



Vertiv™ Liebert® HPC-S with low-GWP Refrigerant

The Aircooled Freecooling Chiller Range
with Scroll Compressor and low-GWP
Refrigerant from 80 to 500 kW



Vertiv™ Liebert® HPC-S: A Range of Solutions for Different Data Centre Environments

Current market trends have seen an increase in operating temperatures under which new IT equipments operate. This has led to extending freecooling availability to higher ambient temperatures. On the other side environmental responsibility is becoming increasingly fundamental for every organization.

The Liebert® HPC-S guarantees increased efficiency for customers while reducing environmental impact through its ability to work in different operating modes: from sole direct expansion to freecooling modes. The freecooling operation takes advantage of the external environment conditions in order to cool water, thus requiring compressor operation only when the outside temperature exceeds freecooling limits.

The Liebert HPC-S is the right solution for small and medium data centres with a cooling capacity from 80 to 500 kW.

Liebert HPC-S with low-GWP is a fully equipped, a turn-key solution where the main system components easily integrate thus saving installation time and costs.



Vertiv™ Liebert® HPC-S with low-GWP Refrigerant



Vertiv™ Liebert® HPC-S Helps Achieve Your Business Goals While Respecting the Environment

Vertiv™ Liebert® HPC-S with low-GWP is designed to perfectly match the configuration and requirements of any data centre. This unit is extremely configurable, and the vast number of versions and options combined with the wide operating range make it an extremely versatile unit that can satisfy any modern critical infrastructures data centre requirements.

Liebert® HPC-S low-GWP is Vertiv's answer to the transition to a low carbon data centre aiming at significantly reducing carbon equivalent emissions from refrigerants.

Thanks to the new optimised design and increased free cooling capabilities, Liebert HPC-S low-GWP is Vertiv's answer to improve data centre energy efficiency performances leading to a significant reduction in the electricity consumption thus cutting the running costs and resulting in more cost-effective solutions.

Liebert HPC-S with low-GWP seamlessly integrates with any Vertiv™ chilled water indoor unit as well as with Vertiv™ Liebert® iCOM™ CWM control that manages and optimises the entire system operation for new or existing data centres.



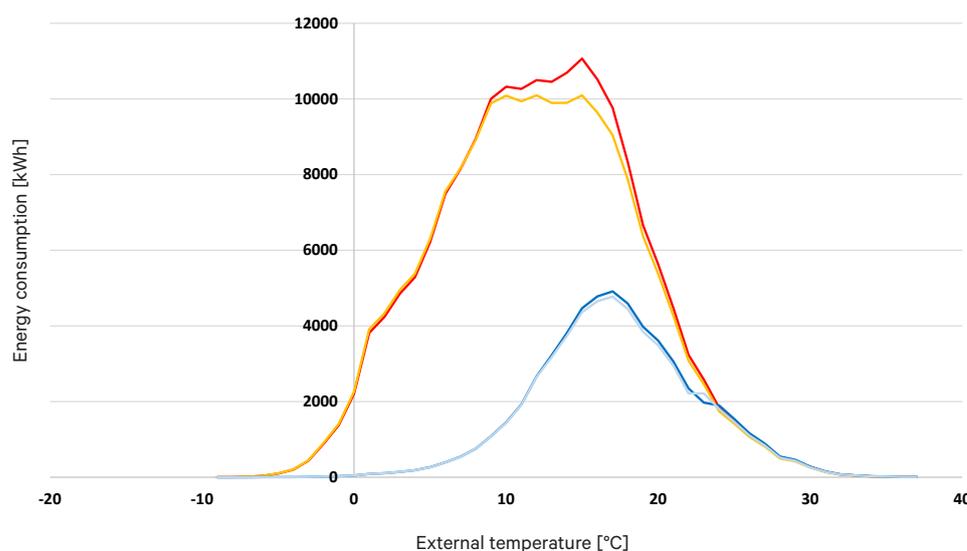
Vertiv™ Liebert® HPC-S low-GWP Chillers From 80 to 500 kW

At Vertiv we believe that being mindful of product design, development, use, and disposal are important to the longevity of our industry.

Checkout these environmentally conscious features of the Liebert® HPC-S low-GWP Chillers:

- Compatible with low global warming potential (GWP) refrigerants
- Up to 4% lower annual energy consumption comparing the low-GWP refrigerant R454B to the R410A refrigerant
- Significant reduction of annual energy consumption comparing the Freecooling version to the Chiller version

Vertiv™ Liebert® HPC-S Annual Energy Consumption: A Wide Range of Energy Efficient Solutions



London Climatic Profile with 150 kW Heat Load

Taking a data centre with a 150 kW load in London as an example, the annual energy saving of the Liebert® HPC-S Freecooling high efficiency version with low-GWP R454B working at 26° to 20°C chilled water temperatures would be about 4% higher compared to the Freecooling high efficiency unit with standard refrigerant R410A operating at the same conditions.

Energy savings would boost to 69% when compared to the air-cooled chiller high efficiency version working with chilled water temperatures of 26° to 20°C.

Features

Benefits

- Low-GWP HFO refrigerant (R454B and R1234ze)
- Optimised Freecooling Coil
- Compact Frame
- Wide operative range from -20°C to +50°C external air temperature
- Variable flow mode
- Chiller and Freecooling Chiller versions, base and high efficiency versions
- Versatile and highly configurable solution

- Compatible with refrigerant R454B and R1234ze HFO, low global warming potential (GWP) refrigerants that significantly reduces CO₂e emissions.
- Increased freecooling capacity and more freecooling hours lead to a better seasonal efficiency and lower operating costs.
- Possibility to increase the cooling density with high cooling capacity per square meter.
- Global solution suitable for any climatic condition.
- The variable flow affects the behavior of the unit at the part load. The main benefits are: increased overall efficiency and decreased power consumption of the pumping system.
- Possibility to choose the correct technology based on the best combination between efficiency, climatic conditions and initial cost.
- Highly configurable solution that is well suited to the different needs of critical infrastructures.



State-of-the-Art Technologies Maximising the Benefits for Small Data Centres



Energy Efficiency

The freecooling operations allow to reduce the annual use of compressors, thus achieving top efficiency levels.



Free Cooling

Integrated freecooling section, delivers additional energy savings and greater reliability.



Supersaver

The Supersaver is the software logic embedded in the Vertiv™ Liebert® iCOM™ control leveraging on the communication with floor mount units to maximise efficiency at system level.



Scroll Compressor

Vertiv™ Liebert® HPC-S low-GWP is equipped with scroll compressors to improve efficiency and performance reliability.



Electronic Expansion Valve

Stability and efficiency guaranteed in all conditions.



Quiet Version

Audible noise is reduced to a minimum as a result of EC Fans and special acoustic insulation.



Vertiv™ Liebert® iCOM™ Smart Control

The Liebert® iCOM™ control manages and optimises the overall system. It is fully-programmable via an advanced and user-friendly touch display and can be linked with common BMS protocols, allowing remote supervision.



EC Fans

High efficiency motors guarantee a 25% reduction in energy consumption compared to traditional AC motors.



Variable Flow Mode

Increased overall efficiency and decreased power consumption of the pumping system at partial load.

Reduced Carbon Footprint for Next Generation Data Centres



- Vertiv™ Liebert® HPC-S offers different choices of refrigerants, from the traditional R410A to low-GWP solutions: R454B and R1234ze. Both low-GWP refrigerants allow to have better performances than traditional refrigerants and with a more than halved environmental impact. The R1234ze HFO offers a GWP level close to zero.
- To further reduce the environmental impact, the unit has been designed to have a lower use of electricity, leading to a reduction in CO₂e emissions that are connected to it.

Improved Efficiency, Increased Savings



- The freecooling coils have been optimised to use the external ambient air as the primary source of cooling. The full freecooling temperature (or Zero Energy Temperature – ZET) in some models can be higher than 10°C, hence below this temperature the compressors can be switched off. The impact on efficiency is thus significant, as the use of the compressors can be limited only to cover the cooling peak. A redundant sensor can be installed and activated only if the first one breaks or is missing.
- The variable flow mode is one of the key features to increase the overall efficiency even at partial load. The implementation of this mode is also significantly decreasing the power consumption of the pumping system.
- The unit is equipped with components that allow high stability and efficiency in all conditions: recent generation of scroll compressors, electronic expansion valve and EC fans with high efficiency motors ensure a 25% reduction in energy consumption compared to traditional AC motors.

Adaptable to Any Critical Infrastructure Design



- Available versions (Chiller - Freecooling) allow to easily adapt to different site conditions, having always the possibility to choose the best combination between efficiency and initial cost.
- In order to offer a solution that can be exploited globally, and therefore both in very cold climates and in warmer ones, Vertiv™ Liebert® HPC-S with low-GWP has been designed to have a wide operating range. Up to +50°C and down to -20°C external ambient temperature (-20°C for R1234ze).
- Highly configurable is a fundamental requirement for modern critical infrastructures and in this context the wide choice of Liebert® HPC-S with low-GWP options allows to build a tailor-made solution. Tank on board, automatic transfer switch (ATS) on board, several pump configurations compatible with constant and variable flow, coil coating for harsh environments are just some examples.
- The acoustic pollution of the cooling units is a typical problem for critical infrastructures located in city centres or near residential areas, but Liebert HPC-S with low-GWP quiet version guarantee a noise level 10 dB lower than the standard models.

Vertiv™ Liebert® iCOM™ Smart Control



- Ready for Teamwork of up to 16 units with optimisation based on working conditions, furthermore it allows for advanced control functionalities (sharing sensor's data, standby rotation, cascade operation and rotating master function).
- A virtual display can replicate, through a web browser, all the functionalities of the standard display, either remotely or connecting a laptop on the ethernet port directly to the frontal door.
- Unit power consumptions and cooling gross capacity can be calculated thanks to specific algorithms and the direct communication between the control, sensors and the different devices. This allows the monitoring of the unit energy efficiency through the BMS system.

Vertiv's Customer Experience Centre located in Tognana (Padova - Italy)

The site includes 7 different laboratories and is specifically designed for customers to interact with Thermal Management data centre technologies. Labs n.5 and n.6 are dedicated to test and validate Vertiv's chiller range including our latest Vertiv™ Liebert® HPC-S low-GWP units.



1 R&D Validation Lab 1



The Research & Development Validation Lab 1 is specifically designed to test floor-mount units and can balance a thermal load of up to 150 kW with a chamber air temperature between 0°C and 60°C.

2 R&D Validation Lab 2



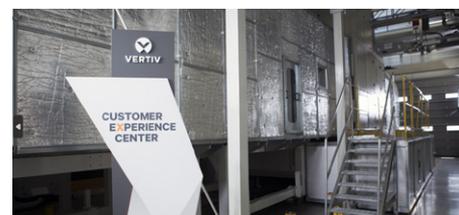
Designed for conditioners belonging to the Telecom sector, the Research & Development Validation Lab 2 includes two different testing chambers: one simulating internal ambient conditions from 0°C to 60°C and the other simulating external ambient conditions from -32°C to 60°C. This validation area can balance a thermal load of up to 100 kW (50 kW in each room).

3 Floor-Mount Validation Lab



The lab is equipped with a highly automated testing chamber, this validation area can balance a thermal load of up to 200 kW and can simulate a test environment within a temperature range of 0°C to 60°C.

4 Large Outdoor Packaged Innovation Lab



Dedicated area to test the state-of-the-art Liebert EFC - Vertiv's highly efficient indirect evaporative freecooling unit. Testing parameters include IT loads of up to 450 kW and an airflow of up to 120,000 m³ per hour at any external ambient temperature required to simulate typical peak conditions across the EMEA region.

5 Freecooling Chiller Validation Area



The Freecooling Chiller Validation Area is able to balance a thermal load of up to 1600 kW with a chamber air temperature between 20°C and 50°C and chiller water set point between 5°C and 20°C.

6 Adiabatic Freecooling Chiller Innovation Lab



This latest designed lab can test units with cooling capacities up to 1.5 MW with state-of-the-art accuracy in a broad range of working conditions, from -10°C to +55°C, also for adiabatic units.

7 Large Indoor Innovation Lab



This latest designed lab can test up to 400 kW and 100,000 m³/h, with operating conditions between +10°C and 50°C.

Rely on Integrated Project and Lifecycle Thermal Services for Superior Data Centre Protection

Guarantee continuity to your business activities with a service partner who stands by you throughout your critical equipment lifecycle. From the project phase with start-up and testing, to lifecycle maintenance contracts and operational support, Vertiv ensures your solution performs optimally.

Global Presence & Local Resources



With the broadest, most comprehensive service presence in the industry and more than 650 engineers dedicated to servicing Europe, Middle East and Africa, Vertiv ensures that your business is always protected, and that service is available whenever needed 24 hours a day.

Premium Response



With Vertiv you can count on an extensive supply of critical parts plus crash-kits ready for deployment, and on service engineers that can respond to requests in record time. To do so, they can rely on a solid knowledge-base, and established escalation procedures valid across the entire region. In addition, they can also benefit from advanced incident management, and widespread presence of Service Centres all enabling them to deliver premium restoration capabilities.

| Commissioning Phase | Technical Activities | Project Management | | |
|--|--|--|--|--|
| Pre-Project activity | | <ul style="list-style-type: none"> Project Charter / Project Initiation Docs Identify Stakeholder | | |
| Level 0 Program and Design | <ul style="list-style-type: none"> Commissioning Spec & Plan Engineering Design Review Schedule Integration Submittal Review Commissioning Procedure Commissioning Kick-off | <ul style="list-style-type: none"> Work Breakdown Structure (WBS) Supply Chain & Procurement Management Plan Project Team Creation Create Risk Management Plan Create Communication Management Plan | <ul style="list-style-type: none"> Create Change Management Plan Create Project Schedule Health & Safety Assessment Kick-Off meeting with Customer | |
| Level 1 Factory Witness Test | <ul style="list-style-type: none"> Factory Witness Test | | | <ul style="list-style-type: none"> Manage Issues, Changes & Risks |
| Level 2 Delivery, QA/QC, Installation Assembly, Field Supervision | <ul style="list-style-type: none"> Site Acceptance Inspection Delivery & Assembly Equipment Installation | <ul style="list-style-type: none"> Supply Chain & Procurement Management | | <ul style="list-style-type: none"> Report Project Status |
| Level 3 Start-Up and Site Acceptance Test | <ul style="list-style-type: none"> Installation & Startup Pre-Functional Equipment Verification Site Acceptance Test | <ul style="list-style-type: none"> Execute Project Plan Schedule On-Site Resource Management Facilitate Team Meetings & Distributes Minutes Health & Safety Management | | <ul style="list-style-type: none"> Contract, Financial & Quality Review |
| Level 4 Functional Performance Testing | <ul style="list-style-type: none"> Functional Performance Test | | | <ul style="list-style-type: none"> Health & Safety Review |
| Level 5 Integrated System Test Support | <ul style="list-style-type: none"> Integrated System Test Training & O&M Verification | | | |
| Level 6 Close Out & Turn-over | <ul style="list-style-type: none"> System Manual Seasonal Testing Warranty Review & Supplemental Report Commissioning Report | <ul style="list-style-type: none"> Customer Acceptance Handover to Operation & Maintenance Lessons Learned Financial Closure Project Closure | | |

Expertise & Training



All service engineers are regularly certified according to country-specific regulations as well as wider European and international regulations and standards. Vertiv F-gas certifies all thermal service engineers. This enables them to operate with all refrigerants including the ones with low GWP (Global Warming Potential) and A2L* category such as R454B, used in Liebert HPC-S low GWP.

Vertiv service engineers are trained, experienced professionals who undergo an average of one week of intensive training each quarter, totalling one month of full-time training per year. Training includes both technology and safety, to ensure competent and safe field operations, reinforced by established procedures to follow and central technical support in case of need.

Project Services



From project planning and design, through to equipment procurement, installation, and commissioning, our project team offers comprehensive capabilities, ensuring speed of deployment and execution according to pre-defined and repeatable procedures. Low-GWP gases require the use of specific tooling. Vertiv engineers are endowed with the right tools and trained on how to use them, thus ensuring proper installation, start up, and maintenance of low-GWP units.

Supporting Your Business Around the Globe



Regular service of critical equipment supports maximum uptime and often reduces total cost of ownership. A service programme ensures timely and proactive maintenance for avoiding unexpected, costly equipment downtime and enables optimal equipment operation. Vertiv™ service programmes cover all technologies and can be tailored to suit individual business needs.



Preventing or minimising refrigerant losses is key to every direct expansion circuit. Even more so with low-GWP refrigerants, where the aim is to use as least refrigerant as possible both in case of maintenance or repair. Advanced incident management procedures leveraging site data allow Vertiv to be extremely effective in fault management and root cause analysis should it occur. Vertiv extensive service offering includes installation, startup, commissioning, maintenance, replacements, 24x7 remote monitoring and diagnostics, and much more.



Global Presence

Manuf. and Assembly Locations **24**
 Service Centres **220+**
 Service Field Engineers **3,500+**
 Technical Support/Response **220+**
 Customer Experience Centres/Labs **19**

Americas

Manuf. and Assembly Locations **10**
 Service Centres **80+**
 Service Field Engineers **1,600+**
 Technical Support/Response **90+**
 Customer Experience Centres/Labs **5**

Europe, Middle East and Africa

Manuf. and Assembly Locations **10**
 Service Centres **65+**
 Service Field Engineers **650+**
 Technical Support/Response **100+**
 Customer Experience Centres/Labs **5**

Asia Pacific and India

Manuf. and Assembly Locations **4**
 Service Centres **75+**
 Service Field Engineers **1,250+**
 Technical Support/Response **30+**
 Customer Experience Centres/Labs **9**

Technical Features

R454B Scroll Freecooling Versions

FS5 Models

| | | | 007 | 009 | 011 | 013 | 015 | 017 | 019 | 022 | 025 |
|--|---|-------|------|------|------|-------|-------|-------|-------|-------|------|
| Mechanical cooling performance:¹ | Cooling capacity | kW | 78 | 89.6 | 97.8 | 121.9 | 153.3 | 179.5 | 202.8 | 228.4 | 277 |
| | Total power input (Premium fans) | kW | 19.5 | 21.2 | 23.4 | 28.2 | 33.9 | 42 | 49.7 | 56.7 | 67 |
| | Unit EER (Premium fans) | - | 4.01 | 4.23 | 4.19 | 4.32 | 4.52 | 4.27 | 4.08 | 4.03 | 4.14 |
| | Fluid flow | m3/h | 12.5 | 14.4 | 15.7 | 19.5 | 24.6 | 28.8 | 32.5 | 36.6 | 44.4 |
| Total freecooling [100% load]:² | ZET temperature | °C | 8.7 | 8.8 | 8.8 | 11.5 | 11.7 | 9.9 | 8.4 | 9 | 9.7 |
| Sound levels | N. of fans | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 |
| | Sound Pressure Level - SPL (Premium fans) ⁴ | dB(A) | 74.7 | 74.7 | 74.7 | 77.1 | 77.2 | 77.3 | 77.4 | 78.6 | 78.7 |
| | Sound Power Level - PWL (Premium fans) ⁵ | dB(A) | 92.7 | 92.7 | 92.7 | 95.7 | 95.8 | 95.9 | 96 | 97.8 | 97.9 |
| | Sound Pressure Level - SPL (Quiet version) ⁴ | dB(A) | 62.3 | 62.7 | 62.6 | 64.7 | 65.1 | 65.9 | 65.9 | 67.3 | 67.2 |
| | Sound Power Level - PWL (Quiet version) ⁵ | dB(A) | 80.3 | 80.7 | 80.6 | 83.4 | 83.8 | 84.6 | 84.6 | 86.5 | 86.4 |
| Dimensions | Unit length | mm | 2090 | 2090 | 2090 | 3090 | 3090 | 3090 | 3090 | 4090 | 4090 |
| | Unit depth | mm | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 |
| | Unit height (Premium fans) | mm | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 |

R410A Scroll Freecooling Versions

FS0 Models

| | | | 007 | 009 | 011 | 013 | 015 | 017 | 019 | 022 | 025 |
|--|---|-------|------|------|-------|-------|-------|-------|-------|-------|------|
| Mechanical cooling performance:¹ | Cooling capacity | kW | 79.6 | 91.9 | 100.2 | 122.5 | 154.2 | 178.1 | 200.7 | 227.6 | 276 |
| | Total power input (Premium fans) | kW | 21.1 | 23 | 25.4 | 30.1 | 36.4 | 45.3 | 53.8 | 61.2 | 73 |
| | Unit EER (Premium fans) | - | 3.77 | 4 | 3.94 | 4.08 | 4.23 | 3.94 | 3.73 | 3.72 | 3.78 |
| | Fluid flow | m3/h | 12.8 | 14.7 | 16 | 19.6 | 24.7 | 28.5 | 32.2 | 36.5 | 44.2 |
| Total freecooling [100% load]:² | ZET temperature | °C | 8.4 | 9.6 | 8.5 | 11.5 | 11.6 | 10 | 8.5 | 9.1 | 9.8 |
| Sound levels | N. of fans | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 |
| | Sound Pressure Level - SPL (Premium fans) ⁴ | dB(A) | 74.7 | 74.7 | 74.7 | 77.1 | 77.2 | 77.3 | 77.4 | 78.6 | 78.7 |
| | Sound Power Level - PWL (Premium fans) ⁵ | dB(A) | 92.7 | 92.7 | 92.7 | 95.7 | 95.8 | 95.9 | 96 | 97.8 | 97.9 |
| | Sound Pressure Level - SPL (Quiet version) ⁴ | dB(A) | 62.3 | 62.7 | 62.6 | 64.7 | 65.1 | 65.9 | 65.9 | 67.3 | 67.2 |
| | Sound Power Level - PWL (Quiet version) ⁵ | dB(A) | 80.3 | 80.7 | 80.6 | 83.4 | 83.8 | 84.6 | 84.6 | 86.5 | 86.4 |
| Dimensions | Unit length | mm | 2090 | 2090 | 2090 | 3090 | 3090 | 3090 | 3090 | 4090 | 4090 |
| | Unit depth | mm | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 |
| | Unit height (Premium fans) | mm | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 |

R454B Scroll Chiller Versions

CS5 Models

| | | | 007 | 009 | 011 | 013 | 015 | 017 | 019 | 022 | 025 |
|--|---|-------------------|------|------|------|-------|-------|-------|-------|------|------|
| Mechanical cooling performance:³ | Cooling capacity | kW | 79 | 91 | 99.4 | 123.2 | 155.3 | 181.9 | 205.7 | 231 | 281 |
| | Total power input (Premium fans) | kW | 19.3 | 20.9 | 23 | 27.8 | 33.3 | 41.3 | 48.9 | 56 | 65.7 |
| | Unit EER (Premium fans) | - | 4.1 | 4.36 | 4.32 | 4.43 | 4.66 | 4.41 | 4.21 | 4.13 | 4.28 |
| | Fluid flow | m ³ /h | 11.4 | 13.1 | 14.3 | 17.7 | 22.3 | 26.2 | 29.6 | 33.2 | 40.4 |
| Sound levels | N. of fans | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 |
| | Sound Pressure Level - SPL (Premium fans) ⁴ | dB(A) | 75.1 | 75 | 74.9 | 77.5 | 77.5 | 77.7 | 77.6 | 79 | 79 |
| | Sound Power Level - PWL (Premium fans) ⁵ | dB(A) | 93.1 | 93 | 92.9 | 96.1 | 96.1 | 96.3 | 96.2 | 98.2 | 98.2 |
| | Sound Pressure Level - SPL (Quiet version) ⁴ | dB(A) | 63.3 | 63.7 | 63.7 | 65.7 | 66.1 | 66.7 | 66.7 | 68 | 68 |
| | Sound Power Level - PWL (Quiet version) ⁵ | dB(A) | 81.3 | 81.7 | 81.7 | 84.4 | 84.8 | 85.4 | 85.4 | 87.2 | 87.2 |
| Dimensions | Unit length | mm | 2090 | 2090 | 2090 | 3090 | 3090 | 3090 | 3090 | 4090 | 4090 |
| | Unit depth | mm | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 |
| | Unit height (Premium fans) | mm | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 |

R410A Scroll Chiller Versions

CS0 Models

| | | | 007 | 009 | 011 | 013 | 015 | 017 | 019 | 022 | 025 |
|--|---|-------------------|------|------|------|-------|-------|-------|-------|-------|-------|
| Mechanical cooling performance:³ | Cooling capacity | kW | 74.5 | 86.2 | 93.1 | 117.6 | 146.8 | 167.2 | 185.9 | 212.5 | 255.7 |
| | Total power input (Premium fans) | kW | 21.7 | 23.6 | 26.5 | 29.1 | 36.2 | 46.7 | 57.2 | 62.3 | 76.1 |
| | Unit EER (Premium fans) | - | 3.43 | 3.65 | 3.51 | 4.05 | 4.05 | 3.58 | 3.25 | 3.41 | 3.36 |
| | Fluid flow | m ³ /h | 10.7 | 12.4 | 13.4 | 16.9 | 21.1 | 24 | 26.8 | 30.6 | 36.8 |
| Sound levels | N. of fans | | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 |
| | Sound Pressure Level - SPL (Premium fans) ⁴ | dB(A) | 75.1 | 75 | 74.9 | 77.5 | 77.5 | 77.7 | 77.6 | 79 | 79 |
| | Sound Power Level - PWL (Premium fans) ⁵ | dB(A) | 93.1 | 93 | 92.9 | 96.1 | 96.1 | 96.3 | 96.2 | 98.2 | 98.2 |
| | Sound Pressure Level - SPL (Quiet version) ⁴ | dB(A) | 63.3 | 63.7 | 63.7 | 65.7 | 66.1 | 66.7 | 66.7 | 68 | 68 |
| | Sound Power Level - PWL (Quiet version) ⁵ | dB(A) | 81.3 | 81.7 | 81.7 | 84.4 | 84.8 | 85.4 | 85.4 | 87.2 | 87.2 |
| Dimensions | Unit length | mm | 2090 | 2090 | 2090 | 3090 | 3090 | 3090 | 3090 | 4090 | 4090 |
| | Unit depth | mm | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 | 1288 |
| | Unit height (Premium fans) | mm | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 | 2359 |

Notes:

¹ 35°C ambient temperature; 20°C fluid outlet temperature; ethylene glycol 30%; power supply 400V/3ph/50Hz.

² 20°C fluid outlet temperature; ethylene glycol 30%; power supply 400V/3ph/50Hz.

³ 35°C ambient temperature; 20°C fluid outlet temperature; water; power supply 400V/3ph/50Hz.

⁴ The value of SPL is measured in free field conditions and 1 meter from the unit according to ISO 3744 average method. At nominal working conditions.

⁵ The value of PWL is calculated in according to ISO 3744 procedure method. At nominal working conditions.

Data refers to high efficiency versions.

Cooling capacity and efficiency for base efficiency version and quiet version are indicated in the product document.

Data for 4 compressors range (250 - 500 kW) with R1234ze refrigerant will be available soon, after the official release.



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MKA4L0UKHPCSLGWP (Rev1-01.2024)