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LG THERMA V™

LG Electronics

Commercial Air Conditioning

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THERMA V™

Air-to-Water Heat Pump 2015-2016

LG Heating SOLUTION

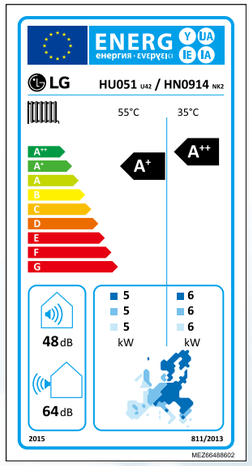
Focus on Energy & Environment

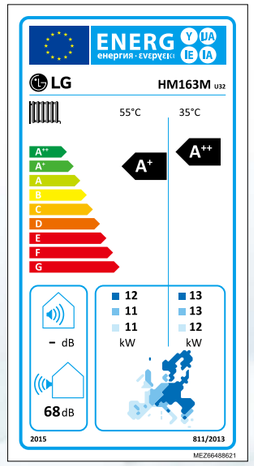
Energy Related Product (ErP)

European Eco design rules (the ErP rules) have become an effective tool to drive European consumers towards products with reduced environmental impact and increased energy performances. Air-to-water heat pumps are the new product category expected to meet strict criteria for efficiency, while our customers will also be able to make more informed choices thanks to the energy labeling that accompanies LG's THERMA V range.

From 26 September 2015, the ErP rules will apply to heat pumps, which will have to meet minimum requirements for energy efficiency and maximum sound power levels. Products that do not satisfy these rules will not reach the market anymore.

The energy class of the product indicated on the energy label reflects the seasonal space heating efficiency. The energy efficiency of heat pumps is based upon their Seasonal Coefficient of Performance, calculated by taking the annual heat demand of the buildingand dividing it by the annual energy consumption, while considering the consumption of back-up systems and the location where the heat pump is used in Europe. LG THERMA V products' efficiency is calculated according to the average climate zone of Strasbourg. Last but not least, water-based heat pumps are relying on a renewable energy for their functioning and it is important to keep in mind that the increased use of renewable energy in Europe will also reduce our energy dependency.





European Standards

LG Electronics is committed to product excellence, hence why we participate in different national and European certification schemes. Third party certification allows LG customers to compare our products' efficiency with other manufacturers on an equal footing, so as to make informed choices, based on the highest performance standards. In addition, LG THERMA V products that hold a third party performance certificate can often benefit from national bonus schemes that make the product more affordable for the customer.

In the UK, MCS certification on THERMA V allows its holders to benefit from the Renewable Heat Incentive payments. In France, NF PAC enables the implementation of THERMA V in new built projects, where the French building regulation (RT 2012) promotes the use of highly efficient products, certified by an independent organism. Additionally, the French tax bonus can only benefit to the holders of the NF PAC certificate for air-to-water heat pumps. Lastly, Eurovent heat pump certification grants recognition to THERMA V product performance across all European countries.

Certification benefit

- MCS (UK) : RHI (Renewable Heat Incentive) tariff 7.3 Pence / kWh for 7 years
- NF PAC (France) : Promoted in the context of Thermal Regulation RT 2012. Tax Refund (15%~25% of product cost)

MCS (UK) NF PAC (France)

LG Energy Lab

LG THERMA V has passed through the severe testing condition at the Energy Lab which is located in northern France.
It can prove LG THERMA V is designed to make sure the steady performance and reliability under European winter condition.

LG energyLab France

LG testLab Korea

What is LG THERMA V?

THERMA V is LG's Air to Water Heat Pump system, especially designed for new housing and renovation by LG's advanced heating technology with energy saving.
THERMA V can be used as various heating solution from floor heating to hot water supply with multiple heat sources.

Energy Efficient Application

THERMA V offers the best solution for home heating and hot water supply with LG's inverter technology.
It is 4 times more energy efficient than boiler system by absorbing energy from the outdoor environment.

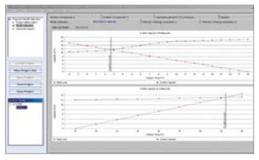
Optimal Application

Advanced model selection software enables designers to choose optimal THERMA V model based on the location and environmental factors.

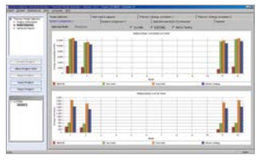
- Model selection screen

- Monthly energy simulation

- Heat load & heat pump capacity

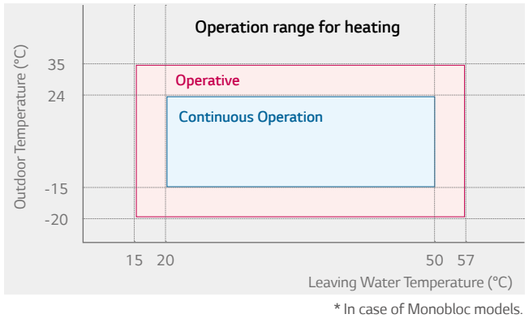


- System comparison chart



Reliable Application

Heating range for outdoor temperature is down to -20°C and leaving water temperature can reach max. 57°C



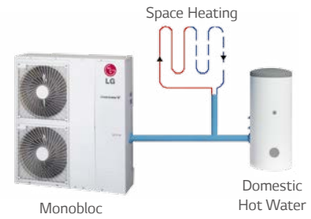
* In case of Monobloc models.

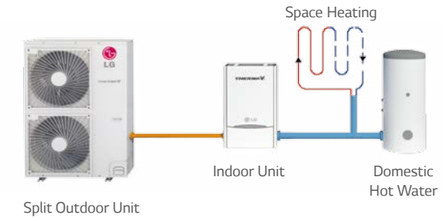
Various Application

Various kinds of application is possible with THERMA V units including new house also renovation house.

New House

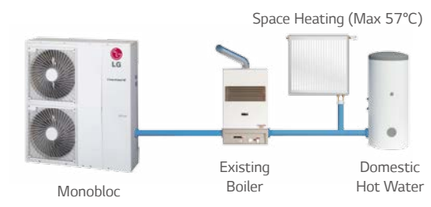
With low temp. monobloc & split model, heating and cooling can be done.





Renovation House

THERMA V can be connected to existing boiler system to optimize energy efficiency and heating capacity for renovation house. Also THERMA V High Temperature can replace completely exiting boiler by providing 80°C hot water.



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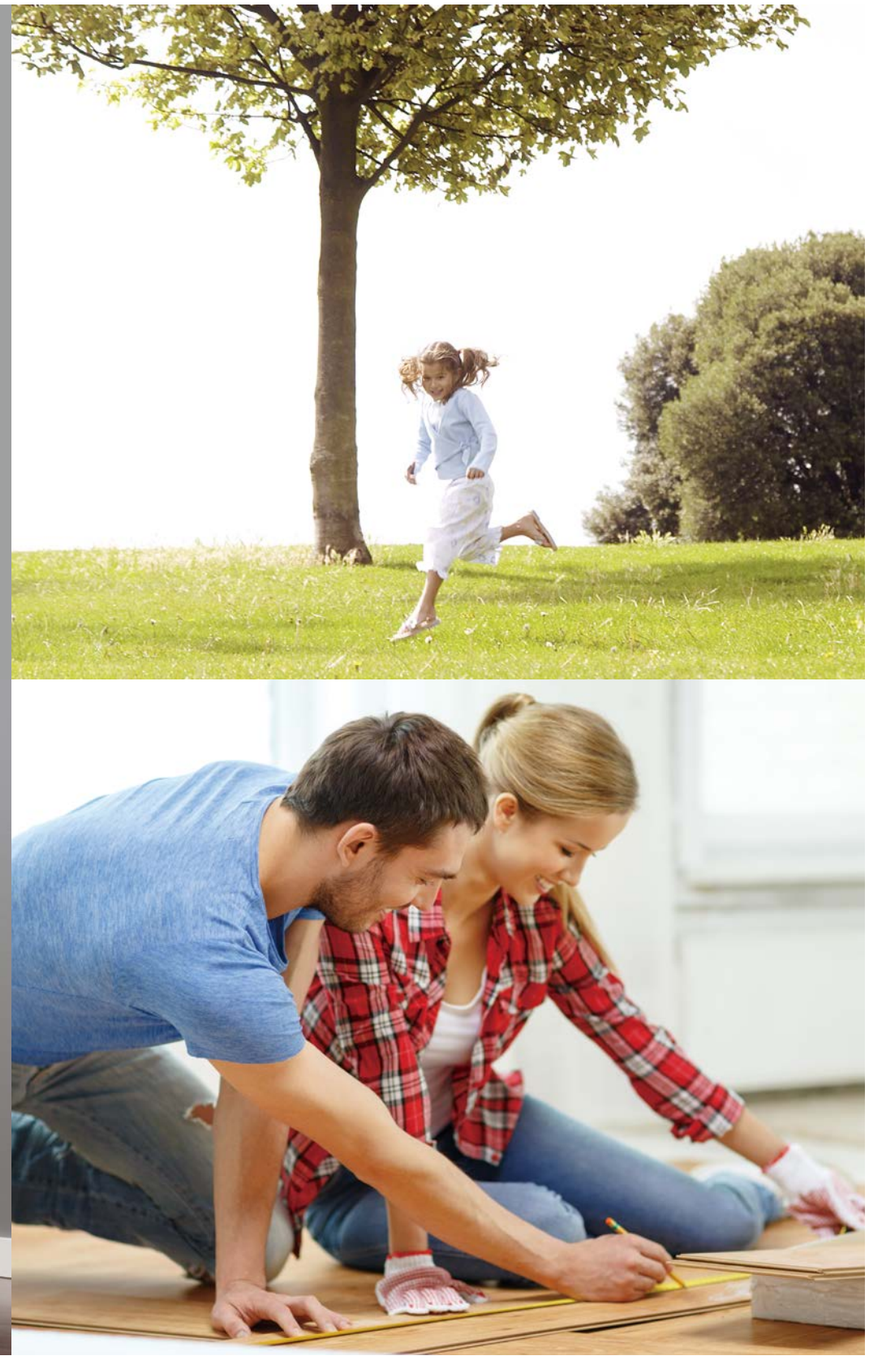
Why LG THERMA V?

The LG THERMA V is designed to create incomparable customer values like energy saving, comforts, easy controls and services by applying the advanced technologies.

The LG Inverter Technology provides excellent energy efficiency with optimal components such as water pump, heat exchanger and fan motor. Moreover, the pressure control technology provides stable heating capacity at low temperature and reaches target performance without difficulties.

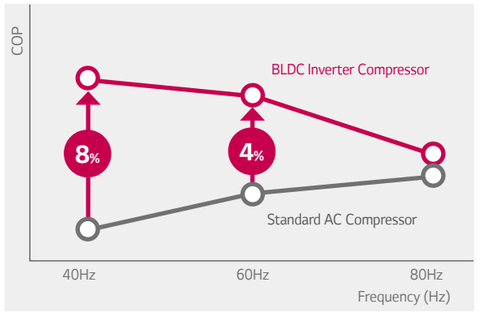
Additionally, the differentiated structure like all-in-one type, gold-fin and users-oriented functions enhance professionals reputations as well as end-users happiness by experiencing the LG's full line-up from 3kW to 16kW in heating capacity.



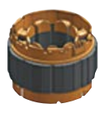
ENERGY EFFICIENCY

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.



Conventional
Distributed Winding



New
Concentrated Winding

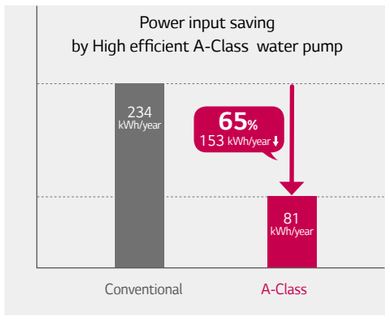
- Minimized oil circulation
- High efficiency motor
- Optimized compression
- Optimized vibration, noise
- High reliability

High Efficient Water Pump

THERMA V is equipped with a high efficiency A-Class water pump.
The pump pressure is adjustable, to suit design conditions.

3 / 5 / 7 / 9 kW

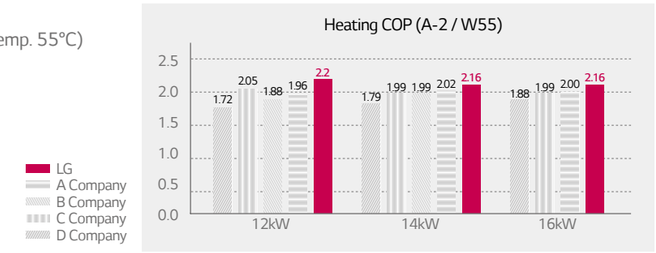
12 / 14 / 16 kW



* Condition : 12 hours x 30 days x 5 month (estimated value)

Energy Efficiency at -2°C

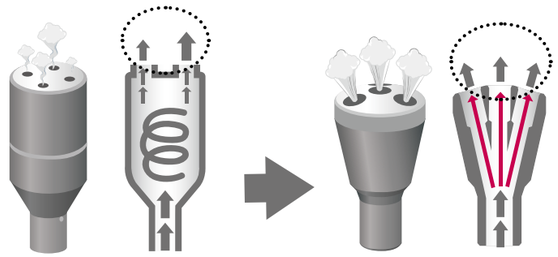
Energy efficiency is higher than others.
(Condition : Ambient temp. -2°C / Leaving water temp. 55°C)



* Peak value / Monobloc models.

Heat Exchanger Improvement

Efficiency and performance are improved by increased heat exchange rate of wide louver fin & new optimal distributor design applied to the heat exchanger.



Conventional
Unequal Distribution

New
Equal Distribution

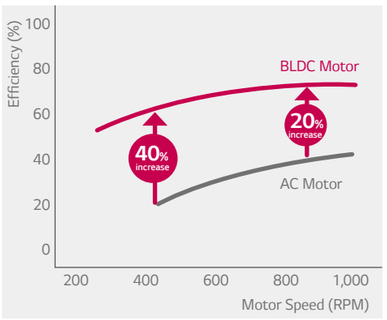
Optimized Heat Exchanger Path
Improved cycle efficiency up to 5% with equal distribution.

Heat Exchange Rate (%)

Heating	123%

Inverter BLDC Fan Motor

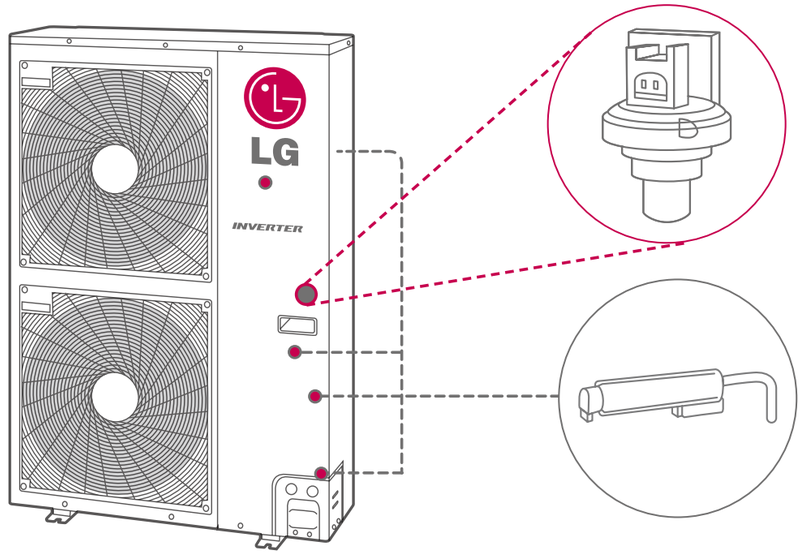
LG BLDC fan motor offers additional energy savings up to 40% at low speed and 20% at high speed compared to an AC motor.



RELIABILITY

Reliability at Low Temperature

Pressure control reinforces heating performance by operating in stable condition at low ambient temperature.



Pressure Control

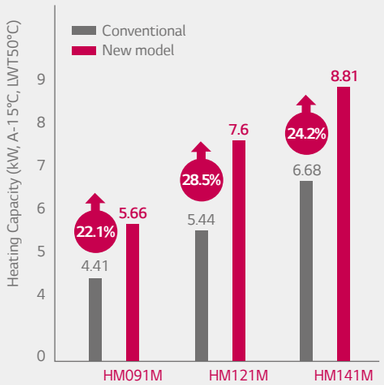
This ensures to reach target performance point without failing to keep a reliable operation.

Temperature Control

This algorithm is more likely to be affected by temperature change and it takes more time to calculate proper operation range of compressor to target point.

Heating Capacity at Low Temperature

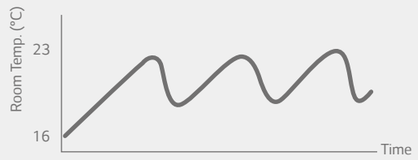
High and stable performance at low temperatures.



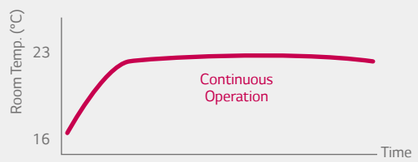
Stable Operation

High and stable heating performance at low temperatures.

Conventional



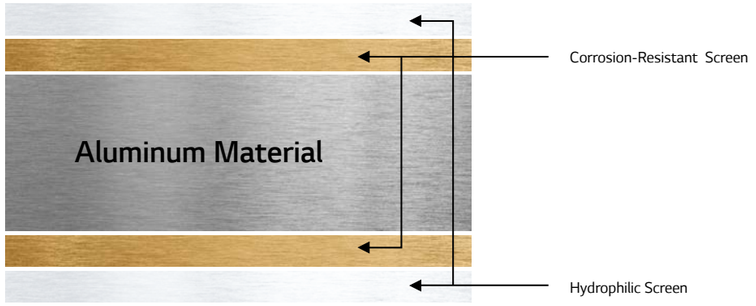
New



Corrosion Resistant Heat Exchanger

LG's Outdoor Heat Exchanger is coated with a gold-colored anti-corrosive epoxy treatment on the aluminum coil, to prevent corrosion. This maintains excellent heat transfer properties of the coil for an extended time, whereas non-Gold Fin™ coils progressively lose efficiency due to surface corrosion. Gold Fin™ fin is perfect for areas with high pollution or locations exposed to saltwater spray from the sea.

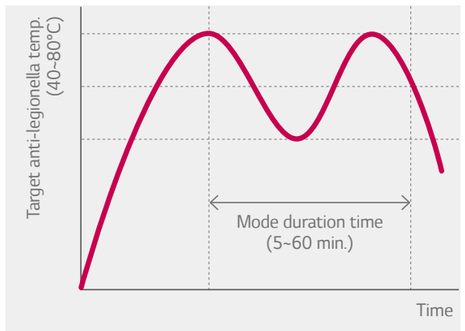
• Composition of Fin screens



• Gold Fin is long lasting, durable and makes the Outdoor Unit look prestigious.

Anti-Legionella Function

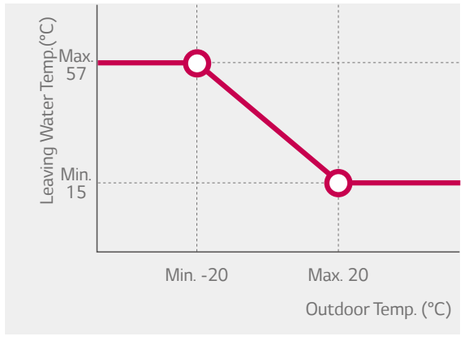
By setting Anti-legionella operation mode on, THERMA V heats the whole water tank automatically once a week until water temperature reach up to 80°C.



CONVENIENCE

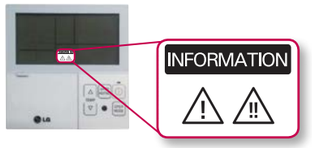
Weather Dependent Operation

If users choose this mode, setting temperature will follow outdoor temperature automatically. If outdoor temperature decreases, heating capacity for the house will increase automatically in order to keep comfortable heating performance according to weather.



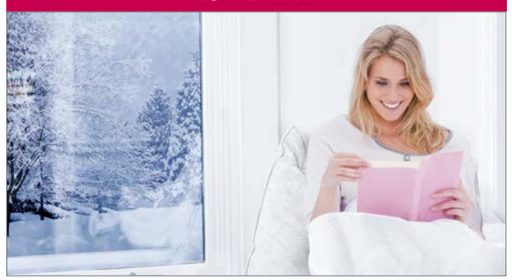
Emergency Operation

Even in case of sudden product error, THERMA V ensures stable heating operation by applying 2 steps of emergency control.



- In case of **Minor Error**
  (Mainly caused by sensor)
  - THERMA V = ON, Electric Heater = ON/OFF

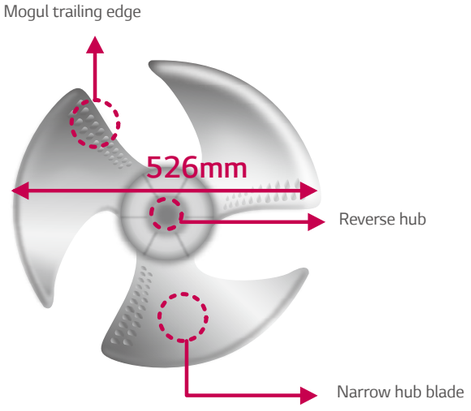
- In case of **Major Error**
  (Mainly caused by cycle parts)
  - THERMA V = OFF, Electric Heater = ON

Conventional	LG THERMA V
	

Improved Fan for Low Noise

The New Axial Fan has a narrow hub blade and mogul trailing edge, this provides a high efficiency, low noise as well as improving the air flow rate.

Conventional

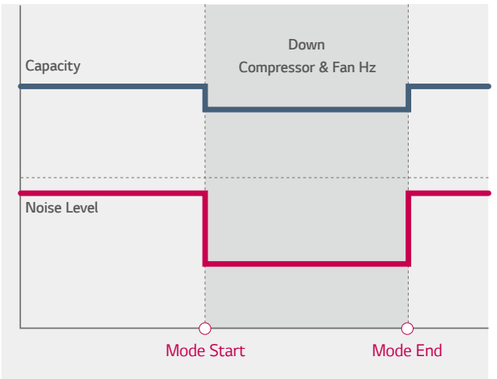


New

Silent Mode & Scheduler

Silent mode operation can reduce the noise level specially during the setting time by remote controller and users can set the weekly on/off schedule also.

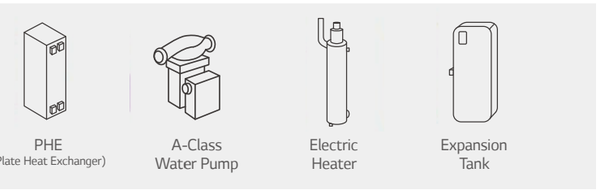
Heating Capacity (kW)	Heating Sound Pressure (dBA)	
	Normal	Silent Mode
3	47	43
5	51	48
7	52	48
9	52	48
12	53	50
14	53	50
16	53	50

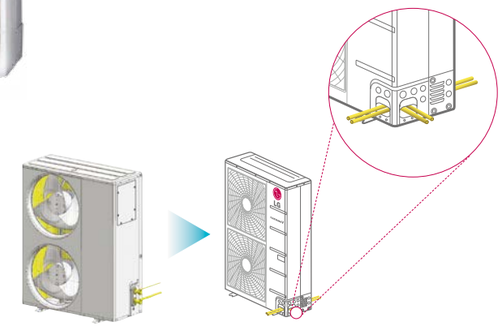


EASY INSTALLATION & SERVICE

All in One Concept

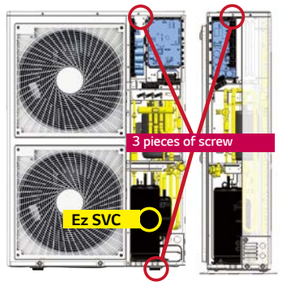
LG will provide fully packaged monobloc with 4 main component. (except 3kW monobloc) basically.
No need to work refrigerant piping, easier and quicker installation.





3-Way charging pipe (Split type only)

Refrigerating connection is possible in three directions.



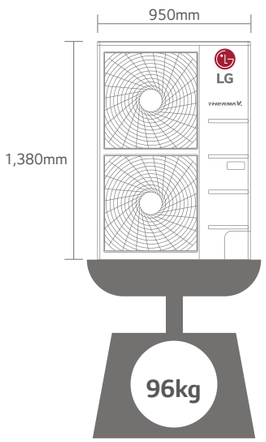
Compact design & Ez SVC

- Remove 3 pieces of screw for SVC
- Front panel removal system

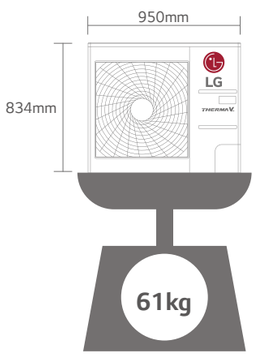
Compact & Slim

Therma V is shaped to minimize the size and weight in order to help easy and efficient work condition for installation.

• SPLIT TYPE (16kW)



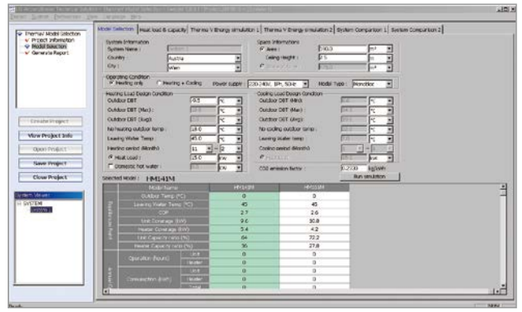
• MONOBLOC TYPE (3kW)

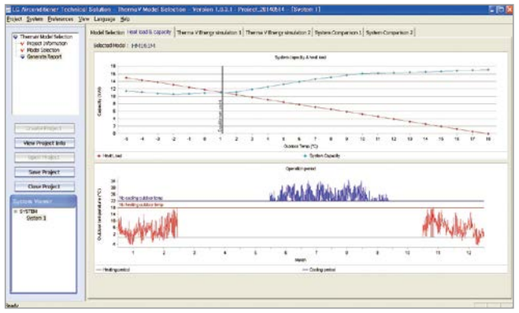


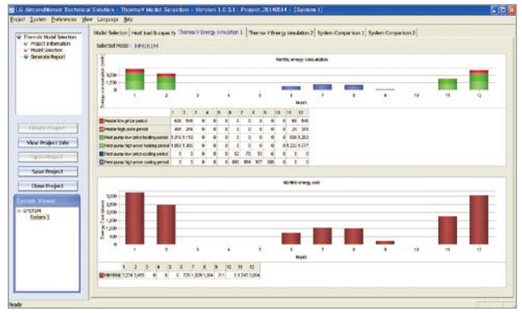
LG LATS THERMA V

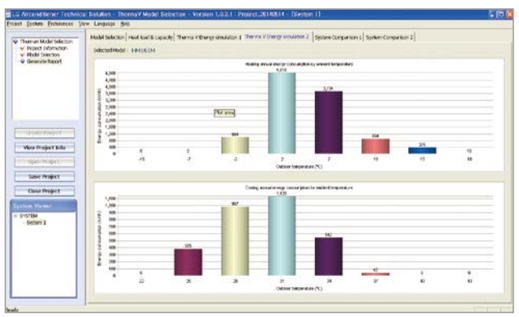
THERMA V Selection Program

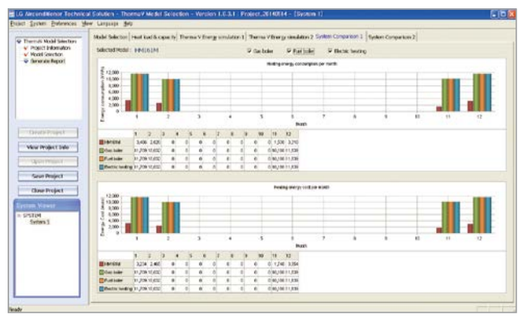
LATS THERMA V simulates quick and easy result of THERMA V's economic benefits.
By specifying a number of parameters, this program shows annual energy cost compared with conventional heating system and CO_2 annual amount, monthly energy amount and cost, total amount of thermal energy in kWh as the outside temperature.







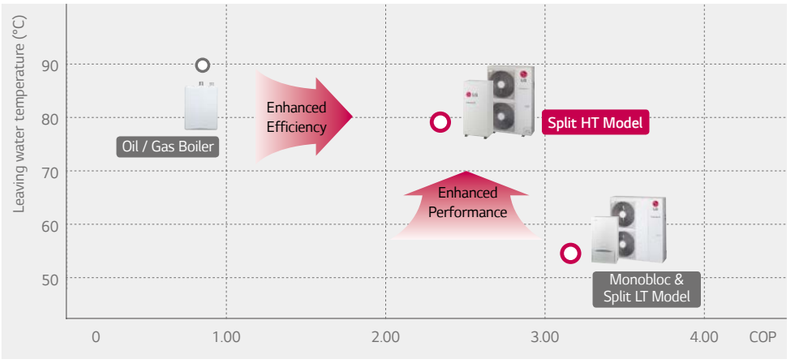




THERMA V HIGH TEMPERATURE

Enhanced Efficiency & Performance

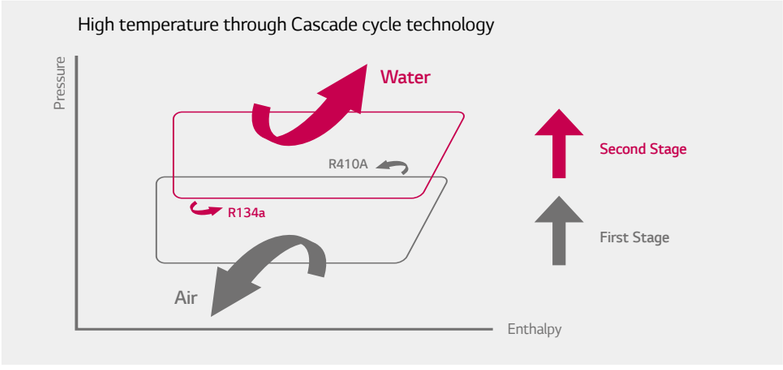
THERMA V high temp. can produce Max. 80°C hot water with high efficiency (Max. COP 4.06 at 24°C ODT & 40/45 EWT/LWT) through cascade 2 stage compression technology.



*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. 50°C

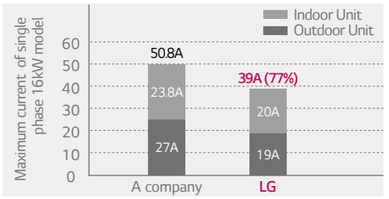
Cascade 2 Stage Compression Technology

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



Low Maximum Current Level

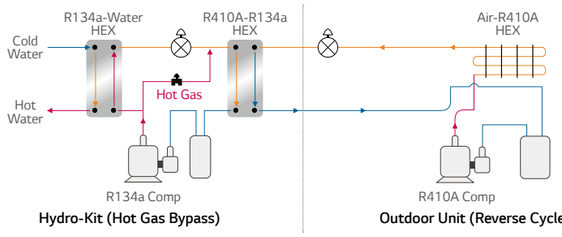
LG High Temperature THERMA V can be easily installed without any additional electric connection cost.

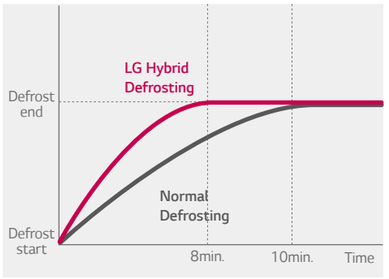


Quick Defrosting

Through R134A compressor controlling technology, necessary time for defrost operation has been minimized effectively. (LG Patent)

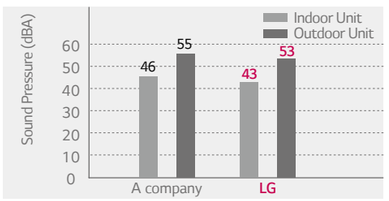
As compared to normal reverse cycle defrost, 25% reduction in defrost time, and 10% increase of integrated heating capacity is achieved using hybrid defrosting.





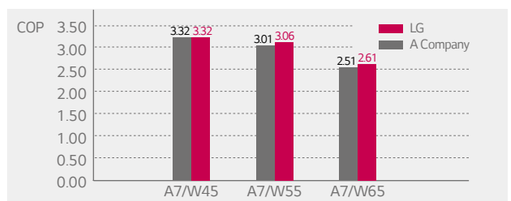
Low Noise Level

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

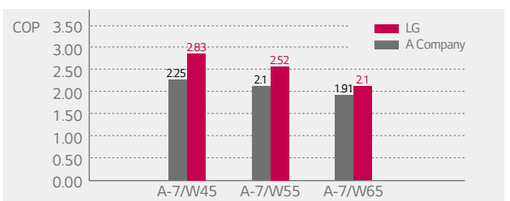


Higher Energy Efficiency

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



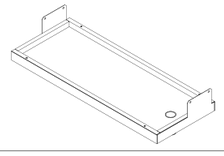
Heating COP at 7°C Outdoor Temperature



Heating COP at -7°C Outdoor Temperature

ACCESSORY

Accessories Provided by LG

Accessory	Feature
Domestic Hot Water Tank	 LGRTV200E 198 LITERS LGRTV300E 287 LITERS Single Coil  LGRTV200VE 198 LITERS LGRTV300VE 287 LITERS Double Coil
Domestic Hot Water Tank Kit	• **PHLTA (1Φ, Split)** • **PHLTC (3Φ, Split)** • **PHLTB (Monobloc)** **Features** Easy to install the domestic hot water for monobloc. There is a MCCB to protect the product. Dimension(mm) (HxWxD) : 250x170x110 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) (HxWxD) : 110x55x22 
Dry Contact	• **PQDSA / PDRYCB000** **Features** For connection with boiler(Bivalent scene) 
Drain Pan	• **PHDPA** **Features** Collects condensate water (when dropping to the base is not possible) and drains the water to a pipe 

Optional Accessories Supplied in the Fields

No.	Accessory	Picture	Purpose	Specification
1	Domestic Hot Water Tank		Store and provide hot water for sanitation	Volume : 200-400 l Enameld or stainless-steel tank / Insulating foam (e.g. PUR - polyurethane) heat-exchanger surface ≥ 3 m²
2	3-Way-Valve		Switch between heating and domestic hot water circuit	230V AC SPDT (Single Pole Double Throw) / opening time 30-90 sec / final position switch Internal leakage rate < 0,1%
3	Electrical Tank Heater		Supports heating of domestic hot water, when heat pump is blocked or capacity is limited	2-6 kW Connector dimension suitable for DHW tank
4	Buffer Tank		Prevents cycling, when water volume is low and/ or heating demand is low; secures enough heat for defrosting cycle	Insulating foam (e.g. PUR - polyurethane) Volume : 100-200 l (installation in series with heat pump) 500~1,000 l (installation in parallel with heat pump)
5	Bypass Valve		Ensures minimum water flow rate, when flow through heating circuits is limited due to closed valves	Dimensioning according manufacturer adjustable opening pressure
6	2-Way-Valve		Blocks heating circuits, that are not suitable for cooling during cooling operation	230V AC NO or NC type final position switch
7	Expansion Vessel		Absorption of pressure differences in the heating circuits due to temperature increase/decrease of the water	Dimensioning on-site required
8	Strainer		Protects plate-heat-exchanger from blocking particles	1inch / 25.4mm, Mesh size ~ 1x1mm for HM03M1.U42 only (other models are included)
9	Heating Cable		Prevents the condensate pan and the drainage pipe from icing	Thermostatic control depending on outdoor temperature All models do have electric heating cable for prevent frost from condensing water at the condensing pan except 3kW capacity.
10	Antifreeze		Prevents the heating water from freezing, when heat pump is out of order	Monoethyleneglycole Concentration according to lowest possible outdoor temperature
11	Noise Damper		Prevents that structure-born noise is transported via the water piping	EPDM; Operating temperature according climate region (at least -10 ~ +90°C)
12	Anti-Noise Sockets		Prevents that structure-born noise is transported to the base or to the brackets	Dimensioning on-site required
13	Thermostat		When thermostatic room temperature control is preferred by costumer	230V AC When heat pumps operates in heating and cooling mode: thermostat with mode selection
14	Refrigerant Tubes		Pre-fabricated double-pipe to connect split indoor and outdoor unit	Diameter. Please refer to Specification
15	Water Tubes		Pre-fabricated double-pipe to connect monobloc outdoor unit with heating system	When heat pump is used for cooling: diffusion-resistant tubes
16	Bushing Sleeve		Protecting the building against pressing water coming through the duct of the heating tubes	Dimensioning on-site required
17	Insulation Material		Mandatory when heat pump is used for cooling; prevents condensate water on cold pipes and assemblies	Diffusion-resistant

FLEXIBLE APPLICATIONS

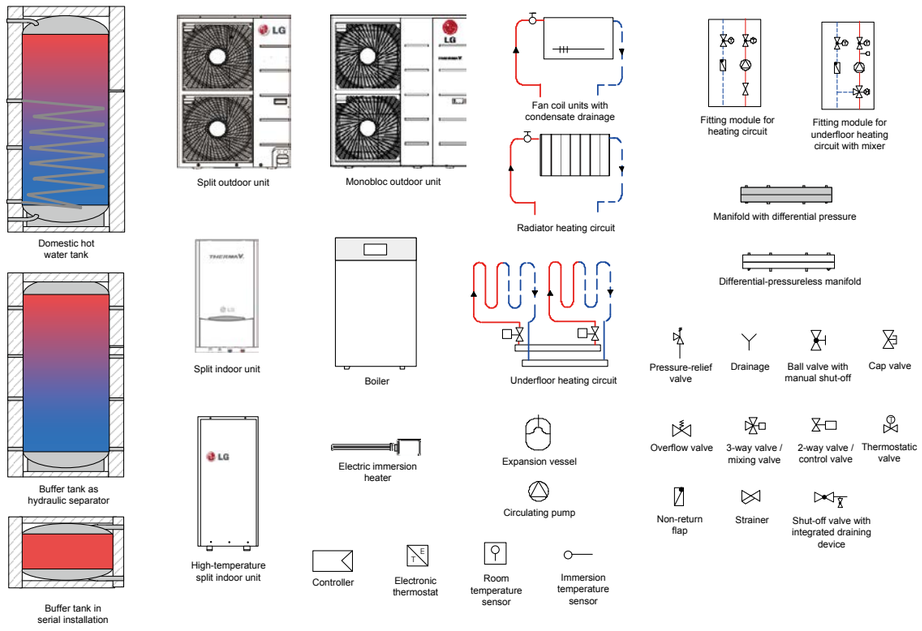
Table of the Hydraulic Applications

This shows some examples of how to integrate the THERMA V into the heating system according to each customer needs. Each application is accompanied with the representative connection and installation explanations with symbol icons.

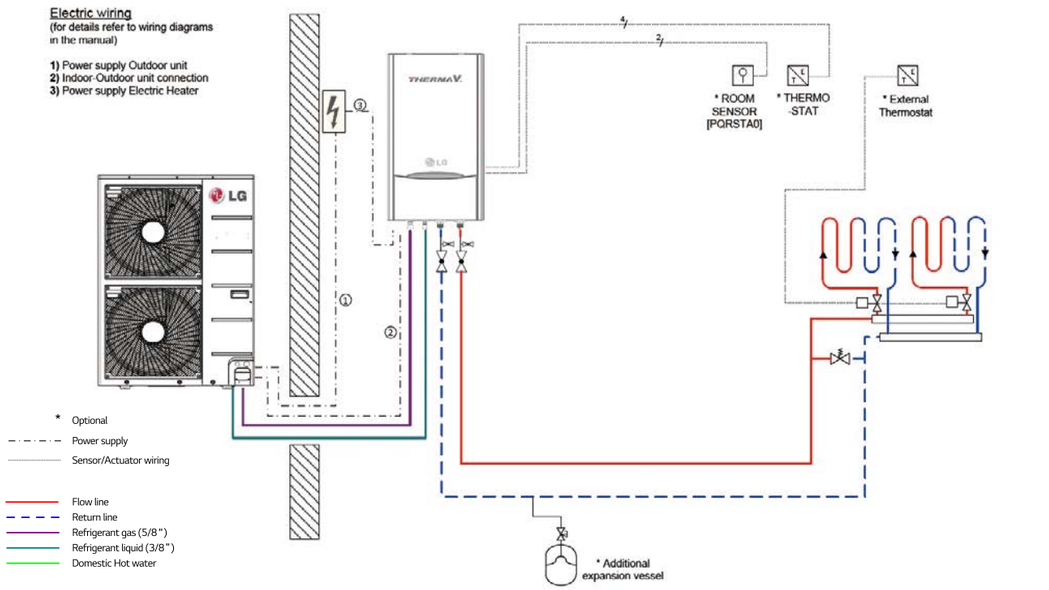
Case	Heating	DHW	Heating & Cooling	Bivalent with boiler	Double Zone Heating
1	●				
2	●	●			
3	●	●	●		
4	●	●			●
5	●	●		●	●
6	●*	●	●		

Combinations of these systems might be possible. Please refer to your local LG heating specialist.
* High Temperature 80°C

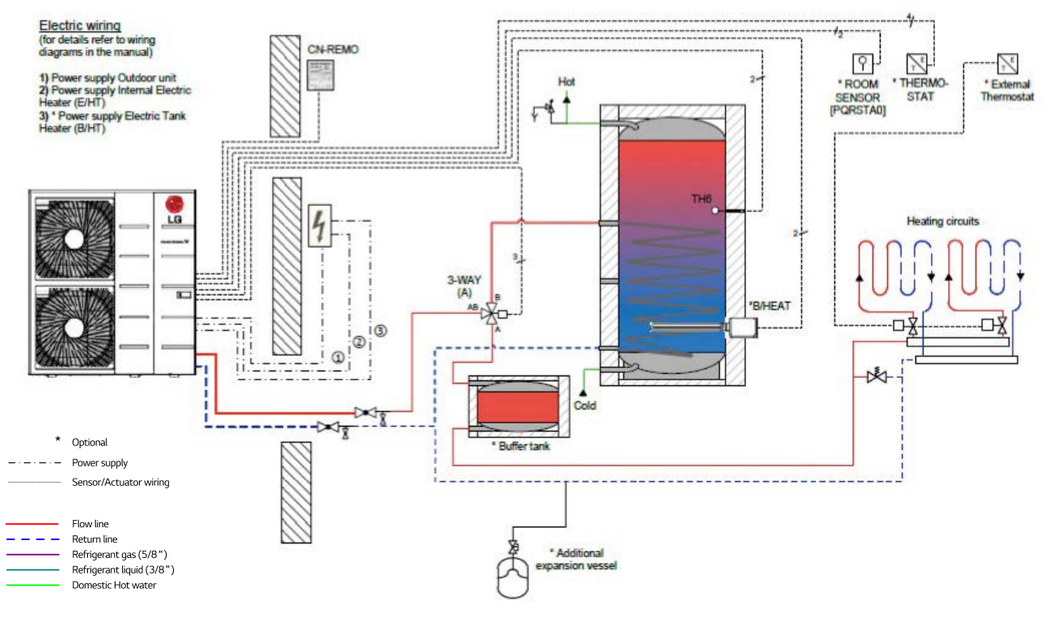
Used Symbols



Case 1. Split for Floor Heating

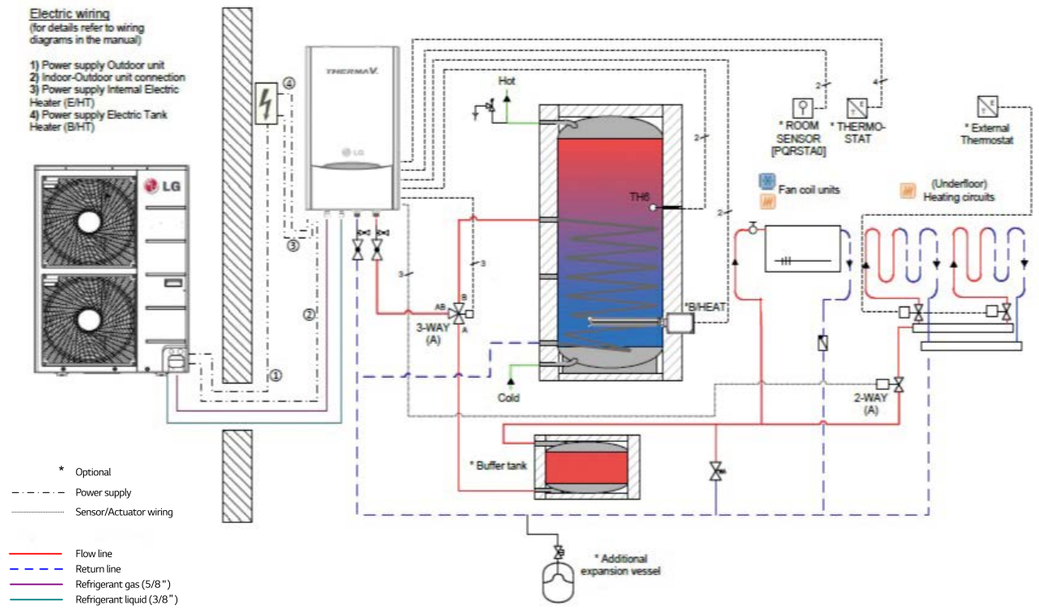


Case 2. Monobloc for Floor Heating & DHW

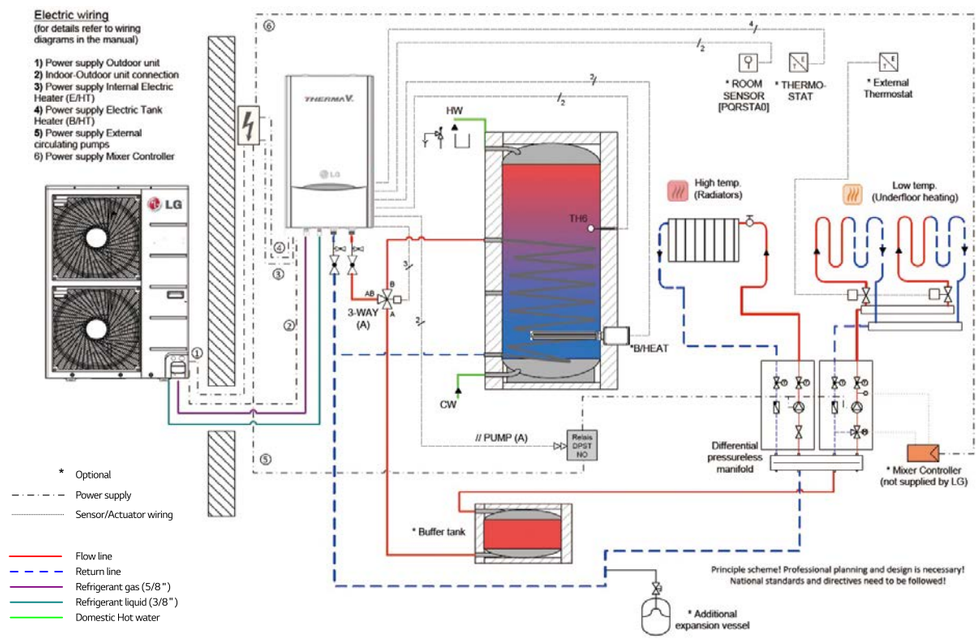


FLEXIBLE APPLICATIONS

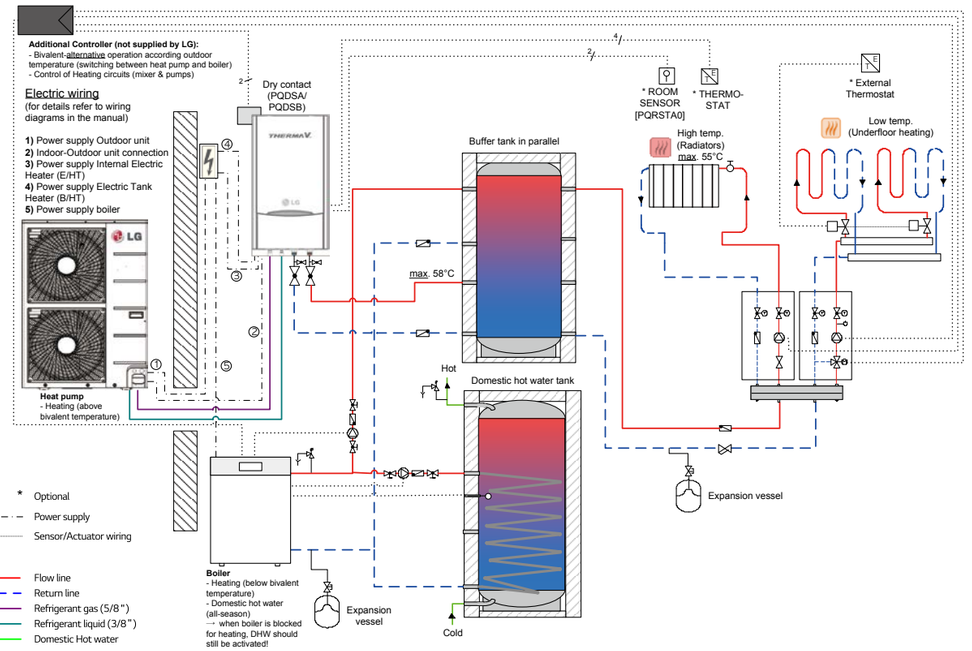
Case 3. Split for Floor Heating & DHW & Cooling with Fan Coil Unit



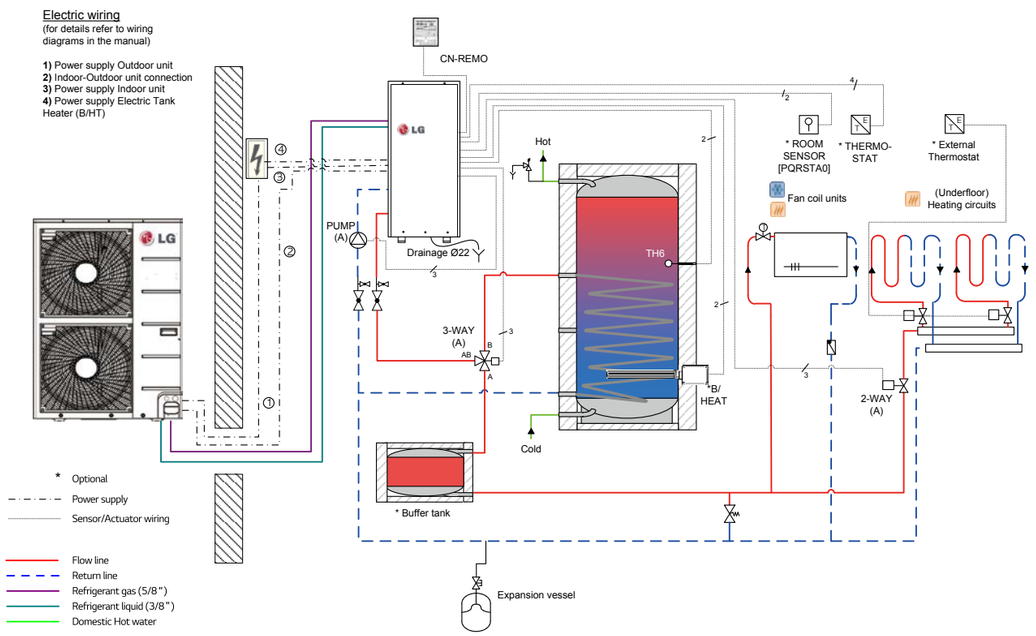
Case 4. Split for Floor Heating & Radiator & DHW (2 Zone Heating)



Case 5. Split for Floor Heating & Radiator & DHW with Boiler (Bivalent Scene)

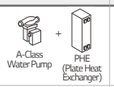


Case 6. Split (High Temp.) for Floor Heating & DHW & Fan Coil Units



THERMA V™

2015~2016 LG AWHP Line-up

Type	Capacity	Φ	Product	European Certificate	Performance							Reliability						Convenience				
					A7 / W35		A-2 / W55		Heating Operating Range		BLDC Inverter Compressor	Control Sensor	Embedded Component	Water Pump	Heat Exchanger Coating	Electric Heater		Timer	Emergency Operation	Dry Contact Connecta-bility	Weather Dependant Operation	PHEX An-ti-Freez-ing Control
					COP	Capacity	COP	Capacity	Outdoor Temp.	Leaving Water Temp.						Size	Capacity Control					
Monobloc Type	3kW	1Φ		MCS NF	4.11	3.00	2.07	2.07	-20°C ~ 30°C	20°C ~ 57°C	LG Twin Rotary		 A-Class Water Pump + PHE (Plate Heat Exchanger)	A CLASS	gold Gold-fin	N/A	N/A	 24H WEEKLY	1 LEVEL		AUTO	
	5kW	1Φ		MCS NF	4.42	4.99	2.20	3.44	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary		 A-Class Water Pump +	A CLASS	gold Gold-fin	4kW	1 2 STEP	 24H WEEKLY	2 LEVEL		AUTO	
	7kW	1Φ		MCS NF	4.29	7.00	2.14	4.81	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary		 PHE (Plate Heat Exchanger) +	A CLASS	gold Gold-fin	4kW	1 2 STEP	 24H WEEKLY	2 LEVEL		AUTO	
	9kW	1Φ		MCS NF	3.97	8.73	2.16	6.19	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary		 Expansion Tank +	A CLASS	gold Gold-fin	4kW	1 2 STEP	 24H WEEKLY	2 LEVEL		AUTO	
	12kW	1Φ		MCS NF	4.49	12.00	2.20	8.25	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold Gold-fin	6kW	1 2 STEP	 24H WEEKLY	2 LEVEL		AUTO	
		3Φ			4.49	12.00	2.16	8.35														
	14kW	1Φ		MCS NF	4.44	14.00	2.16	9.90	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary		 Electric Heater	A CLASS	gold Gold-fin	6kW	1 2 STEP	 24H WEEKLY	2 LEVEL		AUTO	
		3Φ			4.44	14.00	2.15	9.63														
	16kW	1Φ		MCS NF	4.20	16.00	2.16	11.00	-20°C ~ 35°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold Gold-fin	6kW	1 2 STEP	 24H WEEKLY	2 LEVEL		AUTO	
		3Φ			4.20	16.00	2.14	11.00														
Split Type	3kW	1Φ		NF	4.62	3.00	2.07	2.07	-20°C ~ 30°C	15°C ~ 57°C	LG Twin Rotary		 A-Class Water Pump +	A CLASS	gold Gold-fin	4kW	1 2 STEP	 24H WEEKLY	1 LEVEL		AUTO	
	5kW	1Φ		NF	4.67	5.00	2.33	3.45	-20°C ~ 30°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold Gold-fin	4kW	1 2 STEP	 24H WEEKLY	2 LEVEL		AUTO	
	7kW	1Φ		NF	4.40	7.00	2.21	4.81	-20°C ~ 30°C	15°C ~ 57°C	LG Twin Rotary		 PHE (Plate Heat Exchanger) +	A CLASS	gold Gold-fin	4kW	1 2 STEP	 24H WEEKLY	2 LEVEL		AUTO	
	9kW	1Φ		NF	4.30	9.00	2.28	6.19	-20°C ~ 30°C	15°C ~ 57°C	LG Twin Rotary		 Expansion Tank +	A CLASS	gold Gold-fin	4kW	1 2 STEP	24H WEEKLY	2 LEVEL		AUTO	
	12kW	1Φ	NEW	To be updated	4.44	12.00	2.05	7.27	-20°C ~ 30°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold Gold-fin	6kW 9kW	1 2 STEP	24H WEEKLY	2 LEVEL		AUTO	
		3Φ			4.44	12.00	2.04	7.31														
	14kW	1Φ	NEW	To be updated	4.49	14.00	2.03	8.42	-20°C ~ 30°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold Gold-fin	6kW 9kW	1 2 STEP	24H WEEKLY	2 LEVEL		AUTO	
		3Φ			4.49	14.00	2.03	8.40														
	16kW	1Φ	NEW	To be updated	4.26	16.00	2.02	9.56	-20°C ~ 30°C	15°C ~ 57°C	LG Twin Rotary			A CLASS	gold Gold-fin	6kW 9kW	1 2 STEP	24H WEEKLY	2 LEVEL		AUTO	
		3Φ			4.26	16.00	2.02	9.57														
Split High Temp. Type	16kW	1Φ		NF	2.61 (A7/W65)	16.00	2.62	16.60	-15°C ~ 35°C	25°C ~ 80°C	LG Twin Rotary		PHE (Plate Heat Exchanger)	N/A	gold Gold-fin	N/A	N/A	24H WEEKLY	1 LEVEL		AUTO	

MONOBLOC TYPE

HM031M.U42 / HM051M.U42
HM071M.U42 / HM091M.U42

Monobloc (Outdoor Unit)		Capacity	3kW 1Φ	5kW 1Φ	7kW 1Φ	9kW 1Φ
		Reference	HM031M.U42	HM051M.U42	HM071M.U42	HM091M.U42
Nominal Capacity	Heating (A7/W35)	kW	3.00	4.99	7.00	8.73
	Heating (A2/W50)	kW	2.18	3.63	5.08	6.18
	Heating (A-2/W50)	kW	2.15	3.59	5.02	6.46
	Heating (A-7/W35)	kW	2.33	3.87	5.42	6.97
	Cooling (A35/W18)	kW	-	4.99	7.00	9.00
Nominal Power Input	Heating (A7/W35)	kW	0.73	1.13	1.63	2.20
	Heating (A2/W50)	kW	0.93	1.46	2.15	2.85
	Heating (A-2/W50)	kW	0.98	1.52	2.16	2.78
	Heating (A-7/W35)	kW	0.95	1.63	2.33	2.99
	Cooling (A35/W18)	kW	-	1.38	2.00	2.65
COP	Heating (A7/W35)		4.11	4.42	4.29	3.97
	Heating (A2/W50)		2.34	2.49	2.36	2.17
	Heating (A-2/W50)		2.19	2.36	2.32	2.32
	Heating (A-7/W35)		2.45	2.37	2.33	2.33
EER	Cooling (A35/W18)		-	3.62	3.50	3.40
Dimension	W*H*D	mm	950 x 834 x 330	1239 x 907 x 390	1239 x 907 x 390	1239 x 907 x 390
Weight		kg	61	97	98	99
Sound Power Level (Heating)		dB(A)	57	66	66	66
Outdoor Air Operation Range	Heating	°CDB	-20~30	-20~35		
	Cooling	°CDB	-	5~48		
Leaving Water Temp. Range	Heating	°C	20 ~ 57	15 ~ 57		
	Cooling	°C	-	6 ~ 30		
Water Pipe Connection	Inlet	mm(inch)	Female 25.4 (1)			
	Outlet	mm(inch)	Female 25.4 (1)			
Electric Heater	Power Supply	P/V/Hz	-	1 / 220-240 / 50		
	Capacity	kW	-	4		
Water Flowrate Limit		LPM	Min. 15			
Max. Water Head		m	6		7	
Power Supply		P/V/Hz	1 / 220-240 / 50			
Recommended Fuse		A	16	20		
Seasonal space heating energy efficiency class	35°C/ 55°C		A++ / A+	A++ / A+	A++ / A+	A++ / A+
Seasonal space heating energy efficiency (average)	35°C/ 55°C	%	153/97	159/108	154/111	161/114
Rated heat output (average)	35°C/ 55°C	kW	3/2	6/5	7/6	7/7
Annual energy consumption (average)	35°C/ 55°C	kWh	1541/1969	3140/3757	3652/4691	3759/4636
Water pump EEI ≤			0.20	0.20	0.20	0.20

This product contains fluorinated greenhouse gases. (R410A)
All models do have electric heating cable for prevent frost from condensing water at the condensing pan except 3kW capacity.
Above table values does include humidification effect in the outdoor temperature below zero.

MONOBLOC TYPE

HM121M.U32 / HM141M.U32 / HM161M.U32
HM123M.U32 / HM143M.U32 / HM163M.U32

Monobloc (Outdoor Unit)		Capacity	12kW 1Φ	14kW 1Φ	16kW 1Φ	12kW 3Φ	14kW 3Φ	16kW 3Φ
		Reference	HM121M.U32	HM141M.U32	HM161M.U32	HM123M.U32	HM143M.U32	HM163M.U32
Nominal Capacity	Heating (A7/W35)	kW	12.00	14.00	16.00	12.00	14.00	16.00
	Heating (A2/W50)	kW	8.76	10.41	11.58	8.94	10.43	12.21
	Heating (A-2/W50)	kW	8.63	10.33	11.45	8.84	10.31	12.07
	Heating (A-7/W35)	kW	9.31	11.03	12.36	9.33	10.84	12.60
	Cooling (A35/W18)	kW	14.50	15.50	16.10	14.50	15.50	16.10
Nominal Power Input	Heating (A7/W35)	kW	2.67	3.15	3.81	2.67	3.15	3.81
	Heating (A2/W50)	kW	3.51	4.26	4.83	3.65	4.32	5.12
	Heating (A-2/W50)	kW	3.57	4.45	5.05	3.75	4.45	5.25
	Heating (A-7/W35)	kW	3.37	4.09	5.08	3.38	4.01	5.29
	Cooling (A35/W18)	kW	4.00	4.69	5.07	4.00	4.69	5.07
COP	Heating (A7/W35)		4.49	4.44	4.20	4.49	4.44	4.20
	Heating (A2/W50)		2.50	2.44	2.40	2.45	2.41	2.38
	Heating (A-2/W50)		2.42	2.32	2.27	2.36	2.32	2.30
	Heating (A-7/W35)		2.76	2.70	2.43	2.76	2.70	2.38
EER	Cooling (A35/W18)		3.63	3.30	3.18	3.63	3.30	3.17
Dimension	W*H*D	mm	1239 x 1450 x 390					
Weight		Kg	141			145		
Sound Power Level (Heating)		dB(A)	68					
Outdoor Air Operation Range	Heating	°CDB	-20~35					
	Cooling	°CDB	5~48					
Leaving Water Temp. Range	Heating	°C	15 ~ 57					
	Cooling	°C	6 ~ 35					
Water Pipe Connection	Inlet	mm(inch)	Female 25.4 (1)					
	Outlet	mm(inch)	Female 25.4 (1)					
Electric Heater	Power Supply	P/V/Hz	1 / 220-240 / 50			3 / 380 ~ 415 / 50		
	Capacity	kW	6					
Water Flowrate Limit		LPM	Min. 15					
Max. Water Head		m	8					
Power Supply		P/V/Hz	1 / 220-240 / 50			3 / 380-415 / 50		
Recommended Fuse		A	32			20		
Seasonal space heating energy efficiency class	35°C/ 55°C		A++ / A+	A++ / A+	A++ / A+	A++ / A+	A++ / A+	A++ / A+
Seasonal space heating energy efficiency (average)	35°C/ 55°C	%	165/121	166/121	163/121	173/124	163/124	162/124
Rated heat output (average)	35°C/ 55°C	kW	11/10	12/10	12/10	11/11	12/11	11/13
Annual energy consumption (average)	35°C/ 55°C	kWh	5568/6694	5839/6694	6122/6694	5193/7078	5942/7078	6256/7078
Water pump EEI ≤			0.23	0.23	0.23	0.23	0.23	0.23

This product contains fluorinated greenhouse gases. (R410A)
All models do have electric heating cable for prevent frost from condensing water at the condensing pan except 3kW capacity.
Above table values does include humidification effect in the outdoor temperature below zero.

SPLIT TYPE

HU031.UE2 / HU051.U42
HU071.U42 / HU091.U42

Split (Outdoor Unit)		Capacity	3kW 1Φ	5kW 1Φ	7kW 1Φ	9kW 1Φ
		Reference	HU031.UE2	HU051.U42	HU071.U42	HU091.U42
Nominal Capacity	Heating (A7/W35)	kW	3.00	5.00	7.00	9.00
	Heating (A2/W50)	kW	2.18	3.64	5.08	6.54
	Heating (A-2/W50)	kW	2.15	3.59	5.02	6.46
	Heating (A-7/W35)	kW	2.45	4.08	5.71	7.34
	Cooling (A35/W18)	kW	3.00	5.00	7.00	9.00
Nominal Power Input	Heating (A7/W35)	kW	0.65	1.07	1.59	2.09
	Heating (A2/W50)	kW	0.93	1.38	2.04	2.54
	Heating (A-2/W50)	kW	0.98	1.44	2.11	2.64
	Heating (A-7/W35)	kW	0.95	1.40	2.06	2.58
	Cooling (A35/W18)	kW	0.75	1.35	2.05	2.65
COP	Heating (A7/W35)		4.62	4.67	4.40	4.30
	Heating (A2/W50)		2.34	2.64	2.49	2.57
	Heating (A-2/W50)		2.19	2.49	2.38	2.45
	Heating (A-7/W35)		2.58	2.91	2.77	2.84
EER	Cooling (A35/W18)		4.00	3.70	3.41	3.40
Dimension	W*H*D	mm	870 × 655 × 320	950 x 834 x 330	950 x 834 x 330	950 x 834 x 330
Weight		kg	46	64	64	64
Sound Power Level (Heating)		dB(A)	60	64	64	65
Outdoor Air Operation Range	Heating	℃DB	-20 ~ 30	-20 ~ 30	-20 ~ 30	-20 ~ 30
	Cooling	℃DB	5 ~ 48	5 ~ 48	5 ~ 48	5 ~ 48
Refrigerant (R410a)	Pipe Diameter (Liquid)	mm(inch)	Ø6.35(1/4)	9.52(3/8)	9.52(3/8)	9.52(3/8)
	Pipe Diameter (Gas)	mm(inch)	Ø12.7(1/2)	15.88(5/8)	15.88(5/8)	15.88(5/8)
	Pre-Charged Amount	kg	1	1.55	1.55	1.55
	Chargeless Pipe Length	m	7.5	7.5	7.5	7.5
	Additional Charging Volume	g/m	20	40	40	40
Ref. Pipe Length	Minimum	m	-	-	-	-
	Standard	m	7.5	7.5	7.5	7.5
	Maximum	m	30	50	50	50
Power Supply		P/V/Hz	1/220-240/50	1/220-240/50	1/220-240/50	1/220-240/50
Recommended Fuse		A	20	20	20	20

This product contains fluorinated greenhouse gases. (R410A)
All models do have electric heating cable for prevent frost from condensing water at the condensing pan except 3kW capacity.

Split (Indoor Unit)		Capacity	3kW	5,7, 9kW		
		Reference	HN0314.NK2	HN0914.NK2		
Dimension	W*H*D	mm	490*850*315	490*850*315		
Weight		kg	46	48		
Electric Heater	Power Supply	P/V/Hz	1 / 220-240 / 50	1 / 220-240 / 50		
	Capacity	kW	4	4		
Leaving Water Temp. Range	Heating	℃	15~57	15~57		
	Cooling	℃	6~30	6~30		
Water Flowrate Limit		LPM	Min. 15	Min. 15		
Max. Water Head		m	6	7		
Water Pipe Connection	Inlet	mm(inch)	Male PT 25(1)	Male PT 25(1)		
	Outlet	mm(inch)	Male PT 25(1)	Male PT 25(1)		
Seasonal space heating energy efficiency class	35℃/ 55℃		To Be updated	A++/A+	A++/A+	A++/A+
Seasonal space heating energy efficiency (average)	35℃/ 55℃	%	To Be updated	171/115	167/119	158/118
Rated heat output (average)	35℃/ 55℃	kW	To Be updated	6/5	7/6	8/7
Annual energy consumption (average)	35℃/ 55℃	kWh	To Be updated	2816/3537	3381/4118	3902/4705
Water pump EEI ≤			To Be updated	0.20	0.20	0.20

SPLIT TYPE

HU121.U32 / HU141.U32 / HU161.U32
HU123.U32 / HU143.U32 / HU163.U32

Split (Outdoor Unit)		Capacity	NEW 12kW 1Φ	NEW 14kW 1Φ	NEW 16kW 1Φ	NEW 12kW 3Φ	NEW 14kW 3Φ	NEW 16kW 3Φ
		Reference	HU121.U32	HU141.U32	HU161.U32	HU123.U32	HU143.U32	HU163.U32
Nominal Capacity	Heating (A7/W35)	kW	12.00	14.00	16.00	12.00	14.00	16.00
	Heating (A2/W50)	kW	8.50	9.78	11.03	8.55	9.83	11.29
	Heating (A-2/W50)	kW	7.94	9.14	10.30	7.99	9.18	10.54
	Heating (A-7/W35)	kW	11.48	13.11	14.80	11.48	13.11	14.92
	Cooling (A35/W18)	kW	12.50	14.00	15.10	12.50	14.00	15.10
Nominal Power Input	Heating (A7/W35)	kW	2.70	3.19	3.86	2.70	3.19	3.86
	Heating (A2/W50)	kW	3.41	4.00	4.60	3.49	4.07	4.73
	Heating (A-2/W50)	kW	3.30	3.95	4.63	3.40	4.00	4.63
	Heating (A-7/W35)	kW	4.16	4.85	5.61	4.16	4.85	5.95
	Cooling (A35/W18)	kW	3.68	4.55	5.57	3.68	4.55	5.57
COP	Heating (A7/W35)		4.44	4.39	4.15	4.44	4.39	4.15
	Heating (A2/W50)		2.49	2.45	2.40	2.45	2.42	2.39
	Heating (A-2/W50)		2.41	2.31	2.22	2.35	2.30	2.28
	Heating (A-7/W35)		2.76	2.70	2.64	2.76	2.70	2.51
EER	Cooling (A35/W18)		3.40	3.08	2.71	3.40	3.08	2.71
Dimension	W*H*D	mm	950 ▯ 1,380 ▯ 330					
Weight		kg	94			96		
Sound Power Level (Heating)		dB(A)	68	69	69	68	69	69
Outdoor Air Operation Range	Heating	℃DB	-20 ~ 30					
	Cooling	℃DB	5 ~ 48					
Refrigerant (R410a)	Pipe Diameter (Liquid)	mm(inch)	9.52(3/8)					
	Pipe Diameter (Gas)	mm(inch)	15.88(5/8)					
	Pre-Charged Amount	Kg	2.3					
	Chargeless Pipe Length	m	7.5					
	Additional Charging Volume	g/m	40					
Ref. Pipe Length	Minimum	m	-					
	Standard	m	7.5					
	Maximum	m	50					
Power Supply		P/V/Hz	1 / 220-240 / 50			3 / 380-415 / 50		
Recommended Fuse		A	40			20		

This product contains fluorinated greenhouse gases. (R410A)
All models do have electric heating cable for prevent frost from condensing water at the condensing pan except 3kW capacity.

Split (Indoor Unit)		Capacity	12~16kW					
		Reference	HN1616.NK2			HN1639.NK2		
Dimension	W*H*D	mm	490 X 850 X 315					
Weight		kg	56			51		
Electric Heater	Power Supply	P/V/Hz	1 / 220-240 / 50			3 / 380-415 / 50		
	Capacity	kW	6			9		
Leaving Water Temp. Range	Heating	℃	15 ~ 57					
	Cooling	℃	6 ~30					
Water Flowrate Limit		LPM	Min 15.					
Max. Water Head		m	7					
Water Pipe Connection	Inlet	mm(inch)	Male PT 25 (1)					
	Outlet	mm(inch)	Male PT 25 (1)					
Seasonal space heating energy efficiency class	35℃/ 55℃		A++/A+	A++/A+	A++/A+	A++/A+	A++/A+	A++/A+
Seasonal space heating energy efficiency (average)	35℃/ 55℃	%	173/122	163/122	163/122	159/115	160/115	159/115
Rated heat output (average)	35℃/ 55℃	kW	10/10	10/10	11/10	10/10	10/10	11/10
Annual energy consumption (average)	35℃/ 55℃	kWh	2816/3537	3381/4118	3902/4705	4651/6564	5238/6564	5422/6564
Water pump EEI ≤			0.23	0.23	0.23	0.23	0.23	0.23

HIGH TEMPERATURE TYPE

HU161H.U32 / HN1610H.NK2

High Temp. Split (Outdoor Unit)		Capacity	16kW 1Φ
		Reference	HU161H.U32
Nominal Capacity	Heating (A7/W65)	kW	16
	Heating (A2/W65)	kW	14.6
	Heating (A-2/W65)	kW	15.7
	Heating (A-7/W65)	kW	15.1
Nominal Power Input	Heating (A7/W65)	kW	6.13
	Heating (A2/W65)	kW	6.81
	Heating (A-2/W65)	kW	6.96
	Heating (A-7/W65)	kW	7.2
COP	Heating (A7/W65)		2.61
	Heating (A2/W65)		2.14
	Heating (A-2/W65)		2.26
	Heating (A-7/W65)		2.10
Dimension	W*H*D	mm	950 ▯ 1,380 ▯ 330
Weight		Kg	105
Sound Power Level (Heating)		dB(A)	68
Outdoor Air Operation Range	Heating	°CDB	-15 ~ 35
Refrigerant (R410a)	Pipe Diameter (Liquid)	mm(inch)	9.52(3/8)
	Pipe Diameter (Gas)	mm(inch)	15.88(5/8)
	Pre-Charged Amount	Kg	3.5
	Chargeless Pipe Length	m	10
	Additional Charging Volume	G/m	60
Ref. Pipe Length	Minimum	m	5
	Standard	m	7.5
	Maximum	m	50
Power Supply		P/V/Hz	1 / 220-240 / 50
Recommended Fuse		A	25

This product contains fluorinated greenhouse gases. (R410A)

High Temp. Split (Indoor Unit)		Capacity	16kW 1Φ
		Reference	HN1610H.NK2
Dimension	W*H*D	mm	520 x 1,080 x 330
Weight		kg	94
Sound Power Level (Heating)		dB(A)	57
Nominal Power Input	Heating	kW	6.13
Leaving Water Temp. Range	Heating	°C	25 ~ 80
Water Flowrate Limit		LPM	Min. 15
Refrigerant (R134a)	Pipe Diameter (Liquid)	mm(inch)	9.52(3/8)
	Pipe Diameter (Gas)	mm(inch)	15.88(5/8)
	Pre-Charged Amount	kg	2.3
Water Pipe Connection	Inlet	mm(inch)	Male PT 25(1)
	Outlet	mm(inch)	Male PT 25(1)
Draining Pipe Connection		mm(inch)	Male PT 25(1)
Power Supply		P/V/Hz	1 / 220-240 / 50
Recommended Fuse		A	25
Seasonal space heating energy efficiency class	35°C/ 55°C		A / A+
Seasonal space heating energy efficiency (average)	35°C/ 55°C	%	13 / 11
Rated heat output (average)	35°C/ 55°C	kW	115 / 113
Annual energy consumption (average)	35°C/ 55°C	kWh	9395 / 7642

This product contains fluorinated greenhouse gases. (R143a)

DOMESTIC HOT WATER TANK

LGRTV200VE / LGRTV300VE
LGRTV200E / LGRTV300E

Double Coil Single Coil

Domestic Hot Water Tank – Double Coil

Domestic Hot Water Tank			LGRTV200VE	LGRTV300VE
General Characteristics	Water Volume	L	198	287
	Diameter	mm	580	580
	Height	mm	1,230	1,680
	Empty Weight	kg	50	64
	Tank – Materials		Stainless Steel	Stainless Steel
	Outer Skin – Materials		Paint Epoxy	Paint Epoxy
	Color – White RAL		White NC	White NC
Characteristics of Electrical Back-Up	Additional Electric Heater	kW	3	3
	Adjustable Thermostat	°C	60 ~ 90	60 ~ 90
Characteristics of Exchanger	Exchanger Type		Double	Double
	Material Exchanger		LDX 2101 – Stainless Steel	LDX 2101 – Stainless Steel
	Maximum Water Temperature	°C	80 (With an Heat Pump)	80 (With an Heat Pump)
	Coil Surface	mm	0.94	0.94
Hydraulic Connections – Heat Pump	THERMA V Entry	mm	25	25
	THERMA V Exit	mm	25	25
Hydraulic Connections – Domestic Hot Water Tank	City Water Entry	mm	22	22
	Hot water Exit	mm	22	22
Electric Connection	Supply	Φ/V/Hz	1Φ / 220-240V 50Hz	1Φ / 220-240V 50Hz

MANDATORY OPTIONAL ACCESSORIES

Domestic Hot Water Tank Installation Kit	PHLTA	PHLTA

Domestic Hot Water Tank – Single Coil

Domestic Hot Water Tank			LGRTV200E	LGRTV300E
General Characteristics	Water Volume	L	198	287
	Diameter	mm	580	580
	Height	mm	1,230	1,680
	Empty Weight	kg	50	64
	Tank – Materials		Stainless Steel	Stainless Steel
	Outer Skin – Materials		Paint Epoxy	Paint Epoxy
	Color – White RAL		White NC	White NC
Characteristics of Electrical Back-Up	Additional Electric Heater	kW	3	3
	Adjustable Thermostat	°C	60 ~ 90	60 ~ 90
Characteristics of Exchanger	Exchanger Type		Single	Single
	Material Exchanger		LDX 2101 – Stainless Steel	LDX 2101 – Stainless Steel
	Maximum Water Temperature	°C	80 (With an Heat Pump)	80 (With an Heat Pump)
	Coil Surface	mm	0.94	0.94
Hydraulic Connections – Heat Pump	THERMA V Entry	mm	25	25
	THERMA V Exit	mm	25	25
Hydraulic Connections – Domestic Hot Water Tank	City Water Entry	mm	22	22
	Hot water Exit	mm	22	22
Electric Connection	Supply	Φ/V/Hz	1Φ / 220-240V 50Hz	1Φ / 220-240V 50Hz

MANDATORY OPTIONAL ACCESSORIES

Domestic Hot Water Tank Installation Kit	PHLTA	PHLTA