



HEAT DISSIPATION UNITS UP TO 15 kW

Reliable, energy-efficient solutions to protect your investment

Slim Line



ABOUT US

HANSA Klimasysteme GmbH has been based in Strücklingen, in the municipality of Saterland, since 1961; Saterland is known for its Sater Frisian language, the smallest linguistic enclave in Germany. Our products speak for themselves. For

decades, we have been synonymous with technically sophisticated, high-quality air-conditioning systems. As a family-owned and managed company since 1971, we stand for continuity, stability, and long-term reliability.

The company

Ever since the company was founded, we have earned a reputation throughout Germany and far beyond for manufacturing ventilation units for schools, sports halls, swimming pools and hospitals, as well as for industrial and process engineering applications. Building on this expertise, we offer a comprehensive portfolio of air-handling units for a wide range of applications.

Our units are engineered to deliver high quality, functionality, reliability and energy-efficient operation. The actual energy performance depends on the specific unit configuration and the

corresponding technical documentation. Throughout our product development, we have secured numerous intellectual property rights through the European Patent Office, reflecting the innovative nature of our technologies.

As a member of the German AHU Manufacturers Association (RLT-Herstellerverband e.V.), we design and manufacture our units in strict accordance with the AHU guidelines, ensuring the highest standards of quality, operational safety, and regulatory compliance for both our customers and the operators of our equipment.

The team

We invest in the continuous development of our employees and train the next generation of skilled professionals. The HANSA team comprises experienced specialists in the field of ventilation unit manufacturing, with expertise spanning refrigeration technology, control engineering, and automation.

Our units are designed and manufactured in accordance with the quality management requirements of DIN EN ISO 9001:2015.

Our sales team consists of experienced experts who are committed to finding the right solution for you.

Our philosophy

Our goal is to meet our customers' climate control requirements as effectively as possible while helping to protect the environment. To achieve this, we offer systems that can be tailored to our customers' specific operating conditions using flexible manufacturing processes and state-of-the-art components while minimizing energy consumption. As the energy requirements of both the overall system and its individual modules can be reduced without compromising performance, both investment and energy costs are reduced.

The carbon footprint of our company, our production processes and the product-related emissions – from raw material extraction to the factory gate – has

been independently assessed. Product-related emissions have been calculated using market-based secondary emission factors. We have purchased carbon credits to offset the unavoidable greenhouse gas emissions resulting from our operational and product-related activities. This simultaneously achieves positive social and environmental effects. In accordance with the EmpCo EU Directive, the results of the sustainability assessment are presented transparently as a sustainability overview on our publicly accessible ImpactBoard web portal.

Committed to climate protection – not just through our products



HANSA is a member of the AHU Manufacturers Association (Herstellerverband Raumlufttechnische Geräte e.V.).



COMPACT & POWERFUL



Slim Line wall-mounted units

Thanks to their intelligent flap technology, these are the slimmest units in the Slim Line series: available with cooling capacities of 4, 7, 10 and 15 kW, these wall-mounted units have proven their reliability in countless installations over many years.

Slim Line wall-mounted units offer

outstanding value for money, require minimal installation space, and can be configured to meet your specific project requirements. The 10 kW chilled water unit is designed as a retrofit replacement for the 10 kW unit with integrated refrigeration and can be installed with minimal effort.

- Ultra-slim air-conditioning unit with separate exhaust air and outdoor air units
- Fans featuring the latest generation of EC technology
- Supply air discharge at the front or into a raised floor
- Tried and tested over many years
- Low noise emissions
- Proven technology
- Ready for operation and connection
- Operates with R513A refrigerant (GWP = 631; GWP = Global Warming Potential)
- **New: 10 and 15 kW chilled water units with an external propane refrigeration system**

Slim Line Q

The Slim Line Q compact air-conditioning unit, available with cooling capacities of 7 and 15 kW, bridges the gap between the Slim Line wall-mounted units and our Free Line units.

Thanks to a range of intelligent design features, no separate outdoor unit is required, while retaining the key advantage of the Slim Line series:

suitability for installation in confined spaces.

This concept enables straightforward and cost-effective installation while providing an excellent return on investment.

The Slim Line Q is also VDI 6022-compliant.

And, as always, it delivers the proven quality you expect from HANSA.

Our Slim Line Q units:

- Space-saving design with powerful cooling capacities of up to 15 kW
 - Easy installation
 - Easy relocation with minimal effort, if required
 - Available with cooling capacities of 7 and 15 kW
 - Flexible connection options
 - High-performance and energy-efficient fans
 - VDI 6022-compliant
 - Hermetically sealed refrigeration circuit
- Operates with R513A refrigerant (GWP = 631, GWP = Global Warming Potential)



The compliance of our Slim Line Q units with VDI 6022 has been certified by an independent testing institute.

EFFICIENCY

Reduced operating costs

Recirculating air cooling units (also known as split systems) cool only the air within the thermally stressed room and therefore rely on the continuous operation of a mechanical refrigeration system, resulting in high operating costs. Unlike recirculating air cooling units, our Slim Line units utilise the naturally cooler outside air, thereby reducing the operating time of the mechanical refrigeration system.

In Central Europe, outside air temperatures rarely exceed the target temperatures required in thermally demanding environments such as server

rooms. Using climate data for Germany (in accordance with DIN 4710, Frankfurt am Main), our Slim Line compact air-conditioning units utilise outdoor air to reduce the operating time of the mechanical refrigeration system to approximately 7% of the total operating time (Fig. 1), thereby significantly lowering operating costs compared with recirculating air cooling units. In addition, the supply and extract air fans are capacity-controlled according to the thermal load and the outdoor air temperature.



Fig. 1: The refrigeration system of a Slim Line Q15 air-conditioning unit operates for just under 7% of the total annual operating time.

The histogram shown in Fig. 2 illustrates the distribution of annual hours across the temperature range. The temperature range in which the mechanical refrigeration system operates is highlighted in red. Also shown is the total

power consumption of the compressor and the controlled fans of the Slim Line Q15 (green), together with that of a 15 kW recirculating air cooling unit with an external condenser (yellow), at each temperature.

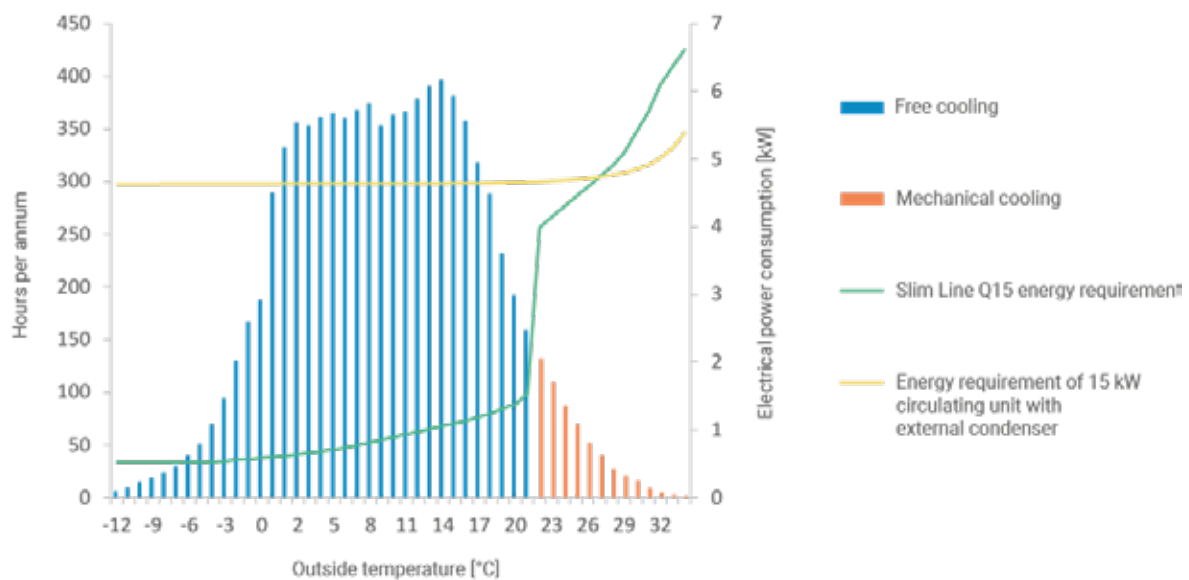


Fig. 2: Distribution of annual operating hours across the temperature range from -12 °C to 32 °C. Above an outdoor temperature of 22 °C, the refrigeration compressor is in operation. At lower outdoor temperatures, energy consumption is significantly reduced by switching off the compressor and progressively reducing the fan speed.

The reduction in power consumption by the Slim Line units following the shutdown of the refrigeration compressor at outdoor air temperatures below 22 °C is clearly evident, whilst the recirculating

air cooling unit maintains an almost constant power consumption for the refrigeration unit and the recirculating air fan.

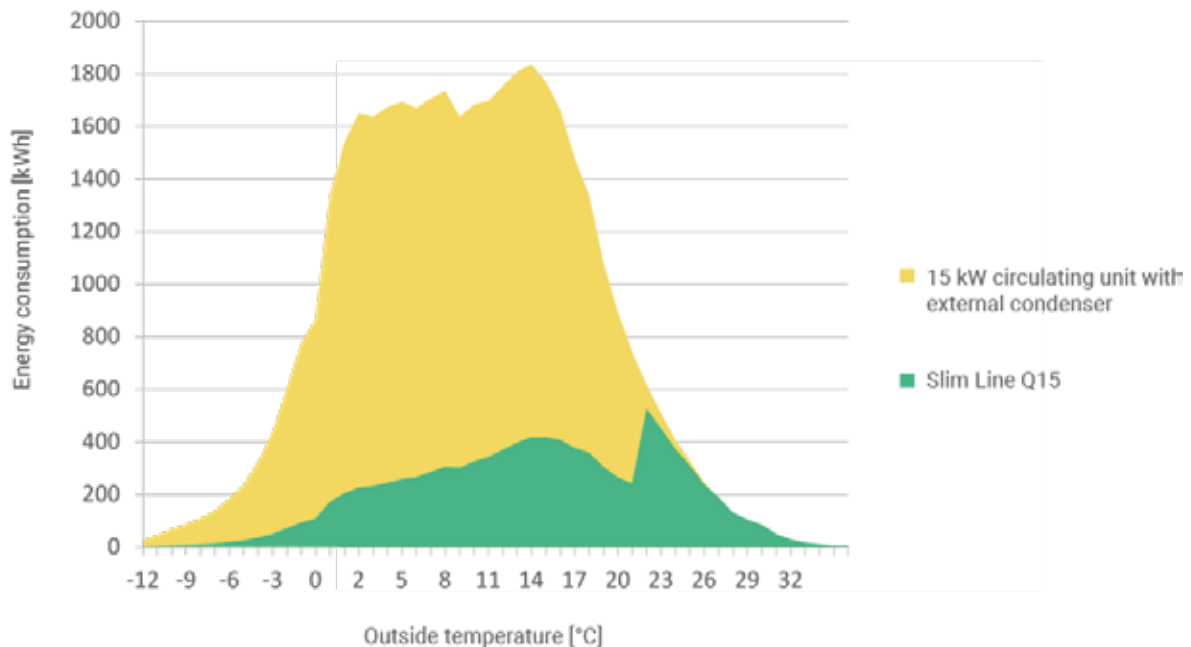


Fig. 3: Annual total energy consumption of the main energy consumers – the refrigeration compressor and the fans – across the outdoor temperature range. At outdoor temperatures below 22 °C, the Slim Line units demonstrate the advantage of utilising free cooling over conventional recirculating air cooling units.

Fig. 3 plots the total energy consumption resulting from the use of mechanical and free cooling, together with the energy required to drive both fans, over the relevant temperature range (green). The energy consumption of a recirculating air cooling unit with an identical refrigeration system is also shown (yellow).

Across the entire temperature range, the annual energy consumption for cooling of both systems (each with a cooling capacity of 15 kW) is as follows:

Recirculating air cooler: 40 550 kWh
Slim Line: 9 671 kWh

This corresponds to an energy saving of approximately 76%. Assuming an electricity price of EUR 0.30/kWh, the annual operating costs are:

Recirculating air cooler: EUR 12 165 per year
Slim Line: EUR 2 901 per year

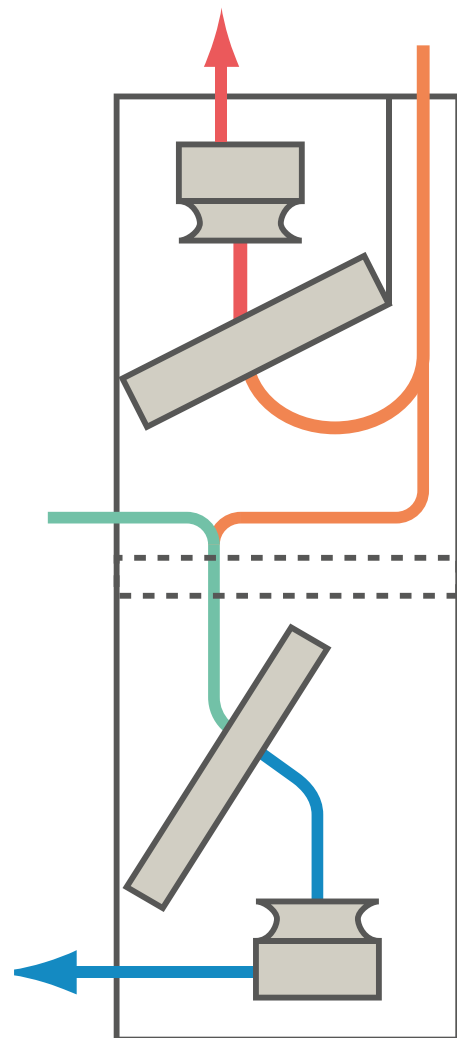
Savings: EUR 9 264 per year

OPERATING MODES

Cooling using outside air

As long as the outdoor air can cool the room to the specified conditions, the Slim Line unit utilises this free cooling without activating the mechanical refrigeration system.

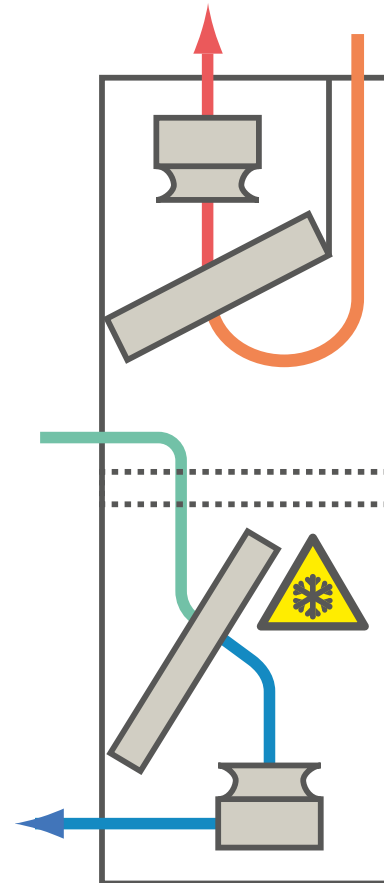
The airflow rate is reduced as much as possible, depending on the room's thermal load. A controlled amount of room air is mixed with the cooler outdoor air to achieve the required supply air temperature.



Cooling with recirculated air and refrigeration system

At high outdoor temperatures, the cooler room air is air-conditioned. The exhaust air fan draws in outdoor air and directs it across the condenser for heat rejection before discharging it to the outside.

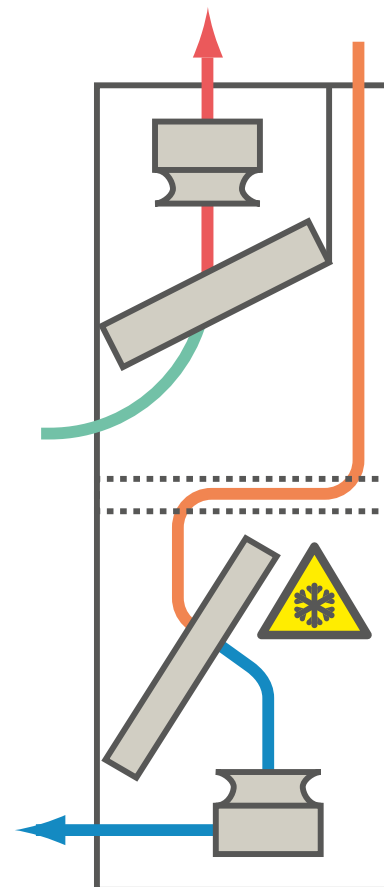
To ensure adequate condenser cooling, the exhaust air fan features infinitely variable speed control and can increase the airflow rate as required.



Cooling using outside air and a refrigeration system

The refrigeration system is activated when outdoor air alone is no longer sufficient to meet the cooling demand.

The infinitely variable speed-controlled exhaust air fan ensures a balanced airflow ratio.



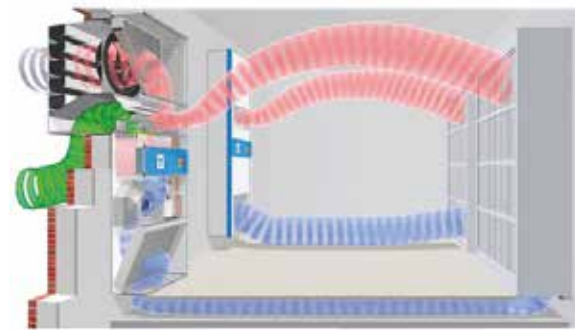
FUNCTION & CONTROL

Optimal adaptation to thermal conditions

The Slim Line series air-conditioning units have been specially designed for use in rooms with high thermal loads where installation space is limited.

The arrangement of the supply and extract air openings at floor and ceiling level, respectively, takes advantage of the natural thermal airflow within the room, ensuring efficient cooling of the installed equipment.

Supply air can be delivered via a raised floor or through ductwork.



Flexible control

Our Slim Line units can be configured either via the control panel or through a web interface using any internet-enabled PC, and can operate independently. In addition, the DDC control system of the Slim Line series supports N+1 redundancy. The communication required for redundancy and automatic

system switchover is provided via a bus connection between the DDC controllers. Intermittent operation and periodic load rotation can also be implemented via the DDC control system.



TECHNICAL DATA – SLIM LINE Q

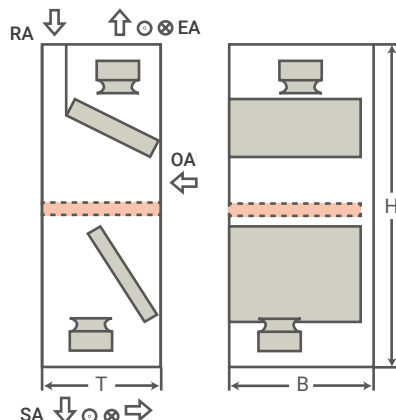
Slim Line Q7 kW**

Slim Line Q15 kW**

Supply air fan flow rate	1 700 m ³ /h	3 214 m ³ /h
Maximum power input	0.5 ... 0.75 kW (230 V)	0.05 ... 1.14 kW (400 V)
Power input at the operating point	0.37 kW at 200 Pa external	0.8 kW at 250 Pa external
Speed	0 ... 3 000 min ⁻¹	0 ... 2 400 min ⁻¹
Extract fan air flow rate	0 ... 1 900 m ³ /h	0 ... 4 000 m ³ /h
Power input	0.05 ... 0.75 kW (230 V)	0.05 ... 1.32 kW (400 V)
Power input at the operating point	0.26 kW at 200 Pa external	0.75 kW at 250 Pa external
Speed	0 ... 3 000 min ⁻¹	0 ... 2 060 min ⁻¹
Cooling capacity (t _{oA} = 42°C, 30% r.F; t _{RA} = 35°C, 30% r.F.)	7 kW	15 kW
Refrigerant	R513A	R513A
Refrigeration unit operating voltage	230 V / 50 Hz	400 V / 50 Hz
Refrigeration unit power input	2.2 kW	4.3 kW
Outside air filter class	ePM2.5 65%	ePM2.5 65%
Unit dimensions (H x W x D)	2 050 x 650 x 650 mm	2 065 x 900 x 750 mm
Unit weight	200 kg	315 kg
A-weighted sound pressure level at 5m, free field	78 dB(A)*	80 dB(A)*
Supply voltage	230 V	400 V

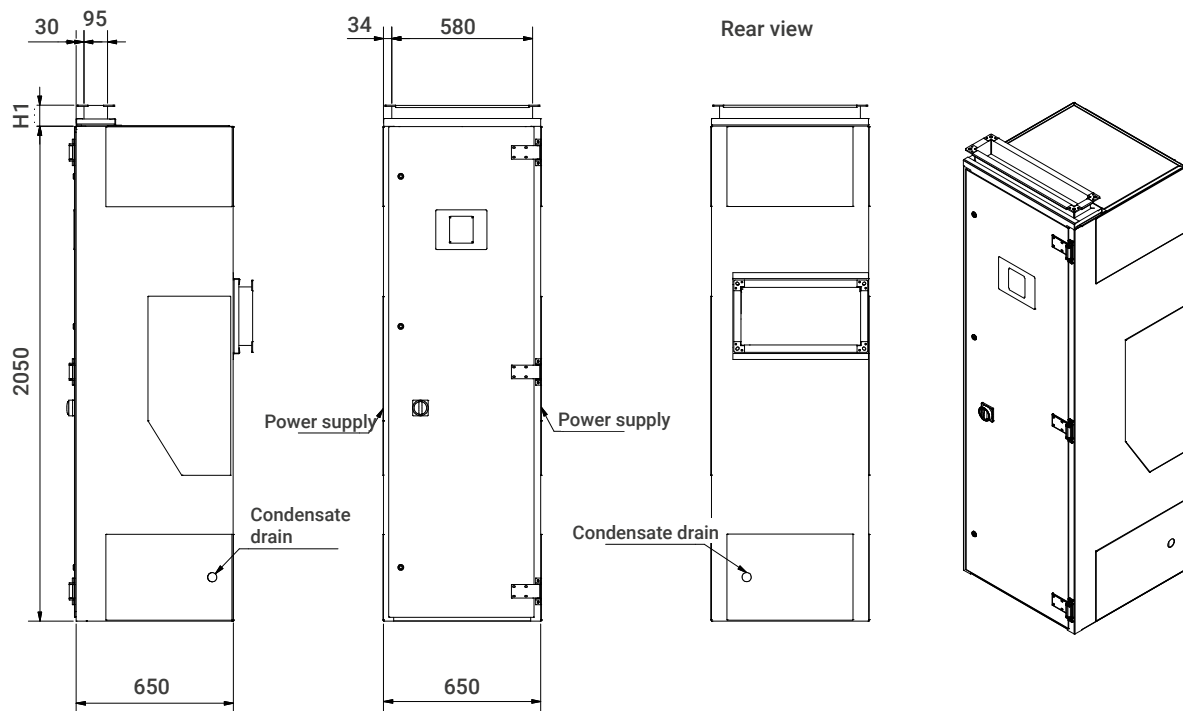
* Silencer (optional)

** Electric heater (optional)

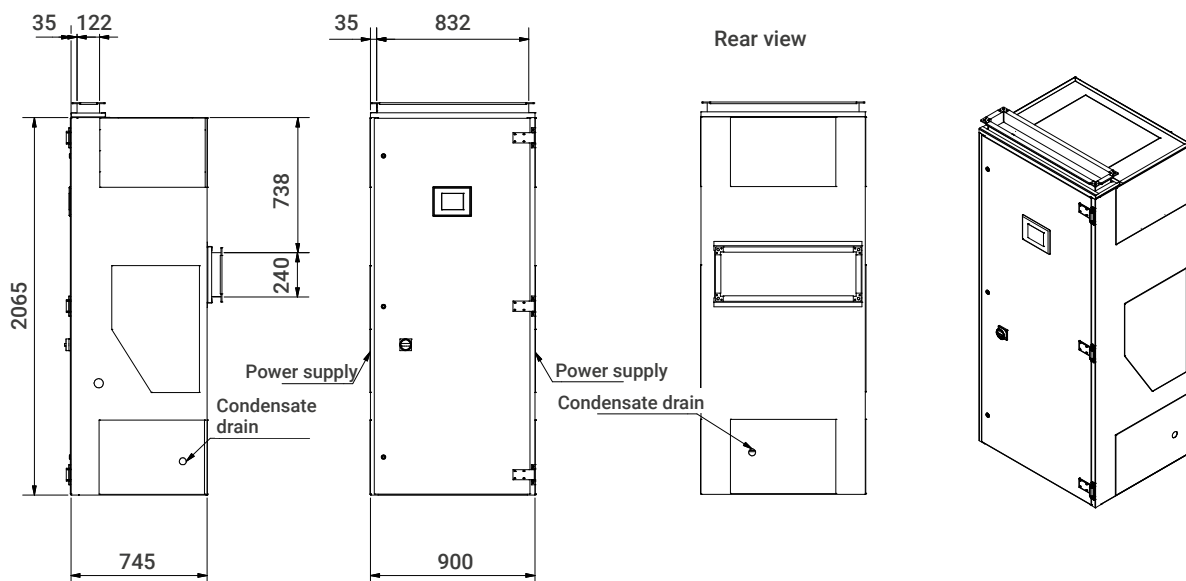


DIMENSIONAL DRAWINGS: SLIM LINE Q

Slim Line Q 7 kW



Slim Line Q 15 kW

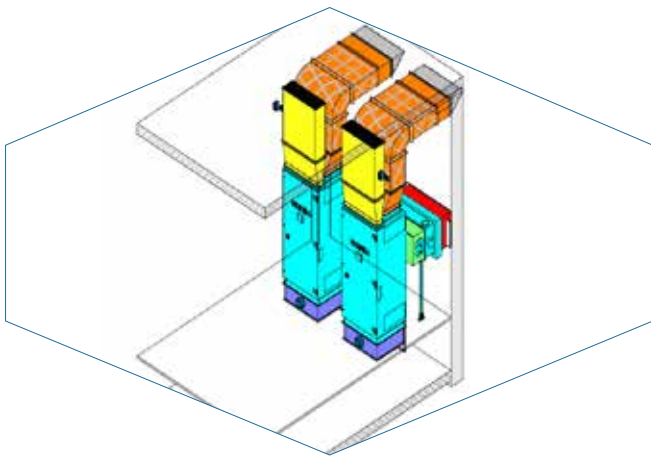


» Revit BIM files available on request!

CONFIGURATION

EXAMPLES: SLIM LINE Q

Modular cooling with redundancy

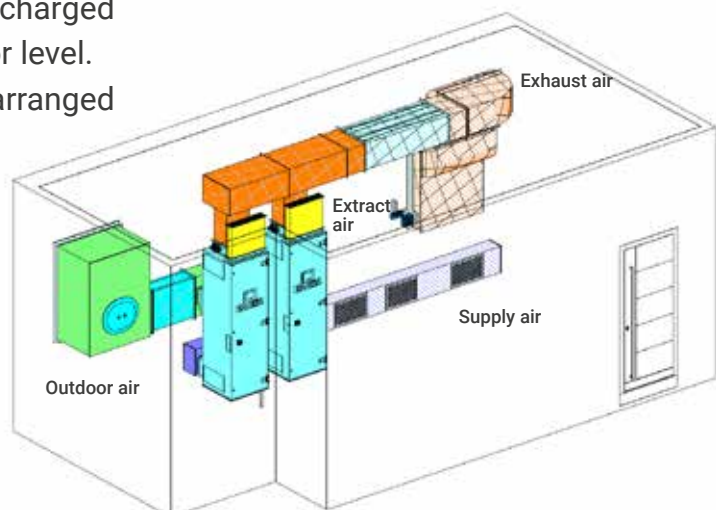


Two Slim Line Q15 units, each providing a cooling capacity of 15 kW, configured with redundancy. Supply air discharged into the raised floor. Optional louvre damper installed in the raised floor. Outdoor air intake at the rear centre of the unit with an integrated fire damper (also optional). Extract air is drawn off at the top of the unit, and exhaust air is discharged from the top to the outside via an exhaust connection.

The advantage of the Slim Line: its modular design allows the cooling capacity to be easily scaled to meet the required heat dissipation.

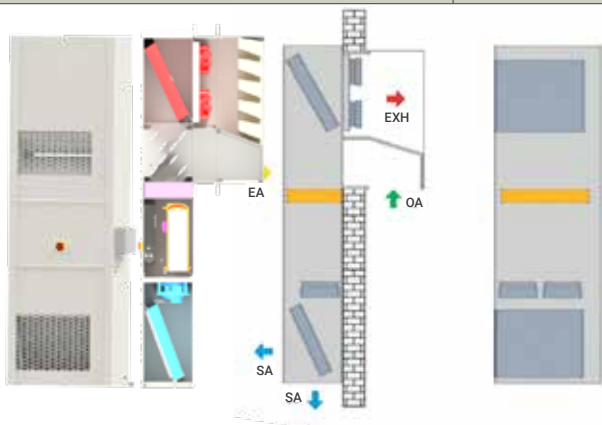
Precise cooling through optimised airflow

Two Slim Line Q7 units, each providing a cooling capacity of 7 kW, configured with redundancy. Supply air discharged through ventilation grilles at floor level. Components to be cooled arranged within the airflow. Components to be cooled arranged within the airflow.



TECHNICAL DATA – SLIM-LINE WITH INTEGRATED COOLING SYSTEM

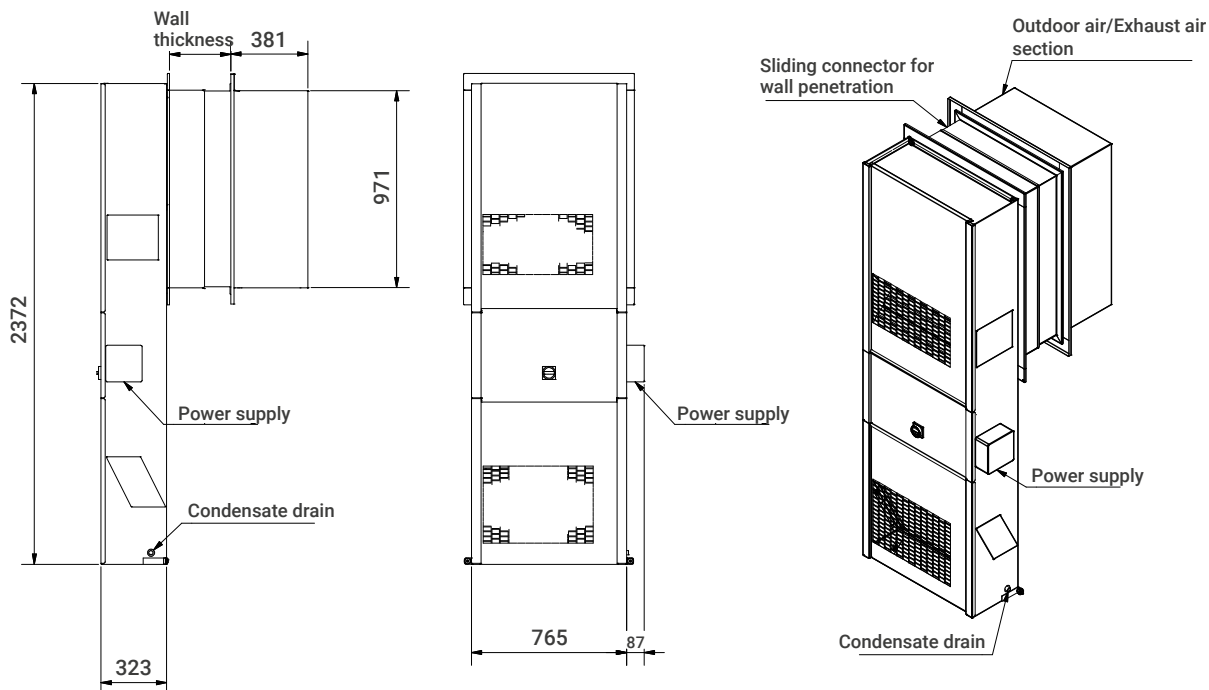
	Slim Line 4 kW	Slim Line 7 kW	Slim Line 10 kW
Supply air fan flow rate	1 000 m ³ /h	1 700 m ³ /h	2 300 m ³ /h
Maximum power input	0.34 kW (230 V)	0.5 kW (230 V)	1.0 kW (230 V)
Power input at the operating point	0.13 kW, free-blow type	0.16 kW, free-blow type	0.31 kW, free-blow type
Number of supply air fans	1	2	2
Extract fan air flow rate	0 ... 1 200 m ³ /h ⁻¹	0 ... 1 900 m ³ /h	0 ... 2 800 m ³ /h
Maximum power input	0.34 kW (230 V)	0.51 kW (230 V)	0.68 kW (230 V)
Power input at the operating point	0.1 kW, free-blow type	0.22 kW, free-blow type	0.27 kW, free-blow type
Number of extractor fans	2	3	4
Cooling capacity (t _{OA} = 42°C, 30% r.F; t _{RA} = 35°C, 30% r.F.)	4 kW	7 kW	10 kW
Refrigerant	R513A	R513A	R513A
Refrigeration unit operating voltage	230 V / 50 Hz	230 V / 50 Hz	400 V / 50 Hz
Refrigeration unit power input	1.60 kW	2.30 kW	3.47 kW
Outside air filter class	PM10 55%	PM10 55%	ePM2.5 65%
Unit dimensions (H x W x D)	2 372 x 765 x 323 mm	2 372 x 760 x 323 mm	2 372 x 760 x 421 mm
External dimensions (H x W x D)	971 x 678 x 382 mm	971 x 678 x 381 mm	971 x 678 x 381 mm
Unit weight	140 kg	156 kg	180 kg
A-weighted sound pressure level at 5m, free field	45 dB(A)	45 dB(A)	46 dB(A)
Supply voltage	230 V	230 V	400 V



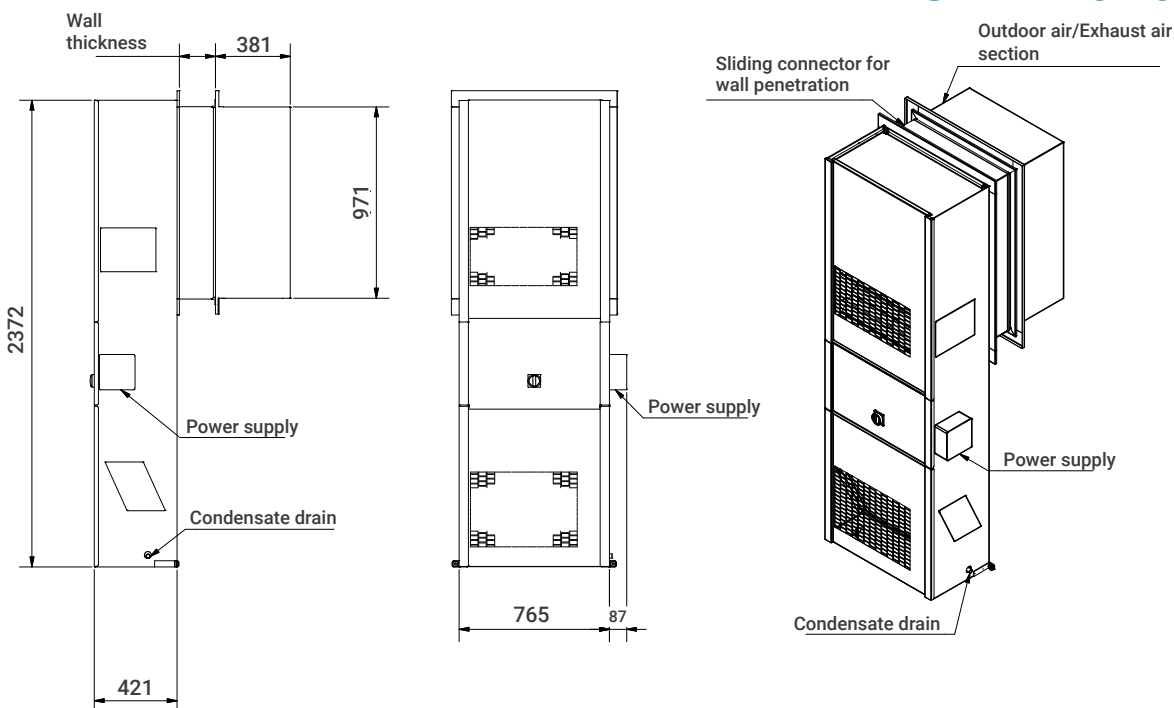
The units are mounted directly on the external wall of the room to be air-conditioned. A sliding connector compensates for variations in wall thickness. A plenum is installed outdoors to separate the outdoor air and exhaust air streams and is equipped with silencers.

DIMENSIONAL DRAWINGS: SLIM LINE

Slim Line 4 + 7 kW



Slim Line 10 kW



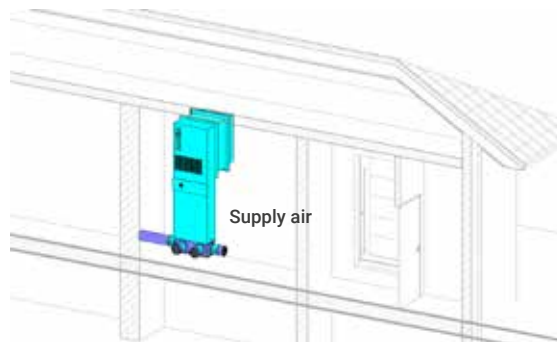
» Revit BIM files available on request!

EXAMPLE OF A WALL-MOUNTED UNIT

Slim Line wall-mounted unit on Sylt

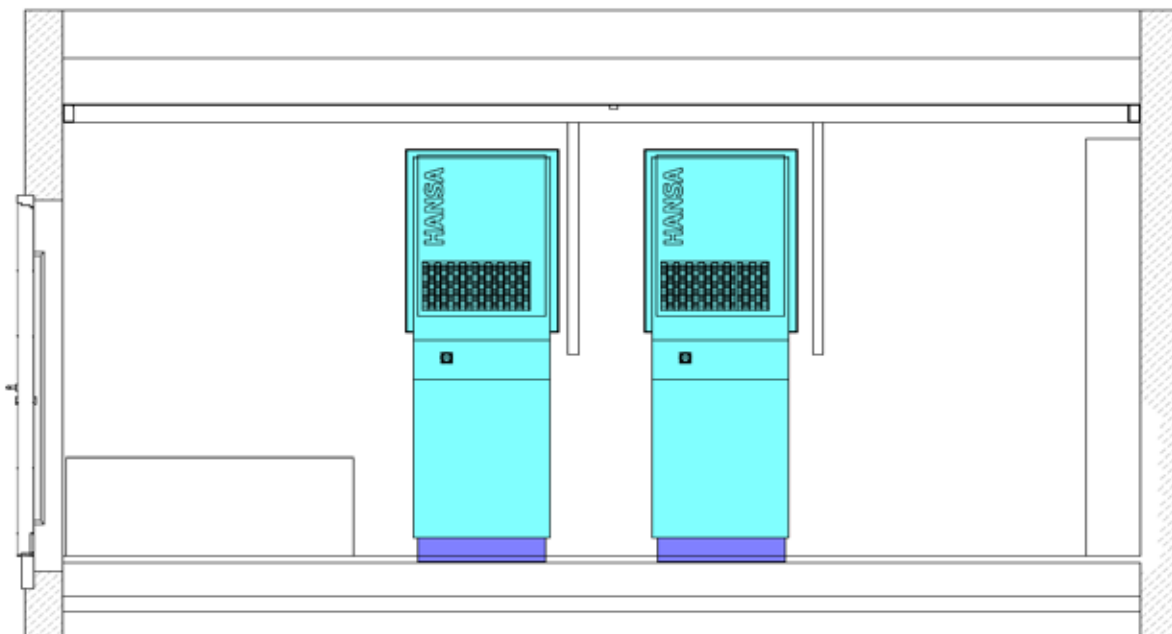
In this example, a Slim Line wall-mounted unit was installed to provide air conditioning for a telephone exchange in the village of Morsum on the island of Sylt.

As redundancy is not required, a single unit is sufficient to provide the required heat removal capacity of 10 kW.



Slim Line wall-mounted units are ideally suited for air conditioning of technical equipment containers.

The following illustration shows their installation in a concrete container used to air-condition a small data centre. The illustration shows a configuration with two 10 kW units to demonstrate a redundant installation.



TECHNICAL DATA:

SLIM LINE CHILLED WATER

Slim Line 10 kW

Slim Line 15 kW

Supply air fan flow rate	2300 m³/h	3200 m³/h
Maximum power input	1.0 kW (230 V)	1.0 kW (230 V)
Power input at the operating point	0.47 kW, free-blow, recirculation	0.7 kW, free-blow, recirculation
Number of supply air fans	2	3
Cooling capacity (t _A 36 °C, 30 % RH)	10 kW ¹⁾	15 kW ²⁾
Refrigerant	Water, external chiller	Water, external chiller
Outside air filter class	ePM2.5 65%	ePM2.5 65%
Unit dimensions (H x W x D)	2 154 x 765 x 421 mm	2 154 x 1275 x 421 mm
Outdoor unit dimensions (H x W x D)	972 x 678 x 381 mm	763 x 1275 x 381 mm
Unit weight	160 kg	372 kg
Sound pressure level, A-weighted, at a distance of 5m, free field	45 dB(A)	45 dB(A)
Supply voltage	230 V	230 V

Propane Chiller – Technical data for Air 35°C / Water 7°C

Nominal cooling capacity	11.1 kW	13.51 kW
Total power input	3.77 kW	5.19 kW
EER	2.94	2.65
Water flow rate	0.6 l/s	0.73 l/s
Nominal pump head	88 kPa	88 kPa
Sound pressure at 1m	51 dB(A)	56 dB(A)
Brine temperature (inlet/outlet)	12/7°C	12/7°C
Dimensions (L x W x H)	1466 x 1035 x 560 mm	1466 x 1035 x 560 mm

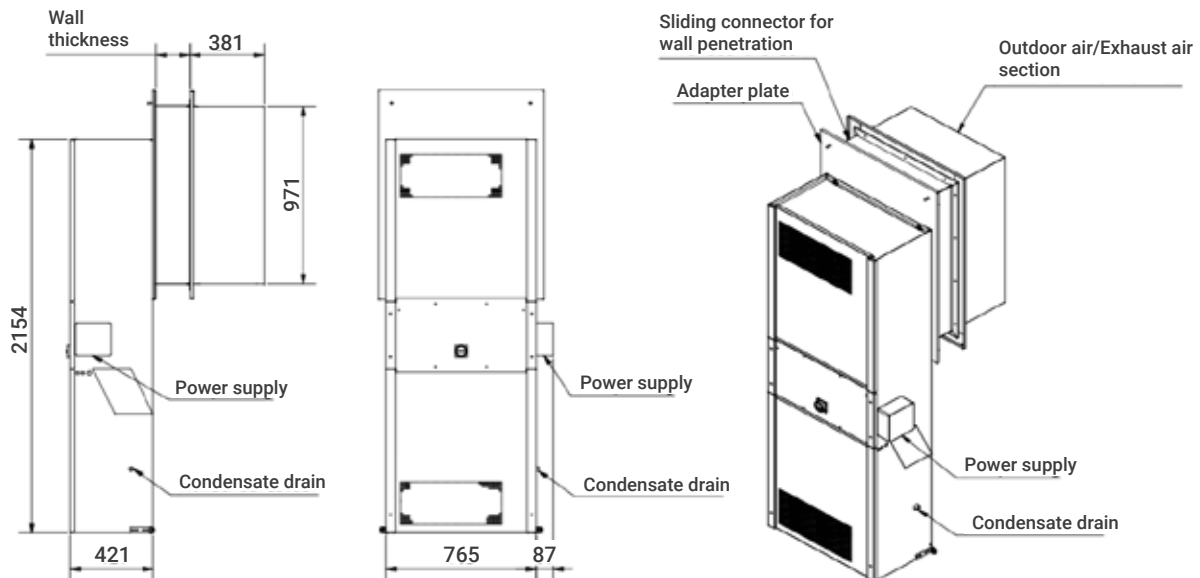
1) 30% ethylene glycol – brine temperatures 12/7°C

2) 30% ethylene glycol – brine temperatures 12/7°C – 13.5 kW with the illustrated propane heat pump; 15 kW is possible with a chiller of equivalent capacity.

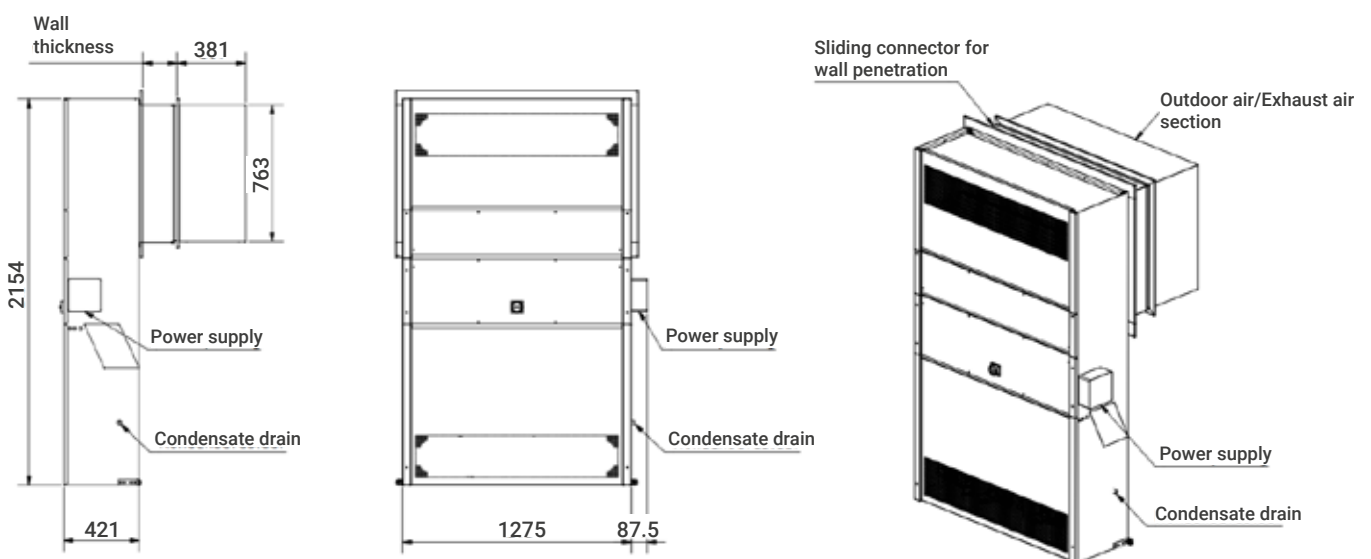
More technical data available on request.

DIMENSIONAL DRAWINGS: SLIM LINE CHILLED WATER

Slim Line 10 kW Chilled Water



Slim Line 15 kW Chilled Water



SLIM LINE CHILLER

Chiller using R290 (propane)



Features:

- Capacity-controlled compressor
- Integrated brine circulation pump
- Reversible operation (option)
- 70-litre buffer tank (not shown)

Water cycle:

The unit is designed to be connected to a water circuit and is equipped with the following components:

- High-efficiency primary circulation pump
- Automatic air vent valve
- Safety valve (3 bar)
- Flow monitor for monitoring water circulation
- Pressure gauge
- System-side 8-litre expansion vessel (with a usable capacity of 4.8 litres and a pre-charge pressure of 1 bar)
- Modulating primary circulation pump with a brushless DC motor, protection class IP44

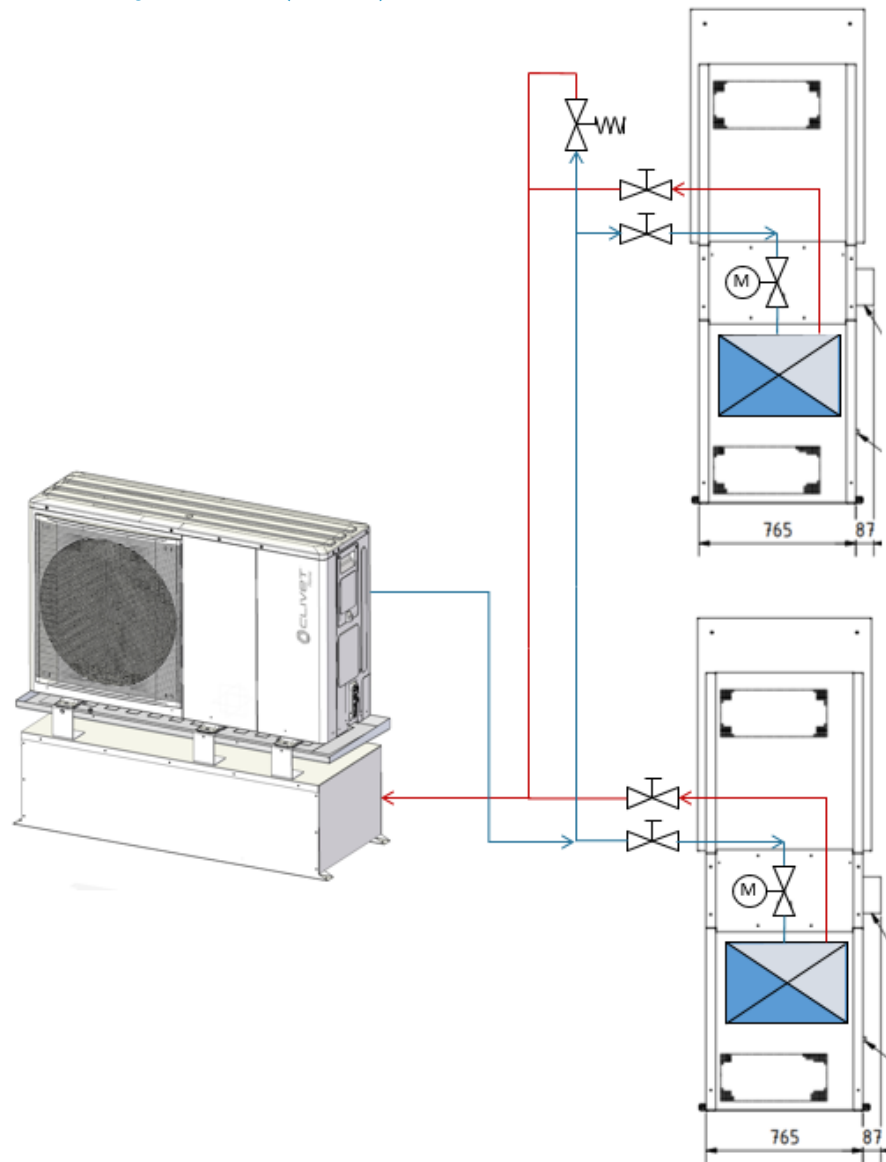
More technical data available on request

Alternatively, the unit may be connected to an on-site chilled water unit or to an existing chilled water supply.

The detailed hydraulic design shall be the responsibility of the customer.

EXAMPLE

10 kW Redundant System (N+1)



The example shown illustrates a compact configuration of a redundant system with a cooling capacity of 10 kW, a maximum pipe length of 20 m, and a pipe diameter of 42 mm. The chiller must be installed outdoors at a minimum distance of 3m from the outdoor air intake/exhaust air hood.

In general, the detailed hydraulic design shall be carried out by the client, taking into account the requirements of the overall system and the site-specific structural constraints.

REFERENCES

Deutsche Telekom

More than 8 000 HANSA air handling units with mechanical cooling capacities ranging from 7 to 125 kW and airflow rates of at least 1 500 m³/h have been installed.



EWE

In 2009, the foundation was laid for a successful long-term partnership with the energy supplier EWE.



Rittal

Rittal GmbH & Co. KG uses HANSA Slim Line units in its data centre containers, which are deployed worldwide.



Fibre Optics North-West

Glasfaser Nordwest uses our Slim Line Q units to cool equipment containers supporting its fibre-optic network in northern Germany.



Post Luxembourg

Our equipment is also installed in telecommunications stations operated by POST Luxembourg.



Allgäuer Überlandwerk (AÜW)

Our Slim Line units are used to cool server rooms at the regional energy supplier Allgäuer Überlandwerk (AÜW).

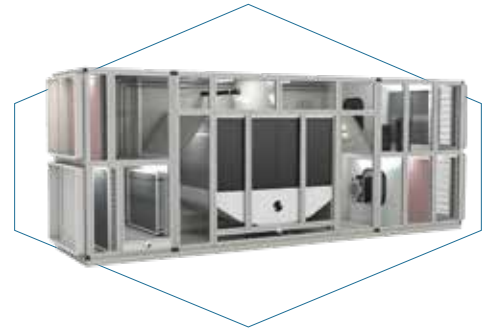


» Further references are available on request.

MORE PRODUCTS

Blue Line

Highly customisable ventilation and full air-handling units with central heat recovery, designed for energy-efficient operation. All standard heat recovery systems can be integrated, including plate heat exchangers, rotary heat exchangers, run-around coil systems and Accublock.



Compact Line

The modular design of this product range enables cost-effective manufacturing while providing maximum flexibility and versatility. The units are designed to meet high quality standards while ensuring cost-effective operation.



Free Line

Our Free Line units are fully customisable air-conditioning units designed for the free cooling of server rooms and, more generally, for the dissipation of process heat. They can be perfectly adapted to a range of applications.



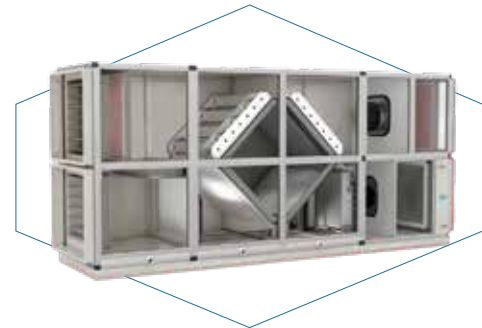
ReCool Line

Recirculating air cooling units for removing excess heat from spaces with high thermal loads – whatever the operating conditions. Put your trust in HANSA, the climate specialist, and choose the recirculating air cooling unit that best meets your requirements.



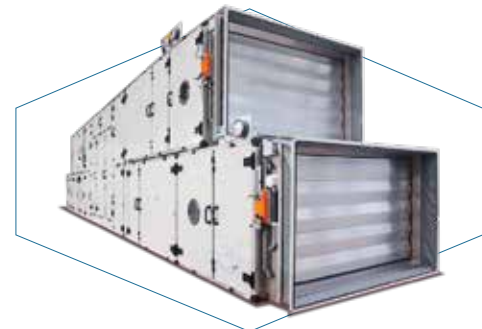
Pool Line

Swimming pool dehumidifiers are designed to provide comfort, protect the building, and operate efficiently. Their durable, energy-efficient design helps to reduce operating costs while meeting the specific requirements of each project.



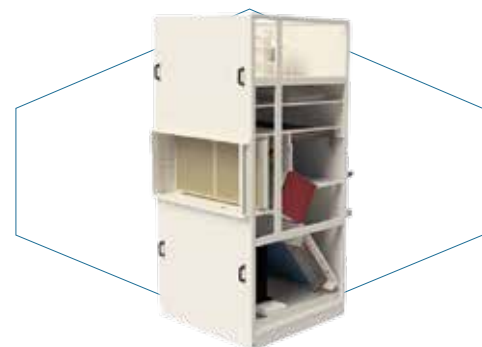
Blue Line Hy

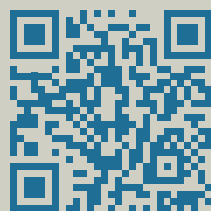
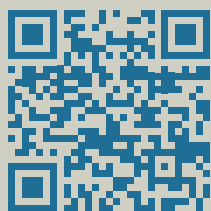
Germ-free, clean air is an essential requirement in hygiene-sensitive environments. Our Blue Line Hy air-handling units condition the air to meet specific application requirements.



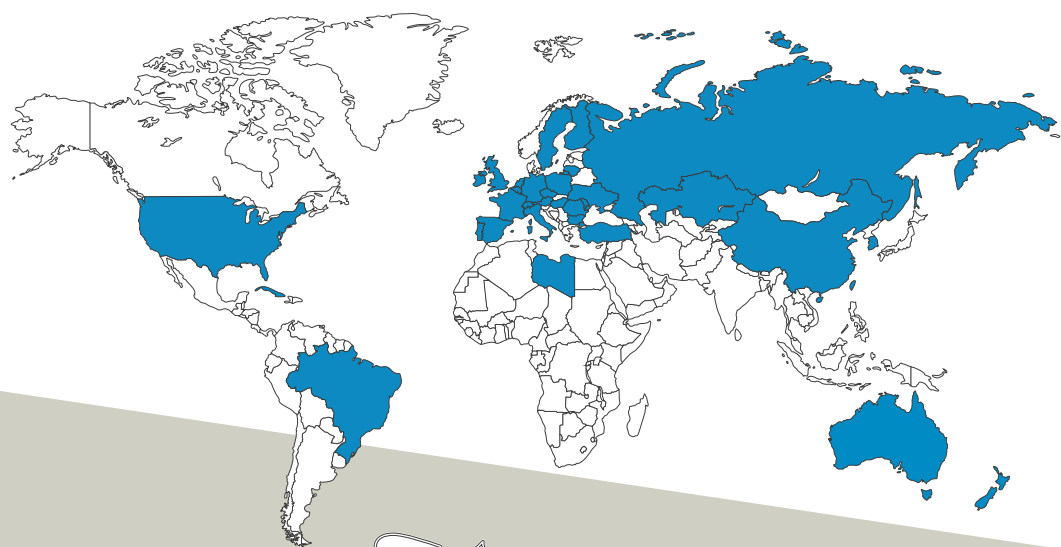
Specialised units

Our specialist product range includes the LF-HY (food hygiene) and Hygro Line (recirculating-air dehumidification) series. More detailed information about all our products is available on our website.





Our units around the world





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