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# LG THERMA V PRODUCT CATALOGUE



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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.



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### **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.

# | The content of the

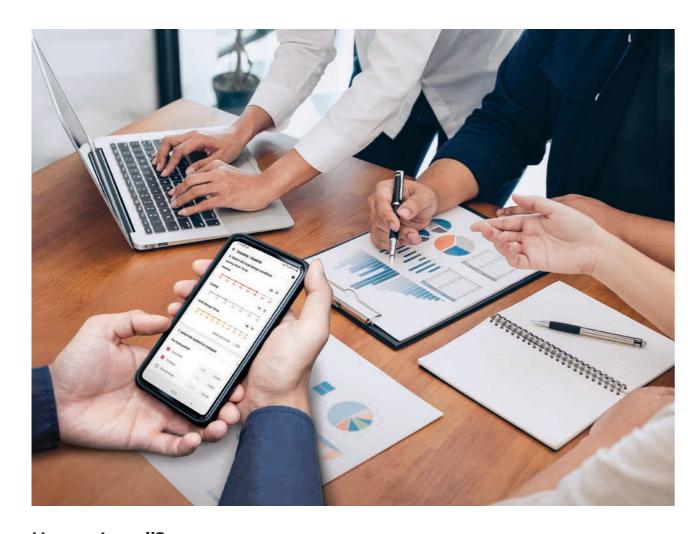
### 3. LGMV

LGMV is a useful engineering tool that monitors THERMA V's realtime 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.



 $<sup>^{\</sup>star}$  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.

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



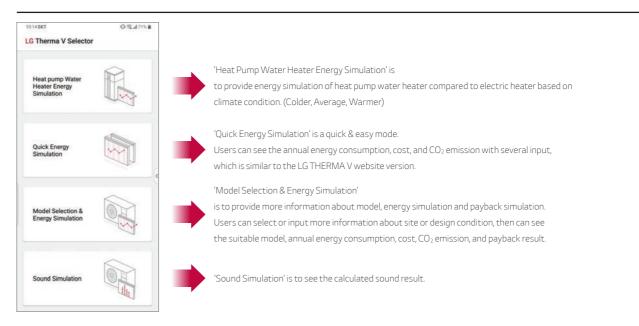
URL: https://apps.apple.com/us/app/id1339037884





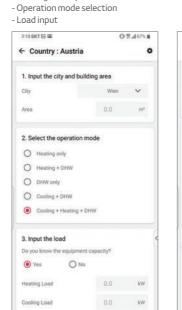
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### **Simulation Mode**



# **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.

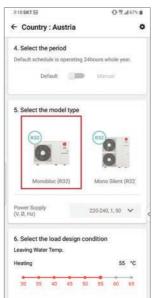


2.0

- City selection

- Building area input

- Operation period selection - Model type selection



- Design condition input - System selection to be
- compared
- ← Country : Austria 13 °C 7 10 13 15 18 20 22 55 °C Advanced mode 0.0 €/kWh 0.2 €/kWh Oil Boiler 0.3 **€/kWh** ☐ Electric Boiler
- Costs input for systems
- Searching model that meets criteria



# THERMA VI

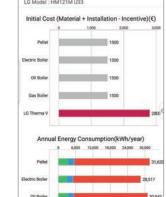
# THERMA V SELECTOR

### **Result & Report**

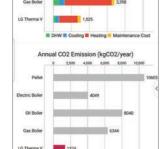
After the simulation, analysis results including initial investment cost, annual energy consumption, and payback period can be checked in the form of various graphs. Moreover, this report is provided in PDF format and can be shared by e-mail and messenger.

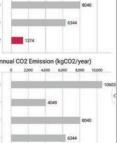
### Result

- Simulation conditions summary
- Initial cost
- Annual energy consumption
- Country / City : Austria / Wien Operating hours : Cooling 2953h , Heating 5768h LWT: (°C, H/C/D) 50 / 13 / 55 Energy Price (€/kWh, Elec./ Gas / Oil / Pellet) 0.14/0.1/0.16/0.05 Initial Cost (Material + Installation - Incentive)(€)

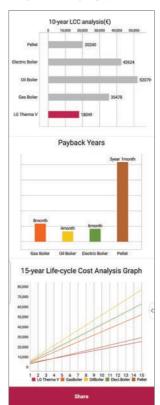


- Annual cost
- Annual  $CO_2$  emission
- 10-year LCC analysis





- 10-year LCC analysis
  - Payback year
  - 15-year LCC analysis graph



### Report

- Cover page

Principle Conditions

Annual Text Condition of Conditions

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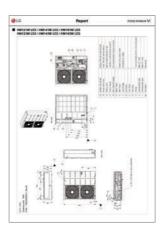
Annual Text Condition of Conditions

Annual Text

- Site information & design condition

- Product specification

- EIL
- Annual energy consumption - Life cycle cost
- Drawings



# **Sound Simulation**

HEAT PUMP

TECHNOLOGY

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.

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- Model selection

LG BUSINESS

PRE-SALES/

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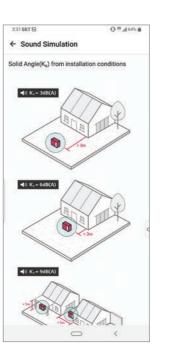
PARTNERSHIP &

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

THERMA V

INTRODUCTION







<sup>\*</sup> 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

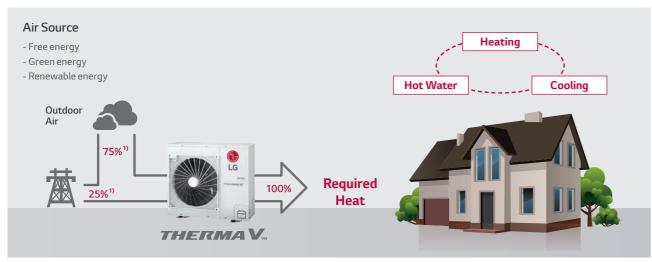
Historically, conventional heating systems have used either oil or gas or have been direct electric heaters. In such conventional heating systems, environmental aspects such as fossil fuel use and environmental pollution have been overlooked. In recent years, interest in these environmentally friendly 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.

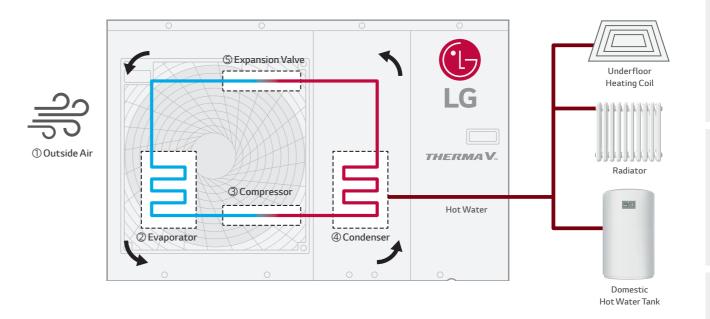
With heat pump technology like THERMA V, about 75% 1) of the energy needed to produce heating and hot water in home comes from natural air source.



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.

### THERMA V THERMA V WHATIS LG AIR TO LG BUSINESS **HEAT PUMP** THERMA V PARTNERSHIP & TECHNOLOGY LG THERMA V WATER LINE UP LINE UP INTRODUCTION PRE-SALES/ HEAT PUMP OVERVIEW INTRODUCTION **ENGINEERING** SOLUTION TOOLS OVERVIEW

### 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

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# The Green Choice:

# THERMAVIM

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 ecoconscious 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.



- Ultimate Energy Efficiency: A+++ in the ErP energy labelling regulation, wide operation range, reduced noise level
- $\bullet \ \, \text{Excellent Performance: R1 Compressor embedded, high heating capacity at low ambient temperature} \\$
- $\bullet \ \mathsf{User} \ \mathsf{Convenience} : \mathsf{LG} \ \mathsf{ThinQ} \ \mathsf{Wi-Fi} \ \mathsf{control}, \mathsf{convenient} \ \mathsf{scheduler}, \mathsf{wider} \ \mathsf{connectivity}, \mathsf{energy} \ \mathsf{monitoring}$

015

# THERMA V.

# WHAT IS LG THERMA V?

### LG's Advanced Heating Technology

The LG THERMA V air to water heat pump system has been specially designed to provide a space and domestic hot water solution to both new build and renovated homes. Even more remarkable thing is LG's advanced heating technology, market leading technology that can minimize energy consumption more than any other solution in the market



### Space Heating

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

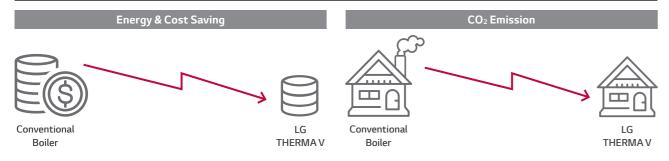
### **Domestic Hot Water**

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

### Space 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<sub>2</sub> Emission



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# **Benefits of LG THERMA V**



### For Homeowners

- Energy saving by utilizing renewable energy and high efficiency equipment
- Multiple solutions with space heating, cooling and DHW supply
- Economic support through domestic renewable heat incentive programme
- Save investment cost thanks to the compatibility with existing heating system like radiator, boiler, etc.
- Save valuable machine room space with the small footprint



### For Installers & Designers

- Time saving with features for quicker installation and commissioning
- Excellent heating performance even at low ambient temperature
- Less manpower for handling with the compact size and light weight
- Low repair cost and high reliability with durable equipment
- Same controller interface for all LG products, requiring less training



### For End-users

- Energy saving by utilizing renewable energy and high efficiency equipment
- Multiple solutions with space heating, cooling and DHW supply
- Low repair cost and high reliability with durable equipment
- Various user convenient functions
- No disturbing to neighbors with low noise
- Convenient control by user-friendly remote controller
- Remote connectivity for control and monitoring via LG ThinQ

# LG AIR TO WATER HEAT PUMP SOLUTION OVERVIEW

|                    |                         | Mon   | obloc  | Hydrosplit  |  |  |  |
|--------------------|-------------------------|---|--|---|--|--|--|
|                    |                         | IVIOII  |  | Hydro Box (Wall hung)   | IWT (Integrated Water Tank)  |  |  |
|                    |                         | R32 Monobloc S R32 Monobloc  10: 5/7/9/12/14/16 kW 10: 5/7/9/12/14/16 kW  |  | R32 Hydrosplit Hydro Box 10:12/14/16 kW   | R32 Hydrosplit IWT 10: 12/14/16 kW   |  |  |
| Line-up            |                         | 3Ø: 12/14/16 kW   | 3Ø:12/14/16 kW   | 3Ø:12/14/16 kW  | 3Ø:12/14/16 kW   |  |  |
| Application        |                         | Heating, Cool   | ing and DHW  | Heating, Cooling and DHW  | Heating, Cooling and DHW   |  |  |
| Energy Label       |                         | Space Heating  35°C  A***  55°C  A***   | 35°C A+++ 55°C A  1) A  5/7/9 kW  A  12/14/16 kW  Heating 2) A  5/7/9 kW | Space Heating  Space Heating  35°C  A***  | Space Heating  Space Heating  Space Heating  Space Heating  Profile L  A*  |  |  |
| Operation<br>Range | Outdoor Air             | -25 ~ 35°C  | -25 ~ 35°C   | -25 ~ 35°C  | -25 ~ 35°C   |  |  |
| (heating)          | Leaving Water           | 15 ~ 65°C   | 15 ~ 65°C  | 15 ~ 65°C   | 15 ~ 65°C  |  |  |
| Customer           | Designer &<br>Installer | Don't want refrigerant piping w     Using existing facilities (Conver     Saving installation and commiss     (All-in-one & No ref. piping wor     No indoor unit (No space for IDI | ntional boiler)<br>Sioning time<br>k)                                    | - Saving installation and commissioning time (No ref. piping work)                                    | - Saving installation and commissioning time (All-in-one & No ref. piping work) - Where mechanical room is very limited - Saving installation space for buffer tank and expansion tank   |  |  |
| Needs              | End-User                | - Don't want to take the potentic<br>- Easy and intuitive controls<br>- Reliable operation and long lifet   | -  | Low operation cost<br>Remote control by smartphone<br>Control integration between boiler and THERMA V | Quiet operation  - Necessity to install indoor unit in living space due to Insufficient machine room space   |  |  |
| LG Approach        |                         | - No refrigerant piping work<br>- New interface (standard III Rem<br>- Interlocking operation with 3rd  | ote controller) -<br>party boiler -                                      |   | - Low noise mode operation with schedule setting<br>- High corrosion resistance heat exchanger   |  |  |
|                    |                         | - All in one concept  |  | - Hydrosplit concept  | - All in one concept (Integrated DHW tank with indoor unit)     - Hydrosplit concept     - Sophisticated and harmonious exterior of indoor unit     - Provides an option to integrate buffer tank and DHW expansion tank into indoor units |  |  |
|                    |                         | - Economic support by incentive   | able energy and high efficient equ                                       | - Hybrid operation with   | on and commissioning   |  |  |
| Benefit            |                         | - Saving mechanical room space  |  |   | - Use of valuable machine room space for private purpose   |  |  |

| •             | •          | •            | •           | •         | -        | -            |
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| TOOLS         |            |              |             | OVERVIEW  |          |              |

|   |  | Split  |   | Water Heater   |
|---|--|--|---|--|
| Hydro Box   | (Wall hung)  | IWT (Integrated Water Tank)  | Floor standing  | Water Heater   |
|   |  |  |   |  |
| R32 Split Hydro Box   | R410A Split Hydro Box  | R32 Split IWT  | High Temperature  | Heat Pump Water Heater   |
| 1Ø:5/7/9 kW   | 1Ø : 12/14/16 kW<br>3Ø : 12/14/16 kW   | 1Ø: 5/7/9 kW   | 1Ø:16 kW  | 1Ø:200/270L  |
|   | 0  |  | 0   |  |
| Heating, Coo  | ling and DHW   | Heating, Cooling and DHW   | Heating and DHW   | DHW  |
| Space Heating  35°C  A***  55°C  A***   | 35°C A***  Space Heating  55°C A***  | Space Heating  Space Heating  Space Heating  Space Heating  Space Heating  Profile L  A'   | Space Heating  35°C  A*  55°C  A*   | 200L 270L Profile L Profile L DHW A* A*  |
| -25 ~ 35°C  | -25 ~ 35°C   | -25 ~ 35°C   | -25 ~ 35°C  | -5 ~ 48°C  |
| <br>15 ~ 65°C   | 15 ~ 57°C  | 15 ~ 65°C  | 25 ~ 80°C   | 35 ~ 65°C  |
| - Eliminating the potential freezing ri   | l<br>sk at exposed water piping  | <u>I</u>   | <u>I</u>  | - Using less installation space in the machine room and storage room                                     |
| - Using existing facilities (Convention   | ial boiler)  | - Saving installation and commissioning time (All-in-one)  - Where mechanical room is very limited  - Saving installation space for buffer tank and expansion tank  - Using existing facilities (Conventional boiler)                                    | Short installation time     Convenience to check the operation     Convenient maintenance                                       |  |
| - Don't want to take the potential fre<br>- Quiet operation<br>- Remote control by smartphone   | ezing risk at exposed water piping   | - Low operation cost - Easy and intuitive controls - Reliable operation and long lifetime  |   | - Low operation cost<br>- Sufficient warm water<br>- Quite operation<br>- Easy control                   |
| - Control integration between boiler  | and THERMA V   | Necessity to install indoor unit in living space due to Insufficient machine room space     Control integration between boiler and THERMA V  | - Using existing facilities (Old radiators)   |  |
| - High energy efficiency<br>- New interface (standard III Remote<br>- High corrosion resistance heat exch   |  | Low noise mode operation with schedule setting     LG ThinQ Wi-Fi Control solution     Easy commissioning by PC tool (LG heating confi   | - Stylish design<br>- Top class energy efficiency<br>- Powerful heating performance<br>- Low noise operation<br>- Smart control |  |
| Placing hydronic components into it water piping in the mechanical roor - Interlocking operation with 3rd par   | n  | - All in one concept (Integrated DHW tank with indoor unit) - Sophisticated and harmonious exterior of indoor unit - Provides an option to integrate buffer tank and DHW expansion tank into indoor units - Interlocking operation with 3rd party boiler | - Max. 80°C LWT by Cascade 2 stage<br>compression (R410A - R134a)<br>- Suitable for old radiator                                |  |
| Free of potential freezing risk again     Energy saving by utilizing renewable     Quick & easy installation and comm     Economic support by incentive program | Interior with stylish design     Energy saving with inverter technology     Faster and warmer water heating     Low noise     Smart control with Wi-Fi by LG ThinQ   |  |   |  |
| - Multiple solution (heating, cooling a<br>- Hybrid operation with existing facil   | ple solution (heating, cooling and DHW supply) id operation with existing facilities  - Multiple solution (heating, cooling and DHW supply)  - Hybrid operation with existing facilities  - Use of valuable machine room space for private purpose |  |   | - Quick and easy installation     - Easy check and monitoring     - LG compressor with 10 years warranty |

1) Combination with OSHW-200F (profile L)

2) Combination with OSHW-300F (profile XL)

# **LINE-UP OVERVIEW**

| Refrigerant   | Ту                  | /pe           | Line-up                        | Unit            | Power<br>Supply 1) | Appearance  | 5 kW        | 7 kW        |  |
|---------------|---------------------|---------------|--------------------------------|-----------------|--------------------|-------------|-------------|-------------|--|
|               |                     |               | R32                            | <b>.</b>        | 1Ø/230V            | <b>79</b> 1 | HM051MR U44 | HM071MR U44 |  |
|               |                     |               | Monobloc S<br>P.38             | Set             | 3Ø/400V            | 0 :         |             |             |  |
|               | Mon                 | obloc         | R32                            |                 | 1Ø / 230V          |             | HM051M U43  | HM071M U43  |  |
|               |                     |               | Monobloc<br>P.54               | Set             | 3Ø / 400V          | 0 -         |             |             |  |
|               |                     |               |                                | Outdoor         | 1Ø / 230V          |             |             |             |  |
|               |                     | Hydro<br>Box  | R32<br>Hydrosplit<br>Hydro Box | Unit            | 3Ø / 400V          |             |             |             |  |
|               | Hydro               | Box           | P.70                           | Indoor<br>Unit  | Common             |             |             |             |  |
| R32           | split               |               |                                | Outdoor         | 1Ø/230V            |             |             |             |  |
|               |                     | IWT           | WT R32<br>Hydrosplit<br>IWT    | Unit            | 3Ø / 400V          |             |             |             |  |
|               |                     |               |                                | Indoor<br>Unit  | Common             |             |             |             |  |
|               | Hydro<br>Box<br>IWT | Box H         | R32 Split<br>Hydro Box         | Outdoor<br>Unit | 1Ø/230V -          |             | HU051MR U44 | HU071MR U44 |  |
|               |                     |               |                                | Indoor<br>Unit  | 10/230V -          | -           | HN091MR NK5 |             |  |
|               |                     |               | R32                            | Outdoor<br>Unit | 16/2201            |             | HU051MR U44 | HU071MR U44 |  |
|               |                     | IWT Split IWT | Indoor<br>Unit                 | - 1Ø/230V -     |                    | HN0916T NB1 |             |             |  |
|               | C. I'               | Box Hydr      |                                |                 | Outdoor<br>Unit    |             |             |             |  |
| D410 *        | Split               |               | R410A Split                    | Indoor<br>Unit  | 1Ø/230V -          |             |             |             |  |
| R410A         |                     |               | Hydro Box<br>P.108             | Outdoor<br>Unit | 20/4004            |             |             |             |  |
|               |                     |               |                                | Indoor<br>Unit  | 3Ø/400V -          |             |             |             |  |
|               |                     | Floor         | High                           | Outdoor<br>Unit | 10/5               |             |             |             |  |
| R410A + R134a |                     | standing      | Tomporature                    | Indoor<br>Unit  | 1Ø/230V            |             |             |             |  |

1) The power supply is shown based on the outdoor unit.

| Refrigerant | Туре                                  | Power<br>Supply | Appearance | 200 L | 270 L |
|-------------|---------------------------------------|-----------------|------------|-------|-------|
| R134a       | Inverter Heat Pump Water Heater P.126 | 1Ø / 230V       |            | WH20S |       |
| K134a       |                                       | 10/2300         |            |       | WH27S |

<sup>\*</sup> Production of this product could be discontinued without prior notice considering manufacturer's circumstances.

| •             | •          | •            | •           | •          | •        | •            |
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| 10025         |            |              |             | 0121111211 |          |              |

| 9 kW        | Appearance | 12 kW        | 14 kW        | 16 kW        |
|-------------|------------|--------------|--------------|--------------|
| HM091MR U44 | 0 -        | HM121MR U34  | HM141MR U34  | HM161MR U34  |
|             | 0          | HM123MR U34  | HM143MR U34  | HM163MR U34  |
| HM091M U43  | 0 -        | HM121M U33   | HM141M U33   | HM161M U33   |
|             | 0          | HM123M U33   | HM143M U33   | HM163M U33   |
|             | 0          | HU121MRB U30 | HU141MRB U30 | HU161MRB U30 |
|             | Q          | HU123MRB U30 | HU143MRB U30 | HU163MRB U30 |
|             | , E        |              | HN1600MC NK1 |              |
|             | 0          | HU121MRB U30 | HU141MRB U30 | HU161MRB U30 |
|             | 0          | HU123MRB U30 | HU143MRB U30 | HU163MRB U30 |
|             |            |              | HN1616Y NB1  |              |
| HU091MR U44 |            |              |              |              |
| HN091MR NK5 |            |              |              |              |
| HU091MR U44 |            |              |              |              |
| HN0916T NB1 |            |              |              |              |
|             | 0          | HU121MA U33  | HU141MA U33  | HU161MA U33  |
|             |            |              | HN1616M NK5  |              |
|             | 0          | HU123MA U33  | HU143MA U33  | HU163MA U33  |
|             | 12         |              | HN1636M NK5  |              |
|             | 0          |              |              | HU161HA U33  |
|             | •          |              |              | HN1610H NK3  |

# **LINE-UP INTRODUCTION**



### THERMA V R32 Monobloc S

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.

| Line-up    | Capacity (kW) | 5.5 | 7.0 | 9.0 | 12.0 | 14.0 | 16.0 |
|------------|---------------|-----|-----|-----|------|------|------|
| R32        | 1Ø 230V       | •   | •   | •   | •    | •    | •    |
| Monobloc S | 3Ø 400V       |     |     |     | •    | •    | •    |



### THERMA V R32 Monobloc

The LG THERMA V R32 Monobloc is a fully packaged unit, where the indoor and outdoor units are combined as one module. The outdoor Monobloc unit is connected to only water piping, therefore there is no need for refrigerant piping. Hydronic components such as the plate heat exchanger, expansion tank and water pump are situated inside the outdoor unit.

The Monobloc is designed for energy efficiency, convenience, and easy-to-use controls. Operating with low Global Warming Potential (GWP) R32 refrigerant and LG's exclusive R1 compressor, power meets sustainable heating. The system has an optional Wi-Fi modem and with LG's smartphone app, LG ThinQ, users can monitor and remotely control compatible LG products.

| Line-up  | Capacity (kW) | 5.5 | 7.0 | 9.0 | 12.0 | 14.0 | 16.0 |
|----------|---------------|-----|-----|-----|------|------|------|
| R32      | 1Ø 230V       | •   | •   | •   | •    | •    | •    |
| Monobloc | 3Ø 400V       |     |     |     | •    | •    | •    |

THERMA V WHATIS THERMA V THERMA V LG BUSINESS HEAT PUMP LG AIR TO PARTNERSHIP & TECHNOLOGY INTRODUCTION LG THERMA V WATER LINE-UP LINE-UP PRE-SALES/ HEAT PUMP OVERVIEW INTRODUCTION SOLUTION **ENGINEERING** TOOLS OVERVIEW



### THERMA V R32 Hydrosplit Hydro Box

The LG THERMA V Hydrosplit series separates the Indoor unit (IDU) and outdoor unit (ODU), connecting them via water pipes.

The unit's heat exchanger is located within the ODU, reducing the risk of indoor refrigerant leakage.

THERMA V R32 Hydrosplit Hydro Box is a solution providing space heating, cooling and DHW supply with high installation flexibility thanks to the characteristic of being a wall mounted type. Since the indoor unit is installed on the wall rather than on the floor, space in the machine room is not wasted, and the light weight enables quick installation. Also, it has good maintainability because the indoor unit is located in the machine room.

| Line-up                 | Capacity (kW) | 5.5 | 7.0 | 9.0 | 12.0 | 14.0 | 16.0 |
|-------------------------|---------------|-----|-----|-----|------|------|------|
| R32<br>Hydrosplit Hydro | 1Ø 230V       |     |     |     | •    | •    | •    |
| Box                     | 3Ø 400V       |     |     |     | •    | •    | •    |

<sup>\*</sup> The power supply is shown based on the outdoor unit.



### THERMA V R32 Hydrosplit IWT

The LG THERMA V Hydrosplit series separates the Indoor unit (IDU) and outdoor unit (ODU), connecting them via water pipes.

The unit's heat exchanger is located within the ODU, reducing the risk of indoor refrigerant leakage.

THERMA V R32 Hydrosplit IWT combines an indoor unit, a water tank and complex piping into a single, space-saving solution that is able to provide space heating, cooling and DHW supply. Relatively compact and lightweight, the innovative all-in-one is easy to install and operate, and boasts the outstanding reliability and efficiency.

Since there is no need to install a separate domestic hot water tank for hot water supply, space in the machine room is not wasted, and the concept with all-in-one enables quick installation.

| Line-up           | Capacity (kW) | 5.5 | 7.0 | 9.0 | 12.0 | 14.0 | 16.0 |
|-------------------|---------------|-----|-----|-----|------|------|------|
| R32               | 1Ø 230V       |     |     |     | •    | •    | •    |
| Hydrosplit<br>IWT | 3Ø 400V       |     |     |     | •    | •    | •    |

<sup>\*</sup> The power supply is shown based on the outdoor unit.

# **LINE-UP INTRODUCTION**



### THERMA V R32 Split Hydro Box

The LG THERMA V R32 Split Hydro Box is a hydro box type system consisting of an indoor hydro box unit and an outdoor unit. The two units are connected by refrigerant piping only, thus hydronic components such as plate heat exchanger, expansion tank and water pump are located within the indoor unit. Due to the split nature, freezing will not compromise this unit regardless of outdoor ambient temperatures. The Split has been designed specifically for new build and renovated houses. LG's highly efficient products can deliver effective space heating and hot water supply while operating with low Global Warming Potential (GWP) R32 refrigerant and LG's exclusive R1 compressor. The system has an optional Wi-Fi modem and with LG's smartphone app, LG ThinQ, users can monitor and remotely control compatible LG products.

| Line-up         | Capacity (kW) | 5.5 | 7.0 | 9.0 | 12.0 | 14.0 | 16.0 |
|-----------------|---------------|-----|-----|-----|------|------|------|
| R32 Split Hydro | 1Ø 230V       | •   | •   | •   |      |      |      |
| Вох             | 3Ø 400V       |     |     |     |      |      |      |

<sup>\*</sup> The power supply is shown based on the outdoor unit.



### THERMA V R32 Split IWT

The LG THERMA V R32 Split IWT is a domestic hot water supply, space heating and cooling solution that conveniently combines an indoor hot water tank with a separate outdoor unit.

THERMA V R32 Split IWT is the perfect space-saving solution for residential applications because hydronic components like the Domestic Hot Water (DHW) and buffer tanks, which are typically installed separately, are fully integrated. Also, freezing will not compromise this unit regardless of outdoor ambient temperatures due to the split nature.

| Line-up   | Capacity (kW) | 5.5 | 7.0 | 9.0 | 12.0 | 14.0 | 16.0 |
|-----------|---------------|-----|-----|-----|------|------|------|
| R32 Split | 1Ø 230V       | •   | •   | •   |      |      |      |
| IWT       | 3Ø 400V       |     |     |     |      |      |      |

<sup>\*</sup> The power supply is shown based on the outdoor unit.

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### THERMA V R410A Split Hydro Box

The LG THERMA V R410A Split Hydro Box is a hydro box type system consisting of an indoor hydro box unit and an outdoor unit. The two units are connected by refrigerant piping only, thus hydronic components such as the plate heat exchanger, expansion tank and water pump are located within the indoor unit. Due to the split nature, freezing will not compromise this unit regardless of outdoor ambient temperatures.

LG's THERMA V R410A Split Hydro Box is designed for the benefit of users and installers who want to apply a heating solution to a large capacity building or applications subject to colder climate conditions. It has a maximized energy efficiency of A++ in the mid-temperature ranges, which leads reduced operating costs.

| Line-up     | Capacity (kW) | 5.5 | 7.0 | 9.0 | 12.0 | 14.0 | 16.0 |
|-------------|---------------|-----|-----|-----|------|------|------|
| R410A Split | 1Ø 230V       |     |     |     | •    | •    | •    |
| Hydro Box   | 3Ø 400V       |     |     |     | •    | •    | •    |

<sup>\*</sup> The power supply is shown based on the outdoor unit.



### THERMA V High Temperature

The LG THERMA V High Temperature is a split type that consists of a floor standing indoor unit and an outdoor unit. Thanks to cascade (2 stage) compression technology, it can supply high leaving water temperature up to 80°C with high energy efficiency.

Since THERMA V High Temperature is solely able to produce and supply the high temperature water without electric heater, is suitable for houses which have poor insulation, older features or have to meet sanitary water regulations, which requires a higher water temperature.

| Line-up     | Capacity (kW) | 5.5 | 7.0 | 9.0 | 12.0 | 14.0 | 16.0 |
|-------------|---------------|-----|-----|-----|------|------|------|
| High        | 1Ø 230V       |     |     |     |      |      | •    |
| Temperature | 3Ø 400V       |     |     |     |      |      |      |

 $<sup>\</sup>ensuremath{^{\star}}$  The power supply is shown based on the outdoor unit.

# **LINE-UP INTRODUCTION**

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### Flexible Installation Locations



Storage Room Bathroom







Bathroom Garage Garage

Laundry Room



029

### THERMA V<sub>IM</sub>

# **FEATURE OVERVIEW**

### **LG THERMA V's Unique Features**

LG THERMA V has been designed for providing efficient space heating and domestic hot water heating with usage convenience to the customer. To achieve this ultimate goal, LG has been developed and applied core technologies and functions for heating to the LG THERMA V.

### **User Convenience**

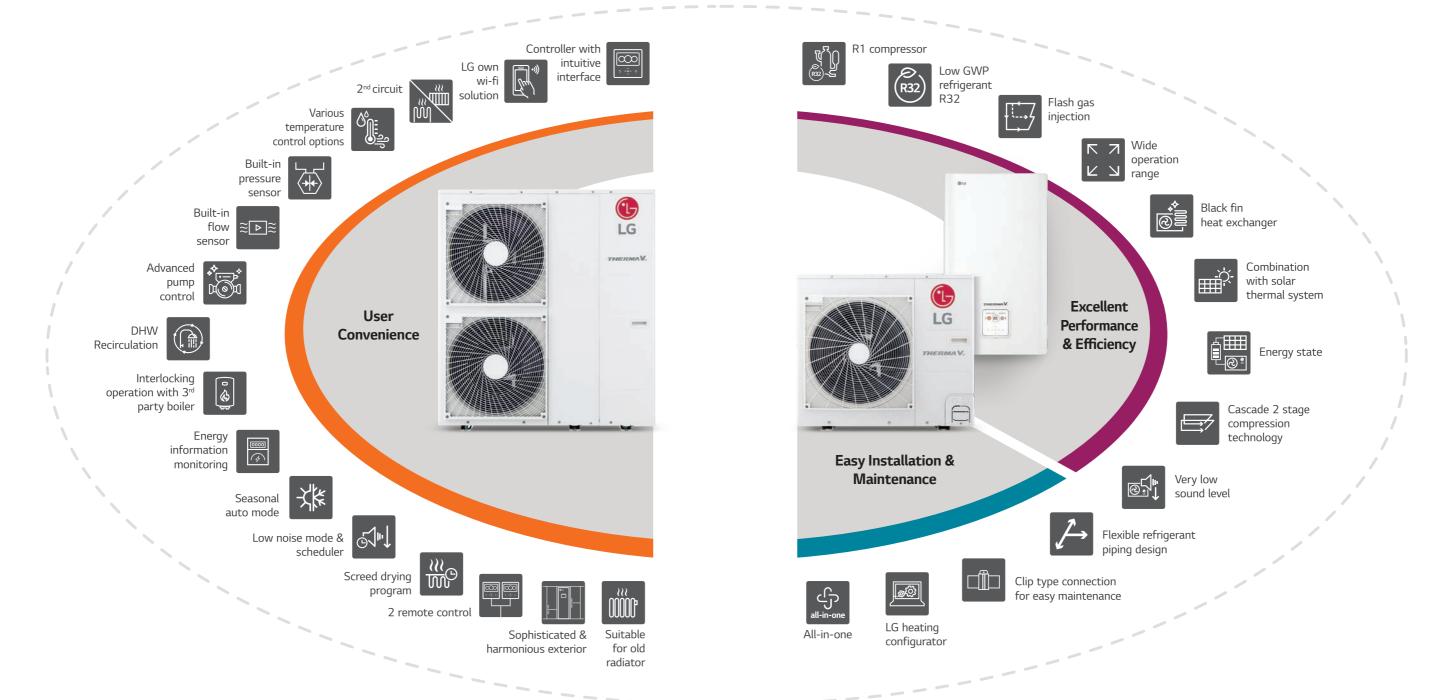
LG THERMA V is equipped with various user convenience functions, which allow for enhanced comfort and control. The text-based user-friendly interface on the remote control allows for optimized user intuition and the unit's wide connectivity also provide user control convenience.

### **Excellent Performance & Efficiency**

LG THERMA V provides world-class energy efficiency by adopting LG's revolutionary technology such as the R1 compressor and the Black Fin heat exchanger. LG products have achieved a high heating performance even in extremely cold weather conditions and LG THERMA V can bring customers peace of mind through product reliability.

### Easy Installation & Maintenance

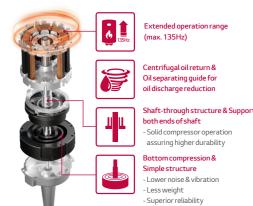
LG THERMA V offers installation and design flexibility to professional installers. The LG Heating Configurator also allows professionals to save time during commissioning. During maintenance, the clip type connection allows fast and easy disassembly of the components.

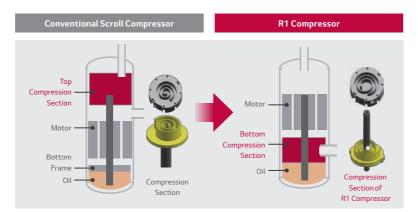


# **EXCELLENT PERFORMANCE & EFFICIENCY**

# R1Compressor™ LG's Revolutionary Technology

RI Compressor<sup>™</sup> technology offers advanced efficiency, reliability and operational range due in part to the enhanced tilting motion of the scroll.





# Black Fin Heat Exchanger

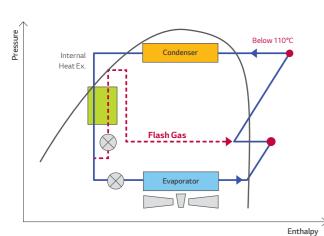
The THERMA V line-up includes a heat exchanger enhanced by black coating with enhanced epoxy resin for strong protection. This improvement in durability prolongs the product's lifespan and lowers both the operational and maintenance costs.





### **Flash Gas Injection**

With the LG THERMA V R32 series, flash gas injection technology is applied to control the discharge temperature of the compressor efficiently. As a result of this technology, the heating operation range is expanded and the heating performance at low ambient temperature is enhanced.





### **Direct Modbus Communication**

Therma V can be connected and controlled by 3rd party control system using Modbus protocol directly, without Modbus RTU gateway.





# **Eco-Conscious with R32 Refrigerant**

Due to accelerated global warming and the destruction of the ozone layer, various international conventions and meetings are held to enhance restrictions to the use of refrigerant or enforce the us of eco-conscious refrigerant R32 is internationally acclaimed for being eco-friendly. This low volume refrigerant is as efficient as any conventional refrigerant but boasts a 68% reduced global warming potential.



### Comparison & Benefit

R32 efficiently works even in small volume compared to existing R410A refrigerant, which decreases the potential hazard of global warming. Furthermore, R32 refrigerant is easy to recycle thanks to its single

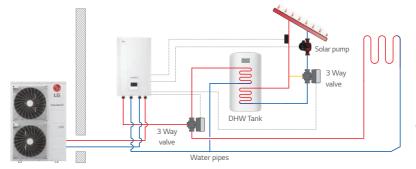
| Descripti | on                                       | R32   | R410A                         |  |  |
|-----------|--|---|-------------------------------|--|--|
|           | Low Global<br>Warming Potential<br>(GWP) | 6751)   | 20881)                        |  |  |
|           | Lower Amount of Gas Charge               | Less  | High                          |  |  |
| îíí       | Higher System<br>Performance             | R32 systems also use less refrigerant per kilowatt of capacity delivered.                                   |                               |  |  |
| 6         | Simple Refrigerant<br>Recyclability      | Single component  | Mixture R32 50%<br>/ R125 50% |  |  |
| K ZI      | High Capacity                            | High refrigerant compression rates lead to high capacity as compared to existing refrigerant R22 and R410A. |                               |  |  |

\* 1) Source : Global Warming Potential Values (2007, AR4)



# **Combination with Solar Thermal System**

By combining the solar system with Therma V, the efficiency of DHW heating operation can be maximized.



\* Applied model : Solar Thermal Kit (PHLLA) is required for R32 Monobloc and PT-1000 type temp. sensor (field supply) is required for R32 Monobloc S, R32 Hydrosplit Hydro Box, R32 Split Hydro



# **Energy State**

THERMA V is operated automatically according to the status signals received from power supply companies. This function can correspond to each country's specific tariff for heat pump application on smart grids.

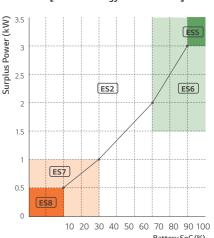
|        |                                  | Descr      | ription                      |           |  |
|--------|----------------------------------|------------|------------------------------|-----------|--|
| Energy | Signal Mode (S                   | mart Grid) | Modbus Mo                    | de (ESS)  |  |
| States | Operation Supply Operation Chair |            | Battery<br>Charged<br>Status | Operation |  |
| ES1    | Operation Off                    |            |                              |           | Forced off to avoid peak load  |
| ES2    | Normal                           |            | Normal                       |           | Normal operation   |
| ES3*   | On Recommend                     |            |                              |           | Changed target temperature higher<br>(heating:+2°C, DHW:+5°C)                |
| ES4*   | On Command                       |            |                              |           | Changed target temperature higher (DHW: 80°C)                                |
| ES5**  |                                  |            | On Command<br>(step2)        |           | Changed target temperature higher (heating: +5°C, cooling: -5°C, DHW: +30°C) |
| ES6**  |                                  |            | On Recommend<br>(step1)      |           | Changed target temperature higher<br>(heating:+2°C, cooling:-2°C, DHW:+10°C) |
| ES7**  |                                  |            | Energy Saving                |           | Changed target temperature lower<br>(heating: -2°C, cooling: +2°C)           |
| ES8**  |                                  |            | Super<br>Energy Saving       |           | Changed target temperature lower (heating: -5°C, cooling: +5°C)              |

 $^{\star}$  Contact signal designated ES3 and ES4 can be changed to ES5  $\sim$  ES8.

\*\* Offset values of heating, cooling and DHW are changeable

\*\*\* THERMA V can connect not only ESS but also 3rd party controller through Modbus, in that case, ES1 to ES8 are used.

### [Area of energy state for ESS]



• SoC : State of Charge

· Surplus Power (SP) = PV Power - Load Powe

Area of Energy State for ESS can be adjusted by ESS.

030

<sup>2)</sup> This ratio is general for helping understanding, It may differ depending on the each

# **USER CONVENIENCE**



# LG ThinQ Seamless Connectivity

LG ThinQ allows users to monitor and control compatible LG products remotely, so they can set the temperature and regulate the use of their THERMA V anytime, anywhere. ThinQ technology also works with voice activation with Google Home.



PWFMDD200 (LG Wi-Fi Modem) PWYREW000 (10m extension connect cable in between THERMA V and LG Wi-Fi Modem) could be required depends on installation condition. \* Search "LG ThinQ" on Google playstore or App store, then

\* Google home voice is supported in United Kingdom, France, Germany, Spain, Italy, Austria, Ireland, Portugal.



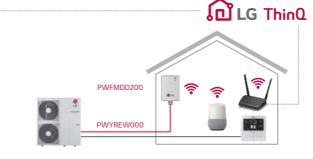
### **Intuitive Control**

 $THERMA\,V\,is\,equipped\,with\,a\,new\,remote\,controller\,which\,supports$ various functions.



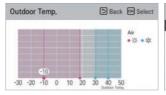


- Premium design (4.3 inch color LCD)
- User friendly interface (simple graphic, icon & text)
- Convenient functions (easy schedule setting & installer setting) • Energy monitoring without meter interface (estimated power consumption)
- \* Instant power consumption and cumulative power consumption



### **Seasonal Auto Mode**

The operation mode and target temperature will be changed according to the outdoor temperature automatically. Moreover, this function can be conveniently set using visualized graphics.



| Target Temp.    | Back Select |  |  |
|-----------------|-------------|--|--|
| Circuit1        | Circuit2    |  |  |
| 30 -20 -10 0 10 | Water       |  |  |

### **Various Temperature Control Options**

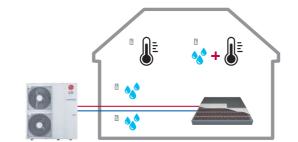
Various temperature control options are possible for the user's comfort and convenience, to include the newly added simultaneous control option (room and water temperature).

Option 1 : Control based on leaving water temperature

Option 2: Control based on entering water temperature

Option 3: Control based on room air temperature

Option 4: Control based on room air and water temperature simultaneously





# **Advanced Pump Control Options**

 $Various\ pump\ operation\ options\ contribute\ to\ energy\ savings\ by\ providing\ optimum\ water\ pump\ control\ and\ reliable\ product\ operation.$ 

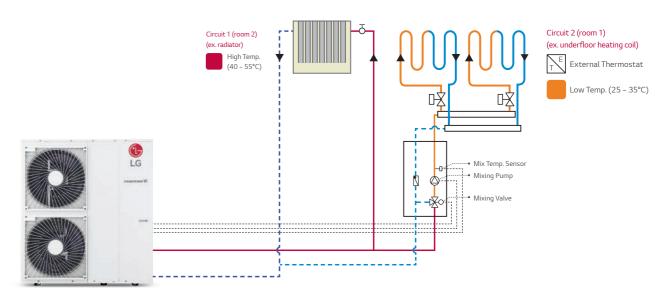


| Options                     | Description  | Water Flow Change<br>as per load condition |
|-----------------------------|--|--|
| Pump<br>Capacity            | It operates with the capacity set for the water pump. (range 10 ~ 100%)  | No   |
| Fixed Flow<br>Rate          | Automatically controlled to maintain<br>the set flow rate.<br>(5, 7, 9kW range: 8 - 26 LPM /<br>12, 14, 16kW range: 17 - 46 LPM) | No   |
| Fixed DT*                   | Automatically controlled to maintain the set ΔT. (range 5 ~ 130)   | Yes  |
| Optimal Flow Rate (default) | ΔT is changed as per Target Temp.  | Yes  |

<sup>\*</sup>T = temperature difference between inlet and outlet water temperature.

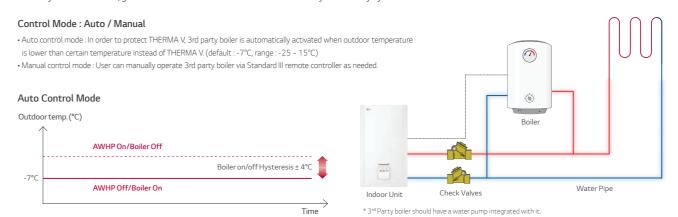
2 Zones (circuit 1/ circuit 2) temperature control through separate heating circuits is possible with mixing valve kit.

### 2<sup>nd</sup> Circuit Diagram



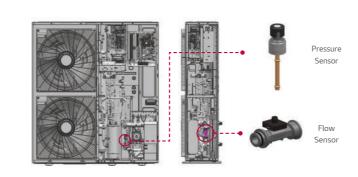
# Interlocking Operation with 3rd Party Boiler

 $3^{rd}$  Party boiler such as oil, gas or electric boiler can be activated automatically or manually by the THERMA V controller.





It is possible to monitor via remote controller not only temperature of water circuit but also flow rate and pressure. These information provides installers with morereliable information for easier installation and maintenance (periodic strainer cleaning).





### Available information on the screen

The water inlet / outlet temperature

The water pump operation

The water flow rate

The water pressure

The solar heat temperature

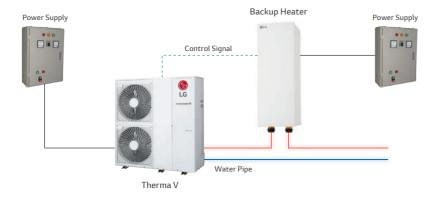
The outdoor temperature

# **USER CONVENIENCE**

# **Energy Monitoring**

 $Without connection of Meter Interface, estimated power consumption for Therma\,V and backup heater can be monitored on the remote controller.$ 

### System Diagram



### Installer setting menu



### Monitoring view

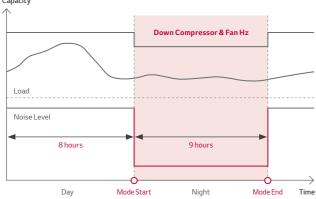
- Instant power consumption
- Cumulative Power consumption

| Instantane | stantaneous Power 🕒 Back 🖾 🔾 |            | Year-on-year Usage | Back ⊠ OK             |
|------------|------------------------------|------------|--------------------|-----------------------|
|            |                              |            | Power              | Calorie               |
| Target     | 50 kW                        | Usage Rate | 2021.03            | E E                   |
| Current    | Ø kW                         |            | 2019,05 @ kW       | h Year-on-year Growth |
| Total      | 16 kW                        | 0,         | 2020.05 Ø kW       | 0.                    |

### Low Noise Mode & Scheduler

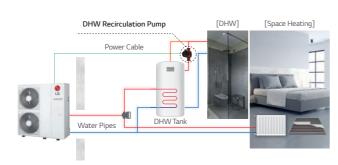
Low noise mode operation can be activated by remote controller and set on a weekly on/off schedule to reduce the unit's noise level.

### Capacity



### **DHW Recirculation Pump**

The DHW recirculation pump can be connected to the Therma V and controlled according to the schedule function. DHW recirculation function helps maintain the hot water temperature inside the pipe even when hot water is not in use and prevents Legionella bacteria.





### 2 Remote Control

Enhanced convenience with an additional control installed in another residential area.

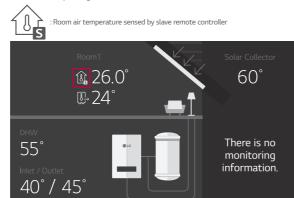
### System Diagram



\* Slave is for user setting.

### Standard III Controller Interface

• THERMA V is operating based the room where slave controller is installed.



### THERMA V.

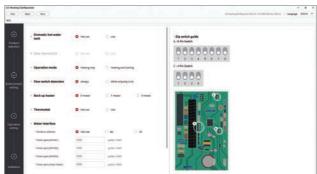
# **EASY INSTALLATION & MAINTENANCE**

### **LG Heating Configurator**

Easy Installation Setting and Commissioning

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

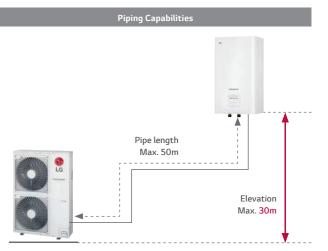


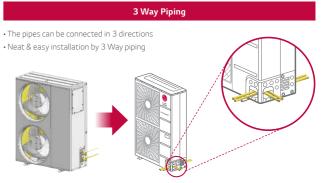




# Flexible Refrigerant Piping Design

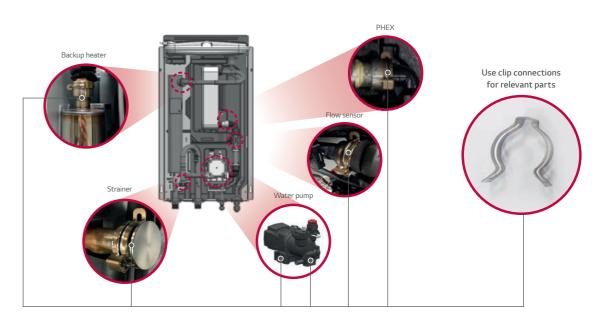
Long piping length and 3 Way piping enable flexible design and easy installation.





# **Clip Type Connection for Easy Maintenance**

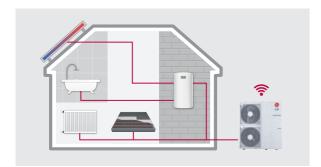
As clip solution provides easy maintenance and SVC works, maintenance for following parts can be done by hands without special tool.



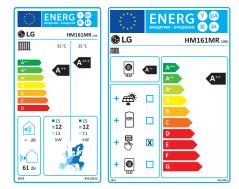


# THERMA V. (R32) R32 MONOBLOC S





# **Energy Label**



### **Excellent Performance & Efficiency**











**User Convenience** 











### Easy Installation & Maintenance



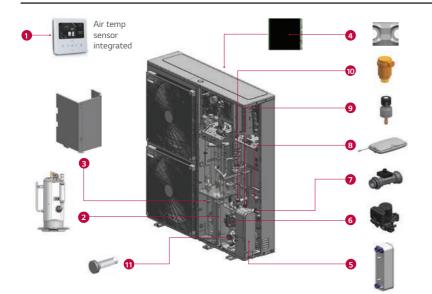




### **R32 Monobloc S Introduction**

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**



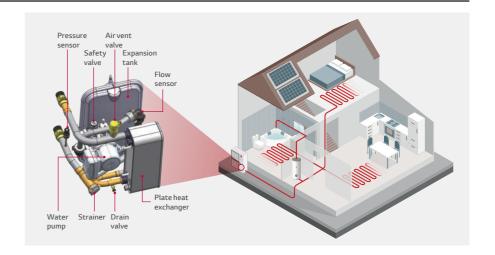
- 1 Standard III remote controller (separately provided)
- 2 R1 Compressor
- 3 Compressor noise shield
- 4 Black Fin heat exchanger (ref/air)
- 5 Plate type heat exchanger (ref/water)
- 6 Water pump (GRUNDFOS)
- 7 Water flow sensor
- 8 Expansion vessel (81)
- 9 Water pressure sensor
- 10 Air vent valve
- 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

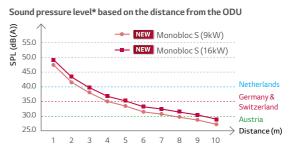


### **Reduced Noise Level**

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.

| Descr                       | iption     | Germany                   | Austria                   | Switzerland               | Netherlands               |  |
|-----------------------------|------------|---------------------------|---------------------------|---------------------------|---------------------------|--|
|                             | 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) |  |
| Sound Pressure<br>Threshold | 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) |  |





<sup>\*</sup> Sound Pressure Level is converted from Sound Power Level of Low Noise Mode based on Tonality penalty of OdB and installation in free-field.

<sup>\*</sup> Detailed description for each function is presented on page 28  $\sim$  35.

# THERMA V<sub>m</sub> (R32) MONOBLOC S

# **PRODUCT SPECIFICATION**

### R32 Monobloc S

































### **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)
- $\bullet \, \mathsf{Built}\text{-}\mathsf{in}\, \mathsf{water}\, \mathsf{flow}\, \&\, \mathsf{pressure}\, \mathsf{sensors}\, \mathsf{to}\, \mathsf{monitor}\, \mathsf{real}\text{-}\mathsf{time}\, \mathsf{water}\, \mathsf{circuit}$
- 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
- $^{\star}$  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<br>220 ~ 240V, 1Ø, 50Hz Monobloc Unit |      | HM051MR U44   | HM071MR U44 | HM091MR U44 |  |  |  |

### Seasonal Energy

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

### Nominal Capacity and Nominal Power Input

| Description         |         | OAT <sup>1)</sup> (DB) | LWT <sup>2)</sup> (DB) | Unit   | HM051MR U44 | HM071MR U44 | HM091MR U44 |
|---------------------|---------|------------------------|------------------------|--------|-------------|-------------|-------------|
|                     |         | 7°C                    | 35°C                   |        | 5.50        | 7.00        | 9.00        |
|                     | Heating | 7°C                    | 55°C                   |        | 5.50        | 5.50        | 5.50        |
| Nominal Capacity    |         | 2°C                    | 35°C                   | kW     | 4.40        | 5.60        | 6.80        |
|                     | C 1:    | 35°C                   | 18°C                   |        | 5.50        | 7.00        | 9.00        |
|                     | Cooling | 35°C                   | 7°C                    |        | 5.50        | 7.00        | 9.00        |
|                     |         | 7°C                    | 35°C                   |        | 1.17        | 1.49        | 1.96        |
|                     | Heating | 7°C                    | 55°C                   | kW     | 2.04        | 2.04        | 2.04        |
| Nominal Power Input |         | 2°C                    | 35°C                   |        | 1.22        | 1.58        | 1.94        |
|                     | Cli     | 35°C                   | 18°C                   |        | 1.17        | 1.56        | 2.14        |
|                     | Cooling | 35°C                   | 7°C                    |        | 1.67        | 2.19        | 2.90        |
|                     |         | 7°C                    | 35°C                   |        | 4.70        | 4.70        | 4.60        |
| СОР                 | Heating | 7°C                    | 55°C                   | W/W    | 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        |
|                     | Cooling | 35°C                   | 7°C                    | VV/ VV | 3.30        | 3.20        | 3.10        |

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

### **Product Specification**

| Technical Spe       | cification                  |   |                 | Unit                    | HM051MR U44  | HM071MR U44                    | HM091MR U44      |  |
|---------------------|-----------------------------|---|-----------------|-------------------------|--|--------------------------------|------------------|--|
|                     | Operation Range (leaving    | Heating   |                 |                         |  | 15 ~ 65                        |                  |  |
|                     | water                       | Cooling   | Min. ~ Max.     | °C DB                   |  | 5 ~ 27 (16 ~ 27) <sup>1)</sup> |                  |  |
| w. c. l             | temperature)                | DHW   |                 |                         | 15 ~ 80 <sup>2)</sup>                                  |                                |                  |  |
| Water Side          | Dining Commentions          | Water Circuit                                   | Inlet           | Inch                    | Male PT 1" according to ISO 7-1 (tapered pipe threads) |                                |                  |  |
|                     | Piping Connections          | vvater Circuit                                  | Outlet          | Inch                    | Male PT 1" acco  | rding to ISO 7-1 (taper        | ed pipe threads) |  |
|                     | Rated Water Flow Rate at L\ | NT 35℃  |                 | LPM                     | 15.8   | 20.1                           | 25.9             |  |
|                     | Operation Range             | Heating   | Min ~ Max °C DB |                         |  | -25 ~ 35                       |                  |  |
|                     | (outdoor temperature)       | Cooling   | IVIIII ~ IVIAX  | СЪВ                     | 5 ~ 48   |                                |                  |  |
|                     | Compressor                  | Quantity  |                 | EA                      |  | 1                              |                  |  |
| Refrigerant         | Compressor                  | Туре  |                 | -                       | Hermetic Sealed Scroll                                 |                                |                  |  |
| Side                |                             | Туре  |                 | -                       | R32  |                                |                  |  |
| Refrige             | Defriesvant                 | GWP (Global Warming Potential)                  |                 | -                       | 675  |                                |                  |  |
|                     | Remgerant                   | Precharged Amount                               |                 | g                       |  | 1,400                          |                  |  |
|                     |                             | t-CO2 eq  |                 | -                       | 0.945  |                                |                  |  |
| Sound Power Le      |                             | Hti   | Rated           | 1D(V)                   | 57   |                                |                  |  |
| Sound Power Le      | evel                        | Heating   | Low Noise Mode  | dB(A)                   | 54   | 54 55                          |                  |  |
| c 15                | 1 1/.5 \                    |   | Rated           | ID/A)                   | 35   |                                |                  |  |
| Sound Pressure      | e Level (at 5m)             | Heating   | Low Noise Mode  | dB(A)                   | 32 33  |                                | 3                |  |
| Dimensions          |                             | Unit  | W×H×D           | mm                      |  | 1,239 × 834 × 330              |                  |  |
| Weight              |                             | Unit  |                 | kg                      |  | 89.0                           |                  |  |
| Exterior            |                             | Color / RAL Code                                |                 | -                       | 1  | Warm Gray / RAL 7044           | 1                |  |
|                     |                             | Voltage, Phase, F                               | requency        | V, Ø, Hz                |  | 220-240, 1, 50                 |                  |  |
| Dannau Crommbo      |                             | Rated Running                                   | Heating         | А                       | 5.2  | 6.6                            | 8.7              |  |
| Power Supply        |                             | Current   | Cooling         | А                       | 5.2  | 6.9                            | 9.5              |  |
|                     |                             | Recommended C                                   | ircuit Breaker  | А                       | 16   | 20                             | 25               |  |
| Wiring ( onnections |                             | Power Supply Cable<br>(included earth, H07RN-F) |                 | mm <sup>2</sup> x cores | 4.0 x 3C   |                                |                  |  |

1) When fan coil unit not used.

2) DHW  $58-80^{\circ}$ C Operating is available only when the booster heater is operating.

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.

 $Sound\ pressure\ level\ is\ converted\ from\ sound\ power\ level\ based\ on\ tonality\ penalty\ of\ OdB\ and\ installation\ in\ free-field.$ 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 according to the according

- $4. \, Performances \, are \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions. \, Above \, gives \, the \, declared \, values \, at \, rated \, conditions \, acc. \, ErP \, regulation. \, accordance \, values \, at \, rated \, conditions \, accordance \, values \, at \, rated \, conditions \, accordance \, values \, accordance \,$ • Rated running current : Outdoor Temp. 7°C DB / 6°CWB, LWT 35°C
- 5. This product contains Fluorinated greenhouse gases.

# **Performance Table for Heating Operation**

Maximum Heating Capacity (Including Defrost Effect)

### HM051MR U44

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
| Temperature | 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     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
| Temperature | 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     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50 °C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Temperature | 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      |

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

# **Performance Table for Cooling Operation**

Maximum Cooling Capacity

### HM051MR U44

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | 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     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | 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     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | 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     |

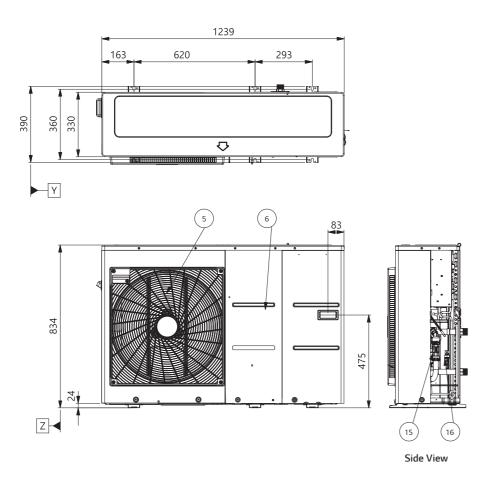
- $1.\,DB: Dry\,Bulb\,Temperature\,(^{\circ}C), LWT: Leaving\,Water\,Temperature\,(^{\circ}C), LPM: Liters\,Per\,Minute\,(I/min), TC: Total\,Capacity\,(kW)$
- 2. Direct interpolation is permissible. Do not extrapolate.
- 3. Measuring procedure follows EN-14511.
- $\bullet \, \mathsf{Rated} \, \mathsf{values} \, \mathsf{are} \, \mathsf{based} \, \mathsf{on} \, \mathsf{standard} \, \mathsf{conditions} \, \mathsf{and} \, \mathsf{it} \, \mathsf{can} \, \mathsf{be} \, \mathsf{found} \, \mathsf{on} \, \mathsf{specifications}.$
- 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.

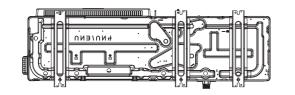
# **Drawings**

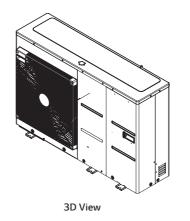
|                                       | Unit          | Model Name    |             |             |  |  |  |  |
|---------------------------------------|---------------|---------------|-------------|-------------|--|--|--|--|
| Category                              |               | Capacity (kW) |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

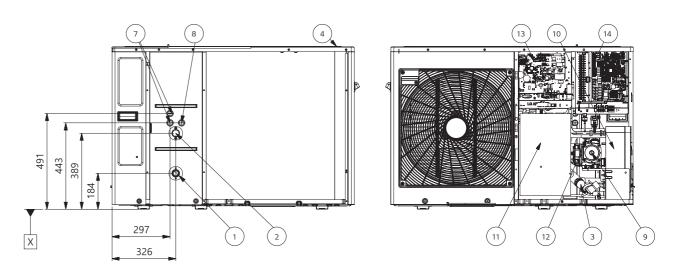
HM051MR U44 / HM071MR U44 / HM091MR U44

[Unit:mm]









| 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   | 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                                  |  |  |

# THERMA V<sub>m</sub> (R32) MONOBLOC S

# **PRODUCT SPECIFICATION**

### R32 Monobloc S































### **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 :  $-25 \sim 35^{\circ}$ C / water side :  $15 \sim 65^{\circ}$ 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

|                                       | Unit            | Model Name    |             |             |  |  |  |  |
|---------------------------------------|-----------------|---------------|-------------|-------------|--|--|--|--|
| Capacity                              |                 | Capacity (kW) |             |             |  |  |  |  |
|                                       |                 | 12.0          | 14.0        | 16.0        |  |  |  |  |
| 1 Phase Model<br>220 ~ 240V, 1Ø, 50Hz | Manablas I lait | HM121MR U34   | HM141MR U34 | HM161MR U34 |  |  |  |  |
| 3 Phase Model<br>380 ~ 415V, 3Ø, 50Hz | Monobloc Unit - | HM123MR U34   | HM143MR U34 | HM163MR U34 |  |  |  |  |

### Seasonal Energy

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

### Nominal Capacity and Nominal Power Input

| December 1          |         | OAT <sup>1)</sup> (DB) | LWT <sup>2)</sup> (DB) | 11     | HM121MR U34 (1Ø) | HM141MR U34 (1Ø) | HM161MR U34 (1Ø) |
|---------------------|---------|------------------------|------------------------|--------|------------------|------------------|------------------|
| Description         |         | UAI (DB)               | LWI (DB)               | Unit   | HM123MR U34 (3Ø) | HM143MR U34 (3Ø) | HM163MR U34 (3Ø) |
|                     |         | 7°C                    | 35°C                   |        | 12.00            | 14.00            | 16.00            |
|                     | Heating | 7°C                    | 55°C                   |        | 11.00            | 11.50            | 12.00            |
| Nominal Capacity    |         | 2°C                    | 35°C                   | kW     | 11.00            | 12.00            | 13.80            |
|                     | Caslina | 35°C                   | 18°C                   |        | 12.00            | 14.00            | 16.00            |
|                     | Cooling | 35°C                   | 7°C                    |        | 12.00            | 14.00            | 16.00            |
|                     | Heating | 7°C                    | 35°C                   |        | 2.45             | 2.92             | 3.40             |
|                     |         | 7°C                    | 55°C                   | kW     | 3.79             | 4.04             | 4.29             |
| Nominal Power Input |         | 2°C                    | 35°C                   |        | 3.01             | 3.31             | 3.83             |
|                     | C 1:    | 35°C                   | 18°C                   |        | 2.53             | 3.26             | 4.00             |
|                     | Cooling | 35°C                   | 7°C                    |        | 3.64             | 4.24             | 5.16             |
|                     |         | 7°C                    | 35°C                   |        | 4.90             | 4.80             | 4.70             |
| COP                 | Heating | 7°C                    | 55°C                   | W/W    | 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             |
| EER                 | Cooling | 35°C                   | 7°C                    | VV/ VV | 3.30             | 3.30             | 3.10             |

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

### **Product Specification**

| Technical S  | pecification   |                      |                  | Unit                    | HM121MR U34 | HM141MR U34            | HM161MR U34      | HM123MR U34            | HM143MRU34     | HM163MR U34 |  |  |
|--------------|--|----------------------|------------------|-------------------------|-------------|------------------------|------------------|------------------------|----------------|-------------|--|--|
|              | Operation Range  | Heating              |                  |                         | 15 ~ 65     |                        |                  |                        |                |             |  |  |
|              | (leaving water   | Cooling              | Min. ~ Max.      | °C DB                   |             |                        | 5 ~ 27 (1        | 16 ~ 27) <sup>1)</sup> |                |             |  |  |
| Water        | temperature)   | DHW                  |                  |                         |             |                        | 15 ~             | 80 <sup>2)</sup>       |                |             |  |  |
| Side         | Piping   | Water                | Inlet            | Inch                    |             | Male PT 1"             | according to ISC | 7-1 (tapered p         | ipe threads)   |             |  |  |
|              | Connections  | Circuit              | Outlet           | Inch                    |             | Male PT 1"             | according to ISC | 7-1 (tapered p         | ipe threads)   |             |  |  |
|              | Rated Water Flow   | Rate at LWT 35°C     |                  | LPM                     | 34.5        | 40.3                   | 46.0             | 34.5                   | 40.3           | 46.0        |  |  |
|              | Operation Range  | Heating              | Min. ~ Max.      | °C DB                   |             |                        | -25              | ~ 35                   |                |             |  |  |
|              | (outdoor temp.)  | Cooling              | IVIIII. ~ IVIdX. | CDB                     |             |                        | 5 ~              | 48                     |                |             |  |  |
|              | Compressor   | Quantity             |                  | EA                      | 1           |                        |                  |                        |                |             |  |  |
| Refrigerant  | Compressor   | Туре                 |                  | -                       |             | Hermetic Sealed Scroll |                  |                        |                |             |  |  |
| Side         |  | Туре                 |                  | -                       | R32         |                        |                  |                        |                |             |  |  |
| Re           | Refrigerant  | GWP (global warm     | ning potential)  | -                       | 675         |                        |                  |                        |                |             |  |  |
|              | Reirigerant  | Precharged Amou      | nt               | g                       |             |                        | 2,0              | 000                    |                |             |  |  |
|              |  | t-CO <sub>2</sub> eq |                  | -                       |             |                        | 1.3              | 350                    |                |             |  |  |
| Sound Powe   | r Lovel  | Heating              | Rated            | dB(A)                   | 60          | $\epsilon$             | 51               | 60                     | 61             | 1           |  |  |
| 30uiiu rowe  | Level  | пеацііў              | Low Noise Mode   | UD(A)                   | 56          | 5                      | 57               | 56                     | 57             | 7           |  |  |
| Sound Droce  | ure Level (at 5m)  | Heating              | Rated            | dB(A)                   | 38          | 3                      | 39               | 38                     | 39             | 9           |  |  |
| Journa Fress | ure Level (at 5iii)  | rieating             | Low Noise Mode   | UD(A)                   | 34          | 3                      | 35               | 34                     | 3.5            | 5           |  |  |
| Dimensions   |  | Unit                 | WxHxD            | mm                      |             |                        | 1,239 x 1,       | 380 x 330              |                |             |  |  |
| Weight       |  | Unit                 |                  | kg                      |             |                        | 11               | 8.6                    |                |             |  |  |
| Exterior     |  | Color / RAL Cod      | е                | -                       |             |                        | Warm Gray        | / RAL 7044             |                |             |  |  |
|              |  | Voltage, Phase, I    | requency         | V, Ø, Hz                |             | 220-240, 1, 50         | )                |                        | 380-415, 3, 50 |             |  |  |
| Power Suppl  | v  | Rated Running        | Heating          | А                       | 10.9        | 12.9                   | 15.1             | 3.6                    | 4.3            | 5.0         |  |  |
| очет заррі   | y  | Current              | Cooling          | А                       | 11.2        | 14.4                   | 17.7             | 3.7                    | 4.8            | 5.9         |  |  |
|              |  | Recommended Ci       | rcuit Breaker    | А                       |             | 40                     |                  |                        | 16             |             |  |  |
| Wiring Conn  | iring Connections Power Supply Cable (included earth, H07RN-F) |                      |                  | mm <sup>2</sup> 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.

- $1. \, {\sf Due} \, to \, {\sf our} \, {\sf policy} \, {\sf of} \, {\sf innovation} \, {\sf some} \, {\sf specifications} \, {\sf may} \, {\sf be} \, {\sf changed} \, {\sf without} \, {\sf notification}.$
- 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.
- $3. \, \text{Sound power level is measured on the rated condition in according with ISO 9614 \, standard.}$ Sound pressure level is converted from sound power level based on tonality penalty of OdB 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 according to the according
- 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.

# **Performance Table for Heating Operation**

Maximum Heating Capacity (Including Defrost Effect)

### HM121MR U34 / HM123MR U34

| Outdoor     | LWT 30 °C | LWT 35°C | LWT 40 °C | LWT 45°C | LWT 50 ℃ | LWT 55 °C | LWT 60 °C | LWT 65 ℃ |
|-------------|-----------|----------|-----------|----------|----------|-----------|-----------|----------|
| Temperature | 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     | LWT 30 °C | LWT 35°C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 ℃ |
|-------------|-----------|----------|-----------|-----------|----------|-----------|-----------|----------|
| Temperature | 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     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
| Temperature | 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     |

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

# **Performance Table for Cooling Operation**

Maximum Cooling Capacity

### HM121MR U34 / HM123MR U34

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | 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     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | 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

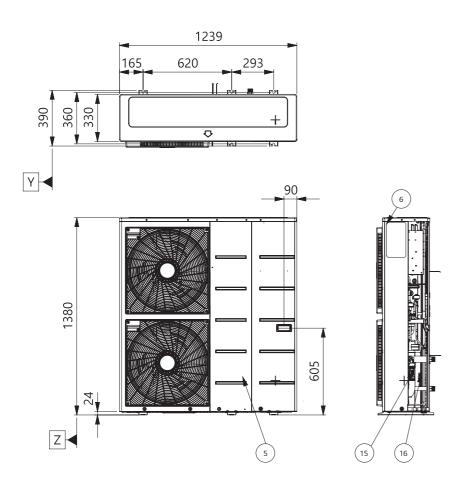
| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 13.00   | 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    |

- $1.\,DB: Dry\,Bulb\,Temperature\,(^{\circ}C), LWT: Leaving\,Water\,Temperature\,(^{\circ}C), LPM: Liters\,Per\,Minute\,(l/min), TC: Total\,Capacity\,(kW)$
- 2. Direct interpolation is permissible. Do not extrapolate.
- 3. Measuring procedure follows EN-14511.
- $\bullet \, \mathsf{Rated} \, \mathsf{values} \, \mathsf{are} \, \mathsf{based} \, \mathsf{on} \, \mathsf{standard} \, \mathsf{conditions} \, \mathsf{and} \, \mathsf{it} \, \mathsf{can} \, \mathsf{be} \, \mathsf{found} \, \mathsf{on} \, \mathsf{specifications}.$
- . 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.

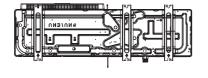
# **Drawings**

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

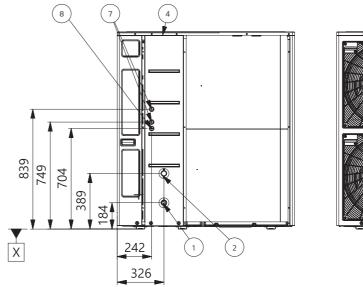
HM121MR U34 / HM141MR U34 / HM161MR U34 HM123MR U34 / HM143MR U34 / HM163MR U34 [Unit:mm]

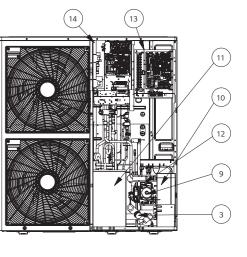


Side View









| 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                                  |

# **Electric Backup Heater**

HA031M E1 HA061M E1

HA063M E1

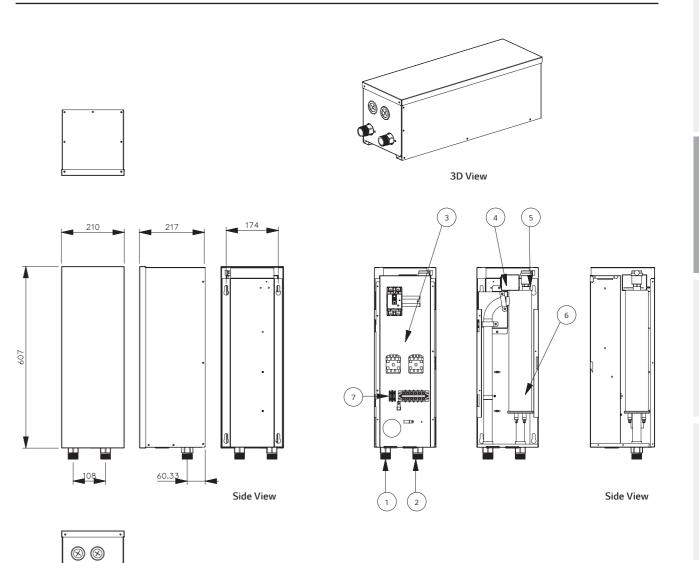


# Backup Heater Specification

| Electrical Spec  | ification                                    | Unit                    | HA031M E1 | HA061M E1        | HA063M E1       |  |  |  |
|------------------|--|-------------------------|-----------|------------------|-----------------|--|--|--|
|                  | Туре   | -                       | 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               |  |  |  |
| Backup<br>Heater | Power Supply                                 | V, Ø, Hz                | 220 ~ 2   | 380 ~ 415, 3, 50 |                 |  |  |  |
| reacci           | Rated Running Current                        | А                       | 12.5      | 25.0             | 8.7             |  |  |  |
|                  | Recommended Circuit Breaker                  | А                       | 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           | Power Supply Cable (included earth, H07RN-F) | mm <sup>2</sup> x cores | 1.5 x 3C  | 4.0 x 3C         | 2.5 x 4C        |  |  |  |
| Connections      | Communication Cable (H07RN-F)                | mm <sup>2</sup> x cores | 0.75      | x 4C             | 0.75 x 2C       |  |  |  |

### Note

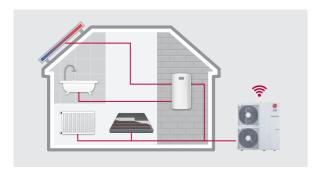
- 1. Due to our policy of innovation some specifications may be changed without notification.
- Wiring cable size must comply with the applicable local and national codes.
   Especially the power cable and circuit breaker should be selected in accordance with that.



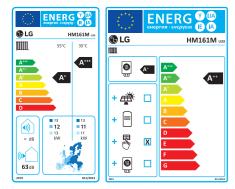
| No. | Part Name  | Description  |  |  |  |
|-----|--|--|--|--|--|
| 1   | Leaving Water Pipe   | Male PT 1" according to ISO 7-1 (tapered pipe threads) |  |  |  |
| 2   | Entering Water Pipe Male PT 1" according to ISO 7-1 (tapered pipe threads) |  |  |  |  |
| 3   | Control Box Circuit breaker, Magnetic 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)                            |  |  |  |

# THERMA V... (R32) **R32 MONOBLOC**





# **Energy Label**



### **Excellent Performance & Efficiency**









### **User Convenience**











### Easy Installation & Maintenance



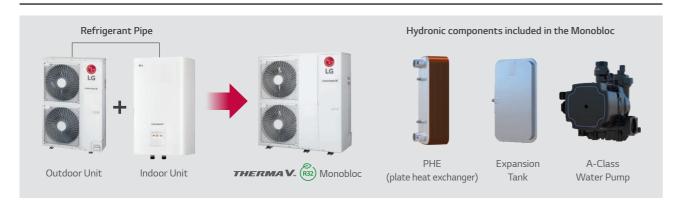




### **R32 Monobloc Introduction**

 $The LG\,THERMA\,V\,R32\,Monobloc \, is\, a fully packaged \, unit, where the indoor and outdoor \, units \, are \, combined \, as \, one \, module. This \, unit \, is \, unit \, unit \, unit$  $does \ not \ require \ refrigerant \ piping \ work \ since \ the \ Monobloc's \ outdoor \ unit \ is \ connected \ exclusively \ to \ water \ piping. \ Further, \ hydronic$ components such as plate heat exchanger, expansion tank and water pump are included in the package.

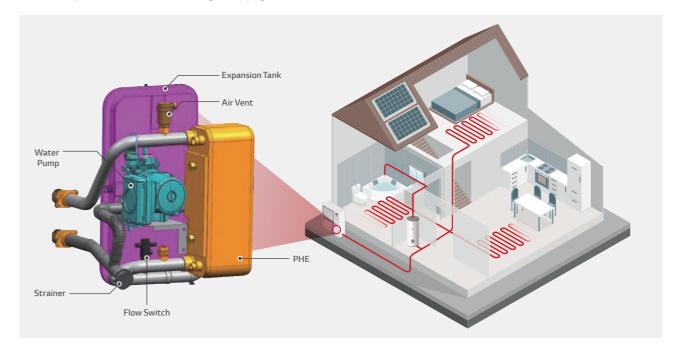
# **Key Components**





# **Monobloc Concept**

- R32 Monobloc 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



<sup>\*</sup> Detailed description for each function is presented on page 28 ~ 35.

### **R32 Monobloc**







HM051M U43 HM071M U43 HM091M U43





























### **Features**

- All-in-one outdoor unit
- SCOP up to 4.45 (Average climate / Low temp. application): A+++ SCOP up to 3.12 (Average climate / Mid temp. application): A+
- COP up to 4.50 (Outdoor air 7°C / Leaving water 35°C)
- 100% heating capacity at -7°C OAT (@ LWT 35°C)
- Wide operation range (ambient:  $-25 \sim 35^{\circ}\text{C}$  / water side:  $15 \sim 65^{\circ}\text{C}$ )
- R32 refrigerant with reduced global warming potential (GWP)
- •R1 compressor
- Black Fin heat exchanger
- LG ThinQ
- KEYMARK / EHPA (for Austria) / MCS / EUROVENT certification
- $^{\star}\,\text{EHPA}$  (for Germany and Switzerland) under renewal of valid date

### Model Line-up

|                                       |               | Model Name    |            |            |  |  |  |
|---------------------------------------|---------------|---------------|------------|------------|--|--|--|
| Capacity                              | Unit          | Capacity (kW) |            |            |  |  |  |
|                                       |               | 5.5           | 7.0        | 9.0        |  |  |  |
| 1 Phase Model<br>220 ~ 240V, 1Ø, 50Hz | Monobloc Unit | HM051M U43    | HM071M U43 | HM091M U43 |  |  |  |

### Seasonal Energy

| Description                 | Description      |   |   | HM051M U43 | HM071M U43 | HM091M U43 |
|-----------------------------|------------------|---|---|------------|------------|------------|
|                             | Average          | SCOP  | - | 4.45       | 4.45       | 4.45       |
|                             | Climate<br>Water | Seasonal Space Heating Efficiency (🛚 s)             |   | 175        | 175        | 175        |
| Space Heating (According to | Outlet 35°C      | Seasonal Space Heating Eff. Class (A+++ to D Scale) | - | A+++       | A+++       | A+++       |
| EN14825)                    | Average          | SCOP  | - | 3.12       | 3.12       | 3.12       |
|                             | Climate<br>Water | Seasonal Space Heating Efficiency (2s)              | % | 122        | 122        | 122        |
|                             | Outlet 55°C      | Seasonal Space Heating Eff. Class (A+++ to D Scale) | - | A+         | A+         | A+         |

### Nominal Capacity and Nominal Power Input

| Description         |         | OAT <sup>1)</sup> (DB) | LWT <sup>2)</sup> (DB) | Unit  | HM051M U43 | HM071M U43 | HM091M U43 |
|---------------------|---------|------------------------|------------------------|-------|------------|------------|------------|
|                     |         | 7°C                    | 35°C                   |       | 5.50       | 7.00       | 9.00       |
|                     | Heating | 7°C                    | 55°C                   |       | 5.50       | 5.50       | 5.50       |
| Nominal Capacity    |         | 2°C                    | 35°C                   | kW    | 3.30       | 4.20       | 5.40       |
|                     | Cli     | 35°C                   | 18°C                   |       | 5.50       | 7.00       | 9.00       |
|                     | Cooling | 35°C                   | 7°C                    |       | 5.50       | 7.00       | 9.00       |
|                     | Heating | 7°C                    | 35°C                   |       | 1.22       | 1.56       | 2.15       |
|                     |         | 7°C                    | 55°C                   | kW    | 2.04       | 2.04       | 2.04       |
| Nominal Power Input |         | 2°C                    | 35°C                   |       | 0.94       | 1.20       | 1.54       |
|                     | C 1:    | 35°C                   | 18°C                   |       | 1.20       | 1.56       | 2.14       |
|                     | Cooling | 35°C                   | 7°C                    |       | 1.96       | 2.59       | 3.46       |
|                     |         | 7°C                    | 35°C                   |       | 4.50       | 4.50       | 4.18       |
| COP                 | Heating | 7°C                    | 55°C                   | W/W   | 2.70       | 2.70       | 2.70       |
|                     |         | 2°C                    | 35°C                   |       | 3.52       | 3.51       | 3.50       |
| EER                 | Cooling | 35°C                   | 18°C                   | W/W   | 4.60       | 4.50       | 4.20       |
| EEK                 | Cooling | 35°C                   | 7°C                    | VV/VV | 2.80       | 2.70       | 2.60       |

1) OAT : Outdoor Air Temperature

2) LWT : Leaving Water Temperature

### **Product Specification**

| Technical Spe      | cification                        |   |                 | Unit        | HM051M U43                     | HM071M U43               | HM091M U43       |  |
|--------------------|-----------------------------------|---|-----------------|-------------|--------------------------------|--------------------------|------------------|--|
|                    | Operation Range (leaving          | Heating   |                 |             | 15 ~ 65                        |                          |                  |  |
|                    | water                             | Cooling   | Min. ~ Max.     | °C DB       | 5 ~ 27 (16 ~ 27) <sup>1)</sup> |                          |                  |  |
| Water Side         | temperature)                      | DHW   |                 |             |                                | 15 ~ 80 <sup>2)</sup>    |                  |  |
| vvater side        | Piping Connections                | Water Circuit                                   | Inlet           | Inch        | Male PT 1" acco                | ording to ISO 7-1 (taper | ed pipe threads) |  |
|                    | Pipilig Collifections             | vvater Circuit                                  | Outlet          | Inch        | Male PT 1" acco                | ording to ISO 7-1 (taper | ed pipe threads) |  |
|                    | Rated Water Flow Rate at LWT 35°C |   |                 | LPM         | 15.8                           | 20.1                     | 25.9             |  |
|                    | Operation Range                   | Heating   | Min ~ Max       | °C DB       | -25 ~ 35                       |                          |                  |  |
|                    | (outdoor temperature)             | Cooling   | IVIIII ~ IVIAX  | CDB         | 5 ~ 48                         |                          |                  |  |
|                    | Compressor                        | Quantity  |                 | EA          |                                | 1                        |                  |  |
| Refrigerant        | Compressor                        | Туре  |                 | -           | Hermetic Sealed Scroll         |                          |                  |  |
| Side               |                                   | Туре  |                 | -           |                                | R32                      |                  |  |
|                    | Refrigerant                       | GWP (Global Warming Potential)                  |                 | -           |                                | 675                      |                  |  |
|                    |                                   | Precharged Amount                               |                 | g           | 1,400                          |                          |                  |  |
|                    |                                   | t-CO2 eq  |                 | -           | 0.945                          |                          |                  |  |
| Sound Power L      | evel                              | Heating   | Rated           | dB(A)       |                                | 60                       |                  |  |
| Sound Pressure     | e Level (at 1m)                   | Heating   | Rated           | dB(A)       |                                | 50                       |                  |  |
| Dimensions         |                                   | Unit  | W×H×D           | mm          |                                | 1,239 × 834 × 330        |                  |  |
| Weight             |                                   | Unit  |                 | kg          |                                | 88.0                     |                  |  |
| Exterior           |                                   | Color / RAL Code                                |                 | -           |                                | Warm Gray / RAL 7044     | 1                |  |
|                    |                                   | Voltage, Phase, F                               | requency        | V, Ø, Hz    |                                | 220-240, 1, 50           |                  |  |
| Power Supply       |                                   | Rated Running                                   | Heating         | А           | 5.4                            | 6.9                      | 9.6              |  |
| rower Supply       |                                   | Current   | Cooling         | А           | 5.3                            | 6.9                      | 9.5              |  |
|                    |                                   | Recommended C                                   | Circuit Breaker | А           | 16                             | 20                       | 25               |  |
| Wiring Connections |                                   | Power Supply Cable<br>(included earth, H07RN-F) |                 | mm² 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.

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.  $3. \, \text{Sound power level is measured on the rated condition in according with ISO} \,\, 9614 \, \text{standard}.$ 

 $Sound\ pressure\ level\ is\ converted\ from\ sound\ power\ level\ based\ on\ tonality\ penalty\ of\ OdB\ and\ installation\ in\ free-field.$ 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 according to the according

- $4. \, Performances \, are \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions. \, Above \, gives \, the \, declared \, values \, at \, rated \, conditions \, acc. \, ErP \, regulation. \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions. \, Above \, gives \, the \, declared \, values \, at \, rated \, conditions \, acc. \, ErP \, regulation. \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions. \, Above \, gives \, the \, declared \, values \, at \, rated \, conditions \, acc. \, ErP \, regulation. \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions. \, Above \, gives \, the \, declared \, values \, at \, rated \, conditions \, acc. \, ErP \, regulation. \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions. \, Above \, gives \, the \, declared \, values \, at \, rated \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, declared \, values \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, declared \, values \, accordance \, accordance \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, E$ • Rated running current : Outdoor Temp. 7°C DB / 6°CWB, LWT 35°C
- 5. This product contains Fluorinated greenhouse gases.

# **Performance Table for Heating Operation**

Maximum Heating Capacity (Including Defrost Effect)

### HM051M U43

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC        |
| -25°C DB    | 3.79      | 3.67      | 3.54      | 3.42      | -        | -         | -         | -         |
| -20°C DB    | 4.22      | 4.09      | 3.96      | 3.83      | 3.70     | -         | -         | -         |
| -15°C DB    | 4.66      | 4.52      | 4.38      | 4.25      | 4.11     | 3.97      | -         | -         |
| -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      |

### HM071M U43

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50 ℃ | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC        |
| -25°C DB    | 4.82      | 4.67      | 4.51      | 4.36      | -        | -         | -         | -         |
| -20°C DB    | 5.38      | 5.21      | 5.05      | 4.88      | 4.72     | -         | -         | -         |
| -15°C DB    | 5.93      | 5.76      | 5.58      | 5.41      | 5.23     | 5.06      | -         | -         |
| -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      |

### HM091M U43

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC        |
| -25°C DB    | 6.20      | 6.00      | 5.80      | 5.60      | -        | -         | -         | -         |
| -20°C DB    | 6.91      | 6.70      | 6.49      | 6.28      | 6.06     | -         | -         | -         |
| -15°C DB    | 7.63      | 7.40      | 7.18      | 6.95      | 6.73     | 6.50      | -         | -         |
| -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      |

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

# **Performance Table for Cooling Operation**

Maximum Cooling Capacity

### HM051M U43

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 5.16    | 5.65     | 6.14     | 6.47     | 6.96     | 7.29     | 7.62     |
| 20°C DB     | 5.29    | 5.59     | 5.89     | 6.08     | 6.38     | 6.58     | 6.77     |
| 30°C DB     | 5.43    | 5.53     | 5.63     | 5.69     | 5.79     | 5.86     | 5.92     |
| 35°C DB     | 5.50    | 5.50     | 5.50     | 5.50     | 5.50     | 5.50     | 5.50     |
| 40°C DB     | 5.57    | 5.50     | 5.43     | 5.38     | 5.31     | 5.27     | 5.22     |
| 45°C DB     | 5.64    | 5.50     | 5.36     | 5.27     | 5.13     | 5.04     | 4.94     |

### HM071M U43

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 6.56    | 7.19     | 7.82     | 8.24     | 8.86     | 9.28     | 9.70     |
| 20°C DB     | 6.74    | 7.11     | 7.49     | 7.74     | 8.12     | 8.37     | 8.62     |
| 30°C DB     | 6.91    | 7.04     | 7.16     | 7.25     | 7.37     | 7.46     | 7.54     |
| 35°C DB     | 7.00    | 7.00     | 7.00     | 7.00     | 7.00     | 7.00     | 7.00     |
| 40°C DB     | 7.09    | 7.00     | 6.91     | 6.85     | 6.76     | 6.70     | 6.65     |
| 45°C DB     | 7.18    | 7.00     | 6.82     | 6.70     | 6.53     | 6.41     | 6.29     |

### HM091M U43

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 8.44    | 9.24     | 10.05    | 10.59    | 11.40    | 11.93    | 12.47    |
| 20°C DB     | 8.66    | 9.15     | 9.63     | 9.95     | 10.44    | 10.76    | 11.08    |
| 30°C DB     | 8.89    | 9.05     | 9.21     | 9.32     | 9.48     | 9.59     | 9.69     |
| 35°C DB     | 9.00    | 9.00     | 9.00     | 9.00     | 9.00     | 9.00     | 9.00     |
| 40°C DB     | 9.11    | 9.00     | 8.89     | 8.81     | 8.70     | 8.62     | 8.54     |
| 45°C DB     | 9.23    | 9.00     | 8.77     | 8.62     | 8.39     | 8.24     | 8.09     |

- $1.\,DB: Dry\,Bulb\,Temperature\,(^{\circ}C), LWT: Leaving\,Water\,Temperature\,(^{\circ}C), LPM: Liters\,Per\,Minute\,(I/min), TC: Total\,Capacity\,(kW)$
- 2. Direct interpolation is permissible. Do not extrapolate.
- 3. Measuring procedure follows EN-14511.
- $\bullet \, \mathsf{Rated} \, \mathsf{values} \, \mathsf{are} \, \mathsf{based} \, \mathsf{on} \, \mathsf{standard} \, \mathsf{conditions} \, \mathsf{and} \, \mathsf{it} \, \mathsf{can} \, \mathsf{be} \, \mathsf{found} \, \mathsf{on} \, \mathsf{specifications}.$
- 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.

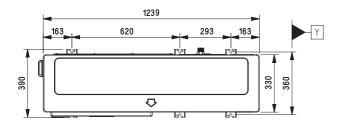
[Unit:mm]

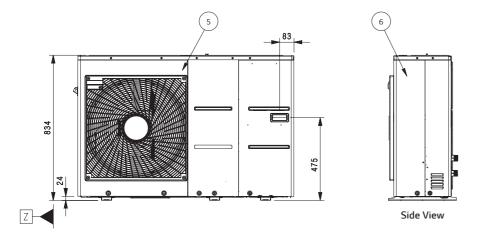
# **PRODUCT SPECIFICATION**

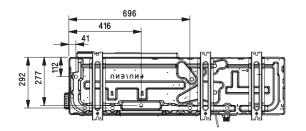
# **Drawings**

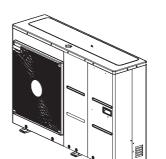
| Category                              |               | Model Name    |            |            |  |  |  |  |
|---------------------------------------|---------------|---------------|------------|------------|--|--|--|--|
|                                       | Unit          | Capacity (kW) |   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

HM051M U43 HM071M U43 HM091M U43 [Unit:mm]

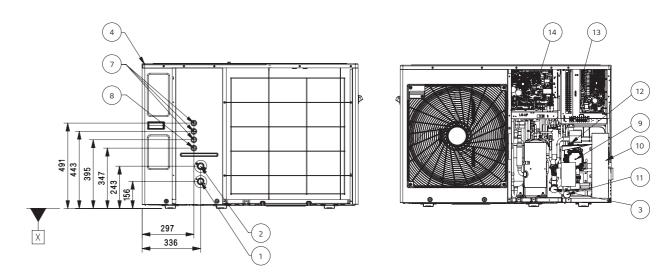








3D View



| 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  | Pressure Gauge       | Indicates circulating water pressure                      |
| 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                           |

# THERMA V<sub>TM</sub> (R32) MONOBLOC

# **PRODUCT SPECIFICATION**

### **R32 Monobloc**







HM121M U33 HM141M U33 HM161M U33 HM123M U33 HM143M U33

HM163M U33































### **Features**

- All-in-one outdoor unit
- SCOP up to 4.45 (Average climate / Low temp. application): A+++ SCOP up to 3.12 (Average climate / Mid temp. application): A+
- COP up to 4.50 (Outdoor air 7°C / Leaving water 35°C)
- 100% heating capacity at -7°C OAT (@ LWT 35°C)
- Wide operation range (ambient :  $-25 \sim 35^{\circ}$ C / water side :  $15 \sim 65^{\circ}$ C)
- R32 refrigerant with reduced global warming potential (GWP)
- •R1 compressor
- · Black Fin heat exchanger
- LG ThinQ
- KEYMARK / EHPA (for Austria, 3Ø model only) / MCS / EUROVENT certification
- \* EHPA (for Germany and Switzerland) under renewal of valid date

### Model Line-up

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

### Seasonal Energy

| Description                 |                  |   | Unit | HM121M U33 (1Ø)<br>HM123M U33 (3Ø) | HM141M U33 (1Ø)<br>HM143M U33 (3Ø) | HM161M U33 (1Ø)<br>HM163M U33 (3Ø) |
|-----------------------------|------------------|---|------|------------------------------------|------------------------------------|------------------------------------|
|                             | Average          | SCOP  | -    | 4.45                               | 4.45                               | 4.45                               |
|                             | Climate          | Seasonal Space Heating Efficiency (🛚s)              | %    | 175                                | 175                                | 175                                |
| Space Heating (According to | Outlet 35°C      | Seasonal Space Heating Eff. Class (A+++ to D Scale) | -    | A+++                               | A+++                               | A+++                               |
| EN14825)                    | Average          | SCOP  | -    | 3.18                               | 3.18                               | 3.18                               |
| ,                           | Climate<br>Water | Seasonal Space Heating Efficiency (🛚s)              | %    | 124                                | 124                                | 124                                |
|                             | Outlet 55°C      | Seasonal Space Heating Eff. Class (A+++ to D Scale) | -    | A+                                 | A+                                 | A+                                 |

# Nominal Capacity and Nominal Power Input

| Description         |         | OAT <sup>1)</sup> (DB) | LWT <sup>2)</sup> (DB) | Unit  | HM121M U33 (1Ø) | HM141M U33 (1Ø) | HM161M U33 (1Ø) |
|---------------------|---------|------------------------|------------------------|-------|-----------------|-----------------|-----------------|
| Description         |         | UAI (DB)               | LVV I (DB)             | Onit  | HM123M U33 (3Ø) | HM143M U33 (3Ø) | HM163M U33 (3Ø) |
|                     |         | 7°C                    | 35°C                   |       | 12.00           | 14.00           | 16.00           |
| Nominal Capacity    | Heating | 7°C                    | 55°C                   |       | 12.00           | 12.00           | 12.00           |
|                     |         | 2°C                    | 35°C                   | kW    | 11.00           | 12.00           | 13.80           |
|                     | Cooling | 35°C                   | 18°C                   |       | 12.00           | 14.00           | 16.00           |
|                     | Cooling | 35°C                   | 7°C                    |       | 12.00           | 14.00           | 16.00           |
|                     | Heating | 7°C                    | 35°C                   |       | 2.61            | 3.11            | 3.64            |
|                     |         | 7°C                    | 55°C                   | kW    | 4.29            | 4.29            | 4.29            |
| Nominal Power Input |         | 2°C                    | 35°C                   |       | 3.13            | 3.42            | 3.94            |
|                     | Caalina | 35°C                   | 18°C                   |       | 2.61            | 3.26            | 4.00            |
|                     | Cooling | 35°C                   | 7°C                    |       | 4.44            | 5.38            | 6.40            |
|                     |         | 7°C                    | 35°C                   |       | 4.60            | 4.50            | 4.40            |
| COP                 | Heating | 7°C                    | 55°C                   | W/W   | 2.80            | 2.80            | 2.80            |
|                     |         | 2°C                    | 35°C                   |       | 3.52            | 3.51            | 3.50            |
| EER                 | Cooling | 35°C                   | 18°C                   | W/W   | 4.60            | 4.30            | 4.00            |
| EER                 | Cooling | 35°C                   | 7°C                    | VV/VV | 2.70            | 2.60            | 2.50            |

1) OAT: Outdoor Air Temperature

2) LWT : Leaving Water Temperature

### **Product Specification**

| Technical S   | pecification      |                      |                   | Unit                    | HM121M U33                     | HM141M U33     | HM161M U33       | HM123M U33                | HM143M U33     | HM163M U3 |  |  |
|---|-------------------|----------------------|-------------------|-------------------------|--------------------------------|----------------|------------------|---------------------------|----------------|-----------|--|--|
|   | Operation Range   | Heating              |                   |                         |                                |                | 15               | - 65                      |                |           |  |  |
|   | (leaving water    | Cooling              | Min. ~ Max.       | °C DB                   | 5 ~ 27 (16 ~ 27) <sup>1)</sup> |                |                  |                           |                |           |  |  |
| Water   | temperature)      | DHW                  |                   |                         |                                |                | 15 ~             | 80 <sup>2)</sup>          |                |           |  |  |
| Side  | Piping            | Water                | Inlet             | Inch                    |                                | Male PT 1"     | according to ISC | 7-1 (tapered <sub>l</sub> | pipe threads)  |           |  |  |
|   | Connections       | Circuit              | Outlet            | Inch                    |                                | Male PT 1"     | according to ISC | 7-1 (tapered <sub>l</sub> | pipe threads)  |           |  |  |
|   | Rated Water Flow  | Rate at LWT 35°C     |                   | LPM                     | 34.5                           | 40.3           | 46.0             | 34.5                      | 40.3           | 46.0      |  |  |
|   | Operation Range   | Heating              |                   | °C DB                   |                                |                | -25              | ~ 35                      |                |           |  |  |
|   | (outdoor temp.)   | Cooling              | Min. ~ Max.       | CDB                     |                                |                | 5 ~              | 48                        |                |           |  |  |
|   | C                 | Quantity             |                   | EA                      |                                |                |                  | 1                         |                |           |  |  |
| Refrigerant Side  | Compressor        | Туре                 |                   | -                       | Hermetic Sealed Scroll         |                |                  |                           |                |           |  |  |
|   |                   | Туре                 |                   | -                       | R32                            |                |                  |                           |                |           |  |  |
|   | Refrigerant       | GWP (global warm     | ing potential)    | -                       |                                |                | 6                | 75                        |                |           |  |  |
|   |                   | Precharged Amou      | Precharged Amount |                         |                                |                | 2,4              | 100                       |                |           |  |  |
|   |                   | t-CO <sub>2</sub> eq |                   | -                       | 1.620                          |                |                  |                           |                |           |  |  |
| Sound Powe  | r Level           | Heating              | Rated             | dB(A)                   |                                |                | 6                | i3                        |                |           |  |  |
| Sound Pressu  | ıre Level (at 1m) | Heating              | Rated             | dB(A)                   |                                |                | 5                | 52                        |                |           |  |  |
| Dimensions  |                   | Unit                 | WxHxD             | mm                      |                                |                | 1,239 × 8        | 334 × 330                 |                |           |  |  |
| Weight  |                   | Unit                 |                   | kg                      |                                |                | 12               | 4.5                       |                |           |  |  |
| Exterior  |                   | Color / RAL Code     | 2                 | -                       |                                |                | Warm Gray        | / RAL 7044                |                |           |  |  |
|   |                   | Voltage, Phase, F    | requency          | V, Ø, Hz                |                                | 220-240, 1, 50 | )                |                           | 380-415, 3, 50 |           |  |  |
| D C '   |                   | Rated Running        | Heating           | А                       | 11.6                           | 13.8           | 16.1             | 3.8                       | 4.6            | 5.4       |  |  |
| Power Suppl   | У                 | Current              | Cooling           | А                       | 11.6                           | 14.4           | 17.7             | 3.8                       | 4.8            | 5.9       |  |  |
|   |                   | Recommended Ci       | rcuit Breaker     | А                       | 40                             |                |                  | 16                        |                |           |  |  |
| Wiring Connections Power Supply Cable (included earth, H07RN-F) |                   |                      |                   | mm <sup>2</sup> 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.

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.

 $3. \, \text{Sound power level is measured on the rated condition in according with ISO} \,\, 9614 \, \text{standard}.$  $Sound\ pressure\ level\ is\ converted\ from\ sound\ power\ level\ based\ on\ tonality\ penalty\ of\ OdB\ and\ installation\ in\ free-field.$ 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 according to the according

- $4. \, Performances \, are \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions. \, Above \, gives \, the \, declared \, values \, at \, rated \, conditions \, acc. \, ErP \, regulation. \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions. \, Above \, gives \, the \, declared \, values \, at \, rated \, conditions \, acc. \, ErP \, regulation. \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions. \, Above \, gives \, the \, declared \, values \, at \, rated \, conditions \, acc. \, ErP \, regulation. \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions. \, Above \, gives \, the \, declared \, values \, at \, rated \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, declared \, values \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, declared \, values \, accordance \, with \, EN14511 \, and \, reflect \, ErP \, testing \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, declared \, values \, accordance \, accordance \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \, gives \, the \, conditions \, acc. \, ErP \, regulation. \, Above \,$
- Rated running current : Outdoor Temp. 7°C DB / 6°CWB, LWT 35°C  $5. This \, product \, contains \, Fluorinated \, greenhouse \, gases.$

# **Performance Table for Heating Operation**

Maximum Heating Capacity (Including Defrost Effect)

### HM121M U33 / HM123M U33

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50 ℃ | LWT 55 °C | LWT 60 °C | LWT 65 ℃ |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC       |
| -25°C DB    | 8.75      | 8.50      | 8.25      | 8.00      | -        | -         | -         | -        |
| -20°C DB    | 10.13     | 10.00     | 9.88      | 9.75      | 9.63     | -         | -         | -        |
| -15°C DB    | 11.50     | 11.50     | 11.50     | 11.50     | 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    |

### HM141M U33 / HM143 U33

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 ℃ |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC       |
| -25°C DB    | 9.25      | 9.00      | 8.75      | 8.50      | -        | -         | -         | -        |
| -20°C DB    | 10.63     | 10.50     | 10.38     | 10.25     | 10.13    | -         | -         | -        |
| -15°C DB    | 12.00     | 12.00     | 12.00     | 12.00     | 12.00    | 12.00     | -         | -        |
| -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    |

### HM161M U33 / HM163 U33

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50 °C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|
| Temperature | TC        |
| -25°C DB    | 10.50     | 10.00     | 9.50      | 9.00      | -         | -         | -         | -         |
| -20°C DB    | 12.30     | 11.75     | 11.44     | 11.13     | 10.75     | -         | -         | -         |
| -15°C DB    | 14.10     | 13.50     | 13.38     | 13.25     | 13.13     | 13.00     | -         | -         |
| -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     |

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

# **Performance Table for Cooling Operation**

Maximum Cooling Capacity

### HM121M U33 / HM123M U33

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 11.25   | 12.33    | 13.40    | 14.12    | 15.20    | 15.91    | 16.63    |
| 20°C DB     | 11.55   | 12.20    | 12.84    | 13.27    | 13.92    | 14.35    | 14.78    |
| 30°C DB     | 11.85   | 12.07    | 12.28    | 12.42    | 12.64    | 12.78    | 12.93    |
| 35°C DB     | 12.00   | 12.00    | 12.00    | 12.00    | 12.00    | 12.00    | 12.00    |
| 40°C DB     | 12.15   | 12.00    | 11.85    | 11.75    | 11.59    | 11.49    | 11.39    |
| 45°C DB     | 12.30   | 12.00    | 11.69    | 11.49    | 11.19    | 10.99    | 10.78    |

### HM141M U33 / HM143 U33

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 13.13   | 14.38    | 15.64    | 16.47    | 17.73    | 18.57    | 19.40    |
| 20°C DB     | 13.48   | 14.23    | 14.98    | 15.48    | 16.24    | 16.74    | 17.24    |
| 30°C DB     | 13.83   | 14.08    | 14.33    | 14.49    | 14.75    | 14.91    | 15.08    |
| 35°C DB     | 14.00   | 14.00    | 14.00    | 14.00    | 14.00    | 14.00    | 14.00    |
| 40°C DB     | 14.18   | 14.00    | 13.82    | 13.70    | 13.53    | 13.41    | 13.29    |
| 45°C DB     | 14.35   | 14.00    | 13.64    | 13.41    | 13.05    | 12.82    | 12.58    |

### HM161M U33 / HM163 U33

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 15.00   | 16.43    | 17.87    | 18.83    | 20.26    | 21.22    | 22.17    |
| 20°C DB     | 15.40   | 16.26    | 17.12    | 17.70    | 18.56    | 19.13    | 19.70    |
| 30°C DB     | 15.80   | 16.09    | 16.37    | 16.57    | 16.85    | 17.04    | 17.23    |
| 35°C DB     | 16.00   | 16.00    | 16.00    | 16.00    | 16.00    | 16.00    | 16.00    |
| 40°C DB     | 16.20   | 16.00    | 15.80    | 15.66    | 15.46    | 15.32    | 15.19    |
| 45°C DB     | 16.40   | 16.00    | 15.59    | 15.32    | 14.92    | 14.65    | 14.38    |

- $1.\,DB: Dry\,Bulb\,Temperature\,(^{\circ}C), LWT: Leaving\,Water\,Temperature\,(^{\circ}C), LPM: Liters\,Per\,Minute\,(I/min), TC: Total\,Capacity\,(kW)$
- 2. Direct interpolation is permissible. Do not extrapolate.
- 3. Measuring procedure follows EN-14511.
- $\bullet \, \mathsf{Rated} \, \mathsf{values} \, \mathsf{are} \, \mathsf{based} \, \mathsf{on} \, \mathsf{standard} \, \mathsf{conditions} \, \mathsf{and} \, \mathsf{it} \, \mathsf{can} \, \mathsf{be} \, \mathsf{found} \, \mathsf{on} \, \mathsf{specifications}.$
- 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.

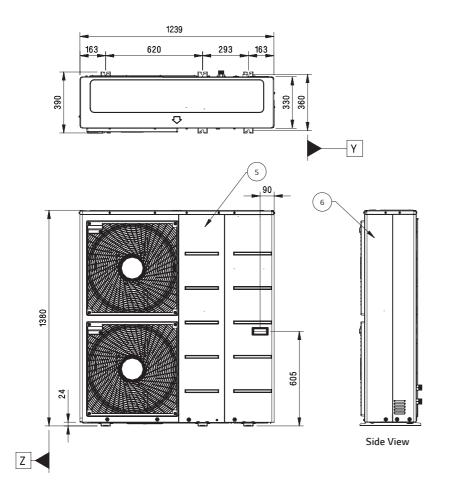
# THERMA V<sub>TM</sub> (R32) MONOBLOC

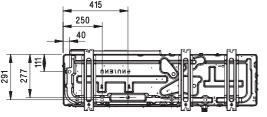
# **PRODUCT SPECIFICATION**

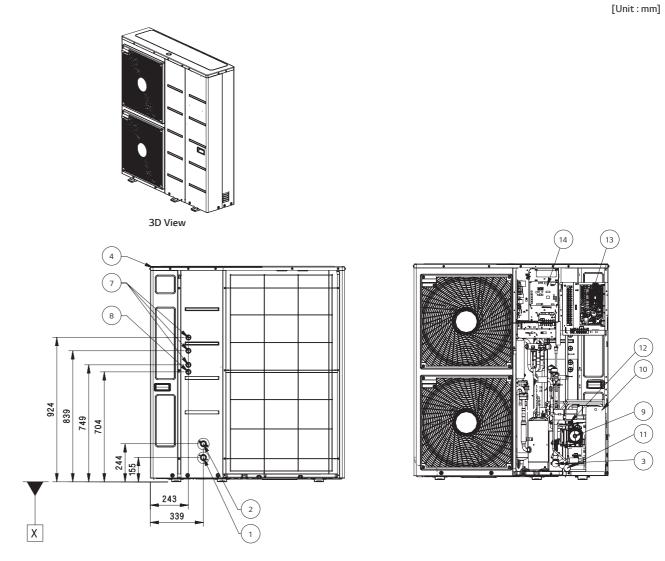
# **Drawings**

|                                       |                 | Model Name    |            |            |  |  |  |
|---------------------------------------|-----------------|---------------|------------|------------|--|--|--|
| Category                              | Unit            | Capacity (kW) |            |            |  |  |  |
|                                       |                 | 12.0          | 14.0       | 16.0       |  |  |  |
| 1 Phase Model<br>220 ~ 240V, 1Ø, 50Hz | Manablas I lait | HM121M U33    | HM141M U33 | HM161M U33 |  |  |  |
| 3 Phase Model<br>380 ~ 415V, 3Ø, 50Hz | - Monobloc Unit | HM123M U33    | HM143M U33 | HM163M U33 |  |  |  |

HM121M U33 / HM141M U33 / HM161M U33 HM123M U33 / HM143M U33 / HM163M U33 [Unit:mm]







| 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  | Pressure Gauge       | Indicates circulating water pressure                      |  |  |  |
| 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                           |  |  |  |

# **Electric Backup Heater**

HA031M E1 HA061M E1

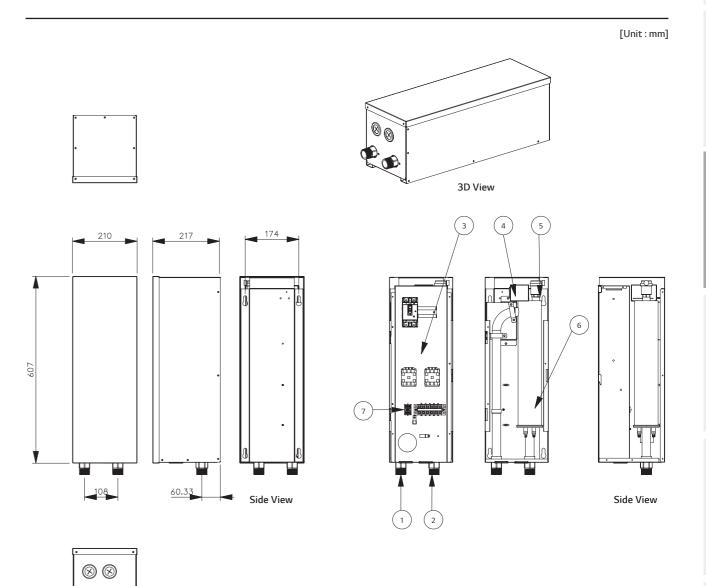
HA063M E1



# **Product Specification**

| Electrical Specification |  | Unit                    | HA031M E1        | HA061M E1 | HA063M E1        |  |
|--------------------------|--|-------------------------|------------------|-----------|------------------|--|
|                          | Туре   | -                       | 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                |  |
| Backup Heater            | Power Supply                                 | V, Ø, Hz                | 220 ~ 240, 1, 50 |           | 380 ~ 415, 3, 50 |  |
|                          | Rated Running Current                        | А                       | 12.5             | 25.0      | 8.7              |  |
|                          | Recommended Circuit Breaker                  | А                       | 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                   | Power Supply Cable (included earth, H07RN-F) | mm <sup>2</sup> x cores | 1.5 x 3C         | 4.0 x 3C  | 2.5 x 4C         |  |
| Connections              | Communication Cable (H07RN-F)                | mm <sup>2</sup> x cores | 0.75             | x 4C      | 0.75 x 2C        |  |

- 1. Due to our policy of innovation some specifications may be changed without notification.
- 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.

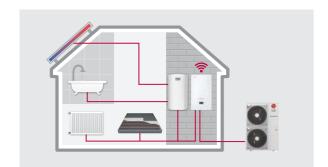


| No. | Part Name                                     | Description  |  |  |  |  |
|-----|---|--|--|--|--|--|
| 1   | Leaving Water Pipe                            | Male PT 1" according to ISO 7-1 (tapered pipe threads) |  |  |  |  |
| 2   | Entering Water Pipe                           | Male PT 1" 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 (S13)             | Connect to unit (heat pump)                            |  |  |  |  |

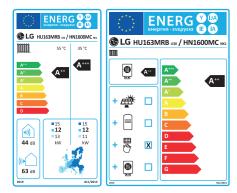
# THERMA V. (R32)

# R32 HYDROSPLIT HYDRO BOX





# **Energy Label**



- \* 16kW 3Ø model

### **Excellent Performance & Efficiency**











### **User Convenience**











### Easy Installation & Maintenance







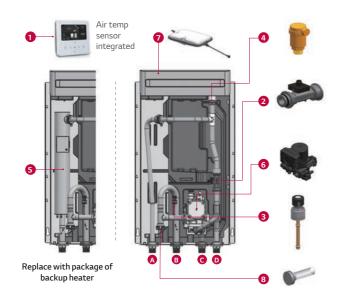


# **R32 Hydrosplit Hydro Box Introduction**

The LG THERMA V Hydrosplit series separates the Indoor unit (IDU) and outdoor unit (ODU), connecting them via water pipes. The unit's heat exchanger is located within the ODU, reducing the risk of indoor refrigerant leakage.

 $THERMA\ V\ R32\ Hydrosplit\ Hydro\ Box\ is\ a\ solution\ providing\ space\ heating\ and\ cooling\ with\ high\ installation\ flexibility\ thanks\ to\ the$ characteristic of being a wall mounted type.

# **Key Components**



- 1 Remote Controller (attached on the front panel)
- 2 Flow sensor (SIKA)
- 3 Water pressure sensor (SENSATA)
- 4 Air vent valve
- **5** Backup electric heater (6kW, accessory)
- 6 Water pump (GRUNDFOS)
- 7 Expansion vessel (8L)
- 8 Strainer
- A Heating circuit outlet pipe (male PT 1")
- B Heating circuit inlet pipe (male PT 1")
- C Outlet pipe to outdoor unit (male PT 1")
- D Inlet pipe from outdoor unit (male PT 1")

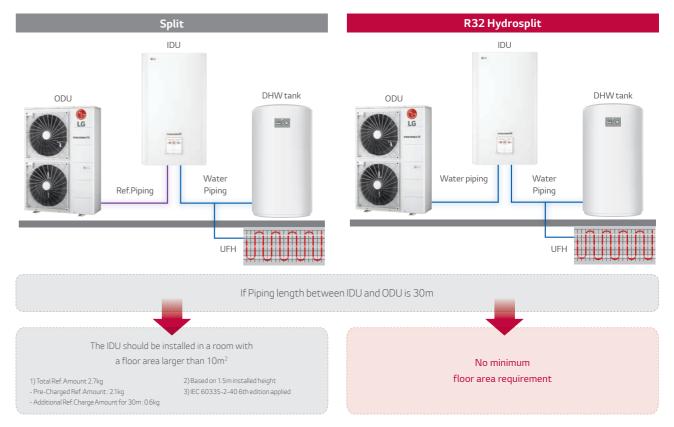
# **Hydrosplit Concept**

The THERMA V R32 Hydrosplit Hydro Box connects an IDU and ODU by water pipes due to the heat exchanger's location in the outdoor unit, thus reducing the risk of indoor refrigerant leakage.



# No Risk of Indoor Refrigerant Leakage

As there is no refrigerant inside of room, no need to consider minimum floor area requirement for IDU due to R32 refrigerant. As a result, it is possible to expand living area more for other purpose.



<sup>\*</sup> Detailed description for each function is presented on page 28  $\sim$  35.

# THERMA V... (R32) HYDROSPLIT HYDRO BOX

# **PRODUCT SPECIFICATION**

### R32 Hydrosplit Hydro Box





#### Indoor Unit

HN1600MC NK1

#### **Outdoor Unit**

HU121MRB U30 / HU123MRB U30 HU141MRB U30 / HU143MRB U30 HU161MRB U30 / HU163MRB U30



























### **Features**

- Water pipes connects IDU & ODU
- $\bullet \, \mathsf{SCOP} \, \mathsf{up} \, \mathsf{to} \, 4.60 \, \mathsf{(Average \, climate \, / \, Low \, temp. \, application)} \, : \, \mathsf{A} + + +$ SCOP up to 3.50 (Average climate / Mid temp. application): A++
- COP up to 5.04 (Outdoor air 7°C / Leaving water 35°C)
- 100% heating capacity at -7°C OAT (@ LWT 35°C)
- Wide operation range (ambient : -25  $\sim$  35°C / water side : 15  $\sim$  65°C)
- Built-in water flow & pressure sensors to monitor real-time water circuit
- R32 refrigerant with reduced global warming potential (GWP)
- •R1 compressor
- Black Fin heat exchanger
- LG ThinQ
- KEYMARK / EHPA (for Germany, Austria) / MCS / EUROVENT certification
- \* Only the outdoor units are registered in EHPA certification.

### Model Line-up

|                                       |              |              | Model Name    |              |  |  |  |  |  |
|---------------------------------------|--------------|--------------|---------------|--------------|--|--|--|--|--|
| Category                              | Unit         |              | Capacity (kW) |              |  |  |  |  |  |
|                                       |              | 12.0         | 14.0          | 16.0         |  |  |  |  |  |
| 1 Phase Model                         | Outdoor Unit | HU121MRB U30 | HU141MRB U30  | HU161MRB U30 |  |  |  |  |  |
| 220 ~ 240V, 1Ø, 50Hz                  | Indoor Unit  | HN1600MC NK1 |               |              |  |  |  |  |  |
| 3 Phase Model<br>380 ~ 415V, 3Ø, 50Hz | Outdoor Unit | HU123MRB U30 | HU143MRB U30  | HU163MRB U30 |  |  |  |  |  |
|                                       | Indoor Unit  | HN1600MC NK1 |               |              |  |  |  |  |  |

### Seasonal Energy

|               |  |   | 0            | HU121MRB U30 (1Ø) | HU141MRB U30 (1Ø) | HU161MRB U30 (1Ø) |
|---------------|--|---|--------------|-------------------|-------------------|-------------------|
| Description   |  |   | Outdoor Unit | HU123MRB U30 (3Ø) | HU143MRB U30 (3Ø) | HU163MRB U30 (3Ø) |
|               |  |   | Indoor Unit  |                   | HN1600MC NK1      |                   |
| Average       | SCOP                                       | -   | 4.60         | 4.57              | 4.55              |                   |
| Space         | Climate Water                              | Seasonal Space Heating Efficiency ( (3s)            | %            | 181               | 180               | 179               |
| Heating       | Outlet 35°C                                | Seasonal Space Heating Eff. Class (A+++ to D scale) | -            | A+++              | A+++              | A+++              |
| (according to | Average                                    | SCOP  | -            | 3.50              | 3.47              | 3.45              |
| EN14825)      | EN14825) Average Climate Water Outlet 55°C | Seasonal Space Heating Efficiency (🛚s)              | %            | 137               | 136               | 135               |
|               |  | Seasonal Space Heating Eff. Class (A+++ to D scale) | -            | A++               | A++               | A++               |

### Nominal Capacity and Nominal Power Input

| Description            | Description |      | LWT (DB) | Outdoor Unit | HU121MRB U30 (1Ø)<br>HU123MRB U30 (3Ø) | HU141MRB U30 (1Ø)<br>HU143MRB U30 (3Ø) | HU161MRB U30 (1Ø)<br>HU163MRB U30 (3Ø) |  |
|------------------------|-------------|------|----------|--------------|--|--|--|--|
|                        |             |      |          | Indoor Unit  |  | HN1600MC NK1                           |  |  |
|                        |             | 7°C  | 35°C     |              | 12.00                                  | 14.00                                  | 16.00                                  |  |
|                        | Heating     | 7°C  | 55°C     |              | 11.00                                  | 11.50                                  | 12.00                                  |  |
| Nominal Capacity       |             | 2°C  | 35°C     | kW           | 11.00                                  | 12.00                                  | 13.80                                  |  |
|                        | Caaliaa     | 35°C | 18°C     |              | 12.00                                  | 14.00                                  | 16.00                                  |  |
|                        | Cooling     | 35°C | 7°C      |              | 12.00                                  | 14.00                                  | 16.00                                  |  |
|                        |             | 7°C  | 35°C     | kW           | 2.38                                   | 2.86                                   | 3.33                                   |  |
|                        | Heating     | 7°C  | 55°C     |              | 3.79                                   | 4.04                                   | 4.29                                   |  |
| Nominal<br>Power Input |             | 2°C  | 35°C     |              | 3.01                                   | 3.31                                   | 3.83                                   |  |
| Tower input            | 6 1:        | 35°C | 18°C     |              | 2.53                                   | 3.26                                   | 4.00                                   |  |
|                        | Cooling     | 35°C | 7°C      |              | 4.44                                   | 5.38                                   | 6.40                                   |  |
|                        |             | 7°C  | 35°C     |              | 5.04                                   | 4.89                                   | 4.80                                   |  |
| COP                    | Heating     | 7°C  | 55°C     | W/W          | 2.90                                   | 2.85                                   | 2.80                                   |  |
|                        |             | 2°C  | 35°C     |              | 3.65                                   | 3.63                                   | 3.60                                   |  |
| FED                    | Caalina     | 35°C | 18°C     | 10//10/      | 4.75                                   | 4.30                                   | 4.00                                   |  |
| EER                    | Cooling     | 35°C | 7°C      | W/W          | 2.70                                   | 2.60                                   | 2.50                                   |  |

### R32 Hydrosplit Hydro Box

### Product Specification (Outdoor Unit)

| Technical Specification      | 1                            |                  | Unit   | HU121MRB U30   | HU141MRB U30           | HU161MRB U30 | HU123MRB U30 | HU143MRB U30   | HU163MRB U30 |  |
|------------------------------|------------------------------|------------------|--|--|------------------------|--------------|--------------|----------------|--------------|--|
| Operation Range              | Heating                      | Min. ~ Max.      | °C DB  |  |                        | -25          | ~ 35         |                |              |  |
| (outdoor temp.)              | Cooling                      | IVIIII. ~ IVIAX. | CDB  | 5 ~ 48   |                        |              |              |                |              |  |
| C                            | Quantity                     |                  | EA   |  |                        | 1            | 1            |                |              |  |
| Compressor                   | Туре                         |                  | -  |  | Hermetic Sealed Scroll |              |              |                |              |  |
|                              | Туре                         | -                |  |  | RS                     | 32           |              |                |              |  |
| D. C                         | GWP (global warming p        | otential)        | -  |  |                        | 67           | 75           |                |              |  |
| Refrigerant                  | Precharged Amount            |                  | g  |  |                        | 2,1          | 00           |                |              |  |
|                              | t-CO <sub>2</sub> eq         | -                |  |  | 1.4                    | 18           |              |                |              |  |
| Dining Commentions           | Matan Cinavita               | mm (inch)        | Male PT 1" according to ISO 7-1 (tapered pipe threads) |  |                        |              |              |                |              |  |
| Piping Connections           | Water Circuit                | Outlet           | mm (inch)  | Male PT 1" according to ISO 7-1 (tapered pipe threads) |                        |              |              |                |              |  |
| Rated Water Flow Rate (at    | t LWT 35°C)                  |                  | LPM  | 34.5   | 40.3                   | 46.0         | 34.5         | 40.3           | 46.0         |  |
| Sound Power Level            | Heating                      | Rated            | dB(A)  | 61   | 62                     | 63           | 61           | 62             | 63           |  |
| Sound Pressure Level (at 1m) | Heating                      | Rated            | dB(A)  | 53   | 54                     | 55           | 53           | 54             | 55           |  |
| Dimensions                   | Unit                         | WxHxD            | mm   |  |                        | 950 × 1,3    | 80 × 330     |                |              |  |
| Weight                       | Unit                         |                  | kg   |  |                        | 91           | .7           |                |              |  |
| Exterior                     | Color / RAL Code             |                  | -  |  |                        | Warm Gray    | / RAL 7044   |                |              |  |
|                              | Voltage, Phase, Freque       | ncy              | V, Ø, Hz   |  | 220-240, 1, 50         | )            |              | 380-415, 3, 50 | )            |  |
| Danier Consults              | Rated                        | Heating          | А  | 10.6   | 12.7                   | 14.8         | 3.5          | 4.2            | 4.9          |  |
| Power Supply                 | Running Current              | Cooling          | А  | 11.2   | 14.4                   | 17.7         | 3.7          | 4.8            | 5.9          |  |
|                              | Recommended Circuit I        | Breaker          | А  | 40 16  |                        |              |              |                |              |  |
| Wiring Connections           | Power Supply Cable (included | earth, H07RN-F)  | mm <sup>2</sup> xcores                                 |  | 6.0 x 3C               |              |              | 2.5 x 5C       |              |  |

#### Note

- 1. Due to our policy of innovation some specifications may be changed without notification.
- 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.
- 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 OdB 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 based on the following conditions (It is according to EN14511):
- Interconnected Pipe Length is standard length and difference of Elevation (Outdoor Indoor Unit) is 0m.
- 5. This product contains Fluorinated greenhouse gases.

### Product Specification (Indoor Unit)

| Technical Specification            |                               |                           | Unit                    | HN1600MC NK1   |
|------------------------------------|-------------------------------|---------------------------|-------------------------|--|
| 0 0                                | Heating                       |                           |                         | 15 ~ 65  |
| Operation Range<br>(leaving water) | Cooling                       | Min. ~ Max.               | °C DB                   | 5 ~ 27 (16 ~ 27) <sup>1)</sup>                         |
| (leaving water)                    | DHW                           |                           |                         | 15 ~ 80 <sup>2)</sup>                                  |
| Flow Sensor                        | Measuring Range               | Min. ~ Max.               | ℓ/min                   | 5 ~ 80   |
| Water Pressure Sensor              | Measuring Range               | Min. ~ Max.               | bar(G)                  | 0 ~ 20   |
| Expansion Vessel                   | Volume                        |                           | P                       | 8  |
| Safety Valve                       | Pressure Limit                | Upper limit               | bar                     | 3  |
|                                    |                               | Outlet to Heat Load       |                         | Male PT 1" according to ISO 7-1 (tapered pipe threads) |
| Dining Commentions                 | W . C .                       | Inlet from Heat Load      | Inch                    | Male PT 1" according to ISO 7-1 (tapered pipe threads) |
| Piping Connections                 | Water Circuit                 | Outlet to Outdoor Unit    | IIICII                  | Male PT 1" according to ISO 7-1 (tapered pipe threads) |
|                                    |                               | Inlet from Outdoor Unit   |                         | Male PT 1" according to ISO 7-1 (tapered pipe threads) |
| Wiring Connections                 | Power and Communication Cable | (included earth, H07RN-F) | mm <sup>2</sup> x cores | 0.75 x 4C  |
| Sound Power Level                  | Heating                       | Rated                     | dB(A)                   | 44   |
| Dimensions                         | Unit                          | WxHxD                     | mm                      | 490 × 850 × 315  |
| Weight                             | Unit                          |                           | kg                      | 30.5   |
| Exterior                           | Color / RAL Code              |                           | -                       | Noble White / RAL 9016                                 |

When fan coil unit not used

2) DHW 58-80°C Operating is available only when the booster heater is operating.

#### Note

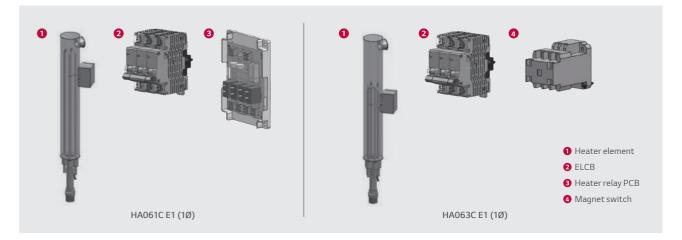
- 1. Due to our policy of innovation some specifications may be changed without notification.
- 2. Wiring cable size must comply with the applicable local and national codes.
- Especially the power cable and circuit breaker should be selected in accordance with that.
- 3. Sound power level is measured on the rated condition in according with ISO 9614 standard.

  Sound pressure level is converted from sound power level based on tonality penalty of OdB 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
- This product contains Fluorinated greenhouse gases.

### **Accessory Parts (Optional Accessory)**

### **Backup Heater**



| Electrical Specification | n                                     |             | HA061C E1 (1Ø)   | HA063C E1 (1Ø)   |  |
|--------------------------|---------------------------------------|-------------|------------------|------------------|--|
|                          | Туре                                  | -           | Sheath           |                  |  |
|                          | No. of Heating Coil                   | EA          | 2                | 3                |  |
|                          | Max. Power Consumption                | kW          | 3.0 + 3.0        | 2.0 + 2.0 + 2.0  |  |
| Backup Heater            | Heating Step                          | Step        | 1                | 1                |  |
|                          | Power Supply                          | V, Ø, Hz    | 220 ~ 240, 1, 50 | 380 ~ 415, 3, 50 |  |
|                          | Current (rated)                       | А           | 24.0             | 8.7              |  |
|                          | Circuit Breaker (ELCB)                | А           | 40               | 20               |  |
| Wiring Connection        | Power Cable (included earth, H07RN-F) | mm² x cores | 6.0 x 3C         | 2.5 x 5C         |  |

## **Accessory Parts (Separately Provided)**

#### Strainer



| Technical Specificati | on                 | Details                            |  |  |  |  |
|-----------------------|--------------------|------------------------------------|--|--|--|--|
| Material              | Body               | Brass                              |  |  |  |  |
| iviaterial            | Mesh               | Stainless steel (STS304)           |  |  |  |  |
| 84 L                  | Mesh No.           | 30                                 |  |  |  |  |
| Mesh                  | Max. Particle Size | 0.6mm                              |  |  |  |  |
| Piping Connection     |                    | Female G 1" according to ISO 228-1 |  |  |  |  |

### **Performance Table for Heating Operation**

Maximum Heating Capacity (Including Defrost Effect)

#### HU121MRB U30 / HU123MRB U30 + HN1600MC NK1

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 ℃ |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC       |
| -25°C DB    | 9.66      | 8.85      | 8.42      | 8.29      | -        | -         | -         | -        |
| -20°C DB    | 10.13     | 10.00     | 9.88      | 9.75      | 9.63     | -         | -         | -        |
| -15°C DB    | 11.50     | 11.50     | 11.50     | 11.50     | 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    |

#### HU141MRB U30 / HU143MRB U30 + HN1600MC NK1

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 ℃ |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC       |
| -25°C DB    | 10.04     | 9.21      | 8.76      | 8.62      | -        | -         | -         | -        |
| -20°C DB    | 11.82     | 11.25     | 10.95     | 10.67     | 10.59    | -         | -         | -        |
| -15°C DB    | 12.52     | 12.90     | 13.26     | 12.88     | 12.81    | 12.63     | -         | -        |
| -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    |

#### HU161MRB U30 / HU163MRB U30 + HN1600MC NK1

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45°C | LWT 50 ℃ | LWT 55 °C | LWT 60 °C | LWT 65 ℃ |
|-------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|
| Temperature | TC        | TC        | TC        | TC       | TC       | TC        | TC        | TC       |
| -25°C DB    | 10.98     | 10.00     | 9.50      | 9.33     | -        | -         | -         | -        |
| -20°C DB    | 13.43     | 12.54     | 12.03     | 11.78    | 11.47    | -         | -         | -        |
| -15°C DB    | 14.23     | 14.39     | 14.50     | 13.95    | 13.86    | 13.12     | -         | -        |
| -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    |

- $1.\,DB: Dry\,Bulb\,Temperature\,(^{\circ}C), LWT: Leaving\,Water\,Temperature\,(^{\circ}C), LPM: Liters\,Per\,Minute\,(l/min), TC: Total\,Capacity\,(kW)$
- 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.
- $\bullet Above \ table \ values \ may \ not \ be \ matched \ according \ to \ installation \ condition. Except for \ rated \ value, the \ performance \ is \ not \ guaranteed.$
- In accordance with the test standard (or nations), the rating will vary slightly.
- $4. \, \hbox{The shaded areas are not guaranteed continuous operation}.$

### **Performance Table for Cooling Operation**

Maximum Cooling Capacity

#### HU121MRB U30 / HU123MRB U30 + HN1600MC NK1

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | 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℃ DB      | 12.00   | 12.00    | 12.00    | 12.00    | 12.00    | 12.00    | 12.00    |
| 40°C DB     | 11.75   | 12.00    | 12.00    | 12.00    | 12.00    | 12.00    | 12.00    |
| 45°C DB     | 11.50   | 12.00    | 12.00    | 12.00    | 12.00    | 12.00    | 12.00    |

#### HU141MRB U30 / HU143MRB U30 + HN1600MC NK1

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 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    |
| 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     | 13.75   | 14.00    | 14.00    | 14.00    | 14.00    | 14.00    | 14.00    |
| 45°C DB     | 13.50   | 14.00    | 14.00    | 14.00    | 14.00    | 14.00    | 14.00    |

#### HU161MRB U30 / HU163MRB U30 + HN1600MC NK1

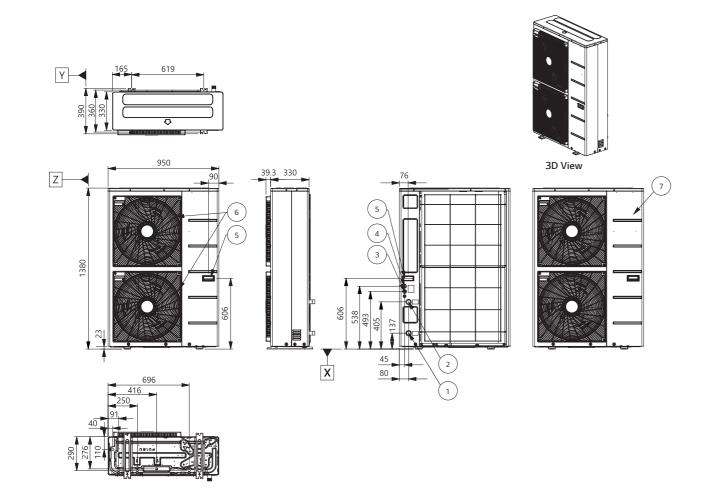
| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 16.00   | 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    |
| 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     | 15.75   | 16.00    | 16.00    | 16.00    | 16.00    | 16.00    | 16.00    |
| 45°C DB     | 15.50   | 16.00    | 16.00    | 16.00    | 16.00    | 16.00    | 16.00    |

- $1.\,DB: Dry\,Bulb\,Temperature\,(^{\circ}C), LWT: Leaving\,Water\,Temperature\,(^{\circ}C), LPM: Liters\,Per\,Minute\,(l/min), TC: Total\,Capacity\,(kW)$
- 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.

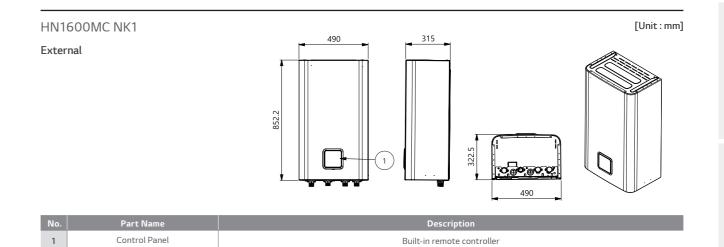
## **Drawings**

|                                       |              | Model Name<br>Capacity (kW) |              |              |  |  |  |
|---------------------------------------|--------------|-----------------------------|--------------|--------------|--|--|--|
| Category                              | Unit         |                             |              |              |  |  |  |
|                                       |              | 12.0                        | 14.0         | 16.0         |  |  |  |
| 1 Phase Model                         | Outdoor Unit | HU121MRB U30                | HU141MRB U30 | HU161MRB U30 |  |  |  |
| 220 ~ 240V, 1Ø, 50Hz                  | Indoor Unit  |                             | HN1600MC NK1 |              |  |  |  |
| 3 Phase Model<br>380 ~ 415V, 3Ø, 50Hz | Outdoor Unit | HU123MRB U30                | HU143MRB U30 | HU163MRB U30 |  |  |  |
|                                       | Indoor Unit  |                             | HN1600MC NK1 |              |  |  |  |

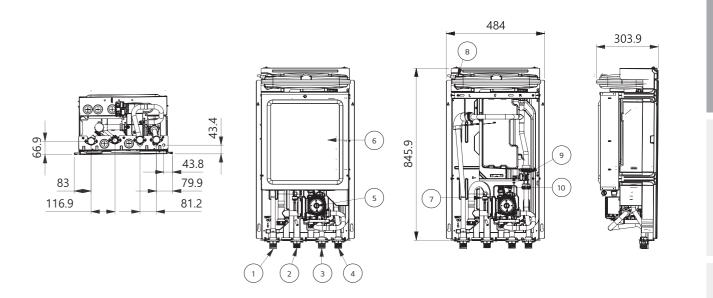
HU121MRB U30 / HU141MRB U30 / HU161MRB U30 HU123MRB U30 / HU143MRB U30 / HU163MRB U30 [Unit:mm]



| No. | Part Name   | Description  |
|-----|---|--|
| 1   | Entering Water Pipe   | Male PT 1" according to ISO 7-1 (tapered pipe threads) |
| 2   | 2 Leaving Water Pipe Male PT 1" according to ISO 7-1 (tapered pipe threads) |  |
| 3   | Unit Power  | Power cable hole                                       |
| 4   | Low Voltage   | Communication cable hole                               |
| 5   | Handle  | -  |
| 6   | Air Outlet  | -  |
| 7   | Side Panel  | -  |



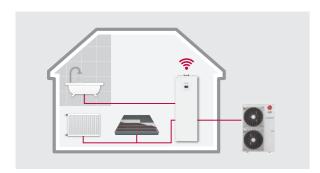
#### Internal



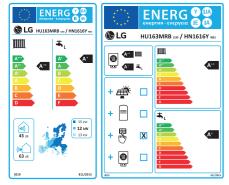
| No. | Part Name                   | Description  |
|-----|-----------------------------|--|
| 1   | Heating Circuit Outlet Pipe | Male PT 1" according to ISO 7-1 (tapered pipe threads) |
| 2   | Heating Circuit Inlet Pipe  | Male PT 1" according to ISO 7-1 (tapered pipe threads) |
| 3   | Outlet Pipe to Outdoor Unit | Male PT 1" according to ISO 7-1 (tapered pipe threads) |
| 4   | Inlet Pipe to Outdoor Unit  | Male PT 1" according to ISO 7-1 (tapered pipe threads) |
| 5   | Water Pump                  | GRUNDFOS UPML 20-105 CHBL                              |
| 6   | Control Box                 | PCB and Terminal blocks                                |
| 7   | Pressure Sensor             | SENSATA 2HMP3-04W, 0-2Mpa                              |
| 8   | Expansion Tank              | 8 Liter, 3/4" connection                               |
| 9   | Flow Sensor                 | Flow range : 5 ~ 80 LPM                                |
| 10  | Safety Valve                | Open at water pressure 3 bar                           |

# THERMA V... (R32) R32 HYDROSPLIT IWT





### **Energy Label**



- \* 16kW 3Ø model.

#### **Excellent Performance & Efficiency**









#### **User Convenience**













#### Easy Installation & Maintenance











\* Detailed description for each function is presented on page 28  $\sim$  35.

## **R32 Hydrosplit IWT Introduction**

The LG THERMA V Hydrosplit series separates the Indoor unit (IDU) and outdoor unit (ODU), connecting them via water pipes. The unit's  $heat \, exchanger \, is \, located \, within \, the \, ODU, \, reducing \, the \, risk \, of \, indoor \, refrigerant \, leakage. \, THERMA \, V \, R32 \, Hydrosplit \, IWT \, is \, a \, domestic \, hot \, indoor \, refrigerant \, leakage \, and \, respectively. \, A possible of the risk of indoor \, refrigerant \, leakage \, and \, respectively. \, The respective is a constant of the risk of indoor \, refrigerant \, leakage \, and \, respectively. \, A possible of the risk of indoor \, refrigerant \, respectively. \, The respective is a constant of the risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, refrigerant \, respectively. \, The risk of indoor \, respectively. \, The risk of indoor \, respec$ water supply, space heating and cooling solution that conveniently combines an indoor hot water tank with a separate outdoor unit.

### **Key Components**



- 1 DHW storage tank (2001)
- 2 Main water pump
- 3 Water pump for DHW charging
- 4 Plate heat exchanger for DHW (water / DHW)
- 5 Electric heater (Max. 6kW)
- 6 3-way diverting valve
- 7 Expansion vessel for heating (121)
- 8 Flow sensor
- 9 Water pressure sensor
- 10 Expansion vessel for DHW (81, option)
- 10 Buffer tank (40%, option)
- 2 Remote controller (attached on the front panel)
- A Inlet pipe from outdoor unit (female G1")
- **B** Outlet pipe to outdoor unit (female G1")
- C Domestic hot water outlet pipe (female G3/4") Domestic cold water outlet pipe (female G3/4")
- DHW recirculation pipe (female G3/4")
- Heating circuit inlet pipe (female G1")
- G Heating circuit outlet pipe (female G1")

### **Hydrosplit Concept**

The THERMA V R32 Hydrosplit IWT connects an IDU and ODU by water pipes due to the heat exchanger's location in the outdoor unit, thus reducing the risk of indoor refrigerant leakage.



### **Sophisticated and Harmonious** Exterior

The THERMA V R32 Hydrosplit IWT indoor unit can be installed in multiple indoor spaces, to include the utility or laundry room, garage or kitchen due to its sleek design.



## **Save Space and Time**

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



#### All in One

- Small footprint for product installation
- Quick & easy installation
- DHW tank (2001) & hydronic component
- Integrated max. 6kW back up heater
- Integrated expansion tank for heating
- Integrated buffer tank (40l) & expansion tank for DHW circuit (8l) (Optional)

# THERMA V... (R32) HYDROSPLIT IWT

# **PRODUCT SPECIFICATION**

### R32 Hydrosplit IWT (Integrated Water Tank)







#### Indoor Unit

HN1616Y NB1

#### **Outdoor Unit**

HU121MRB U30 / HU123MRB U30 HU141MRB U30 / HU143MRB U30 HU161MRB U30 / HU163MRB U30





















#### **Features**

- Water pipes connects IDU & ODU
- SCOP up to 4.60 (Average climate / Low temp. application): A+++ SCOP up to 3.50 (Average climate / Mid temp. application): A++ SCOPDHW 2.74 (water heating efficiency 120%, profile L): A+
- COP up to 5.04 (Outdoor air  $7^{\circ}$ C / Leaving water  $35^{\circ}$ C)
- DHW tank (2001) & hydronic component integration
- Integrable buffer tank (40l) & expansion tank for DHW circuit (8l) (optional)
- 100% heating capacity at -7 °C OAT (@ LWT 35°C)
- Wide operation range (ambient :  $-25 \sim 35^{\circ}$ C / water side :  $15 \sim 65^{\circ}$ C)
- Built-in water flow & pressure sensors to monitor real-time water circuit
- R32 refrigerant with reduced global warming potential (GWP)
- •R1 compressor
- Black Fin heat exchanger
- KEYMARK / EHPA (for Germany, Austria) / EUROVENT certification
- \* Only the outdoor units are registered in EHPA certification.

### Model Line-up

|                                       |              | Model Name<br>Capacity (kW) |              |              |  |  |  |
|---------------------------------------|--------------|-----------------------------|--------------|--------------|--|--|--|
| Category                              | Unit         |                             |              |              |  |  |  |
|                                       |              | 12.0                        | 14.0         | 16.0         |  |  |  |
| 1 Phase Model                         | Outdoor Unit | HU121MRB U30                | HU141MRB U30 | HU161MRB U30 |  |  |  |
| 220 ~ 240V, 1Ø, 50Hz                  | Indoor Unit  | HN1616Y NB1                 |              |              |  |  |  |
| 3 Phase Model<br>380 ~ 415V, 3Ø, 50Hz | Outdoor Unit | HU123MRB U30                | HU143MRB U30 | HU163MRB U30 |  |  |  |
|                                       | Indoor Unit  | HN1616Y NB1                 |              |              |  |  |  |

## Seasonal Energy

|                           |                   |   | 0            | HU121MRB U30 (1Ø) | HU141MRB U30 (1Ø) | HU161MRB U30 (1Ø) |  |  |
|---------------------------|-------------------|---|--------------|-------------------|-------------------|-------------------|--|--|
| Description               |                   |   | Outdoor Unit | HU123MRB U30 (3Ø) | HU143MRB U30 (3Ø) | HU163MRB U30 (3Ø) |  |  |
|                           |                   |   |              |                   | HN1616Y NB1       |                   |  |  |
|                           | Average           | SCOP  | -            | 4.60              | 4.57              | 4.55              |  |  |
|                           | Climate Water     | Seasonal Space Heating Efficiency (🛚 s)             | %            | 181               | 180               | 179               |  |  |
| Space Heating             | Outlet 35°C       | Seasonal Space Heating Eff. Class (A+++ to D Scale) | -            | A+++              | A+++              | A+++              |  |  |
| (According<br>to EN14825) | Average           | SCOP  | -            | 3.50              | 3.47              | 3.45              |  |  |
| ,                         | Climate Water     | Seasonal Space Heating Efficiency (🛚s)              | %            | 137               | 136               | 135               |  |  |
|                           | Outlet 55°C       | Seasonal Space Heating Eff. Class (A+++ to D Scale) | -            | A++               | A++               | A++               |  |  |
|                           |                   | Declared Load Profile                               | -            | L                 | L                 | L                 |  |  |
|                           | Average Climate   | Water Heating Efficiency (🗓 wh)                     | %            | 120               | 120               | 120               |  |  |
|                           | Average Climate   | SCOP <sub>DHW</sub>                                 | -            | 2.74              | 2.74              | 2.74              |  |  |
| Domestic                  |                   | Water Heating Eff. Class                            | -            | A+                | A+                | A+                |  |  |
| Hot Water<br>Efficiency   |                   | Declared Load Profile                               | -            | L                 | L                 | L                 |  |  |
| (According                | Warmer<br>Climate | Water Heating Efficiency (🗓 wh)                     | %            | 151               | 151               | 151               |  |  |
| to EN16147)               | Cumace            | SCOP <sub>DHW</sub>                                 | -            | 3.43              | 3.43              | 3.43              |  |  |
|                           | 6.11              | Declared Load Profile                               | -            | L                 | L                 | L                 |  |  |
|                           | Colder<br>Climate | Water Heating Efficiency (🗓 wh)                     | %            | 101               | 101               | 101               |  |  |
|                           | Curiocc           | SCOP <sub>DHW</sub>                                 | -            | 2.34              | 2.34              | 2.34              |  |  |

### Nominal Capacity and Nominal Power Input

| Description            |         |          |          |              | HU121MRB U30 (1Ø) | HU141MRB U30 (1Ø) | HU161MRB U30 (1Ø) |
|------------------------|---------|----------|----------|--------------|-------------------|-------------------|-------------------|
|                        |         | OAT (DB) | LWT (DB) | Outdoor Unit | HU123MRB U30 (3Ø) | HU143MRB U30 (3Ø) | HU163MRB U30 (3Ø) |
|                        |         |          |          | Indoor Unit  |                   | HN1616Y NB1       |                   |
|                        |         | 7°C      | 35°C     |              | 12.00             | 14.00             | 16.00             |
|                        | Heating | 7°C      | 55°C     |              | 11.00             | 11.50             | 12.00             |
| Nominal Capacity       |         | 2°C      | 35°C     | kW           | 11.00             | 12.00             | 13.80             |
|                        | Cooling | 35°C     | 18°C     |              | 12.00             | 14.00             | 16.00             |
|                        | Cooling | 35°C     | 7°C      |              | 12.00             | 14.00             | 16.00             |
|                        |         | 7°C      | 35°C     | kW           | 2.38              | 2.86              | 3.33              |
|                        | Heating | 7°C      | 55°C     |              | 3.79              | 4.04              | 4.29              |
| Nominal<br>Power Input |         | 2°C      | 35°C     |              | 3.01              | 3.31              | 3.83              |
| rower input            | Cli     | 35°C     | 18°C     |              | 2.53              | 3.26              | 4.00              |
|                        | Cooling | 35°C     | 7°C      |              | 4.44              | 5.38              | 6.40              |
|                        |         | 7°C      | 35°C     |              | 5.04              | 4.89              | 4.80              |
| COP                    | Heating | 7°C      | 55°C     | W/W          | 2.90              | 2.85              | 2.80              |
|                        |         | 2°C      | 35°C     |              | 3.65              | 3.63              | 3.60              |
| FED                    | Cli     | 35°C     | 18°C     | 10//10/      | 4.75              | 4.30              | 4.00              |
| EER                    | Cooling | 35°C     | 7°C      | W/W          | 2.70              | 2.60              | 2.50              |

# THERMA V... (R32) HYDROSPLIT IWT

# **PRODUCT SPECIFICATION**

### R32 Hydrosplit IWT (Integrated Water Tank)

### Product Specification (Outdoor Unit)

| Technical Specification   |                        |                  |                        | HU121MRB U30   | HU141MRB U30   | HU161MRB U30 | HU123MRB U30 | HU143MRB U30   | HU163MRB U30 |
|---|------------------------|------------------|------------------------|--|----------------|--------------|--------------|----------------|--------------|
| Operation Range   | Heating                | Min. ~ Max.      | °C DB                  | -25 ~ 35   |                |              |              |                |              |
| (outdoor temp.)   | Cooling                | IVIIII. ~ IVIAX. | CDB                    |  |                | 5 ~          | 48           |                |              |
| Campuagau   | Quantity               |                  | EA                     |  |                |              | 1            |                |              |
| Compressor  | Туре                   |                  | -                      |  |                | Hermetic S   | ealed Scroll |                |              |
|   | Туре                   |                  | -                      |  |                | R:           | 32           |                |              |
| Defriesvent   | GWP (global warming p  | ootential)       | -                      |  |                | 6            | 75           |                |              |
| Refrigerant   | Precharged Amount      |                  | g                      |  |                | 2,1          | 00           |                |              |
|   | t-CO <sub>2</sub> eq   |                  | -                      |  |                | 1.4          | 118          |                |              |
| Dining Connections  | Water Circuit          | Inlet            | mm (inch)              | Male PT 1" according to ISO 7-1 (tapered pipe threads) |                |              |              |                |              |
| Piping Connections  | vvater Circuit         | Outlet           | mm (inch)              | Male PT 1" according to ISO 7-1 (tapered pipe threads) |                |              |              |                |              |
| Rated Water Flow Rate (at                                       | t LWT 35°C)            |                  | LPM                    | 34.5   | 40.3           | 46.0         | 34.5         | 40.3           | 46.0         |
| Sound Power Level   | Heating                | Rated            | dB(A)                  | 61   | 62             | 63           | 61           | 62             | 63           |
| Sound Pressure Level (at 1m)                                    | Heating                | Rated            | dB(A)                  | 53   | 54             | 55           | 53           | 54             | 55           |
| Dimensions  | Unit                   | WxHxD            | mm                     |  |                | 950 × 1,3    | 80 × 330     |                |              |
| Weight  | Unit                   |                  | kg                     | 91.7   |                |              |              |                |              |
| Exterior  | Color / RAL Code       |                  | -                      |  |                | Warm Gray    | / RAL 7044   |                |              |
|   | Voltage, Phase, Freque | ncy              | V, Ø, Hz               |  | 220-240, 1, 50 | )            |              | 380-415, 3, 50 | )            |
| Dansey Comply   | Rated                  | Heating          | А                      | 10.6   | 12.7           | 14.8         | 3.5          | 4.2            | 4.9          |
| Power Supply  | Running Current        | Cooling          | А                      | 11.2   | 14.4           | 17.7         | 3.7          | 4.8            | 5.9          |
|   | Recommended Circuit I  | Breaker          | А                      |  | 40             |              | 16           |                |              |
| Wiring Connections Power Supply Cable (included earth, H07RN-F) |                        |                  | mm <sup>2</sup> xcores |  | 6.0 x 3C       |              |              | 2.5 x 5C       |              |

### Product Specification (Indoor Unit)

| Technical Specification               | on  |                         | Unit        | HN1616Y NB1  |  |
|---------------------------------------|---|-------------------------|-------------|--|--|
| Operation Range                       | Heating   |                         |             | 15 ~ 65  |  |
| (Leaving Water                        | Cooling   | Min. ~ Max.             | °C DB       | 5 ~ 27 (16 ~ 27) <sup>1)</sup>                               |  |
| Temperature)                          | DHW   |                         |             | 15 ~ 80 <sup>2)</sup>  |  |
| Domestic Hot Water                    | Volume  |                         | f           | 200  |  |
| Tank                                  | Internal Thermal Protect Li                             | mit                     | °C          | 85   |  |
| Flow Sensor                           | Measuring Range   | Min. ~ Max.             | LPM         | 5 ~ 80   |  |
| Flow Sensor                           | Water Pressure Sensor                                   | Measuring Range         | bar(G)      | 0 ~ 20   |  |
| Expansion Vessel<br>(Heating Circuit) | Volume  |                         | f           | 12   |  |
| Cafatu Valua                          | Heating Circuit   | Upper Limit             | bar         | 3  |  |
| Safety Valve                          | DHW Circuit   | Upper Limit             | bar         | 10   |  |
|                                       | Туре  |                         | -           | Sheath   |  |
|                                       | Number of Heating Coil                                  |                         | EA          | 1/2/3  |  |
| Electric Heater                       | Capacity combination                                    | Capacity combination    |             | 2.0 / 2.0 + 2.0 / 2.0 + 2.0 + 2.0                            |  |
| (Case 1 / Case 2 /                    | Heating Step  |                         | Step        | 1  |  |
| Case 3) 3)                            | Power Supply  |                         | V, Ø, Hz    | 220-240, 1, 50 / 220-240, 1, 50 / 380-415, 3, 50             |  |
|                                       | Power Supply Cable (Inclu                               | ded Earth, H07RN-F)     | mm² x cores | 4.0 x 3C / 4.0 x 3C / 2.5 x 5C                               |  |
|                                       | Rated Running Current                                   |                         | A           | 8.7 / 17.4 / 8.7   |  |
|                                       |   | Inlet                   | Inch        | Female G 1" according to ISO 228-1 (parallel pipe threads)   |  |
|                                       | Water Circuit   | Outlet                  | Inch        | Female G 1" according to ISO 228-1 (parallel pipe threads)   |  |
|                                       | vvater Circuit  | Inlet from Outdoor Unit | Inch        | Female G 1" according to ISO 228-1 (parallel pipe threads)   |  |
| Piping Connections                    |   | Outlet to Outdoor Unit  | Inch        | Female G 1" according to ISO 228-1 (parallel pipe threads)   |  |
|                                       |   | Cold Inlet              | Inch        | Female G 3/4" according to ISO 228-1 (parallel pipe threads) |  |
|                                       | DHW Tank Water Circuit                                  | Hot Outlet              | Inch        | Female G 3/4" according to ISO 228-1 (parallel pipe threads) |  |
|                                       |   | Recirculation           | Inch        | Female G 3/4" according to ISO 228-1 (parallel pipe threads) |  |
| Wiring Connections                    | Power and Communication Cable (included earth, H07RN-F) |                         | mm² x cores | 0.75 x 4C  |  |
| Sound Power Level                     | Heating Rated   |                         | dB(A)       | 43   |  |
| Dimensions                            | Unit W×H×D  |                         | mm          | 601 × 1,812 × 685  |  |
| Weight                                | Unit  |                         | kg          | 130.0  |  |
| Exterior                              | Color / RAL Code  |                         | -           | White / RAL 9002   |  |

- 1) When fan coil unit not used.
- 2) DHW  $58{\sim}80^{\circ}\text{C}$  Operating is available only when the booster heater is operating.
- 3) The capacity of electric heater can be adjusted by wiring.

#### 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.
- $4. \, \mathsf{Performances} \, \mathsf{are} \, \mathsf{based} \, \mathsf{on} \, \mathsf{the} \, \mathsf{following} \, \mathsf{conditions} \, (\mathsf{It} \, \mathsf{is} \, \mathsf{according} \, \mathsf{to} \, \mathsf{EN14511}) \colon \mathsf{conditions} \, \mathsf{condition$
- $\bullet \, \text{Interconnected Pipe Length} \, \text{is standard length} \, \text{and difference of Elevation} \, \text{(Outdoor Indoor Unit)} \, \text{is Om}.$
- 5. This product contains Fluorinated greenhouse gases.

### **Accessory Parts (Optional Accessory)**

### **Buffer Tank for Space Heating**



As an optional accessory, the installer can install a standard 40% buffer tank for space heating. Fitting seamlessly into the main casing, it can be attached on the backside of the indoor unit.

| Buffer tank for space he | ating   | Unit | OSHB-40KT.AEU   |  |  |
|--------------------------|---------|------|-----------------|--|--|
| Water Volume             |         | f    | 40              |  |  |
| Dimensions (W x H x D)   |         | mm   | 518 x 560 x 175 |  |  |
| Weight (w/o water)       | Product | kg   | 24              |  |  |

### **Expansion Vessel for DHW**



As an optional accessory, the installer can install a standard 8f DHW expansion vessel that conveniently fits inside the indoor unit. It is provided with an accessory kit that includes a flexible connection tube.

| Expansion vessel for DHW   | Unit | OSHE-12KT.AEU   |
|----------------------------|------|-----------------|
| Expansion Volume           | f    | 8               |
| Connection                 | inch | 3/4             |
| Max. Pressure              | bar  | 10              |
| Pre-charge                 | bar  | 3               |
| Dimensions (W x H x D)     | mm   | 416 x 238 x 502 |
| Weight (w/o water) Product | kg   | 2.5             |

### **Accessory Parts (Separately Provided)**

### Shut-off valve (1EA)



### Shut-off valve with strainer (1EA)



#### Strainer



| Technical Specif  | fication           | Details                            |  |  |
|-------------------|--------------------|------------------------------------|--|--|
| Material          | Body               | Brass                              |  |  |
| Material          | Mesh               | Stainless steel (STS304)           |  |  |
| Mesh              | Mesh No.           | 30                                 |  |  |
| Mesn              | Max. Particle Size | 0.6mm                              |  |  |
| Piping Connection |                    | Female G 1" according to ISO 228-1 |  |  |

### **Performance Table for Heating Operation**

Maximum Heating Capacity (Including Defrost Effect)

#### HU121MRB U30 / HU123MRB U30 + HN1616Y NB1

| Outdoor     | LWT 30 °C | LWT 35°C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|----------|-----------|-----------|----------|-----------|-----------|-----------|
| Temperature | TC        | TC       | TC        | TC        | TC       | TC        | TC        | TC        |
| -25°C DB    | 9.66      | 8.85     | 8.42      | 8.29      | -        | -         | -         | -         |
| -20°C DB    | 10.13     | 10.00    | 9.88      | 9.75      | 9.63     | -         | -         | -         |
| -15°C DB    | 11.50     | 11.50    | 11.50     | 11.50     | 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     |

#### HU141MRB U30 / HU143MRB U30 + HN1616Y NB1

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 ℃ |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC       |
| -25°C DB    | 10.04     | 9.21      | 8.76      | 8.62      | -        | -         | -         | -        |
| -20°C DB    | 11.82     | 11.25     | 10.95     | 10.67     | 10.59    | -         | -         | -        |
| -15°C DB    | 12.52     | 12.90     | 13.26     | 12.88     | 12.81    | 12.63     | -         | -        |
| -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    |

#### HU161MRB U30 / HU163MRB U30 + HN1616Y NB1

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45°C | LWT 50 ℃ | LWT 55 °C | LWT 60 °C | LWT 65 ℃ |
|-------------|-----------|-----------|-----------|----------|----------|-----------|-----------|----------|
| Temperature | TC        | TC        | TC        | TC       | TC       | TC        | TC        | TC       |
| -25°C DB    | 10.98     | 10.00     | 9.50      | 9.33     | -        | -         | -         | -        |
| -20°C DB    | 13.43     | 12.54     | 12.03     | 11.78    | 11.47    | -         | -         | -        |
| -15°C DB    | 14.23     | 14.39     | 14.50     | 13.95    | 13.86    | 13.12     | -         | -        |
| -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    |

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

### **Performance Table for Cooling Operation**

Maximum Cooling Capacity

#### HU121MRB U30 / HU123MRB U30 + HN1616Y NB1

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | 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     | 11.75   | 12.00    | 12.00    | 12.00    | 12.00    | 12.00    | 12.00    |
| 45°C DB     | 11.50   | 12.00    | 12.00    | 12.00    | 12.00    | 12.00    | 12.00    |

#### HU141MRB U30 / HU143MRB U30 + HN1616Y NB1

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 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    |
| 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     | 13.75   | 14.00    | 14.00    | 14.00    | 14.00    | 14.00    | 14.00    |
| 45°C DB     | 13.50   | 14.00    | 14.00    | 14.00    | 14.00    | 14.00    | 14.00    |

#### HU161MRB U30 / HU163MRB U30 + HN1616Y NB1

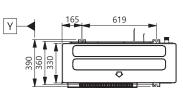
| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 16.00   | 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    |
| 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     | 15.75   | 16.00    | 16.00    | 16.00    | 16.00    | 16.00    | 16.00    |
| 45°C DB     | 15.50   | 16.00    | 16.00    | 16.00    | 16.00    | 16.00    | 16.00    |

- 1. DB: Dry Bulb Temperature (°C), LWT: Leaving Water Temperature (°C), LPM: Liters Per Minute (I/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.

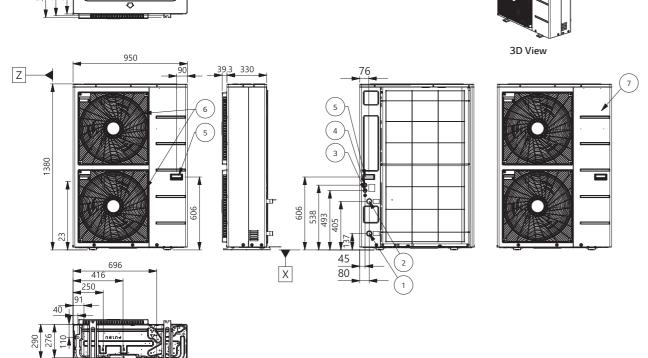
## **Drawings**

|                                       |              |              | Model Name    |              |  |  |  |
|---------------------------------------|--------------|--------------|---------------|--------------|--|--|--|
| Category                              | Unit         |              | Capacity (kW) |              |  |  |  |
|                                       |              | 12.0         | 14.0          | 16.0         |  |  |  |
| 1 Phase Model                         | Outdoor Unit | HU121MRB U30 | HU141MRB U30  | HU161MRB U30 |  |  |  |
| 220 ~ 240V, 1Ø, 50Hz                  | Indoor Unit  | HN1616Y NB1  |               |              |  |  |  |
| 3 Phase Model<br>380 ~ 415V, 3Ø, 50Hz | Outdoor Unit | HU123MRB U30 | HU143MRB U30  | HU163MRB U30 |  |  |  |
|                                       | Indoor Unit  |              | HN1616Y NB1   |              |  |  |  |

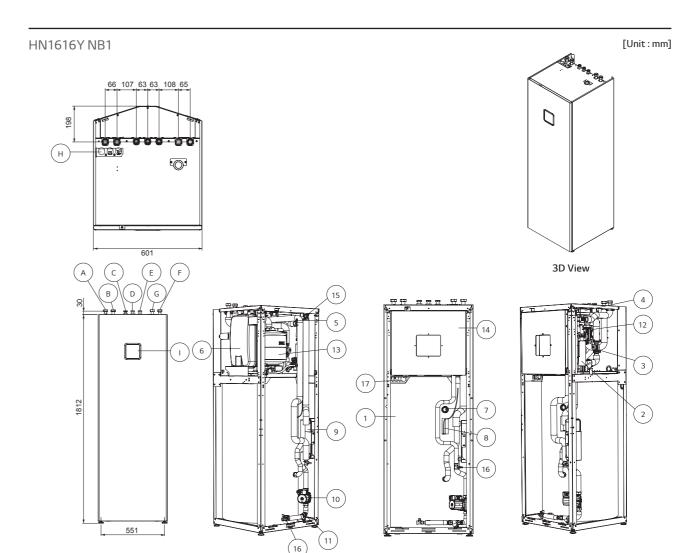
HU121MRB U30 / HU141MRB U30 / HU161MRB U30 HU123MRB U30 / HU143MRB U30 / HU163MRB U30 [Unit:mm]







| 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   | Unit Power          | Power cable hole                                       |
| 4   | Low Voltage         | Communication cable hole                               |
| 5   | Handle              | -  |
| 6   | Air Outlet          | -  |
| 7   | Side Panel          | -  |

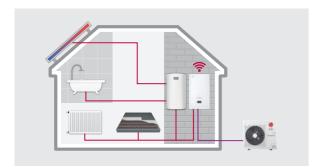


| No. | Part Name               | Description                      |  |  |  |  |
|-----|-------------------------|----------------------------------|--|--|--|--|
| 1   | Domestic hot water tank | 200 L                            |  |  |  |  |
| 2   | Electric heater         | Max 6 kW                         |  |  |  |  |
| 3   | Flow Sensor             | SIKA VVX20 5-80 LPM              |  |  |  |  |
| 4   | 3 Way valve             | Heating / DHW circuit            |  |  |  |  |
| 5   | Water pressure sensor   | SENSATA 2HMP                     |  |  |  |  |
| 6   | Expansion vessel        | 12 L for heating circuit         |  |  |  |  |
| 7   | Magnesium anode         | To prevent corrosion             |  |  |  |  |
| 8   | DHW tank sensor         | Temperature sensor               |  |  |  |  |
| 9   | Plate heat exchanger    | Heat exchange (Water / DHW tank) |  |  |  |  |
| 10  | DHW water pump          | WILO ZRS 15/6-3                  |  |  |  |  |
| 11  | Strainer For DHW tank   | Filtering and stacking particles |  |  |  |  |
| 12  | Main water pump         | GRUNDFOS UPML 25-105 130 PWM A   |  |  |  |  |
| 13  | Expansion vessel        | 8 L For DHW circuit (Accessory)  |  |  |  |  |
| 14  | Control box             | PCB and terminal blocks          |  |  |  |  |
| 15  | Air vent                | Air purging when charging water  |  |  |  |  |
| 16  | Drain cock              | Valve for water draining         |  |  |  |  |
| 17  | Electrical conduits     | For electric wiring              |  |  |  |  |

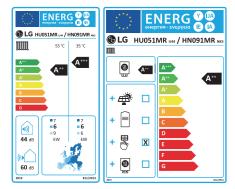
| No. | Part Name                      | Part Name                  |  |  |
|-----|--------------------------------|----------------------------|--|--|
| Α   | Inlet pipe from outdoor unit   | Female G1"                 |  |  |
| В   | Outlet pipe to outdoor unit    | Female G1"                 |  |  |
| С   | Domestic hot water outlet pipe | Female G3/4"               |  |  |
| D   | Domestic cold water inlet pipe | Female G3/4"               |  |  |
| Е   | Domestic re-circulation pipe   | Female G3/4"               |  |  |
| F   | Heating circuit inlet pipe     | Female G1"                 |  |  |
| G   | Heating circuit outlet pipe    | Female G1"                 |  |  |
| Н   | Electrical conduits            | For electric wiring        |  |  |
| - 1 | Control panel                  | Built-in remote controller |  |  |

# THERMA V. (R32) R32 SPLIT HYDRO BOX





### **Energy Label**



- \* 5kW 1Ø model.
- \* A+++ to D scale.

#### **Excellent Performance & Efficiency**









**User Convenience** 













#### Easy Installation & Maintenance



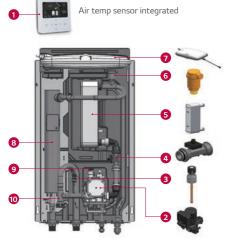




## **R32 Split Hydro Box Introduction**

 $The LG\,THERMA\,V\,R32\,Split\,Hydro\,Box\,is\,a\,hydro\,box\,type\,comprising\,a\,separate\,indoor\,and\,outdoor\,unit,\,which\,are\,connected\,by\,Allowed and allowed by the compression of the connected by the connected by$ refrigerant piping. Hydronic components such as plate heat exchanger, expansion tank and water pump are located within the indoor unit, making the unit capable of withstanding freezing outside ambient temperatures.

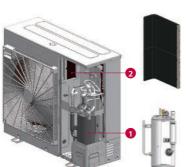
## **Key Components**



- 1 Standard III Remote controller (attached on the front panel)
- 2 Water pump (GRUNDFOS)
- 3 Water pressure sensor (SENSATA)
- 4 Flow sensor (SIKA)
- 5 Plate type heat exchanger (ref/water)
- 6 Air vent valve
- 7 Expansion vessel (81)
- 8 Back up electric heater (6kW)
- 9 Safety valve
- 10 Strainer

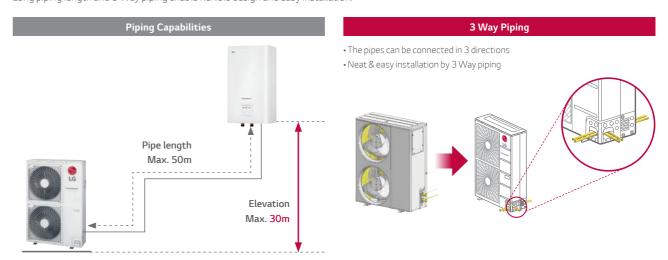
#### 1 R1 compressor

2 Black Fin heat exchanger (ref/air)



## Flexible Refrigerant Piping Design

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



<sup>\*</sup> Detailed description for each function is presented on page 28 ~ 35.

# THERMA V<sub>m</sub> (R32) SPLIT HYDRO BOX

# **PRODUCT SPECIFICATION**

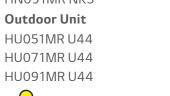
### **R32 Split Hydro Box**























Features

- Refrigerant pipes connects IDU & ODU
- SCOP up to 4.65 (Average climate / Low temp. application): A+++ SCOP up to 3.23 (Average climate / Mid temp. application): A++
- COP up to 4.90 (Outdoor air  $7^{\circ}$  / Leaving water  $35^{\circ}$ )
- 100% heating capacity at -7 °C OAT (@ LWT 35°C)
- Wide operation range (ambient: -25 ~ 35°C / water side: 15 ~ 65°C)
- $\bullet \, \text{Built-in water flow} \, \& \, \text{pressure sensors to monitor real-time water circuit}$
- R32 refrigerant with reduced global warming potential (GWP)

- •R1 compressor
- Black Fin heat exchanger
- LG ThinQ
- KEYMARK / MCS / EUROVENT certification
- \* EHPA label under development

### Model Line-up

|                      |              | Model Name    |             |             |  |  |  |
|----------------------|--------------|---------------|-------------|-------------|--|--|--|
| Category             | Unit         | Capacity (kW) |             |             |  |  |  |
|                      |              | 5.5           | 7.0         | 9.0         |  |  |  |
| 1 Phase Model        | Outdoor Unit | HU051MR U44   | HU071MR U44 | HU091MR U44 |  |  |  |
| 220 ~ 240V, 1Ø, 50Hz | Indoor Unit  | HN091MR NK5   |             |             |  |  |  |

### Seasonal Energy

| Description            | Description   |   | Outdoor Unit | HU051MR U44 | HU071MR U44 | HU091MR U44 |
|------------------------|---------------|---|--------------|-------------|-------------|-------------|
| Description            |               | Indoor Unit   | HN091MR NK5  |             |             |             |
| Average                |               | SCOP  | -            | 4.65        | 4.65        | 4.65        |
| Space                  | Climate Water | Seasonal Space Heating Efficiency (1/s)             | %            | 183         | 183         | 183         |
| Heating                | Outlet 35°C   | Seasonal Space Heating Eff. Class (A+++ to D scale) | -            | A+++        | A+++        | A+++        |
| (according to          | Average       | SCOP  | -            | 3.23        | 3.23        | 3.23        |
| EN14825) Climate Water | Climate Water | Seasonal Space Heating Efficiency (1/s)             | %            | 126         | 126         | 126         |
| Outlet 55°C            |               | Seasonal Space Heating Eff. Class (A+++ to D scale) | -            | A++         | A++         | A++         |

### Nominal Capacity and Nominal Power Input

| B 1.0                  |         | CAT (DD) | LIME (DD) | Outdoor Unit | HU051MR U44            | HU071MR U44 | HU091MR U44  |  |
|------------------------|---------|----------|-----------|--------------|------------------------|-------------|--|--|
| Description            |         | OAT (DB) | LWT (DB)  | Indoor Unit  | ndoor Unit HN091MR NK5 |             |  |  |
|                        |         | 7°C      | 35°C      |              | 5.50                   | 7.00        | 9.00   |  |
|                        | Heating | 7°C      | 55°C      |              | 5.50                   | 5.50        | 5.50   |  |
| Nominal Capacity       |         | 2°C      | 35°C      | kW           | 3.30                   | 4.20        | 5.40   |  |
|                        | Caaliaa | 35°C     | 18°C      |              | 5.50                   | 7.00        | 9.00   |  |
|                        | Cooling | 35°C     | 7°C       |              | 5.50                   | 7.00        | 9.00   |  |
| . Не                   |         | 7°C      | 35°C      |              | 1.12                   | 1.43        | 1.94   |  |
|                        | Heating | 7°C      | 55°C      |              | 2.04                   | 2.04        | 2.04   |  |
| Nominal<br>Power Input |         | 2°C      | 35°C      | kW           | 0.94                   | 1.20        | 1.54   |  |
| rower input            | Caalina | 35°C     | 18°C      |              | 1.20                   | 1.56        | 2.14   |  |
|                        | Cooling | 35°C     | 7°C       |              | 1.96                   | 2.59        | 9.00<br>5.50<br>5.40<br>9.00<br>9.00<br>1.94<br>2.04 |  |
|                        |         | 7°C      | 35°C      |              | 4.90                   | 4.90        | 4.65   |  |
| COP                    | Heating | 7°C      | 55°C      | W/W          | 2.70                   | 2.70        | 2.70   |  |
|                        |         | 2°C      | 35°C      |              | 3.52                   | 3.51        | 3.50   |  |
| FED                    | Caaling | 35°C     | 18°C      | W/W          | 4.60                   | 4.50        | 4.20   |  |
| EER                    | Cooling | 35°C     | 7°C       | VV/VV        | 2.80                   | 2.70        | 2.60   |  |

## Product Specification (Outdoor Unit)

| Technical Specification      |                             |                   | Unit        | HU051MR U44 | HU071MR U44            | HU091MR U44                      |  |
|------------------------------|-----------------------------|-------------------|-------------|-------------|------------------------|----------------------------------|--|
| Operation Range              | Heating                     | Min. ~ Max.       | °C DB       |             | -25 ~ 35               |                                  |  |
| (outdoor temp.)              | Cooling                     | IVIIn. ~ IVIAX.   | LC DB       |             | 5 ~ 48                 |                                  |  |
| C                            | Quantity                    |                   | EA          | 1           |                        |                                  |  |
| Compressor                   | Туре                        |                   | -           |             | Hermetic Sealed Scroll |                                  |  |
|                              | Type                        |                   | -           |             | R32                    |                                  |  |
| Deficience                   | GWP (global warming poten   |                   | -           |             | 675                    |                                  |  |
| Refrigerant                  | Precharged Amount           |                   | g           | 1,500       |                        |                                  |  |
|                              | t-CO <sub>2</sub> eq        |                   | -           | 1.013       |                        |                                  |  |
|                              | 0                           | Gas               | mm (inch)   |             | Ф 15.88 (5/8)          |                                  |  |
|                              | Outside Diameter            | Liquid            | mm (inch)   |             | Ф 9.52 (3/8)           | 25.9<br>25.9<br>8.6<br>9.5<br>25 |  |
| B                            |                             | Standard          | m           | m 5         |                        |                                  |  |
| Piping                       | Length                      | Max.              | m           |             | 50                     |                                  |  |
| Connections                  | Level Difference            | Max.              | m           |             | 30                     |                                  |  |
|                              | Chargeless-Pipe Length      |                   | m           | 10          |                        |                                  |  |
|                              | Additional Charging Volume  |                   | q/m         | 40          |                        |                                  |  |
| Rated Water Flow Rate (at    | LWT 35°C)                   |                   | LPM         | 15.8        | 20.1                   | 25.9                             |  |
| Sound Power Level            | Heating                     | Rated             | dB(A)       |             | 60                     |                                  |  |
| Sound Pressure Level (at 1m) | Heating                     | Rated             | dB(A)       |             | 52                     |                                  |  |
| Dimensions                   | Unit                        | WxHxD             | mm          |             | 950 × 834 × 330        |                                  |  |
| Weight                       | Unit                        |                   | kg          |             | 60.0                   |                                  |  |
| Exterior                     | Color / RAL Code            |                   | -           | 1           | Narm Gray / RAL 7044   | 1                                |  |
|                              | Voltage, Phase, Frequency   |                   | V, Ø, Hz    |             | 220-240, 1, 50         |                                  |  |
| Danier Consults              |                             | Heating           | A           | 5.0         | 6.3                    | 8.6                              |  |
| Power Supply                 | Rated Running Current       | Cooling           | А           | 5.3         | 6.9                    | 9.5                              |  |
|                              | Recommended Circuit Break   | ker               | А           | 16          | 20                     | 25                               |  |
| Wiring Connections           | Power Supply Cable (include | d earth, H07RN-F) | mm² x cores |             | 4.0 x 3C               |                                  |  |

- $1. \, {\sf Due} \, to \, {\sf our} \, {\sf policy} \, {\sf of} \, {\sf innovation} \, {\sf some} \, {\sf specifications} \, {\sf may} \, {\sf be} \, {\sf changed} \, {\sf without} \, {\sf notifications} \, {\sf out} \, {\sf out$ 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 OdB and installation in free-field.
- Rated sound power level is according to the EN12102-1 under conditions of the EN14825. 4. Performances are based on the following conditions (It is according to EN14511)
- Interconnected Pipe Length is standard length and difference of Elevation (Outdoor Indoor Unit) is 0m.
- 5. This product contains Fluorinated greenhouse gases.

### **Product Specification (Indoor Unit)**

| Technical Specification |                                     |                           | Unit        | HN091MR NK5                     |  |  |
|-------------------------|-------------------------------------|---------------------------|-------------|---------------------------------|--|--|
| O                       | Heating                             |                           |             | 15 ~ 65                         |  |  |
| Operation Range         | Cooling                             | Min. ~ Max.               | °C DB       | 5 ~ 27 (16 ~ 27) <sup>1)</sup>  |  |  |
| (leaving water)         | DHW                                 |                           |             | 15 ~ 80 <sup>2)</sup>           |  |  |
| Flow Sensor             | Measuring Range                     | Min. ~ Max.               | LPM         | 5 ~ 80                          |  |  |
| Water Pressure Sensor   | Measuring Range                     | Min. ~ Max.               | bar(G)      | 0 ~ 20                          |  |  |
| Expansion Vessel        | Volume                              |                           | P           | 8                               |  |  |
| Safety Valve            | Pressure Limit                      | Upper Limit               | bar         | 3                               |  |  |
|                         | Туре                                |                           | -           | Sheath                          |  |  |
|                         | Number of Heating Coil              |                           | EA          | 2                               |  |  |
|                         | Capacity Combination                |                           | kW          | 3.0 + 3.0                       |  |  |
| Backup Heater           | Heating Steps                       |                           | Step        | 2                               |  |  |
|                         | Power Supply                        |                           | V, Ø, Hz    | 220-240, 1, 50                  |  |  |
|                         | Rated Running Current               |                           | А           | 25.0                            |  |  |
|                         | Power Supply Cable (included earth, | H07RN-F)                  | mm² x cores | 4.0 x 3C                        |  |  |
|                         |                                     | Inlet                     | Inch        | Male PT 1" according to ISO 7-1 |  |  |
|                         | Water Circuit                       | inter                     | IIICII      | (tapered pipe threads)          |  |  |
| Dining Connections      | vvater Circuit                      | Outlet                    | Inch        | Male PT 1" according to ISO 7-1 |  |  |
| Piping Connections      |                                     | Outlet                    | IIICII      | (tapered pipe threads)          |  |  |
|                         | Refrigerant Circuit                 | Gas (outside diameter)    | mm (Inch)   | Ø 15.88 (5/8)                   |  |  |
|                         | Refrigerant Circuit                 | Liquid (outside diameter) | mm (Inch)   | Ø 9.52 (3/8)                    |  |  |
| Wiring Connections      | Power and Communication Cable (i    | ncluded earth, H07RN-F)   | mm2 x cores | 0.75 x 4C                       |  |  |
| Sound Power Level       | Heating                             | Rated                     | dB(A)       | 44                              |  |  |
| Dimensions              | Unit                                | W×H×D                     | mm          | 490 × 850 × 315                 |  |  |
| Weight                  | Unit                                |                           | kg          | 37.6                            |  |  |
| Exterior                | Color / RAL Code                    |                           | -           | Noble White / RAL 9016          |  |  |

<sup>1)</sup> When fan coil unit not used.

<sup>2)</sup> DHW  $58-80^{\circ}$ C Operating is available only when the booster heater is operating.

### **Performance Table for Heating Operation**

Maximum Heating Capacity (Including Defrost Effect)

#### HU051MR U44 + HN091MR NK5

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC        |
| -25°C DB    | 4.02      | 3.90      | 3.78      | 3.66      | -        | -         | -         | -         |
| -20°C DB    | 4.64      | 4.51      | 4.38      | 4.26      | 4.13     | -         | -         | -         |
| -15°C DB    | 5.26      | 5.12      | 4.99      | 4.85      | 4.72     | 4.58      | -         | -         |
| -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      | -         |
| -2°C DB     | 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      |

#### HU071MR U44 + HN091MR NK5

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 ℃ |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC       |
| -25°C DB    | 5.00      | 4.85      | 4.71      | 4.56      | -        | -         | -         | -        |
| -20°C DB    | 5.58      | 5.43      | 5.27      | 5.11      | 4.95     | -         | -         | -        |
| -15°C DB    | 6.17      | 6.00      | 5.83      | 5.66      | 5.49     | 5.32      | -         | -        |
| -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      | -        |
| -2°C DB     | 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     |

#### HU091MR U44 + HN091MR NK5

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC        |
| -25°C DB    | 6.40      | 6.20      | 6.00      | 5.80      | -        | -         | -         | -         |
| -20°C DB    | 7.23      | 7.00      | 6.77      | 6.54      | 6.31     | -         | -         | -         |
| -15°C DB    | 8.06      | 7.80      | 7.54      | 7.28      | 7.02     | 6.76      | -         | -         |
| -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      | -         |
| -2°C DB     | 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      |

- $1.\,DB: Dry\,Bulb\,Temperature\,(^{\circ}C), LWT: Leaving\,Water\,Temperature\,(^{\circ}C), LPM: Liters\,Per\,Minute\,(l/min), TC: Total\,Capacity\,(kW)$
- 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.
- $\bullet Above \ table \ values \ may \ not \ be \ matched \ according \ to \ installation \ condition. \ Except for rated \ value, the \ performance \ is \ not \ guaranteed.$
- In accordance with the test standard (or nations), the rating will vary slightly.
- $4. \, \hbox{The shaded areas are not guaranteed continuous operation}.$

### **Performance Table for Cooling Operation**

Maximum Cooling Capacity

#### HU051MR U44 + HN091MR NK5

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 6.42    | 6.95     | 7.49     | 7.85     | 8.39     | 8.75     | 9.11     |
| 20°C DB     | 6.05    | 6.37     | 6.70     | 6.91     | 7.23     | 7.45     | 7.66     |
| 30°C DB     | 5.68    | 5.79     | 5.90     | 5.97     | 6.08     | 6.15     | 6.22     |
| 35°C DB     | 5.50    | 5.50     | 5.50     | 5.50     | 5.50     | 5.50     | 5.50     |
| 40°C DB     | 5.32    | 5.34     | 5.35     | 5.37     | 5.38     | 5.40     | 5.41     |
| 45°C DB     | 5.13    | 5.17     | 5.21     | 5.23     | 5.27     | 5.29     | 5.32     |

#### HU071MR U44 + HN091MR NK5

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 8.17    | 8.85     | 9.54     | 9.99     | 10.68    | 11.13    | 11.59    |
| 20°C DB     | 7.70    | 8.11     | 8.52     | 8.80     | 9.21     | 9.48     | 9.75     |
| 30°C DB     | 7.23    | 7.37     | 7.51     | 7.60     | 7.74     | 7.83     | 7.92     |
| 35°C DB     | 7.00    | 7.00     | 7.00     | 7.00     | 7.00     | 7.00     | 7.00     |
| 40°C DB     | 6.77    | 6.79     | 6.81     | 6.83     | 6.85     | 6.87     | 6.88     |
| 45°C DB     | 6.53    | 6.58     | 6.63     | 6.66     | 6.70     | 6.74     | 6.77     |

#### HU091MR U44 + HN091MR NK5

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 10.50   | 11.38    | 12.26    | 12.85    | 13.73    | 14.31    | 14.90    |
| 20°C DB     | 9.90    | 10.43    | 10.96    | 11.31    | 11.84    | 12.19    | 12.54    |
| 30°C DB     | 9.30    | 9.48     | 9.65     | 9.77     | 9.95     | 10.06    | 10.18    |
| 35°C DB     | 9.00    | 9.00     | 9.00     | 9.00     | 9.00     | 9.00     | 9.00     |
| 40°C DB     | 8.70    | 8.73     | 8.76     | 8.78     | 8.81     | 8.83     | 8.85     |
| 45°C DB     | 8.40    | 8.46     | 8.52     | 8.56     | 8.62     | 8.66     | 8.70     |

- $1.\,DB: Dry\,Bulb\,Temperature\,(^{\circ}C), LWT: Leaving\,Water\,Temperature\,(^{\circ}C), LPM: Liters\,Per\,Minute\,(l/min), TC: Total\,Capacity\,(kW)$
- 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.

# THERMA V<sub>TM</sub> (R32) SPLIT HYDRO BOX

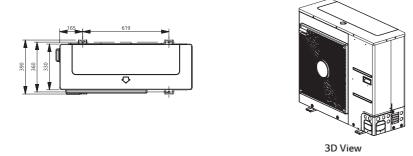
# **PRODUCT SPECIFICATION**

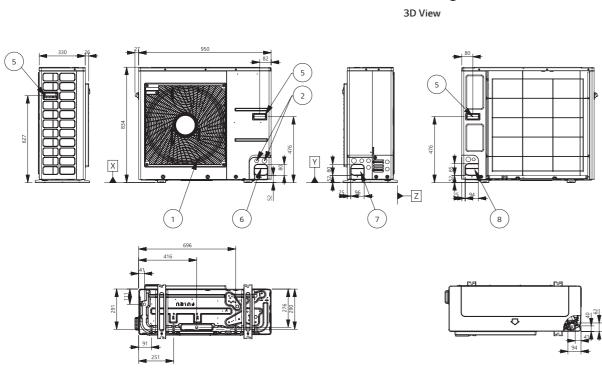
## **Drawings**

|                      |              |               | Model Name  |             |  |  |  |
|----------------------|--------------|---------------|-------------|-------------|--|--|--|
| Category             | Unit         | Capacity (kW) |             |             |  |  |  |
|                      |              | 5.5           | 7.0         | 9.0         |  |  |  |
| 1 Phase Model        | Outdoor Unit | HU051MR U44   | HU071MR U44 | HU091MR U44 |  |  |  |
| 220 ~ 240V, 1Ø, 50Hz | Indoor Unit  | HN091MR NK5   |             |             |  |  |  |

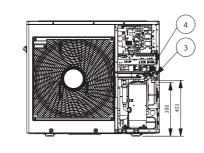
HU051MR U44 / HU071MR U44 / HU091MR U44

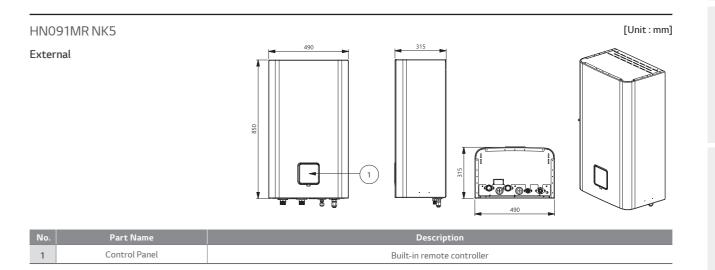
[Unit:mm]



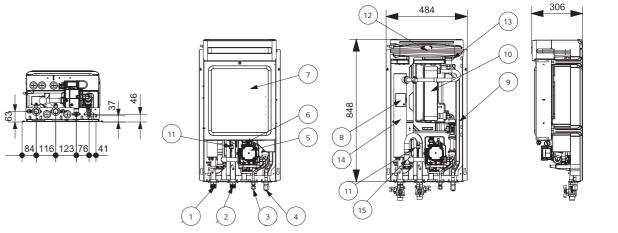


| No. | Part Name                          | Description |
|-----|------------------------------------|-------------|
| 1   | Air Outlet                         | -           |
| 2   | Power and Communication Cable Hole | -           |
| 3   | Gas Pipe Connection                | Flare joint |
| 4  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





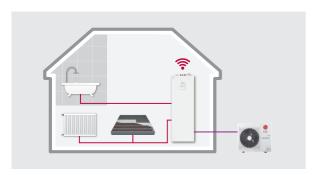




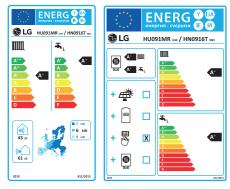
| No. | Part Name                            | Description   |
|-----|--------------------------------------|---|
| 1   | Leaving Water Pipe                   | Male PT 1" according to ISO 7-1 (tapered pipe threads)    |
| 2   | Entering Water Pipe                  | Male PT 1" according to ISO 7-1 (tapered pipe threads)    |
| 3   | Refrigerant Pipe (Liquid)            | Ø9.52 (mm)  |
| 4   | 4 Refrigerant Pipe (Gas) Ø15.88 (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            |
| 9   | Flow Sensor                          | SIKA VVX20 5-80LPM  |
| 10  | Plate Heat Exchanger                 | Heat exchange between refrigerant and water               |
| 11  | Pressure Sensor                      | SENSATA 2HMP3-04W, 0-2MPa                                 |
| 12  | Expansion Tank                       | Absorbing volume change of heated water                   |
| 13  | Air Vent                             | Air purging when charging water                           |
| 14  | Backup Heater                        | 6kW   |
| 15  | Strainer                             | Filtering and stacking particles inside circulating water |

# THERMA V... (R32) **R32 SPLIT IWT**





### **Energy Label**



- \* 9kW 1Ø model.

#### **Excellent Performance & Efficiency**











#### **User Convenience**

















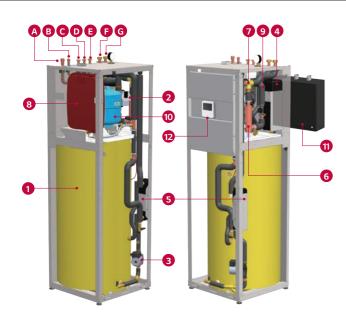


\* Detailed description for each function is presented on page 28  $\sim$  35.

## **R32 Split IWT Introduction**

THERMA V R32 Split IWT is a domestic hot water supply, space heating and cooling solution that conveniently combines an indoor hot  $water \, tank \, with \, a \, separate \, outdoor \, unit. \, THERMA \, V \, R32 \, Split \, IWT \, is \, the \, perfect \, space-saving \, solution \, for \, residential \, applications \, because \, the \, residential \, separate \, outdoor \, unit. \, THERMA \, V \, R32 \, Split \, IWT \, is \, the \, perfect \, space-saving \, solution \, for \, residential \, applications \, because \, the \, residential \, separate \, outdoor \, unit. \, THERMA \, V \, R32 \, Split \, IWT \, is \, the \, perfect \, space-saving \, solution \, for \, residential \, applications \, because \, the \, residential \, separate \, outdoor \, unit. \, THERMA \, V \, R32 \, Split \, IWT \, is \, the \, perfect \, space-saving \, solution \, for \, residential \, applications \, because \, the \, residential \, separate \, outdoor \, unit. \, THERMA \, V \, R32 \, Split \, IWT \, is \, the \, perfect \, space-saving \, solution \, for \, residential \, split \, specifical \, the \, residential \, split \, specifical \, the \, residential \, split \,$ hydronic components like the Domestic Hot Water (DHW) and buffer tanks, which are typically installed separately, are fully integrated.

### **Key Components**



- 1 DHW storage tank (2001)
- 2 Main water pump
- 3 Water pump for DHW charging
- 4 Main plate heat exchanger (ref. / water)
- 5 Plate heat exchanger for DHW (water / DHW)
- 6 Back up electric heater (max. 6kW)
- 7 3 Way diverting valve
- 8 Expansion vessel for heating (121)
- 10 Expansion vessel for DHW (81, option)
- 1 Buffer tank (40%, option)
- 2 Standard III Remote controller (attached on the front panel)
- A 5/8" Refrigerant gas pipe
- B 3/8" Refrigerant liquid pipe
- **G** G3/4" Domestic hot water outlet
- **O** G3/4" Domestic cold water inlet **■** G3/4" DHW Re-circulation
- G1" Heating circuit inlet
- **G** G1" Heating circuit outlet



### **Sophisticated and Harmonious Exterior**

The THERMA V R32 Split IWT indoor unit can be installed in multiple indoor spaces, to include the utility or laundry room, garage or kitchen due to its sleek design.



### **Save Space and Time**

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



#### All in One

- Small footprint for product installation
- Quick & easy installation
- DHW tank (2001) & hydronic component integration
- Integrated max. 6kW back up heater • Integrated expansion tank for heating
- Integrated buffer tank (40l) & expansion tank for DHW circuit (8I) (Optional)

# THERMA V<sub>m</sub> (R32) SPLIT IWT

# **PRODUCT SPECIFICATION**

### R32 Split IWT (Integrated Water Tank)







### Indoor Unit HN0916T NB1 **Outdoor Unit** HU051MR U44

HU071MR U44 HU091MR U44























#### **Features**

- Refrigerant pipes connects IDU & ODU
- $\bullet \, \mathsf{SCOP} \, \mathsf{up} \, \mathsf{to} \, 4.52 \, \mathsf{(Average \, climate \, / \, Low \, temp. \, application)} \, : \, \mathsf{A} + + + \\$ SCOP up to 3.03 (Average climate / Mid temp. application): A+ SCOPDHW 2.89 (water heating efficiency 120%, profile L): A+
- COP up to 4.50 (Outdoor air 7°C / Leaving water 35°C)
- DHW tank (2001) & hydronic component integration
- Integrable buffer tank (40l) & expansion tank for DHW circuit (8l) (optional)
- 100% heating capacity at -7°C OAT (@ LWT 35°C)
- Wide operation range (ambient : -25  $\sim$  35°C / water side : 15  $\sim$  65°C)
- Built-in water flow to monitor real-time water circuit
- R32 refrigerant with reduced global warming potential (GWP)
- •R1 compressor
- Black Fin heat exchanger
- KEYMARK / EHPA (for Germany, Austria) / EUROVENT certification

### Model Line-up

|                      |              | Model Name    |             |             |  |  |  |
|----------------------|--------------|---------------|-------------|-------------|--|--|--|
| Category             | Unit         | Capacity (kW) |             |             |  |  |  |
|                      |              | 5.0           | 7.0         | 9.0         |  |  |  |
| 1 Phase Model        | Outdoor Unit | HU051MR U44   | HU071MR U44 | HU091MR U44 |  |  |  |
| 220 ~ 240V, 1Ø, 50Hz | Indoor Unit  | HN0916T NB1   |             |             |  |  |  |

### Seasonal Energy

| December              |                   |   | Outdoor Unit | HU051MR U44 | HU071MR U44 | HU091MR U44 |
|-----------------------|-------------------|---|--------------|-------------|-------------|-------------|
| Description           |                   |   | Indoor Unit  | HN0916T NB1 |             |             |
|                       | Average           | SCOP  | -            | 4.52        | 4.47        | 4.45        |
| C                     | Climate Water     | Seasonal Space Heating Efficiency (🛚s)              | %            | 178         | 176         | 175         |
| Space<br>Heating      | Outlet 35°C       | Seasonal Space Heating Eff. Class (A+++ to D scale) | -            | A+++        | A+++        | A+++        |
| (according to         | Average           | SCOP  | -            | 3.01        | 3.00        | 3.03        |
| EN14825)              | Climate Water     | Seasonal Space Heating Efficiency (🛚 s)             | %            | 117         | 117         | 118         |
|                       | Outlet 55°C       | Seasonal Space Heating Eff. Class (A+++ to D scale) | -            | A+          | A+          | A+          |
|                       |                   | Declared Load Profile                               | -            | L           | L           | L           |
|                       | Average           | Water Heating Efficiency (🛚 wh)                     | %            | 125         | 125         | 125         |
|                       | Climate           | SCOP <sub>DHW</sub>                                 | -            | 2.89        | 2.89        | 2.89        |
| Dti-                  |                   | Water Heating Efficiency Class                      | -            | A+          | A+          | A+          |
| Domestic<br>Hot Water |                   | Declared Load Profile                               | -            | L           | L           | L           |
| Efficiency            | Warmer Climate    | Water Heating Efficiency (🛚 wh)                     | %            | 156         | 156         | 156         |
| acc. EN16147          |                   | SCOP <sub>DHW</sub>                                 | -            | 3.61        | 3.61        | 3.61        |
|                       |                   | Declared Load Profile                               | -            | L           | L           | L           |
|                       | Colder<br>Climate | Water Heating Efficiency <sub>(!!wh)</sub>          | %            | 106         | 106         | 106         |
|                       | Currect           | SCOP <sub>DHW</sub>                                 | -            | 2.44        | 2.44        | 2.44        |

### Nominal Capacity and Nominal Power Input

| December               |             | OAT (DD) | LM(T/DD) | Outdoor Unit | HU051MR U44 | HU071MR U44 | HU091MR U44 |  |  |  |
|------------------------|-------------|----------|----------|--------------|-------------|-------------|-------------|--|--|--|
| Description            |             | OAT (DB) | LWT (DB) | Indoor Unit  |             | HN0916T NB1 |             |  |  |  |
| Nominal Capacity       | Hastina     | 7°C      | 35°C     |              | 5.50        | 7.00        | 9.00        |  |  |  |
|                        | Heating     | 7°C      | 55°C     | kW           | 5.00        | 5.25        | 5.50        |  |  |  |
|                        | Cooling     | 35°C     | 18°C     |              | 5.50        | 7.00        | 9.00        |  |  |  |
|                        |             | 7°C      | 35°C     | kW           | 1.22        | 1.56        | 2.05        |  |  |  |
| Nominal<br>Power Input | Heating     | 7°C      | 55°C     |              | 1.92        | 2.02        | 2.12        |  |  |  |
| r ower input           | Cooling     | 35°C     | 18°C     |              | 1.20        | 1.59        | 2.20        |  |  |  |
| con                    |             | 7°C      | 35°C     |              | 4.50        | 4.50        | 4.40        |  |  |  |
| COP                    | Heating     | 7°C      | 55°C     | W/W          | 2.60        | 2.60        | 2.60        |  |  |  |
| EER                    | Cooling 35° |          | 18°C     |              | 4.60        | 4.40        | 4.10        |  |  |  |

### R32 Split IWT (Integrated Water Tank)

### Product Specification (Outdoor Unit)

| Technical Specification      |                              |                 | Unit                    | HU051MR U44            | HU071MR U44          | HU091MR U44 |  |
|------------------------------|------------------------------|-----------------|-------------------------|------------------------|----------------------|-------------|--|
| Operation Range              | Heating                      | Min. ~ Max.     | °C DB                   |                        | -25 ~ 35             |             |  |
| (outdoor temp.)              | Cooling                      | IVIII. ~ IVIAX. | ,C DB                   |                        | 5 ~ 48               |             |  |
| C                            | Quantity                     |                 | EA                      | 1                      |                      |             |  |
| Compressor                   | Туре                         |                 | -                       | Hermetic Sealed Scroll |                      |             |  |
|                              | Туре                         |                 | -                       |                        | R32                  |             |  |
| Defeirement                  | GWP (global warming potent   | ial)            | -                       |                        | 675                  |             |  |
| Refrigerant                  | Precharged Amount            |                 | g                       |                        | 1,500                |             |  |
|                              | t-CO <sub>2</sub> eq         |                 | -                       |                        | 1.013                |             |  |
|                              | Outside Diameter             | Gas             | mm (inch)               |                        | Ф 15.88 (5/8)        |             |  |
| Di-i                         | Outside Diameter             | Liquid          | mm (inch)               | Ф 9.52 (3/8)           |                      |             |  |
|                              | Length                       | Standard        | m                       | 5                      |                      |             |  |
| Piping<br>Connections        | Length                       | Max.            | m                       | 50                     |                      |             |  |
| Connections                  | Level Difference             | m               |                         | 30                     |                      |             |  |
|                              | Chargeless-Pipe Length       | m               | 10                      |                        |                      |             |  |
|                              | Additional Charging Volume   |                 | g/m                     |                        | 40                   |             |  |
| Rated Water Flow Rate (at    | LWT 35°C)                    |                 | LPM                     | 15.8                   | 20.1                 | 25.9        |  |
| Sound Power Level            | Heating                      | Rated           | dB(A)                   | 60 61                  |                      |             |  |
| Sound Pressure Level (at 1m) | Heating                      | Rated           | dB(A)                   | 52                     | 5                    | 3           |  |
| Dimensions                   | Unit                         | WxHxD           | mm                      |                        | 950 × 834 × 330      |             |  |
| Weight                       | Unit                         |                 | kg                      |                        | 60.0                 |             |  |
| Exterior                     | Color / RAL Code             |                 | -                       | 1                      | Warm Gray / RAL 7044 |             |  |
|                              | Voltage, Phase, Frequency    |                 | V, Ø, Hz                |                        | 220-240, 1, 50       |             |  |
| Dawar Cumply                 | Rated Running Current        | Heating         | A                       | 5.0                    | 6.3                  | 8.6         |  |
| Power Supply                 |                              | Cooling         | A                       | 5.3                    | 6.9                  | 9.5         |  |
|                              | Recommended Circuit Breake   | r               | А                       | 16                     | 20                   | 25          |  |
| Wiring Connections           | Power Supply Cable (included | earth, H07RN-F) | mm <sup>2</sup> x cores |                        | 4.0 x 3C             |             |  |

#### Note

- 1. Due to our policy of innovation some specifications may be changed without notification.
- 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 based on the following conditions (It is according to EN14511):
- Interconnected Pipe Length is standard length and difference of Elevation (Outdoor Indoor Unit) is 0m.
- 5. This product contains Fluorinated greenhouse gases. (Outdoor ~ Indoor Unit)

### Product Specification (Indoor Unit)

| Technical Specification               | n  |                                       | Unit        | HN0916T NB1  |
|---------------------------------------|--|---------------------------------------|-------------|--|
| Oti D                                 | Heating  |                                       |             | 15 ~ 65  |
| Operation Range                       | Cooling  | Min. ~ Max.                           | °C DB       | 5 ~ 27 (16 ~ 27) <sup>1)</sup>                               |
| (leaving water)                       | DHW  |                                       |             | 15 ~ 80 <sup>2)</sup>  |
| Domestic Hot Water                    | Volume   | Volume Internal Thermal Protect Limit |             | 200  |
| Tank                                  | Internal Thermal Protect Lir                           |                                       |             | 85   |
| Flow Sensor                           | Measuring Range Min. ~ Max.                            |                                       | LPM         | 5 ~ 80   |
| Water Pressure Sensor                 | Measuring Range  | Min. ~ Max.                           | bar(G)      | 0 ~ 20   |
| Expansion Vessel<br>(Heating Circuit) | Volume   |                                       | f           | 12   |
| Safety Valve                          | Heating Circuit  | Upper Limit                           | bar         | 3  |
| Safety valve                          | DHW Circuit  | Upper Limit                           | bar         | 10   |
|                                       | Туре   |                                       | -           | Sheath   |
|                                       | Number of Heating Coil                                 |                                       | EA          | 1/2/3  |
| Electric Heater                       | Capacity combination                                   |                                       | kW          | 2.0 / 2.0 + 2.0 / 2.0 + 2.0 + 2.0                            |
| (Case 1 / Case 2 /                    | Heating Step   |                                       | Step        | 1  |
| Case 3) <sup>3)</sup>                 | Power Supply   |                                       | V, Ø, Hz    | 220-240, 1, 50 / 220-240, 1, 50 / 380-415, 3, 50             |
|                                       | Power Supply Cable (Include                            | d Earth, H07RN-F)                     | mm² x cores | 4.0 x 3C / 4.0 x 3C / 2.5 x 5C                               |
|                                       | Rated Running Current                                  |                                       | A           | 8.7 / 17.4 / 8.7   |
|                                       | Refrigerant Circuit                                    | Gas (outside diameter)                | mm (inch)   | Ø 15.88 (5/8)  |
|                                       | Refrigerant Circuit                                    | Liquid (outside diameter)             | mm (inch)   | Ø 9.52 (3/8)   |
|                                       | Water Circuit  | Inlet                                 | Inch        | Female G 1" according to ISO 228-1 (parallel pipe threads)   |
| Piping Connections                    | vvater circuit   | Outlet                                | Inch        | Female G 1" according to ISO 228-1 (parallel pipe threads)   |
|                                       |  | Cold Inlet                            | Inch        | Female G 3/4" according to ISO 228-1 (parallel pipe threads) |
|                                       | DHW Tank Water Circuit                                 | Hot Outlet                            | Inch        | Female G 3/4" according to ISO 228-1 (parallel pipe threads) |
|                                       |  | Recirculation                         | Inch        | Female G 3/4" according to ISO 228-1 (parallel pipe threads) |
| Wiring Connections                    | Power and Communication Cable(included earth, H07RN-F) |                                       | mm² x cores | 0.75 x 4C  |
| Sound Power Level                     | Heating  | Rated                                 | dB(A)       | 43   |
| Dimensions                            | Unit   | W×H×D                                 | mm          | 601 × 1,812 × 685  |
| Weight                                | Unit   |                                       | kg          | 140.0  |
| Exterior                              | Color / RAL Code                                       |                                       | -           | White / RAL 9002   |

- 1) When fan coil unit not used.
- 2) DHW 58-80°C Operating is available only when the booster heater is operating.
- 3) The capacity of electric heater can be adjusted by wiring.

### **Accessory Parts (Optional Accessory)**

### **Buffer Tank for Space Heating**



As an optional accessory, the installer can install a standard 40 ft buffer tank for space heating. Fitting seamlessly into the main casing, it can be attached on the backside of the indoor unit.

| Buffer tank for space he   | ating | Unit | OSHB-40KT.AEU   |  |  |
|----------------------------|-------|------|-----------------|--|--|
| Water Volume               |       | f    | 40              |  |  |
| Dimensions (W x H x D)     |       | mm   | 518 x 560 x 175 |  |  |
| Weight (w/o water) Product |       | kg   | 24              |  |  |

### **Expansion Vessel for DHW**



As an optional accessory, the installer can install a standard 8f DHW expansion vessel that conveniently fits inside the indoor unit. It is provided with an accessory kit that includes a flexible connection tube.

| Unit | OSHE-12KT.AEU     |
|------|-------------------|
| f    | 8                 |
| inch | 3/4               |
| bar  | 10                |
| bar  | 3                 |
| mm   | 416 x 238 x 502   |
| kg   | 2.5               |
|      | f inch bar bar mm |

### **Accessory Parts (Separately Provided)**

### Shut-off valve (1EA)



### Shut-off valve with strainer (1EA)



### **Performance Table for Heating Operation**

Maximum Heating Capacity (Including Defrost Effect)

#### HU051MR U44 + HN0916T NB1

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC        |
| -25°C DB    | 4.02      | 3.90      | 3.78      | 3.66      | -        | -         | -         | -         |
| -20°C DB    | 4.64      | 4.51      | 4.38      | 4.26      | 4.13     | -         | -         | -         |
| -15°C DB    | 5.26      | 5.12      | 4.99      | 4.85      | 4.72     | 4.58      | -         | -         |
| -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      | -         |
| -2°C DB     | 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      |

#### HU071MR U44 + HN0916T NB1

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC        |
| -25°C DB    | 5.00      | 4.85      | 4.71      | 4.56      | -        | -         | -         | -         |
| -20°C DB    | 5.58      | 5.43      | 5.27      | 5.11      | 4.95     | -         | -         | -         |
| -15°C DB    | 6.17      | 6.00      | 5.83      | 5.66      | 5.49     | 5.32      | -         | -         |
| -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      | -         |
| -2°C DB     | 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      |

#### HU091MR U44 + HN0916T NB1

| Outdoor     | LWT 30 °C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C | LWT 60 °C | LWT 65 °C |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC        |
| -25°C DB    | 6.40      | 6.20      | 6.00      | 5.80      | -        | -         | -         | -         |
| -20°C DB    | 7.23      | 7.00      | 6.77      | 6.54      | 6.31     | -         | -         | -         |
| -15°C DB    | 8.06      | 7.80      | 7.54      | 7.28      | 7.02     | 6.76      | -         | -         |
| -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      | -         |
| -2°C DB     | 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      |

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

### **Performance Table for Cooling Operation**

Maximum Cooling Capacity

#### HU051MR U44 + HN0916T NB1

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 6.42    | 6.95     | 7.49     | 7.85     | 8.39     | 8.75     | 9.11     |
| 20°C DB     | 6.05    | 6.37     | 6.70     | 6.91     | 7.23     | 7.45     | 7.66     |
| 30°C DB     | 5.68    | 5.79     | 5.90     | 5.97     | 6.08     | 6.15     | 6.22     |
| 35°C DB     | 5.50    | 5.50     | 5.50     | 5.50     | 5.50     | 5.50     | 5.50     |
| 40°C DB     | 5.32    | 5.34     | 5.35     | 5.37     | 5.38     | 5.40     | 5.41     |
| 45°C DB     | 5.13    | 5.17     | 5.21     | 5.23     | 5.27     | 5.29     | 5.32     |

#### HU071MR U44 + HN0916T NB1

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 8.17    | 8.85     | 9.54     | 9.99     | 10.68    | 11.13    | 11.59    |
| 20°C DB     | 7.70    | 8.11     | 8.52     | 8.80     | 9.21     | 9.48     | 9.75     |
| 30°C DB     | 7.23    | 7.37     | 7.51     | 7.60     | 7.74     | 7.83     | 7.92     |
| 35°C DB     | 7.00    | 7.00     | 7.00     | 7.00     | 7.00     | 7.00     | 7.00     |
| 40°C DB     | 6.77    | 6.79     | 6.81     | 6.83     | 6.85     | 6.87     | 6.88     |
| 45°C DB     | 6.53    | 6.58     | 6.63     | 6.66     | 6.70     | 6.74     | 6.77     |

#### HU091MR U44 + HN0916T NB1

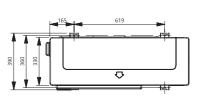
| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 10°C DB     | 10.50   | 11.38    | 12.26    | 12.85    | 13.73    | 14.31    | 14.90    |
| 20°C DB     | 9.90    | 10.43    | 10.96    | 11.31    | 11.84    | 12.19    | 12.54    |
| 30°C DB     | 9.30    | 9.48     | 9.65     | 9.77     | 9.95     | 10.06    | 10.18    |
| 35°C DB     | 9.00    | 9.00     | 9.00     | 9.00     | 9.00     | 9.00     | 9.00     |
| 40°C DB     | 8.70    | 8.73     | 8.76     | 8.78     | 8.81     | 8.83     | 8.85     |
| 45°C DB     | 8.40    | 8.46     | 8.52     | 8.56     | 8.62     | 8.66     | 8.70     |

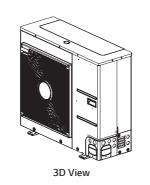
- $1.\,DB: Dry\,Bulb\,Temperature\,(^{\circ}C), LWT: Leaving\,Water\,Temperature\,(^{\circ}C), LPM: Liters\,Per\,Minute\,(l/min), TC: Total\,Capacity\,(kW)$
- 2. Direct interpolation is permissible. Do not extrapolate.
- 3. Measuring procedure follows EN-14511.
- $\bullet \, \mathsf{Rated} \, \mathsf{values} \, \mathsf{are} \, \mathsf{based} \, \mathsf{on} \, \mathsf{standard} \, \mathsf{conditions} \, \mathsf{and} \, \mathsf{it} \, \mathsf{can} \, \mathsf{be} \, \mathsf{found} \, \mathsf{on} \, \mathsf{specifications}.$
- . 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.

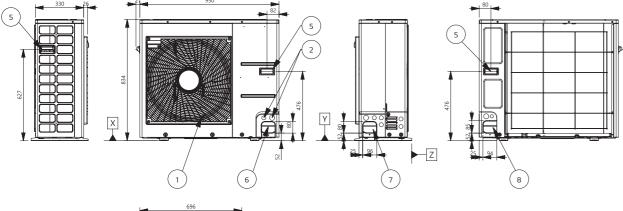
## **Drawings**

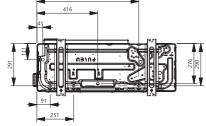
|                      |              | Model Name    |             |             |  |  |  |
|----------------------|--------------|---------------|-------------|-------------|--|--|--|
| Category             | Unit         | Capacity (kW) |             |             |  |  |  |
|                      |              | 5.5           | 7.0         | 9.0         |  |  |  |
| 1 Phase Model        | Outdoor Unit | HU051MR U44   | HU071MR U44 | HU091MR U44 |  |  |  |
| 220 ~ 240V, 1Ø, 50Hz | Indoor Unit  | HN0916T NB1   |             |             |  |  |  |

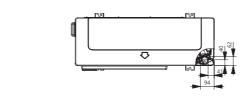
HU051MR U44 / HU071MR U44 / HU091MR U44



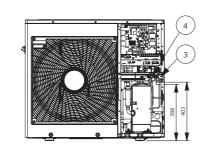




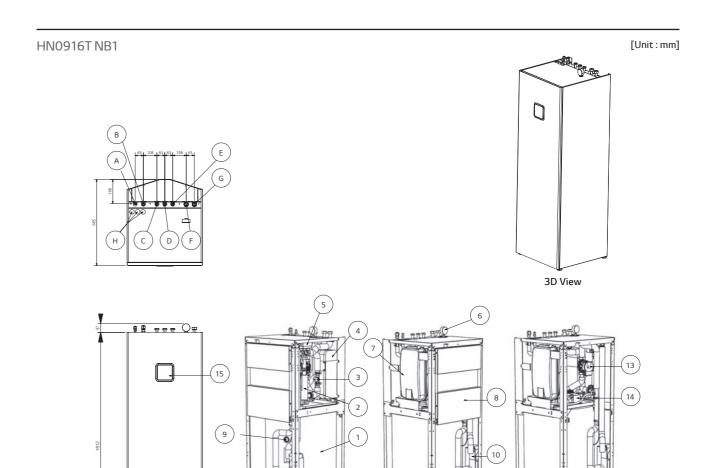




| No. | Part Name                          | Description |
|-----|------------------------------------|-------------|
| 1   | Air Outlet                         | -           |
| 2   | Power and Communication Cable Hole | -           |
| 3   | Gas Pipe Connection                | Flare joint |
| 4  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



[Unit:mm]

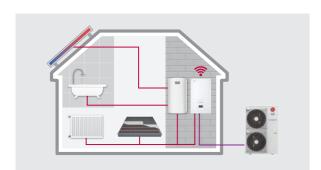


|     | _                      | -  |
|-----|------------------------|--|
| No. | Part Name              | Description                              |
| 1   | DHW Tank               | Domestic Hot Water Tank (200L)           |
| 2   | Electric Heater        | Max. 6kW                                 |
| 3   | Flow Sensor            | SIKA VVXC9SNBUC00252P                    |
| 4   | Heat Exchanger         | Plate-heat-exchanger (refrigerant/water) |
| 5   | 3 Way Valve            | 3 Way valve (DHW/heating)                |
| 6   | Pressure Gauge         | Pressure gauge                           |
| 7   | Expansion Vessel (12L) | Expansion vessel for Heating             |
| 8   | Control Box            | PCB and terminal blocks                  |
| 9   | Magnesium Anode        | To prevent corrosion                     |
| 10  | Heat Exchanger         | Plate-heat-exchanger (water/DHW)         |
| 11  | DHW Water Pump         | WILO ZRS 15/6-3 KU                       |
| 12  | DHW Strainer           | Filtering and stacking particles         |
| 13  | Main Water Pump        | WILO Para KU 25-130/8-75/12 iPWM1        |
| 14  | Bracket                | For DHW Expansion vessel (accessory)     |
| 15  | Remote Controller      | Built-in remote controller               |

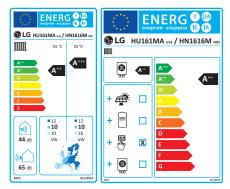
| No.                             | Description                     |  |  |  |
|---------------------------------|---------------------------------|--|--|--|
| Α                               | G5/8" Refrigerant Gas Pipe      |  |  |  |
| B G3/8" Refrigerant liquid Pipe |                                 |  |  |  |
| С                               | G3/4" Domestic hot water outlet |  |  |  |
| D                               | G3/4" Domestic cold water inlet |  |  |  |
| Е                               | G3/4" DHW Re-circulation        |  |  |  |
| F                               | G1" Heating circuit inlet       |  |  |  |
| G                               | G1" Heating circuit outlet      |  |  |  |
| Н                               | Cable lead throughs             |  |  |  |
|                                 | ·                               |  |  |  |

# THERMA V<sub>IM</sub> R410A SPLIT HYDRO BOX





## **Energy Label**



- \* 16kW 1Ø model.
- \* A+++ to D scale.

#### **Excellent Performance & Efficiency**









### **User Convenience**













### Easy Installation & Maintenance



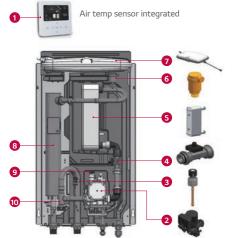




## **R410A Split Hydro Box Introduction**

 $The LG\,THERMA\,V\,R410A\,Split\,Hydro\,Box\,is\,a\,hydro\,box\,type\,comprising\,a\,separate\,indoor\,and\,outdoor\,unit, which\,are\,connected\,by\,Argorithms and an experimental connected and a separate indoor and outdoor\,unit, which are connected by a separate indoor and outdoor\,unit, which are connected by a separate indoor and outdoor\,unit, which are connected by a separate indoor and outdoor unit, which are connected by a separate indoor and outdoor unit, which are connected by a separate indoor and outdoor unit, which are connected by a separate indoor and outdoor unit, which are connected by a separate indoor and outdoor unit, which are connected by a separate indoor and outdoor unit, which are connected by a separate indoor and outdoor unit, which are connected by a separate indoor and outdoor unit, which are connected by a separate indoor and outdoor unit, and the separate indoor and outdoor unit. The separate indoor and the separate indoor and outdoor unit, and the separate indoor and outdoor unit. The separate indoor and the separate indoor and outdoor unit, and the separate indoor and outdoor unit. The separate indoor and the separate indoor and outdoor unit, and the separate indoor and outdoor unit, and the separate indoor and outdoor unit. The separate indoor and outdoor unit, and the separate indoor and outdoor unit. The separate indoor and outdoor unit, and the separate indoor and outdoor unit. The separate indoor and outdoor unit indoor and outdoor unit. The separate indoor unit is a separate indoor unit. The separate indoor unit is a separate indoor unit. The separate indoor unit is a separate indoo$ refrigerant piping. Hydronic components such as plate heat exchanger, expansion tank and water pump are located within the indoor unit, making the unit capable of withstanding freezing outside ambient temperatures.

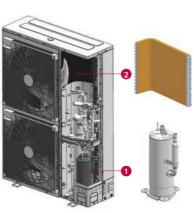
### **Key Components**



- 1 Standard III Remote Controller (attached on the front panel)
- 2 Water pump (GRUNDFOS)
- 3 Water pressure sensor (SENSATA)
- 4 Flow sensor (SIKA)
- 5 Plate type heat exchanger (ref/water)
- 7 Expansion vessel (81)
- 8 Back up electric heater (6kW)
- 9 Safety valve
- 10 Strainer

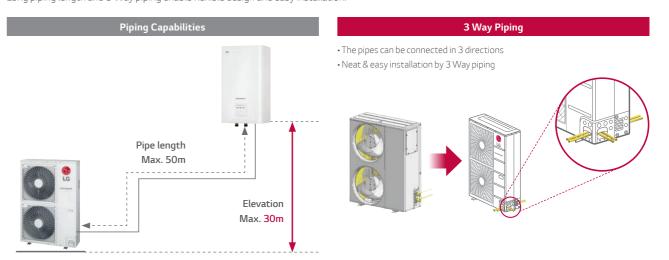
#### 1 R1 compressor

2 Gold Fin heat exchanger (ref/air)



## Flexible Refrigerant Piping Design

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



<sup>\*</sup> Detailed description for each function is presented on page 28  $\sim$  35.







#### Indoor Unit

HN1616M NK5 HN1636M NK5

#### **Outdoor Unit**

HU121MA U33 HU141MA U33 HU161MA U33 HU123MA U33 HU143MA U33 HU163MA U33



















#### **Features**

- Refrigerant pipes connects IDU & ODU
- SCOP up to 4.65 (Average climate / Low temp. application): A+++ SCOP up to 3.37 (Average climate / Mid temp. application): A++
- COP up to 4.55 (Outdoor air  $7^{\circ}$  / Leaving water  $35^{\circ}$  )
- 100% heating capacity at -7 °C OAT (@ LWT 35°C)
- Wide operation range (ambient : -25  $\sim$  35°C / water side : 15  $\sim$  65°C)
- Built-in water flow & pressure sensors to monitor real-time water circuit
- •R1 compressor
- Gold Fin heat exchanger
- LG ThinQ
- KEYMARK / MCS / EUROVENT certification

### Model Line-up

|                      |              |               | Model Name  |             |  |  |
|----------------------|--------------|---------------|-------------|-------------|--|--|
| Category             | Unit         | Capacity (kW) |             |             |  |  |
|                      |              | 12.0          | 14.0        | 16.0        |  |  |
| 1 Phase Model        | Outdoor Unit | HU121MA U33   | HU141MA U33 | HU161MA U33 |  |  |
| 220 ~ 240V, 1Ø, 50Hz | Indoor Unit  |               | HN1616M NK5 |             |  |  |
| 3 Phase Model        | Outdoor Unit | HU123MA U33   | HU143MA U33 | HU163MA U33 |  |  |
| 380 ~ 415V, 3Ø, 50Hz | Indoor Unit  | HN1636M NK5   |             |             |  |  |

## Seasonal Energy

|               |               |   |               | HU121MA U33 (1Ø) | HU141MA U33 (1Ø) | HU161MA U33 (1Ø) |               |               |  |   |     |     |     |
|---------------|---------------|---|---------------|------------------|------------------|------------------|---------------|---------------|--|---|-----|-----|-----|
| Description   |               |   | Outdoor Unit  | HU123MA U33 (3Ø) | HU143MA U33 (3Ø) | HU163MA U33 (3Ø) |               |               |  |   |     |     |     |
|               |               |   | Indoor Unit   |                  | HN1616M NK5 (1Ø) |                  |               |               |  |   |     |     |     |
|               |               |   | illaoor Unit  |                  | HN1636M NK5 (3Ø) |                  |               |               |  |   |     |     |     |
|               | Average       | SCOP  | -             | 4.65             | 4.61             | 4.56             |               |               |  |   |     |     |     |
| Space         | Climate Water | Climate Water                                       | Climate Water | Climate Water    | Climate Water    | Climate Water    | Climate Water | Climate Water | Seasonal Space Heating Efficiency (2s) | % | 183 | 182 | 179 |
| Heating       | Outlet 35°C   | Seasonal Space Heating Eff. Class (A+++ to D scale) | -             | A+++             | A+++             | A+++             |               |               |  |   |     |     |     |
| (according to | Average       | SCOP  | -             | 3.36             | 3.37             | 3.32             |               |               |  |   |     |     |     |
| EN14825)      | Climate Water | Seasonal Space Heating Efficiency (2s)              | %             | 131              | 132              | 130              |               |               |  |   |     |     |     |
|               | Outlet 55°C   | Seasonal Space Heating Eff. Class (A+++ to D scale) | -             | A++              | A++              | A++              |               |               |  |   |     |     |     |

### Nominal Capacity and Nominal Power Input

| Description            |         |          |          |              | HU121MA U33 (1Ø) | HU141MA U33 (1Ø) | HU161MA U33 (1Ø) |
|------------------------|---------|----------|----------|--------------|------------------|------------------|------------------|
|                        |         |          |          | Outdoor Unit | HU123MA U33 (3Ø) | HU143MA U33 (3Ø) | HU163MA U33 (3Ø) |
|                        |         | OAT (DB) | LWT (DB) | Indoor       |                  | HN1616M NK5 (1Ø) |                  |
|                        |         |          |          | Unit         |                  | HN1636M NK5 (3Ø) |                  |
|                        |         | 7°C      | 35°C     |              | 12.00            | 14.00            | 16.00            |
| Nominal Capacity       | Heating | 7°C      | 55°C     |              | 11.00            | 11.50            | 12.00            |
|                        |         | 2°C      | 35°C     | kW           | 11.00            | 12.00            | 13.80            |
|                        | Cli     | 35°C     | 18°C     |              | 10.40            | 12.00            | 13.00            |
|                        | Cooling | 35°C     | 7°C      |              | 7.94             | 8.50             | 8.92             |
|                        |         | 7°C      | 35°C     | kW           | 2.64             | 3.17             | 3.76             |
|                        | Heating | 7°C      | 55°C     |              | 4.31             | 4.51             | 4.71             |
| Nominal<br>Power Input |         | 2°C      | 35°C     |              | 3.04             | 3.32             | 3.83             |
| rower input            | Cli     | 35°C     | 18°C     |              | 2.60             | 3.08             | 3.60             |
|                        | Cooling | 35°C     | 7°C      |              | 2.66             | 3.02             | 2.53             |
|                        |         | 7°C      | 35°C     |              | 4.55             | 4.41             | 4.26             |
| COP                    | Heating | 7°C      | 55°C     | W/W          | 2.55             | 2.55             | 2.55             |
|                        |         | 2°C      | 35°C     |              | 3.62             | 3.61             | 3.60             |
| FFD                    | Cli     | 35°C     | 18°C     | 10//10/      | 4.00             | 3.90             | 3.61             |
| EER                    | Cooling | 35°C     | 7°C      | W/W          | 2.98             | 2.81             | 3.53             |

<sup>\*</sup> EHPA label under development

### THERMA V... R410A SPLIT HYDRO BOX

# **PRODUCT SPECIFICATION**

### **R410A Split Hydro Box**

### Product Specification (Outdoor Unit)

| Technical Specification Unit HU121MA U33 HU141MA U33 HU161M  |  |                      |                         |                |                | HU161MA U33 | HU123MA U33  | HU143MA U33    | HU163MA U33 |  |
|--|--|----------------------|-------------------------|----------------|----------------|-------------|--------------|----------------|-------------|--|
| Operation Range  | Heating                                | Min. ~ Max.          | °C DD                   | °C DB -25 ~ 35 |                |             |              |                |             |  |
| (outdoor temp.)  |  |                      | CDB                     | 5~48           |                |             |              |                |             |  |
| Compressor         Quantity         EA         1           Type         -         Hermetic Sealed Scroll |  |                      |                         |                |                |             |              |                |             |  |
| Compressor   | Туре                                   |                      | -                       |                |                | Hermetic S  | ealed Scroll |                |             |  |
|  | Туре                                   |                      | -                       |                |                | R4          | 10A          |                |             |  |
| Refrigerant  | GWP (global warm                       | ing potential)       | -                       |                |                | 2,0         | )88          |                |             |  |
|  | Precharged Amou                        | nt                   | g                       |                |                | 2,5         | 500          |                |             |  |
|  | t-CO <sub>2</sub> eq                   | t-CO <sub>2</sub> eq |                         |                |                | 5.2         | 219          |                |             |  |
|  | Outside Diameter                       | Gas                  | mm (inch)               | Ф 15.88 (5/8)  |                |             |              |                |             |  |
|  | Outside Diameter                       | Liquid               | mm (inch)               |                | Φ 9.52 (3/8)   |             |              |                |             |  |
| _  | 1                                      | Standard             | m                       | 7.5            |                |             |              |                |             |  |
| Piping<br>Connections  | Length                                 | Max.                 | m                       | 50             |                |             |              |                |             |  |
| Connections  | Level Difference                       | Max.                 | m                       | 30             |                |             |              |                |             |  |
|  | Chargeless-Pipe L                      | ength                | m                       | 7.5            |                |             |              |                |             |  |
|  | Additional Chargin                     | ng Volume            | g/m                     | 40             |                |             |              |                |             |  |
| Rated Water Flow F   | Rate (at LWT 35°C)                     |                      | LPM                     | 34.5           | 40.3           | 46.0        | 34.5         | 40.3           | 46.0        |  |
| Sound Power Level  | Heating                                | Rated                | dB(A)                   | 63             | 64             | 65          | 63           | 64             | 65          |  |
| Sound Pressure<br>Level (at 1m)  | Heating                                | Rated                | dB(A)                   | 55             | 56             | 57          | 55           | 56             | 57          |  |
| Dimensions   | Unit                                   | WxHxD                | mm                      |                |                | 950 x 1,3   | 380 x 330    |                |             |  |
| Weight   | Unit                                   |                      | kg                      |                | 84.8           |             |              | 85.4           |             |  |
| Exterior   | Color / RAL Code                       |                      | -                       |                |                | Warm Gray   | / RAL 7044   |                |             |  |
|  | Voltage, Phase, Fr                     | equency              | V, Ø, Hz                |                | 220-240, 1, 50 |             |              | 380-415, 3, 50 |             |  |
| Dawer Cumply   | Rated Running                          | Heating              | А                       | 11.5           | 13.8           | 16.3        | 6.6          | 8.0            | 9.4         |  |
| Power Supply   | Current                                | Cooling              | А                       | 11.3           | 13.4           | 15.7        | 6.5          | 7.7            | 9.0         |  |
|  | Recommended Cir                        | cuit Breaker         | А                       |                | 40             |             |              | 20             |             |  |
| Wiring Connections   | Power Supply Cab<br>(included earth, H |                      | mm <sup>2</sup> x cores |                | 6.0 x 3C       |             |              | 2.5 x 5C       |             |  |

#### Note

- 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 based on the following conditions (It is according to EN14511):
- Interconnected Pipe Length is standard length and difference of Elevation (Outdoor Indoor Unit) is Om.
- 5. This product contains Fluorinated greenhouse gases. (Outdoor ~ Indoor Unit)

### Product Specification (Indoor Unit)

| Technical Specification  |                                       |                           | Unit           | HN1616M NK5   | HN1636M NK5        |  |
|--|---------------------------------------|---------------------------|----------------|---|--------------------|--|
|  | Heating                               |                           |                | 15  | ~ 57               |  |
|  | Cooling                               | Min. ~ Max.               | °C DB          | 5 ~ 27 (16 ~ 27) <sup>1)</sup>                            |                    |  |
| Water Pressure Sensor<br>Expansion Vessel<br>Safety Valve<br>Backup Heater | DHW                                   |                           |                | 15 ~  | · 80 <sup>2)</sup> |  |
| Flow Sensor  | Measuring Range                       | Min. ~ Max.               | LPM            | 5 ~ 80  |                    |  |
| Water Pressure Sensor  | Measuring Range                       | Min. ~ Max.               | bar(G)         | 0 ~   | · 20               |  |
| Expansion Vessel   | Volume                                |                           | P              | 1   | 8                  |  |
| Safety Valve   | Pressure Limit                        | Upper Limit               | bar            | ;   | 3                  |  |
|  | Туре                                  |                           | -              | Sheath  | Sheath             |  |
|  | Number of Heating Coil                | EA                        | 2              | 3   |                    |  |
|  | Capacity Combination                  |                           | kW             | 3.0 + 3.0   | 2.0 + 2.0 + 2.0    |  |
| Backup Heater  | Heating Steps                         | Step                      | 2              | 2   |                    |  |
|  | Power Supply                          | V, Ø, Hz                  | 220-240, 1, 50 | 380-415, 3, 50  |                    |  |
|  | Rated Running Current                 | А                         | 25.0           | 8.7   |                    |  |
|  | Power Supply Cable (included earth, H | 07RN-F)                   | mm² x cores    | 4.0 x 3C  | 2.5 x 4C           |  |
|  | Water Circuit                         | Inlet                     | Inch           | Male PT 1" according to ISO 7-1<br>(tapered pipe threads) |                    |  |
| Piping Connections   | vvater Circuit                        | Outlet                    | Inch           | Male PT 1" according to ISO 7-1<br>(tapered pipe threads) |                    |  |
|  | Refrigerant Circuit                   | Gas (outside diameter)    | mm (Inch)      | Ø 15.88 (5/8)   |                    |  |
|  | Refrigerant Circuit                   | Liquid (outside diameter) | mm (Inch)      | Ø 9.52  | 2 (3/8)            |  |
| Wiring Connections   | Power and Communication Cable (inc    | luded earth, H07RN-F)     | mm2 x cores    | 0.75  | 5 x 4C             |  |
| Sound Power Level  | Heating                               | Rated                     | dB(A)          | 4   | 14                 |  |
| Dimensions   | Unit                                  | W×H×D                     | mm             | 490 × 8   | 50 × 315           |  |
| Weight   | Unit                                  |                           | kg             | 40.0  | 41.0               |  |
| Exterior   | Color / RAL Code                      |                           | -              | Noble White   | e / RAL 9016       |  |

1) When fan coil unit not used.

2) DHW 58~80°C Operating is available only when the booster heater is operating.

#### Note

- Due to our policy of innovation some specifications may be changed without notification.
- 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.
- $3. \, \text{Sound power level is measured on the rated condition in according with ISO 9614 standard}.$
- 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 FN14825.
- 4. This product contains Fluorinated greenhouse gases.

### THERMA V... R410A SPLIT HYDRO BOX

# **PRODUCT SPECIFICATION**

### **Performance Table for Heating Operation**

Maximum Heating Capacity (Including Defrost Effect)

#### HU121MA U33 + HN1616M NK5 / HU123MA U33 + HN1636M NK5

| Outdoor     | LWT 30°C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C |
|-------------|----------|-----------|-----------|-----------|----------|-----------|
| Temperature | TC       | TC        | TC        | TC        | TC       | TC        |
| -20°C DB    | 11.25    | 10.95     | 10.22     | 9.85      | -        | -         |
| -15°C DB    | 12.00    | 11.32     | 10.90     | 10.32     | -        | -         |
| -7°C DB     | 12.00    | 11.66     | 11.45     | 11.16     | 11.13    | -         |
| -4°C DB     | 12.00    | 12.00     | 12.00     | 12.00     | 12.00    | 11.24     |
| -2°C DB     | 12.00    | 12.00     | 12.00     | 12.00     | 12.00    | 11.98     |
| 2°C DB      | 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     |
| 10°C DB     | 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     |
| 18°C DB     | 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     |
| 35°C DB     | 12.00    | 12.00     | 12.00     | 12.00     | 12.00    | 12.00     |

#### HU141MA U33 + HN1616M NK5 / HU143MA U33 + HN1636M NK5

| Outdoor     | LWT 30°C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C |
|-------------|----------|-----------|-----------|-----------|----------|-----------|
| Temperature | TC       | TC        | TC        | TC        | TC       | TC        |
| -20°C DB    | 11.25    | 11.17     | 10.79     | 10.32     | -        | -         |
| -15°C DB    | 12.11    | 11.98     | 11.54     | 10.90     | -        | -         |
| -7°C DB     | 13.06    | 12.99     | 12.77     | 12.27     | 12.42    | -         |
| -4°C DB     | 14.00    | 14.00     | 14.00     | 13.64     | 13.09    | 11.67     |
| -2°C DB     | 14.00    | 14.00     | 14.00     | 14.00     | 14.00    | 12.67     |
| 2°C DB      | 14.00    | 14.00     | 14.00     | 14.00     | 14.00    | 13.98     |
| 7°C DB      | 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     |
| 15°C DB     | 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     |
| 20°C DB     | 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     |

#### HU161MA U33 + HN1616M NK5 / HU163MA U33 + HN1636M NK5

| Outdoor     | LWT 30°C | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50°C | LWT 55 °C |
|-------------|----------|-----------|-----------|-----------|----------|-----------|
| Temperature | TC       | TC        | TC        | TC        | TC       | TC        |
| -20°C DB    | 12.27    | 12.01     | 11.48     | 10.86     | -        | -         |
| -15°C DB    | 13.11    | 12.90     | 12.62     | 12.30     | -        | -         |
| -7°C DB     | 13.73    | 13.70     | 13.46     | 13.16     | 12.42    | -         |
| -4°C DB     | 14.36    | 14.50     | 14.30     | 14.01     | 13.40    | 12.50     |
| -2°C DB     | 15.20    | 14.80     | 14.50     | 14.25     | 14.00    | 13.50     |
| 2°C DB      | 16.00    | 16.00     | 16.00     | 16.00     | 16.00    | 14.51     |
| 7°C DB      | 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     |
| 15°C DB     | 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     |
| 20°C DB     | 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     |

#### Note

- 1. DB: Dry Bulb Temperature (°C), LWT: Leaving Water Temperature (°C), LPM: Liters Per Minute (I/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.
- $\bullet \text{Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed. } \\$
- 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

#### HU121MA U33 + HN1616M NK5 / HU123MA U33 + HN1636M NK5

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 20°C DB     | 7.60    | 8.55     | 9.51     | 10.33    | 11.19    | 11.98    | -        |
| 30°C DB     | 8.62    | 9.05     | 9.78     | 10.67    | 10.90    | 11.37    | -        |
| 35°C DB     | 7.94    | 8.66     | 9.33     | 10.10    | 10.40    | 10.75    | 11.16    |
| 40°C DB     | 7.56    | 8.02     | 8.81     | 9.36     | 9.54     | 9.89     | 10.28    |
| 45°C DB     | 6.38    | 7.08     | 7.79     | 8.44     | 9.14     | 9.44     | 9.78     |

#### HU141MA U33 + HN1616M NK5 / HU143MA U33 + HN1636M NK5

| Outdoor     | LWT 7°C | LWT 10°C | LWT 13°C | LWT 15°C | LWT 18°C | LWT 20°C | LWT 22°C |
|-------------|---------|----------|----------|----------|----------|----------|----------|
| Temperature | TC      | TC       | TC       | TC       | TC       | TC       | TC       |
| 20°C DB     | 8.13    | 9.87     | 10.97    | 11.92    | 12.91    | 13.82    | -        |
| 30°C DB     | 9.24    | 10.44    | 11.29    | 12.31    | 12.58    | 13.12    | -        |
| 35°C DB     | 8.50    | 9.99     | 10.76    | 11.65    | 12.00    | 12.40    | 12.88    |
| 40°C DB     | 8.10    | 9.25     | 10.17    | 10.80    | 11.01    | 11.42    | 11.86    |
| 45°C DB     | 7.17    | 8.17     | 8.99     | 9.73     | 10.55    | 10.89    | 11.23    |

#### HU161MA U33 + HN1616M NK5 / HU163MA U33 + HN1636M NK5

| 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   |
| 8.54    | 10.69                        | 11.89   | 12.91  | 13.98  | 14.97   | -  |
| 9.70    | 11.31                        | 12.22   | 13.34  | 13.63  | 14.21   | -  |
| 8.92    | 10.82                        | 11.66   | 12.63  | 13.00  | 13.43   | 13.96  |
| 8.51    | 10.03                        | 11.02   | 11.70  | 11.93  | 12.37   | 12.85  |
| 7.52    | 8.85                         | 9.73  | 10.55  | 11.42  | 11.80   | 12.16  |
|         | 8.54<br>9.70<br>8.92<br>8.51 | TC         TC           8.54         10.69           9.70         11.31           8.92         10.82           8.51         10.03 | TC         TC         TC           8.54         10.69         11.89           9.70         11.31         12.22           8.92         10.82         11.66           8.51         10.03         11.02 | TC         TC         TC           8.54         10.69         11.89         12.91           9.70         11.31         12.22         13.34           8.92         10.82         11.66         12.63           8.51         10.03         11.02         11.70 | TC         TC         TC         TC           8.54         10.69         11.89         12.91         13.98           9.70         11.31         12.22         13.34         13.63           8.92         10.82         11.66         12.63         13.00           8.51         10.03         11.02         11.70         11.93 | TC         TC< |

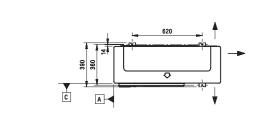
#### Note

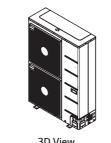
- $1.\,DB: Dry\,Bulb\,Temperature\,(^{\circ}C), LWT: Leaving\,Water\,Temperature\,(^{\circ}C), LPM: Liters\,Per\,Minute\,(l/min), TC: Total\,Capacity\,(kW)$
- 2. Direct interpolation is permissible. Do not extrapolate.
- 3. Measuring procedure follows EN-14511.
- Rated values are based on standard conditions 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.

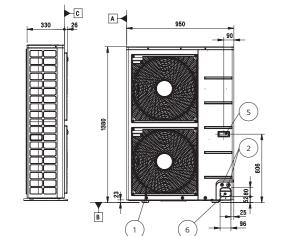
## **Drawings**

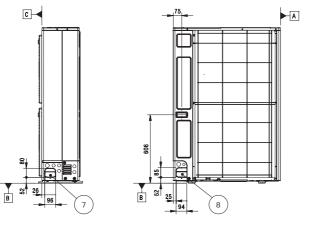
|                                       |              |                         | Model Name  |             |  |  |  |  |
|---------------------------------------|--------------|-------------------------|-------------|-------------|--|--|--|--|
| Category                              | Unit         | Capacity (kW)           |             |             |  |  |  |  |
|                                       |              | 12.0                    | 14.0        | 16.0        |  |  |  |  |
| 1 Phase Model<br>220 ~ 240V, 1Ø, 50Hz | Outdoor Unit | HU121MA U33             | HU141MA U33 | HU161MA U33 |  |  |  |  |
|                                       | Indoor Unit  | HN1616M NK5             |             |             |  |  |  |  |
| 3 Phase Model<br>380 ~ 415V, 3Ø, 50Hz | Outdoor Unit | HU123MA U33 HU143MA U33 |             | HU163MA U33 |  |  |  |  |
|                                       | Indoor Unit  |                         | HN1636M NK5 |             |  |  |  |  |

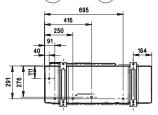
HU121MA U33 / HU141MA U33 / HU161MA U33 / HU123MA U33 / HU143MA U33 / HU163MA U33 [Unit:mm]











| 2 2 2 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 4 |
|---|
| 26                                      |

 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)

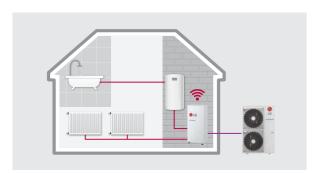
Piping Connection Port

| 1        | Control Panel | Built-in remote controller |
|----------|---------------|----------------------------|
| Internal | 84 116 123 76 | 1 2 3 4 15                 |

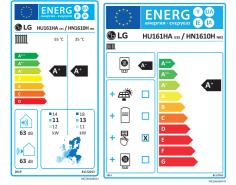
| No. | Part Name                 | Description   |  |  |  |  |
|-----|---------------------------|---|--|--|--|--|
| 1   | Leaving Water Pipe        | Male PT 1" according to ISO 7-1 (tapered pipe threads)    |  |  |  |  |
| 2   | Entering Water pipe       | Male PT 1" according to ISO 7-1 (tapered pipe threads)    |  |  |  |  |
| 3   | Refrigerant Pipe (Liquid) | Ø9.52 (mm)  |  |  |  |  |
| 4   | Refrigerant Pipe (Gas)    | Ø15.88 (mm)   |  |  |  |  |
| 5   | Water Pump                | GROUNDFOS UPML 20-105 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            |  |  |  |  |
| 9   | Flow Sensor               | SIKA VVX20 5-80LPM  |  |  |  |  |
| 10  | Plate Heat Exchanger      | Heat exchange between refrigerant and water               |  |  |  |  |
| 11  | Pressure Sensor           | SENSATA 2HMP3-04W, 0-2MPa                                 |  |  |  |  |
| 12  | Expansion Tank            | Absorbing volume change of heated water                   |  |  |  |  |
| 13  | Air Vent                  | Air purging when charging water                           |  |  |  |  |
| 14  | Backup Heater             | 6 kW  |  |  |  |  |
| 15  | Strainer                  | Filtering and stacking particles inside circulating water |  |  |  |  |

# THERMA V<sub>IM</sub> HIGH TEMPERATURE





# **Energy Label**



- \* 16kW 1Ø model.

#### **Excellent Performance & Efficiency**







**User Convenience** 







Easy Installation & Maintenance

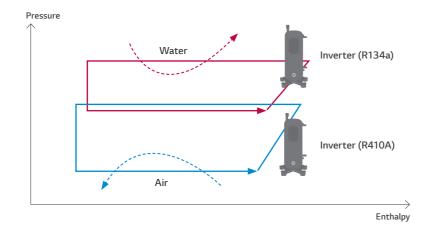






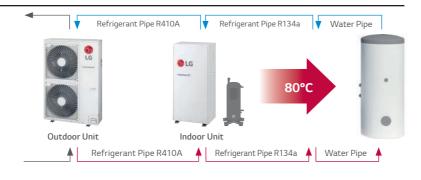
configurator connection

## **THERMA V High Temperature Cycle**



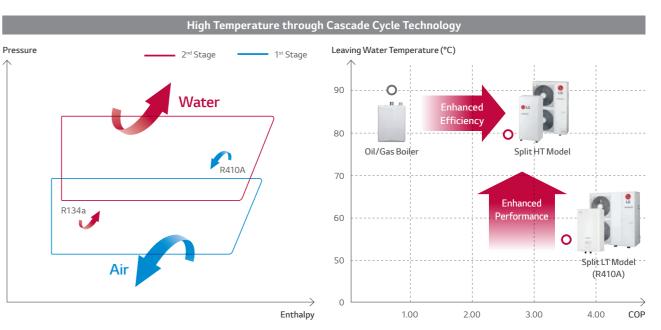
### **High Temperature Introduction**

The LG THERMA V High Temperature is a split type unit that consists of a separate indoor and outdoor unit. With cascade 2 stage compression technology, it can supply a high leaving water temperature of up to 80°C, while maintaining high energy efficiency.



## **Cascade 2 Stage Compression Technology**

 $The \, THERMA\,V\, High\, Temperature\, unit\, can \, produce\, up \, to \, 80^{\circ}C\, \, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, with\, high\, efficiency\, through\, cascade\, 2\, stage\, compression\, (from \, 10^{\circ}C\, hot\, water\, wat$ R410A to R134a) technology, making it an optimized replacement for a boiler heating system which demands hot water supply.



- $^{\star}$  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

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

### Suitable for Old Radiator

required to meet sanitary water regulation needs at high temperatures.



<sup>\*</sup> Detailed description for each function is presented on page 28 ~ 33.

### **High Temperature**

Heating DHW -<del>\</del>\d\-

Indoor Unit

HN1610H NK3 **Outdoor Unit** 

HU161HA U33





















#### **Features**

- Maximum 80°C Leaving water temperature
- Cascade 2 stage compression
- Only for heating (no cooling)
- Suitable for old radiator
- SCOP up to 3.23 (Average climate / Low temp. application): A+ SCOP up to 3.01 (Average climate / Mid temp. application): A+
- $\bullet$  COP up to 3.27 (Outdoor air 7°C / Leaving water 35°C)
- 100% heating capacity at -7 °C OAT (@ LWT 35°C)
- Wide operation range (ambient : -25 ~ 35  $^{\circ}$ C / water side : 25 ~ 80  $^{\circ}$ C)

- R1 compressor (for outdoor unit)
- Black Fin heat exchanger
- LG ThinQ
- KEYMARK / MCS / EUROVENT certification

### Model Line-up

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

### Seasonal Energy

| Description   |  |   | Outdoor Unit | HU161HA U33 |
|---------------|--|---|--------------|-------------|
| Description   |  |   | Indoor Unit  | HN1610H NK3 |
| Average       |  | SCOP  | -            | 3.23        |
| Climate Water | Seasonal Space Heating Efficiency (0s)                   | %   | 126          |             |
|               | Space Heating Outlet 35°C (according to EN14825) Average | Seasonal Space Heating Eff. Class (A+++ to D scale) | -            | A+          |
| EN14825)      |  | SCOP  | -            | 3.01        |
| Climate Water | Seasonal Space Heating Efficiency (🛚 s)                  | %   | 117          |             |
|               | Outlet 55°C  | Seasonal Space Heating Eff. Class (A+++ to D scale) | -            | A+          |

### Nominal Capacity and Nominal Power Input

| Description            |         | OAT (DB) | LWT (DB) | Outdoor Unit | HU161HA U33 |
|------------------------|---------|----------|----------|--------------|-------------|
|                        |         |          |          | Indoor Unit  | HN1610H NK3 |
|                        |         | 7°C      | 35°C     |              | 16.00       |
| Nominal Capacity       | Heating | 7°C      | 55°C     | kW           | 14.00       |
|                        |         | 2°C      | 35°C     |              | 16.00       |
|                        |         | 7°C      | 35°C     | kW           | 4.89        |
| Nominal<br>Power Input | Heating | 7°C      | 55°C     |              | 5.00        |
| rower input            |         | 2°C      | 35°C     |              | 4.92        |
|                        |         | 7°C      | 35°C     |              | 3.27        |
| COP                    | Heating | 7°C      | 55°C     | W/W          | 2.78        |
|                        |         | 2°C      | 35°C     |              | 3.25        |

### Product Specification (Outdoor Unit)

| Technical Specification         |                           |             | Unit        | HU161HA U33            |
|---------------------------------|---------------------------|-------------|-------------|------------------------|
| Operation Range (outdoor temp.) | Heating                   | Min. ~ Max. | °C DB       | -25 ~ 35               |
| C                               | Quantity                  |             | EA          | 1                      |
| Compressor                      | Туре                      |             | -           | Hermetic Sealed Scroll |
|                                 | Туре                      |             | -           | R410A                  |
| Defricavent                     | GWP (global warming pote  | ential)     | -           | 2,088                  |
| Refrigerant                     | Precharged Amount         |             | g           | 3,800                  |
|                                 | t-CO₂ eq                  |             | -           | 7.933                  |
|                                 | Outside Diameter          | Gas         | mm (inch)   | Ф 15.88 (5/8)          |
|                                 | Outside Diameter          | Liquid      | mm (inch)   | Ф 9.52 (3/8)           |
| D: :                            | Length                    | Standard    | m           | 7.5                    |
| Piping                          |                           | Max.        | m           | 50                     |
| Connections                     | Level Difference          | Max.        | m           | 30                     |
|                                 | Chargeless-Pipe Length    |             | m           | 7.5                    |
|                                 | Additional Charging Volum | ne          | g/m         | 40                     |
| Rated Water Flow Rate           | at LWT 35 °C              |             | LPM         | 46.0                   |
| Sound Power Level               | Heating                   | Rated       | dB(A)       | 63                     |
| Sound Pressure Level (at 1m)    | Heating                   | Rated       | dB(A)       | 55                     |
| Dimensions                      | Unit                      | WxHxD       | mm          | 950 × 1,380 × 330      |
| Weight                          | Unit                      |             | kg          | 89.0                   |
| Exterior                        | Color / RAL Code          |             | -           | Warm Gray / RAL 7044   |
|                                 | Voltage, Phase, Frequency | ,           | V, Ø, Hz    | 220-240, 1, 50         |
| Power Supply                    | Rated Running Current     | Heating     | А           | 8.4                    |
|                                 | Recommended Circuit Bre   | aker        | А           | 20                     |
| Wiring Connections              | Power Cable (included ear | th)         | mm² x cores | 4.0 x 3C               |

### **Product Specification (Indoor Unit)**

| Technical Specification               |                               |                           | Unit        | HN1610H NK3  |  |
|---------------------------------------|-------------------------------|---------------------------|-------------|--|--|
| Operation Range (leaving water temp.) | Heating                       | Min. ~ Max.               | °C DB       | 25 ~ 80  |  |
| C                                     | Quantity                      |                           | EA          | 1  |  |
| Compressor                            | Туре                          |                           | -           | Hermetic Sealed Twin Rotary                            |  |
|                                       | Туре                          |                           | -           | R134a  |  |
| Refrigerant                           | GWP (global warmin            | g potential)              | -           | 1,430  |  |
| Kerrigerant                           | Precharged Amount             |                           | g           | 1,800  |  |
|                                       | t-CO₂ eq                      |                           | -           | 2.574  |  |
|                                       | Water Circuit                 | Inlet                     | Inch        | Male PT 1" according to ISO 7-1 (tapered pipe threads) |  |
|                                       | vvater Circuit                | Outlet                    | Inch        | Male PT 1" according to ISO 7-1 (tapered pipe threads) |  |
| Piping<br>Connections                 | Definered Circuit             | Gas (outside diameter)    | mm (Inch)   | Ø15.88 (5/8)   |  |
|                                       | Refrigerant Circuit           | Liquid (outside diameter) | mm (Inch)   | Ø9.52 (3/8)  |  |
| Rated Water Flow Rate (at LWT 35°C    | )                             |                           | LPM         | 46.0   |  |
| Sound Power Level                     | Heating Rated                 |                           | dB(A)       | 58 / 63 <sup>1)</sup>                                  |  |
| Sound Pressure Level (at 1m)          | Heating                       | Rated                     | dB(A)       | 50   |  |
| Dimensions                            | Unit                          | WxHxD                     | mm          | 520 x 1,080 x 330                                      |  |
| Weight                                | Unit                          |                           | kg          | 84.0   |  |
| Exterior                              | Color / RAL Code              |                           | -           | Morning Gray / RAL 7030                                |  |
|                                       | Voltage, Phase, Freq          | uency                     | V, Ø, Hz    | 220 ~ 240, 1, 50                                       |  |
| Power Supply                          | Rated Running Current Heating |                           | А           | 9.8  |  |
|                                       | Recommended Circui            | it Breaker                | А           | 25   |  |
| Wiring Connections                    | Power Cable (include          | d earth)                  | mm2 x cores | 4.0 x 3C (H07RN-F)                                     |  |
| wiring Connections                    | Communication Cable           | (included earth)          | mm2 x cores | 1.0 ~ 1.5 x 2C (VCTF-SB)                               |  |
| Accessory Kit of the Indoor Unit      |                               |                           | Unit        | HN1610H NK3  |  |
| Remote Controller                     |                               |                           | -           | Standard III   |  |
| Water Tank Temperature                | Sensor Size                   |                           | Ø           | 7  |  |
| Sensor with Holder                    | Resistance                    |                           | kΩ          | 5  |  |
| Strainer                              | Mesh Size / Material          |                           | -           | 28 mesh / Stainless Steel                              |  |

1) This sound power level (63dB(A)) is when AC cooling fan is operated.

- 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 OdB 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 according to the according to the EN12102-1 under conditions of the according to the according
- 4. This product contains Fluorinated greenhouse gases.

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### THERMA V... HIGH TEMPERATURE

# **PRODUCT SPECIFICATION**

## **Performance Table for Heating Operation**

Maximum Heating Capacity (Including Defrost Effect)

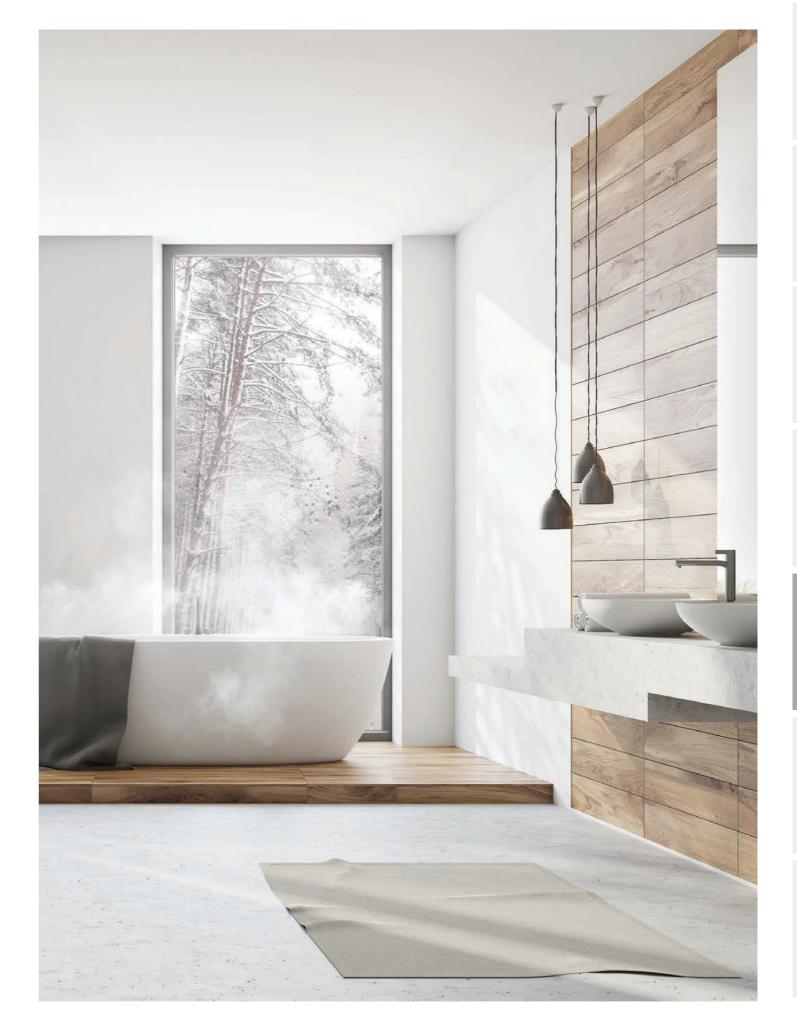
#### HU161HA U33 + HN1610H NK3

| Outdoor     | LWT 35 °C | LWT 40 °C | LWT 45 °C | LWT 50 °C | LWT 55°C | LWT 60 °C | LWT 65 °C | LWT 70 °C | LWT 75 °C | LWT 80 °C |
|-------------|-----------|-----------|-----------|-----------|----------|-----------|-----------|-----------|-----------|-----------|
| Temperature | TC        | TC        | TC        | TC        | TC       | TC        | TC        | TC        | TC        | TC        |
| -25°C DB    | 13.50     | 13.29     | 13.07     | 12.86     | 12.64    | 12.43     | 12.21     | 12.00     | -         | -         |
| -20°C DB    | 14.19     | 14.04     | 13.88     | 13.73     | 13.58    | 13.42     | 13.27     | 13.11     | 12.96     | -         |
| -15°C DB    | 14.89     | 14.79     | 14.70     | 14.60     | 14.51    | 14.41     | 14.32     | 14.22     | 14.10     | 14.00     |
| -7°C DB     | 16.00     | 16.00     | 16.00     | 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     | 16.00     | 16.00     |
| -2°C DB     | 16.00     | 16.00     | 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     | 16.00     | 16.00     |
| 7°C DB      | 16.00     | 16.00     | 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     | 16.00     | 16.00     |
| 15°C DB     | 16.00     | 16.00     | 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     | 16.00     | 16.00     |
| 20°C DB     | 16.00     | 16.00     | 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     | 16.00     | 16.00     |

- Note
  1. DB: Dry Bulb Temperature (°C), LWT: Leaving Water Temperature (°C), LPM: Liters Per Minute (I/min), TC: Total Capacity (kW)
  2. Direct interpolation is permissible. Do not extrapolate.
  3. Measuring procedure follows EN-14511.

  Paradiculus are based on standard conditions and it can be found on specifications.

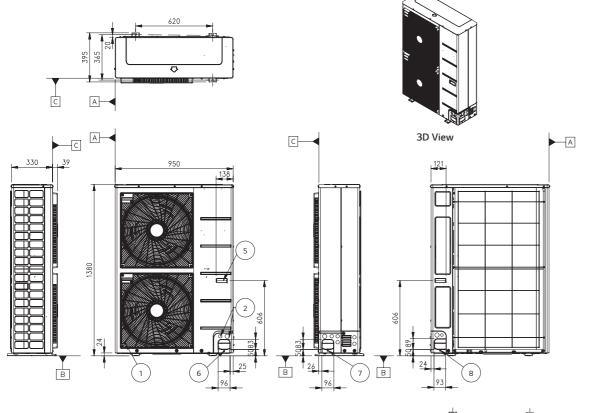
- Rated values are based on standard conditions and it can be found on specifications.
   Above table values may not be matched according to installation condition. Except for rated value, the performance is not guaranteed.
   In accordance with the test standard (or nations), the rating will vary slightly.
- 4. The shaded areas are not guaranteed continuous operation.

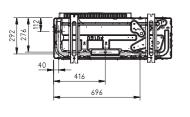


## **Drawings**

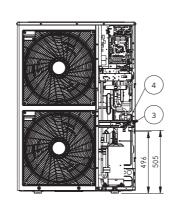
| Category             | Unit         | Model Name<br>Capacity (kW)<br>16.0 |
|----------------------|--------------|-------------------------------------|
| 1 Phase Model        | Outdoor Unit | HU161HA U33                         |
| 220 ~ 240V, 1Ø, 50Hz | Indoor Unit  | HN1610H NK3               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

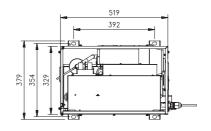
HU161HA U33 [Unit:mm]

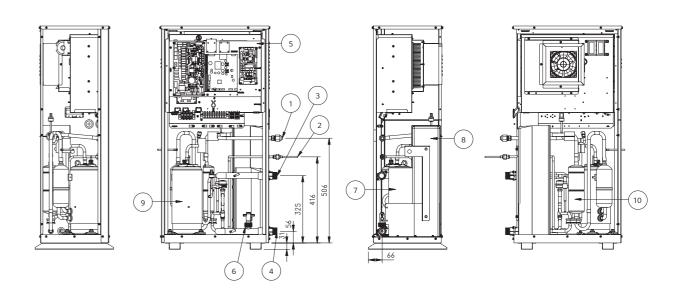




| No. | Part Name                          | Description |
|-----|------------------------------------|-------------|
| 1   | Air Outlet                         | -           |
| 2   | Power and Communication Cable Hole | -           |
| 3   | Gas Pipe Connection                | Flare joint |
| 4  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





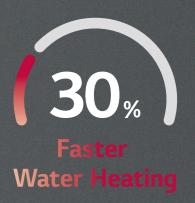


| No. | Part Name                 | Description  |
|-----|---------------------------|--|
| 1   | Refrigerant Pipe (Liquid) | Ø9.52 (mm)   |
| 2   | Refrigerant Pipe (Gas)    | Ø15.88 (mm)  |
| 3   | Leaving Water Pipe        | Male PT 1" according to ISO 7-1 (tapered pipe threads) |
| 4   | Entering Water Pipe       | Male PT 1" according to ISO 7-1 (tapered pipe threads) |
| 5   | Control Box               | PCB and terminal blocks                                |
| 6   | Flow Switch               | Minimum operation range at 15LPM                       |
| 7   | Plate Heat Exchanger      | Heat exchanger between refrigerant and water           |
| 8   | Plate Heat Exchanger      | Heat exchanger between refrigerant and refrigerant     |
| 9   | Compressor                | EPT525MBA  |
| 10  | Accumulator               | 716 cc   |





OVER 70%
Energy Saving



# **PRODUCT FEATURES**

### Stylish Design

LG's exclusive square design and luxury silver color make it an excellent design for the interior.



#### Perfect Matching with Various Spaces

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### **Top Class Energy Efficiency**

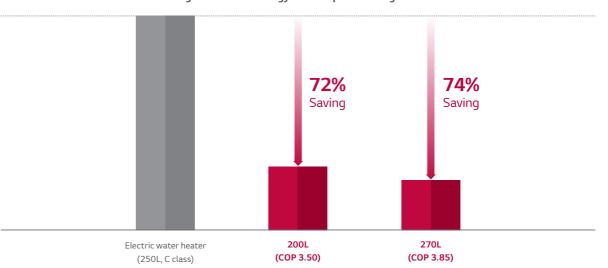
LG's new Inverter Heat Pump Water Heater allows for an impressive energy savings of over 70% compared to a conventional electric heater due to the highly efficient DUAL Inverter Compressor.



#### **Energy Saving**

 $LG's \ Heat \ Pump \ Water \ Heater, using \ market's \ first \ DUAL \ Inverter \ Compressor, \ DUAL \ Inverter \ Compressor \ can \ run \ at \ low \ rotational \ speed \ (up to 10 Hz) \ and \ reduces \ energy \ consumption, \ 70\% \ more \ than \ Electric \ Water \ Heater \ (250L, C \ class).$ 

#### Average Estimated Energy Consumption Saving Per Year



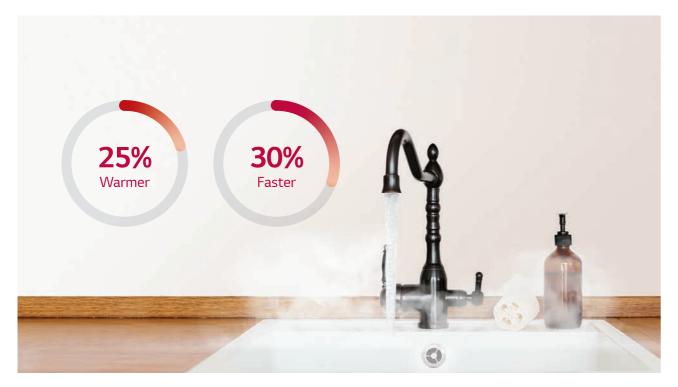
- X Simulation Data on Daily Electricity Consumption, based on EU Climate Condition (Average, 15°C).
- \* Data is based on LG Internal Simulation.
- X The data is depending on the experimental condition and is changeable according to the usage environment

### THERMA V... HEAT PUMP WATER HEATER

# **PRODUCT FEATURES**

### **Powerful Heating Performance**

The DUAL Inverter Compressor maximizes the heat pump's power in turbo mode for a 30% faster heating time for first-use water than auto mode operation.



#### Fast & Powerful Water Heating

 $Turbo\ Mode\ can \ run\ at\ high\ speeds\ (up\ to\ 80Hz)\ with\ simultaneous\ heating.\ The\ target\ water\ temperature\ in\ the\ tank\ will\ be\ achieved\ 30\%\ faster\ in\ Turbo\ Mode\ can \ run\ at\ high\ speeds\ (up\ to\ 80Hz)\ with\ simultaneous\ heating.\ The\ target\ water\ temperature\ in\ the\ tank\ will\ be\ achieved\ 30\%\ faster\ in\ Turbo\ Mode\ can \ run\ at\ high\ speeds\ (up\ to\ 80Hz)\ with\ simultaneous\ heating.\ The\ target\ water\ temperature\ in\ the\ tank\ will\ be\ achieved\ 30\%\ faster\ in\ Turbo\ Mode\ can \ run\ at\ high\ speeds\ (up\ to\ 80Hz)\ with\ simultaneous\ heating.\ The\ target\ water\ temperature\ in\ the\ tank\ will\ be\ achieved\ 30\%\ faster\ in\ Turbo\ Mode\ can \ run\ at\ high\ speeds\ (up\ to\ 80Hz)\ with\ simultaneous\ heating\ target\ target\ target\ (up\ to\ 80Hz)\ with\ simultaneous\ heating\ target\ targ$ Mode than in Use auto mode or Auto Mode. Furthermore, Turbo Mode can recover the water at 25% warmer temperatures than Use auto mode or Auto Mode. Furthermore, Turbo Mode can recover the water at 25% warmer temperatures than Use auto mode or Auto Mode. Furthermore, Turbo Mode can recover the water at 25% warmer temperatures than Use auto mode or Auto Mode. Furthermore, Turbo Mode can recover the water at 25% warmer temperatures than Use auto mode or Auto Mode. Furthermore, Turbo Mode can recover the water at 25% warmer temperatures than Use auto mode or Auto Mode. Furthermore, Turbo Mode can recover the water at 25% warmer temperatures than Use auto mode or Auto Mode. Furthermore, Turbo Mode can recover the water at 25% warmer temperatures than Use auto mode or Auto Mode. Furthermore, Turbo Mode can recover the water at 25% warmer temperatures than Use auto mode or Auto Mode. Furthermore, Turbo Mode can recover the water at 25% warmer temperatures than Use auto Mode. Furthermore, Turbo Mode can recover the water at 25% warmer temperatures than Use at 25% warmer temperatures than Use auto Mode. Furthermore, Turbo Mode can recover the water at 25% warmer temperatures than 15% warmer temMode after 1 hour from an empty tank.

- \* The data is based on LG internal test and simulation.

#### **Continuous Operation**

The two heat sources, two heaters and heat pump, complement each other perfectly. If one of the heaters or the heat pump fails, the other heat source allows alternative operation.







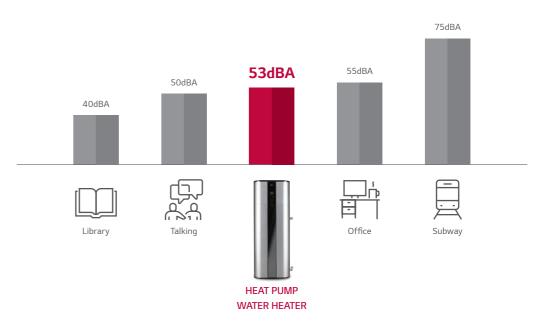
### **Low Noise Operation**

 $Through \, BLDC \, Motor \, and \, DUAL \, Inverter \, Compressor, \, noise is \, reduced \, to \, 53dBA \, (sound power) \, and \, provides \, a \, comfortable \, environment$ even in indoor installation scenes.



#### Low Noise Operation

Through BLDC Fan Motor and DUAL Inverter Compressor, noise is reduced to 53dBA and creates a comfortable environment even in indoor installation and the compressor of the c



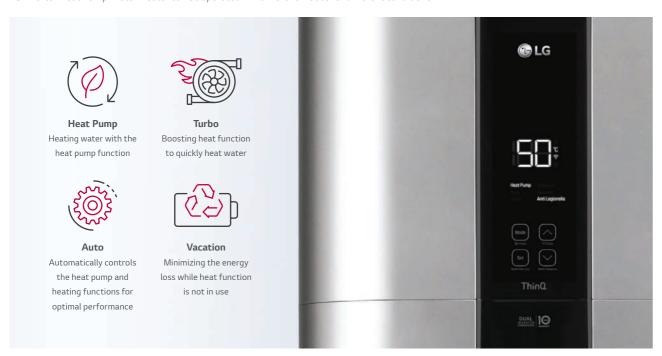
- Sound Pressure is 38dBA based on LG internal test.
- X: The data is based on LG Internal Test (Sound Power)
- \* The data is based on LG internal test and simulation.

### THERMA V... HEAT PUMP WATER HEATER

# **PRODUCT FEATURES**

### **Various Operation Mode**

LG Inverter Heat Pump Water Heater can be operated in 4 different modes for different conditions.



#### Operation



### Using Basic Control

Display Screen

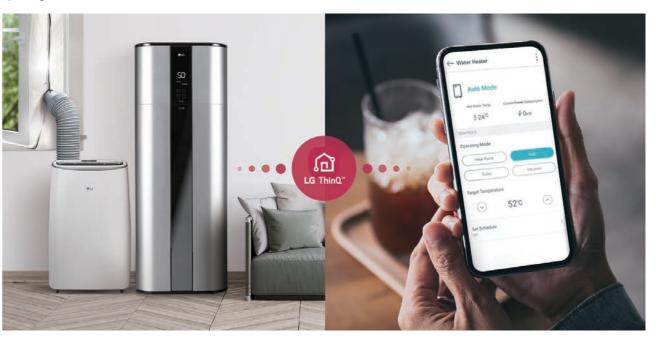
|                                       | F° °° °° °° °° °° °° °° °° °° °° °° °° ° |
|---------------------------------------|--|
| Heat Pump                             | Schedule                                 |
| Auto                                  | Vacation                                 |
| Turbo                                 | Anti Legione <b>ll</b> a                 |
| i Displ                               | ay Screen                                |
| · · · · · · · · · · · · · · · · · · · |  |

| Mode                |  |
|---------------------|--|
| Set Water Temp (3s) |  |
|                     |  |
| Button              |  |

| °C ;             |                    | Heat Pump          | To select the Heat Pump mode.                           |  |  |
|------------------|--------------------|--------------------|---|--|--|
| ?  <br>₽         | Mode               | Auto               | To select the Auto mode.                                |  |  |
| ₩ !              | Mode               | Turbo              | To select the Turbo mode.                               |  |  |
|                  |                    | Vacation           | To select the Vacation mode.                            |  |  |
|                  | -                  | Schedule           | Set Schedule mode only in LG ThinQ application.         |  |  |
| one <b>ll</b> a¦ | -                  | Anti<br>Legionella | To select<br>the Anti Legionella mode.                  |  |  |
| n                | Set                | -                  | To set the desired water temperature.                   |  |  |
|                  | $\bigcirc \bigvee$ | 188                | To adjust the desired water temperature.                |  |  |
| )<br>(s)         | Wi-Fi (3s)         | <u> </u>           | To enable the Wi-Fi pairing.                            |  |  |
|                  | Reset Filter (3s)  | <b>P</b>           | To reset the filter alarm.                              |  |  |
| p (3s)           | °F/°C (3s)         | °F<br>°C           | To change unit<br>between °F and °C.                    |  |  |
|                  | Water Temp (3s)    | 188                | To display the current water temperature for 5 seconds. |  |  |

### **Smart Control**

With the LG ThinQ smartphone app, users can easily control and monitor the heat pump, checking for current water temperatures, setting operating schedules and more.



#### Embedded Wi-Fi

You can control the LG ThinQ app, checking information such as current water temperature, operating mode and more.



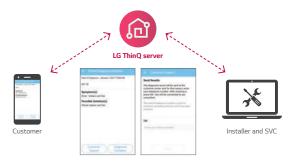
#### Smart Diagnosis

Smart Diagnosis allows users to conveniently check setup, installation, troubleshooting and other information directly from a smartphone.



#### Easy Check & Monitoring

Easily comprehensible error messages make detecting a solution and contacting the service center simple and convenient.



#### THERMA V... HEAT PUMP WATER HEATER

## **PRODUCT FEATURES**

powered b

## **DUAL Inverter** Compressor<sup>™</sup>

LG's DUAL Inverter Compressor<sup>TM</sup> saves energy with a wide power-saving operating range. Also, in max operation mode, it produces power heating to perform quiet and efficient heating.



#### Varied-Speed Dual Rotary

A compressor motor with a wider rotational frequency that is energy efficient and has a higher volumetric quick cooling capacity than conventional non-inverter compressor.

#### Product Reliability Improvement

As twin rotaries balance each other while they are rotating with high speed, it reduces noise dramatically compared to the shaking single rotary compressor. The reduction in vibration reduces the possibility of fractures occurring in the surrounding pipework.

- $\ensuremath{\mathbb{X}}$  The data is based on LG internal test and simulation.
- % The data is depending on the experimental condition and is changeable according to the usage environment

#### Benefit & Verification

#### Reliable Air Conditioner

Product safety is emphasized by offering a 10-year warranty on the compressor to reassure customers about



#### Verification

TUV Rheinland, Long Term Accelerated-reliability Test & High Marginal Test



Twin Rotary Type

LG's unique testing method with reinforced operating condition for a product life assurance to test and determine the product life cycle in a short period of time by accelerating the life cycle.

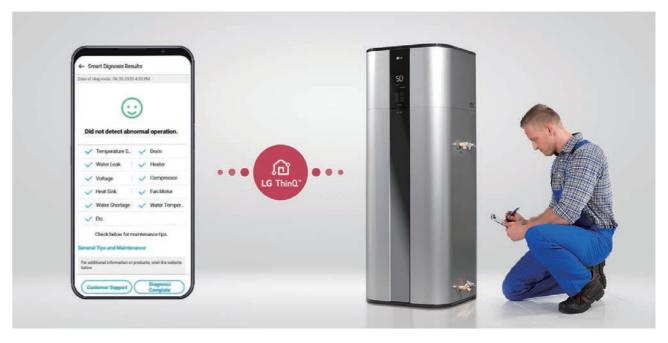
💥 High Marginal Test

Test method to secure durability in various adverse conditions that may occur in the field by performing comp reliability test against higher pressure and temperature than the designed range of pressure and temperature which the comp operates in.

X Verification obtained from TUV Rheinland for 10-year product life cycle.

### Quick & Easy Installation

The machine's one-direction inlet and outlet piping and easy-to-connect wires in the junction box allow for quick and easy installation. Furthermore, the LG ThinQ app provides Service Alarm and Self Diagnosis programs for convenience maintenance.



#### 10 Year Warranty

10 year warranty for the core parts of the heat pump water heater - Water Tank, Compressor, TUV Rheinland certified 10 year durability of Dual Inverter Compressor. Ceramic coating inside water tank meets Germany Ceramic Standard DIN 4753 and it provides 10 years of corrosion resistance



X: Other Parts warranty may vary according to After Sales Service condition

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# **PRODUCT SPECIFICATION**

### **Product Specification**

| Sales Model                           |  |          | WH20S   |
|---------------------------------------|--|----------|---|
| Factory Model                         |  |          | R5TT20F-SA1   |
| Capacity                              | Volume (Nominal)                       |          | 200L  |
| Energy Efficiency 1)                  | COP (7°C / 15°C)                       |          | 3.30 / 3.50   |
| Energy Consumption                    | Annual Energy Consumption (7°C / 15°C) | kWh      | 756 / 709   |
| Load Profile                          |  |          | Large   |
|                                       | Upper Element Wattage (230V)           | kW       | 2   |
| Power Input                           | Lower Element Wattage (230V)           | kW       | 2   |
| Energy Efficiency Class (7°C / 15°    | C)                                     | -        | A+ / A+   |
| Power Supply                          |  | V, Ø, Hz | 230/1/50  |
| Available Voltage Range               |  | V        | 195 ~ 265   |
| Operating Mode                        |  |          | Turbo / Auto / Heat Pump / Vacation                   |
|                                       | H/M                                    | m³/min   | 6.7 / 4.4   |
| Air Flow Rate                         | H/M                                    | CFM      | 236.6 / 155.4   |
| Sound Pressure Level                  | Auto                                   | dB(A)+3  | 38  |
| Sound Power Level                     |  | dB(A)    | 55  |
| Dimensions                            | Net (W x H x D)                        | mm       | 580 x 1,625 x 582                                     |
| Weight                                | Net                                    | kg       | 100   |
| Nominal insulation thickness          | Min. / Max.                            | mm       | 40 / 80   |
| Heat Pump Operation Range Min. / Max. |  | °C DB    | -5 / 48   |
| Exterior Color Code                   |  | -        | Luxury Silver   |
|                                       | Туре                                   | -        | Inverter Twin Rotary                                  |
|                                       | Warranty                               | Year     | 10  |
| Compressor                            | Manufacturer                           | -        | C DB -5 / 48  - Luxury Silver  - Inverter Twin Rotary |
|                                       | Motor Output                           | W        |   |
|                                       | High Side                              | -        | 2.0MPa / 290 PSI                                      |
| Design Pressure (System)              | Low Side                               | -        | 0.9MPa / 130.5 PSI                                    |
| Max. Working Pressure (Water Tar      | nk)                                    | -        | 150 PSI (1034 kPa)                                    |
| Circuit Breaker                       |  | A        | 15  |
| Condensate water connection           | I.D                                    | mm       | 19, 12.7  |
| V40 (Mixed water at 40°C)             |  | L        | 260   |
|                                       | Туре                                   | -        | R134a   |
|                                       | Pre Charge                             | kg       | 0.650   |
| Refrigerant                           | GWP                                    |          | 1, 430  |
|                                       | t-CO <sub>2</sub> eq                   |          | 0.930   |
| Defrost Method                        |  | -        | Reverse Cycle   |
| Anode                                 |  |          | ICCP  |
| T&P Relief Valve                      |  | -        | Yes   |
| Water Connection Location             |  | -        | side  |
| Water Connection Size                 |  | inch     | G ¾ M   |
| Digital Display                       |  | -        | Yes   |
| Wi-Fi (LG ThinQ) <sup>2)</sup>        |  | -        | Yes   |
| Tank Warranty                         |  | Year     | 10  |

- 1) Water Heater Energy Efficiency (At Auto mode)
- 2) ThinQ Main Function

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- Operation mode (Auto. Heatpump, Turbo, Vacation, Schedule), Temperature setting
- Monitoring hot water Temperature
- Maintenance point Alarm (Filter, Anode Rod, etc.)
- ※ GWP : Global warming potential
- % t-C0seq:F-gas(kg)\*GWP/1000

  % Specification, design and feature are subject to change without prior notice.

### **Product Specification**

| Sales Model                        |  |          | WH27S                               |  |  |
|------------------------------------|--|----------|-------------------------------------|--|--|
| Factory Model                      |  |          | R5TT27F-SA0                         |  |  |
| Capacity                           | Volume (Nominal)                       |          | 270L                                |  |  |
| Energy Efficiency 1)               | COP (7°C / 15°C)                       |          | 3.45 / 3.85                         |  |  |
| Energy Consumption                 | Annual Energy Consumption (7°C / 15°C) | kWh      | 712 / 646                           |  |  |
| pad Profile                        |  |          | Large                               |  |  |
| D 1 .                              | Upper Element Wattage (230V)           | kW       | 2                                   |  |  |
| Power Input                        | Lower Element Wattage (230V)           | kW       | 2                                   |  |  |
| Energy Efficiency Class (7°C / 15° | C)                                     | -        | A+ / A++ <sup>2)</sup>              |  |  |
| Power Supply                       |  | V, Ø, Hz | 230 / 1 / 50                        |  |  |
| Available Voltage Range            |  | V        | 195 ~ 265                           |  |  |
| Operating Mode                     |  |          | Turbo / Auto / Heat Pump / Vacation |  |  |
|                                    | H/M                                    | m³/min   | 6.7 / 4.4                           |  |  |
| Air Flow Rate                      | H/M                                    | CFM      | 236.6 / 155.4                       |  |  |
| Sound Pressure Level               | Auto                                   | dB(A)+3  | 38                                  |  |  |
| Sound Power Level                  |  | dB(A)    | 55                                  |  |  |
| Dimensions                         | Net (W x H x D)                        | mm       | 580 x 2,008 x 582                   |  |  |
| Weight                             | Net                                    | kg       | 119                                 |  |  |
| Nominal insulation thickness       | Min. / Max.                            | mm       | 40 / 80                             |  |  |
| Heat Pump Operation Range          | leat Pump Operation Range Min. / Max.  |          | -5 / 48                             |  |  |
| Exterior Color Code                |  | -        | Luxury Silver                       |  |  |
|                                    | Туре                                   | -        | Inverter Twin Rotary                |  |  |
| Compressor                         | Warranty                               | Year     | 10                                  |  |  |
|                                    | Manufacturer                           | -        | LG Electronics                      |  |  |
|                                    | Motor Output                           | W        | 43                                  |  |  |
|                                    | High Side                              | -        | 2.0MPa / 290 PSI                    |  |  |
| Design Pressure (System)           | Low Side                               | -        | 0.9MPa / 130.5 PSI                  |  |  |
| Max. Working Pressure (Water Tai   | nk)                                    | -        | 150 PSI (1034 kPa)                  |  |  |
| Circuit Breaker                    | •                                      | A        | 15                                  |  |  |
| Condensate water connection        | I.D                                    | mm       | 19, 12.7                            |  |  |
| V40 (Mixed water at 40°C)          |  | L        | 360                                 |  |  |
| <u> </u>                           | Туре                                   | -        | R134a                               |  |  |
|                                    | Pre Charge                             | kg       | 0.750                               |  |  |
| Refrigerant                        | GWP                                    |          | 1,430                               |  |  |
|                                    | t-CO <sub>2</sub> eq                   |          | 1.073                               |  |  |
| Defrost Method                     | 1 2 2 2 1                              | -        | Reverse Cycle                       |  |  |
| Anode                              |  |          | ICCP                                |  |  |
| T&P Relief Valve                   |  | -        | Yes                                 |  |  |
| Water Connection Location          |  | -        | side                                |  |  |
| Water Connection Size              |  | inch     | G ¾ M                               |  |  |
| Digital Display                    |  | -        | Yes                                 |  |  |
| Wi-Fi (LG ThinQ) <sup>2)</sup>     |  | -        | Yes                                 |  |  |
| Tank Warranty                      |  | Year     | 10                                  |  |  |

- 1) Water Heater Energy Efficiency (At Auto mode)
- 2) Energy Label marked A+ and more than COP 3.75 in EU Standard is A++
- 3) ThinQ Main Function
- Operation mode (Auto. Heatpump, Turbo, Vacation, Schedule), Temperature setting
- Monitoring hot water Temperature
- Maintenance point Alarm (Filter, Anode Rod, etc.)
- \* This product contains Fluorinated greenhouse gases (R134a).
- GWP: Global warming potential
- \* Specification, design and feature are subject to change without prior notice.



## THERMA V<sub>IM</sub>

# **ACCESSORIES**

# Accessories Provided by LG

| Category             | Model Name  | Model Number | Figure    | Applicable Product  | Relevant Function                           | Purpose   | Feature   |
|----------------------|---|--------------|-----------|---|---|---|---|
|                      | Room<br>Temperature<br>Sensor                               | PQRSTAO      | 9         | All Therma V products   | Room<br>Temperature<br>Based Control        | To detect room air<br>temperature for<br>room temperature<br>based control                  | • Max. wire length :<br>15m   |
| Sensors              | Thermistor<br>for<br>2 <sup>nd</sup> Circuit<br>or E/Heater | PRSTAT5K10   | 0         | All except for<br>High Temperature  | 2 <sup>nd</sup> Circuit<br>(mixing circuit) | To detect 2 <sup>nd</sup> circuit temperature when using 2 <sup>nd</sup> circuit function   | • 5kΩ thermistor,<br>10m  |
|                      | Domestic<br>Hot Water<br>Sensor                             | PHRSTA0      | 0         | All except for<br>R32 Split IWT and<br>R32 Hydrosplit IWT                         | Domestic<br>Hot Water<br>Heating            | To detect DHW tank temperature  | Included in     PHLTA kit   |
|                      | 3 Way Valve   | OSHA-3V      |           | All except for<br>R32 Split IWT and<br>R32 Hydrosplit IWT                         | Domestic<br>Hot Water<br>Heating            | To divert water<br>flow between<br>space heating<br>and DHW heating                         | Size: DN 20 G 1"     connection,     male threaded  |
| Valves               | Thermostatic<br>Mixing Valve                                | OSHA-MV      |           | Regardless<br>of model  | Domestic<br>Hot Water<br>Supply             | To blend hot water with cold water for ensuring constant, safe shower and bath outlet temp. | • Size : 3/4" DN20<br>male threaded   |
|                      |   | OSHA-MV1     |           |   |   |   | • Size : 1" DN25<br>male threaded   |
|                      | Domestic<br>Hot Water<br>Tank<br>(single coil)              | OSHW-200F    |           | All except for<br>R32 Split IWT and<br>R32 Hydrosplit IWT                         | Domestic<br>Hot Water                       | To generate and store domestic hot water  | • Storage volume : 200L, 300L, 500L   |
|                      |   | OSHW-300F    |           |   |   |   | Type: Internal single coil  Material: Stainless steel  Capacity of booster heater: 2.4kW                    |
| DHW                  |   | OSHW-500F    |           |   |   |   |   |
| Tanks                | Domestic<br>Hot Water Tank<br>(double coil)                 | OSHW-300FD   |           | All except for<br>R32 Split IWT,<br>R32 Hydrosplit IWT<br>and<br>High Temperature | Heating                                     |   | Storage volume: 300L Type: Internal double coil Material: Stainless steel Capacity of booster heater: 2.4kW |
|                      |   | PHLTA        | 0 : 0     | R32 Split Hydro Box,<br>R410A Split Hydro Box,<br>R32 Hydrosplit Hydro<br>Box     |   | To operate with<br>DHW tank   | Parts included :     DHW tank sensor  |
|                      | Domestic<br>Hot Water                                       | PHLTC        |           | R410A Split Hydro<br>Box (HN1639 NK3,<br>3Ø only)                                 | Domestic<br>Hot Water                       |   | (thermistor),<br>Circuit breaker, Relay   |
| Installation<br>Kits | Tank Kit  | PHLTB        | THERMANY. | R32 Monobloc,<br>R32 Monobloc S   | Heating                                     |   | Parts included:     DHW tank sensor     (thermistor),     Circuit breaker,     Relay, Multi harness         |
|                      | Solar<br>Thermal Kit  | PHLLA        | 10        | R32 Monobloc,<br>R410A Split Hydro<br>Box (HN1616 NK3 /<br>HN1639 NK3)            | Solar Thermal<br>Heat Utilization           | To operate with solar thermal system  | Length of thermistor: 12m Size of tube connector (WxHxD): 110 x 55 x 22                                     |

| Category             | Model Name  | Model Number | Figure       | Applicable Product  | Relevant Function                            | Purpose   | Feature  |
|----------------------|---|--------------|--------------|---|--|---|--|
|                      |   | HA031M E1    | <b>@</b> 1.6 | Monobloc S  |  |   | Heater capacity: 3kW     Number of heating coil: 1EA (3.0kW)     Size (W x H x D): 210 x 607 x 217     Power: 220 ~ 240V, 1Ø                         |
|                      |   | HA061M E1    |              |   | Capacity Back Up<br>& Emergency<br>Operation | To supplement<br>insufficient<br>capacity   | Heater capacity: 6kW     Number of heating coil:     2EA (3.0 + 3.0kW)     Size (W x H x D):     210 x 607 x 217     Power: 220 ~ 240V, 10           |
| Installation<br>Kits | Electric<br>Back Up<br>Heater                       | HA063M E1    |              |   |  |   | Heater capacity : 6kW     Number of heating coil :     3EA (2.0 + 2.0 + 2.0kW)     Size (W x H x D) :     210 x 607 x 217     Power : 380 ~ 415V, 3Ø |
|                      |   | HA061C E1    |              | R32 Hydrosplit<br>Hydro Box   | Capacity Back Up<br>& Emergency              | To supplement   | Heater capacity: 6 kW     Number of heating coil: 2EA (3.0 + 3.0kW)     Power: 220-240 V, 1Φ   |
|                      |   | HA063C E1    | 10           | (HN1600MC NK1)  | Operation                                    | capacity  | • Heater capacity: 6 kW<br>• Number of heating coil:<br>3EA (2.0 + 2.0 + 2.0kW)<br>• Power: 380-415 V, 3Φ  |
|                      | Buffer Tank<br>for Space<br>Heating                 | OSHB-40KT    |              | R32 Split IWT and<br>R32 Hydrosplit IWT   | -  | To provide the buffer volume of water to the heating circuit  | • Volume : 40L<br>• Size (W x H x D) :<br>518 x 560 x 175  |
| Vessel               | Expansion<br>Vessel for DHW                         | OSHE-12KT    |              | R32 Split IWT and<br>R32 Hydrosplit IWT   | -  | To absorb the volume changes by temperature of water for the DHW circuit                                | • Volume : 8L<br>• Connection : 3/4"<br>• Max. pressure : 10 bar<br>• Size (W x H x D) :<br>416 x 238 x 502  |
|                      | Extension<br>Wire for<br>Wired Remote<br>Controller | PZCWRC1      |              | All Therma V products   | -  | To extend wire between wired remote controller and indoor unit  | • Length : 10m   |
|                      | Extension<br>Cable for<br>Wi-Fi Modem               | PWYREW000    |              | All Therma V products   | Wi-Fi Control<br>via LG ThinQ                | To extend wire<br>between WI-Fi<br>modem and<br>indoor unit   | • Length : 10m   |
|                      | 2 Remote<br>Control Wire                            | PZCWRC2      |              | All Therma V products   | 2 Remote Control                             | To connect two remote controller on the one indoor unit   | • Length : 0.25m   |
| ETC                  |   | PHDPB        | -            | R32 Split Hydro Box<br>(HN0916M NK4),<br>R410A Split Hydro<br>Box (HN1616 NK3 /<br>HN1639 NK3)                      | Cooling Operation                            | To collect condensed<br>water in<br>indoor unit<br>when cooling<br>operation                            |  |
|                      | Drain Pan   | PHDPC        |              | R32 Hydrosplit,<br>R32 Split Hydro Box<br>(HN091MR NK5),<br>R410A Split Hydro<br>Box (HN1616M NK5 /<br>HN1636M NK5) |  |   | -  |
|                      | Cover Plate   | PDC-HK10     |              | R32 Hydrosplit Hydro<br>Box, R32 Hydrosplit<br>IWT, R32 Split Hydro<br>Box, R32 Split IWT,<br>R410A Split Hydro Box | -  | To fill the blank space of the indoor unit front panel when the remote controller is relocated indoors. | -  |

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### THERMA V...

# **ACCESSORIES**

## **Accessories Provided by LG**

| Category              | Model Name                    | Model Number                                     | Figure   | Applicable Product    | Relevant Function      | Purpose  | Feature   |
|-----------------------|-------------------------------|--|--|-----------------------|------------------------|--|---|
| Remote<br>Controller  | Wired<br>Remote<br>Controller | PREMTW101  | 20 -00 A   | All Therma V products | 2 Remote Control       | To control<br>AWHP using<br>two remote<br>controller<br>(additional<br>remote<br>controller) | New modern design 4.3 inch color LCD display Information displayed with simple graphic, icon & text Built-in temperature sensor Size (W x H x D): 120 x 120 x 16 Extension cable (PZCWRC1, 10m) and 2 remote cable (PZCWRC2, 0.25m) are included  |
| Central<br>Controller | AC Ez Touch                   | PACEZA000  | B  | All Therma V products | Centralized<br>Control | To control AWHP using LG central controller  | S inch color display User-friendly control with iconographic interface (touch screen) Max. 32 unit control Total 200 schedule events (weekly/monthly/yearly/exception day) Operation history Remote controller lock (all, temp, mode) PC access supported (IPv6 supported) DI 1EA (emergency stop only) Size (W x H x D): 137 x 121 x 25  |
|                       | AC Smart 5                    | PACS4B000<br>(Smart 4)<br>PACS5A000<br>(Smart 5) |  |                       |                        |  | • 10.2 inch color display • User-friendly control with iconographic interface (touch screen) • (Smart 4)_Max. IDU 32, (Smart 5)_Max. IDU 64 • Total 100 schedule events (weekly/monthly/yearly/exception day) • History/operation trend • Interlock with 3 <sup>rd</sup> party equipment (ACS IO, ACU IO module is needed) • Error alarm by e-mail • Remote controller lock (all, temp, mode) • Map view (visual navigation) • Web access supported with HTML5 (PC, smartphone, tablet) • DI 2EA, DO 2EA • BACnet IP/modbus TCP protocol support • Size (W x H x D): 253.2 x 167.7 x 28.9 |
|                       | ACP 5                         | PACP4B000<br>(ACP4)<br>PACP5A000<br>(ACP5)       | The state of the s |                       |                        |  | Web access controller  Max. 128 unit control  Total 100 schedule events (weekly/monthly/yearly/exception day)  History/operation trend  Interlock with 3 <sup>rd</sup> party equipment (ACS IO, ACU IO module is needed)  Error alarm by e-mail  Remote controller lock (all, temp, mode)  Map view (visual navigation)  DI 10EA, DO 4EA  BACnet IP/modbus TCP protocol support  Size (W x H x D): 270 x 155 x 65   |

| Category       | Model Name                       | Model Number | Figure      | Applicable Product       | Relevant Function             | Purpose  | Feature   |
|----------------|----------------------------------|--------------|-------------|--------------------------|-------------------------------|--|---|
| Gateway        | ACP Lonworks                     | PLNWKB000    | • 120       |                          | Centralized<br>Control        | To link with<br>AWHP and other<br>existing building<br>control system  | Web access controller  Max. 64 unit control  ACP function included  Lonworks protocol support  Size (WxHxD): 270 x 155 x 65   |
|                | Modbus<br>RTU<br>Gateway         | PMBUSB00A    | Y MH-14-    | All Therma V products    |                               | To communicate and control through the central controller (providing modbus RTU connection between AWHP and BMS) | 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<br>for Therma V    | PP485A00T    | i in        |                          |                               | To communicate<br>and control through<br>the central controller<br>(converting LG protocol<br>to RS485 protocol) | • 1 for each outdoor unit • Power : Supplied by outdoor unit  |
| Dry<br>Contact | Simple<br>Dry Contact            | PDRYCB000    | -           |                          | -                             | To connect<br>between the<br>AWHP and<br>external devices<br>to control various<br>functions                     | • 1 Set per 1 unit • 1 Input contact for turning on/off • Input power : 220 ~ 240V • 2 output contacts • Operation status - Error status  |
|                | Dry<br>Contact for<br>Thermostat | PDRYCB320    | -           | All Therma V<br>products |                               |  | 1 Set per 1 unit     Non voltage or 12 ~ 24V     8 digital input contacts for thermostat     On/off, operation mode, DHW heating     Emergency mode, silent mode     2 Output contacts     Operation status - Error status  |
| ETC            | LG Wi-Fi<br>Modem                | PWFMDD200    | • 1.6       | All Therma V             | Wi-Fi Control<br>via LG ThinQ | To control AWHP via smartphone   | Basic control function On/off, operation mode, set temp DHW heating and set temp Weekly on/off schedule Error status check Frequency: 2.4GHz IEEE 802.11b/g/n supported   |
|                | Meter<br>Interface               | PENKTH000    | VIONE STATE | products                 | Energy<br>Monitoring          | To measure production / consumption power  | Energy meter interface to monitor     Electricity and Heat energy         — Max. 3 watt — Hour meter         — Max. 1 heat meter         — Pulse width: 40ms ~ 100ms         • Modbus RTU comm. with THERMA V         — 2 wire RS485 / 9600bps         • Power: DC 12V         • Size (W x H x D): 54 x 90 x 61 |

Note
1. PI485 Gateway (PP485A00T) should be installed on outdoor unit to use central controller.
For more details, please refer to the installation manual of each product.

# **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 (LG ThinQ) is available. Simple operation for various functions.

- On/off
- Operation mode selection
- Current temperature
- Set temperature
- On/off reservation scheduling
- Energy monitoring
- ESS monitoring
- Silent mode reservation
- Holiday mode
- Quick DHW heating



| Model Name               | PWFMDD200   |  |  |
|--------------------------|---|--|--|
| Size (mm)                | 46 x 68 x 14  |  |  |
| Interfaceable Products   | All THERMA V Line-ups except for R410A IWT                              |  |  |
| Connection Type          | Indoor Unit 1 : 1   |  |  |
| Communication Frequency  | 2.4GHz  |  |  |
| Wireless Standards       | IEEE 802.11b/g/n  |  |  |
| Mobile Application       | LG ThinQ (Android v4.1 (Jellybean) or higher, iPhone iOS 9.0 or higher) |  |  |
| Optional Extension Cable | PWYREW000 (10m extension)   |  |  |

- 1. Functionality may be different according to each Indoor model.
- 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



| 0.1         | <b>6</b> 1  |
|-------------|-------------|
|             | 100         |
|             | , -         |
| Single Coil | Double Coil |
|             |             |

| Technical Specification                 |                            | Unit           | OSHW-200F       | OSHW-300F       | OSHW-500F       | OSHW-300FD                   |
|---|----------------------------|----------------|-----------------|-----------------|-----------------|------------------------------|
|   | Water Volume               | f              | 200             | 300             | 500             | 300                          |
|   | Diameter                   | mm             | 640             | 640             | 640             | 640                          |
| General                                 | Height                     | mm             | 1,350           | 1,850           | 1,900           | 1,850                        |
| Characteristics                         | Empty Weight               | Kg             | 61              | 100             | 146             | 106                          |
|   | Tank Materials             | -              | STS:F18         | STS:F18         | STS:F18         | STS:F18                      |
|   | Color                      | -              | Grey            | Grey            | Grey            | Grey                         |
| 6 16 11 6                               | Additional Electric Heater | W              | 2,400           | 2,400           | 2,400           | 2,400                        |
| Specification of<br>Electric Back up    | Power Supply               | V, Ø, Hz       | 230, 1, 50 (60) | 230, 1, 50 (60) | 230, 1, 50 (60) | 230, 1, 50 (60)              |
| Licetile Buck up                        | Adjustable Thermostat      | °C             | 0 ~ 90          | 0 ~ 90          | 0 ~ 90          | 0 ~ 90                       |
|   | Exchanger Type             | -              | Single          | Single          | Single          | Double                       |
| Specification of                        | Material Exchanger         | -              | STS:F18         | STS:F18         | STS:F18         | STS:F18                      |
| Heat Exchanger                          | Maximum Water Temp.        | °C             | 90              | 90              | 90              | 90                           |
|   | Coil Surface               | m <sup>2</sup> | 2.3             | 3.1             | 4.8             | 3.1 + 0.97                   |
|   | Heat Pump Inlet            | inch           | 1 BSP female    | 1 BSP female    | 1 ¼ BSP female  | ¾ BSP female<br>(upper coil) |
|   | Heat Pump Outlet           | inch           | 1 BSP female    | 1 BSP female    | 1 ¼ BSP female  | ¾ BSP female<br>(upper coil) |
| Water Connections                       | Solar Inlet                | inch           | -               | -               | -               | 1 BSP Female<br>(lower coil) |
|   | Solar Outlet               | inch           | -               | -               | -               | 1 BSP Female<br>(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 (A+ to F scale) |                            | -              | В               | В               | В               | В                            |
| Standing Heat Loss                      |                            | W              | 61              | 70              | 83              | 70                           |

| Mandatory Optional Accessories           |  |  |  |  |  |
|--|--|--|--|--|--|
| Domestic Hot Water Tank Installation Kit | PHLTA (1Ø, split), PHLTB (Monobloc), PHLTC (3Ø, split) |  |  |  |  |
| Optional Accessories                     |  |  |  |  |  |
| Thermostatic Mixing Valve (3/4" DN20)    | OSHA-MV  |  |  |  |  |
| Thermostatic Mixing Valve (1" DN25)      | OSHA-MV1   |  |  |  |  |
| 3 Way Valve                              | OSHA-3V  |  |  |  |  |

### THERMA V...

# **ACCESSORIES**

## **Combined Test with DHW Tank**

LG has conducted a combination test of THERMA V with DHW tanks in accordance with EN16147 and obtained an ErP label for packages in order to cope with European nZEB regulations.

- R32 Monobloc (5, 7, 9kW) + OSHW-200F
- R32 Monobloc (12, 14, 16kW) + OSHW-200F
- R32 Monobloc (5, 7, 9kW) + OSHW-300F



|              | THERMA V                     | R32 Monobloc (5,7,9kW)                         | R32 Monobloc (12, 14, 16kW)  | R32 Monobloc (5,7,9kW)   |  |
|--------------|------------------------------|--|--|--|--|
| Model        | Model Name                   | HM051M U43<br>HM071M U43<br>HM091M U43         | HM121M U33<br>HM141M U33<br>HM161M U33   | HM051M U43<br>HM071M U43<br>HM091M U43   |  |
|              | Tank                         | OSHW-200F AEU                                  | OSHW-200F AEU  | OSHW-300F AEU  |  |
| Declared Loa | d Profile                    | L  | L  | XL   |  |
|              | Grade                        | A+   | А  | A+   |  |
| Average      | Efficiency                   | 122%   | 109%   | 134%   |  |
| Climate      | Annual Energy<br>Consumption | 839kWh   | 940kWh   | 1,254kWh   |  |
| Energy Label |                              | ENERG © (I)  (I) LG HM091M vii / OSHW-200F rec | ENERG © 100 Manufacture (100 Manufacture) (100 M | ENERG © (1) (1) LG HM091M vs. / OSHW-300F ss.  T XL  A  A  A  A  A  B  C  D  E  F  T VW  S  S  S  S  S  S  S  S  S  S  S  S  S |  |

