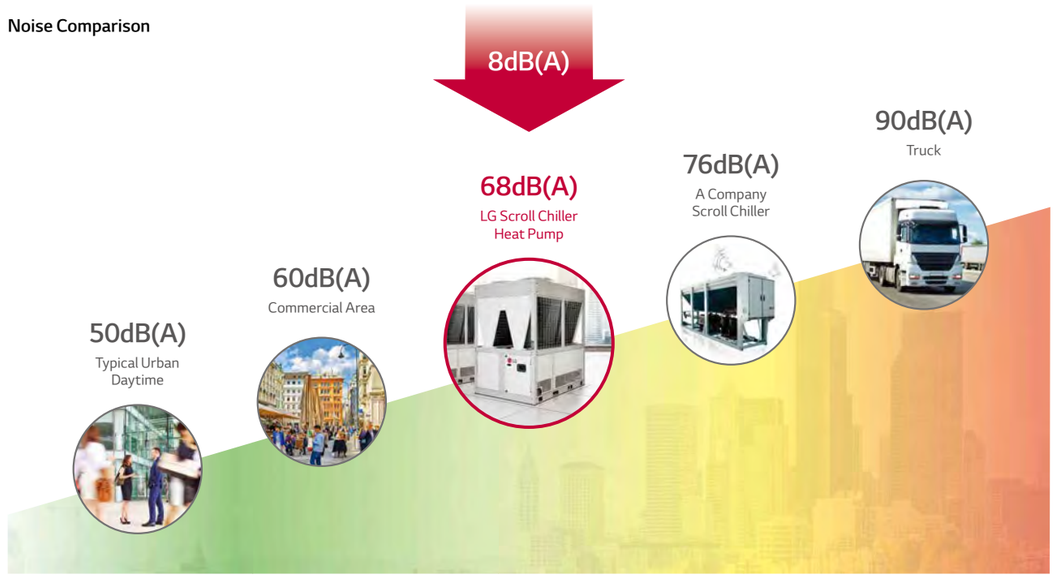
When Operating

- Low electric loss due to high value of the power factor**.
  → Energy efficient
- Low power input in part load.
  → High SEER
- Continuously adjust compressor output according to the load.
  (Compressor 15 ~ 125Hz)
  → Save energy

** Power factor : Ratio between active power (kW) and total power. (kVA)

Low Noise Level

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



* 222kW Sound pressure level comparison. (Heat pump model)
* Sound pressure level is measured on the rated condition in the anechoic rooms by ISO 3745 standard.

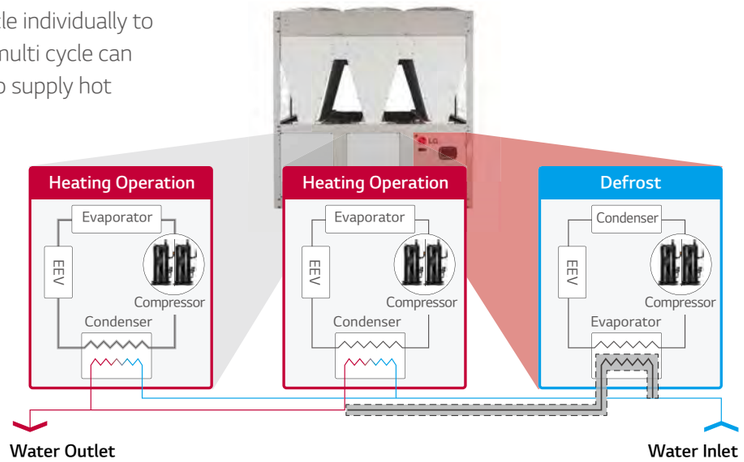
RELIABILITY & STABILITY

Continuous Heating Operation

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

Multi cycle can defrost each cycle individually to supply hot water continuously multi cycle can defrost each cycle individually to supply hot water continuously.

* Applied up to 6 scroll compressors per refrigerator.

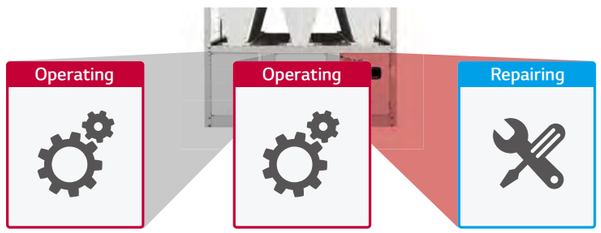


Back Up Operation

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

Compressor Back Up

Cycle Back Up



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.

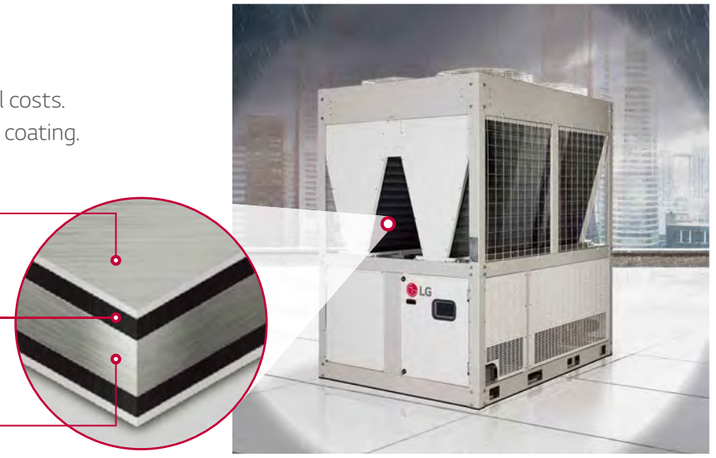
Ocean Black Fin

- Longer lifespan, lower operational costs.
- Strengthened corrosion resistant coating.

Hydrophilic Film (Water flow)
The hydrophilic coating minimizes moisture build up on the fin.

Epoxy Resin (Corrosion Resistant)
The black coating provides strong protection from corrosion.

Aluminum Fin



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.

With Black Box Function
Search for the failure cause conveniently using recorded data.

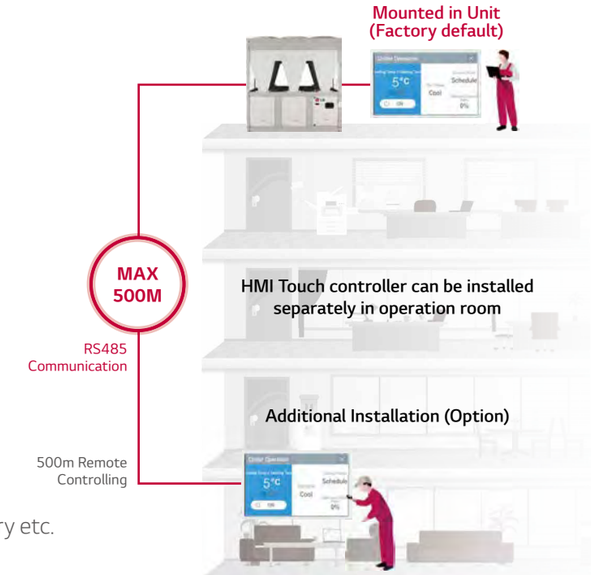
USER CONVENIENCE

HMI Touch Controller

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

User Friendly HMI Touch Controller

- Checking heat pump information (Pump / Flow status, Pump On/Off, Flow switch On/Off Etc.)
- Monitoring heat pump operation (Each cycle operation status, Air temperature Etc.)
- 5 chillers multiple control
- Scheduling function
- Anti-freezing function / displaying error history etc.
- RS485 1Port, SD card (Memory)



Centralized Control of LG Heat Pump (Option)

LG central controller 5 series (Chiller option kit) provide heat pump remote control and cycle monitoring. (ACP 5 : Max. 10 chillers , AC Smart 5 : Max. 5 chillers)

ACP 5 + Chiller Option Kit

Web Access
- Control and monitor by web access.

Heat pump status overview.

Main View

Various HVAC Units
- Scroll, Screw, Centrifugal heat pump absorption heat pump & heater.
- A/C, Ventilation, AHU, AWHP.

Schedule Operation
- Automatic unmanned operation.

Detailed Control and Monitor
- Control and monitor on screen.

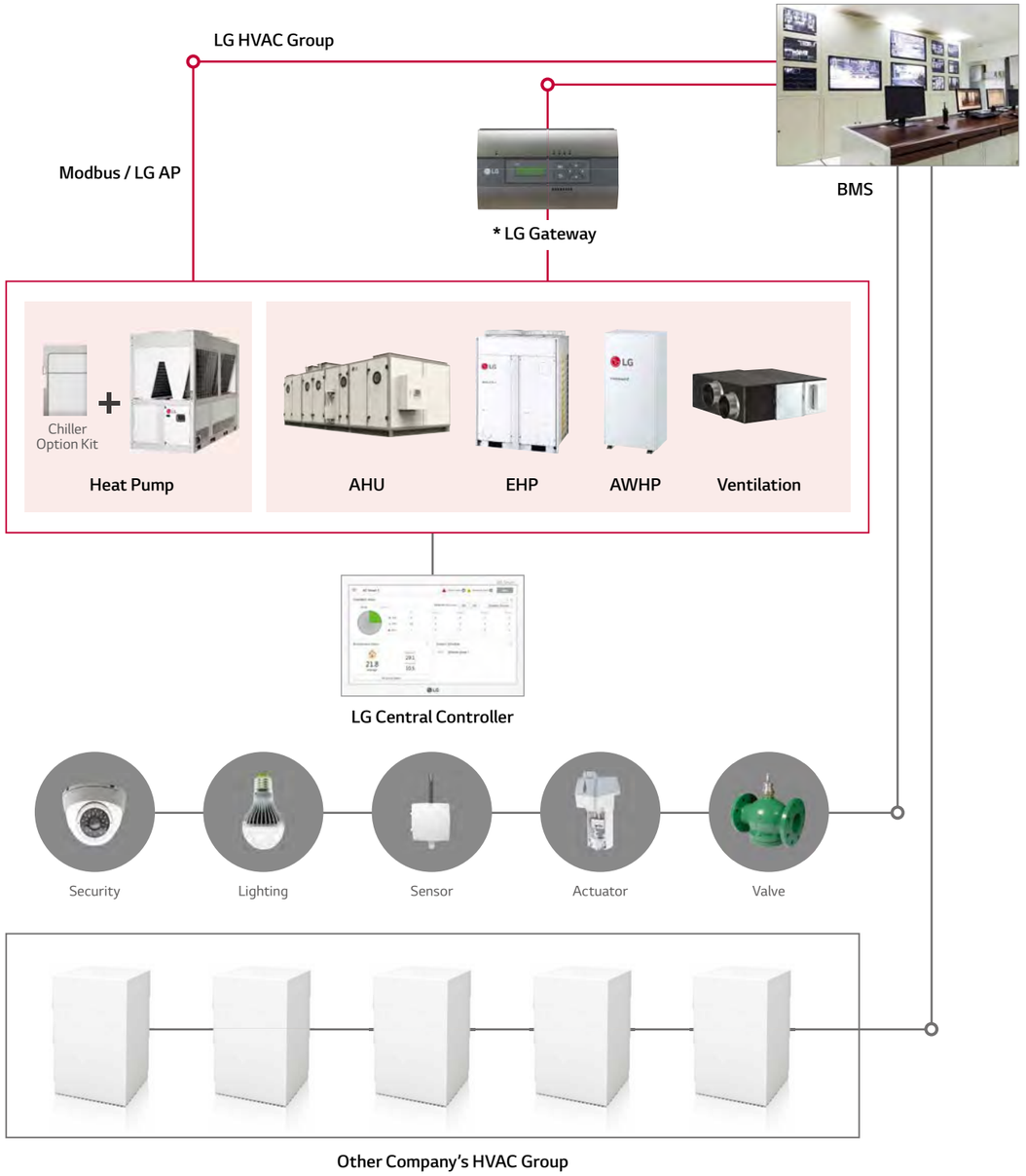
Easy BMS Interface

LG provides heat pump controller system and BMS communication function.

LG HVAC Group

BMS : Building Management System

* LG ACP BACnet / LONwork gateway is unconvertable to LG heat pump. Direct Modbus connection is available.



PRODUCT & SPECIFICATION

Inverter Scroll Chiller Heat Pump




EUROVENT CERTIFIED PERFORMANCE · Ocean Black Fin · HIPOR™ · R410A · 55°C · HMI

Features

- Ultimate inverter scroll compressor
- Benefits of all inverter scroll compressor
- Continuous heating operation
- Back up operation
- Corrosion resistance (Ocean Black Fin)
- Black box function
- Low noise level
- HMI touch controller
- Centralized control
- Easy BMS interface

Model Line Up

Category	Chassis	Model Name		
		Heating Capacity (RT)		
3 Phase Model 3Ø, 380 ~ 415V, 50Hz	1 Unit	ACHH020LBAB		ACHH023LBAB
		20		23
	2 Unit	ACHH033LBAB	ACHH040LBAB	ACHH045LBAB
		34	40	47
	3 Unit	ACHH050LBAB	ACHH060LBAB	ACHH067LBAB
		51	60	70

Inverter Scroll Chiller Heat Pump (R410A) Specification

Inverter Scroll Chiller Heat Pump		Model	ACHH020LBAB	ACHH023LBAB	ACHH033LBAB	ACHH040LBAB	ACHH045LBAB	ACHH050LBAB	ACHH060LBAB	ACHH067LBAB
			H/P							
Power		Phase, Lines,V	3, 4, 380 ~ 415							
Capacity	Cooling	kW	65.0	74.0	114.0	130.0	148.0	171.0	195.0	222.0
		RT	18.5	21.0	32.4	37.0	42.1	48.6	55.4	63.1
	Heating	kW	70.3	82.0	120.0	140.6	164.0	180.0	210.9	246.0
		RT	20	23	34	40	47	51	60	70
Input Power	Cooling	kW	22.2	27.4	36.8	44.4	54.8	55.2	66.6	82.2
	Heating	kW	21.6	27.3	35.3	43.3	54.7	52.9	64.9	82.0
Max Operating Current		A	39	48	72	78	96	108	117	144
Efficiency	Cooling	W/W	2.93	2.70	3.10	2.93	2.70	3.10	2.93	2.70
	Heating	W/W	3.25	3.00	3.40	3.25	3.00	3.40	3.25	3.00
SEER		W/W	4.40	4.20	4.50	4.40	4.20	4.50	4.40	4.20
SCOP		W/W	3.30	3.30	3.30	3.30	3.30	3.30	3.30	3.30
Sound Pressure		dB(A)	67	68	68	68	68	68	68	68
Sound Power	Cooling	dB(A)	84	86	87	90	91	88	91	92
	Heating		86	87	87	90	91	88	91	92
Compressor	Type	-	Scroll							
	No. of Compressor	EA	2		4			6		
	Oil Type	-	PVE							
	Oil Charge	cc	1400 x 2		1400 x 4			1400 x 6		
	Sump Heater	W	60 x 2		60 x 4			60 x 6		
Refrigerant	Type	-	R410A							
	Amt of Charged	Kg	7.0kg x 2		7.0kg x 4			7.0kg x 6		
	GWP	-	2087.5							
	tCO_2eq	-	29.23		58.45			87.68		
Evaporator	Type	-	Plate							
	Pressure Drop	kPa	21.5	28.7	18.7	21.5	28.7	18.7	21.5	28.7
	Operating Maximum Pressure (Refrigerant / Water)	kg/cm^2	42 / 10							
	Standard Flow (Cooling/ Heating)	LPM	186 / 200	211 / 235	327 / 345	372 / 400	411 / 470	490 / 518	558 / 600	633 / 705
	Inlet/Outlet Diameter (Water Pipe)	mm	50A / 50A		65A / 65A					
Fan motor	Type	-	BLDC							
	No. of Fan	EA	2		4			6		
	No. of Vanes	EA	4							
	Air Flow Rate	CMM	210 x 2 @1000rpm		210 x 4 @1000rpm			210 x 6 @1000rpm		
	Motor Power	W	900 x 2		900 x 4			900 x 6		
Expansion Unit		-	EEV							
Weight		kg	520		970			1430		
Dimension	W	mm	765	765	1528	1528	1528	2291	2291	2291
	H	mm	2293	2293	2293	2293	2293	2293	2293	2293
	D	mm	2154	2154	2154	2154	2154	2154	2154	2154
Footprint		m^2/RT	0.089	0.078	0.102	0.089	0.078	0.101	0.089	0.078
Protection Devices	High / Low Pressure	-	○	○	○	○	○	○	○	○
	Anti Frost	-	○	○	○	○	○	○	○	○
Remote Control		-	Modbus							
Power	Power Line	mm^2	25.0mm^2 x 5C		50.0mm^2 x 5C			95.0mm^2 x 5C		
Outlet Temperature	Cooling	°C	5 ~ 20							
	Heating	°C	30 ~ 55							
Ambient Temperature	Cooling	°C	- 15 ~ 48							
	Heating	°C	- 30 ~ 35							
Earth Leakage Breaker		A	75		125			200		
Guaranteed Load Capacity Range		-	20% ~ 100%							

Note
1. Due to our policy of innovation some specifications may be changed without prior notification.
2. Capacities and Inputs are based on the following conditions.
   Cooling : Outdoor air temp. 35°C, Water inlet temp. 12°C, Water outlet temp. 7°C
   Heating : Outdoor air temp. 7°C, Water inlet temp. 40°C, Water outlet temp. 45°C
3. Sound pressure level is measured on the rated condition in the anechoic rooms by ISO 3745 standard. Sound power level is measured ISO 9614:2009 by sound intensity method. Therefore, these values can be increased owing to ambient conditions during operation.
4. This product contains fluorinated greenhouse gases. (R410A)

PRODUCT & SPECIFICATION

Selection Procedure

Selection Guide

The product information required in various requirements is written in detail from Chapter 6.
If you need a product for special system application or product with the condition outside this procedure, please get consultation from nearby sales office or specialty store.

Selection Procedure

1. Check Usage Condition

Before selecting the model, the following usage conditions must be decided.
- Cold and hot water in/out temperature and outdoor temperature.
- Cold and hot water flow amount.
  (Flow amount can be calculated if you know the freezing load and chilled water in/out temperature.)

2. Selecting Candidate Model

Required rated capability is selected through load calculation, and you can select the corresponding model by looking at cooling / heating capability change table. When you select the candidate model, do not select a model with less volume than the required rated capability, but select a model with the same or bigger volume.

3. Performance Adjustment for Fouling

The data in this technical data manual is based on chilled water fouling coefficient of 0.000018 m^2 °C/W.

4. Performance Adjustment after Adding Freeze and Burst Prevention Solution

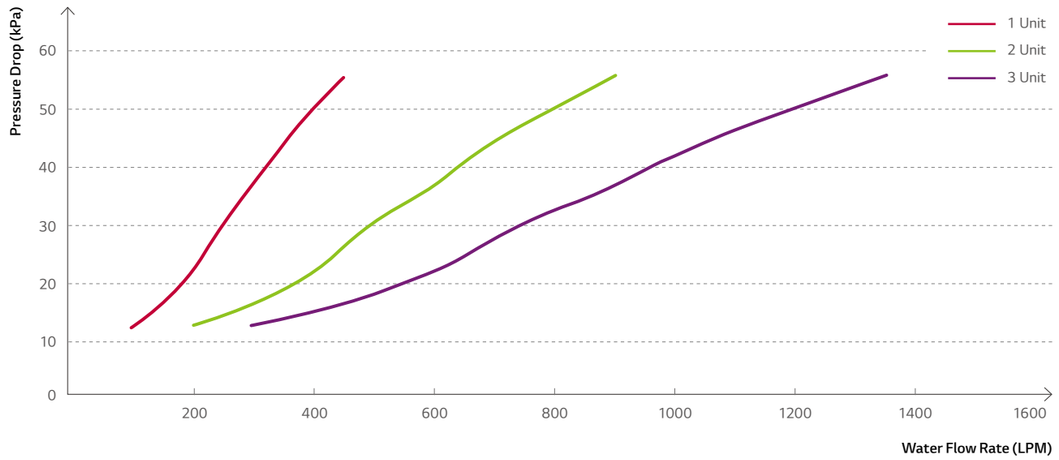
If cooling operation is performed in winter, or if water inside the cycle is not removed in the resting phase, you have to add freeze and burst prevention solution to protect from freeze and burst.
Freezer characteristics change by adding freeze and burst prevention solution, so it should be adjusted.
Refer to the following table for the adjustment coefficient after adding freeze and burst prevention solution.

5. Finalizing the Model

As a result of verifying product performance and power consumption considering various adjustment coefficients for the candidate models, if there is no problem, you can finalize it as the final model.
If there is a problem, review again from the candidate model selection stage.

Anti-freeze Type	Item	Anti-freeze % by wt				
		10 %	20 %	30 %	40 %	50 %
Methanol	Cooling	0.998	0.997	0.995	0.993	0.992
	Heating	0.995	0.990	0.985	0.979	0.974
	Pressure Drop	1.023	1.057	1.091	1.122	1.160
Ethylene Glycol	Cooling	0.996	0.991	0.987	0.983	0.979
	Heating	0.993	0.985	0.977	0.969	0.961
	Pressure Drop	1.024	1.068	1.124	1.188	1.263
Propylene Glycol	Cooling	0.993	0.987	0.980	0.974	0.968
	Heating	0.966	0.973	0.960	0.948	0.935
	Pressure Drop	1.040	1.098	1.174	1.273	1.405

ACHH Series Evaporator Head Loss Graph



Example of Selection

Determine inverter scroll chiller heat pump unit size and operating conditions required to meet given capacity at given conditions.

Step I

- Given
- Capacity : 115kW
- Leaving chilled water Temp : 7°C
- Cooler water temp different : 5°C
- Condenser entering air temp : 35°C
- Fouling factor : 0.018

Note : For other than approximately 6 to 8°C temperature difference, unit selection must be made using the selection software. (LATS ISC) and contact LG consultant.

Step II

- From heat pump ratings table on page 7 to 24 and pressure drop curves on page 25, determine operating data for selected unit.
- Unit : ACAH040LBAA
- Capacity : 123kW x fouling factor coefficient (1.0) = 123kW (See 100% capacity table)
- Power input : 46.4kW x fouling factor coefficient (1.0) = 46.4kW
- Cooling water flow : 353LPM
- Pressure drop : 34kPa

Note : If the heat pump load is larger than the demand capacity, Check the partial load capacity table.

Step III

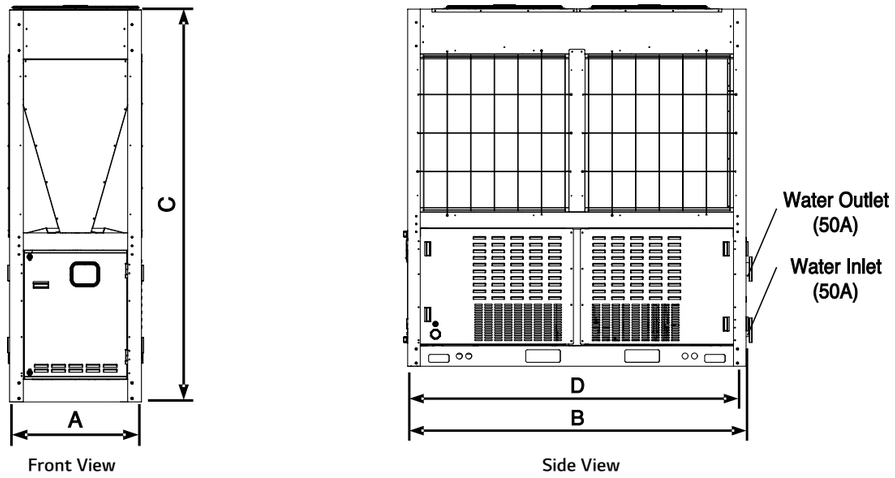
- Review if the calculated specification is suitable for the site.

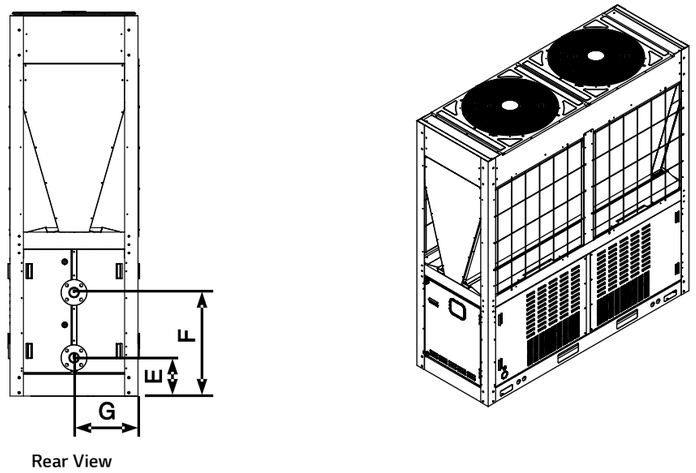
PRODUCT & SPECIFICATION

Drawings

ACHH020LBAB / ACHH023LBAB

[Unit : mm]

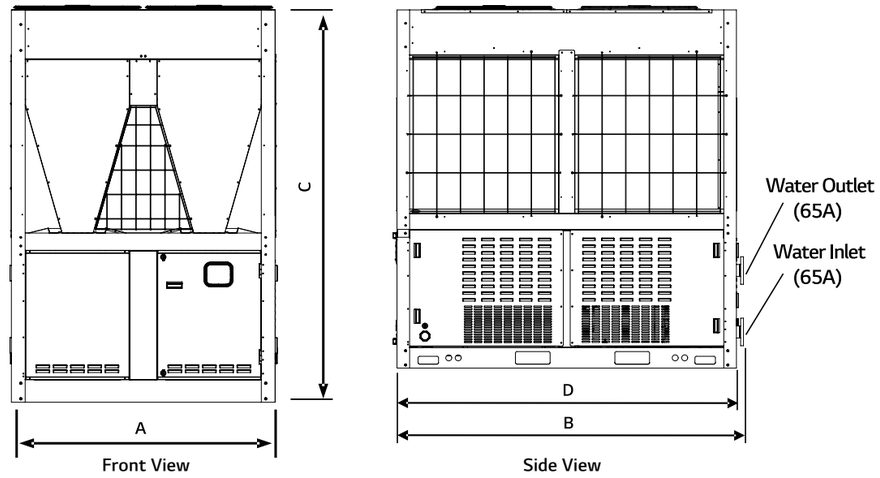


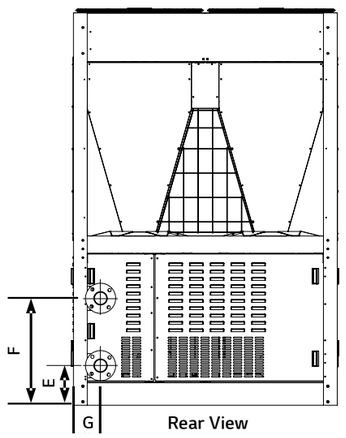


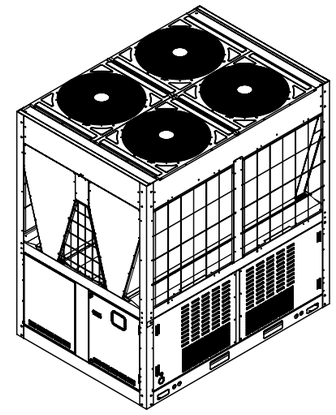
Classification	Dimension
A	765
B	2,198
C	2,300
D	2,154
E	230
F	619
G	382.3

ACHH033LBAB / ACHH040LBAB / ACHH045LBAB

[Unit : mm]







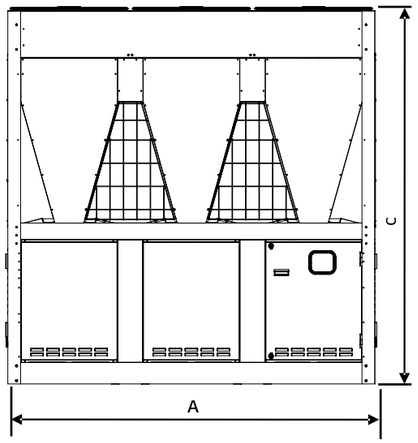
Classification	Dimension
A	1,528
B	2,199
C	2,300
D	2,154
E	230
F	619
G	158.8

PRODUCT & SPECIFICATION

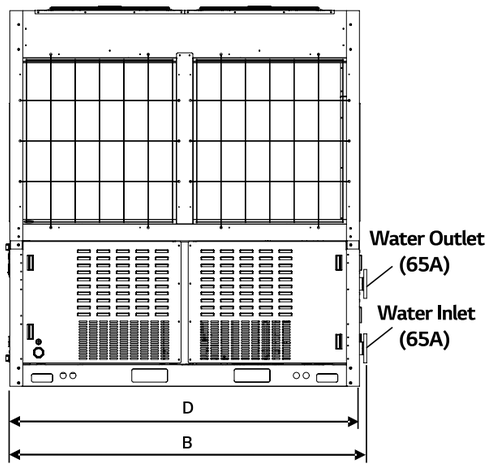
Drawings

ACHH050LBAB / ACHH060LBAB / ACHH067LBAB

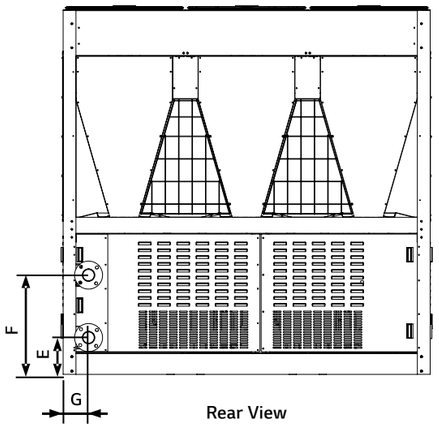
[Unit : mm]



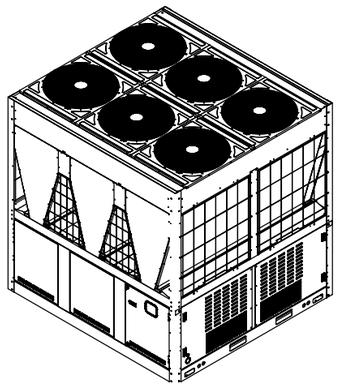
Front View



Side View



Rear View



Classification	Dimension
A	2,291
B	2,199
C	2,300
D	2,154
E	230
F	619
G	158.8

Water Pipe Installation

- Appropriate pressure of pipe connection is flange connection of 1 MPa or below.
- Size of the water pipe must be the same as that of the product or larger.
- If there is risk of dew drops forming, always install the thermal insulation material on the outlet pipe of the cold water.
- To avoid connected water pipe from creeping from the load, use appropriate hook for support.
- To prevent the pipe connected part from freezing during the winter season, always install the drain valve at the most bottom of the pipe system.
- Cold water inlet pipe is located at the bottom and the outlet pipe is installed on the top.
- When connecting several chillers, refer to the following for common pipe size.

Full Product Capacity		20 RT	40 RT	60 RT	80 RT	100 RT	120 RT	140 RT	160 RT	180 RT
Common Piper Size		65 A	80 A	100 A	100 A	125 A	125 A	125 A	150 A	150 A
Product	20 RT	○								
	40 RT		○		○○	○		○○	○	
	60 RT			○		○	○○	○	○○	○○○

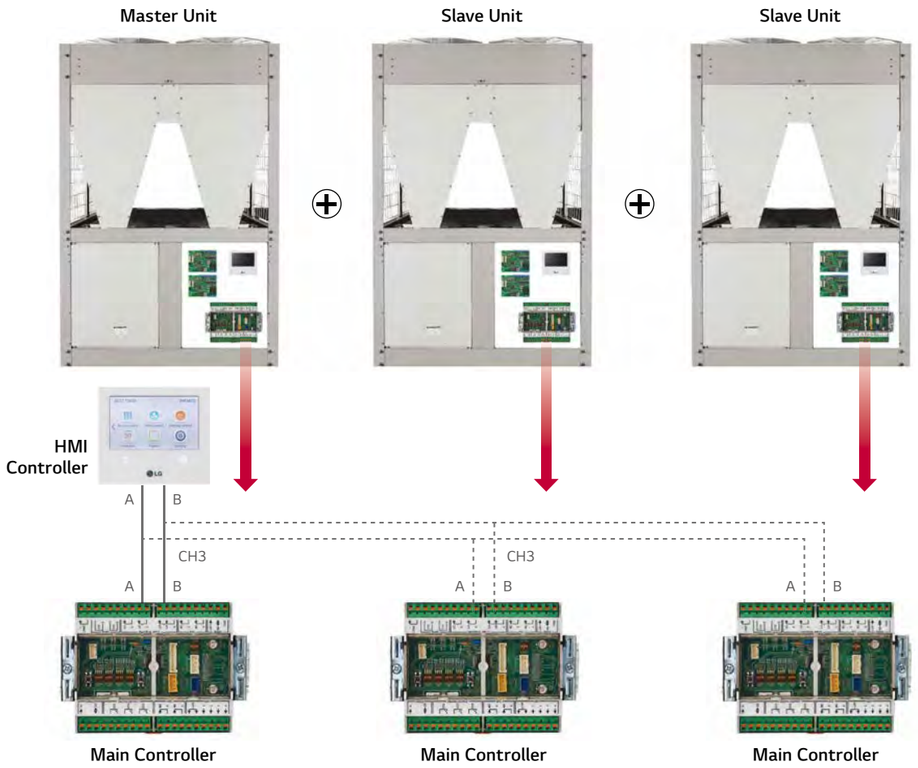
Full Product Capacity		200 RT	220 RT	240 RT	260 RT	280 RT	300 RT
Common Piper Size		150 A	200 A	200 A	200 A	200 A	200 A
Product	20 RT						
	40 RT	○○	○		○○	○	
	60 RT	○○	○○○	○○○○	○○	○○○○	○○○○○

Water Pump Control

- If the cold water pump is not operating for a long period of time or if the anti-freeze liquid is not used as the cold water, the anti-freeze pump control must be installed to prevent the pipe from freezing.
- The vibration of the pump can transfer to the pipe to cause noise indoors. As the plan to prevent the noise from spreading in the pump, install flexible joints at the inlet/outlet and use the anti-vibration amount for the pump support.

PRODUCT & SPECIFICATION

Unit Combination



1) Communication line is divided A into B like a picture and is jump connected to main unit and main controller CH3 of slave unit.
2) Communication line jump connected is divided A into B to HMI of master unit and in connected.
3) Use 2-line shield as a communication line.
4) Separately install the communication and power cable of the heat pump so that communication cable is not affected by the electric noise generated from power cable.
(Do not pass though the same electric pipe.)
5) Unit combination is able to connect up to 5 units.

⚠ WARNING

- If number and address of product to want to interlock is not set from HMI, error will occur.
(Please refer to control > Freezer interlocking control about HMI address setting)
- If main controller address doesn't match HMI address, error will occur.
(Please refer to control > Freezer address setting about controller address setting)

LINE-UP

AC Ez Touch

NEW
AC Smart 5
AC Smart IV

AC Ez

NEW
ACP 5
ACP IV

AC Manager 5

Central Controller Line Up

Model Name	PQCSZ250S0	PACEZA000	PACS5A000 PACS4B000	PACP5A000 PACP4B000	PACM5A000
					
Maximum number of Units	32	64	128	256	8,192
Individual / Group Control	○	○	○	○	○
Individual Controller Lock	○	○	○	○	○
Error Check	○	○	○	○	○
Slave Mode (Interlocking with Higher Level Controller)	○	○	○	-	-
Schedule	Weekly	Yearly	Yearly	Yearly	Yearly
Remote Access	-	By client S/W	Web	Web	Web
Emergency Stop & Alarm Display	-	○	○	○	○
Power Consumption Monitoring (with PDI)	-	○	○	○	○
Auto Changeover / Setback	-	○	○	○	○
Temperature Limit	-	○	○	○	○
Operation Time Limit	-	-	○	○	○
Visual Navigation	-	-	○	○	○
Operation Trend	-	-	○	○	○
Interlock Control	-	-	○	○	○
Virtual Group Control	-	-	○	○	○
ODU Capacity Control	-	-	○	○	○
Energy Navigation (with PDI)	-	-	○	○	○
ACS IO Module Interlocking	-	-	○	○	○
NEW BMS Integration (BACnet, Modbus protocol)	-	-	○ (PACS5A000 only)	○ (PACP5A000 only)	-
NEW IPv6 Support	-	○	○ (PACS5A000 only)	○ (PACP5A000 only)	-