

## LG HVAC SOLUTION *MULTI* V. 5 2017



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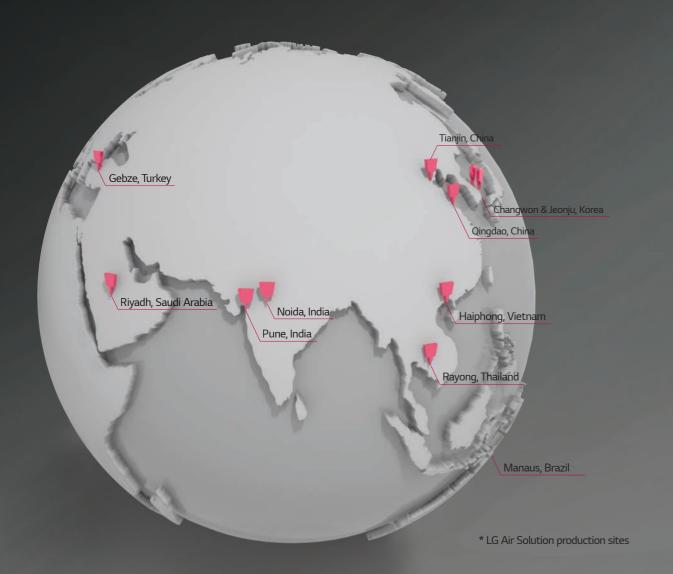
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# WHY

## LG AIR SOLUTION AS A TOTAL HVAC & ENERGY SOLUTION PROVIDER



provider of total HVAC and energy solution. The company offers a broad portfolio of air conditioner products that are compatible with any building anywhere, including compact residences, towering skyscrapers, massive factories and giant concert halls. As a true total HVAC and energy solution provider, LG also supplies even the largest buildings and industrial facilities with central air conditioning systems such as chillers and efficient control solutions.

The history of the business unit goes back to 1968, when LG (then called GoldStar) rolled out Korea's first residential air conditioner. As the company first began making chillers for large commercial buildings in 1970, the commercial air conditioning business has grown exponentially, especially

The LG Electronics Air Solution Business Unit is a within the last 20 years. In 2008, LG sold its 100 millionth air conditioning unit, becoming the first company in the industry to reach that significant milestone. The success of LG air conditioners has allowed the company to become one of the major players in the highly competitive HVAC industry. By enhancing the industry's B2B infrastructure and finding further solutions for the HVAC sector, LG has risen to become a total HVAC solutions specialist. The company has steadily increased its sales and market share by introducing energy efficient and reliable HVAC solutions and actively pursuing new opportunities wherever they arise. This sustained, excellent performance is built on a solid foundation of global R&D and advanced manufacturing capabilities.

## INFRASTRUCTURE **IN EUROPE**





LG Air Conditioning Academy

LG Energy Lab in Europe

LG has set up 19 official air conditioning Committed to meet all requirements LG's European Air Conditioning Distribution academies in Europe, teaching much regarding energy efficiency and Center is located in Oosterhout, the needed skills to thousands of current environmental demands, LG has been Netherlands. Supplying and delivering industry professionals including installers, running Energy Lab. LG Energy Lab is an products all over Europe, this distribution consultants, designers, sales staff and innovative site dedicated to commercial hub has contributed to smooth and rapid service technicians. The academy program and residential products in heating, delivery, direct shipping for smaller orders is being used to share expertise and ventilation and the latest energy efficient air and delivery tailored to air conditioners. The cultivate these HVAC experts by providing conditioning solutions. Also as a showcase, hub tries to manage inventory efficiency a cutting-edge technical educational LG Energy Lab is equipped with complete by taking advantage of LG EU's established experience with the newest and most monitoring and control systems. The inventory pool. advanced technology and equipment. performance of all products will be tracked Moreover, as LG's entire product range and analyzed by a team of Research and be trained in a realistic way that offers and Korea, ensuring efficiency and reliability

LG Air Conditioning Academy European Distribution Center Europe Energy Lab



#### **European Air Conditioning Distribution Center**

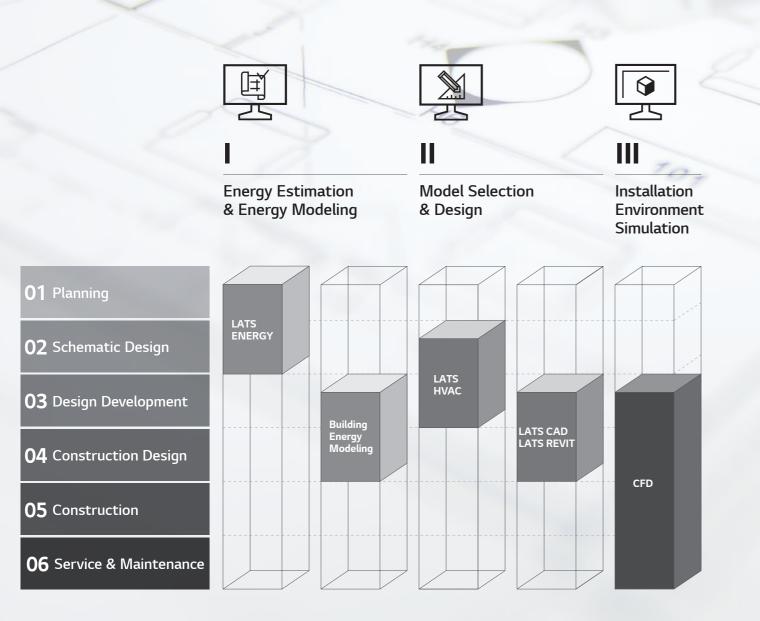


## **ENGINEERING CAPABILITY** : HVAC TOOL & SUPPORT

From planning to service & maintenance and then to de-construction, an architectural project goes along many stages from the beginning to the end of its lifecycle. Along those stages, various engineering tools are applied to solve the diverse issues happening in each stage, with the most optimal solution possible. Due to the usage of such tools, buildings are effectively designed, built, supervised, and maintained throughout the lifecycle.

Dedicated to provide the best HVAC engineering support, LG Electronics Air-Solution Business Unit offers several engineering tools and solutions focused on HVAC, during the overall lifecycle of a building, related to the three categories: I. Draft Energy Estimation & Energy Modeling, II. Model Selection & Design, and III. Installation Environment Simulation. Among them, the LATS\* Program series has been developed to offer the best and the most optimized tool for LG HVAC systems, providing our customers a faster, easier, and a more accurate way in everyday duties of Model-selection, Draft Energy Estimation & Designing, and many more.

\* LATS : LG Air-conditioner Technical Solution



#### 01 Draft Energy Estimation

#### LATS Energy

LATS Energy program is a draft energy estimation program, self-developed by LG. This program helps estimate the draft energy usage and analyzes the life cycle cost of LG VRF models during the early stage of a project.

#### 02 Building Energy Modeling

#### eQuest, EnergyPro, Trace700 and More

These are certified commercial programs which assess the HVAC system efficiency and building's annual energy saving for building standard or certification like LEED. LG HQ supports these programs for the project stages of Design Development and Construction Design wherein the overall designing is finished.

#### 03 Model Selection

#### LATS HVAC

LATS HVAC is an integrated model selection program of LG HVAC products, enabling an accurate and quick selection on the best model suitable to each sites. In addition to model selection, faster estimation on refrigerant piping diameter and additional refrigerant is possible, along with auto printing of reports.

#### 04 Design

#### LATS CAD

LATS CAD enables faster and a more accurate design of LG HVAC products. Moreover, it offers not only designing, but also guotation and installation review in order to minimize problems during installation processes.

#### LATS Revit

LATS REVIT is developed to make 3D designing of LG HVAC products easier than the previous program. It enables engineers to check 3D images from designing stage and prevents possible issues of the installation stage.

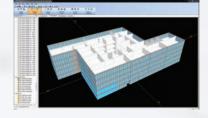
#### 05 Installation Environment Simulation

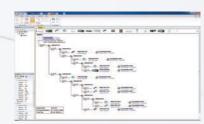
#### **CFD** Analysis

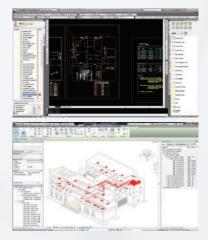
CFD Analysis is applied in areas of estimating: indoor airflow and temperature distribution while operating VRF products, outdoor airflow distribution, and noise level. By running a simulation before construction, engineers estimate possible issues and find optimal solutions of malfunction that could occur after construction

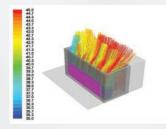












# LG CONTROL SOLUTION

MULTI V 5 offers diverse range of effective control solutions that satisfy specific needs of each building and its user scene. These controlling systems are equipped with user friendly interface, flexible interlocking environment, energy management and smart individual controller for optimized controlling conditions and smart building management.



# BRAND HISTORY

From the moment when LG introduced Korea's first residential air conditioner in 1968, the company has continuously enhanced its technological innovation and credibility. As a result of sustained improvement, LG VRF launched the first generation of MULTI V in 2006 and achieved significant development. With world's top class compressor and innovative technology competency applied on every part, cycle and controlling solutions, it has evolved to be **one of the world's most efficient and reliable VRFs**.

Following the first and second generations with Inverter technology and non-ozone depleting refrigerant, MULTI V III has advanced its efficiency with diverse cutting-edge technologies such as HiPOR<sup>™</sup> that directly returns oil to compressor and Vapor Injection that allows double compression by adding mid-pressure refrigerant. As acknowledged by the Eurovent Certification, the innovative technologies of 4th generation secured MULTI V brand the product leadership based on efficient system like Smart Load Control that controls operational load according to external temperature and other technologies that are optimized to manage refrigerant and heat exchange for all cooling, heating and part load operations. Moreover, MULTI V developed wide range of VRF line-up that could satisfy various types and size of building; MULTI V S is the VRF with side discharge, designed for small to mid-sized building and MULTI V WATER is the water-cooled VRF solution with variable water flow controlling technology.

In 2017, finally, the time has arrived for the ultimate VRF system, MULTI V 5. This generation has fully improved its technological potential with ever powerful and reliable yet economical LG's Ultimate Inverter Compressor, Ocean Black Fin with the most effective corrosion resistance performance and biomimetics technology-applied, enlarged fans. At the same time, the Dual Sensing Control offers users the most pleasant environment while minimizing the unnecessary energy loss with system that senses both the temperature and humidity to efficiently manage cooling, heating and part load operations.

With MULTI V 5 that has been solely designed for the ultimate efficiency, performance, flexibility, comfort and control, we are highly confident to bring the ultimate pleasant air experience.



2006 MULTI V..

## 2008 MULTI V.: 🗉

LGDC Inverter

• Ø7.0 Corrugate • Fuzzy Algorithm • AC Inverter • R410A Heat Recovery
 Ø7.0 Wide louver
 Fuzzy Algorithm

12





- Dual Sensing Control
- · Ultimate Inverter Compressor
- Large Capacity ODU with
- **Biomimetics Technology Fan**
- $\cdot$  Continuous Heating
- Ocean Black Fin



High Pressure Oil Return
Vapor Injection
Continuous Heating



- Eurovent Certification
- Active Refrigerant Control
- Variable Heat Exchanger Circuit
- Smart Load Control
- Smart Oil Return
- Vapor Injection (Advanced)

## **DUAL SENSING** CONTROL

cooling load is keen to, and thus, greatly affected by external humidity, rather than the outdoor temperature. For such reason, Dual Sensing Control of MULTI V 5 senses both temperature and humidity and applies sensed data for load control in order to obtain in-depth understanding of sensible heat load and latent heat load. This helps preventing excessive cooling load supply and eventually offers the most pleasant and comfortable cooling environment the users want with reduction in energy consumption.



The cooling load is mainly based on the amount of both sensible heat load and latent heat load. Most importantly, the





**ESEER** 

DUAL SENSING CONTROL

Improved Indoor Comfort

## ULTIMATE INVERTER COMPRESSOR

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

## 10% IMPROVED ENERGY EFFICIENCY ENHANCED COMPRESSOR RELIABILITY

All Inverter

Provide high efficiency with low vibration and low noise

#### Six By-pass Valves

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

01. Vapor Injection

Maximize heating capacity via two-stage compression

**O2.** Enhanced Bearing with PEEK Material Newly invented system motivated by PEEK (Polyetheretherketone) bearing used for aero engine to increase operation range and durability

03. Wide Operation Range from 10 to 165Hz

Improved part load efficiency at all operation ranges

04. HiPOR<sup>™</sup> (High Pressure Oil Return)

Resolve compressor efficiency loss caused by oil return

#### 05. Smart Oil Management

Oil level detection in real time





03

02

# LARGE CAPACITY ODU WITH BIOMIMETICS **TECHNOLOGY FAN**

As a result of the biomimetics technology invented through years of joint study with Department of Mechanical and Aerospace Engineering of Seoul National University, the fan of MULTI V 5 increased wind capacity while it reduced its power consumption when operating.



Humpback Whale Design increased wind power by reducing flacking. reduced noise level.



**Clam Shell Pattern** 



Increased Air Flow Rate

Inspired by the bumps on the humpback Like the clam shell textures, the range With extended shroud, discharged air whale's flipper, the tubercles on the back side difference created by moire pattern current is stabilized and power consumption is reduced.

## Large Capacity Outdoor Unit

Enhanced core parts like biomimetics technology-based fans, 4-sided heat exchanger as opposed to 3-sided heat exchanger of previous model and compressor with increased efficiency and capacity allow large capacity for outdoor units. A single unit of MULTI V 5 can provide up to 26HP.

## **10%** IMPROVED AIR FLOW RATE

# 20% REDUCED POWER CONSUMPTION \*Based on 290 m<sup>3</sup>/min



## **OCEAN BLACK FIN HEAT EXCHANGER**

LG's exclusive "Ocean Black Fin" heat exchanger is specially designed for durable and long-lasting performance even in corrosive environments. The black coating is applied for protection from various corrosive external conditions and the hydrophilic film keeps water from accumulating on the heat exchanger's fin, minimizing moisture buildup. This improvement in durability prolongs the product's lifespan and lowers both the operational and maintenance costs.

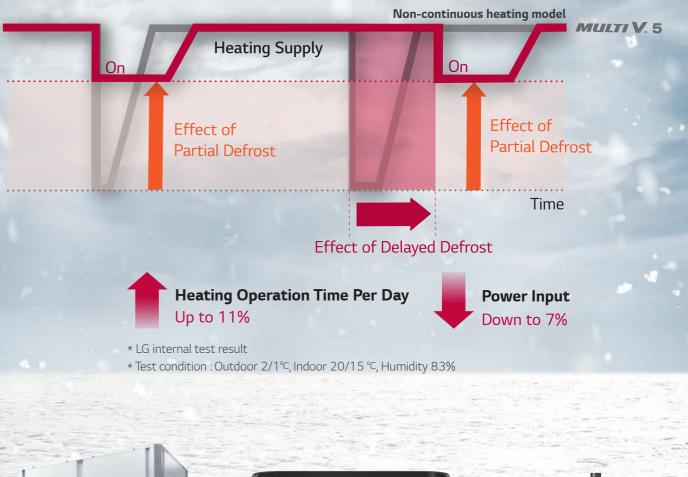
**BLG** 

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MULTIV 5

# **CONTINUOUS HEATING**

Improved technologies such as Dual Sensing Control, Partial Defrost and Smart Oil Management enhance Continuous Heating for increased heating capacity and indoor comfort. The delayed and partial defrost technologies minimize unnecessary operational consumption to provide consistent heating.





**Dual Sensing Control** 

Ocean Black Fin



\* Test Method B Simulation Validated (Test condition: Salt contaminated condition + severe industrial/traffic environment (NO<sub>2</sub>/SO<sub>2</sub>)) \* Based on 1,500 UL test hours







**Partial Defrost** 

Smart Oil Management

## **MULTI V 5 FOR CONSULTANTS & HVAC DESIGNERS**

From accurate 3D-based building modeling to strong system capability regardless of the building size and climate conditions, MULTI V 5 offers the most efficient and flexible installation environment for consultants and HVAC designers. Indeed, MULTI V 5 is the most reasonable HVAC system that has achieved the best efficiency through LG's enhanced inner parts, operational cycle and controlling technology.

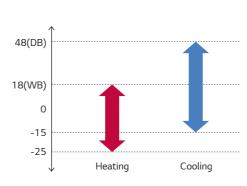
#### 01 Improved designing effectiveness and accuracy via LATS Revit, the BIM application

LG provides 3D-based BIM simulation tool, LATS Revit, in order to offer product selection, positioning and piping from installation, interference check to correction phases based on systematic consideration of the load. This enables the easiest, yet the most accurate system modeling support.



#### 02 Applicable to various climate conditions and purposes based on wide operational range for both heating and cooling operations

Even in the extreme climate situations, MULTI V 5 can perform stable heating and cooling operations. Due to LG's improved inner parts and cycle technology, it can perform heating operation at extremely cold temperature as low as -25C. For cooling performance, MULTI V 5 can operate from -15°C to 48°C. With wide operational range, it can perfectly perform heating operation in cold environment, making the product adequate for uses in specialized venues like server rooms.



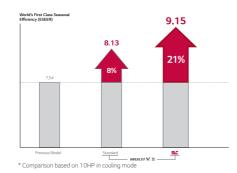
### 03 Flexible construction design available due to long piping technology

Through the world's best class piping technology MULTI V 5 provides the perfect solution for various types of building with diverse size and purposes. The longest piping length offered by MULTI V 5 is 225m and height difference between outdoor unit and indoor unit stretches up to 110m.

#### 04 The most economical solution with the world's top class energy efficiency

Improved reliability based on LG's Ultimate Inverter Compressor and other core parts, as well as the most developed controlling technology due to optimal cycle operation and Dual Sensing Control that recognizes both the temperature and humidity achieved the world's best class seasonal efficiency (ESEER) of 9.15. As a result, this enables the most economical system capability for MULTI V 5 in comparison to any other existing HVAC systems.

Total Piping Length	1,000m
Actual longest piping length	225m
Longest piping length after 1 <sup>st</sup> branch (conditional application)	40m (90m)
Height between ODU ~ IDU	110m
Height between IDU ~ IDU	40m
Height between ODU ~ ODU	5m



## **INSTALLERS**

Due to increased capacity provided by single outdoor units, installation became simpler with reduced number of outdoor unit combination. Moreover, solutions connected to and operated by smart devices significantly shortened physical hours required for test run, diagnose and monitoring of multiple services while making these controlling more accurate.

#### 01 Increased installation convenience due to large capacity units reducing number of outdoor units required for combination

By providing up to 26HP for single unit line up, MULTI V 5 decreases the total number of required outdoor units in order to ultimately simplify installation process, when compared to previous models. For example, previous system required a combination of a 20HP outdoor unit, a 18HP outdoor unit and a 10HP outdoor unit to run a total of 48HP. For MULTI V 5, however, only 2 outdoor units with each providing 24HP can cover the same amount. This significantly reduces installation hours, especially those that used to take long time such as using crane to properly place outdoor units on the rooftop.

#### 02 Simple and easy installation and service with Mobile LGMV

With LGMV, the smarter SVC application, hours and resources spent for installation are significantly reduced and more accurate installation and service can be offered.

#### Auto test run

Mobile application allows automatic address setting and test run report releasing.

#### Refrigerant diagnose solution

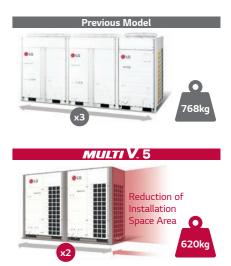
By regularly checking the amount of refrigerant, it automatically reloads if current amount is not enough.

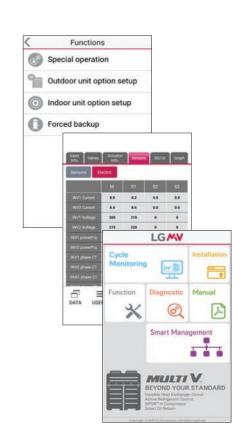
#### Easier setting for installers

Unlike before when set up had to be done via DIP Switch of Outdoor unit, installers can simply manage setting via mobile app for MULTI V 5. Indeed, settings for SLC steps, Dual Sensing Control and outdoor unit fan's maximum RPM control can be easily managed via LGMV.

#### Smart management

By checking test run history, black box review and other previous records, site information can be managed efficiently.





## **BUILDING OWNERS**

With increased reliability of core parts such as compressor and heat exchanger, as well as high operational efficiency, building owners can significantly reduce operational costs in comparison to other systems. At the same time, large capacity outdoor units minimize installation space which eventually allow better use of the floor space. Moreover, MULTI V 5 prevents overuse of the operational costs by planning and consuming the projected monthly energy usage.

#### 01 Corrosion resistance via Ocean Black Fin

Protection certified by UL (Underwriters Laboratories), LG's exclusive Ocean Black Fin is applied on the heat exchanger of MULTI V 5 in order to perform even in corrosive environments. The protection from various corrosive external environments such as seaside with high salt contamination and industrial cities with severe air pollution caused by fumes from factories keeps MULTI V 5 operating without breakdown.

#### 02 Minimized installation footprint via large capacity outdoor units for flexible usage of the saved floor space

MULTI V 5 provides up to 26HP for single unit line up. Considering that a total of 260HP is being installed, the total installation space is saved up to 23% while the overall product weight decreases up to 15% in comparison to previous model. This eventually resulted in the maximized use of the saved floor space. Moreover, reduced product weight of MULTI V 5 makes installation easier with less limitation on product weight installed on the building's rooftop.

#### 03 Operational costs management by presetting energy consumption

Energy management function allows MULTI V 5 to preset monthly energy usage and consume what has been previously planned. By analyzing and comparing previous consumption and planned energy usage for the month, overuse of the HVAC system operational costs can be prevented.

#### 04 Easy building remodeling with Integral system that offers both the Heat Pump & Heat Recovery

MULTI V 5 offers HVAC solution with integrated system that offers both the Heat Pump and the Heat Recovery Systems.

Even if the site has been previously installed with Heat Pump System, user can easily replace it with Heat Recovery System or Hot Water Solution when necessary, through simple piping construction which eventually allows more rooms for future remodeling plans.

# Previous Model -*MULTI* V. 5-

Ocean

**Black Fin** 

15% Re





#### Heat Pump System Heat Recovery System

## **END USERS**

LG's inverter technology and capability to actively respond to the building's both internal and external environment allow users to quickly arrive at the desired ambient and systematically maintain such condition. Moreover, users can control the indoor environment remotely via smartphone from wherever and whenever. Lastly, new Standard III Remote Controller with simple user interface and premium design provides users the optimal controlling experience.

#### 01 More comfortable cooling operation via Dual Sensing Control

With the performance of LG's Ultimate Inverter Compressor MULTI V 5 can quickly approach at user's desired temperature. At the same time, Dual Sensing Control manages and maintains indoor temperature pleasantly based on its recognition of both the temperature and humidity in order to offer the optimal user comfort.

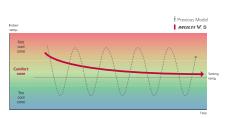
#### 02 Continuous heating operation

Due to improved technologies of MULTI V 5 such as delayed defrost via Dual Sensing Control, partial defrost and smart oil management, users can enjoy pleasant and comfortable indoor environment with no stopping of heating operations in between.

#### 03 Optimal controlling environment with new Standard **III Remote Controller**

MULTI V 5's new wired remote controller offers simple and easy controlling experience via simplified user interface and 4.3-inch large colored LCD screen. Moreover, it provides diverse information such as indoor temperature, humidity, cleanliness and real-time check on energy consumption.









## **MULTI V 5 Certified to Meet New EUROVENT Efficiency Regulations**

The MULTI V range has always been at the forefront of energy efficiency. LG takes customers' concerns about energy savings very seriously. The company also strives to protect the environment by continuously improving MULTI V technology, thereby reducing MULTI V 5 performances will be assessed and certified so LG its carbon footprint.

In European Union countries, the energy efficiency of variable refrigerant flow (VRF) products has become a policy of its own. While European policymakers encourage technology improvements of VRF products, they also recently set minimum efficiency boundaries. This is to ensure that less energy-efficient VRF products are no longer sold, while environmentally friendly VRF units are promoted. As a result, beginning in 2018, VRF products will have to meet minimum energy efficiency standards, also taking into account the seasonal operation of the product in both heating and cooling modes.

Preserving the environment is LG's top priority, and MULTI V 5 will meet the stricter efficiency standards from day one. As a company, LG is pleased that mandatory regulations on energy efficiency will allow easier comparisons between manufacturers offering similar products. Efficiency assessments will be done on an equal footing, thus allowing customers to make informed choices measured according to European regulations and standards. However, LG's transparent communication regarding the energy performance of

MULTI V 5 units does not stop there. MULTI V 5 will also have its performance certified through independent third party organizations, such as Eurovent certification for VRF.

customers will be able to make the most of national incentive policies that require certified data when implementing VRF technology. Eurovent certification for MULTI V 5 will allow customers to accelerate their business and to reduce their workload to minimal levels. Eurovent certification for MULTI V 5 will be even more important as the EU rules for the energy efficiency of VRF products do not require energy labeling to be displayed with the units. However, designers and construction companies consulting the Eurovent database will find information about the energy performance of MULTI V 5 at a glance.



# **MAIN FEATURES**

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- 48 / ULTIMATE CONTROL



MULTI V 5 ensures world's best class energy efficiency with innovative technology including the LG's Ultimate Inverter Compressor.

#### LG's Ultimate Inverter Compressor

The newly designed bearing of the Ultimate Inverter Compressor allows low-frequency operation at 10 Hz from the previously lowest speed at 15 Hz, increasing the ultimate efficiency and reliability of MULTI V 5.



#### Vapor Injection

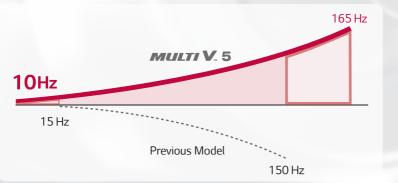
Maximize heating capacity via two-stage compression
 Provide powerful heating in low temperature conditions
 Improve energy efficiency and heating performance

## Enhanced Bearing with PEEK Material for Increased Durability and Reliability

Applied newly invented scroll system driven by PEEK (Polyetheretherketone) bearing used for aero engine Can operate longer without oil supply Increase durability and reliability

#### Extended Compressor Speed from 10 Hz

- Increase part load efficiency at all operation ranges
   Rapid operation response
- Capable of reaching required temperature quickly



#### **Concentration Motor**

· 10% increase of magnetic flux density

#### HiPOR™

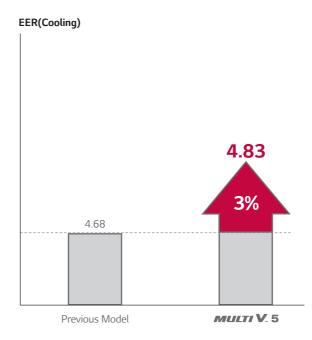
· Minimizing energy loss with direct oil return

#### Smart Oil Management

Measuring the presence of oil through the oil sensor

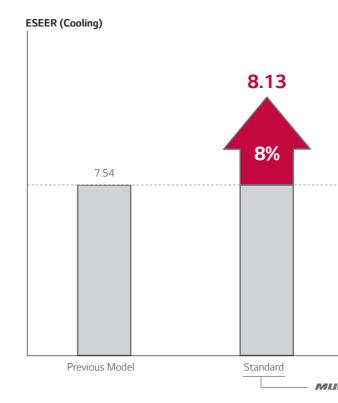
## **ULTIMATE EFFICIENCY**

#### World's First Class, Rated Efficiency (Eurovent Test Condition)

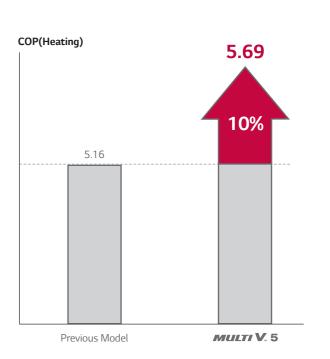


\* Comparison based on 10HP in cooling mode

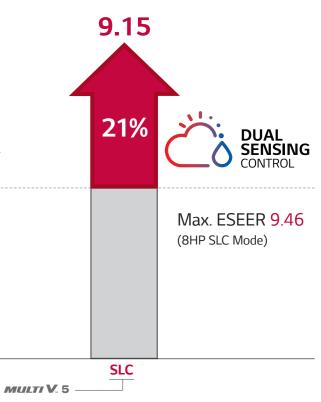
## World's First Class Seasonal Efficiency (ESEER)



\* Comparison based on 10HP in cooling mode



\* Comparison based on 10HP in heating mode



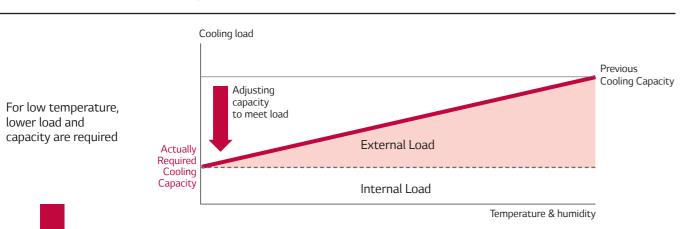
### Smart Load Control (SLC)

Smart Load Control function enables comprehensive understanding of environmental conditions in order to optimize energy efficiency and maximize indoor comfort level. This technology allows active control of discharge refrigerant temperature which eventually increases the ESEER up to 21% for maximum 26 HP and 15% for average outdoor units in comparison to the previous models.

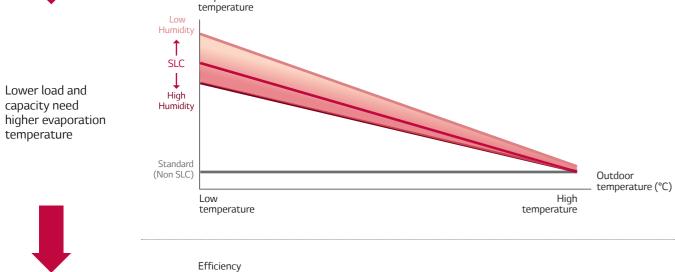


### Increased Energy Efficiency(SLC ESEER) Up to **21%** Up to 15% (High humidity) ~ 31% (Low humidity)

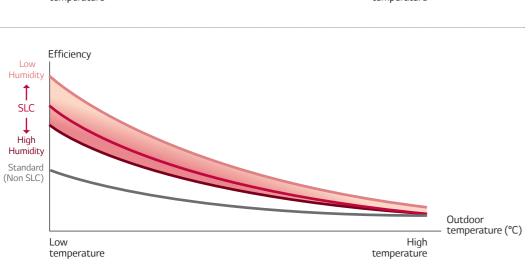
Evaporation







Higher evaporation temperature results in higher efficiency





HiPOR™

compressor.

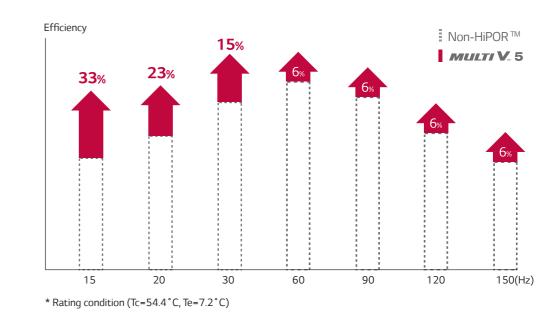
refrigerant loss.

-



Low pressure Compressor High pressure Oil separator refrigerant refrigerant 0 2 ß 민 No energy loss in suction gas

Efficiency comparison Non-HiPOR<sup>™</sup> vs. MULTI V 5

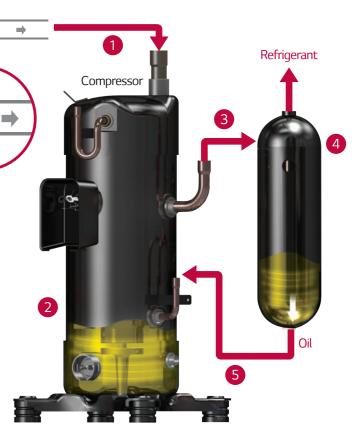


\* Low humidity: Below 50% / Standard: 50~70% / High humidity: 70~100%

\* Setting is available in indoor (Standard III Remote Controller)

HiPOR<sup>™</sup> technology enables oil to return directly into the compressor, instead of returning through the refrigerant suction pipe in order to minimize energy losses while maximizing the efficiency of

The previous model compressor that caused loss of low pressure refrigerant return to the refrigerant pipe. However MULTI V 5 maximizes reliability and efficiency of the compressor by reducing high pressure



#### Vapor Injection

Technology mechanism

Vapor Injection uses a two-stage compression effect, which is designed to provide efficient heating in very cold environments. Combined with HiPOR<sup>™</sup>, this system boosts heating performance and enhances heating temperature range.

#### Active **Refrigerant Control**

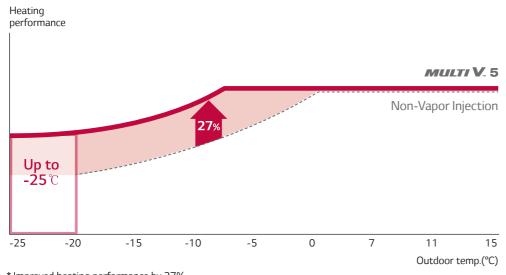
Technology mechanism

the part load operation. for each operation.

in receiver

# High-pressure Low-pressure Mid-pressure (Vapor injection port)

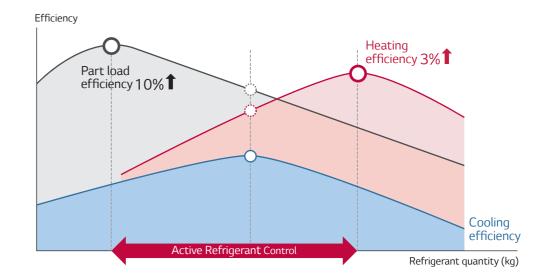
#### Performance comparison



Cooling Heating Part Load

Efficiency performance

Fixed refrigerant accumulator

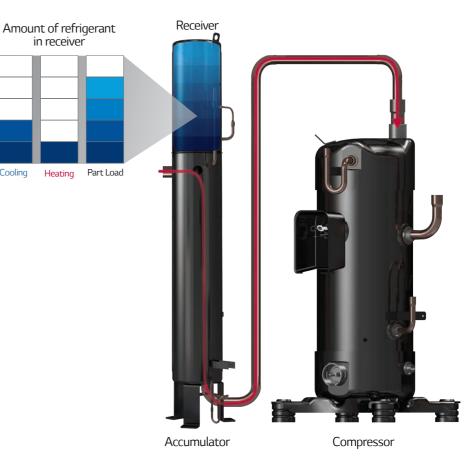


\* Improved heating performance by 27%

\* Comparison tested on 10HP model

Active Refrigerant Control monitors and adjusts the quantity of circulating refrigerant during each cycle to maximize efficiency in real time when it runs cooling and heating operation, as well as

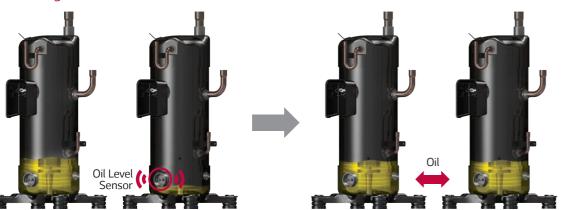
This five step control leads to an improvement in energy efficiency, unlike when fixed amount of refrigerant is provided to the compressor regardless of operation mode, which limits optimal efficiency



#### Smart Oil Management

Compressor reliability and Efficiency are improved with an oil sensor that allows oil balancing and oil return. The value of the capacitance between the electrodes can measure the presence of oil in real-time. This real-time measurement of oil in the compressor reduces energy loss, providing consistent heating for the indoor environment. With Smart Oil Return, heating operation time per day has increased up to 12% in comparison to previous model.

#### Auto Oil Balancing

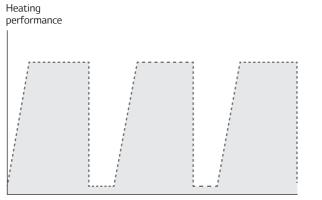


Smart Oil Return



Heating performance

#### Operation time comparison Non-oil sensor model vs. MULTI V 5

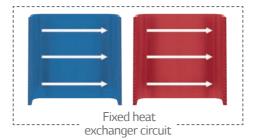


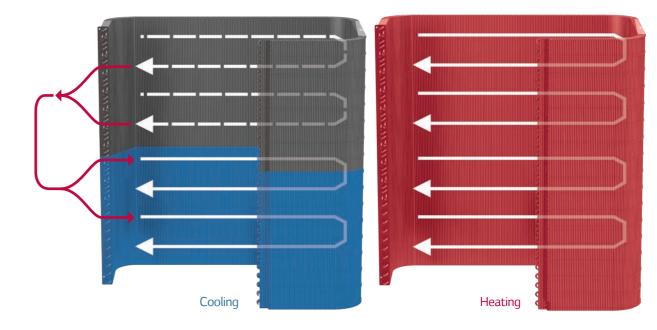
Operation time

#### Variable Heat **Exchanger Circuit**

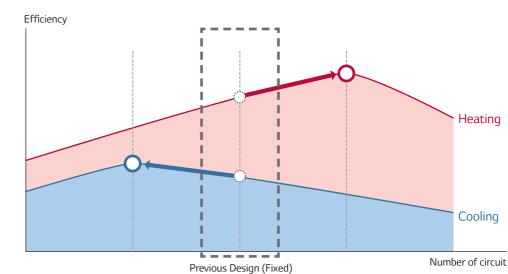
operations has been achieved.

#### Technology mechanism





#### Efficiency performance



Operation time

Oil recovery operation only if necessary

Heating operation time per day up to 12%

Variable Heat Exchanger Circuit intelligently selects the optimal path for both heating and cooling operations. With this smart path selection technology, an average of 6% increase in the efficiency of both

The paths number and circuit velocity are adjusted to match temperatures and operation modes in order to maximize efficiency instead of compromising efficiency for each operation when the number and direction of paths are fixed independently of temperature operation mode.

## **ULTIMATE PERFORMANCE**

MULTI V 5 ensures ultimate reliability with Ocean Black Fin, large capacity fan and enhanced bearing system for the best performance across the various environments.

#### Heat Exchanger with Ocean Black Fin for Corrosion Resistance

LG's exclusive Ocean Black Fin is applied on the heat exchanger of MULTI V 5 in order to perform even in corrosive environments. The strong protection from various corrosive external environments such as seaside with high salt contamination and industrial cities with severe air pollution caused by fumes from factories keeps MULTI V 5 operating without breakdown. This improvement in durability prolongs the product's lifespan and lowers both the operational and maintenance costs.

## **ULTIMATE PERFORMANCE**

Corrosion **Resistance Proven** by Certified Tests

UL (Underwriters Laboratories).

Certified protection





**Black Fin** 

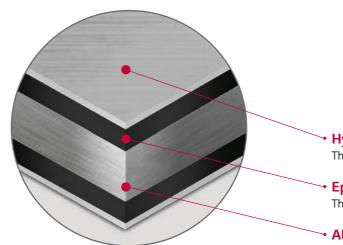
#### Condition of salt spray test

Temperature	35℃				
Mist of 5% sodium chloride solution					

#### Condition of gas exposure test

R.H.	NO <sub>2</sub>	SO <sub>2</sub>	
95%	10 x 10 <sup>-5</sup>	5 x 10⁻ <sup>6</sup>	

Enhanced **Coating Layers**  The black coating with enhanced epoxy resin is applied for protection from various corrosive external conditions such as salt contamination and air pollution including fumes from factories. Moreover, the hydrophilic film keeps water from accumulating on the heat exchanger's fin, minimizing moisture buildup and eventually making it corrosion resistant.



LG Corrosion Resistance solution passed ISO accelerated corrosion test conducted by an independent test organization and the result has been certified by prestigious global certification organization,

Certificate Number / Report Reference	4786735320-1 / 4786735320-15-1
Issue Date: Expiration Date:	2015-03-25 2018-03-24
Issued to:	LG Electronics Inc
	76 Seongsan-dong, Changwon-Si, Gyeongnam, 641-713, Korea
Claim Validated:	Aluminum Fin & Copper Tube Heat Exchanger employed on the Outdoor Unit of Air-Conditioners.
	Simulating the corrosive load for 27 years of exposure in a more severe traffic environment with salt contamination(Test Method B).
	Test method B of ISO21207 : Salt contaminated condition + severe industrial or traffic environment
tandards / Regulations:	ISO 21207, 6.2 & Annex A LG(65)-E-8148
based upon oriteria defined by product is and shall remain ( selected the samples nor dete test results apply only to the performed or for the accuracy details including test standards This certificate in no way conw UL and does not authorize the with the product. The validate	statutor sorts on the scortsmon data limited above. U, validater the data heredow. Carrier validate data bance or a nonexistic with the Directs reconvention that the claim is true and accurate. U, neither mend whater the transmits were representable of production units. The actual samples to the score of the score of the tests of test data generation by third parties. Please see test report for full , or your or implies Luting, Classification or Recognition or other certification by use of U, Luting, Classification or Recognition funds; on or inconnection of data relate score by the product performance and in no way conveys or of the product identified above.
the	<u> </u>
Churlbae Kim Engineering Leader Commercial & Industrial	
UL Korea Ltd. 26th FI, Gangnam Finance C Yeoksam-dong, Gangnam-g	enter, 737 u, Seoul, Kores

\* Based on 1,500 UL test hours

#### Hydrophilic film (Water flow)

The Hydrophilic coating minimizes moisture buildup on the fin.

#### Epoxy resin (Corrosion resistant)

The Black coating provides strong protection from corrosion.

#### Aluminum fin

## **ULTIMATE PERFORMANCE**

### Larger Capacity ODU with Biomimetics Technology Fan

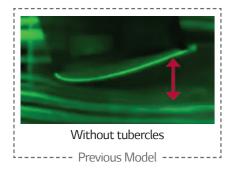
The moire pattern from external texture of clam shells has been applied on fans to create the range difference which results in reduction of noise level. At the same time, unlike the fans installed in previous products that generate separation of flow due to absence of tubercles, the bumpy back design inspired by the bumps on the humpback whale's flipper is applied as the tubercles on the back side of the fans, increasing wind power by reducing flacking.

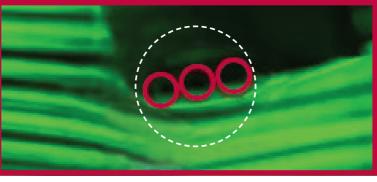


In addition to the biomimetics technology-based fans, **extended shroud of MULTI V 5 allows more high static pressure and helps fans to blow higher air volume for efficient operation**. With wider air guide, discharged air current is stabilized and noise level is reduced.



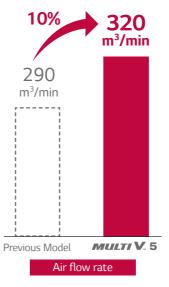
Flow difference comparison caused by tubercles Previous Model vs. MULTI V 5





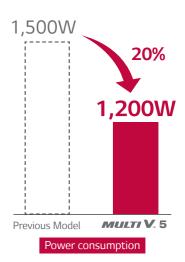
With tubercles

Enhanced Performance with Newly Developed Fan Based on the **biomimetics technology**, the fans of MULTI V 5 **increased air flow rate by 10% in comparison to previous model and reduced its power consumption up to 20%.** This eventually results in maximized performance with large capacity.



\* Comparison based on 20HP model





\* Comparison based on air volume of 290m<sup>3</sup>/min

## **ULTIMATE PERFORMANCE**

#### **Enhanced Bearing** with PEEK Material

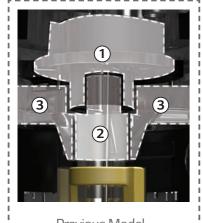
Motivated by the lubricative material of PEEK(Polyetheretherketone) bearing used for aero engines, the newly invented scroll system with refined shape increases durability and reliability of compressor. It also helps MULTI V 5 to operate longer without oil supply in comparison to the previous models.

#### **Reliable Performance** in Extreme Environment

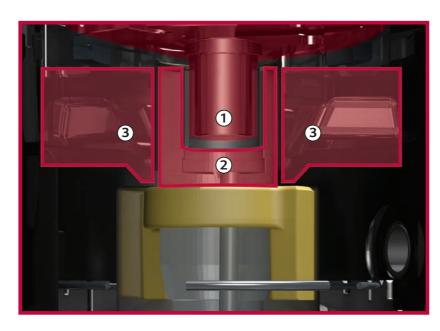
With enhanced inverter compressor and control technology coming from improved supercooling technology installation, vapor injection and Ocean Black Fin, MULTI V 5 extended range of cooling and heating operations. For heating, it can operate at as low as -25°C to perform properly even at very cold environment.

Moreover, MULTI V 5's cycle technology with enhanced durability enables optimal cooling performance at high temperature that increases up to 48°C. It is improved perfectly to fully function at extreme conditions such as performing cooling operation at -15°C, making the product adequate for uses in specialized venues like technical rooms.

#### Technology mechanism comparison Previous Model vs. MULTI V 5



Previous Model





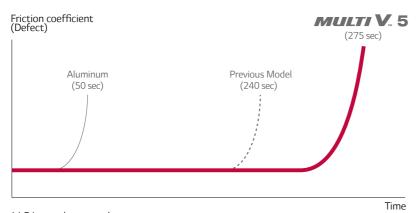
① Material : FR160 1+2 Structure : Inner Bearing ③ Supporter



Operating time without oil supply **Up to 15%** Noise Level (Max. Sound Pressure)

Down to 3dB

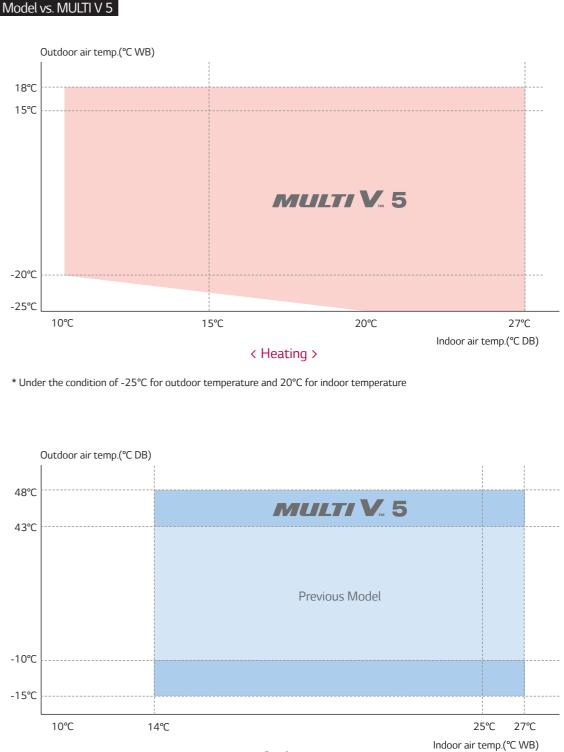
#### **Oilless** operation hours comparison Previous Model vs. MULTI V 5

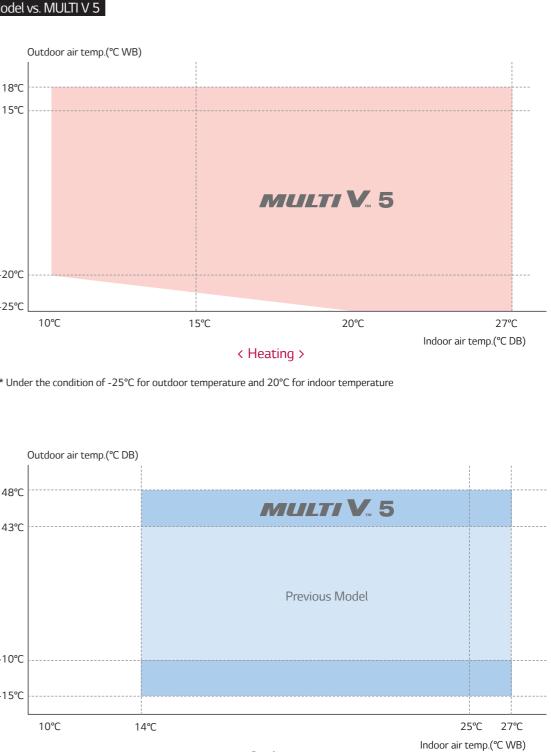


\* LG Internal test result

\* Test condition : Bearing oil blocking test (Oil blocking at 60Hz)

#### Wider operational range for each performance Previous Model vs. MULTI V 5





< Cooling >

## **ULTIMATE COMFORT**

MULTI V 5 closely senses environment's climate conditions via Dual Sensing Control to control cooling and heating operations. By maintaining specific conditions users set for indoor environment without stopping or changing, MULTI V 5 offers ultimate comfort for the users.

#### **Continuous Heating**

With Dual Sensing Control, partial defrost and smart oil management via oil sensor, continuous heating technology has been improved.

11% Increase in Heating Operation Time Per Day

7% Reduction in Power Input

#### Delayed Defrost via Humidity Sensor of Dual Sensing Control

By controlling the evaporation temperature considering the humidity, heating operation time is improved.



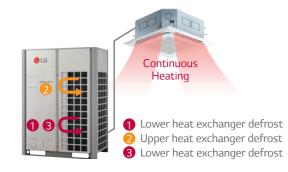
Effect of delayed defrost

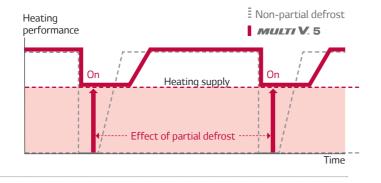
CONTINUOUS

HEATING

#### **Partial Defrost**

Unlike the previous model that stopped heating operation for one-time defrost, MULTI V 5 partially defrosts the heat exchanger by dividing it to lower and upper parts in order to provide consistent heating for the indoor environment and improve heating capacity.



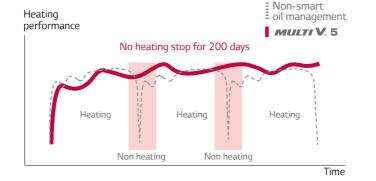


#### Smart Oil Management

Oil sensor of the Ultimate Inverter (UI) Compressor enables smart oil management to provide enhanced heating operation without periodic oil recovery operation.



Eliminated Unnecessary Oil Return via Oil Sensor

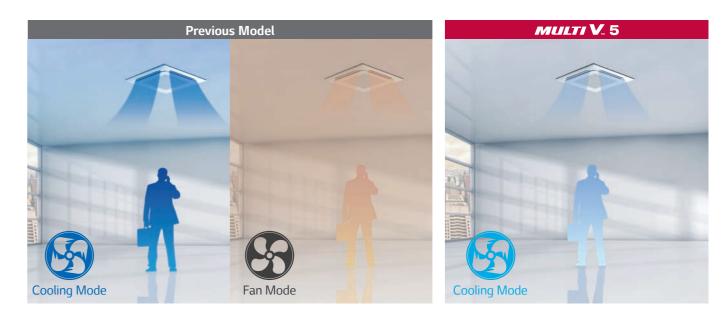


## **ULTIMATE COMFORT**

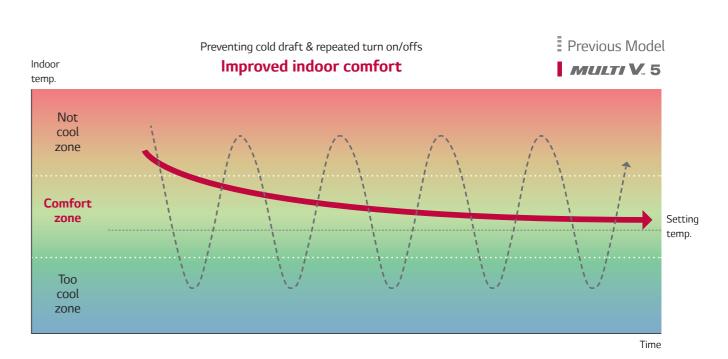
Comfort Cooling

Without stopping in between operations, this function allows MULTI V 5 to maintain operation at mild cooling mode around the set temperature by sensing both temperature and humidity with Dual Sensing Control. By preventing both cold draft and repeated turn on/offs previously required to match the set temperature, users can experience more comfortable indoor environment.

#### Cooling operation comparison Previous Model vs. MULTI V 5



\* Indoor unit set up available with Standard III Remote Controller



\* LG internal test result



## **ULTIMATE COMFORT**

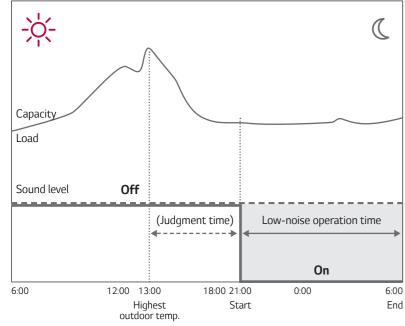
#### **Low-Noise Operation**

Unlike the previous model which enables Low-Noise Operation only during night after judgment time, the Low-Noise Operation of MULTI V 5 can function regardless of the time at the noise sensitive areas.

#### **Operation hours** comparison

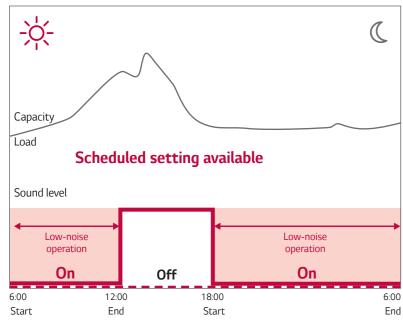
#### Previous Model vs. MULTI V 5

#### **Previous Model**





## MULTI V. 5

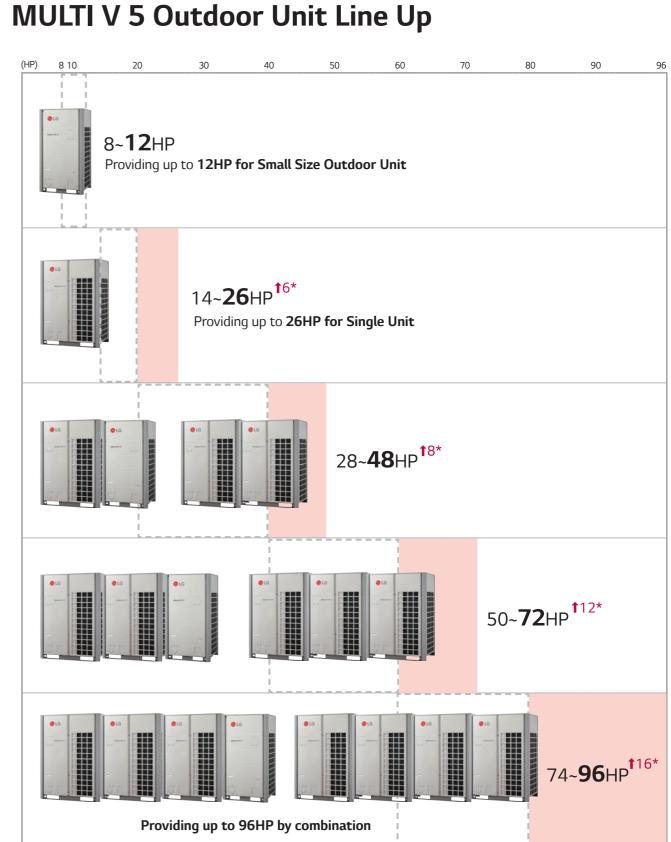




\* Indoor unit set up available with Standard III Remote Controller

## **ULTIMATE FLEXIBILITY**

With industry's top level piping technology and large capacity outdoor unit, MULTI V 5 allows users to make better use of the space, offering more flexible installation design.



<sup>\*</sup> Capacity increase compared to previous model

## **ULTIMATE FLEXIBILITY**

Flexible Installation Space with Large Capacity Outdoor Units Large capacity outdoor units of MULTI V 5 minimizes installation space that spares valuable floor space and significantly decreases total installed weights. This allows users the **flexible design potential and better use of the saved space**.

Extensive Piping Capabilities for Flexible Installation Due to improved supercooling circuit and refrigerant controlling technologies, MULTI V 5 allows users to install world's best class piping lengths, which results in more flexible installation design.

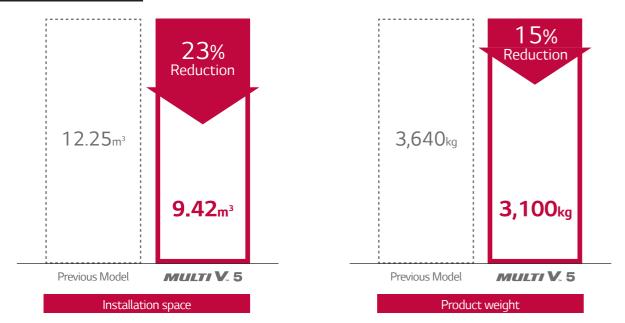
#### Comparison on installation space Previous Model vs. MULTI V 5



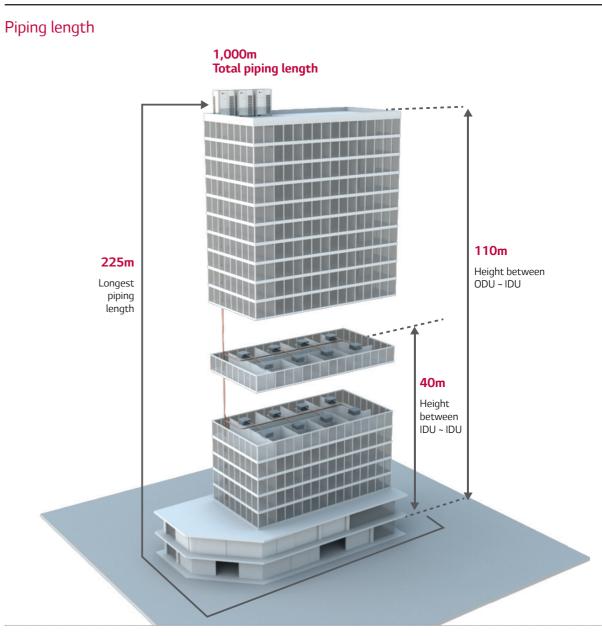


Installation space area and product weight comparison





\* Comparison basis: 2 Rows of outdoor units 260HP (26HP X 10sets) installation case



### Piping capabilities

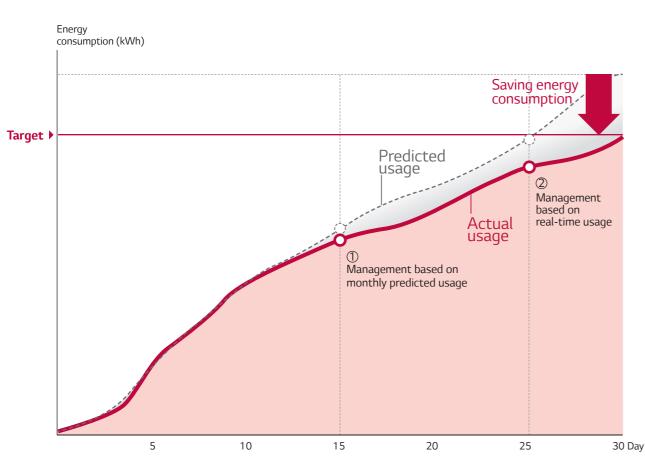
Total Piping Length	1,000m
Actual longest piping length (Equivalent)	200m (225m)
Longest piping length after 1 <sup>st</sup> branch (conditional application)	40m (90m)
Height between ODU ~ IDU	110m
Height between IDU ~ IDU	40m
Height between ODU ~ ODU	5m

## **ULTIMATE CONTROL**

Various maintenance solutions provided by MULTI V 5 offers smart, convenient and reliable functionality.

#### Energy Management

Energy Management allows MULTI V 5 to analyze previous data in order to forecast energy usage beforehand and prevent from exceeding the monthly energy consumption plan by systematically controlling the cooling volume. With energy consulting program that provides automatic operation options for 7 levels of energy management such as compressor capacity management and indoor unit operation level control, users can monitor energy usage anytime and efficiently manage their energy bills.



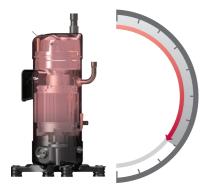
Management setting example

① When predicted usage is 120% ② When the real-time usage is 90%

\* Energy Management allows maximum 7 steps (Input format is percent for predicted and real-time usage)

\* Central control kit such as ACP IV or AC Smart IV and PDI are required for energy management function

#### Control methods







Operation rate control of indoor unit

Indoor unit operation management

## **ULTIMATE CONTROL**

#### AC Manager 5 with **User Friendly Interface**

As an advanced central controller, AC Manager 5 offers flexible interface for each user by assessing the device screen and automatically customizing the layout to provide the most optimized interface. Moreover, it provides effective system air conditioner management through user friendly interface and various functions.



Schedule function

Advanced energy monitoring

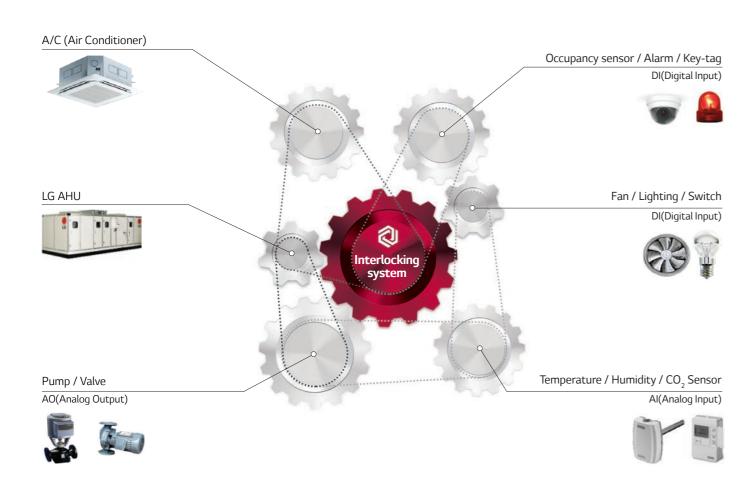
48



## **ULTIMATE CONTROL**

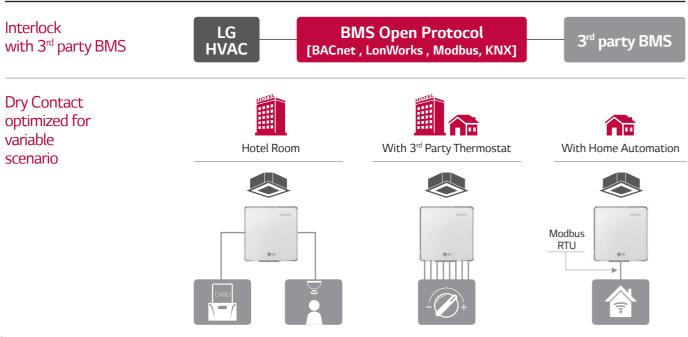
#### Expandability & Programmability

The expandable control system can be interlocked with sensors and facilities of building, as well as air conditioners. It makes building management smart by setting up logic optimized for the site.

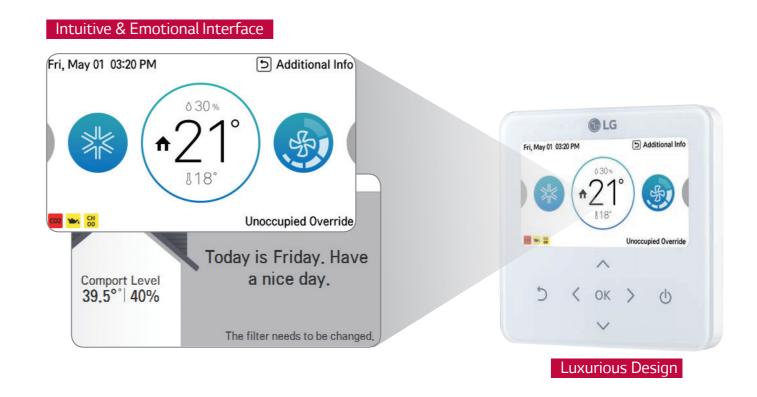


System Flexibility

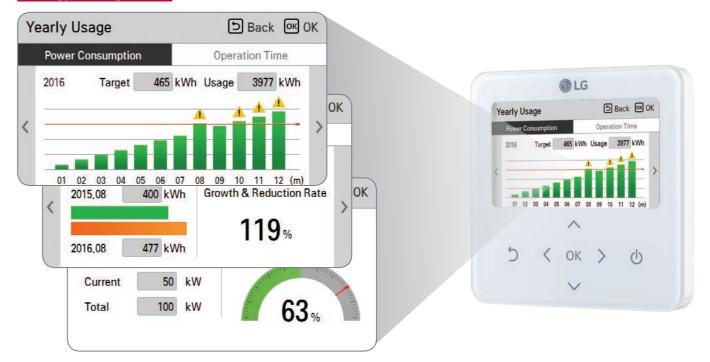
It can be linked with 3rd party BMS via Gateway and provide flexible control system for each site via Dry Contact.



Smart Individual Controller (with Standard III Remote Controller) New Standard III Remote Controller of MULTI V 5 offers 4.3-inch large LCD screen with neat and premium design. This **luxurious design** well-matches interior design through large colored LCD screen with curved display and simple button layout which makes it easier to control. With **diverse information offered such as temperature, humidity and cleanliness** information, users can check on currently consumed power in real-time and electricity consumption data(weekly/monthly/annually) to **predict and plan power consumption usage.** Moreover, **simple and geometrically neat design of user interface makes data comprehension visually easy.** With circular visual theme, information are labelled in different-sized circles based on their priorities.



#### Energy Management



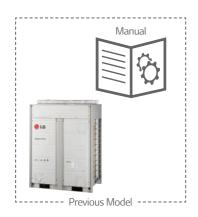
\* Central control kit such as ACP IV or AC Smart IV and PDI are required for energy management function

## **ULTIMATE CONTROL**

#### Simple Test Run via LGMV

In order to bring out performance to the 100% level, proper product test run is necessary. For previous product, professional engineer who is well-aware of more than 40 different functional settings and 200+ error codes had to check main parts in order to make sure that the test run had succeeded. With **Mobile LGMV of MULTI V 5, however, fast and accurate auto test run can be executed** and the professional installer running the test can receive test results via email, which **shortens installation hours and increases overall efficiency in installation processes.** 

#### Test run comparison Previous Model vs. MULTI V 5





#### LGMV smartphone application setting pages



Wi-Fi MV Module



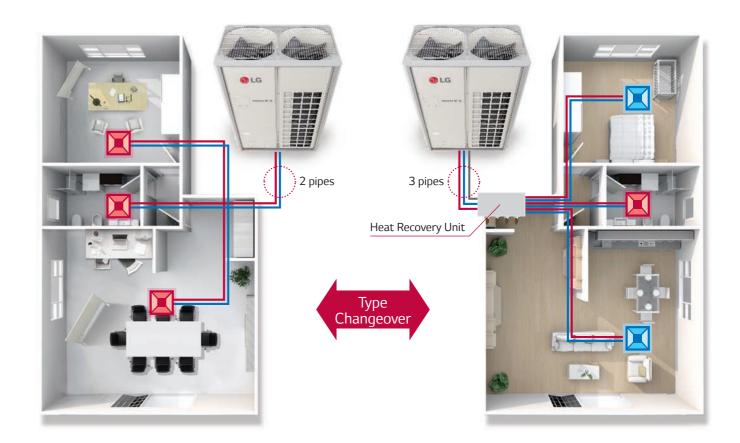
37% Reduction in Installation Hours

## **HEAT RECOVERY**

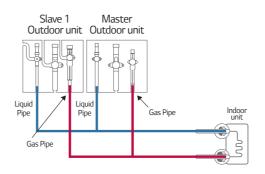
## Applicable for Various Building Types with Heat Pump & Heat Recovery Systems

LG MULTI V 5 satisfies users' various needs with just one platform. Heat Pump System works for the sites where either cooling or heating operation is needed, while Heat Recovery System fits perfectly to the sites wherein both the cooling and heating operations are simultaneously needed or locations installed with Hot Water Solution to provide hot water and heating via radiator. By providing suitable solutions that cater to any building types and their requirements, MULTI V 5 offers the best HVAC system.

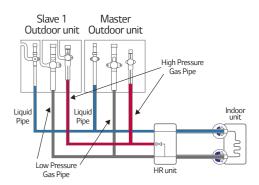
Simple Piping System Changes MULTI V 5 allows the building previously installed with Heat Pump System to switch to the Heat Recovery System for changing purpose of the building or remodeling reasons via simple piping construction.







#### Heat Recovery System



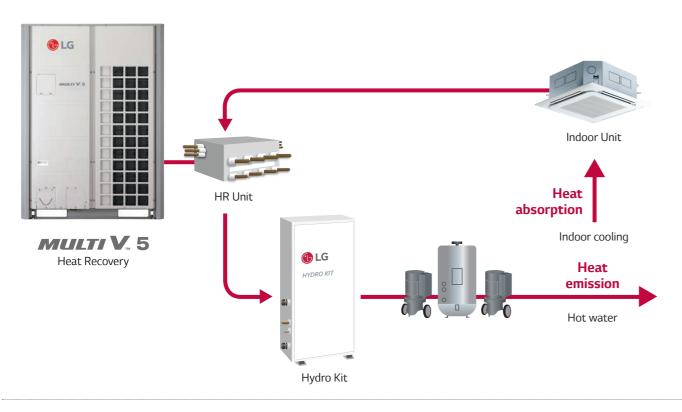
## **HEAT RECOVERY**

#### **Energy Saving with** Simultaneous Operation

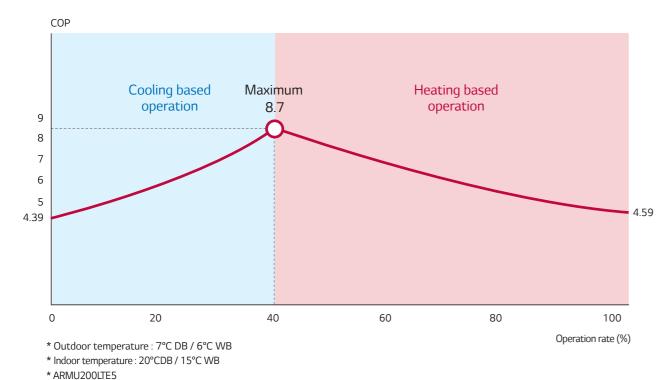
MULTI V 5 Heat Recovery system with HR Unit can perform both cooling and heating operations simultaneously. For continuous operation, it minimizes in order to switch mode while it increases efficiency with simultaneous operation.

Moreover, it allows the COP to reach up to 8.5 under circumstances of 40% cooling and 60% heating operations, which results in the decreased energy consumption up to 30%.

#### Technology mechanism



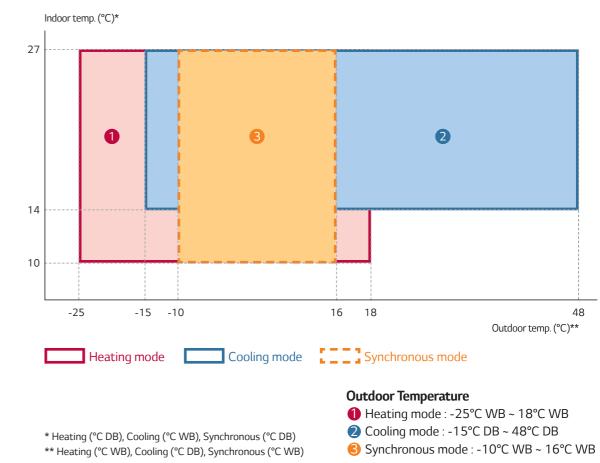
#### COP with simultaneous operation



#### Wide Operation Range

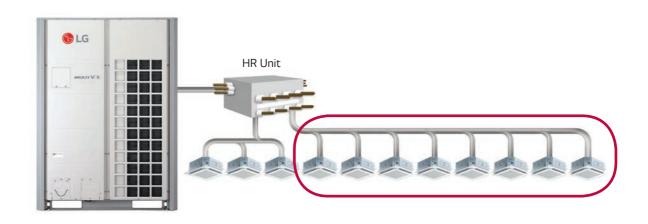
Both the low and high temperature operation ranges are expanded through condenser with various control. For heating mode, the outdoor temperature can go from as low as -25°C to 24°C, and from -15°C to as high as 48°C for cooling mode. As for the synchronous mode, it can run from -10°C to 16°C.

#### **Operation range**



## **Flexible Connection of** Heat Recovery Unit

#### Zoning control



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LG MULTI V 5 Heat Recovery Unit allows flexible connection both in series and in a row. With the zone control function, up to 8 indoor units can be connected to a branch while the maximum of 32 indoor units can be connected to a HR unit, saving the installation cost by flexible connection.

ARUM080LTE5 / ARUM100LTE5 / ARUM120LTE5 / ARUM140LTE5 / ARUM160LTE5

Capacity	Combination Independent Cooling (Rated) Heating (Rated) Heating (Max) Heating (Max) Heating (Max) Heating (Max) Heating (Max) ESEER ESEER ESEER ESEER ESEER COP (Ma Rated Casing Color Heat Exchanger Paston Displacement Iumber of Revolution Starting Ma Col Type Con Cor Paston C	E Unit KVV Btu/h KW Btu/h KVV Btu/h KVV Btu/h KVV Btu/h KVV Btu/h KVV Btu/h C C C C C C C C C C C C C	ARUM080LTE5           ARUM080LTE5           22.4           76,400           22.4           76,400           25.2           86,000           4.49           3.97           4.78           4.99           8.41           9.46           5.64           5.27           0.93           Warm Gray / Dawn Gray           Ocean Black Fin           Hermetically Sealed Scroll           43.8           3,600           4,200 × 1	ARUM 100LTE5 ARUM 100LTE5 28.0 95,500 28.0 95,500 31.5 107,500 31.5 31.5 107,500 31.5 3.80 4.92 5.92 4.83 4.92 5.92 4.83 4.92 5.92 4.83 4.92 5.92 5.92 4.83 6.9 5.569 5.569 5.52 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	ARUM120LTE5 ARUM120LTE5 33.6 114,600 33.6 114,600 33.6 114,600 37.8 129,000 7.58 6.85 6.85 6.85 6.85 6.85 6.85 6.85 6	ARUM140LTE5 ARUM140LTE5 39.2 39.2 133,800 39.2 133,800 44.1 150,500 44.1 150,500 8.68 8.13 9.72 4.52 7.33 8.26 4.82 4.52 7.33 8.26 4.82 4.52 9.72 9.72 4.52 7.33 8.26 4.82 4.54 0.93 9.3 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	ARUM160LTES ARUM160LTES 44.8 152,900 44.8 152,900 50.4 172,000 10.89 10.28 10.28 10.28 10.28 10.28 10.28 10.28 10.28 10.29 10.29 10.28 10.29 10.28 10.29 10.29 10.28 10.29 10.29 10.28 10.29 10.
Capacity A constraints of the second	Cooling (Rated) 4 Heating (Rated) 4 Heating (Max) 4 Cooling (Max) 4 Heating (M	kW Btu/h kW Btu/h kW Btu/h kW kW kW kW kW kW kW kW kW kW kW kW kW	22.4 76,400 22.4 76,400 25.2 86,000 4.49 3.97 4.78 4.99 8.41 9.46 5.64 5.64 5.54 5.54 5.57 0.93 Warm Gray / Dawn Gray 0cean Black Fin Hermetically Sealed Scroll Hermetically Sealed Scroll	28.0 95,500 28.0 95,500 31.5 107,500 5.80 4.92 5.92 4.83 8.13 9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll Hermetically Sealed Scroll	33.6 114,600 33.6 114,600 37.8 129,000 7.58 6.85 6.85 6.85 8.26 4.43 7.47 8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	39.2 133,800 39.2 133,800 44.1 150,500 8.68 8.13 9.72 4.52 7.33 8.26 4.52 7.33 8.26 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	44.8 152,900 44.8 152,900 50.4 172,000 10.89 10.28 10.28 10.28 10.28 12.39 4.11 6.59 7.79 4.36 4.07 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
Capacity	Heating (Rated) Heating (Max) Cooling (Rated) Heating (Rated) Heating (Max) EER ESEER (SLC) COP (Mater COP	Btu/h           kW           Btu/h           kW           Btu/h           kW           Btu/h           kW           Btu/h           kW           Btu/h           kW           kW <th>76,400 22.4 76,400 25.2 86,000 4.49 3.97 4.78 4.99 8.41 9.46 5.64 5.64 5.54 5.57 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll Hermetically Sealed Scroll</th> <th>95,500 28.0 95,500 31.5 107,500 5.80 4.92 5.92 4.83 8.13 9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1</th> <th>114,600 33.6 114,600 37.8 129,000 7.58 6.85 8.26 4.43 7.47 8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll</th> <th>133,800 39.2 133,800 44.1 150,500 8.68 8.13 9.72 4.52 7.33 8.26 4.82 4.52 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin</th> <th>152,900 44.8 152,900 50.4 172,000 10.89 10.28 10.28 12.39 4.11 6.59 7.79 4.36 4.07 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin</th>	76,400 22.4 76,400 25.2 86,000 4.49 3.97 4.78 4.99 8.41 9.46 5.64 5.64 5.54 5.57 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll Hermetically Sealed Scroll	95,500 28.0 95,500 31.5 107,500 5.80 4.92 5.92 4.83 8.13 9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	114,600 33.6 114,600 37.8 129,000 7.58 6.85 8.26 4.43 7.47 8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	133,800 39.2 133,800 44.1 150,500 8.68 8.13 9.72 4.52 7.33 8.26 4.82 4.52 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	152,900 44.8 152,900 50.4 172,000 10.89 10.28 10.28 12.39 4.11 6.59 7.79 4.36 4.07 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
Capacity	Heating (Rated) Heating (Max) Cooling (Rated) Heating (Rated) Heating (Max) EER ESEER (SLC) COP (Mater COP	kW Btu/h kW Btu/h kW kW kW kW kW kW kW kW kW kW kW kW kW	22.4 76,400 25.2 86,000 4.49 3.97 4.78 4.99 8.41 9.46 5.64 5.64 5.27 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll Hermetically Sealed Scroll	28.0 95,500 31.5 107,500 5.80 4.92 5.92 4.83 8.13 9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	33.6 114,600 37.8 129,000 7.58 6.85 8.26 4.43 7.47 8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	39.2 133,800 44.1 150,500 8.68 8.13 9.72 4.52 7.33 8.26 4.82 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	44.8 152,900 50.4 172,000 10.89 10.28 12.39 4.11 6.59 7.79 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
COP Power Factor Fan Fan Pipe	Heating (Max) Cooling (Rated) Heating (Max) Heating (Max) EER ESER ESER ESER COP (Ma Rated Casing Color Heat Exchanger Piston Displacement lumber of Revolution tor Output × Number Starting Me Casing Color	Btu/h           kW           Btu/h           kW           cm³/rev           rev/min           W × No.           thod	76,400 252 86,000 4.49 3.97 4.78 4.99 8.41 9.46 5.64 5.27 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 43.8 3,600	95,500 31.5 107,500 5.80 4.92 5.92 4.83 8.13 9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	114,600 37.8 129,000 7.58 6.85 8.26 4.43 7.47 8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	133,800 44.1 150,500 868 8.13 9.72 4.52 7.33 8.26 4.82 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	152,900 50.4 172,000 10.89 10.28 12.39 4.11 6.59 7.79 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
COP Power Factor Fan Fan Pipe	Heating (Max) Cooling (Rated) Heating (Max) Heating (Max) EER ESER ESER ESER COP (Ma Rated Casing Color Heat Exchanger Piston Displacement lumber of Revolution tor Output × Number Starting Me Casing Color	kW Btu/h kW kW kW kW kW kW kW kW kW kW kW kW kW	25.2 86,000 4.49 3.97 4.78 4.99 8.41 9.46 5.64 5.27 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll Hermetically Sealed Scroll	31.5 107,500 5.80 4.92 5.92 4.83 8.13 9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	37.8 129,000 7.58 6.85 8.26 4.43 7.47 8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	44.1 150,500 8.68 8.13 9.72 4.52 7.33 8.26 4.82 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	50.4 172,000 10.89 10.28 12.39 4.11 6.59 7.79 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
COP	Cooling (Rated) Heating (Rated) Heating (Max) EER ESEER ESEER (SLC) COP (Ma Rated Casing Color Cosing Color Heat Exchanger Heat Exchanger Piston Displacement fumber of Revolution ntor Output × Number Starting Me Col Type	Btu/h           kW           kW           kW           kW           kW           cm³/rev           rev/min           W × No.           thod	86,000 4.49 3.97 4.78 4.99 8.41 9.46 5.64 5.27 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll Hermetically Sealed Scroll	107,500 5.80 4.92 5.92 4.83 8.13 9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	129,000 7.58 6.85 8.26 4.43 7.47 8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	150,500 8.68 8.13 9.72 4.52 7.33 8.26 4.82 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	172,000 10.89 10.28 12.39 4.11 6.59 7.79 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
COP	Cooling (Rated) Heating (Rated) Heating (Max) EER ESEER ESEER (SLC) COP (Ma Rated Casing Color Cosing Color Heat Exchanger Heat Exchanger Piston Displacement fumber of Revolution ntor Output × Number Starting Me Col Type	kW kW kW ad) ad) ad) ad) cm <sup>3</sup> /rev rev/min W × No.	4.49 3.97 4.78 4.99 8.41 9.46 5.64 5.27 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 43.8 3,600	5.80 4.92 5.92 4.83 8.13 9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	7.58 6.85 8.26 4.43 7.47 8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	8.68 8.13 9.72 4.52 7.33 8.26 4.82 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	10.89 10.28 12.39 4.11 6.59 7.79 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
Input H F COP Power Factor Compressor Fan Air Pipe	Heating (Rated) Heating (Max) EER ESEER ESEER (SLC) COP (Mat COP (Mat COP (Mat Cosing Color Rated Casing Color Heat Exchanger Heat Exchanger Piston Displacement lumber of Revolution tor Output × Number Starting Mat	kW kW kW ad) ad) x) - - - - - - - - - - - - - - - - - -	3.97 4.78 4.99 8.41 9.46 5.64 5.27 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 43.8 3,600	4.92 5.92 4.83 8.13 9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	6.85 8.26 4.43 7.47 8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	8.13 9.72 4.52 7.33 8.26 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	10.28 12.39 4.11 6.59 7.79 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
COP	Heating (Max) EER ESER ESEER (SLC) COP (Ma Rated Casing Color Heat Exchanger Type Piston Displacement lumber of Revolution tor Output × Number Starting Me Oil Type	kW ed) - cm <sup>3</sup> /rev rev/min W × No. thod	4.78 4.99 8.41 9.46 5.64 5.27 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 43.8 3,600	5.92 4.83 8.13 9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	8.26 4.43 7.47 8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	9.72 4.52 7.33 8.26 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	12.39 4.11 6.59 7.79 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
COP	EER ESEER (SLC) COP (Ma Rated Casing Color Heat Exchanger Type Piston Displacement lumber of Revolution ntor Output × Number Starting Me Oil Type	ed) *) - cm <sup>3</sup> /rev rev/min W × No. thod	4.99 8.41 9.46 5.64 5.27 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 43.8 3,600	4.83 8.13 9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	4 43 7.47 8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	4.52 7.33 8.26 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	4.11 6.59 7.79 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
Compressor Fan Pipe	ESEER ESEER (SLC) COP (Ma Rated Casing Color Heat Exchanger Type Piston Displacement lumber of Revolution ntor Output × Number Starting Me Oil Type	x) 	8.41           9.46           5.64           5.27           0.93           Warm Gray / Dawn Gray           Ocean Black Fin           Hermetically Sealed Scroll           43.8           3,600	8.13 9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	7.47 8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	7.33 8.26 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	6.59 7.79 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
Compressor Fan Pipe	ESEER (SLC) COP (Mar Rated Casing Color Heat Exchanger Piston Displacement tumber of Revolution ntor Output × Number Starting Me Oil Type	x) 	9.46 5.64 5.27 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 43.8 3,600	9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	8.26 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	7.79 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
Compressor Fan Pipe	ESEER (SLC) COP (Mar Rated Casing Color Heat Exchanger Piston Displacement tumber of Revolution ntor Output × Number Starting Me Oil Type	x) 	9.46 5.64 5.27 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 43.8 3,600	9.15 5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	8.60 4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	8.26 4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	7.79 4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
Compressor Fan Pipe	COP (Rat COP (Ma Rated Casing Color Heat Exchanger Piston Displacement tumber of Revolution tor Output × Number Starting Me Oil Type	x) 	5.64 5.27 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 43.8 3,600	5.69 5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	4.91 4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	4.82 4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	4.36 4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
Compressor Fan Pipe	COP (M Rated Casing Color Heat Exchanger Piston Displacement lumber of Revolution otor Output × Number Starting Me Oil Type	x) 	5.27 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 43.8 3,600	5.32 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	4.58 0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	4.54 0.93 Warm Gray / Dawn Gray Ocean Black Fin	4.07 0.93 Warm Gray / Dawn Gray Ocean Black Fin
Compressor Fan Pist Num Motor Fan Air	Rated Casing Color Heat Exchanger Type Piston Displacement lumber of Revolution otor Output × Number Starting Me Oil Type	cm³/rev rev/min W × No. thod	0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 43.8 3,600	0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	0.93 Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	0.93 Warm Gray / Dawn Gray Ocean Black Fin	0.93 Warm Gray / Dawn Gray Ocean Black Fin
Compressor Fan Pist Num Motor Fan Air	Casing Color Heat Exchanger Type Piston Displacement lumber of Revolution ptor Output × Number Starting Me Oil Type	rev/min W × No.	Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 43.8 3,600	Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll 62.1	Warm Gray / Dawn Gray Ocean Black Fin Hermetically Sealed Scroll	Warm Gray / Dawn Gray Ocean Black Fin	Warm Gray / Dawn Gray Ocean Black Fin
Fan Pipe	Heat Exchanger Type Piston Displacement lumber of Revolution stor Output × Number Starting Me Oil Type	rev/min W × No.	Ocean Black Fin Hermetically Sealed Scroll 43.8 3,600	Ocean Black Fin Hermetically Sealed Scroll 62.1	Ocean Black Fin Hermetically Sealed Scroll	Ocean Black Fin	Ocean Black Fin
Fan Pipe	Type Piston Displacement lumber of Revolution btor Output × Number Starting Me Oil Type	rev/min W × No.	Hermetically Sealed Scroll 43.8 3,600	Hermetically Sealed Scroll 62.1	Hermetically Sealed Scroll		
Fan Pipe	Piston Displacement lumber of Revolution otor Output × Number Starting Me Oil Type	rev/min W × No.	43.8 3,600	62.1		Hermetically Sealed Scroll	
Fan Pipe	lumber of Revolution otor Output × Number Starting Me Oil Type	rev/min W × No.	3,600				Hermetically Sealed Scrol
Fan Pipe	otor Output × Number Starting Me Oil Type	W × No.			62.1	62.1	62.1
Fan Air	Starting Me Oil Type	thod	4,200 × 1	3,600	3,600	3,600	3,600
Fan Air	Oil Type			5,300 × 1	5,300 × 1	5,300 × 1	5,300 × 1
Fan Air	1 m 2 h 1		Direct On Line	Direct On Line	Direct On Line	Direct On Line	Direct On Line
Fan Air	Tuno	2	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)
Fan Air	Туре		Propeller fan	Propeller fan	Propeller fan	Propeller fan	Propeller fan
Pipe	otor Output × Number	W	1,200 × 1	1,200 × 1	1,200 × 1	900 × 2	900 × 2
Pipe	Electric	m³/min	240 × 1	240 × 1	240 × 1	320 × 1	320 × 1
Pipe	Air Flow Rate (High)	ft³/min	8,476 × 1	8,476 × 1	8,476 × 1	11,301 × 1	11,301 × 1
Pipe	Drive	10-091	DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER
Pipe	Discharge	Side / Top	ТОР	TOP	TOP	TOP	ТОР
Pipe	Liquid Pipe	mm(inch)	9.52(3/8)	9.52(3/8)	12.7(1/2)	12.7(1/2)	12.7(1/2)
Connections Low	ow Pressure Gas Pipe	mm(inch)	19.05(3/4)	22.2(7/8)	28.58(1-1/8)	28.58(1-1/8)	28.58(1-1/8)
Recovery	igh Pressure Gas Pipe	mm(inch)	15.88(5/8)	19.05(3/4)	19.05(3/4)	22.2(7/8)	22.2(7/8)
	Liquid Pipe	mm(inch)	9.52(3/8)	9.52(3/8)	12.7(1/2)	12.7(1/2)	12.7(1/2)
Pipe Connections or Heat Pump	Gas Pipe	mm(inch)	19.05(3/4)	22.2(7/8)	28.58(1-1/8)	28.58(1-1/8)	28.58(1-1/8)
	Gastipe	mm	(930 × 1,690 × 760) × 1	(930 × 1,690 × 760) × 1	(930 × 1,690 × 760) × 1	(1,240 × 1,690 × 760)×1	(1,240 × 1,690 × 760)×1
Dimensions(W	s(W × H × D)	inch	(36-5/8 × 66-17/32 × 29-	(36-5/8 × 66-17/32 × 29-	(36-5/8 × 66-17/32 × 29-	(48-13/16 × 66-17/32 × 29-	(48-13/16 × 66-17/32 × 2
	10,000		29/32) × 1	29/32) × 1	29/32) × 1	29/32) × 1	29/32) × 1
Net We	Weight	kg	198 × 1	215 × 1	215 × 1	237 × 1	237 × 1
	0.1	lbs	437 × 1	474 × 1	474 × 1	522 × 1	522 × 1
Sound Pressure	Cooling	dB(A)	58.0	58.0	59.0	60.0	60.5
Level	Heating	dB(A)	59.0	59.0	60.0	61.0	61.5
ound Power	Cooling	dB(A)	77.0	78.0	79.0	82.0	83.0
	Heating	dB(A)	78.0	79.0	80.0	84.0	85.0
	High pressure protection	-	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch
Protection Devices	Compressor/Fan	-	Over-heat protection / Fan driver overload protector	Over-heat protection / Fan driver overload protector	Over-heat protection / Fan driver overload protector	Over-heat protection / Fan driver overload protector	Over-heat protection / Fan driver overload protect
	Inverter	-	Over-heat protection /	Over-heat protection /	Over-heat protection /	Over-heat protection /	Over-heat protection /
Communicati		No.×mm <sup>2</sup> (VCTF-SB)	Over-current protection 2C × 1.0 ~ 1.5	Over-current protection 2C × 1.0 ~ 1.5	Over-current protection 2C × 1.0 ~ 1.5	Over-current protection 2C × 1.0 ~ 1.5	Over-current protection 2C × 1.0 ~ 1.5
Communicati	Refrigerant		R410A	R410A	R410A	R410A	R410A
Pre	Precharged Amount in factory	kg 	7.5	9.5	9.5	13.5	13.5
Refrigerant		lbs	16.5	20.9	20.9	29.8	29.8
	GWP		2,087.5	2,087.5	2,087.5	2,087.5	2,087.5
	TCO <sub>2</sub> eq	I	15.7	19.8	19.8	28.2	28.2
	Contro	l	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Power St	Control		380~415, 3, 50	380~415, 3, 50	380~415, 3, 50	380~415, 3, 50	380~415, 3, 50
rower st	r Supply	Ø , V, Hz	380, 3, 60	380, 3, 60	380, 3, 60	380, 3, 60	380, 3, 60

\* This product contains Fluorinated Greenhouse Gases. (R410A)

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## MULTI V. 5

	HP		18	20	22	22'	24
	Combinatio	n Unit	ARUM180LTE5	ARUM200LTE5	ARUM220LTE5	ARUM221LTE5	ARUM240LTE5
Model Name	Independen	t Unit	ARUM180LTE5	ARUM200LTE5	ARUM220LTE5	ARUM120LTE5 ARUM100LTE5	ARUM240LTE5
		kW	50.4	56.0	61.6	61.6	67.2
	Cooling (Rated)	Btu/h	172,000	191,100	210,200	210,200	229,300
		kW	50.4	56.0	61.6	61.6	67.2
Capacity	Heating (Rated)	Btu/h	172,000	191,100	210,200	210,200	229,300
		kW	56.7	63.0	69.3	69.3	74.3
	Heating (Max)	Btu/h	193,500	215,000	236,500	236,500	253,400
	Cooling (Rated)	kW	10.91	12.77	15.70	13.4	17.40
Input	Heating (Rated)	kW	10.12	12.20	14.15	11.8	15.89
	Heating (Max)	kW	11.94	14.69	16.76	14.2	18.80
	EER	1.1	4.62	4.39	3.92	4.60	3.86
	ESEER	1 1 / 1	7.40	7.03	6.68	7.76	6.57
	ESEER (SLC)		8.11	7.70	7.87	8.84	8.05
COP	COP (Rat	ed)	4.98	4.59	4.35	5.23	4.23
COP	COP (Ma	ax)	4.75	4.29	4.13	4.89	3.95
Power Factor	Rated	Ser month	0.93	0.93	0.93	0.93	0.93
	Casing Color		Warm Gray / Dawn Gray	Warm Gray / Dawn Gray			
	Heat Exchanger		Ocean Black Fin	Ocean Black Fin	Ocean Black Fin	Ocean Black Fin	Ocean Black Fin
	Туре		Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll
Compressor	Piston Displacement cm <sup>3</sup> /rev		62.1 × 1 + 43.8 × 1	62.1 × 1 + 43.8 × 1	62.1 × 1 + 43.8 × 1	62.1 × 2	62.1 × 2
	Number of Revolution	rev/min	3,600 × 2	3,600 × 2	3,600 × 2	3,600 × 2	3,600 × 2
	Motor Output × Number W × No.		5,300 × 1 + 4,200 × 1	5,300 × 1 + 4,200 × 1	5,300 × 1 + 4,200 × 1	5,300 × 2	5,300 × 2
	Starting Method		Direct On Line	Direct On Line	Direct On Line	Direct On Line	Direct On Line
	Oil Typ	e	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)
	Туре		Propeller fan	Propeller fan	Propeller fan	Propeller fan	Propeller fan
	Motor Output × Number	W	900 × 2	900 × 2	900 × 2	(1,200 × 1) + (1,200 × 1)	900 × 2
Fan	Air Flow Rate (High)	m³/min	320 × 1	320 × 1	320 × 1	(240 × 1) + (240 × 1)	320 × 1
	ft³/min		11,301 × 1	11,301 × 1	11,301 × 1	(8,476 × 1) + (8,476 × 1)	11,301 × 1
	Drive	1-	DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER
_	Discharge	Side / Top	ТОР	ТОР	ТОР	ТОР	ТОР
Pipe Connections	Liquid Pipe	mm(inch)	15.88(5/8)	15.88(5/8)	15.88(5/8)	15.88(5/8)	15.88(5/8)
For Heat Recovery	Low Pressure Gas Pipe	mm(inch)	28.58(1-1/8)	28.58(1-1/8)	28.58(1-1/8)	28.58(1-1/8)	34.9(1-3/8)
	High Pressure Gas Pipe	mm(inch)	22.2(7/8)	22.2(7/8)	28.58(1-1/8)	28.58(1-1/8)	28.58(1-1/8)
Pipe Connections	Liquid Pipe	mm(inch)	15.88(5/8)	15.88(5/8)	15.88(5/8)	15.88(5/8)	15.88(5/8)
For Heat Pump	Gas Pipe	mm(inch)	28.58(1-1/8)	28.58(1-1/8)	28.58(1-1/8)	28.58(1-1/8) (930 × 1,690 × 760) × 1	34.9(1-3/8)
Dimens	Dimensions(W × H × D) inch		(1,240 × 1,690 × 760)×1 (48-13/16 × 66-17/32 × 29- 29/32) × 1	(1,240 × 1,690 × 760)×1 (48-13/16 × 66-17/32 × 29- 29/32) × 1	(1,240 × 1,690 × 760)×1 (48-13/16 × 66-17/32 × 29- 29/32) × 1	+ (930 × 1,690 × 760) × 1 (36-5/8 × 66-17/32 × 29- 29/32) × 1 + (36-5/8 × 66-17/32 × 29-	(1,240 × 1,690 × 760)×1 (48-13/16 × 66-17/32 × 29 29/32) × 1
		lun.				29/32) × 1	
Л	let Weight	kg	300 × 1	300 × 1	300 × 1	$(215 \times 1) + (215 \times 1)$	310 × 1
Second	Cooling	lbs dB(A)	661 × 1 61.0	661 × 1 62.0	661 × 1 64.5	(474 × 1) + (474 × 1) 61.5	683 × 1 65.0
Sound Pressure Level	Heating	dB(A) dB(A)	62.0	64.5	65.5	62.5	67.0
	Cooling	dB(A) dB(A)	85.0	86.0	86.0	81.5	87.0
Sound Power Level	Heating	dB(A)	86.0	87.0	88.0	82.5	90.0
	High pressure	30(A)	High pressure sensor /	High pressure sensor /			
Protection	protection	-	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /
Devices	Compressor/Fan	-	Fan driver overload protector	Fan driver overload protector			
	Inverter	-	Over-heat protection / Over-current protection	Over-heat protection / Over-current protection			
Comm	nunication Cable	No.×mm <sup>2</sup> (VCTF-SB)	2C × 1.0 ~ 1.5	2C × 1.0 ~ 1.5			
	Refrigerant	name	R410A	R410A	R410A	R410A	R410A
	Precharged Amount	kg	16.0	16.0	16.0	19.0	17.0
Refrigerant	in factory	lbs	35.3	35.3	35.3	41.9	37.5
	GWP		2,087.5	2,087.5	2,087.5	2,087.5	2,087.5
	TCO <sub>2</sub> e		33.4	33.4	33.4	39.7	35.5
	Contro	ol	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
Control		Ø, V, Hz	380~415, 3, 50	380~415, 3, 50	380~415, 3, 50	380~415, 3, 50	380~415, 3, 50
Power Supply Ø , V, Hz							
Po	Silici Supply		380, 3, 60	380, 3, 60	380, 3, 60 35(44)	380, 3, 60	380, 3, 60 39(48)

\* This product contains Fluorinated Greenhouse Gases. (R410A)

#### ARUM180LTE5 / ARUM200LTE5 / ARUM220LTE5 / ARUM221LTE5 / ARUM240LTE5

ARUM241LTE5 / ARUM260LTE5 / ARUM261LTE5 / ARUM280LTE5 / ARUM300LTE5

	HP		24'	26	26'	28	30
	Combinatio	on Unit	ARUM241LTE5	ARUM260LTE5	ARUM261LTE5	ARUM280LTE5	ARUM300LTE5
Model Name	Independer	nt Unit	ARUM120LTE5 ARUM120LTE5	ARUM260LTE5	ARUM140LTE5 ARUM120LTE5	ARUM160LTE5 ARUM120LTE5	ARUM180LTE5 ARUM120LTE5
		kW	67.2	72.8	72.8	78.4	84.0
	Cooling (Rated)	Btu/h	229,300	248,400	248,400	267,500	286,600
		kW	67.2	67.2	72.8	78.4	84.0
Capacity	Heating (Rated)	Btu/h	229,300	229,300	248,400	267,500	286,600
		kW	75.6	74.3	81.9	88.2	94.5
	Heating (Max)	Btu/h	257,900	253,400	279,400	300,900	322,400
	Cooling (Rated)	kW	15.2	20.20	16.3	18.5	18.5
Input	Heating (Rated)	kW	13.7	15.99	15.0	17.1	17.0
	Heating (Max)	kW	16.5	19.15	18.0	20.7	20.2
	EER		4.43	3.60	4.48	4.24	4.54
	ESEER		7.47	6.34	7.39	6.94	7.43
	ESEER (SLC)		8.60	7.62	8.41	8.12	8.29
	COP (Ra	ted)	4.91	4.20	4.86	4.58	4.95
COP	COP (M	ax)	4.58	3.88	4.56	4.27	4.68
Power Factor	Rated	-	0.93	0.93	0.93	0.93	0.93
	Casing Color	arouse	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray
	Heat Exchanger	OCT MAR	Ocean Black Fin	Ocean Black Fin	Ocean Black Fin	Ocean Black Fin	Ocean Black Fin
	Туре		Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll
	Piston Displacement	cm <sup>3</sup> /rev	62.1 × 2	62.1 × 2	62.1 × 2	62.1 × 2	(62.1 × 2) + (43.8 × 1)
-	Number of Revolution	rev/min	3,600 × 2	3,600 × 2	3,600 × 2	3,600 × 2	3,600 × 3
Compressor	Motor Output × Number	W × No.	5,300 × 2	5,300 × 2	5,300 × 2	5,300 × 2	(5,300 × 2) + (4,200 × 1)
	Starting M	lethod	Direct On Line	Direct On Line	Direct On Line	Direct On Line	Direct On Line
	Oil Typ	e .	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)
	Туре	0.201	Propeller fan	Propeller fan	Propeller fan	Propeller fan	Propeller fan
	Motor Output × Number	W	(1,200 × 1) + (1,200 × 1)	900 × 2	(900 × 2) + (1,200 × 1)	(900 × 2) + (1,200 × 1)	(900 × 2) + (1,200 × 1)
	fills and all	m³/min	(240 × 1) + (240 × 1)	320 × 1	(320 × 1) + (240 × 1)	(320 × 1) + (240 × 1)	(320 × 1) + (240 × 1)
Fan	Air Flow Rate (High)	ft³/min	(8,476 × 1) + (8,476 × 1)	11,301 × 1	(11,301 × 1) + (8,476 × 1)	(11,301 × 1) + (8,476 × 1)	(11,301 × 1) + (8,476 × 1)
	Drive		DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER
	Discharge	Side / Top	ТОР	ТОР	ТОР	ТОР	ТОР
Pino	Liquid Pipe	mm(inch)	15.88(5/8)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)
Pipe Connections For Heat	Low Pressure Gas Pipe	mm(inch)	34.9(1-3/8)	34.9(1-3/8)	34.9(1-3/8)	34.9(1-3/8)	34.9(1-3/8)
Recovery	High Pressure Gas Pipe	mm(inch)	28.58(1-1/8)	28.58(1-1/8)	28.58(1-1/8)	28.58(1-1/8)	28.58(1-1/8)
Pipe	Liquid Pipe	mm(inch)	15.88(5/8)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)
Connections or Heat Pump	Gas Pipe	mm(inch)	34.9(1-3/8)	34.9(1-3/8)	34.9(1-3/8)	34.9(1-3/8)	34.9(1-3/8)
		mm	(930 × 1,690 × 760) × 1 + (930 × 1,690 × 760) × 1	(1,240 × 1,690 × 760)×1	(1,240 × 1,690 × 760) × 1 + (930 × 1,690 × 760) × 1	(1,240 × 1,690 × 760) × 1 + (930 × 1,690 × 760) × 1	(1,240 × 1,690 × 760) × 1 + (930 × 1,690 × 760) × 1
Dimen	sions(W × H × D)	inch	(36-5/8 × 66-17/32 × 29- 29/32) × 1 + (36-5/8 × 66-17/32 × 29-	(48-13/16 × 66-17/32 × 29- 29/32) × 1	(48-13/16 × 66-17/32 × 29- 29/32) × 1 + (36-5/8 × 66-17/32 × 29-	(48-13/16 × 66-17/32 × 29- 29/32) × 1 + (36-5/8 × 66-17/32 × 29-	(48-13/16 × 66-17/32 × 29 29/32) × 1 + (36-5/8 × 66-17/32 × 29
- 64	14674/11	kg	29/32) × 1 (215 × 1) + (215 × 1)	310 × 1	29/32) × 1 (237 × 1) + (215 × 1)	29/32) × 1 (237 × 1) + (215 × 1)	29/32) × 1 (300 × 1) + (215 × 1)
	Net Weight	lbs	(474 × 1) + (474 × 1)	683 × 1	(522 × 1) + (474 × 1)	(522 × 1) + (474 × 1)	(661 × 1) + (474 × 1)
Cound	Cooling	dB(A)	62.0	65.0	62.5	62.8	63.1
Sound Pressure Level	Heating	dB(A)	63.0	67.0	63.5	63.8	64.1
	Cooling	dB(A)	82.0	88.0	83.8	84.5	86.0
Sound Power Level	Heating	dB(A)	83.0	90.0	85.5	86.2	87.0
	High pressure	UD(A)	High pressure sensor /	High pressure sensor /	High pressure sensor /	High pressure sensor /	High pressure sensor /
Protection	protection		High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /
Devices	Compressor/Fan	-	Fan driver overload protector	Fan driver overload protector	Fan driver overload protector	Fan driver overload protector	Fan driver overload protecto
	Inverter	-	Over-heat protection / Over-current protection	Over-heat protection / Over-current protection	Over-heat protection / Over-current protection	Over-heat protection / Over-current protection	Over-heat protection / Over-current protection
Comr	nunication Cable	No.×mm <sup>2</sup> (VCTF-SB)	2C × 1.0 ~ 1.5	2C × 1.0 ~ 1.5	2C × 1.0 ~ 1.5	2C × 1.0 ~ 1.5	2C × 1.0 ~ 1.5
	Refrigerant	t name	R410A	R410A	R410A	R410A	R410A
	Precharged Amount	kg	19.0	17.0	23.0	23.0	25.5
Refrigerant	in factory	lbs	41.9	37.5	50.7	50.7	56.2
engerane	GWP	)	2,087.5	2,087.5	2,087.5	2,087.5	2,087.5
	TCO <sub>2</sub> e	eq.	39.7	35.5	48.0	48.0	53.2
	Contro	ol	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
	ower Supply	Ø, V, Hz	380~415, 3, 50	380~415, 3, 50	380~415, 3, 50	380~415, 3, 50	380~415, 3, 50
P	ower supply	0, v, nz	380, 3, 60	380, 3, 60	380, 3, 60	380, 3, 60	380, 3, 60

\* This product contains Fluorinated Greenhouse Gases. (R410A)

5	Fluo	

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	HP		32	34	36	38	40
	Combinati	on Unit	ARUM320LTE5	ARUM340LTE5	ARUM360LTE5	ARUM380LTE5	ARUM400LTE5
Model Name	Independe	nt Unit	ARUM200LTE5 ARUM120LTE5	ARUM220LTE5 ARUM120LTE5	ARUM240LTE5 ARUM120LTE5	ARUM240LTE5 ARUM140LTE5	ARUM240LTE5 ARUM160LTE5
		kW	Ocean Black Fin           Hermetically Sealed Scroll         Scroll         Hermetically Sealed Scroll         Hermetically Sealed Scroll         Hermetically Sealed Scroll         Scroll         Hermetically Sealed Scroll         Hermetically Sealed Scroll         Hermetically Sealed Scroll         Hermetically Sealed Scroll         Scroll         Scroll         Scroll         Scroll         Scroll         Hermetically Sealed Scroll         Hermetically Sealed Scroll         Scroll<				
	Cooling (Rated)	Btu/h	305,700	324,800	343,900	363,000	382,100
		kW	89.6	95.2	100.8	106.4	112.0
Capacity	Heating (Rated)	Btu/h	305,700	324,800	343,900	363,000	382,100
		kW	100.8	107.1	112.1	118.4	124.7
	Heating (Max)	Btu/h	343,900	365,400	382,300	403,800	425,300
	Cooling (Rated)	kW	20.4	23.3	25.0	26.1	28.3
Input	Heating (Rated)	kW	19.1	21.0	22.7	24.0	26.2
	Heating (Max)	kW	22.9	25.0	27.1	28.5	31.2
EER			4.40	4.09	4.04	4.08	3.96
	ESEER		7.19	6.94	6.85	6.83	6.58
	ESEER (SLC)		8.01	8.11	8.22	8.11	7.94
COP	COP (Ra	ated)	4.70	4.53	4.43	4.43	4.28
	COP (N	lax)	4.39	4.28	4.14	4.15	4.00
ower Factor	Rated	-	0.93	0.93	0.93	0.93	0.93
	Casing Color	osome	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray
	Heat Exchanger		Ocean Black Fin	Ocean Black Fin	Ocean Black Fin	Ocean Black Fin	Ocean Black Fin
	Тур	2	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll
	Piston Displacement	cm <sup>3</sup> /rev	(62.1 × 2) + (43.8 × 1)	(62.1 × 2) + (43.8 × 1)	62.1 × 3	62.1 × 3	62.1 × 3
Compressor	Number of Revolution	rev/min	3,600 × 3	3,600 × 3	3,600 × 3	3,600 × 3	3,600 × 3
	Motor Output × Number W × No.		(5,300 × 2) + (4,200 × 1)	(5,300 × 2) + (4,200 × 1)	5,300 × 3	5,300 × 3	5,300 × 3
	Starting Method		Direct On Line	Direct On Line	Direct On Line	Direct On Line	Direct On Line
	Oil Ty	ре	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)
	Тур	2	Propeller fan	Propeller fan	Propeller fan	Propeller fan	Propeller fan
	Motor Output × Number	W	(900 × 2) + (1,200 × 1)	(900 × 2) + (1,200 × 1)	(900 × 2) + (1,200 × 1)	900 × 4	900 × 4
Fan	Air Flow Rate (High)	m³/min	(320 × 1) + (240 × 1)	(320 × 1) + (240 × 1)	(320 × 1) + (240 × 1)	320 × 2	320 × 2
		ft³/min	(11,301 × 1) + (8,476 × 1)	(11,301 × 1) + (8,476 × 1)	(11,301 × 1) + (8,476 × 1)	11,301 × 2	11,301 × 2
	Driv		DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER
	Discharge	Side / Top	ТОР	ТОР	ТОР	ТОР	ТОР
Pipe Connections	Liquid Pipe	mm(inch)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)
For Heat Recovery	Low Pressure Gas Pipe	mm(inch)	34.9(1-3/8)	34.9(1-3/8)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)
	High Pressure Gas Pipe	mm(inch)	28.58(1-1/8)	28.58(1-1/8)	28.58(1-1/8)	34.9(1-3/8)	34.9(1-3/8)
Pipe Connections	Liquid Pipe	mm(inch)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)
r Heat Pump	Gas Pipe	mm(inch)	34.9(1-3/8) (1,240 × 1,690 × 760) × 1	34.9(1-3/8) (1,240 × 1,690 × 760) × 1	41.3(1-5/8) (1,240 × 1,690 × 760) × 1	41.3(1-5/8)	41.3(1-5/8)
1	.G	mm	+ (930 × 1,690 × 760) × 1 (48-13/16 × 66-17/32 × 29-	+ (930 × 1,690 × 760) × 1 (48-13/16 × 66-17/32 × 29-	+ (930 × 1,690 × 760) × 1 (48-13/16 × 66-17/32 × 29-	(1,240 ×1,690 × 760) × 2	(1,240 ×1,690 × 760) × 2
Dimens	sions(W × H × D)	inch	(46-13/10 × 66-17/32 × 29- 29/32) × 1 + (36-5/8 × 66-17/32 × 29- 29/32) × 1	(48-13/10×00-17/32×29- 29/32)×1 + (36-5/8×66-17/32×29- 29/32)×1	(46-13/10 × 06-17/32 × 29- 29/32) × 1 + (36-5/8 × 66-17/32 × 29- 29/32) × 1	(48-13/16 × 66-17/32 × 29- 29/32) × 2	(48-13/16 × 66-17/32 × 29 29/32) × 2
	Not Miciaka	kg	(300 × 1) + (215 × 1)	(300 × 1) + (215 × 1)	(310 × 1) + (215 × 1)	(310 × 1) + (237 × 1)	(310 × 1) + (237 × 1)
	Net Weight	lbs	(661 × 1) + (474 × 1)	(661 × 1) + (474 × 1)	(683 × 1) + (474 × 1)	(683 × 1) + (522 × 1)	(683 × 1) + (522 × 1)
Sound Pressure	Cooling	dB(A)	63.8	65.6	66.0	66.2	66.3
Level	Heating	dB(A)	65.8	66.6	67.8	68.0	68.1
ound Power	Cooling	dB(A)	86.8	86.8	88.5	89.0	89.2
Level	Heating	dB(A)	87.8	88.6	90.4	91.0	91.2
	High pressure protection	-	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch
Protection Devices	Compressor/Fan	-	Over-heat protection / Fan driver overload protector	Over-heat protection / Fan driver overload protector	Over-heat protection / Fan driver overload protector	Over-heat protection / Fan driver overload protector	Over-heat protection / Fan driver overload protecto
	Inverter	-	Over-heat protection / Over-current protection	Over-heat protection / Over-current protection	Over-heat protection / Over-current protection	Over-heat protection / Over-current protection	Over-heat protection / Over-current protection
Comm	I nunication Cable	No.×mm <sup>2</sup> (VCTF-SB)	2C × 1.0 ~ 1.5	2C × 1.0 ~ 1.5	2C × 1.0 ~ 1.5	2C × 1.0 ~ 1.5	2C × 1.0 ~ 1.5
	Refrigerar		R410A	R410A	R410A	R410A	R410A
		kg	25.5	25.5	26.5	30.5	30.5
	Precharged Amount in factory	lbs	56.2	56.2	58.4	67.2	67.2
Refrigerant	GW		2,087.5	2,087.5	2,087.5	2,087.5	2,087.5
	TCO,		53.2	53.2	55.3	63.7	63.7
	Cont		Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
	1		380~415, 3, 50	380~415, 3, 50	380-415, 3, 50	380~415, 3, 50	380-415, 3, 50
Power Supply Ø , V, Hz				380, 3, 60			380, 3, 60
			380, 3, 60		380, 3, 60	380, 3, 60	

\* This product contains Fluorinated Greenhouse Gases. (R410A)

#### ARUM320LTE5 / ARUM340LTE5 / ARUM360LTE5 / ARUM380LTE5 / ARUM400LTE5

ARUM420LTE5 / ARUM440LTE5 / ARUM460LTE5 / ARUM480LTE5 / ARUM500LTE5

	HP		42	44	46	48	50
	Combinatio	on Unit	ARUM420LTE5	ARUM440LTE5	ARUM460LTE5	ARUM480LTE5	ARUM500LTE5
Model Name	Independer	nt Unit	ARUM240LTE5 ARUM180LTE5	ARUM240LTE5 ARUM200LTE5	ARUM240LTE5 ARUM220LTE5	ARUM240LTE5 ARUM240LTE5	ARUM240LTE5 ARUM140LTE5 ARUM120LTE5
		kW	117.6	123.2	128.8	134.4	140.0
	Cooling (Rated) Heating (Rated) Heating (Max)	Btu/h	401,300	420,400	439,500	458,600	477,700
<b>_</b> .		kW	117.6	123.2	128.8	134.4	140.0
Capacity		Btu/h	401,300	420,400	439,500	458,600	477,700
		kW	131.0	137.3	143.6	148.5	156.2
	Heating (Max)	Btu/h	446,800	468,300	489,800	506,700	532,800
	Cooling (Rated)	kW	28.3	30.2	33.1	34.8	33.7
Input	Heating (Rated)	kW	26.0	28.1	30.0	31.8	30.9
	Heating (Max)	kW	30.7	33.5	35.6	37.6	36.8
	EER		4.15	4.08	3.89	3.86	4.16
	ESEER		6.90	6.77	6.62	6.57	6.97
	ESEER (SLC)		8.05	7.86	7.96	8.05	8.23
COP	COP (Rat	ted)	4.52	4.39	4.29	4.23	4.54
	COP (M	ax)	4.26	4.10	4.04	3.95	4.25
Power Factor	Rated	•	0.93	0.93	0.93	0.93	0.93
	Casing Color	and the second	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray
	Heat Exchanger	OFLIGHT.	Ocean Black Fin	Ocean Black Fin	Ocean Black Fin	Ocean Black Fin	Ocean Black Fin
	Туре		Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll
	Piston Displacement	cm <sup>3</sup> /rev	(62.1 × 3) + (43.8 × 1)	(62.1 × 3) + (43.8 × 1)	(62.1 × 3) + (43.8 × 1)	62.1 × 4	62.1 × 4
Compressor	Number of Revolution	rev/min	3,600 × 4	3,600 × 4	3,600 × 4	3,600 × 4	3,600 × 4
	Motor Output × Number W × No.		(5,300 × 3) + (4,200 × 1)	(5,300 × 3) + (4,200 × 1)	(5,300 × 3) + (4,200 × 1)	5,300 × 4	5,300 × 4
	Starting M	ethod	Direct On Line	Direct On Line	Direct On Line	Direct On Line	Direct On Line
	Oil Typ	e	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)
	Туре		Propeller fan	Propeller fan	Propeller fan	Propeller fan	Propeller fan
	Motor Output × Number	W	900 × 4	900 × 4	900 × 4	900 × 4	(900 × 4) + (1,200 × 1)
Fan	Air Flow Rate (High)	m³/min	320 × 2	320 × 2	320 × 2	320 × 2	(320 × 2) + (240 × 1)
		ft³/min	11,301 × 2	11,301 × 2	11,301 × 2	11,301 × 2	(11,301 × 2) + (8,476 × 1)
	Drive		DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER
	Discharge	Side / Top	TOP	ТОР	ТОР	ТОР	ТОР
Pipe Connections	Liquid Pipe	mm(inch)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)
For Heat Recovery	Low Pressure Gas Pipe	mm(inch)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)
	High Pressure Gas Pipe	mm(inch)	34.9(1-3/8)	34.9(1-3/8)	34.9(1-3/8)	34.9(1-3/8)	34.9(1-3/8)
Pipe Connections	Liquid Pipe	mm(inch)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)
For Heat Pump	Gas Pipe	mm(inch)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)
		mm	(1,240 ×1,690 × 760) × 2	(1,240 ×1,690 × 760) × 2	(1,240 ×1,690 × 760) × 2	(1,240 ×1,690 × 760) × 2	(1,240 × 1,690 × 760) × 2 + (930 × 1,690 × 760) × 1
Dimen	sions(W × H × D)	inch	(48-13/16 × 66-17/32 × 29-29/32) × 2	(48-13/16 × 66-17/32 × 29-29/32) × 2	(48-13/16 × 66-17/32 × 29-29/32) × 2	(48-13/16 × 66-17/32 × 29-29/32) × 2	(48-13/16 × 66-17/32 × 29-29/32) × 2 + (36-5/8 × 66-17/32 × 29-29/32) × 1
		kg	(310 × 1) + (300 × 1)	(310 × 1) + (300 × 1)	(310 × 1) + (300 × 1)	310 × 2	(310 × 1) + (237 × 1) + (215 × 1
ſ	Net Weight	lbs	(683 × 1) + (661 × 1)	(683 × 1) + (661 × 1)	(683 × 1) + (661 × 1)	683 × 2	(683 × 1) + (522 × 1) + (474 × 1
Sound	Cooling	dB(A)	66.5	66.8	67.8	68.0	67.0
Pressure Level	Heating	dB(A)	68.2	68.9	69.3	70.0	68.6
Sound Power	Cooling	dB(A)	89.8	90.1	90.1	91.0	89.4
Level	Heating	dB(A)	91.5	91.8	92.1	93.0	91.3
	High pressure protection		High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch
Protection	Compressor/Fan		Over-heat protection /	Over-heat protection /	Over-heat protection /	Over-heat protection /	Over-heat protection /
Devices	Inverter		Fan driver overload protector Over-heat protection /	Fan driver overload protector Over-heat protection /	Fan driver overload protector Over-heat protection /	Fan driver overload protector Over-heat protection /	Fan driver overload protector Over-heat protection /
Comp		Neumer <sup>2</sup> ()/CTE_ED)	Over-current protection 2C × 1.0 ~ 1.5	Over-current protection 2C × 1.0 ~ 1.5	Over-current protection 2C × 1.0 ~ 1.5	Over-current protection 2C × 1.0 ~ 1.5	Over-current protection 2C × 1.0 ~ 1.5
Comn	nunication Cable Refrigerant	No.×mm <sup>2</sup> (VCTF-SB)	2C × 1.0 ~ 1.5 R410A	2C × 1.0 ~ 1.5 R410A	2C × 1.0 ~ 1.5 R410A	2C × 1.0 ~ 1.5 R410A	2C × 1.0 ~ 1.5 R410A
			33.0	33.0	33.0	34.0	40.0
	Precharged Amount in factory	kg					
Refrigerant		lbs	72.8	72.8	72.8	75.0	88.2
	GWP		2,087.5	2,087.5	2,087.5	2,087.5	2,087.5
	TCO <sub>2</sub> e		68.9	68.9	68.9	71.0	83.5
	Contro	л	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve
P	ower Supply	Ø , V, Hz	380-415, 3, 50	380-415, 3, 50	380-415, 3, 50	380~415, 3, 50	380-415, 3, 50
N/ 1	a of moving	indoor	380, 3, 60	380, 3, 60	380, 3, 60	380, 3, 60	380, 3, 60
Number of maximum connectable indoor units			64	64	64	64	64

\* This product contains Fluorinated Greenhouse Gases. (R410A)

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## MULTI V. 5

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	HP		52	54	56	58	60
	Combinati	on Unit	ARUM520LTE5	ARUM540LTE5	ARUM560LTE5	ARUM580LTE5	ARUM600LTE5
Aodel Name	Independe	nt Unit	ARUM240LTE5 ARUM160LTE5 ARUM120LTE5	ARUM240LTE5 ARUM180LTE5 ARUM120LTE5	ARUM240LTE5 ARUM200LTE5 ARUM120LTE5	ARUM240LTE5 ARUM220LTE5 ARUM120LTE5	ARUM240LTE5 ARUM240LTE5 ARUM120LTE5
		kW	145.6	151.2	156.8	162.4	168.0
	Cooling (Rated)	Btu/h	496,800	515,900	535,000	554,100	573,200
		kW	145.6	151.2	156.8	162.4	168.0
Capacity	Heating (Rated)	Btu/h	496,800	515,900	535,000	554,100	573,200
		kW	162.5	168.8	175.1	181.4	186.3
	Heating (Max)	Btu/h	554,300	575,800	597,300	618,800	635,700
	Cooling (Rated)	kW	35.9	35.9	37.8	40.7	42.4
Input	Heating (Rated)	kW	33.0	32.9	34.9	36.9	38.6
	Heating (Max)	kW	39.4	39.0	41.7	43.8	45.9
	EER		4.06	4.21	4.15	3.99	3.96
	ESEER		6.76	7.02	6.91	6.78	6.73
	ESEER (SLC)		8.08	8.17	8.01	8.08	8.15
600	COP (Ra	ated)	4.41	4.60	4.49	4.40	4.35
COP	COP (N	flax)	4.12	4.33	4.19	4.14	4.06
ower Factor	Rated	-	0.93	0.93	0.93	0.93	0.93
	Casing Color	and the second	Warm Gray / Dawn Gray				
	Heat Exchanger	OEFMAA	Ocean Black Fin				
	Туре	2	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scrol
	Piston Displacement	cm <sup>3</sup> /rev	62.1 × 4	(62.1 × 4) + (43.8 × 1)	(62.1 × 4) + (43.8 × 1)	(62.1 × 4) + (43.8 × 1)	62.1 × 5
ompressor	Number of Revolution	rev/min	3,600 × 4	3,600 × 5	3,600 × 5	3,600 × 5	3,600 × 5
ompressor	Motor Output × Number	W × No.	5,300 × 4	(5,300 × 4) + (4,200 × 1)	(5,300 × 4) + (4,200 × 1)	(5,300 × 4) + (4,200 × 1)	5,300 × 5
	Starting Method		Direct On Line				
	Oil Ty	ре	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)
Fan	Туре		Propeller fan				
	Motor Output × Number	W	(900 × 4) + (1,200 × 1)	(900 × 4) + (1,200 × 1)	(900 × 4) + (1,200 × 1)	(900 × 4) + (1,200 × 1)	(900 × 4) + (1,200 × 1)
	Air Flow Rate (High)	m³/min	(320 × 2) + (240 × 1)	(320 × 2) + (240 × 1)	(320 × 2) + (240 × 1)	(320 × 2) + (240 × 1)	(320 × 2) + (240 × 1)
	ft³/min		(11,301 × 2) + (8,476 × 1)	(11,301 × 2) + (8,476 × 1)	(11,301 × 2) + (8,476 × 1)	(11,301 × 2) + (8,476 × 1)	(11,301 × 2) + (8,476 × 1
	Drive		DC INVERTER				
	Discharge	Side / Top	TOP	ТОР	ТОР	TOP	ТОР
Pipe	Liquid Pipe	mm(inch)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)
For Heat	Low Pressure Gas Pipe	mm(inch)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)
Recovery	High Pressure Gas Pipe	mm(inch)	34.9(1-3/8)	34.9(1-3/8)	34.9(1-3/8)	34.9(1-3/8)	34.9(1-3/8)
Pipe onnections	Liquid Pipe	mm(inch)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)	19.05(3/4)
r Heat Pump	Gas Pipe	mm(inch)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)	41.3(1-5/8)
		mm	(1,240 × 1,690 × 760) × 2 + (930 × 1,690 × 760) × 1	(1,240 × 1,690 × 760) × 2 + (930 × 1,690 × 760) × 1	(1,240 × 1,690 × 760) × 2 + (930 × 1,690 × 760) × 1	(1,240 × 1,690 × 760) × 2 + (930 × 1,690 × 760) × 1	(1,240 × 1,690 × 760) × + (930 × 1,690 × 760) ×
Dimens	sions(W × H × D)	inch	(48-13/16 × 66-17/32 × 29-29/32) × 2 + (36-5/8 × 66-17/32 × 29-29/32) × 1	(48-13/16 × 66-17/32 × 29-29/32) × 2 + (36-5/8 × 66-17/32 × 29-29/32) × 1	(48-13/16 × 66-17/32 × 29-29/32) × 2 + (36-5/8 × 66-17/32 × 29-29/32) × 1	(48-13/16 × 66-17/32 × 29-29/32) × 2 + (36-5/8 × 66-17/32 × 29-29/32) × 1	(48-13/16 × 66-17/32 × 29-29/32) × 2 + (36-5/8 × 66-17/32 × 29-29/32) × 1
-	00000000	kg	(310 × 1) + (237 × 1) + (215 × 1)		(310 × 1) + (300 × 1) + (215 × 1)	(310 × 1) + (300 × 1) + (215 × 1)	(310 × 2) + (215 × 1)
P.	let Weight	lbs	(683 × 1) + (522 × 1) + (474 × 1)	(683 × 1) + (661 × 1) + (474 × 1)	(683 × 1) + (661 × 1) + (474 × 1)	(683 × 1) + (661 × 1) + (474 × 1)	(683 × 2) + (474 × 1)
Sound	Cooling	dB(A)	67.1	67.2	67.4	68.3	68.5
Pressure Level	Heating	dB(A)	68.7	68.8	69.5	69.8	70.4
ound Power	Cooling	dB(A)	89.6	90.1	90.4	90.4	91.3
Level	Heating	dB(A)	91.5	91.8	92.0	92.4	93.2
	High pressure protection	-	High pressure sensor / High pressure switch				
Protection	Compressor/Fan	-	Over-heat protection /				
Devices	Inverter		Fan driver overload protector Over-heat protection /	Fan driver overload protect Over-heat protection /			
Comm	unication Cable	No.×mm <sup>2</sup> (VCTF-SB)	Over-current protection 2C × 1.0 ~ 1.5				
CONIT			2C × 1.0 ~ 1.5 R410A	R410A	R410A	2C × 1.0 ~ 1.5 R410A	R410A
	Refrigeran		40.0	42.5	42.5	42.5	43.5
	Precharged Amount in factory	kg Ibs	88.2	93.7	93.7	93.7	95.9
Refrigerant	GW		2,087.5	2,087.5	2,087.5	2,087.5	2,087.5
	TCO,		83.5	88.7	2,087.5	2,087.5	2,087.5
				88.7 Electronic Expansion Valve			90.8 Electronic Expansion Valve
	Contr		Electronic Expansion Valve 380-415, 3, 50	380-415, 3, 50	Electronic Expansion Valve 380-415, 3, 50	Electronic Expansion Valve 380~415, 3, 50	380~415, 3, 50
Power Supply Ø , V, Hz		Ø , V, Hz	380-415, 3, 50	380-415, 3, 50	380-415, 3, 50 380, 3, 60	380~415, 3, 50	380-415, 3, 50

\* This product contains Fluorinated Greenhouse Gases. (R410A)

#### ARUM520LTE5 / ARUM540LTE5 / ARUM560LTE5 / ARUM580LTE5 / ARUM600LTE5

ARUM620LTE5 / ARUM640LTE5 / ARUM660LTE5 / ARUM680LTE5 / ARUM700LTE5 / ARUM720LTE5

	HP		62	64	66	68	70	72
	Combinatio	on Unit	ARUM620LTE5	ARUM640LTE5	ARUM660LTE5	ARUM680LTE5	ARUM700LTE5	ARUM720LTE5
Model Name	Independe	nt Unit	ARUM240LTE5 ARUM240LTE5 ARUM140LTE5	ARUM240LTE5 ARUM240LTE5 ARUM160LTE5	ARUM240LTE5 ARUM240LTE5 ARUM180LTE5	ARUM240LTE5 ARUM240LTE5 ARUM200LTE5	ARUM240LTE5 ARUM240LTE5 ARUM220LTE5	ARUM240LTE5 ARUM240LTE5 ARUM240LTE5
		kW	173.6	179.2	184.8	190.4	196.0	201.6
	Cooling (Rated)	Btu/h	592,300	611,400	630,500	649,600	668,800	687,900
		kW	173.6	179.2	184.8	190.4	196.0	201.6
Capacity	Heating (Rated)	Btu/h	592,300	611,400	630,500	649,600	668,800	687,900
		kW	192.6	198.9	205.2	211.5	217.8	222.8
	Heating (Max)	Btu/h	657,200	678,700	700,200	721,700	743,200	760,100
	Cooling (Rated)	kW	43.5	45.7	45.7	47.6	50.5	52.2
Input	Heating (Rated)	kW	39.9	42.1	41.9	44.0	45.9	47.7
	Heating (Max)	kW	47.3	50.0	49.5	52.3	54.4	56.4
	EER		3.99	3.92	4.04	4.00	3.88	3.86
	ESEER		6.73	6.58	6.78	6.70	6.60	6.57
			8.09	7.98	8.05	7.92	7.99	8.05
	ESEER (SLC)	1	1 1 1 1 1 1	/ / /	11///			
COP	COP (Ra		4.35	4.26	4.41	4.33	4.27	4.23
	COP (N	lax)	4.07	3.98	4.14	4.05	4.01	3.95
Power Factor	Rated	-	0.93	0.93	0.93	0.93	0.93	0.93
	Casing Color	OFOREAN	Warm Gray / Dawn Gray	Warm Gray / Dawn Gra				
	Heat Exchanger		Ocean Black Fin	Ocean Black Fin				
	Туре		Hermetically Sealed Scroll	Hermetically Sealed Scro				
	Piston Displacement	cm <sup>3</sup> /rev	62.1 × 5	62.1 × 5	(62.1 × 5) + (43.8 × 1)	(62.1 × 5) + (43.8 × 1)	(62.1 × 5) + (43.8 × 1)	62.1 × 6
	Number of Revolution	rev/min	3,600 × 5	3,600 × 5	3,600 × 6	3,600 × 6	3,600 × 6	3,600 × 6
Compressor	Motor Output × Number	W × No.	5,300 × 5	5,300 × 5	(5,300 × 5) + (4,200 × 1)	(5,300 × 5) + (4,200 × 1)	(5,300 × 5) + (4,200 × 1)	5,300 × 6
	Starting N	lethod	Direct On Line	Direct On Line				
	Oil Type		FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)
	Туре		Propeller fan	Propeller fan				
	Motor Output ×	W						
	Number	VV	900 × 6	900 × 6	900 × 6	900 × 6	900 × 6	900 × 6
Fan	Air Flow Rate (High)	m³/min	320 × 3	320 × 3	320 × 3	320 × 3	320 × 3	320 × 3
		ft³/min	11,301 × 3	11,301 × 3	11,301 × 3	11,301 × 3	11,301 × 3	11,301 × 3
	Drive	2	DC INVERTER	DC INVERTER				
	Discharge	Side / Top	TOP	TOP	TOP	TOP	ТОР	TOP
Pipe	Liquid Pipe	mm(inch)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)
Connections For Heat	Low Pressure Gas Pipe	mm(inch)	44.5(1-3/4)	44.5(1-3/4)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)
Recovery	High Pressure Gas Pipe	mm(inch)	41.3(1-5/8)	41.3(1-5/8)	44.5(1-3/4)	44.5(1-3/4)	44.5(1-3/4)	44.5(1-3/4)
Pipe	Liquid Pipe	mm(inch)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)
Connections For Heat Pump	Gas Pipe	mm(inch)	44.5(1-3/4)	44.5(1-3/4)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)
14	6	mm	(1,240 ×1,690 × 760) × 3	(1,240 ×1,690 × 760) × 3	(1,240 ×1,690 × 760) × 3	(1,240 ×1,690 × 760) × 3	(1,240 ×1,690 × 760) × 3	(1,240×1,690×760)×
Dimensi	$ions(W \times H \times D)$	inch	(48-13/16 × 66-17/32	(48-13/16 × 66-17/32	(48-13/16 × 66-17/32	(48-13/16 × 66-17/32	(48-13/16 × 66-17/32	(48-13/16 × 66-17/3
	10/2701.07	la	× 29-29/32) × 3 (310 × 2) + (237 × 1)	× 29-29/32) × 3	× 29-29/32) × 3	× 29-29/32) × 3	× 29-29/32) × 3	× 29-29/32) × 3 310 × 3
N	let Weight	kg "		(310 × 2) + (237 × 1)	(310 × 2) + (300 × 1)	(310 × 2) + (300 × 1)	(310 × 2) + (300 × 1)	
- 6		lbs	(683 × 2) + (522 × 1)	(683 × 2) + (522 × 1)	(683 × 2) + (661 × 1)	(683 × 2) + (661 × 1)	(683 × 2) + (661 × 1)	683 × 3
Sound Pressure Level	Cooling	dB(A)	68.6	68.7	68.8	69.0	69.6	69.8
Level	Heating	dB(A)	70.5	70.6	70.6	71.1	71.3	71.8
Sound Power	Cooling	dB(A)	91.5	91.6	92.0	92.2	92.2	92.8
Level	Heating	dB(A)	93.5	93.6	93.8	94.0	94.2	94.8
	High pressure protection	-	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch				
Protection	Compressor/Fan	-	Over-heat protection / Fan driver overload protector	Over-heat protection / Fan driver overload protect				
Devices	Inverter		Over-heat protection /	Over-heat protection /				
	linverter	-	Over-current protection	Over-current protection				
Comm	unication Cable	No.×mm <sup>2</sup> (VCTF-SB)	2C × 1.0 ~ 1.5	2C × 1.0 ~ 1.5				
	Refrigeran	t name	R410A	R410A	R410A	R410A	R410A	R410A
	Precharged Amount	kg	47.5	47.5	50.0	50.0	50.0	51.0
Defi	in factory	lbs	104.7	104.7	110.2	110.2	110.2	112.4
Refrigerant	GWF	>	2,087.5	2,087.5	2,087.5	2,087.5	2,087.5	2,087.5
	TCO <sub>2</sub> 6	eq	99.2	99.2	104.4	104.4	104.4	106.5
	Contr		Electronic Expansion Valve	Electronic Expansion Va				
				380~415, 3, 50	380~415, 3, 50	380~415, 3, 50	380~415, 3, 50	380~415, 3, 50
			380~415.3.50	300~413.5.50			300~413.3.30	
Po	ower Supply	Ø , V, Hz	380~415, 3, 50 380, 3, 60	380, 3, 60	380, 3, 60	380, 3, 60	380, 3, 60	380, 3, 60

\* This product contains Fluorinated Greenhouse Gases. (R410A)

## *MULTI* V. 5

	HP		74	76	78	80	82	84
_				-				
Model Name	Independer		ARUM740LTE5 ARUM240LTE5 ARUM240LTE5 ARUM140LTE5 ARUM120LTE5	ARUM760LTE5 ARUM240LTE5 ARUM240LTE5 ARUM160LTE5 ARUM120LTE5	ARUM780LTE5 ARUM240LTE5 ARUM240LTE5 ARUM180LTE5 ARUM120LTE5	ARUM800LTE5 ARUM240LTE5 ARUM240LTE5 ARUM200LTE5 ARUM120LTE5	ARUM820LTE5 ARUM240LTE5 ARUM240LTE5 ARUM220LTE5 ARUM120LTE5	ARUM840LTE5 ARUM240LTE5 ARUM240LTE5 ARUM240LTE5 ARUM120LTE5
		kW	207.2	212.8	218.4	224.0	229.6	235.2
	Cooling (Rated)	Btu/h	707,000	726,100	745,200	764,300	783,400	802,500
		kW	207.2	212.8	218.4	224.0	229.6	235.2
Capacity	Heating (Rated)	Btu/h	707,000	726,100	745,200	764,300	783,400	802,500
		kW	230.4	236.7	243.0	249.3	255.6	260.6
	Heating (Max)	Btu/h	786,200	807,700	829,200	850,700	872,100	889,100
	Cooling (Rated)	kW	51.1	53.3	53.3	55.2	58.1	59.8
Input	Heating (Rated)	kW	46.8	48.9	48.8	50.8	52.8	54.5
	Heating (Max)	kW	55.6	58.2	57.8	60.5	62.6	64.7
	EER		4.06	3.99	4.10	4.06	3.95	3.93
	ESEER		6.84	6.70	6.88	6.80	6.72	6.69
	ESEER (SLC)		8.17	8.07	8.13	8.02	8.07	8.12
	COP (Ra	ted)	4.43	4.35	4.48	4.41	4.35	4.31
COP	COP (M	lax)	4.15	4.06	4.20	4.12	4.08	4.03
Power Factor	Rated	-	0.93	0.93	0.93	0.93	0.93	0.93
	Casing Color		Warm Gray / Dawn Gray	Warm Gray / Dawn Gray				
	Heat Exchanger	OEPANAN	Ocean Black Fin	Ocean Black Fin				
	Туре		Hermetically Sealed Scroll	Hermetically Sealed Scroll				
	Piston Displacement	cm <sup>3</sup> /rev	62.1 × 6	62.1 × 6	(62.1 × 6) + (43.8 × 1)	(62.1 × 6) + (43.8 × 1)	(62.1 × 6) + (43.8 × 1)	62.1 × 7
	Number of Revolution	rev/min	3,600 × 6	3,600 × 6	3,600 × 6	3,600 × 6	3,600 × 6	3,600 × 7
Compressor	Motor Output ×	W × No.	5,300 × 6	5,300 × 6	(5,300 × 6) + (4,200 × 1)	(5,300 × 6) + (4,200 × 1)	(5,300 × 6) + (4,200 × 1)	5,300 × 7
	Number Starting M	lethod	Direct On Line	Direct On Line				
	Oil Type		FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)
	Туре		Propeller fan	Propeller fan				
	Motor Output ×	W	(900 × 6) + (1,200 × 1)	(900 × 6) + (1,200 × 1)	(900 × 6) + (1,200 × 1)	(900 × 6) + (1,200 × 1)	(900 × 6) + (1,200 × 1)	(900 × 6) + (1,200 × 1)
	Number							
Fan	Air Flow Rate (High)	m³/min	(320 × 3) + (240 × 1)	(320 × 3) + (240 × 1)	(320 × 3) + (240 × 1)	(320 × 3) + (240 × 1)	(320 × 3) + (240 × 1)	(320 × 3) + (240 × 1)
		ft³/min	(11,301 × 3) + (8,476 × 1) DC INVERTER	(11,301 × 3) + (8,476 × 1)	(11,301 × 3) + (8,476 × 1)	(11,301 × 3) + (8,476 × 1)	(11,301 × 3) + (8,476 × 1)	(11,301 × 3) + (8,476 × 1)
	Drive			DC INVERTER TOP	DC INVERTER TOP	DC INVERTER	DC INVERTER TOP	DC INVERTER TOP
	Discharge	Side / Top	TOP			TOP		
Pipe Connections	Liquid Pipe	mm(inch)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8) 53.98(2-1/8)	22.2(7/8)
For Heat Recovery	High Pressure Gas Pipe	mm(inch) mm(inch)	53.98(2-1/8) 44.5(1-3/4)	53.98(2-1/8) 44.5(1-3/4)	53.98(2-1/8) 44.5(1-3/4)	53.98(2-1/8) 44.5(1-3/4)	44.5(1-3/4)	53.98(2-1/8) 44.5(1-3/4)
Pipe	Liquid Pipe	mm(inch)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)
Connections		mm(inch)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)
For Heat Pump	Gasripe	mm	(1.240 × 1.690 × 760) × 3	(1,240 × 1,690 × 760) × 3	(1,240 × 1,690 × 760) × 3	(1,240 × 1,690 × 760) × 3	(1.240 × 1.690 × 760) × 3	(1,240 × 1,690 × 760) × 3
Dimens	sions(W × H × D)	inch	+ (930 × 1,690 × 760) × 1 (48-13/16 × 66-17/32 × 29-29/32) × 3 + (36-5/8 × 66-17/32 × 29-	+ (930 × 1,690 × 760) × 1 (48-13/16 × 66-17/32 × 29-29/32) × 3 + (36-5/8 × 66-17/32 × 29-	+ (930 × 1,690 × 760) × 1 (48-13/16 × 66-17/32 × 29-29/32) × 3 + (36-5/8 × 66-17/32 × 29-	+ (930 × 1,690 × 760) × 1 (48-13/16 × 66-17/32 × 29-29/32) × 3 + (36-5/8 × 66-17/32 × 29-	+ (930 × 1,690 × 760) × 1 (48-13/16 × 66-17/32 × 29-29/32) × 3 + (36-5/8 × 66-17/32 × 29-	+ (930 × 1,690 × 760) × 1 (48-13/16 × 66-17/32 × 29-29/32) × 3 + (36-5/8 × 66-17/32 × 29
		kg	29/32) × 1 (310 × 2) + (237 × 1) + (215 × 1)	29/32) × 1 (310 × 2) + (237 × 1) + (215 × 1)	29/32) × 1 (310 × 2) + (300 × 1) + (215 × 1)	29/32) × 1 (310 × 2) + (300 × 1) + (215 × 1)	29/32) × 1 (310 × 2) + (300 × 1) + (215 × 1)	29/32) × 1 (310 × 3) + (215 × 1)
N	Net Weight	lbs	(510 × 2) + (257 × 1) + (215 × 1) (683 × 2) + (522 × 1) + (474 × 1)	(510 × 2) + (237 × 1) + (213 × 1) (683 × 2) + (522 × 1) + (474 × 1)	(510 × 2) + (500 × 1) + (215 × 1) (683 × 2) + (661 × 1) + (474 × 1)	(510×2)+(500×1)+(215×1) (683×2)+(661×1)+(474×1)	(510 × 2) + (500 × 1) + (215 × 1) (683 × 2) + (661 × 1) + (474 × 1)	(683 × 3) + (474 × 1)
Council Document	Cooling	dB(A)	69.1	69.2	69.2	69.4	70.0	70.1
Sound Pressure Level	Heating	dB(A)	70.9	70.9	71.0	71.4	71.6	72.1
Cound Douror	Cooling	dB(A)	91.8	91.9	92.2	92.4	92.4	92.9
Sound Power Level	Heating	dB(A)	93.7	93.8	94.0	94.2	94.4	94.9
	High pressure	-	High pressure sensor /	High pressure sensor /				
Protection	protection		High pressure switch Over-heat protection /	High pressure switch Over-heat protection /				
Devices	Compressor/Fan		Fan driver overload protector Over-heat protection /	Fan driver overload protector Over-heat protection /				
	Inverter		Over-current protection	Over-current protection				
Comm	nunication Cable	No.×mm <sup>2</sup> (VCTF-SB)	2C × 1.0 ~ 1.5	2C × 1.0 ~ 1.5				
	Refrigeran	t name	R410A	R410A	R410A	R410A	R410A	R410A
	Precharged Amount	kg	57.0	57.0	59.5	59.5	59.5	60.5
	in factory	lbs	125.7	125.7	131.2	131.2	131.2	133.4
Refrigerant	GWP		2,087.5	2,087.5	2,087.5	2,087.5	2,087.5	2,087.5
Refrigerant	GWF	TCO <sub>2</sub> eq				124.2	124.2	126.3
Refrigerant			119.0	119.0	124.2	124.2	124.2	
Refrigerant		eq	119.0 Electronic Expansion Valve	119.0 Electronic Expansion Valve	124.2 Electronic Expansion Valve	Electronic Expansion Valve	Electronic Expansion Valve	
	TCO <sub>2</sub> c	eq ol						
	TCO <sub>2</sub> ¢	eq	Electronic Expansion Valve	Electronic Expansion Valve				

\* This product contains Fluorinated Greenhouse Gases. (R410A)

#### ARUM740LTE5 / ARUM760LTE5 / ARUM780LTE5 / ARUM800LTE5 / ARUM820LTE5 / ARUM840LTE5

	НР		86	88	90	92	94	96
	Combinatio	on Unit	ARUM860LTE5	ARUM880LTE5	ARUM900LTE5	ARUM920LTE5	ARUM940LTE5	ARUM960LTE5
Model Name	Independe	nt Unit	ARUM240LTE5 ARUM240LTE5 ARUM240LTE5 ARUM140LTE5	ARUM240LTE5 ARUM240LTE5 ARUM240LTE5 ARUM240LTE5 ARUM160LTE5	ARUM240LTE5 ARUM240LTE5 ARUM240LTE5 ARUM240LTE5	ARUM240LTE5 ARUM240LTE5 ARUM240LTE5 ARUM200LTE5	ARUM240LTE5 ARUM240LTE5 ARUM240LTE5 ARUM240LTE5 ARUM220LTE5	ARUM240LTE5 ARUM240LTE5 ARUM240LTE5 ARUM240LTE5
		kW	240.8	246.4	252.0	257.6	263.2	268.8
	Cooling (Rated)	Btu/h	821,600	840,700	859,800	878,900	898,000	917,100
		kW	240.8	246.4	252.0	257.6	263.2	268.8
Capacity	Heating (Rated)	Btu/h	821,600	840,700	859,800	878,900	898,000	917,100
		kW	266.9	273.2	279.5	285.8	292.1	297.0
	Heating (Max)	Btu/h	910,600	932,000	953,500	975,000	996,500	1,013,400
	Cooling (Rated)	kW	60.9	63.1	63.1	65.0	67.9	69.6
Input	Heating (Rated)	kW	55.8	58.0	57.8	59.9	61.8	63.6
·	Heating (Max)	kW	66.1	68.8	68.3	71.1	73.2	75.2
	EER		3.96	3.91	3.99	3.96	3.88	3.86
	ESEER		6.68	6.57	6.72	6.66	6.60	6.57
	ESEER (SLC)		8.07	8.00	8.04	7.95	8.00	8.05
	COP (Ra	tod	4.32	4.25	4.36	4.30	4.26	4.23
COP	COP (Ra		4.32	3.97	4.30	4.30	3.99	3.95
Power Factor		unj	0.93	0.93	0.93	0.93	0.93	0.93
Power Factor	Rated	-						
	Casing Color	OEPMA	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray Ocean Black Fin	Warm Gray / Dawn Gray Ocean Black Fin	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray	Warm Gray / Dawn Gray
	Heat Exchanger		Ocean Black Fin			Ocean Black Fin	Ocean Black Fin	Ocean Black Fin
	Туре		Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scroll	Hermetically Sealed Scrol
	Piston Displacement	cm <sup>3</sup> /rev	62.1 × 7	62.1 × 7	(62.1 × 7) + (43.8 × 1)	(62.1 × 7) + (43.8 × 1)	(62.1 × 7) + (43.8 × 1)	62.1 × 8
Compressor	Number of Revolution	rev/min	3,600 × 7	3,600 × 7	3,600 × 8	3,600 × 8	3,600 × 8	3,600 × 8
	Motor Output × Number	W × No.	5,300 × 7	5,300 × 7	(5,300 × 7) + (4,200 × 1)	(5,300 × 7) + (4,200 × 1)	(5,300 × 7) + (4,200 × 1)	5,300 × 8
	Starting Method		Direct On Line	Direct On Line	Direct On Line	Direct On Line	Direct On Line	Direct On Line
	Oil Type		FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)	FVC68D(PVE)
	Туре		Propeller fan	Propeller fan	Propeller fan	Propeller fan	Propeller fan	Propeller fan
	Motor Output ×	w	900 × 8	900 × 8	900 × 8	900 × 8	900 × 8	900 × 8
	Number	m³/min	320 × 4	320 × 4	320 × 4	320 × 4	320 × 4	320 × 4
Fan	Air Flow Rate (High)	ft³/min	11,301 × 4	11,301 × 4	11,301 × 4	11,301 × 4	11,301 × 4	11,301 × 4
	Drive		DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER	DC INVERTER
	Discharge	Side / Top	ТОР	ТОР	ТОР	ТОР	ТОР	ТОР
Dine	Liquid Pipe	mm(inch)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)
Pipe Connections	Low Pressure Gas Pipe	mm(inch)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)
For Heat Recovery	High Pressure Gas Pipe	mm(inch)	44.5(1-3/4)	44.5(1-3/4)	44.5(1-3/4)	44.5(1-3/4)	44.5(1-3/4)	44.5(1-3/4)
Pipe	Liquid Pipe	mm(inch)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)	22.2(7/8)
Connections	Gas Pipe	mm(inch)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)	53.98(2-1/8)
For Heat Pump	Gastipe	mm	(1,240 ×1,690 × 760) × 4	(1,240 ×1,690 × 760) × 4	(1,240 ×1,690 × 760) × 4	(1,240 ×1,690 × 760) × 4	(1,240 ×1,690 × 760) × 4	(1,240 ×1,690 × 760) × 4
Dimens	ions(W × H × D)		(48-13/16 × 66-17/32	(48-13/16 × 66-17/32	(48-13/16 × 66-17/32	(1,240×1,030×700)×4 (48-13/16×66-17/32	(48-13/16 × 66-17/32	(48-13/16 × 66-17/32
	A Marine Marine	inch	× 29-29/32) × 4	× 29-29/32) × 4	× 29-29/32) × 4	× 29-29/32) × 4	× 29-29/32) × 4	× 29-29/32) × 4
N	let Weight	kg	(310 × 3) + (237 × 1)	(310 × 3) + (237 × 1)	(310 × 3) + (300 × 1)	(310 × 3) + (300 × 1)	(310 × 3) + (300 × 1)	310 × 4
6		lbs	(683 × 3) + (522 × 1)	(683 × 3) + (522 × 1)	(683 × 3) + (661 × 1)	(683 × 3) + (661 × 1)	(683 × 3) + (661 × 1)	683 × 4
ound Pressure	Cooling	dB(A)	70.2	70.3	70.3	70.4	70.9	71.0
Level	Heating	dB(A)	72.1	72.2	72.2	72.5	72.7	73.0
	Cooling	dB(A)	93.1	93.2	93.4	93.6	93.6	94.0
Sound Power			95.1	95.2	95.3	95.4	95.6	96.0
Sound Power Level	Heating	dB(A)						LE-h anno an anno 1
	High pressure	dB(A)	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch	High pressure sensor / High pressure switch
Level	High pressure protection	dB(A) -	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /
Level	High pressure protection Compressor/Fan		High pressure switch Over-heat protection / Fan driver overload protector	High pressure switch Over-heat protection / Fan driver overload protector	High pressure switch Over-heat protection / Fan driver overload protector	High pressure switch Over-heat protection / Fan driver overload protector	High pressure switch Over-heat protection / Fan driver overload protector	High pressure switch Over-heat protection / Fan driver overload protecto
Level	High pressure protection	dB(A) - -	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /	High pressure switch Over-heat protection /
Level Protection Devices	High pressure protection Compressor/Fan	dB(A) No.×mm²(VCTF-SB)	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection /	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection /	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection /	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection /	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection /	High pressure switch Over-heat protection / Fan driver overload protecto Over-heat protection /
Level Protection Devices	High pressure protection Compressor/Fan Inverter	- - No.×mm²(VCTF-SB)	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection	High pressure switch Over-heat protection / Fan driver overload protecto Over-heat protection / Over-current protection
Level Protection Devices	High pressure protection Compressor/Fan Inverter unication Cable Refrigeran	- - No.×mm²(VCTF-SB)	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 - 1.5	High pressure switch Over-heat protection / Fan driver overload protector Over-current protection / Over-current protection 2C × 1.0 ~ 1.5	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5
Level Protection Devices Comm	High pressure protection Compressor/Fan Inverter unication Cable	- - No.×mm²(VCTF-SB) t name	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A	High pressure switch Over-heat protection / Fan driver overload protector Over-current protection / Over-current protection 2C × 1.0 ~ 1.5 R410A	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A	High pressure switch Over-heat protection / Fan driver overload protector Over-current protection / Over-current protection 2C × 1.0 ~ 1.5 R410A	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 – 1.5 R410A
Level Protection Devices	High pressure protection Compressor/Fan Inverter unication Cable Refrigeran Precharged Amount	- - No.×mm²(VCTF-SB) : name kg Ibs	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 64.5	High pressure switch Over-heat protection / Fan driver overload protector Over-eat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 64.5	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 67.0	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 - 1.5 R410A 67.0	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 67.0	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 – 1.5 R410A 68.0
Level Protection Devices Comm	High pressure protection Compressor/Fan Inverter unication Cable Refrigeran Precharged Amount in factory GWF	- - No.×mm²(VCTF-SB) in name kg Ibs	High pressure switch Over-heat protection / Fan driver overload protection Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 64.5 142.2	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 64.5 142.2	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection Over-current protection 2C × 1.0 ~ 1.5 R410A 67.0 147.7	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 - 1.5 R410A 67.0 147.7	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 67.0 147.7	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection Over-carrent protection 2C × 1.0 - 1.5 R410A 68.0 149.9
Level Protection Devices Comm	High pressure protection Compressor/Fan Inverter unication Cable Refrigeran Precharged Amount in factory GWH TCO <sub>s</sub> e		High pressure switch Over-heat protection / Fan driver overload protection / Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 64.5 142.2 2,087.5 134.6	High pressure switch Over-heat protection / Fan driver overload protection Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 64.5 142.2 2,087.5 134.6	High pressure switch Over-heat protection / Fan driver overload protection Over-heat protection Over-current protection 2C × 1.0 ~ 1.5 R410A 67.0 147.7 2,087.5 139.9	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 67.0 147.7 2,087.5 139.9	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 – 1.5 R410A 67.0 147.7 2,087.5 139.9	High pressure switch Over-heat protection / Fan driver overload protection Over-heat protection/ Over-current protection/ Over-current protection/ Over-current protection/ Over-current protection/ Over-current protection 2C × 1.0 – 1.5 R410A 68.0 149.9 2,087.5 142.0
Level Protection Devices Comm	High pressure protection Compressor/Fan Inverter unication Cable Refrigeran Precharged Amount in factory GWF		High pressure switch Over-heat protection / Fan driver overload protection / Over-current protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 64.5 142.2 2,087.5 134.6 Electronic Expansion Valve	High pressure switch Over-heat protection / Fan driver overload protection Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 64.5 142.2 2,087.5 134.6 Electronic Expansion Valve	High pressure switch Over-heat protection / Fan driver overload protection Over-heat protection 2C × 1.0 ~ 1.5 R410A 67.0 147.7 2,087.5 139.9 Electronic Expansion Valve	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 - 1.5 R410A 67.0 147.7 2,087.5 139.9 Electronic Expansion Valve	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 - 1.5 R410A 67.0 147.7 2,087.5 139.9 Electronic Expansion Valve	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection Over-cerrent protection 2C × 1.0 – 1.5 R410A 68.0 149.9 2,087.5 142.0 Electronic Expansion Valve
Level Protection Devices Comm	High pressure protection Compressor/Fan Inverter unication Cable Refrigeran Precharged Amount in factory GWH TCO <sub>s</sub> e		High pressure switch Over-heat protection / Fan driver overload protection / Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 64.5 142.2 2,087.5 134.6	High pressure switch Over-heat protection / Fan driver overload protection Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 64.5 142.2 2,087.5 134.6	High pressure switch Over-heat protection / Fan driver overload protection Over-heat protection Over-current protection 2C × 1.0 ~ 1.5 R410A 67.0 147.7 2,087.5 139.9	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 ~ 1.5 R410A 67.0 147.7 2,087.5 139.9	High pressure switch Over-heat protection / Fan driver overload protector Over-heat protection / Over-current protection 2C × 1.0 – 1.5 R410A 67.0 147.7 2,087.5 139.9	High pressure switch Over-heat protection / Fan driver overload protection Over-heat protection/ Over-current protection/ Over-current protection/ Over-current protection/ Over-current protection/ Over-current protection 2C × 1.0 – 1.5 R410A 68.0 149.9 2,087.5 142.0

\* This product contains Fluorinated Greenhouse Gases. (R410A)

## Notes

- 1. Eurovent Test Condition : Maximum 8 Indoor units are connected (Indoor unit type is Ceiling Concealed Duct) · Refer to EUROVENT certification regulation for more detail test conditions.
- · Performances of Combination units are sum of Independent unit (Outdoor Units).
- 2. Capacities are based on the following conditions :
- · Cooling Temperature : Indoor 27°C(80.6°F) DB / 19°C(66.2°F) WB Outdoor 35°C(95°F) DB / 24°C(75.2°F) WB
- · Heating Temperature : Indoor 20°C(68°F) DB / 15°C(59°F) WB Outdoor 7°C(44.6°F) DB / 6°C(42.8°F) WB
- Piping Length : Interconnected Pipe Length = 7.5m · Difference Limit of Elevation (Outdoor ~ Indoor Unit) is Zero.
- 3. Wiring cable size must comply with the applicable local and national code.
- 4. Sound Level Values can be increased owing to ambient conditions during operation.
- 5. The numbers in parentheses means maximum connectable indoor units in accordance with outdoor units combination. The recommended ratio is 130%.

#### 6. ESEER calculation corresponds with below conditions and power input of indoor units is not included.

 Indoor temperature : 27°C(80.6°F) DB / 19°C(66.2°F) WB Outdoor Temperature conditions.

Part Load Ratio	Outdoor Air Temp.(°C(°F)DB)	Weighting Coe
100%	35 (95)	0.03
75%	30 (86)	0.33
50%	25 (77)	0.41
25%	20 (68)	0.23

• Formula : 0.03 × EER100% + 0.33 × EER75% + 0.41 × EER50% + 0.23 × EER25%

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

8. Power factor could vary less than  $\pm 1\%$  according to the operating conditions.

9. This product contains Fluorinated greenhouse gases.

efficients	



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