LG
Life's Good

2021 - 2022 LG THERMA V

PRODUCT CATALOGUE

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2021 - 2022

LG

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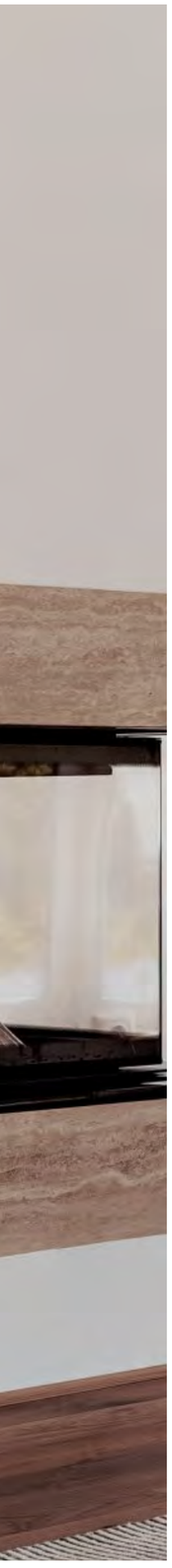

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THERMA V™

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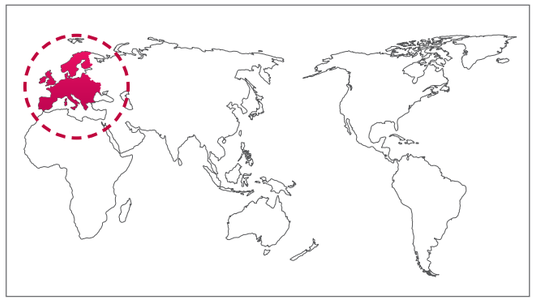
LG BUSINESS PARTNERSHIP & PRE-SALES/ENGINEERING TOOLS

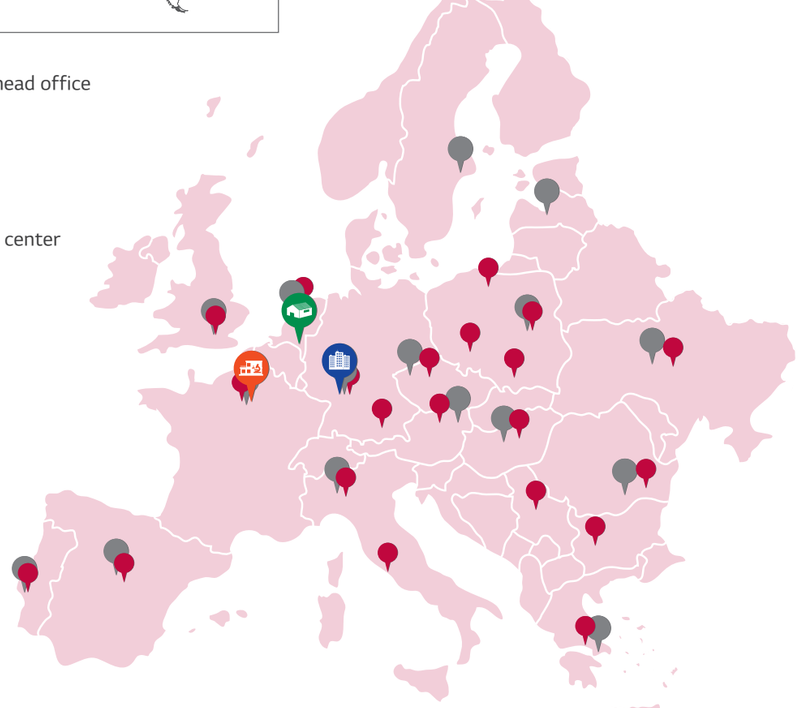
European Business Infrastructure

LG Electronic's European Air Solution department is committed to ensuring your business success. With 16 pan-European sales offices and academies, we want deliver on our promise of support, efficiency and proactivity throughout each stage of our business partnership.

Our highly competitive products are delivered through our dedicated European distribution centre to ensure a steady and reliable supply of inventory.

At our European Energy Lab, LG Business Solutions is developing heat pump technology that is optimized for the varied European climates and weather patterns along with continuous product performance verification.





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

Pre-sales/Engineering Tools

LG provides a variety of software to support THERMA V for all customers including designers, installers, and end users.

1. LG THERMA V SELECTOR

The LG THERMA V Selector is a mobile application for designers, installers and end users, which provide various real-life simulations. An energy simulation can quickly indicate energy consumption and cost as well as CO_2 emission values that can be vastly reduced from conventional heating systems using minimal input values.
With both model selection and energy simulation tools, quick and accurate selection is made possible with detailed input values such as desired system configuration, required heating and domestic hot water (DHW) load, which will calculate payback, result in a faster energy simulation and generate cost comparisons. Sound level can also be calculated through simulations based on the installation environment.

2. LATS THERMA V

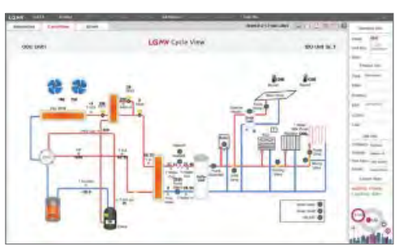
LATS THERMA V IS a PC-based model selection program of LG THERMA V products, enabling an accurate and quick selection of the most suitable model in each end-user environment.
In addition to model selection, faster energy simulation and cost comparison to other system is possible. Furthermore, customer is easily able to simulate payback comparing conventional system such as gas boiler, electric boiler by using LATS THERMA V.

* LATS THERMA V is available on the LG Partner portal.

3. LGMV

LGMV is a useful engineering tool that monitors THERMA V's real-time refrigerant and water cycle. It assists installers with effective and efficient start-up and commissioning after the THERMA V installation. LGMV enables service/field engineers to detect the errors and troubleshooting for fast and reliable problem solving.

* LGMV is available on the LG Partner portal.



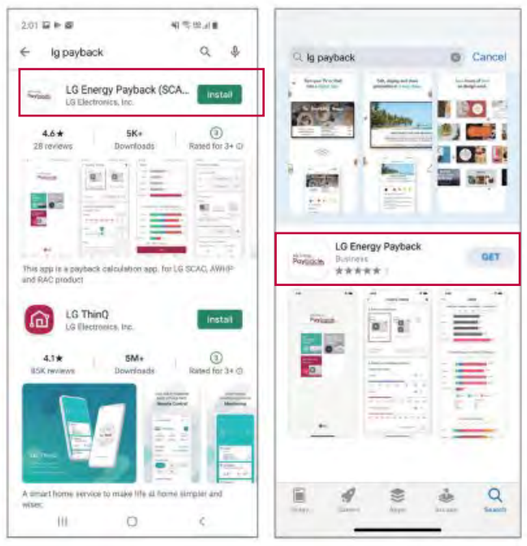
THERMA V SELECTOR

How to install?

Search “LG Energy Payback” in Google Play Store or Apple App Store.

Android
URL : https://play.google.com/store/apps/details?id=com.lg.smartinverterpayback

iOS
URL : https://apps.apple.com/us/app/id1339037884



Simulation Mode

'Heat Pump Water Heater Energy Simulation' is to provide energy simulation of heat pump water heater compared to electric heater based on climate condition. (Colder, Average, Warmer)

'Quick Energy Simulation' is a quick & easy mode. Users can see the annual energy consumption, cost, and CO_2 emission with several input, which is similar to the LG THERMA V website version.

'Model Selection & Energy Simulation' is to provide more information about model, energy simulation and payback simulation. Users can select or input more information about site or design condition, then can see the suitable model, annual energy consumption, cost, CO_2 emission, and payback result.

'Sound Simulation' is to see the calculated sound result.

Model Selection & Energy Simulation

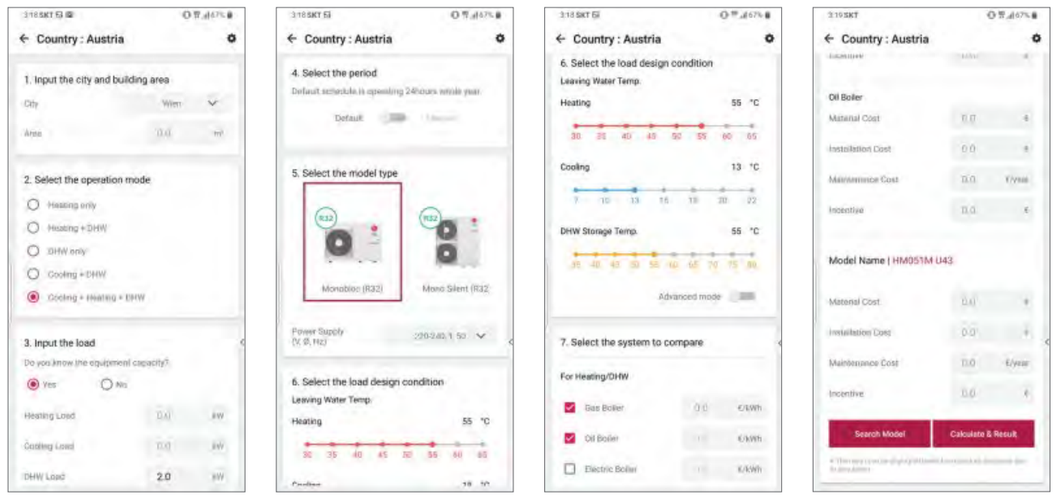
Before choosing an air to water heat pump, many customers wonder how much energy costs can be saved compared to conventional heating systems, and how to select a product with the right capacity for the home. The LG THERMA V selector allows you to calculate annual energy costs and payback periods as well as model selection through sophisticated simulations through simple input values.

- City selection
- Building area input
- Operation mode selection
- Load input

- Operation period selection
- Model type selection

- Design condition input
- System selection to be compared

- Costs input for systems
- Searching model that meets criteria



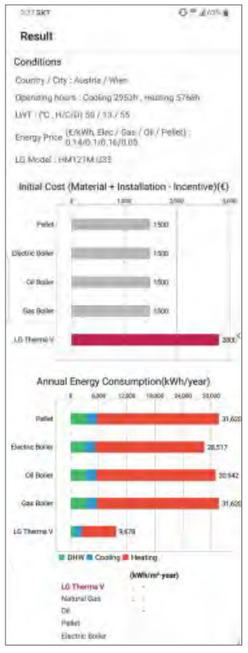
THERMA V SELECTOR

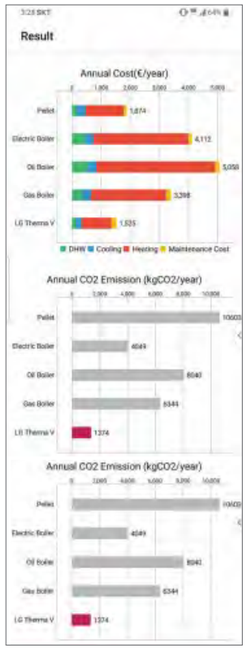
Result & Report

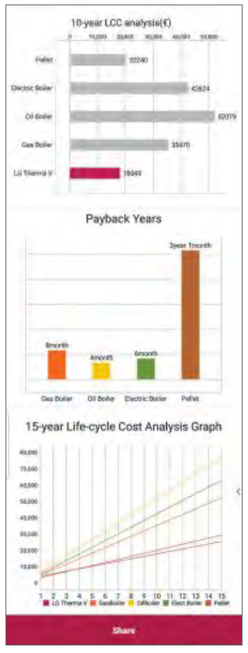
After the simulation, analysis results including initial investment cost, annual energy consumption, and payback period can be checked in the form of various graphs. Moreover, this report is provided in PDF format and can be shared by e-mail and messenger.

Result

- Simulation conditions summary
- Initial cost
- Annual energy consumption
- Annual cost
- Annual CO_2 emission
- 10-year LCC analysis
- 10-year LCC analysis
- Payback year
- 15-year LCC analysis graph

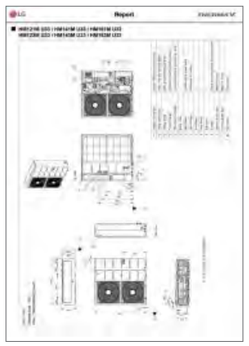






Report

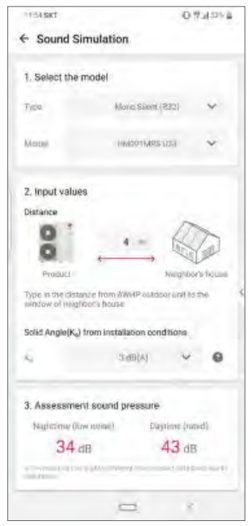
- Cover page
- Site information & design condition
- Product specification
- Annual energy consumption
- Life cycle cost
- Drawings

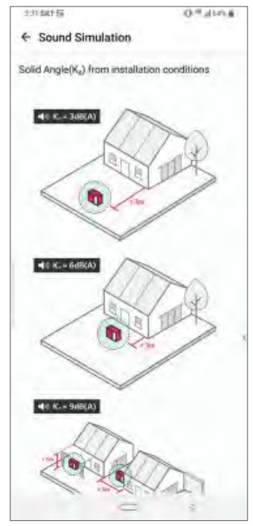


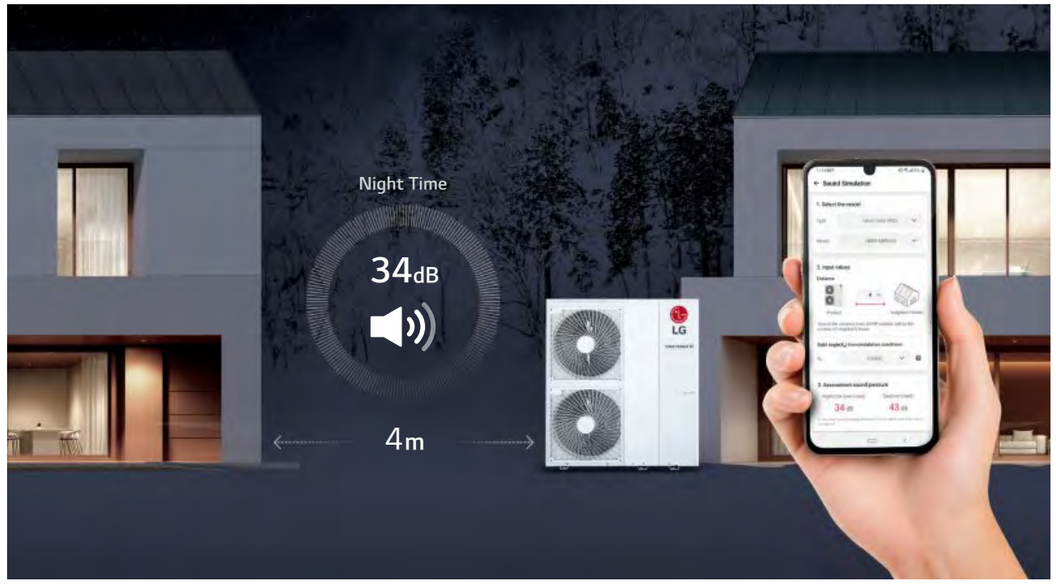
Sound Simulation

Consumers are also wondering how much sound level will be after installing the Air to Water Heat Pump product. Using the sound simulation function of THERMA V selector, you can predict the expected sound pressure values in the daytime and nighttime according to the installation distance and conditions.

- Model selection
- Distance input
- Solid angle selection
- Reference for solid angle selection







* The image above is a simulation example in case of R32 Silent Monobloc in low noise mode.

HEAT PUMP TECHNOLOGY

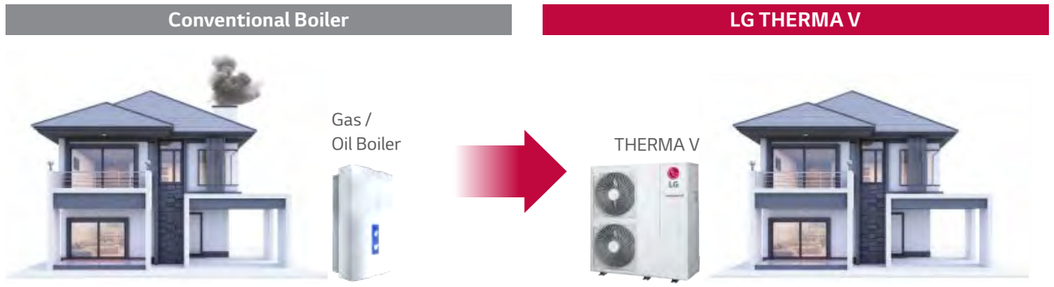
LG Electronics leads the way in heat pump technology

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 a Heat Pump System?

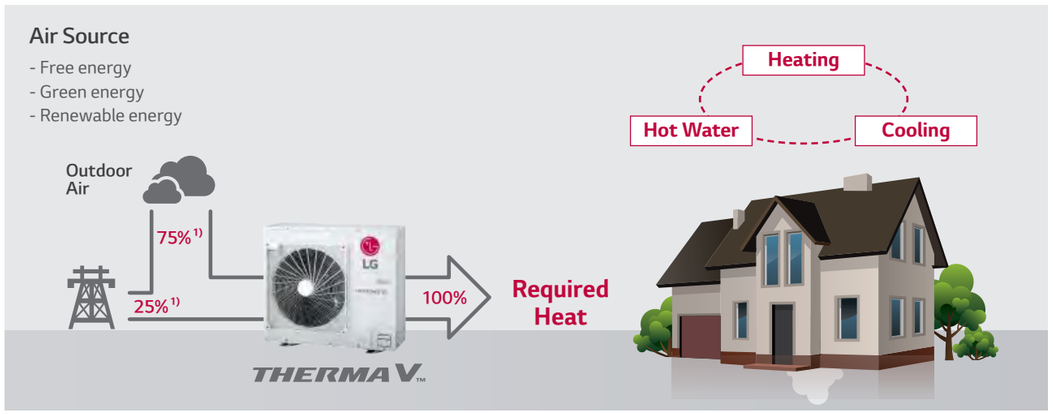
Modern Technology to Replace Conventional Boilers

Historically, conventional heating systems have used either oil or gas or have been direct 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.



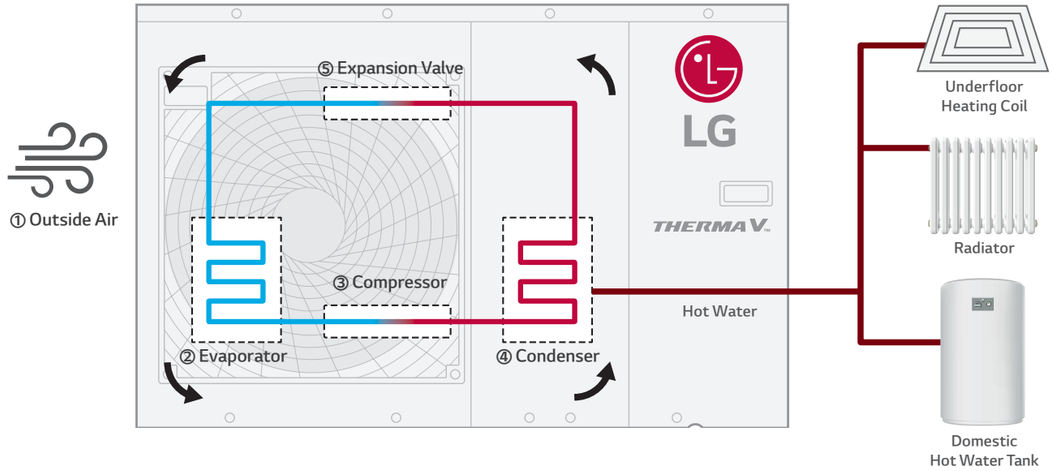
Modern Technology for Renewable Energy

The term "heat pump" refers to a technique that pumps heat from renewable energy sources, like the air, ground and water. A heat pump device transforms this energy into a usable heat source via the refrigerant cycle.
With heat pump technology like THERMA V, about 75% [1] of the energy needed to produce heating and hot water in home comes from natural air source.



1) Each ratio is general for helping understanding, and based on LG Therma V R32 Series vs. Electrical Boiler under Low Temperature & Average Climate conditions. so, it may differ from actual operation.

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 heat energy from the air, it transforms from liquid to vapor phase.

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

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

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

THERMA V™ INTRODUCTION

The Green Choice:

THERMA V™

Discover the ultimate eco-conscious, energy efficient and convenient heating solution

Today's informed consumer will consider multiple factors when choosing a heating solution, like an Air to Water Heat Pump (AWHP) to include user-friendliness, reliability and regulation-compliance. European consumers are the most subject to shifting regulations year after year.

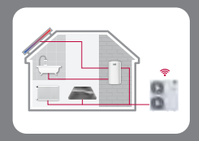
As a solution to the modern requirements, R32 refrigerant takes centre stage for a new smart solution. With a 68% reduced Global Warming Potential (GWP) from the current refrigerant, R410A, R32-applied products are not only eco-conscious but also meet the consumers' needs for energy efficiency, performance and more. LG Electronics' THERMA V R32 AWHP line-up fulfills both European regulations as well as customer needs.

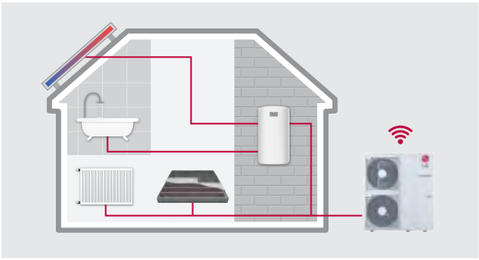
R32

- 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 ThinQ Wi-Fi control, convenient scheduler, wider connectivity, energy monitoring

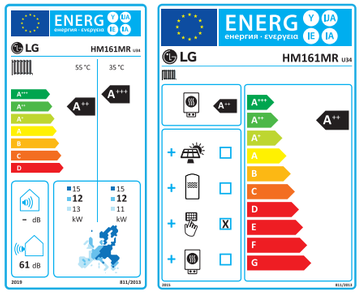
THERMA V™
PRODUCTS

R32 MONOBLOC S





Energy Label



* 16kW 1Ø model.
* A+++ to D scale.

Excellent Performance & Efficiency

- R1 compressor
- R32 refrigerant
- Flash gas injection
- Wide operation range
- Black Fin heat exchanger
- Solar thermal
- Energy state

User Convenience

- Intuitive interface
- LG ThinQ
- 2nd circuit
- Various control options
- 3rd party boiler
- Energy monitoring
- Seasonal auto mode
- Low noise mode
- Advanced pump control options
- Flow sensor
- Pressure sensor
- 2 Remote Control
- DHW Recirculation

Easy Installation & Maintenance

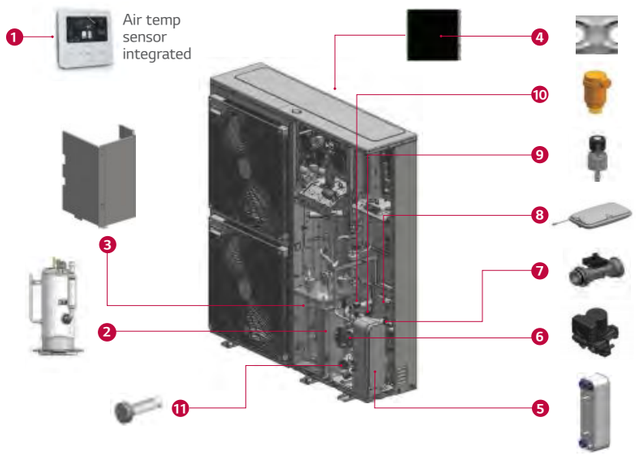
- All-in-one
- LG heating configurator
- Clip connection

* Detailed description for each function is presented on page 28 ~ 35.

R32 Monobloc S Introduction

The THERMA V R32 Monobloc S is the 2nd generation of LG's R32 Monobloc series. As implied by “silence” and “supreme," it boasts reduced noise level and best performance in the THERMA V Series. Combining the indoor and outdoor as one module, it's also connected by only water piping eliminating the need for refrigerant piping. Furthermore, hydronic components like the plate heat exchanger, expansion tank, water pump, flow sensor, pressure sensor, air vent valves, and safety valve are conveniently situated inside the unit. The R32 Monobloc S provides excellent heating performance, especially at low ambient temperature while lowering its carbon emissions with R32.

Key Components

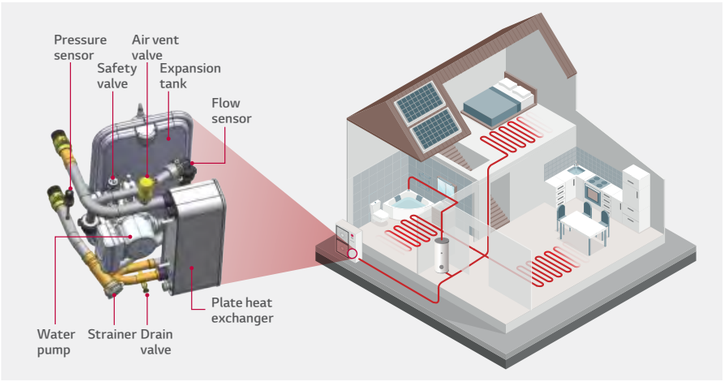


1. Standard III remote controller (separately provided)
2. R1 Compressor
3. Compressor noise shield
4. Black Fin heat exchanger (ref/air)
5. Plate type heat exchanger (ref/water)
6. Water pump (GRUNDFOS)
7. Water flow sensor
8. Expansion vessel (8ℓ)
9. Water pressure sensor
10. Air vent valve
11. Strainer

Monobloc Concept

R32 Monobloc S is an all-in-one concept and reduced weight allows for quicker and easier installations.

- Additional hydronic components are included in the package
- Easier and quicker installation without refrigerant piping work

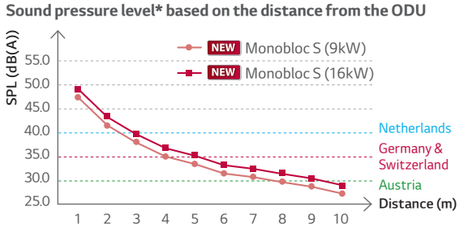


Reduced Noise Level

R32 Monobloc S can be installed at the minimum of 4m away (based on 9kW model & Low noise mode) from neighboring houses while complying with German noise regulation.

Description		Germany	Austria	Switzerland	Netherlands
Sound Pressure Threshold	Day Time	50 dB (A) (06:00 ~ 22:00)	40 dB (A) (06:00 ~ 19:00)	40 dB (A) (07:00 ~ 19:00)	45 dB (A) (07:00 ~ 19:00)
	Evening	-	35 dB (A) (19:00 ~ 22:00)	-	-
	Night Time	35 dB (A) (22:00 ~ 06:00)	30 dB (A) (22:00 ~ 06:00)	35 dB (A) (19:00 ~ 07:00)	40 dB (A) (19:00 ~ 07:00)

Sound pressure level* based on the distance from the ODU



* Sound Pressure Level is converted from Sound Power Level of Low Noise Mode based on Tonality penalty of 0dB and installation in free-field.

PRODUCT SPECIFICATION

R32 Monobloc S

HM051MR U44
HM071MR U44
HM091MR U44

011-1W0471 EHPA for Germany

MCS CERTIFIED

EUROVENT CERTIFIED PERFORMANCE

R32 65°C A+++ R1 Compressor™ Black Fin LG ThinQ

Features

- All-in-one outdoor unit
- SCOP up to 4.55 (Average climate / Low temp. application) : A+++
  SCOP up to 3.20 (Average climate / Mid temp. application) : A++
- COP up to 4.70 (Outdoor air 7°C / Leaving water 35°C)
- 100% heating capacity at -15°C OAT (@ LWT 35°C)
- Low sound level allowing high installation location flexibility
- Wide operation range (ambient : -25 ~ 35°C / water side : 15 ~ 65°C)
- Built-in water flow & pressure sensors to monitor real-time water circuit
- R32 refrigerant with reduced global warming potential (GWP)
- R1 compressor
- Improved heat exchanger design (New Black Fin)
- LG ThinQ
- KEYMARK / EHPA (for Germany) / MCS / EUROVENT certification

* EHPA (for Austria and Switzerland) label under development

Model Line-up

Capacity	Unit	Model Name		
		Capacity (kW)		
		5.5	7.0	9.0
1 Phase Model 220 ~ 240V, 1Ø, 50Hz	Monobloc Unit	HM051MR U44	HM071MR U44	HM091MR U44

Seasonal Energy

Description			Unit	HM051MR U44	HM071MR U44	HM091MR U44
Space Heating (According to EN14825)	Average Climate Water Outlet 35°C	SCOP	-	4.46	4.48	4.55
		Seasonal Space Heating Efficiency (η_s)	%	175	176	179
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+++	A+++	A+++
	Average Climate Water Outlet 55°C	SCOP	-	3.20	3.20	3.20
		Seasonal Space Heating Efficiency (η_s)	%	125	125	125
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A++	A++	A++

Nominal Capacity and Nominal Power Input

Description		OAT[1] (DB)	LWT[2] (DB)	Unit	HM051MR U44	HM071MR U44	HM091MR U44
Nominal Capacity	Heating	7°C	35°C	kW	5.50	7.00	9.00
		7°C	55°C		5.50	5.50	5.50
		2°C	35°C		4.40	5.60	6.80
	Cooling	35°C	18°C		5.50	7.00	9.00
		35°C	7°C		5.50	7.00	9.00
Nominal Power Input	Heating	7°C	35°C	kW	1.17	1.49	1.96
		7°C	55°C		2.04	2.04	2.04
		2°C	35°C		1.22	1.58	1.94
	Cooling	35°C	18°C		1.17	1.56	2.14
		35°C	7°C		1.67	2.19	2.90
COP	Heating	7°C	35°C	W/W	4.70	4.70	4.60
		7°C	55°C		2.70	2.70	2.70
		2°C	35°C		3.60	3.55	3.50
EER	Cooling	35°C	18°C	W/W	4.70	4.50	4.20
		35°C	7°C		3.30	3.20	3.10

1) OAT : Outdoor Air Temperature
2) LWT : Leaving Water Temperature

Product Specification

Technical Specification				Unit	HM051MR U44	HM071MR U44	HM091MR U44
Water Side	Operation Range (leaving water temperature)	Heating	Min. ~ Max.	°C DB	15 ~ 65		
		Cooling			5 ~ 27 (16 ~ 27)[1]		
		DHW			15 ~ 80[2]		
	Piping Connections	Water Circuit	Inlet	Inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)		
			Outlet	Inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)		
	Rated Water Flow Rate at LWT 35°C			LPM	15.8	20.1	25.9
Refrigerant Side	Operation Range (outdoor temperature)	Heating	Min ~ Max	°C DB	-25 ~ 35		
		Cooling			5 ~ 48		
	Compressor	Quantity		EA	1		
		Type		-	Hermetic Sealed Scroll		
	Refrigerant	Type		-	R32		
		GWP (Global Warming Potential)		-	675		
		Precharged Amount		g	1,400		
		t-CO2 eq		-	0.945		
Sound Power Level		Heating	Rated	dB(A)	57		
			Low Noise Mode		54	55	
Sound Pressure Level (at 5m)		Heating	Rated	dB(A)	35		
			Low Noise Mode		32	33	
Dimensions		Unit	W × H × D	mm	1,239 × 834 × 330		
Weight		Unit		kg	89.0		
Exterior		Color / RAL Code		-	Warm Gray / RAL 7044		
Power Supply		Voltage, Phase, Frequency		V, Ø, Hz	220-240, 1, 50		
		Rated Running Current	Heating	A	5.2	6.6	8.7
			Cooling	A	5.2	6.9	9.5
		Recommended Circuit Breaker		A	16	20	25
Wiring Connections		Power Supply Cable (included earth, H07RN-F)		mm^2 x cores	4.0 x 3C		

1) When fan coil unit not used.
2) DHW 58~80°C Operating is available only when the booster heater is operating.

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.
   Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound power level is measured on the rated condition in according with ISO 9614 standard.
   Sound pressure level is converted from sound power level based on tonality penalty of 0dB and installation in free-field.
   Therefore, these values can be increased owing to ambient conditions during operation. Rated sound power level is according to the EN12102-1 under conditions of the EN14825.
4. Performances are accordance with EN14511 and reflect ErP testing conditions. Above gives the declared values at rated conditions acc. ErP regulation.
   • Rated running current : Outdoor Temp. 7°C DB / 6°CWB, LWT 35°C
5. This product contains Fluorinated greenhouse gases.

PRODUCT SPECIFICATION

Performance Table for Heating Operation

Maximum Heating Capacity (Including Defrost Effect)

HM051MR U44

Outdoor Temperature	LWT 30 °C	LWT 35 °C	LWT 40 °C	LWT 45 °C	LWT 50 °C	LWT 55 °C	LWT 60 °C	LWT 65 °C
	TC	TC	TC	TC	TC	TC	TC	TC
-25°C DB	5.50	5.50	5.50	5.50	-	-	-	-
-20°C DB	5.50	5.50	5.50	5.50	5.23	-	-	-
-15°C DB	5.50	5.50	5.50	5.50	5.23	5.23	-	-
-7°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	-
-4°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
-2°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
2°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
7°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
10°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
15°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
18°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
20°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50
35°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50	5.50

HM071MR U44

Outdoor Temperature	LWT 30 °C	LWT 35 °C	LWT 40 °C	LWT 45 °C	LWT 50 °C	LWT 55 °C	LWT 60 °C	LWT 65 °C
	TC	TC	TC	TC	TC	TC	TC	TC
-25°C DB	5.85	5.85	5.85	5.85	-	-	-	-
-20°C DB	6.43	6.43	6.43	6.43	6.10	-	-	-
-15°C DB	7.00	7.00	7.00	7.00	6.65	6.65	-	-
-7°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	-
-4°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
-2°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
2°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
7°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
10°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
15°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
18°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
20°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00
35°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00	7.00

HM091MR U44

Outdoor Temperature	LWT 30 °C	LWT 35 °C	LWT 40 °C	LWT 45 °C	LWT 50 °C	LWT 55 °C	LWT 60 °C	LWT 65 °C
	TC	TC	TC	TC	TC	TC	TC	TC
-25°C DB	6.20	6.20	6.20	6.20	-	-	-	-
-20°C DB	7.60	7.60	7.60	7.60	7.22	-	-	-
-15°C DB	9.00	9.00	9.00	9.00	8.55	8.55	-	-
-7°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00	-
-4°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
-2°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
2°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
7°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
10°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
15°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
18°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
20°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00
35°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00	9.00

Note
1. DB : Dry Bulb Temperature (°C), LWT : Leaving Water Temperature (°C), LPM : Liters Per Minute (ℓ/min), TC : Total Capacity (kW)
2. Direct interpolation is permissible. Do not extrapolate.
3. Measuring procedure follows EN-14511.
   • Rated values are based on standard conditions and it can be found on specifications.
   • Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   • In accordance with the test standard (or nations), the rating will vary slightly.
4. The shaded areas are not guaranteed continuous operation.

Performance Table for Cooling Operation

Maximum Cooling Capacity

HM051MR U44

Outdoor Temperature	LWT 7°C	LWT 10°C	LWT 13°C	LWT 15°C	LWT 18°C	LWT 20°C	LWT 22°C
	TC	TC	TC	TC	TC	TC	TC
10°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50
20°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50
30°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50
35°C DB	5.50	5.50	5.50	5.50	5.50	5.50	5.50
40°C DB	5.29	5.32	5.36	5.38	5.41	5.43	5.45
45°C DB	5.09	5.15	5.21	5.25	5.31	5.36	5.40

HM071MR U44

Outdoor Temperature	LWT 7°C	LWT 10°C	LWT 13°C	LWT 15°C	LWT 18°C	LWT 20°C	LWT 22°C
	TC	TC	TC	TC	TC	TC	TC
10°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00
20°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00
30°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00
35°C DB	7.00	7.00	7.00	7.00	7.00	7.00	7.00
40°C DB	6.36	6.45	6.55	6.61	6.71	6.77	6.84
45°C DB	5.71	5.82	5.92	5.99	6.10	6.17	6.24

HM091MR U44

Outdoor Temperature	LWT 7°C	LWT 10°C	LWT 13°C	LWT 15°C	LWT 18°C	LWT 20°C	LWT 22°C
	TC	TC	TC	TC	TC	TC	TC
10°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00
20°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00
30°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00
35°C DB	9.00	9.00	9.00	9.00	9.00	9.00	9.00
40°C DB	7.66	7.66	7.65	7.65	7.65	7.65	7.65
45°C DB	6.31	6.35	6.39	6.42	6.45	6.48	6.51

Note
1. DB : Dry Bulb Temperature (°C), LWT : Leaving Water Temperature (°C), LPM : Liters Per Minute (ℓ/min), TC : Total Capacity (kW)
2. Direct interpolation is permissible. Do not extrapolate.
3. Measuring procedure follows EN-14511.
   • Rated values are based on standard conditions and it can be found on specifications.
   • Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   • In accordance with the test standard (or nations), the rating will vary slightly.
4. The shaded areas are not guaranteed continuous operation.

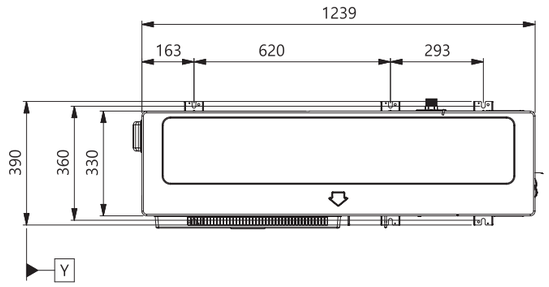
PRODUCT SPECIFICATION

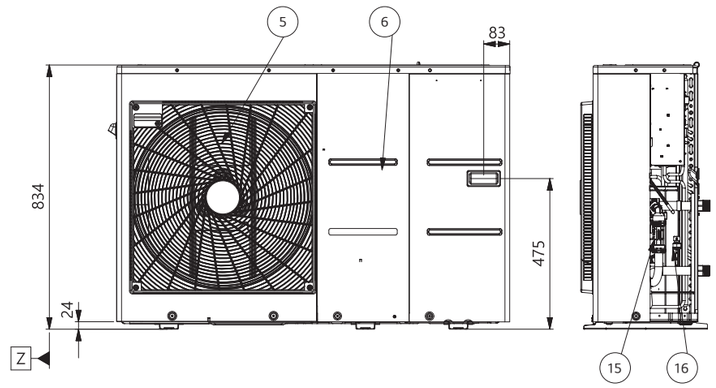
Drawings

Category	Unit	Model Name		
		Capacity (kW)		
		5.5	7.0	9.0
1 Phase Model 220 ~ 240V, 1Ø, 50Hz	Monobloc Unit	HM051MR U44	HM071MR U44	HM091MR U44

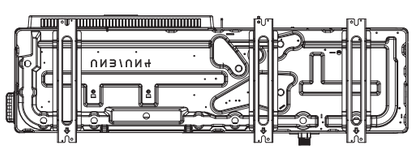
HM051MR U44 / HM071MR U44 / HM091MR U44

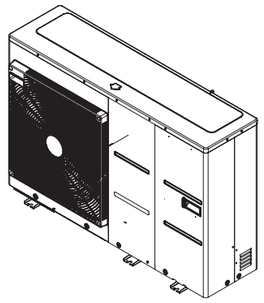
[Unit : mm]



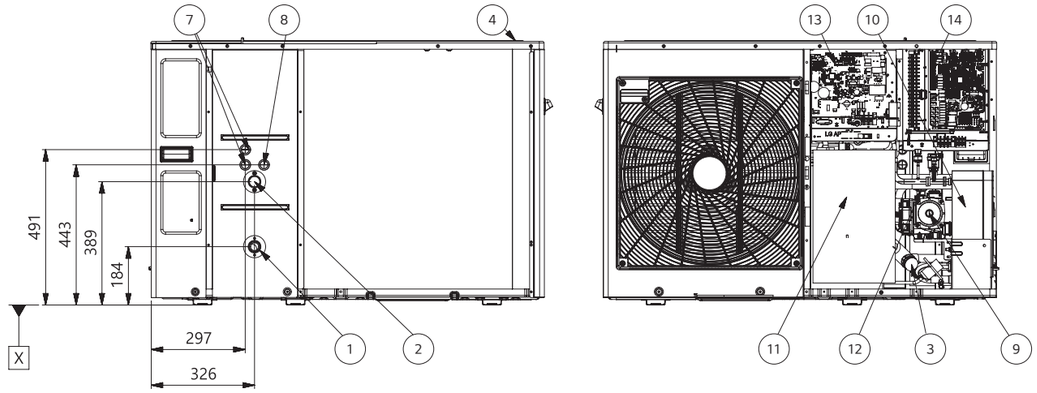


Side View





3D View



No.	Part Name	Description
1	Entering water pipe	Male PT 1" according to ISO 7-1 (tapered pipe threads)
2	Leaving water pipe	Male PT 1" according to ISO 7-1 (tapered pipe threads)
3	Strainer	Filtering and stacking particles inside circulating water
4	Top cover	-
5	Front Panel	-
6	Side Panel	-
7	Low Voltage	Communication cable hole
8	UNIT Power	Power cable hole
9	Water Pump	GRUNDFOS UPM3K 20-75 CHBL
10	Plate Heat Exchanger	Heat exchange between refrigerant and water
11	Compressor shield panel	-
12	Safety valve	Open at water pressure 3 bar
13	Indoor Control Box	Indoor PCB and terminal blocks
14	Outdoor Control Box	Outdoor PCB and terminal blocks
15	Flow sensor	SIKA VVX20 5-80 LPM
16	Pressure Sensor	SENSATA 2HMP3-05W 0-2MPa

PRODUCT SPECIFICATION

R32 Monobloc S

HM121MR U34
HM141MR U34
HM161MR U34
HM123MR U34
HM143MR U34
HM163MR U34

011-1W0470 EHPA for Germany (3Ø model only)

Features

- All-in-one outdoor unit
- SCOP up to 4.67 (Average climate / Low temp. application) : A+++
  SCOP up to 3.47 (Average climate / Mid temp. application) : A++
- COP up to 4.90 (Outdoor air 7°C / Leaving water 35°C)
- 100% heating capacity at -15°C OAT (@ LWT 35°C, except for 16kW model)
- Low sound level allowing high installation location flexibility
- Wide operation range (ambient : -25 ~ 35°C / water side : 15 ~ 65°C)
- Built-in water flow & pressure sensors to monitor real-time water circuit
- R32 refrigerant with reduced global warming potential (GWP)
- R1 compressor
- Improved heat exchanger design (New Black Fin)
- LG ThinQ
- KEYMARK / EHPA (for Germany, 3Ø model only) / MCS / EUROVENT certification

* EHPA (for Austria and Switzerland) label under development

Model Line-up

Capacity	Unit	Model Name		
		Capacity (kW)		
		12.0	14.0	16.0
1 Phase Model 220 ~ 240V, 1Ø, 50Hz	Monobloc Unit	HM121MR U34	HM141MR U34	HM161MR U34
3 Phase Model 380 ~ 415V, 3Ø, 50Hz		HM123MR U34	HM143MR U34	HM163MR U34

Seasonal Energy

Description			Unit	HM121MR U34 (1Ø) HM123MR U34 (3Ø)	HM141MR U34 (1Ø) HM143MR U34 (3Ø)	HM161MR U34 (1Ø) HM163MR U34 (3Ø)
Space Heating (According to EN14825)	Average Climate Water Outlet 35°C	SCOP	-	4.67	4.62	4.53
		Seasonal Space Heating Efficiency (η_s)	%	184	182	178
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A+++	A+++	A+++
	Average Climate Water Outlet 55°C	SCOP	-	3.47	3.46	3.45
		Seasonal Space Heating Efficiency (η_s)	%	136	135	135
		Seasonal Space Heating Eff. Class (A+++ to D Scale)	-	A++	A++	A++

Nominal Capacity and Nominal Power Input

Description		OAT[1] (DB)	LWT[2] (DB)	Unit	HM121MR U34 (1Ø) HM123MR U34 (3Ø)	HM141MR U34 (1Ø) HM143MR U34 (3Ø)	HM161MR U34 (1Ø) HM163MR U34 (3Ø)
Nominal Capacity	Heating	7°C	35°C	kW	12.00	14.00	16.00
		7°C	55°C		11.00	11.50	12.00
		2°C	35°C		11.00	12.00	13.80
	Cooling	35°C	18°C		12.00	14.00	16.00
		35°C	7°C		12.00	14.00	16.00
Nominal Power Input	Heating	7°C	35°C	kW	2.45	2.92	3.40
		7°C	55°C		3.79	4.04	4.29
		2°C	35°C		3.01	3.31	3.83
	Cooling	35°C	18°C		2.53	3.26	4.00
		35°C	7°C		3.64	4.24	5.16
COP	Heating	7°C	35°C	W/W	4.90	4.80	4.70
		7°C	55°C		2.90	2.85	2.80
		2°C	35°C		3.65	3.63	3.60
EER	Cooling	35°C	18°C	W/W	4.75	4.30	4.00
		35°C	7°C		3.30	3.30	3.10

1) OAT : Outdoor Air Temperature
2) LWT : Leaving Water Temperature

Product Specification

Technical Specification				Unit	HM121MR U34	HM141MR U34	HM161MR U34	HM123MR U34	HM143MR U34	HM163MR U34
Water Side	Operation Range (leaving water temperature)	Heating	Min. ~ Max.	°C DB	15 ~ 65					
		Cooling			5 ~ 27 (16 ~ 27)[1]					
		DHW			15 ~ 80[2]					
	Piping Connections	Water Circuit	Inlet	Inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)					
			Outlet	Inch	Male PT 1" according to ISO 7-1 (tapered pipe threads)					
	Rated Water Flow Rate at LWT 35°C			LPM	34.5	40.3	46.0	34.5	40.3	46.0
Refrigerant Side	Operation Range (outdoor temp.)	Heating	Min. ~ Max.	°C DB	-25 ~ 35					
		Cooling			5 ~ 48					
	Compressor	Quantity		EA	1					
		Type		-	Hermetic Sealed Scroll					
	Refrigerant	Type		-	R32					
		GWP (global warming potential)		-	675					
		Precharged Amount		g	2,000					
		t-CO_2 eq		-	1.350					
Sound Power Level	Heating	Rated		dB(A)	60	61		60	61	
		Low Noise Mode			56	57		56	57	
Sound Pressure Level (at 5m)	Heating	Rated		dB(A)	38	39		38	39	
		Low Noise Mode			34	35		34	35	
Dimensions	Unit	W x H x D		mm	1,239 x 1,380 x 330					
Weight	Unit			kg	118.6					
Exterior	Color / RAL Code			-	Warm Gray / RAL 7044					
Power Supply	Voltage, Phase, Frequency			V, Ø, Hz	220-240, 1, 50			380-415, 3, 50		
	Rated Running Current	Heating		A	10.9	12.9	15.1	3.6	4.3	5.0
		Cooling		A	11.2	14.4	17.7	3.7	4.8	5.9
	Recommended Circuit Breaker			A	40			16		
Wiring Connections	Power Supply Cable (included earth, H07RN-F)			mm^2 x cores	6.0 x 3C			4.0 x 5C		

1) When fan coil unit not used.
2) DHW 58~80°C Operating is available only when the booster heater is operating.

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.
   Especially the power cable and circuit breaker should be selected in accordance with that.
3. Sound power level is measured on the rated condition in according with ISO 9614 standard.
   Sound pressure level is converted from sound power level based on tonality penalty of 0dB and installation in free-field.
   Therefore, these values can be increased owing to ambient conditions during operation. Rated sound power level is according to the EN12102-1 under conditions of the EN14825.
4. Performances are accordance with EN14511 and reflect ErP testing conditions. Above gives the declared values at rated conditions acc. ErP regulation.
   • Rated running current : Outdoor Temp. 7°C DB / 6°CWB, LWT 35°C
5. This product contains Fluorinated greenhouse gases.

PRODUCT SPECIFICATION

Performance Table for Heating Operation

Maximum Heating Capacity (Including Defrost Effect)

HM121MR U34 / HM123MR U34

Outdoor Temperature	LWT 30 °C	LWT 35 °C	LWT 40 °C	LWT 45 °C	LWT 50 °C	LWT 55 °C	LWT 60 °C	LWT 65 °C
	TC	TC	TC	TC	TC	TC	TC	TC
-25°C DB	9.50	9.50	9.50	9.50	-	-	-	-
-20°C DB	10.75	10.75	10.75	10.75	10.21	-	-	-
-15°C DB	12.00	12.00	12.00	12.00	11.50	11.50	-	-
-7°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00	-
-4°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
-2°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
2°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
7°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
10°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
15°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
18°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
20°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00
35°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00	12.00

HM141MR U34 / HM143MR U34

Outdoor Temperature	LWT 30 °C	LWT 35 °C	LWT 40 °C	LWT 45 °C	LWT 50 °C	LWT 55 °C	LWT 60 °C	LWT 65 °C
	TC	TC	TC	TC	TC	TC	TC	TC
-25°C DB	10.00	10.00	10.00	10.00	-	-	-	-
-20°C DB	12.00	12.00	12.00	12.00	11.40	-	-	-
-15°C DB	14.00	14.00	14.00	14.00	13.30	13.30	-	-
-7°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00	-
-4°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
-2°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
2°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
7°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
10°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
15°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
18°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
20°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00
35°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00	14.00

HM161MR U34 / HM163MR U34

Outdoor Temperature	LWT 30 °C	LWT 35 °C	LWT 40 °C	LWT 45 °C	LWT 50 °C	LWT 55 °C	LWT 60 °C	LWT 65 °C
	TC	TC	TC	TC	TC	TC	TC	TC
-25°C DB	10.50	10.50	10.50	10.50	-	-	-	-
-20°C DB	13.25	13.25	13.25	13.25	12.59	-	-	-
-15°C DB	16.00	14.40	14.40	14.40	13.68	13.68	-	-
-7°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00	-
-4°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
-2°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
2°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
7°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
10°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
15°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
18°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
20°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00
35°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00	16.00

Note
1. DB : Dry Bulb Temperature (°C), LWT : Leaving Water Temperature (°C), LPM : Liters Per Minute (ℓ/min), TC : Total Capacity (kW)
2. Direct interpolation is permissible. Do not extrapolate.
3. Measuring procedure follows EN-14511.
   • Rated values are based on standard conditions and it can be found on specifications.
   • Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   • In accordance with the test standard (or nations), the rating will vary slightly.
4. The shaded areas are not guaranteed continuous operation.

Performance Table for Cooling Operation

Maximum Cooling Capacity

HM121MR U34 / HM123MR U34

Outdoor Temperature	LWT 7°C	LWT 10°C	LWT 13°C	LWT 15°C	LWT 18°C	LWT 20°C	LWT 22°C
	TC	TC	TC	TC	TC	TC	TC
10°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00
20°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00
30°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00
35°C DB	12.00	12.00	12.00	12.00	12.00	12.00	12.00
40°C DB	11.05	11.19	11.33	11.43	11.57	11.67	11.76
45°C DB	10.10	10.37	10.64	10.83	11.10	11.28	11.46

HM141MR U34 / HM143MR U34

Outdoor Temperature	LWT 7°C	LWT 10°C	LWT 13°C	LWT 15°C	LWT 18°C	LWT 20°C	LWT 22°C
	TC	TC	TC	TC	TC	TC	TC
10°C DB	12.50	12.80	13.10	13.30	13.60	13.80	14.00
20°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00
30°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00
35°C DB	14.00	14.00	14.00	14.00	14.00	14.00	14.00
40°C DB	12.35	12.60	12.84	13.01	13.26	13.42	13.59
45°C DB	10.69	11.19	11.69	12.02	12.51	12.84	13.17

HM161MR U34 / HM163MR U34

Outdoor Temperature	LWT 7°C	LWT 10°C	LWT 13°C	LWT 15°C	LWT 18°C	LWT 20°C	LWT 22°C
	TC	TC	TC	TC	TC	TC	TC
10°C DB	13.00	13.60	14.20	14.60	15.20	15.60	16.00
20°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00
30°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00
35°C DB	16.00	16.00	16.00	16.00	16.00	16.00	16.00
40°C DB	13.60	13.96	14.32	14.56	14.92	15.16	15.40
45°C DB	11.20	11.76	12.32	12.69	13.25	13.62	14.00

Note
1. DB : Dry Bulb Temperature (°C), LWT : Leaving Water Temperature (°C), LPM : Liters Per Minute (ℓ/min), TC : Total Capacity (kW)
2. Direct interpolation is permissible. Do not extrapolate.
3. Measuring procedure follows EN-14511.
   • Rated values are based on standard conditions and it can be found on specifications.
   • Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   • In accordance with the test standard (or nations), the rating will vary slightly.
4. The shaded areas are not guaranteed continuous operation.

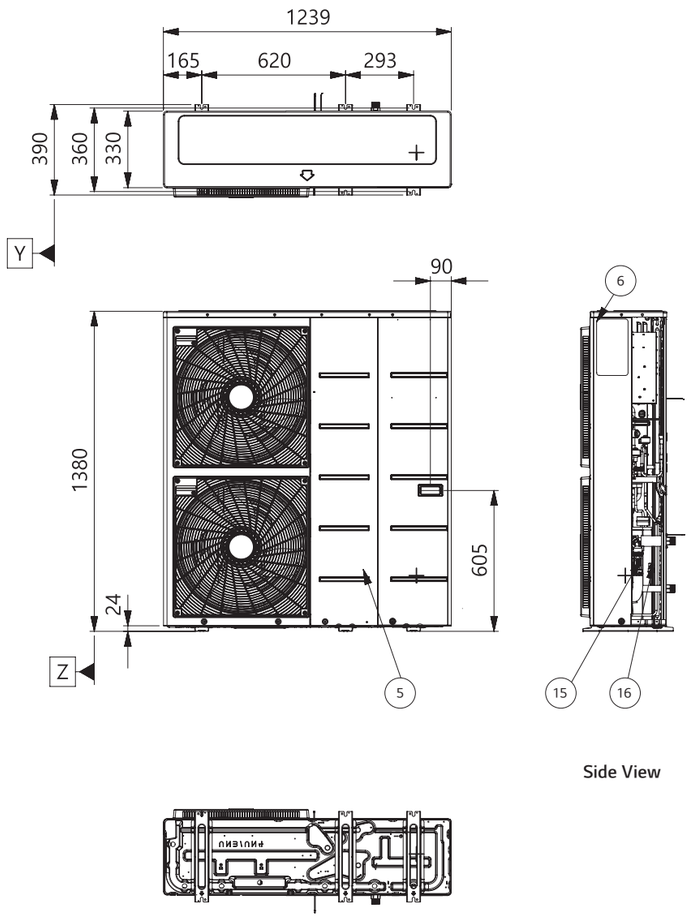
PRODUCT SPECIFICATION

Drawings

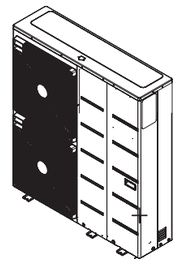
Category	Unit	Model Name		
		Capacity (kW)		
		12.0	14.0	16.0
1 Phase Model 220 ~ 240V, 1Ø, 50Hz	Monobloc Unit	HM121MR U34	HM141MR U34	HM161MR U34
3 Phase Model 380 ~ 415V, 3Ø, 50Hz		HM123MR U34	HM143MR U34	HM163MR U34

HM121MR U34 / HM141MR U34 / HM161MR U34
HM123MR U34 / HM143MR U34 / HM163MR U34

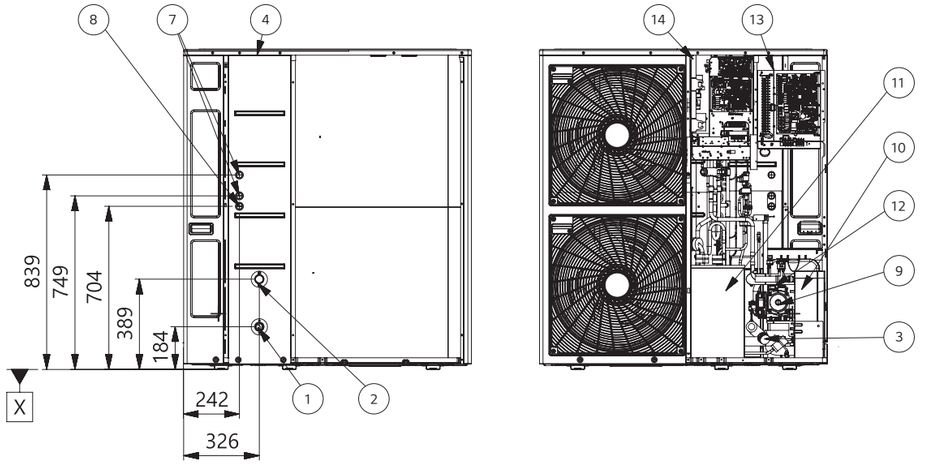
[Unit : mm]



Side View



3D View

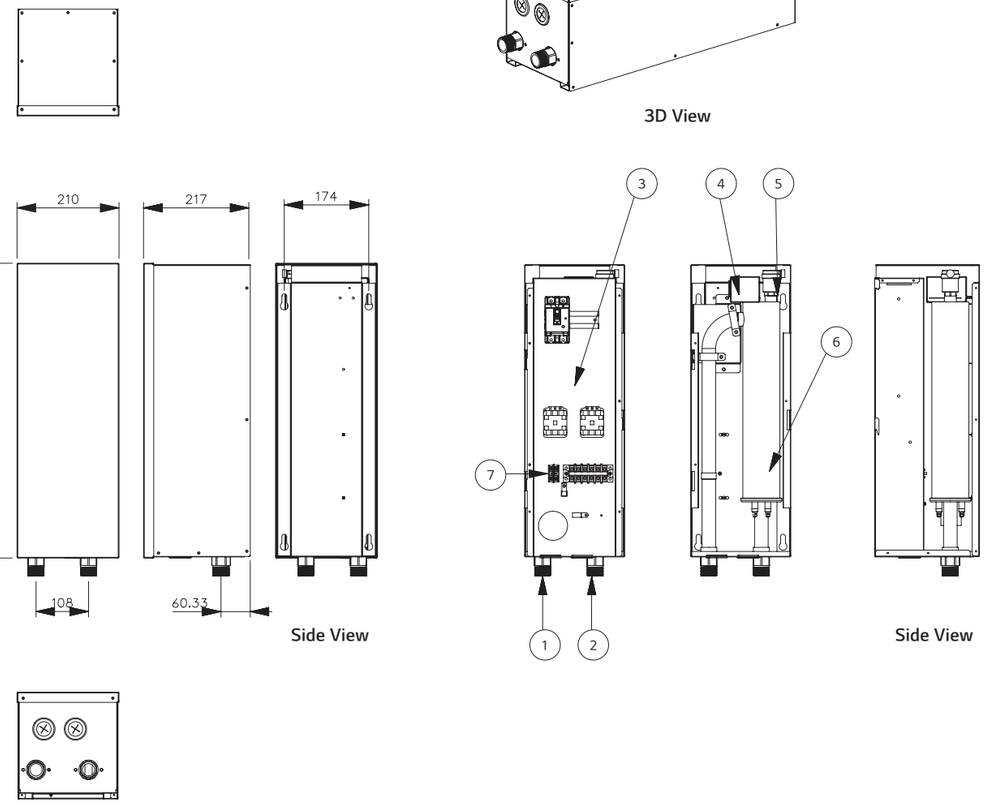


No.	Part Name	Description
1	Entering water pipe	Male PT 1" according to ISO 7-1 (tapered pipe threads)
2	Leaving water pipe	Male PT 1" according to ISO 7-1 (tapered pipe threads)
3	Strainer	Filtering and stacking particles inside circulating water
4	Top cover	-
5	Front Panel	-
6	Side Panel	-
7	Low Voltage	Communication cable hole
8	UNIT Power	Power cable hole
9	Water Pump	GRUNDFOS UPML 20-105 CHBL
10	Plate Heat Exchanger	Heat exchange between refrigerant and water
11	Compressor shield panel	-
12	Safety valve	Open at water pressure 3 bar
13	Indoor Control Box	Indoor PCB and terminal blocks
14	Outdoor Control Box	Outdoor PCB and terminal blocks
15	Flow sensor	SIKA VVX20 5-80 LPM
16	Pressure Sensor	SENSATA 2HMP3-05W 0-2MPa

PRODUCT SPECIFICATION

Electric Backup Heater

HA031M E1
HA061M E1
HA063M E1



Backup Heater Specification

Electrical Specification		Unit	HA031M E1	HA061M E1	HA063M E1
Backup Heater	Type	-	Sheath		
	Number of Heating Coil	EA	1	2	3
	Capacity Combination	kW	3.0	3.0 + 3.0	2.0 + 2.0 + 2.0
	Heating Steps	Step	1	2	1
	Power Supply	V, Ø, Hz	220 ~ 240, 1, 50		380 ~ 415, 3, 50
	Rated Running Current	A	12.5	25.0	8.7
	Recommended Circuit Breaker	A	25	40	25
	Dimensions (W x H x D)	mm	210 x 607 x 217		
	Net Weight (unit)	kg	13.0	13.8	14.1
Wiring Connections	Power Supply Cable (included earth, H07RN-F)	mm^2 x cores	1.5 x 3C	4.0 x 3C	2.5 x 4C
	Communication Cable (H07RN-F)	mm^2 x cores	0.75 x 4C		0.75 x 2C

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.
   Especially the power cable and circuit breaker should be selected in accordance with that.

No.	Part Name	Description
1	Leaving Water Pipe	Male PT 1" according to ISO 7-1 (tapered pipe threads)
2	Entering Water Pipe	Male PT 1" according to ISO 7-1 (tapered pipe threads)
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
7	Backup heater outlet sensor(SI3)	Connect to unit (heat pump)