

SAMSUNG

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Samsung Air Conditioner | DVM S2 Tech Catalog
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SAMSUNG Air Conditioner | DVM S2 Tech Catalog



Distributed by

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DVM S2 | WindFree™
Digital Variable Multi Compatible

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Tech Catalog

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Extremely Powerful.



Exquisitely Delicate.



Air has the strength
to drive wind turbines
and the softness
to caress our skin.

From high-capacity
cooling in a large hall
to helping us relax with
WindFree™ cooling,
Samsung harnesses the power
and the delicacy of nature
to deliver exceptional comfort
– for everyone.

Meet true versatility.

DVM S2. Built on Revolution.



About Samsung | Our Brand

A leading brand in the air conditioning industry

Samsung is one of the world's leading companies, with an outstanding brand value.

According to the official report of Interbrand, Samsung was in the top 5 "Best Global Brands" for the 2nd consecutive year in 2021, and is the first non-US company in the world to be ranked in the top 5. Samsung's brand value is \$74.6 billion, which increased by 20% compared to the previous year, despite an uncertain business environment as the COVID-19 pandemic swept the world.

Samsung has been deploying various social contributions and campaigns in response to COVID-19, and expanding sustainable activities across all business areas and functions. We have also been continuously introducing innovative products, such as the Galaxy Z Flip 3 smartphone, the Neo QLED, Bespoke, and the 360 Cassette and WindFree™ air conditioners. These are the key factors that have been driving the relentless progress of the Samsung brand.

As well as Interbrand, Samsung was ranked 1st in the "World's Best Employers" and 8th in the "The World's Most Valuable Brands 2020", awarded by Forbes. These achievements show that Samsung is truly one of the most valuable brands in the world, and is undoubtedly the leading brand in the air conditioning industry.



Interbrand is a global brand consultancy and publisher of the highly influential annual Best Global Brands.



3rd
The 100 Largest Global Market Value Companies

The FutureBrand Index is a global brand perception study of the 'Global Top 100 Companies by market value' according to PricewaterhouseCoopers (PwC), a global accounting consulting firm.



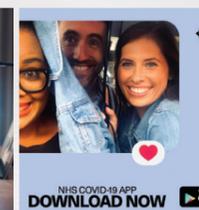
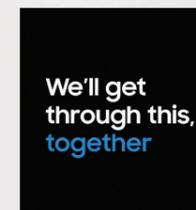
8th
The World's Most Valuable Brands 2020

Every year, Forbes announces its top 100 global brands based on the profits and industry status of more than 200 companies worldwide.

Helping each other, get better together

To help swiftly counteract the effects of the COVID-19 pandemic, Samsung has implemented various supporting activities, with donations for each country. We have also conducted various advertising campaigns designed to comfort and cheer-up people with happy and hopeful messages and proactive communications.

"Get through this together"



"Smile Stories Campaign"



Advertising at Time Square (New York, USA), Piccadilly Circus (London, UK), and The Duomo (Milano, Italy). Social channels at Facebook, Instagram, and YouTube.

About Samsung | Corporate Citizenship

Together for Tomorrow! Enabling People

In 2019, we celebrated our 50th anniversary by announcing a new global vision for our corporate citizenship: Together for Tomorrow! Enabling People. The new vision draws on our core values of People, Co-prosperity, and Change, and encompasses our promise to cultivate talented individuals for shared growth, while pursuing innovations that will help make the world a better place.

As part of this vision, we seek to empower future generations to achieve their full potential, enabling them to pioneer positive social change and build a better world for all. Our programs focus on providing equal opportunities for quality education to young people around the world.

Our global citizenship programs harness the power of our collective expertise, technology, experience, and resources. They are also customized to suit each country's characteristics in order to ensure that they have the maximum impact.

In addition, we operate tailored country-level programs and collaborate with governments, policymakers and institutions to provide a wide variety of engaging learning opportunities.

Accomplishments in 2020

Total Hours of Employees' Volunteer Service

9,078,857 hours
(cumulative from 2012)



Beneficiaries of the Smart Factory Support Program

2,530 companies
(cumulative from 2015)



Beneficiaries of the Corporate Citizenship Activities

21,497,633 people
(cumulative from 2012)



Samsung Solve for Tomorrow, designed to raise awareness of STEM (Science, Technology, Engineering, Math), is a creativity contest that encourages students to address local societal issues through creative solutions based on STEM. It began in 2010 and, over the past 10 years, more than 1.69 million students from more than 20 countries have participated in Samsung Solve for Tomorrow, spreading the culture of innovation and creativity among schools and the community.



Samsung Smart School is a series of educational initiatives designed to provide smart devices and solutions to students in areas with little access to IT equipment, reducing the digital divide while supporting students' creativity. In 2019, we offered quality digital education to more than 3.8 million students around the world who have limited access to educational resources. We intend to provide digital education to elementary and middle school students and contribute to bridging the educational gap.



Samsung Innovation Campus, launched in October 2019, is a technological education program created for young people entering the job market. It builds on the success of the Samsung Junior Software Academy, Samsung Software Academy for Youth, and Samsung Tech Institute, which together educated more than 200,000 people in around 30 countries from 2013 to 2019. It provides classroom education as well as hands-on training in technology-related skills, such as AI, IoT, and data analysis.



Samsung OneWeek is our international employee volunteer program, during which we work collaboratively with local communities to support young people by providing education programs that address their unique needs. Since it was launched in 2010, more than 2,000 employees of 59 teams have volunteered to help 10,000 participants in over 30 countries. In 2019, around 200 employees participated in customized education programs in Cambodia, Kazakhstan, Indonesia, Thailand, Nepal, and Hungary for one week.



About Samsung | Sustainability

Protecting the environment

As a global corporate citizen, Samsung is acutely aware of our obligations and roles in sustainable operations. As well as strengthening our climate change response activities we also endeavor to comply with international environmental standards, as well as European and national laws and regulations, across our global business operations. We are actively taking steps to minimize the generation of harmful materials, utilize resources efficiently and recycle waste products for the benefit of the environment. We are also doing our best to minimize the environmental impact of our product development, production, distribution, sales and disposal processes, while extending the life cycle of our products.



WEEE: Electronic Waste

Samsung works within the WEEE (Waste of Electrical and Electronic Equipment) regulations, which form the Directive for extended producer responsibility. This Directive mandates the safe collection, treatment, recycling and environmentally-sound disposal of all electrical and electronic equipment. Working with collective recycling schemes in each EU member state, Samsung co-finances the take-back and recycling of electronic products.



Ecodesign

Samsung complies with the Ecodesign regulations, issued in March 2012. These require electric air conditioners (<12kW) and comfort fans (<125W) within the EU to display detailed, highly visible information regarding energy efficiency, plus information on Seasonal Coefficient of Performance (SCOP), Seasonal Energy Efficiency Ratio (SEER) and annual energy consumption (kW/h).



Packaging

Samsung works together with recycling schemes and governmental organizations to collect, separate and reuse all packaging materials at various points in the distribution chain. Many materials can be recycled into new products, which helps to save natural resources. Recycling packaging also helps to reuse valuable raw materials and to reduce the overall impact on the environment.

Climate Actions



In line with the Paris Agreement signed in December 2015, Samsung has been taking action to tackle the issues of climate change. We identify related issues, analyze risks, and establish and implement effective counter-strategies and develop energy-efficient products. We regularly discuss climate actions through committees and councils, are committed to sourcing renewable energy for 100% of our worksites and manage their Greenhouse Gas (GHG) emissions through the Global Environment, Health, and Safety System (G-EHS). In addition, we are working with suppliers, the Samsung institute of Safety & Environment and related departments to reduce other indirect GHG emissions created by activities such as product transportation and business travel.

Operations



We are committed to reducing the environmental impact of our business operations. Our slogan of "Planet First" expresses our commitment to corporate social responsibility and sustainability management. We focus on 3R activities - Reduce, Reuse and Recycle - to use less and recycle more. In 2019, we recycled 95% of our waste. We also strive to minimize the amount of water used in the manufacturing process, while maximizing waste water purification and its subsequent reuse. In 2019, 51% of our water was reused - a massive 68.55 million tonnes. In addition, we operate a management system to treat pollutants by appropriate processes and are engaged in a range of activities designed to help preserve biodiversity in the regions where we do business.

Circular Economy



As natural resources run out, sustainability across all stages of the product life-cycle is becoming increasingly important, from materials purchasing, development, and manufacturing to logistics, use and disposal. We have established circular economy principles that close the loop and expand the reuse and recycling of our resources to minimize the social and environmental impacts. These include the increased use of sustainable materials, extending the product lifespan, and minimizing the use of natural resources and raw materials. In order to turn these principles into reality, we have also developed a number of key mid-to long-term goals, such as 100% use of sustainably-sourced paper in packaging and the use of 500,000 tonnes of recycled plastics by 2030.

Product Stewardship

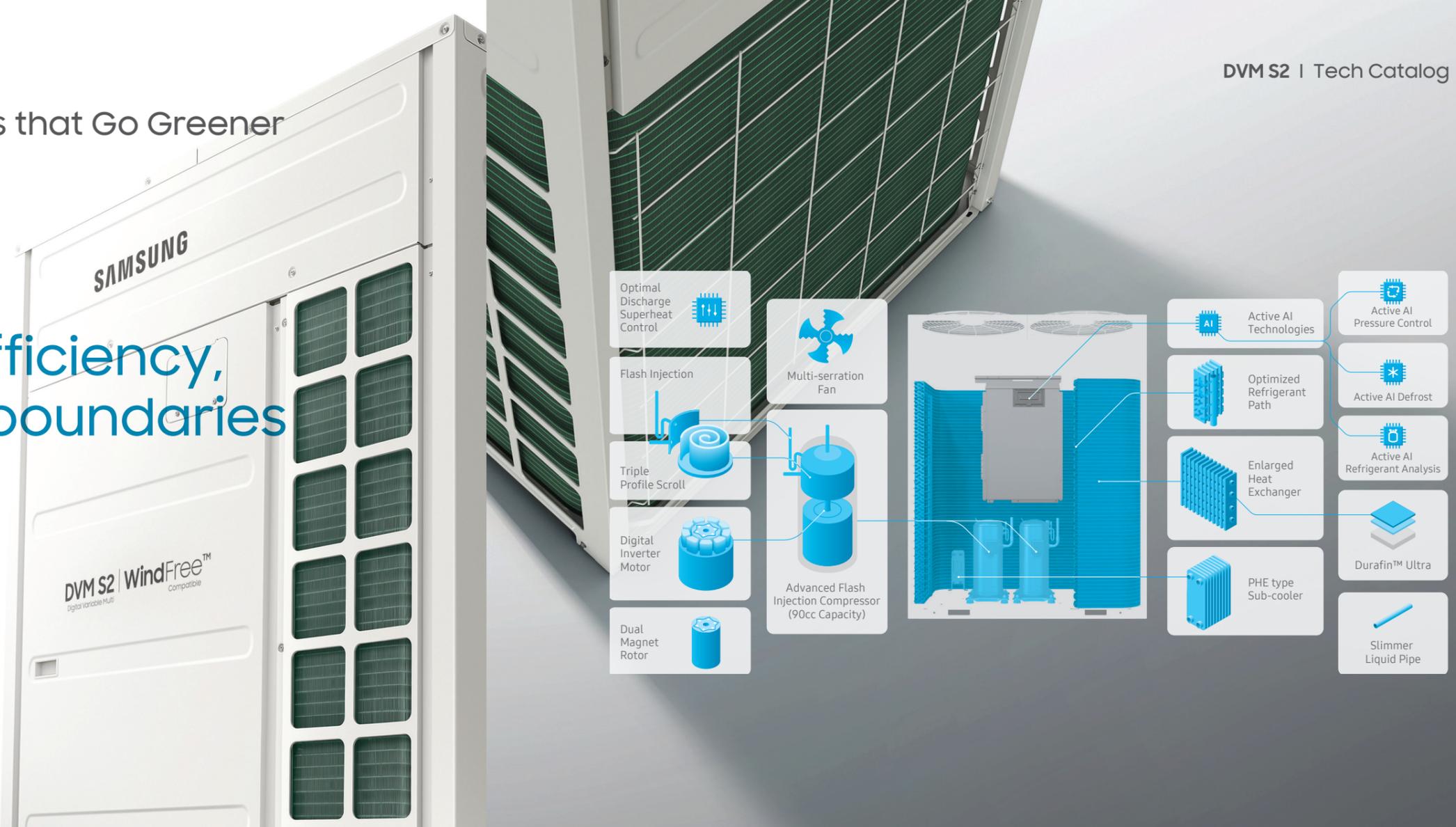


We operate an Eco-conscious Product Policy through which we strive to enhance our product stewardship and minimize the environmental impacts throughout the entire product life cycle - from purchasing raw materials, to development, manufacturing, distribution, usage, and disposal. Right from the product design stage, we apply our Eco-Design Process to assess the level of resources and energy we use, as well as the harmfulness of the raw materials utilized in products. This enables us to plan and develop products that have greater energy efficiency, use fewer resources, and do not include hazardous substances and chemicals. For example, our air conditioners' WindFree™ Cooling mode reduces energy use by up to 58% compared to the normal mode.

About Samsung | Technologies that Go Greener

The pinnacle of efficiency, pushes back the boundaries

In line with Samsung's unwavering commitment to being an eco-responsible organization, the DVM S2's radical new design incorporates a range of technologies that minimize its impact on the environment. As well as transferring heat much more efficiently, so it consumes much less energy, it also intelligently optimizes its cooling performance to reduce any waste. In addition, its improved sub-cooling rate and Advanced Flash Injection significantly reduce the amount of refrigerant required, making it much more environmentally friendly and reducing harmful CO₂ emissions.



Maximized efficiency

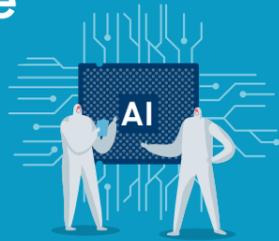
minimizes waste of energy



The DVM S2 has been redesigned to cut the cost of cooling with energy-efficient technologies. The enlarged Heat Exchanger has a much greater transfer area to exchange heat faster. An optimized refrigerant path also matches the air flow speed to improve the transfer of heat. An aerodynamic Multi-serration Fan generates more air flow while consuming less electricity as it minimizes air turbulence. And a 7th generation insulated gate bipolar transistor (IGBT), which switches current and frequency to suit the system, reduces the loss of conducted electricity.

Artificial intelligence

controls more efficiently



The DVM S2 optimizes its cooling performance automatically, based on a learning and optimizing algorithm about the installation conditions and usage patterns. Active AI Pressure Control intelligently adjusts the refrigerant condensing pressure and evaporating pressure, so it cools faster and reduces energy usage. Active AI Defrost ensures it defrosts more precisely, so it increases the continuous heating time significantly. And Active AI Refrigerant Analysis proactively monitors refrigerant volume to notify the occupant if the system is low on refrigerant before system protections are enabled and operation is interrupted.

Less refrigerant

reduces environmental risks



The DVM S2 saves money and helps protect the environment with its efficient and flexible piping system. It is equipped with a high-performance sub-cooler that improves the sub-cooling rate of refrigerant. Its slimmer liquid pipe also means it requires 25% less refrigerant compared to a normal pipe, on average. So it reduces the costs of installation and maintenance and also provides added flexibility in designing the entire system. In addition, by using less refrigerant, it is much more environmentally friendly.

Superior heating performance

replaces fossil fuel



The DVM S2 introduces a new era of eco-friendly performance and efficiency. It features Advanced Flash Injection technology with a new Triple Profile Wrap and Optimal Discharge Superheat (DSH) Control. The improved strength of its Flash Injection, which delivers superior heating in frozen conditions, means that the capacity is now much larger (90cc). So it is powerful enough to replace conventional heating methods that use fossil fuel. And its highly efficient Optimal DSH Control saves even more energy, which helps to reduce CO₂ emission.

Business with Samsung

All-around support for streamlined business

Tool | Samsung DVM Pro 2.0, BIM Object

Engineering | CFD, Noise Analysis, Energy Simulation

Training | Samsung Business Academy



Business with Samsung | Tool

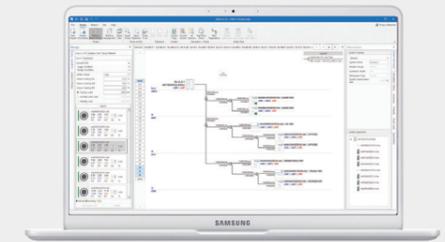
Easily and precisely design the entire system

Samsung DVM Pro 2.0

Samsung DVM Pro 2.0 is an advanced design automation program that helps you design your air conditioning system more easily and precisely. You can simply select the most suitable equipment from the entire range of Samsung air conditioner products and design the system with its user-friendly interface, which significantly improves usability. And, it helps to ensure that the system's design complies with Samsung's engineering guidelines. The ability to export reports, pipe and wire diagrams, additional refrigerant values and other information make Samsung DVM Pro 2.0 a powerful tool for you as an engineer, designer or installer.

Sales Mode

All design processes, including product selection, piping, wiring and system checks, are seamlessly integrated to provide a streamlined user experience, so you can respond to client requests rapidly. And, it includes an intuitive interface and a range of convenient features to simplify and speed-up the whole design process.



Product Selection

Simply find and quickly select any Samsung air conditioners with product thumbnails and "favorites" functions.

Reports

Supports various report formats to suit any of your needs. You can also selectively print by item, such as a floor or system.

Concurrent design for wiring & controls

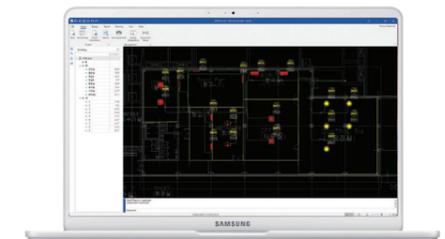
The wiring and controls of the indoor and outdoor units can be designed on one screen. With fewer steps, designs can be completed faster.

Design based on rooms & floors

A visualized structure, based on floors and rooms, lets you intuitively view the installation location and working load.

Designer Mode

A dedicated CAD program, developed by Samsung, lets you design systems without the need for any expensive commercial CAD programs. It is also optimized with specialized features to design air conditioning systems.



Piping design

Refrigerant piping and drainpipes can be drawn automatically, using the correct material and size to suit the installation guidelines perfectly.

Reports

As well as a basic report, it provides integrated drawing data, including the equipment, power supply, and communication wiring diagrams.

Compatible with AutoCAD

It is compatible with commercial CAD programs, including AutoCAD, for added convenience. Exported design and drawing data can be easily handled and modified separately.

Modular design

Lets you design the system in modules, which can be easily duplicated without wasting time and effort on repetitive tasks. So you can quickly complete a whole system.

How to Access



1. Register

Go to the Samsung DVM Pro website*. Simply complete the registration process and a confirmation email with access details will be sent to you.



2. Access

Using a temporary password, sign in to the website. If you want, you can then change the password.



3. Download

Download the DVM Pro 2 installation file, view the user manuals, and start the design of your project.

* Samsung DVM Pro website: dvmpro.samsung.com. The latest Google Chrome is recommended.

Ready for Building Information Modeling

BIM Library for Revit

VRF is becoming an essential technology to consider in the building design and construction process. To facilitate this, Samsung provides product design and specifications of Samsung HVAC systems into BIM (Building Information Modeling) files available at www.SamsungHVAC.com for use in your projects.



Business with Samsung | Engineering

Always optimizing your air conditioning systems

CAE (Computer Aided Engineering)

Samsung provides professional CAE support, with various analysis and evaluation services in the building design and information modeling phases. Using the workstations and super computers of the Samsung Advanced Institute of Technology, multiple projects can be simulated simultaneously. It ensures that the building has an optimized air conditioning system that works effectively and efficiently and provides a comfortable indoor environment.

Samsung CAE Support includes:

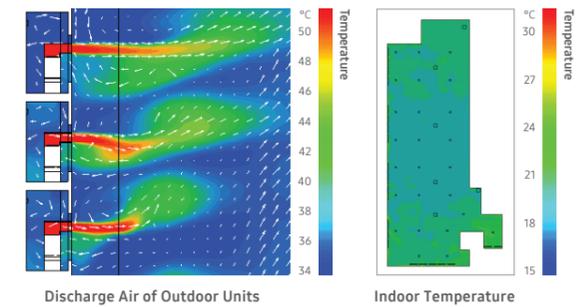
- Outdoor unit machine room temperature simulation
- Indoor unit room temperature simulation
- Air flow distribution simulation
- Specialized simulation of theater, residential, airport and machinery room noise.



Various Engineering Software for Samsung CAE Support

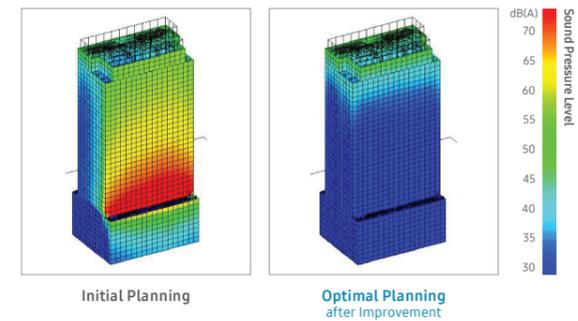
CFD (Computational Fluid Dynamic)

The installation location and surrounding conditions significantly impact the performance of an air conditioning system. In particular, these days the structure of buildings has become more complex and often includes a machine room to hide outdoor units, so they are not visible on the outside. As a result, it is much more important to determine in advance if the preferred location will have any impact on the performance of the system. Samsung supports CFD simulation and analysis to assess the performance of the Samsung air conditioning system before deciding on its installation location, and also provides a guidance report if it is necessary to change it.



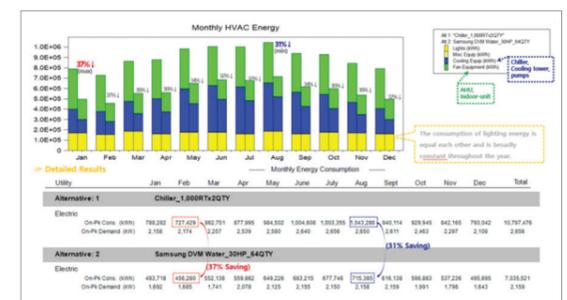
Noise Analysis

To ensure a more comfortable indoor environment, noise mitigation is now an important factor. So, it's essential to anticipate possible noises during the building planning stage – before they really happen. Samsung provides noise effect evaluation, based on the location of indoor and outdoor units, by modeling the actual building design and data about the air conditioning system. After the evaluation, Samsung will suggest the best choice of installation location, and also provides a guidance report if necessary.



Energy Simulation

In general buildings, the HVAC (Heating, Ventilating and Air Conditioning) products usually consume around 30% of the total energy used in the building. Samsung helps conduct energy simulations to analyze the economical efficiency of the installed HVAC systems by evaluating the operation cost of each product category. This enables developers and consultants to propose the optimal HVAC solution to their clients.



How to Request



1. Prepare

Prepare drawing data in advance that shows the installation conditions:

- an installation location and the layout of outdoor units
- a machine room and its louver structure, if the outdoor units are installed in the machine room
- the building exterior and the layout of surrounding buildings
- the layout of indoor units.



2. Request

Contact Samsung Applications members and request engineering support.

Business with Samsung | Training

Become a Samsung Air Conditioner expert

Samsung Business Academy

Samsung HVAC is proud to offer comprehensive training courses that are designed to enrich technicians and contractors with the knowledge to properly install, service, and maintain Samsung HVAC products. Earn HVAC NATE® certification credits with several NATE® Certified courses available that cover a wide range of topics on our residential, light commercial, and commercial products. Samsung Business Academy (SBA) is the portal to our extensive course offering. With live classes, online courses, and webinars, attendees can choose the training option that best fits their schedule. And if hands-on training is something you're after, you can visit our state-of-the-art training centers near Dallas, Texas, and in Santa Fe Springs, California, that house a wide range of operational Samsung HVAC products.

How to Register for Training



1. Search

To check for available training courses, visit Samsunghvac.com/training and log into Samsung Business Academy (SBA). Search the online event calendar and select the training course you would like to attend.



2. Register

When you have identified the training course you would like to attend, simply follow the registration process. Once you have registered successfully you will receive a confirmation e-mail.



3. Get Certified

Once we have confirmed your registration, we will welcome you to one of our training centers. You will be trained by one of our specialized Master Trainers or Product Specialists, and receive a Certificate of Completion.

Commercial and Design Training Sales Courses*

- Product line-up, accessories and available controls
- Unique characteristics of Samsung products
- Installation considerations
- Designing with DVM Pro 2.0



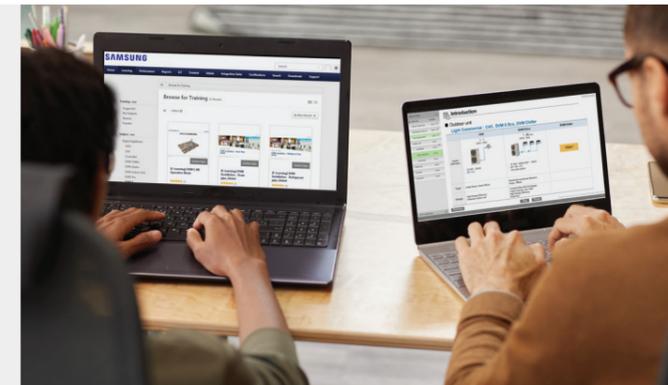
Installation and Service Training Technical Courses*

- How to correctly install and configure a system
- Commissioning: common issues during commissioning and how to resolve any challenges
- Troubleshooting and fault finding (using error codes)
- Control logic
- Case studies



Online Training E-learning Contents*

- Curriculum for sales, technical and design, which are available at any time and from anywhere using a PC or a mobile device.
- Anyone can enjoy E-learning contents through the Samsung Business Academy (SBA) site.



Learn



* The registration process and availability of training courses may differ by country. Please contact your direct Samsung contact person for more information.

Value Proposition

The more you want, the better the solution it is.

“ I want a system that increases the value of our buildings.”



Developer

1. Premium Brand

Samsung is a leading brand in the air conditioning industry. So, the DVM S2 increases the perceived value of your building.

2. Energy Efficiency

Air conditioning accounts for about 30% of a building's energy use. So, efficient products are very important, and also help achieve LEED or BREEAM certifications.

3. Space Saving

Minimizing unoccupied areas frees-up valuable space that can generate extra revenue. The compact DVM S2 provides sufficient capacity while saving space.

“ I want to propose more credible solutions.”



Consultant

1. Engineering

Modern buildings often have features and structures that limit the installation spaces. Samsung's engineering support can ensure the best performance and efficiency.

2. Reliability

The DVM S2 performs reliably in any weather or installation conditions. So, it makes your consultation services and proposals more realistic and practical.

3. Flexibility

Air conditioning performance is affected by the installation conditions. But the DVM S2 is designed to fit in and perform consistently in a variety of conditions.

“ I want to save resources on installation and servicing.”



Installer

1. Easy Installation

The DVM S2 is designed to suit many different installation sites. So, it can be installed with less time and effort, and is also safer to handle.

2. Cost Saving

With a high-performance sub-cooler, the DVM S2 uses a slimmer liquid pipe and less refrigerant, which reduces the costs of the refrigerant and materials.

3. Convenient Maintenance

The DVM S2's modular parts mean it can be serviced with less effort and cost. And you can check errors quickly on an Inverter PBA without extra tools.

“ I want to stay comfortable with lower running costs.”



End-user

1. Cost Saving

The DVM S2's innovative technologies deliver superior energy efficiency. So, you can enjoy 24/7 comfort without worrying about electricity bills.

2. Comfort

The DVM S2 generates less noise. And its Advanced Flash Injection Compressor provides a reliable heating performance even in severe cold weather.

3. Smart

Using Active AI technologies, which learn your usage patterns, the DVM S2 intelligently optimizes your comfort and reduces wasted energy.

DVM S2 Overview

Rebuilt on all new innovations. The ultimate in efficiency and reliability.



True innovation is a rare thing – so the multiple new technologies in the Samsung DVM S2 outdoor air conditioning unit make it truly unique. It has been totally redesigned to deliver outstandingly consistent comfort in a wide range of locations, as well exceptional energy efficiency. Its flexibility is equally matched by its reliability, as it can operate

effectively in many different environmental conditions, including the most extreme temperatures. And it also includes a host of new and intelligent management features that make its installation and maintenance much simpler and more cost-effective. Quite simply it redefines the art of comfort.

Cost Saving

- Enlarged Heat Exchanger
- Optimized Refrigerant Path
- High-efficiency IGBT
- 90cc Chamber with Triple Profile Scroll
- 9 Release Valves
- Active AI Pressure Control

Flexibility

- Wider Operating Temp. Range
- Active Frequency Drive 10Hz
- Compact Design
- High Elevation with Long Piping
- Optimized Ref. Distribution Control
- Up to 0.43" WC External Static Pressure

Reliability

- Dual Heat Sink
- Upgraded Base Design
- Robust Frame
- Kammtail Motor Bracket
- Durafin™ Ultra
- Galvanized Iron Steel Plate (GI)

Convenience

- Slimmer Liquid Pipe
- On-Device Inverter Check™
- Active AI Refrigerant Analysis
- Emergency Operation
- Center Point Indicator of Weight
- Simplified Cover with Handle

Comfort

- Advanced Flash Injection Compressor
- Flash Injection
- Optimized DSH Control
- Triple Profile Scroll
- Active AI Defrost
- Rotational Defrost Operation
- Active AI Pressure Control
- Multi-serration Fan
- Quiet Operation
- Diffuser Type Discharge Plenum
- Kammtail Motor Bracket
- Enlarged Heat Exchanger

DVM S2 Key Features

■ Cost Saving

Relentless innovation for the ultimate in energy efficiency

Air conditioning systems are a major consumer of energy, and account for about 30%* of the total energy used in a building. So, energy efficiency is usually the most important factor that consultants and designers consider when deciding which air conditioning system to purchase and install in a building.

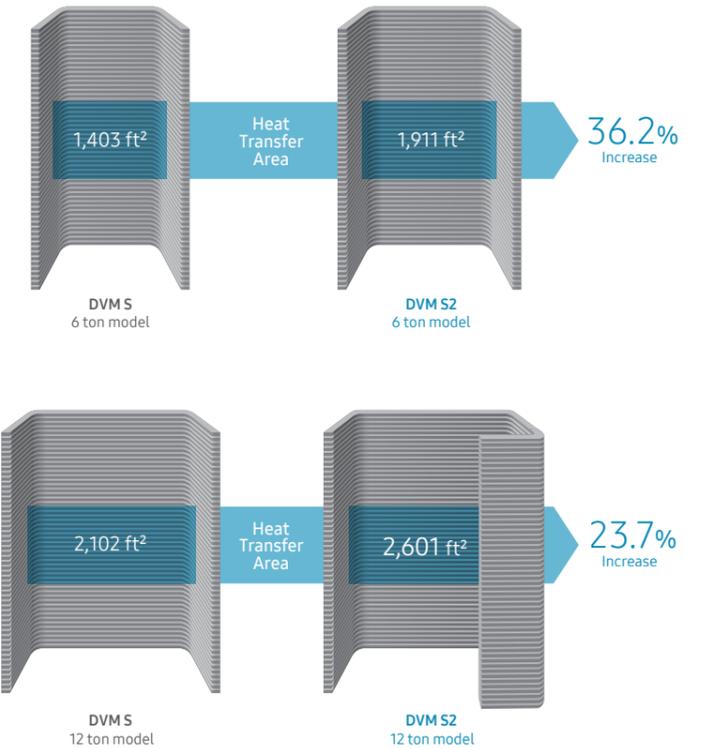
The Samsung VRF systems already lead the industry in energy efficiency. And now the new DVM S2 outdoor unit is pushing back the boundaries even further. It incorporates many new and unique technologies that deliver the next level of energy efficiency, along with a superior performance.



Transfers more energy with an enlarged contact area

Enlarged Heat Exchanger

The Samsung DVM S2 has an enlarged heat exchanger that is capable of transferring much more heat at once. Its heat transfer area is up to 36.2% larger* to quickly exchange heat. As a result, it consumes less energy to achieve the same cooling and heating performance.



* Varies by building, location, operating patterns and various other factors.

** Based on testing in accordance with the Eurovent testing rule, at the end of December 2020. Tested on 22.4-56kW models of the Samsung DVM S2 compared to the same capacities of another brand, using ducted type indoor units.

* Based on Samsung's measurements, comparing 33.6kW models of a DVM S2 and a conventional outdoor unit.

DVM S2 Key Features

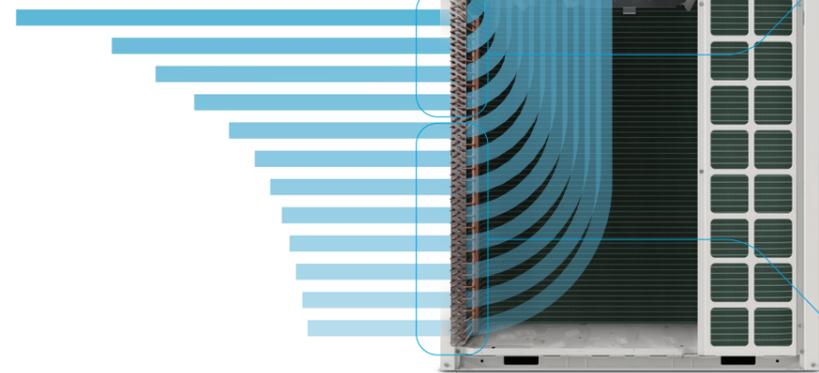
Cost Saving

Optimized refrigerant flow matches the air flow velocity

Optimized Refrigerant Path

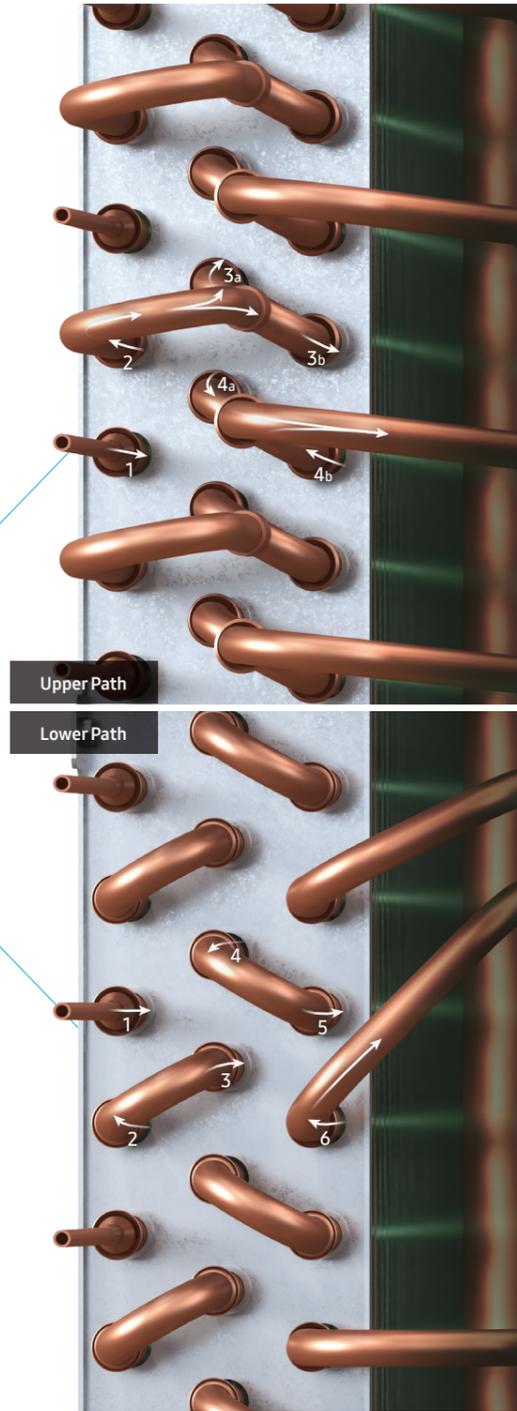
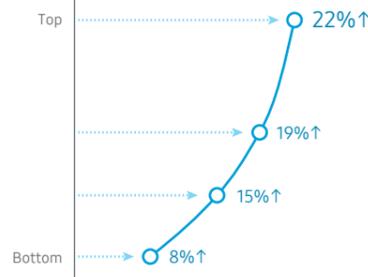
The airflow speed inside the outdoor unit varies depending on how far it is from the top fan – the closer the faster and the farther the slower – which normally results in uneven exchange of heat from top to bottom. Samsung DVM S2 has an optimized refrigerant path* that ensures that the flow of the refrigerant matches the airflow speed, which optimizes the transference of heat. So, it performs more effectively and efficiently by balancing the exchange of energy.

Air Flow Velocity Profile



Rate of Improvement in Pressure Loss Reduction**

The refrigerant flow rate is adjusted by increasing the mass flow rate in order to increase the amount of heat exchanged in the upper part.



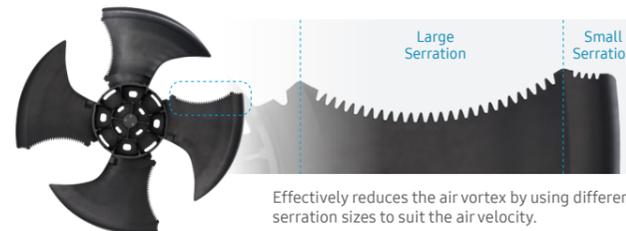
* The shape of the refrigerant path differs by model.

** Based on an internal module evaluation. Results may vary depending on the individual test or usage conditions.

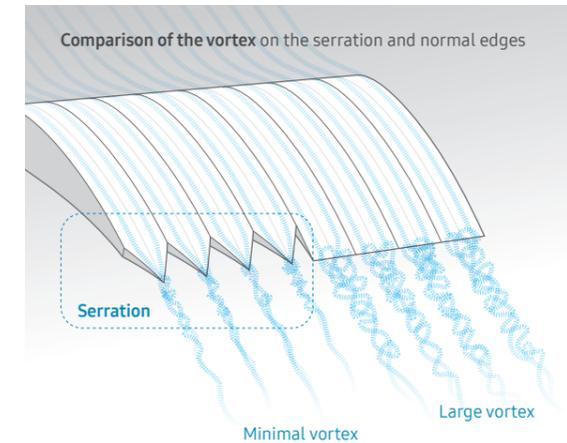
Efficiently increases the air flow

Multi-serration Fan*

DVM S2 has a brand-new, aerodynamic Multi-serration Fan* that creates more air flow while consuming less energy. Its multi-serration wing tip design minimizes the turbulence of the air vortex, which reduces the air resistance and ensures more stable fan movement.



Effectively reduces the air vortex by using different serration sizes to suit the air velocity.

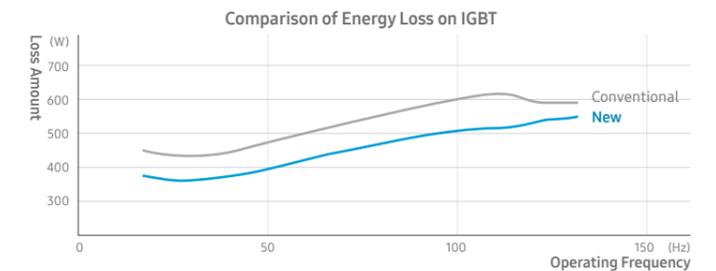


* Only available on certain models that have one fan. The shape of the fan may vary by model and region.

Reduces the loss of conducted electricity

High-efficiency IGBT (Insulated Gate Bipolar Transistor)

An IGBT has a key role in inverter systems. It switches direct current (DC) to alternating current (AC) and maintains a frequency (Hz) that is suited to the system. So, the efficiency of an IGBT affects the efficiency of the whole air conditioning system. Samsung DVM S2 uses the 7th generation of IGBT, which reduces the loss of conducted electricity by 20%*, while being 36% smaller in size. As a result, the Inverter Controller's energy efficiency is improved by up to 3.6%*, depending on the operating frequency (Hz).



* Based on internal testing of the DVM S2 33.6kW model compared to a conventional outdoor unit, combined with 6 GD2 5.6kW indoor units. Results may vary depending on the individual test or usage conditions.

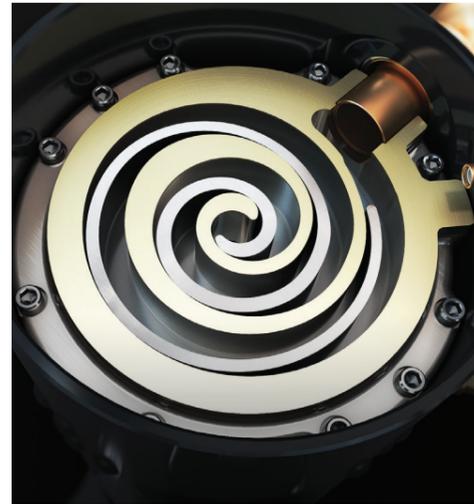
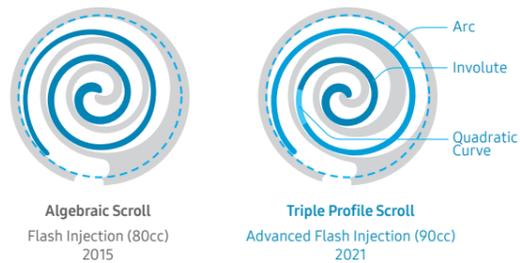
DVM S2 Key Features

Cost Saving

Circulates more refrigerant while using less energy

90cc Chamber with new Triple Profile Scroll

The Samsung 90cc Inverter Scroll Compressor used in the Samsung DVM S2 has the world's largest capacity and circulates up to 17% more refrigerant*. Its new Triple Profile Scroll combines arc, involute, and quadratic curves with a thicker profile towards the middle to increase the strength of the center part which also creates a larger chamber and rotates reliably at high speeds. By delivering a higher level of performance at a lower frequency, it consumes less electricity and improves overall energy efficiency, especially at higher speeds.

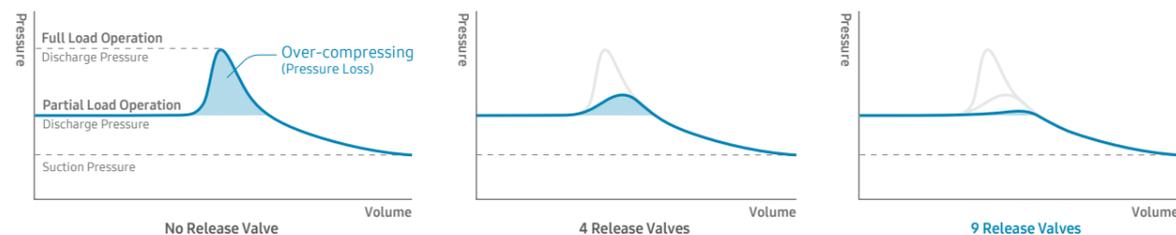
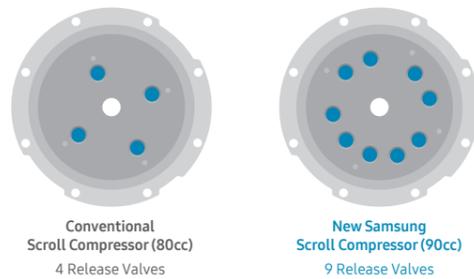


* Samsung circulates 14,400cc/sec refrigerant (= 90cc (displacement volume) x 160rps (revolutions per second)), while Company A circulates 12,480cc/sec (= 96cc x 130rps), Company B circulates 14,080cc/sec (= 88cc x 160rps) and Company C circulates 12,320cc/sec (=88cc x 140rps).

Reduced losses at partial loads

9 Release Valves

Compressors always draw in the maximum amount of refrigerant to generate the 100% pressure needed to operate at full load, as their chamber size is not variable. And, to compress more refrigerant, more electricity is required. So, it's very important to release any excessive refrigerant pressure in order to save energy when there's only a small load that doesn't need a high discharge pressure. The new Samsung 90cc Scroll Compressor has 9 Release Valves, so it accurately and immediately releases refrigerant to prevent over-compressing that wastes electricity.



Automatically optimizes to save energy

Active AI Pressure Control*

Optimal refrigerant condensing pressure is very important to ensure stable cooling and heating performance. The system needs to maintain a much higher pressure if the piping length is long or if there is a large difference in elevation, although the opposite is not the case. In reality, more than 90% of outdoor units are installed in applications where the elevation is 98 ft. or lower and the pipe length is 328 ft. or less** (Figure 1). Using Active AI Pressure Control*, DVM S2 recognizes both the piping length and the difference in elevation and learns the users' usage pattern and external temperature in real time. It then automatically adjusts the refrigerant condensing pressure accordingly, by up to 32% (Figure 2). As a result, it reduces the energy consumption by 15%*** when the condensing pressure is reduced by 12% (Figure 3).

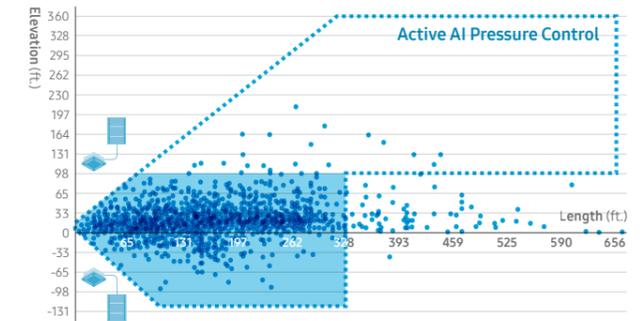


Figure 1. Installation sites by piping length and elevation*

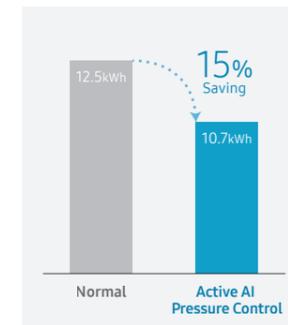


Figure 3. Cumulative energy consumption over 4 hours

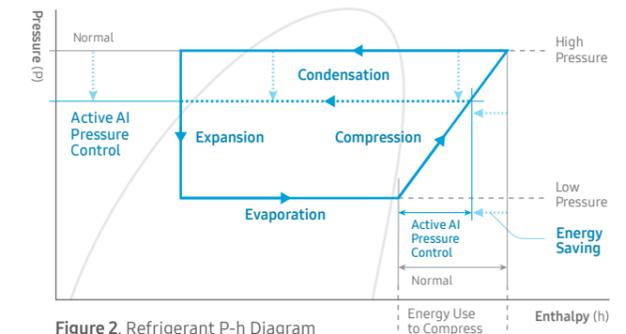
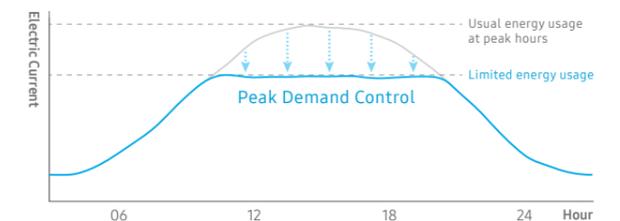


Figure 2. Refrigerant P-h Diagram

Simply limits power consumption

Peak Demand Control

To help businesses manage their power consumption and related costs better, DVM S2 offers power-demand control for peak hours and seasons. This is especially useful when the electrical supply is insufficient or when businesses want to prevent excessive and wasteful energy



* Optionally available depending on the installation conditions. For detailed information, please refer to the installation manual.

** Based on internal analysis.

*** Based on internal testing with an AM080AXVGGH/EU outdoor unit connected to AM083NN4DBH1 and AM145NN4DBH1 indoor units with 25m of piping, using the cooling operation in Auto mode for 4 hours, with an external temperature of 30°C and a set temperature of 22°C. Results may vary depending on the actual installation and usage conditions, such as the piping length, elevation and external temperature.

DVM S2 Key Features

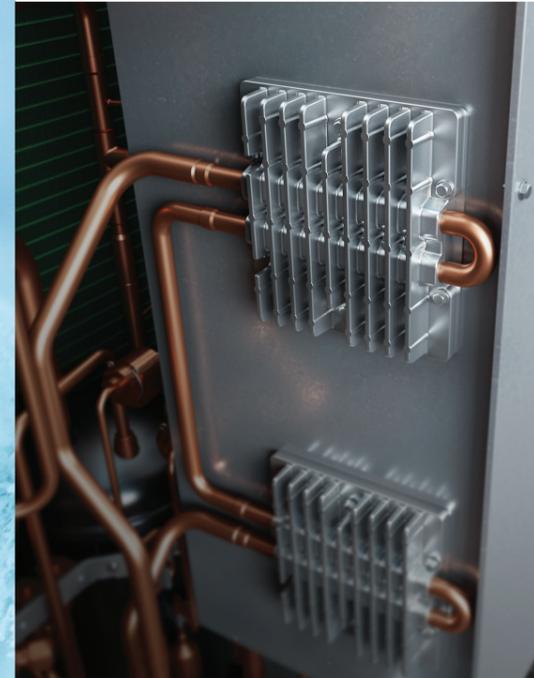
Reliability

Reliable performance in the toughest environments

Some environments present a real challenge to the effective operation of an air conditioning system. Extreme temperatures, persistently wet conditions and even earthquakes will not only impact the performance, but can also drastically shorten its working life.

The Samsung DVM S2 outdoor unit's robust design is capable of coping with the most challenging forces of nature. As well as continually fine-tuning the flow of refrigerant using a new 90cc Scroll Compressor, its unique Dual Heat Sink radiates heat effectively from the inverter circuit to deliver extremely reliable performance across a wide range of temperatures.

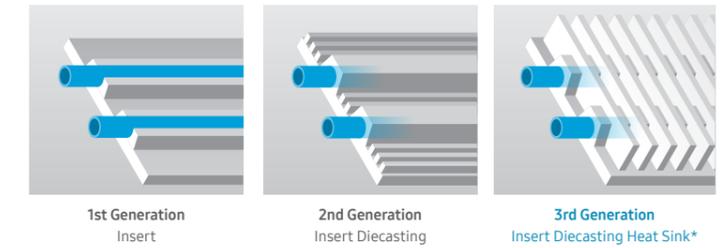
It is also built to withstand severe physical shocks, including sizeable earthquakes, and has significantly improved anti-corrosion capabilities to ensure maximum durability.



Ensures reliable inverter control

Dual Heat Sink

The inverter circuit of VRF systems generates a lot of heat, which affects the entire system performance. DVM S2 units have a Dual Heat Sink that uses both air and refrigerant. Its unique Insert Diecasting Heat Sink design minimizes the thermal loss between the pipe and heat sink by increasing their contact area by 33%. By radiating heat from the inverter circuit more effectively, it helps extend the maximum operating temperature from 118°F (48°C) to 122°F (50°C), and delivers a reliable performance regardless of the external conditions.



* The shape of the heat sink may vary by model.

Designed to perform in freezing conditions

Samsung DVM S2 is capable of delivering a high heating capacity at extremely low ambient temperatures in a reliable and energy-efficient way. Its base design helps drain condensed water fast, and a base heater melts any ice that forms inside.

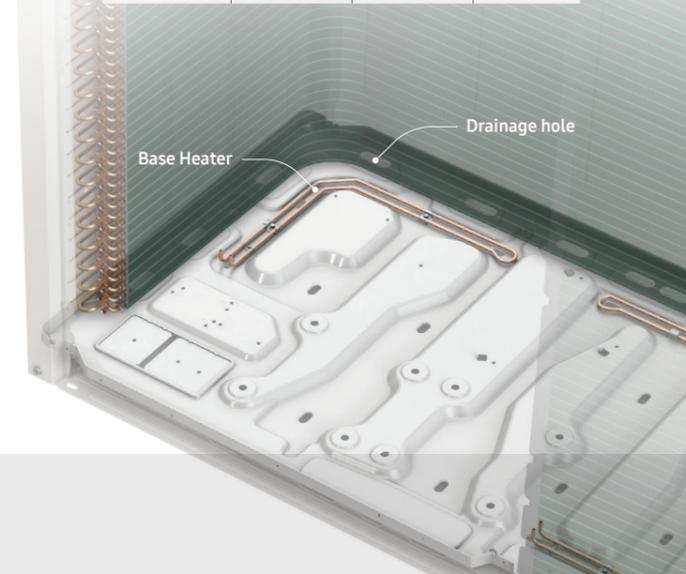
Upgraded Base Design

During heating operation in cold weather, the defrost cycle used to remove ice on a heat exchanger can cause water to condense on it. DVM S2 has a patented base design with drainage holes that cover a 6.6 times larger area, so it drains condensed water much faster to prevent it from freezing inside the cabinet.

Base Heater** (Optional)

In areas of high humidity with extremely cold temperatures of -13°F (-25°C) or below, it is possible that ice can still build-up in the base pan, even if it drains water effectively. DVM S2 units have an optional base heater that can quickly melt ice on the base and ensure the of its heating operation reliability.

Model by Capacity*	Total area of drainage holes		Difference
	DVM S	DVM S2	
6 ton model	3.4 in ²	22.6 in ²	6.6x
12 ton model	11.3 in ²	35.9 in ²	3.2x



* The capacities are based on DVM S2 models.

** Optional.

DVM S2 Key Features

Reliability

Less damage from physical shocks and swaying

Samsung DVM S2 units are equipped with new and innovative design features that significantly enhance its durability. The system upgrades have proven to allow the unit to continue working effectively, without any problems in its main unit or piping, during seismic events.

Robust Frame

The corners of the cabinet's sides are reinforced. The thickness has been increased by 25%** and its shape has also been refined, so its stiffness has increased by 130%**. As a result, DVM S2 provides incredible durability across its entire body without bending.



Kammtail Motor Bracket

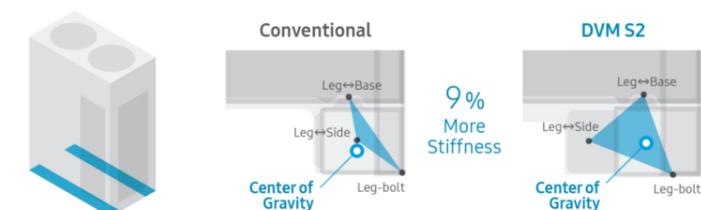
Instead of a traditional open-type squared bracket, DVM S2 has a pipe-shaped Kammtail bracket that firmly supports the motor with 210% more stiffness**.



Improved Structure of Legs

DVM S2 has a patented support design*** to improve stability. The shape of the legs was redesigned to disperse weight effectively and stiffness was increased by 9%**.

The redesigned legs support the body more effectively and suppress any sway, even during a seismic event.



* Based on a test in accordance with ICC ES AC156 : 2010 (SDS=2.5g, z/h=1), conducted by SGS Korea Co., Ltd. Result report No.: SGS-R20-1599-KR00.

** Based on internal testing using Siemens NX Nastran 1867 simulation.

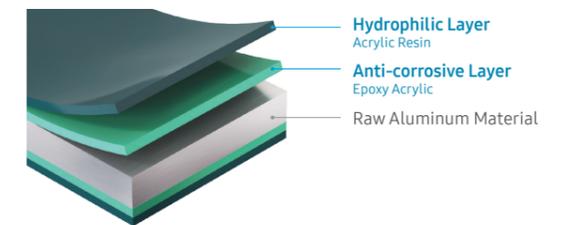
*** Patent No.: P2020-0099857

Lasting performance with enhanced resistance to corrosion

Corrosion-resistance is a very important factor in outdoor units, as they need to withstand a range of climate conditions. Samsung DVM S2 features improved anti-corrosion capabilities on the heat exchanger and chassis to ensure maximum durability in harsh environments*.

Durafin™ Ultra

The Samsung DVM S2 outdoor unit's Durafin™ Ultra has an anti-corrosive layer of epoxy acrylic and a hydrophilic layer of acrylic resin that disperses water and reinforces its corrosion-resistance. Its superb quality was proven using the Salt Spray Test (SST) over a period of 3,000 hours*.



Galvanized Iron Steel Plate (GI)

DVM S2 uses Galvanized Iron Steel Plate at its external material, with a PE powder coating of up to 100µm thickness. This powerful combination is proven to improve corrosion-resistance by 43%, based on the Complex Cycle Test (CCT)**. So, it protects the cabinet from rusting and ensures it can endure harsh conditions.



* Based on testing by TUV Rheinland in accordance with ISO 9227, ISO 14993 and ISO 21207 using specimens from the heat exchanger and cabinet of the Samsung DVM S2. For more details, please contact Samsung's technical professionals.

** Based on internal testing using corrosion chambers, Q-FOG and CCT-1100. The Complex Cycle Test (CCT) includes cycles of spray (for 2 hours at 35°C), dry (for 4 hours at 60°C with 30% Relative Humidity) and damp (for 2 hours at 50°C with 95% Relative Humidity) conditions. As a result, the Galvanized Iron Steel Plate (GI) formed red rust after 240 hours, which is 43% slower than general Electro-Galvanized Steel Plate (EGI) which forms red rust after 168 hours.

DVM S2 Key Features

■ Comfort

Uncompromising innovation delivers the next level of comfort

The one purpose of air conditioning is to ensure people feel comfortable. Now the Samsung DVM S2 outdoor unit is taking comfort to the next level. It features the world's largest capacity*, combining an incredible 90cc compression chamber and a superfast 160rps (revolutions per second) motor. So, it can keep every room, in every corner of a building pleasantly cool or warm - in every season.

In addition, its Advanced Flash Injection Technology increases the flow of refrigerant in extremely cold conditions. It also intelligently manages the defrost operation, so it works more efficiently, and analyzes users' behavior to ensure it creates the optimal environment as quickly as possible.

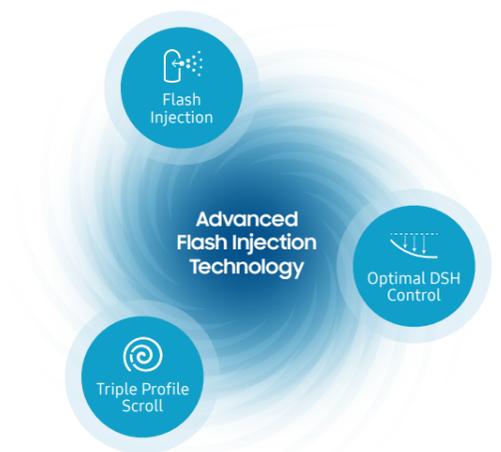
And, to minimize any disturbance, it features a radical new fan design, inspired by nature, and a noise control system for use at night.



Better heating performance with Advanced Flash Injection technology

Advanced Flash Injection Compressor

The compressor is the engine that makes a major contribution to the overall performance of an air conditioning system. Samsung has been developing core technologies to reinforce the power of its global-leading compressor. The result is the Samsung Advanced Flash Injection Compressor, which includes a host of brand-new innovations created by Samsung and provides the world's largest capacity*. By combining Flash Injection technology with a strengthened Triple Profile Wrap and Optimal Discharge Superheat (DSH) Control technology, the Samsung DVM S2 delivers a new level of comfort by maintaining pleasantly cool or warm conditions in every corner of a building all year round.



* Samsung circulates 14,400cc/sec refrigerant (= 90cc (displacement volume) x 160rps (revolutions per second)), while Company A circulates 12,480cc/sec (= 96cc x 130rps), Company B circulates 14,080cc/sec (= 88cc x 160rps) and Company C circulates 12,320cc/sec (= 88cc x 140rps).

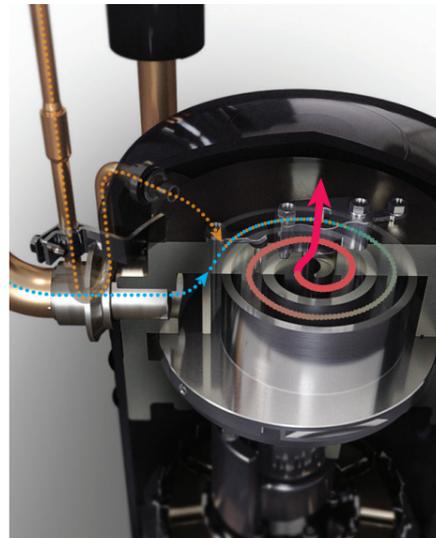
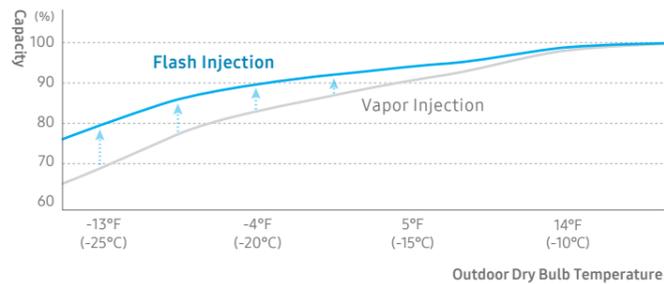
DVM S2 Key Features

Comfort

Keeps on working well below freezing

Flash Injection

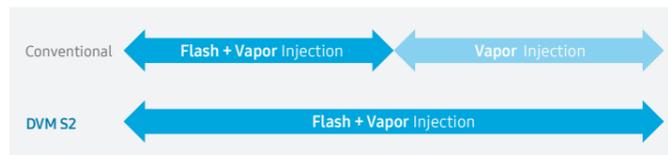
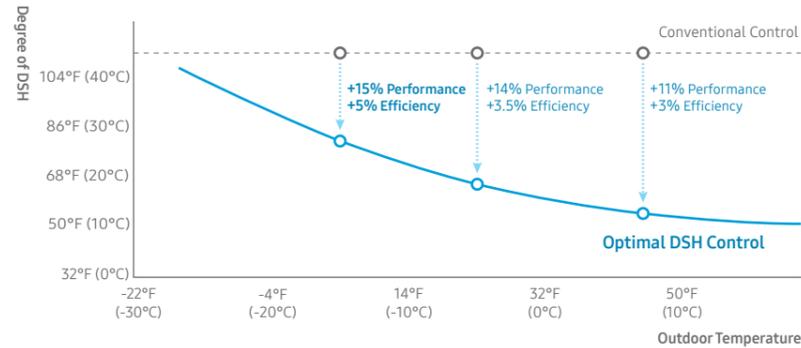
Stay comfortably warm when it's freezing outside. The performance of a general Heat Pump worsens in low temperatures as the refrigerant pressure decreases. The Samsung DVM S2 outdoor unit's Flash Injection Technology increases the flow of refrigerant, so the compressor continues working reliably. It also performs well at even lower temperatures, providing non-stop comfort in the coldest conditions.



Optimally controls the degree of discharge superheat to improve both performance and efficiency

Optimal Discharge Superheat (DSH) Control

The heating load and external temperature are the two most influential factors on an outdoor unit's heating performance. Samsung DVM S2 automatically adjusts the degree of discharge superheat to reflect any changes in them and heat more efficiently and effectively. This new method of control improves the heating performance by up to 15% and increases operational efficiency by 5% at 5°F (-15°C)*.

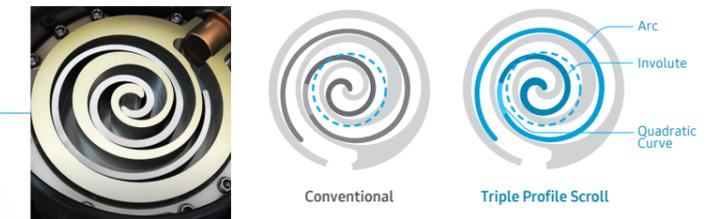


* Based on internal testing. Results may vary depending on environmental factors and individual use.

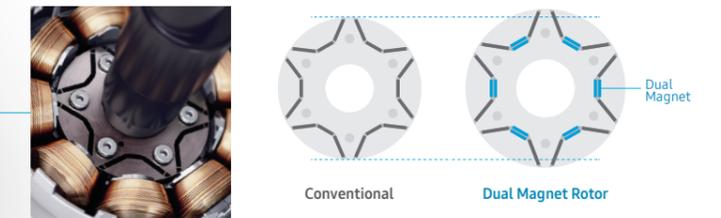
Super durability and speed create an unrivaled capacity

Triple Profile Scroll and Dual Magnet Rotor

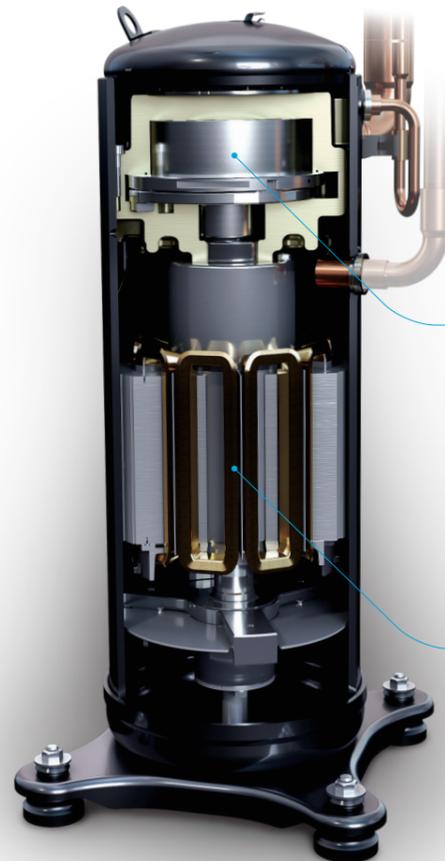
In order to compress flash type refrigerant and increase the total amount of compression, the compressor needs to have much better durability and rotary power. DVM S2 has a Triple Profile Scroll that combines arc, involute and quadratic curves to create a much larger chamber, and the strength of the center part is significantly reinforced with a thicker profile towards the middle.



Its new motor also has a 11.4% enlarged rotor with many more magnets, which increases the rotary power by 10.8%*.



As a result it has an incredible 90cc compression chamber and operates at a superfast 160rps (revolutions per second), which combine to create the world's largest capacity**providing the exceptional reliability needed to keep rooms warm in extremely cold weather.



* Based on internal testing, compared to a Samsung's conventional motor.

** Samsung circulates 14,400cc/sec refrigerant (= 90cc (displacement volume) x 160rps (revolutions per second)), while Company A circulates 12,480cc/sec (= 96cc x 130rps), Company B circulates 14,080cc/sec (= 88cc x 160rps) and Company C circulates 12,320cc/sec (= 88cc x 140rps).



Proven Reliability of the Samsung Advanced Flash Injection Compressor

The Advanced Flash Injection Compressor of the DVM S2 has been certified with a Reliability Mark (R-Mark), organized by the Korea Reliability Certification Center, Korean Reliability Society.

[No. R-KORAS-2018-012] Inverter type (Variable Speed) scroll compressor

Certificate No. : R-KORAS-2018-012

Certificate of Reliability

Product : Inverter type(Variable Speed) scroll compressor
 - Company/Purpose : Samsung Electronics Co., Ltd.
 - Model : 40Fracal(Cooling capacity (45-80)kW, Power consumption (1.0-300)kW)
 - Item : Product life 4.0*10⁶ hours (0.1, C.L. 80%)

Company : Samsung Electronics Co., Ltd.
 Representative : Oh-Hyun Kwon
 120, Samsung-ro, Yeongtong-gu, Seongnam-si, Gyeonggi-do, Korea
 Assessment Standard : KS-KORAS-2018-1902010
 Assessment Institute : Korea Institute of Machinery & Materials
 Expiration Date : March 26, 2018 ~ March 26, 2023 (5 Years)

This is to certify that the above mentioned product has been recognized as reliable product in accordance with the Article 24 of the operating regulation and the Article 11 of the bylaws of the Korea Reliability Certification Center.

April 05, 2018

Signature and Administrator name

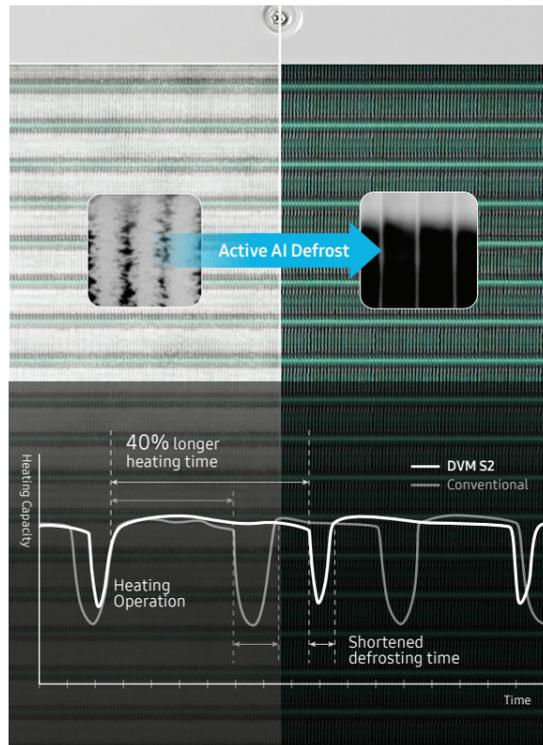
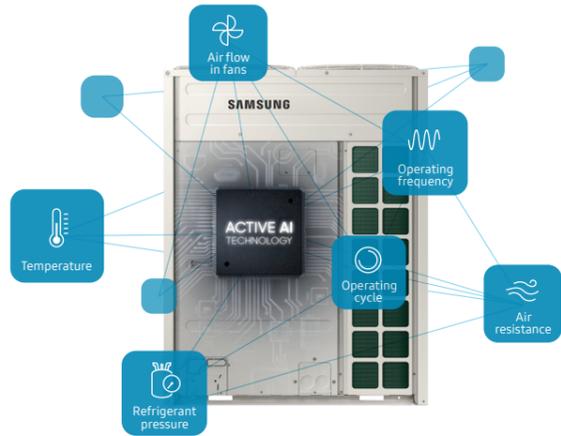
DVM S2 Key Features

Comfort

Heats for longer with less defrosting

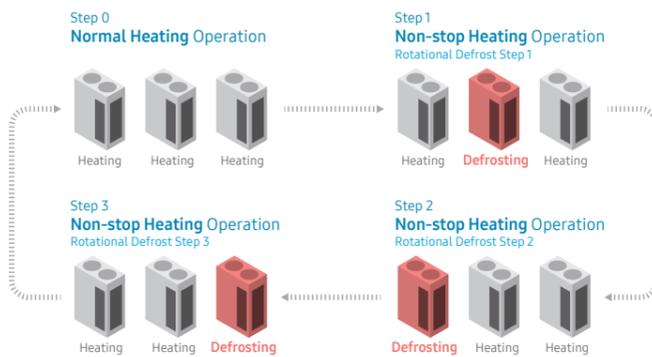
Active AI Defrost

Heating operation generally causes ice to build up on outdoor units, which may interfere with the heat exchange process. To remove any ice, air conditioning systems normally pause the heating operation and run a defrost operation, which may cause the indoor environment to feel less comfortable. Samsung's Active AI Defrost technology analyzes various operating data, including the unit's air resistance, operating frequency and cycle, so it defrosts more precisely. As a result, it reduces wasted energy and increases the continuous heating time by up to 40%*.



Rotational Defrost Operation**

DVM S2 HR module's Rotational Defrost operation ensures continuous heating performance for reliable warmth and comfort. After initially running all of a system's outdoor units in heating mode, it automatically switches each unit over to defrost mode in strict rotation. Because the heating mode runs for a longer period of time, users can enjoy a more pleasant, warm environment.

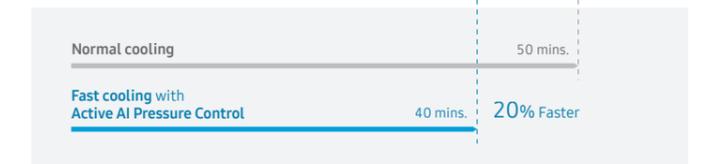
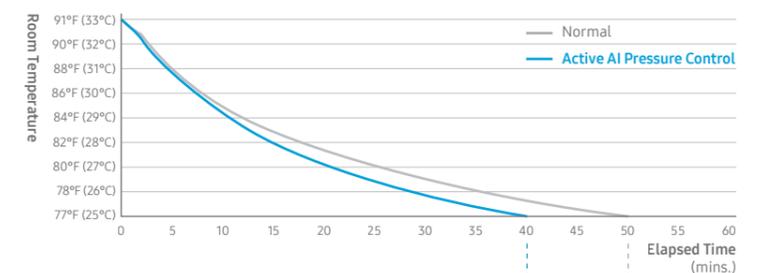
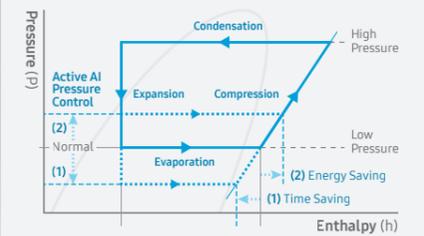
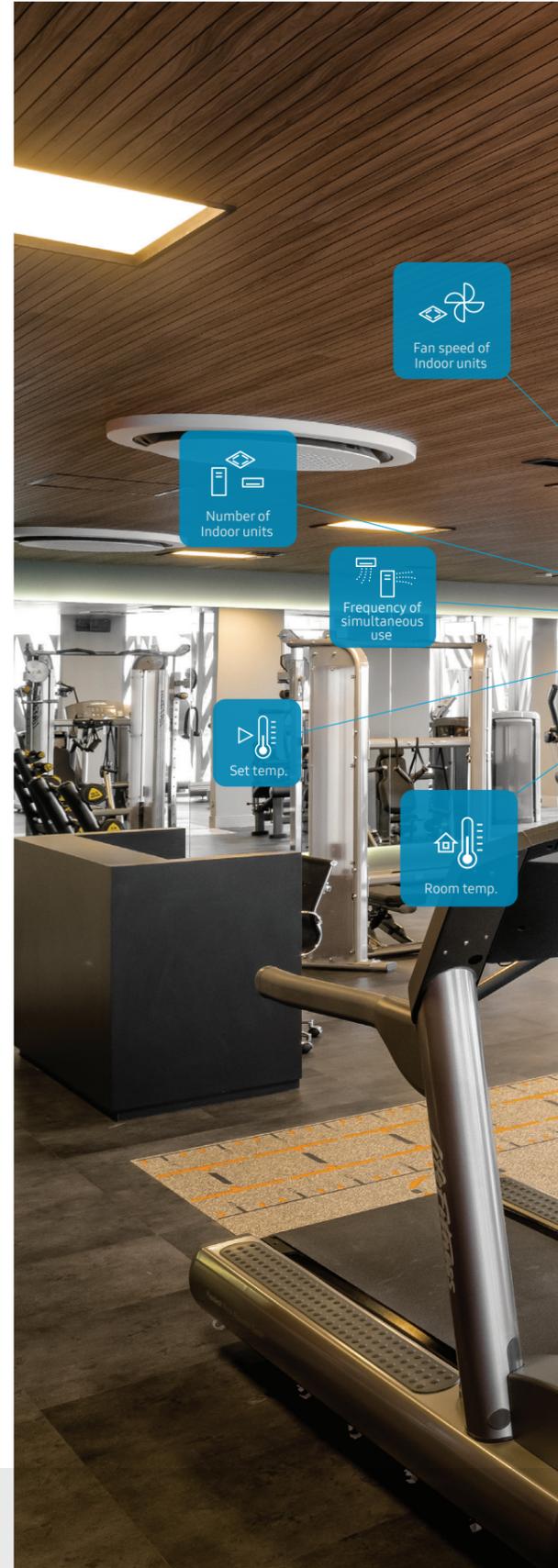


* Based on internal testing. Heating time at -10°C over a period of 6 hours: Samsung DVM S2 (AM240AXVAGH/EU) = 180 minutes vs. conventional outdoor unit = 110 minutes. Results may vary depending on environmental factors and individual use.
 ** Available only on the DVM S2 HR (Heat Recovery) models.

Optimal cooling by learning usage patterns

Active AI Pressure Control

By learning usage patterns from recent cooling operations and the surrounding conditions, DVM S2 proactively creates the optimal cooling environment to suit users' general requirements. For example: (1) If a user frequently lowers the room temperature when turning on the air conditioner, the Active AI Pressure Control recognizes this pattern. So, when the air conditioner is turned on again, it automatically lowers the pressure of the inflow refrigerant by up to 33% and cools up to 20% faster*. (2) However, if there's no need for fast cooling, it saves energy by adjusting the refrigerant pressure to be higher than normal.



*Based on internal testing of the cooling operation, with the temperature set at 71.6°F (22°C) and using Auto mode for 4 hours, at a room temperature of 91.4°F (33°C) and an external temperature of 95°F (35°C). The tested model was an AM080AXVGGH/EU connected to AM083NN4DBH1 and AM145NN4DBH1 indoor units with 25m of piping. The elapsed times were measured when the room temperature reached 77°F (25°C).

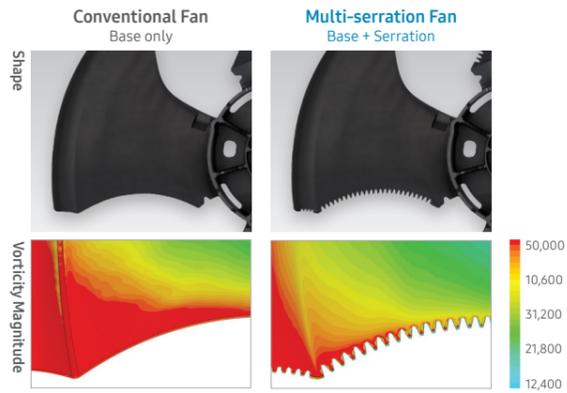
DVM S2 Key Features

Comfort

Reduces fan noise by minimizing the air vortex

Multi-serration Fan*

Eagle owls fly silently at night. Inspired by their wings, a new Multi-serration Fan* has two types of serration on its wing tip. It has a large serration on the inner part and a small serration on the outer part, which are designed to suit the different wind speeds around them. This combination minimizes the air vortex around the wing tip and significantly reduces the noise generated by the movement of the fan.



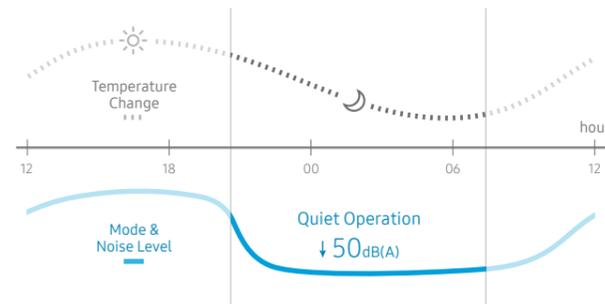
Comparison of vorticity based on the design of the edge**.

*Only available on certain models. The shape of the fan may vary by model and region.
 ** Based on internal testing and simulation using a CAE software, Simcenter STAR-CCM+ (v.13.06).

Works quietly and efficiently at night

Quiet Operation

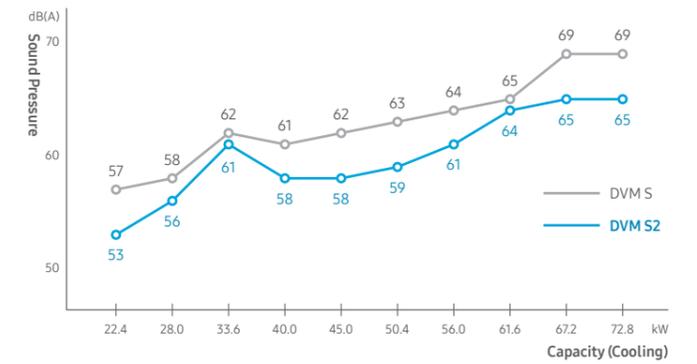
A noise control system lowers the level of noise to below 50dB(A)*, which is as quiet as a normal conversation. It has a timer and can be set to operate for up to 12 hours.



* Based on internal testing. Results may vary depending on environmental factors and individual use.

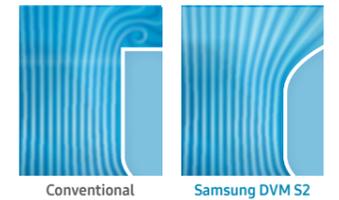
Optimizes the air flow - less friction, less noise

Along with a Multi-serration Fan, Samsung DVM S2 has various new technologies that optimize the air flow inside the unit. So, the air moves smoothly and quickly with less of a vortex or turbulence that creates noise*.



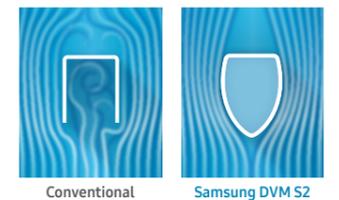
Diffuser Type Discharge Plenum

The edgeless, curved design of the discharge plenum enables the fan to pull air steadily from inside and gently diffuse it outside without creating a vortex*.



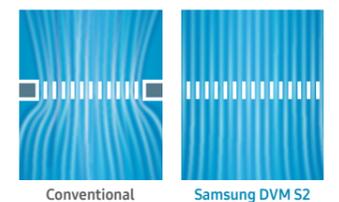
Kammtail Motor Bracket

Instead of a traditional squared bracket, it has a streamlined Kammtail bracket that minimizes noise.



Enlarged Heat Exchanger

As the heat transfer area has been increased**, the wind speed and friction have been reduced accordingly, while still delivering the same level of performance*.



* Based on internal testing and simulation using a fluid dynamics software, Ansys CFX. Results may vary depending on the actual usage conditions.
 ** 36.2% increase in a 28kW model and 23.7% increase in a 56kW model.

DVM S2 Key Features

Flexibility

More flexibility with fewer limits to meet your every need

The location of an air conditioning system can have a significant impact on its performance. So, the DVM S2 outdoor unit is designed to give you maximum flexibility, as it will operate effectively in a wide range of locations and climates.

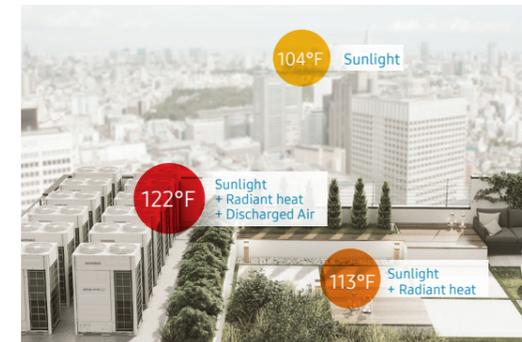
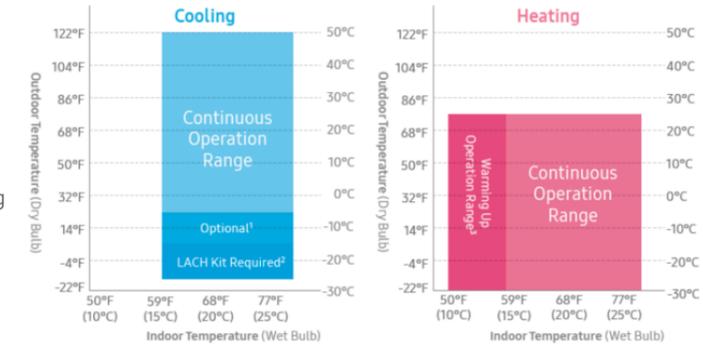
Its compact design ensures that you can select the optimum installation location, including inside a building. In fact, its long piping, optimized refrigerant distribution and high External Static Pressure make it the ideal choice for use in high-rise buildings.

Even the harshest weather conditions are no problem. It can cool in heat of up to 122°F (50°C) and provide warmth in freezing cold conditions of -22°F (-30°C), while also optimizing its performance to minimize energy use and deliver a consistently comfortable environment.

Top-class performance in extreme conditions

Wider Operating Temperature Range

No matter how extreme the temperature, the high-performance DVM S2 can handle the conditions. Operating across a wide temperature spectrum, it can cool in heat of up to 122°F (50°C) and provide warmth in freezing cold conditions of -22°F (-30°C) to ensure a constant and comfortable environment.



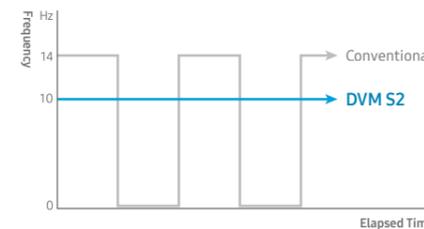
When it's installed on the rooftop of a building, the actual temperature around the outdoor units may become much higher due to the effects of direct sunlight, the radiant heat of the rooftop and the discharged air of other outdoor units. So, it's very important that they are able to deliver stable performance in hot environments.

¹When the 'Expand Operational Temperature Range' option is applied, the low limit of the cooling operation range can be expanded from 23°F (-5°C) to 5°F (-15°C). Only available on HR models and under certain conditions.
²Low Ambient Cooling Hood (LACH) Kit is required for cooling operation down to -13°F (-25°C).
³If the indoor temperature is lower than 59°F (15°C), it can work in heating mode but it cannot operate continuously due to a protection control.

Ideal for continuous cooling even in cold weather

Active Frequency Drive 10Hz

The need for air conditioning tends to rise not only in summer but also in spring and autumn. In particular, in rooms that require a constant temperature, like a computer room, air conditioners are installed to ensure a stable cooling operation. In cool weather, air conditioners can quickly reach the desired temperature, but then repeatedly turn themselves off and on to maintain the temperature. Not only does this consume much more electricity than continuous cooling, it also reduces the lifespan of the products and causes discomfort for any occupants due to the fluctuation in temperature.



The Active Frequency Drive of Samsung DVM S2 enables the compressor to operate at the lowest revolution of 10Hz, which prevents operation from frequently turning on and off, so it maintains the indoor temperature more precisely to ensure continuous comfort.



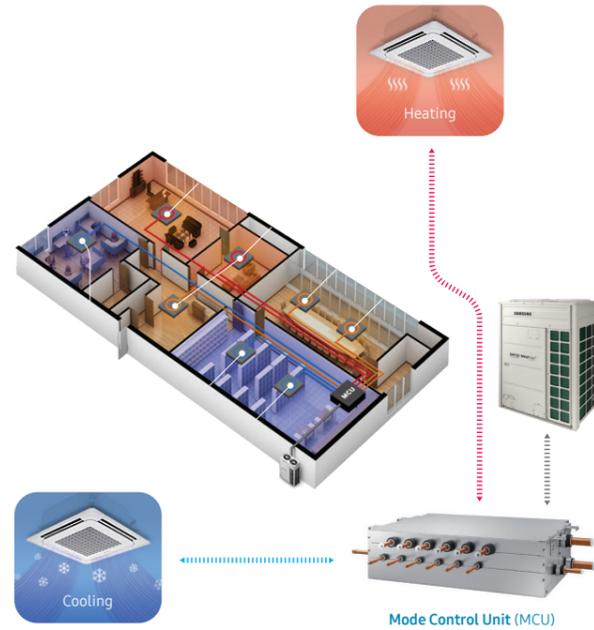
DVM S2 Key Features

Flexibility

Independently cool and heat multiple spaces

Simultaneous Cooling and Heating*

With a Mode Control Unit (MCU), DVM S2 allows users to independently cool and heat different spaces at the same time. So, instead of just heating or cooling everywhere, you can simultaneously heat some rooms or areas of a building, while cooling others. It ensures that you can optimize people's comfort wherever they are, while also avoiding any unnecessary energy usage.



* Only available on the DVM S2 HR (Heat Recovery) models.

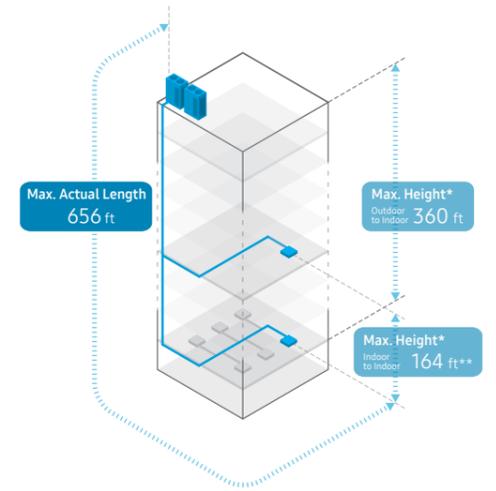
Install in the optimum location, regardless of distance and height

High Elevation with Long Piping

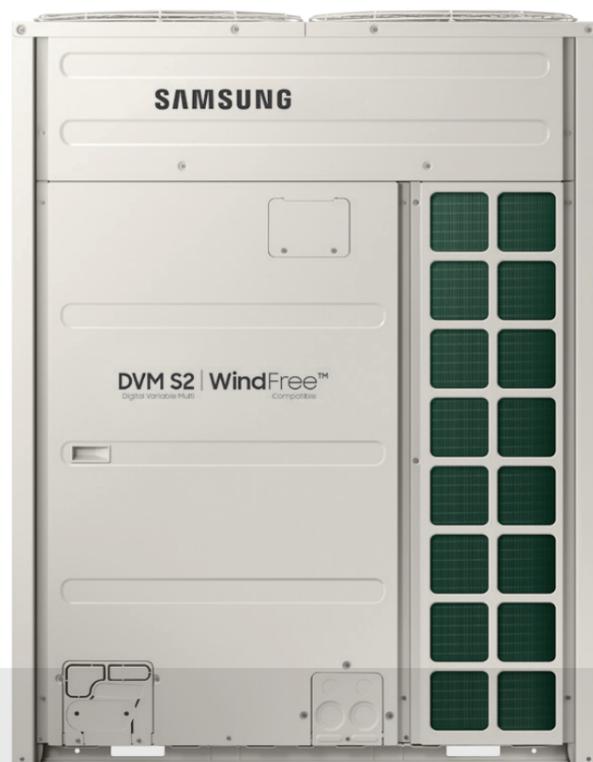
Enjoy more choice when selecting the optimum installation location. The DVM S2's long piping length provides the flexibility for the outdoor unit to be installed almost anywhere, regardless of its height or distance from the building. It has a maximum length that is equivalent to 565 actual feet (721 equivalent feet) between the outdoor and indoor units. It can also work efficiently and reliably at an elevation of up to 360 feet.

Optimized Refrigerant Distribution Control

The DVM S2 compensates for the long piping distance between the outdoor and indoor units by providing balanced refrigerant distribution. The individual indoor units perform capacity connection control and automatic refrigerant balancing to ensure consistent performance in each unit.



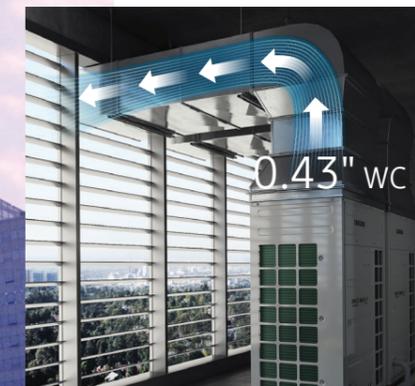
* When the piping height is over 164 feet, a PDM (Pressure Drop Modulation) Kit may be required depending on the conditions at the installation location.
 **Based on heat pump systems. Heat recovery systems have a maximum vertical separation between highest to lowest indoor units of 131 feet.



More flexibility to install between floors in high-rise buildings

Up to 0.43" WC External Static Pressure

High-rise buildings are usually designed to have outdoor units installed inside them using ductwork, because the height difference to the rooftop is too big. DVM S2 has up to 0.43" WC External Static Pressure*, which ensures that it can discharge air effectively through a much longer duct which gives you an even more options when selecting an installation location inside the building.



* May vary by model and depending on the actual condition of the ductwork and installation location. For more detailed information, please contact Samsung's technical professionals.

DVM S2 Key Features

Convenience

Effortlessly install and maintain, saving time, cost and worry

Installing and managing an air conditioning system can be extremely complex and time-consuming. Samsung's DVM S2 outdoor unit includes a range of innovative technologies that make it easier and more cost-effective to move, operate and maintain in a wide range of locations.

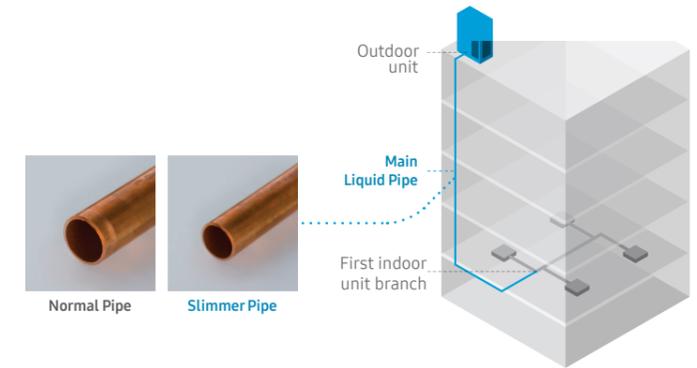
Its modular design minimizes the number of parts, while its improved sub-cooling rate means it uses less refrigerant and slimmer piping. It is also easy to check errors through a small opening in the Display Window.

And, for complete peace of mind, it includes a range of powerful self-management and automatic recovery technologies.

Greater design flexibility and lower costs

Slimmer Liquid Pipe (Optional Diameter Reduction)*

Samsung DVM S2 is equipped with a high-performance sub-cooler to improve the sub-cooling rate of refrigerant. It requires 28% less refrigerant on average** as it uses a slimmer main liquid pipe* which provides flexibility in designing the system while saving costs on the installation and maintenance of refrigerant and piping materials.



Outdoor Capacity (tons)	Liquid Pipe				Difference per Foot
	Standard		Reduced		
	Diameter (in.)	Additional Refrigerant	Diameter (in.)	Additional Refrigerant	
6	3/8	0.645 oz./foot	N/A	N/A	
8					
10	1/2	1.344 oz./foot	3/8	0.645 oz./foot	52%
12					
14	5/8	1.935 oz./foot	1/2	1.344 oz./foot	31%
16					
18					
20					

*Optional. A slimmer pipe can be used for the Main Liquid Pipe, between an outdoor unit and the first branch of indoor units. The diameter of the slimmer pipe will vary depending on the diameter of the pipe that is normally used, which is defined in the table above. Not available on the 6 and 8 ton standard models. It may not be available in certain installation conditions, and is not compatible with the AI functions of outdoor units. Please contact Samsung's technical professionals regarding its availability and for more detailed information.

**When a slimmer pipe, instead of a normal pipe, is used for the Main Liquid Pipe on the same capacity of air conditioning system, the amount of refrigerant to be charged can be reduced by 28% on average.

Less parts. Less effort and cost for servicing.

Quality-based Modular Design (QMD)

Samsung DVM S2 units consists of optimized modular components, which have fewer parts. In particular, based on its Quality-based Modular Design (QMD), DVM S2 is built with high-quality modules that have been preselected and preconfigured. So, it delivers both superior performance and reliability, while also significantly reducing the number of parts that need servicing.



This modular design simplifies the entire process of maintenance and service, as less time and effort is required to check and fix any issues. And, from the viewpoint of warehousing, it also saves space as there is no need to store a lot of parts.

DVM S2 Key Features

Convenience

Simply and quickly check errors without extra tools

On-Device Inverter Check™

The DVM S2 has an Inverter PBA (Printed Board Assembly) with a one-touch button to simply check errors on the device. Without having to remove the entire front cover, it's easy to access this button through a small opening in the Display Window. So, it reduces the service time and effort as it eliminates the need for extra tools and simplifies the service process.

New Process using On-Device Inverter Check™ - 1 Step

Examples of messages:

- OK**: No error on PBA.
- NG**: Errors on PBA.
- CHECK**: Need to check manually.

Conventional Process using an External Inverter Checker - 5 Steps

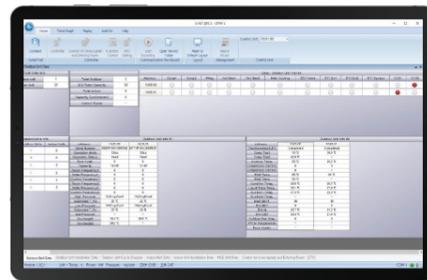
- Press the button on the PCB to dissipate voltage.
- Remove wires (U, V and W) from the compressor.
- Connect the wires to an external Inverter Checker.
- Press the button on the PCB to check the error.
- Find the result on the external Inverter Checker.

Monitor and solve issues

S-converter

With Samsung's S-Converter tool and SNET Pro 2 software, you can access the system using a PC or laptop*. Its self-diagnosis functions automatically monitors operation and displays system data and will also show error codes if it detects abnormalities. SNET Pro 2 can also be used to program and address indoor and outdoor units, commission, perform refrigerant check operations, create system operation reports, and many more service functions.

* Windows operating system.



Simply restore data for repair and recovery



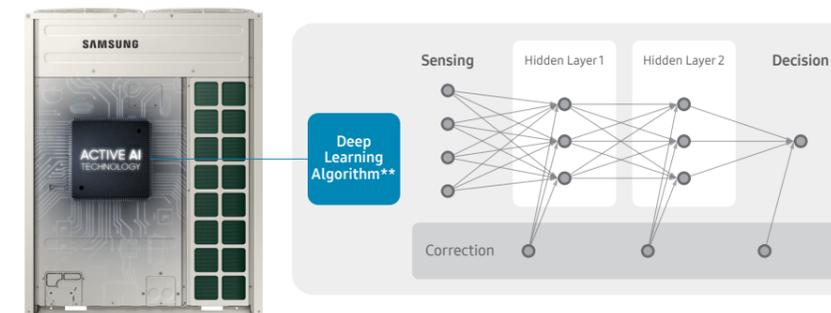
Automatic Data Backup

If a malfunction occurs, DVM S2 automatically backs up the last 30 minutes of operational data to make the repair and recovery process easier.

Maintains optimal of refrigerant volume to ensure the best performance

Active AI Refrigerant Analysis

Shortage of refrigerant hinders the outdoor unit's cooling and heating performance as well as its energy efficiency. And, if refrigerant leaks out due to any error in installation or during operation or maintenance, it also impacts global warming and may even cause the system to stop working. Using Deep Learning technology*, the Active AI Refrigerant Analysis of DVM S2 collects and analyzes various operational data in real time, and proactively alerts you with an error message if the amount of refrigerant is too low allowing an installer or a service engineer to maintain the optimal level of refrigerant. Conditions apply.

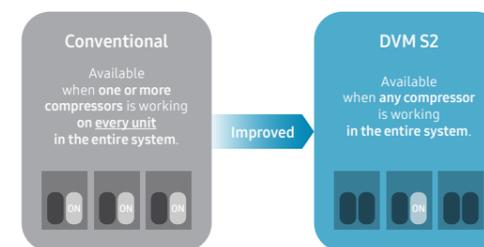


* A Machine Learning technology that uses an Artificial Neural Network (ANN) to learn like a human using various data.
 ** Based on a research thesis, "A novel hybrid deep neural network model to predict the refrigerant charge amount of heat pumps".

Keeps you comfortable, even if there's a malfunction

Emergency Operation

When the air conditioning system consists of multiple Samsung DVM S2 outdoor units, its refrigerant regulating control technology ensures that you can continue working using only one compressor in an emergency. If every unit except one is not working or getting serviced and any compressor on the remaining unit is working properly, it will keep cooling or heating for up to 8 hours. It ensures that you can maintain a comfortable indoor environment until the whole system is functioning properly again.



Example Cases of Malfunction	Emergency Operation	
	Conventional	DVM S2
When there are 2 or more units in a system, and one of the two compressors in a unit is not working.	Yes	Yes
When there are 2 or more units in a system, and one of the two compressors in each unit is not working.	Yes	Yes
When there are 2 or more units in a system, and all of the compressors in a unit are not working.	Not Available	Yes
When there are 2 or more units in a system, and a compressor in a low capacity unit is not working.	Not Available	Yes
When there are 2 or more units in a system, and a compressor on a low capacity unit and one of the two compressors in another unit are not working.	Not Available	Yes
When there is 1 unit in a system, and one of the two compressors in it is not working.	Not Available	Yes

DVM S2 Key Features

Convenience

Conveniently and safely handle with less effort

Samsung DVM S2 has various convenient features that help installers and service providers to lift and move, and disassemble and assemble it with added safety and less effort.

Center of Gravity Indicator

VRF outdoor units usually weigh a lot and can sometimes be over 650 lbs. It can be very difficult and dangerous to move such heavy machines, so Samsung DVM S2 units have a removable center of gravity indicator mark. This makes it much safer and easier to lift and move with a crane or a forklift as it helps to prevent the unit from becoming unbalanced and tilting or tipping over.

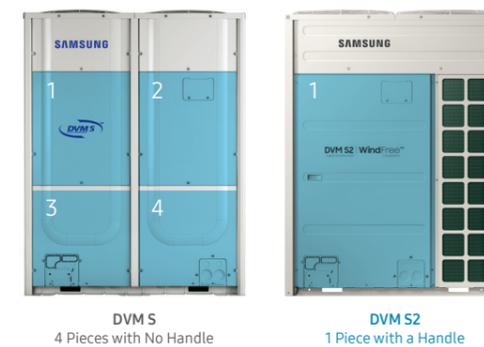


A sticker type indicator shows the center of gravity that can be easily be removed after installation.



Simplified Cover with Handle

The front cover of conventional outdoor units consists of multiple pieces that may require more work to open them fully. The Samsung DVM S2's front cover is a single piece, so it's simple to open and access every part inside the outdoor unit, which reduces the time and effort for servicing.



In addition, the cover has a handle that provides added safety and convenience when handling.



SPECIFICATIONS Outdoor Units

Model Information	Model	DVM S2						DVM S2 Max Heat®			
	Model Number	AM***BXVGFH/AA	AM***BXVGJH/AA	AM***FXVGQH/AA	AM***BXVGFR/AA	AM***BXVGJR/AA	AM***FXVGQR/AA	AM***BXVTFH/AA	AM***BXVTJH/AA	AM***BXVTFR/AA	AM***BXVTJR/AA
Type	Heat Pump	•	•	•				•	•		
	Heat Recovery				•	•	•			•	•
	Capacity Range (nominal tons)	6 - 38	6 - 38	6 - 38	6 - 38	6 - 38	6 - 38	6 - 24	6 - 24	6 - 24	6 - 24
Power	Ø / Volts	3 / 208-230	3 / 460	3 / 575	3 / 208-230	3 / 460	3 / 575	3 / 208-230	3 / 460	3 / 208-230	3 / 460
Indoor Unit Compatability	WindFree™* Cassettes	•	•	•	•	•	•	•	•	•	•
	360 Cassette	•	•	•	•	•	•	•	•	•	•
	Slim Duct	•	•	•	•	•	•	•	•	•	•
	Duct S	•	•	•	•	•	•	•	•	•	•
	HSP Duct (High Static Pressure)	•	•	•	•	•	•	•	•	•	•
	Wall Mounted	•	•	•	•	•	•	•	•	•	•
	Under Ceiling	•	•	•	•	•	•	•	•	•	•
	Console	•	•	•	•	•	•	•	•	•	•
	OAP Duct (Outside Air Processing)	•	•	•	•	•	•	•	•	•	•
	Split DOAS (Dedicated Outside Air System)	•	•	•	•	•	•	•	•	•	•
	Universal Communication Kit (UCK)	•	•	•	•	•	•	•	•	•	•
	Mode Control Unit (MCU)				•	•	•			•	•
	HR Changer (MCU)										
Features	Refrigerant Check Mode	•	•	•	•	•	•	•	•	•	•
	Simultaneous Cooling and Heating				•	•	•			•	•
	Advanced Flash Injection	•	•	•	•	•	•	•	•	•	•
	Vapor Injection										
	0.43" WC Maximum External Static Pressure	• ¹	•	•	•	•					
	Active AI Pressure Control	•	•	•	•	•	•	•	•	•	•
	Active AI Defrost	•	•	•	•	•	•	•	•	•	•
	Active AI Refrigerant Analysis	•	•	•	•	•	•	•	•	•	•
	On-device Inverter Checker	•	•	•	•	•	•	•	•	•	•
	Reduced Liquid Option ²	•	•	•	•	•	•	•	•	•	•
	Cooling Down to 0°F (-18°C) ³	•	•	•	•	•	•	•	•	•	•
	Cooling Down to -13°F (-25°C) ⁴	•	•	•	•	•	•	•	•	•	•
	Heating Down to -13°F (-25°C)										
	Heating Down to -22°F (-30°C)	•	•	•	•	•	•	•	•	•	•
100% Rated Heating Capacity at -13°F (-25°C)							•	•	•	•	

¹Applies to small and medium DVM S2 chassis only. The large DVM S2 chassis supports up to 0.31" WC external static pressure (16 - 20 ton AM***BXVG**/AA models).
²The main liquid line from the outdoor unit to the first MCU or Y-Joint may be reduced by one diameter. Conditions apply. Refer to supporting technical documents for details.
³Requires accessory wind baffles or guards. Conditions apply. Refer to supporting technical documents for details.
⁴Requires accessory low ambient cooling accessories. Conditions apply. Refer to supporting technical documents for details.
*The WindFree™ unit delivers an air current that is under 0.15 m/s while in WindFree™ mode. Air velocity that is below 0.15 m/s is considered "still air" as defined by ASHRAE 55-2013 (American Society of Heating, Refrigerating, and Air-Conditioning Engineers).

SPECIFICATIONS Indoor Units

Model Information	Type	Cassettes			
	Type	WindFree™* 4-Way	WindFree™* Mini 4-Way	WindFree™* 1-Way	360
	Model Number	AM0**BN4PCH/AA	AM0**NNNDCH/AA	AM0**AN1PCH/AA	AM0**KN4DCH/AA
	Capacity Range	6 - 48K Btu/h	5 - 20K Btu/h	5 - 24K Btu/h	9 - 48K Btu/h
Airflow	WindFree™* Cooling	•	•	•	
	360 Degree Air Supply				•
	Automatic External Static Pressure (ESP) Setting				
Features and Functions	Compatible with SmartThings ¹	•	•	•	•
	Motion Detect Sensor (MDS) ²	•	•		•
	Built-in Condensate Pump with Overflow Detection	•	•	•	•
	Access to high and low voltage, control PCB, condensate pump, and other internal components from the bottom of the unit	•	•	•	•

¹Requires an accessory Wi-Fi adapter

²Requires accessory Motion Detect Sensor

*The WindFree™ unit delivers an air current that is under 0.15 m/s while in WindFree™ mode. Air velocity that is below 0.15 m/s is considered "still air" as defined by ASHRAE 55-2013 (American Society of Heating, Refrigerating, and Air-Conditioning Engineers).

Model Information	Type	Duct							
	Model	Slim Duct	Duct S		HSP Duct (High Static Pressure)		OAP Duct (Outside Air Processing)	Multi-Position Air Handler (MPAH)	Split DOAS
		Low Static	Medium ESP	High ESP					
	Model Number	AM0**CNLDCH/AA	AM0**ANMDCH/AA	AM0**ANHDCH/AA	AM054JNHDC/AA	AM0**FNHDC/AA	AM0**JNESCH/AA	AM0**TNZDCH/AA	ACL-**0NN
Airflow	Capacity Range	7 - 24K Btu/h	6 - 18K Btu/h	24 - 48K Btu/h	54K Btu/h	76 and 96K Btu/h	72 and 96K Btu/h	12 - 72K Btu/h	1,200 - 3,000 CFM
	WindFree™* Cooling								
	360 Degree Air Supply								
Features and Functions	Automatic External Static Pressure (ESP) Setting		•	•					
	Compatible with SmartThings ¹	•	•	•	•	•	•	•	•
	Motion Detect Sensor (MDS) ²								
	Built-in Condensate Pump with Overflow Detection	Accessory	•	•	Accessory	Accessory			
Access to high and low voltage, control PCB, condensate pump, and other internal components from the bottom of the unit									

¹Requires an accessory Wi-Fi adapter

²Requires accessory Motion Detect Sensor

*The WindFree™ unit delivers an air current that is under 0.15 m/s while in WindFree™ mode. Air velocity that is below 0.15 m/s is considered "still air" as defined by ASHRAE 55-2013 (American Society of Heating, Refrigerating, and Air-Conditioning Engineers).

SPECIFICATIONS Indoor Units

Model Information	Type	Wall Mounted	
	Type	WindFree™*	Max
	Model Number	AM0**TNVDCH/AA	AM032MNQDCH/AA
	Capacity Range	5 - 28K Btu/h	32K Btu/h
Airflow	WindFree™* Cooling	•	
	360 Degree Air Supply		
	Automatic External Static Pressure (ESP) Setting		
Features and Functions	Compatible with SmartThings ¹	•	•
	Motion Detect Sensor (MDS) ²		
	Built-in Condensate Pump with Overflow Detection		
	Access to high and low voltage, control PCB, condensate pump, and other internal components from the bottom of the unit		

¹Requires an accessory Wi-Fi adapter

²Requires accessory Motion Detect Sensor

*The WindFree™ unit delivers an air current that is under 0.15 m/s while in WindFree™ mode. Air velocity that is below 0.15 m/s is considered "still air" as defined by ASHRAE 55-2013 (American Society of Heating, Refrigerating, and Air-Conditioning Engineers).

Model Information	Type	Other				
	Model	Floor Standing		Under Ceiling / Low Wall	Big Ceiling (Under Ceiling)	Universal Communication Kit (UCK)
		Exposed-Type	Concealed-Type			
	Model Number	AM0**JNGDCH/AA	AM0**JNFDCH/AA	AM0**FNCDCH/AA	AM0**JNCDCH/AA	MCM-D211UN
Capacity Range	6 - 24K Btu/h	6 - 24K Btu/h	'18 and 24K Btu/h	36 and 48K Btu/h	12K - 480K Btu/h	
Airflow	WindFree™* Cooling					
	360 Degree Air Supply					
	Automatic External Static Pressure (ESP) Setting					
Features and Functions	Compatible with SmartThings ¹	•	•	•	•	•
	Motion Detect Sensor (MDS) ²					
	Built-in Condensate Pump with Overflow Detection					
	Access to high and low voltage, control PCB, condensate pump, and other internal components from the bottom of the unit					

¹Requires an accessory Wi-Fi adapter

²Requires accessory Motion Detect Sensor

*The WindFree™ unit delivers an air current that is under 0.15 m/s while in WindFree™ mode. Air velocity that is below 0.15 m/s is considered "still air" as defined by ASHRAE 55-2013 (American Society of Heating, Refrigerating, and Air-Conditioning Engineers).

Appendix | Features at a Glance

Cost Saving



Enlarged Heat Exchanger

Has a larger heat transfer area to quickly exchange heat, so it uses less energy without impacting performance.



Optimized Refrigerant Path

Ensures that the flow of the refrigerant matches the airflow speed, which optimizes the transference of heat.



Multi-serration Fan

Its aerodynamic design reduces air turbulence, so it creates more airflow while consuming less energy.



High-efficiency IGBT

The 7th generation of IGBT reduces the loss of conducted electricity and is much smaller in size.



90cc Chamber with new Triple Profile Scroll

Has the world's largest capacity and circulates more refrigerant, so it improves overall energy efficiency.



9 Release Valves

It accurately and immediately releases excess refrigerant to prevent the over-compressing that wastes electricity.



Active AI Pressure Control

Learns the site conditions, usage and external temperature and optimizes the refrigerant condensing pressure.



Peak Demand Control

Enables power-demand control for peak hours and seasons to match the electrical supply or block excessive energy use.

Comfort



Advanced Flash Injection Compressor

A host of new innovations and the world's largest capacity ensure maximum comfort throughout a building all year round.



Flash Injection

Increases the flow of refrigerant when it's freezing outside, so the compressor continues working reliably.



Optimized Discharge Superheat (DSH) Control

Automatically adjusts the degree of discharge superheat to improve the heating performance and operational efficiency.



Triple Profile Scroll and Dual Magnet Rotor

A large 90cc compression chamber and superfast 160rps motor combine to create the world's largest capacity.



Active AI Defrost

Analyzes operating data to defrost more precisely, so it saves energy and heats continuously for longer.



Rotational Defrost Operation

Automatically switches each unit over to defrosting mode in strict rotation, so they heat continuously for longer.



Dual Heat Sink

Radiates heat more effectively to extend the operating temperature and ensure greater reliability in any conditions



Upgraded Base Pan Design

The patented base design drains condensed water much faster to prevent it from freezing inside the cabinet.



Base Pan Heater

Can be used to quickly melt ice on the base and ensure the reliability of the DVM S2's heating operation.



Robust Frame

Reinforced corners, thicker sides and a refined shape ensure incredible durability across the entire body.



Kammtail Motor Bracket

Instead of an open-type squared bracket, a pipe-shaped bracket firmly supports the motor with extra stiffness.



Improved Structure of Legs

The redesigned shape of the legs disperses weight effectively and provides greater stiffness, so they suppress any sway.



Durafin™ Ultra

Features an anti-corrosive layer and a hydrophilic layer that disperses water to improve corrosion-resistance.



Galvanized Iron Steel Plate (GI)

The cabinet's Galvanized Iron Steel Plate has a PE powder coating of up to 100µm thickness, which prevents rust.

Flexibility



Wider Operating Temperature Range

The DVM S2 can cool in heat of up to 122°F (50°C) and provide warmth in freezing cold conditions of -22°F (-30°C).



Active Frequency Drive 10Hz

The compressor can operate at 10Hz, so it doesn't keep turning on and off and can maintains a precise temperature.



Compact Design

Has a small footprint, so it frees-up space for other uses, without compromising on performance.



Simultaneous Cooling and Heating

With an optional Mode Control Unit (MCU), you can cool and heat different spaces at the same time.



High Elevation with Long Piping

The DVM S2's long piping length means it can be installed almost anywhere, regardless of the height or distance.



Optimized Refrigerant Distribution Control

Automatically balances the refrigerant distribution to ensure a consistent performance in each indoor unit.



Up to 0.43" WC External Static Pressure

The DVM S2 can discharge air effectively through a much longer duct, so it can be installed in more locations.

Convenience



Slimmer Liquid Pipe

Uses less refrigerant and provides greater design flexibility, saving costs on installation and maintenance.



Quality-based Modular Design (QMD)

The DVM S2's preconfigured modules ensure superior performance and reliability, and make servicing easier.



On-Device Inverter Check™

A quick access, one-touch button lets you check errors easily, which saves time and effort on servicing.



S-converter

Easily access the system using a PC or Laptop to monitor its operational status or check performance data and errors.



Automatic Data Backup

Automatically backs up the last 30 minutes of operational data to make the repair and recovery process easier.



Active AI Refrigerant Analysis

Collects and analyzes operational data to help maintain the optimal level of refrigerant and alert you if it is too low.



Emergency Operation

In an emergency it will keep cooling or heating for up to 8 hours using only one compressor in the whole system.



Center of Gravity Indicator

A removable indicator shows the DVM S2's center of weight, so you can keep it safely balanced when moving.



Simplified Cover with Handle

The front cover is a single piece, so it's simple to open, and its handle provides added convenience and safety.