



# **HEAT DISSIPATING UNITS FOR SERVER ROOMS AND DATA CENTRES**

Secure and energy-saving solutions for your investment protection

Slim Line



# ABOUT US

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Since 1961, HANSA Klimasysteme GmbH has had its headquarters in Strücklingen in the municipality of Saterland – which, with its Saterland Frisian dialect, is recognised as the smallest language enclave in Germany. However, we speak plainly through our products.

## Our company

Since the company was established, we have earned a positive reputation throughout Germany and far beyond for the construction of air handling equipment for schools, sports halls, swimming pools, hospitals and industrial and process engineering applications. On this basis, we offer a broad range of different air conditioning units for a wide variety of applications.

We guarantee a maximum level of quality, functionality and reliability, as well as excellent energy efficiency. Throughout the

We have been the guarantee for high-quality, technically sophisticated air conditioning systems for many decades. Our company is distinguished by continuity and stability, with the Neumann family having managed the enterprise since 1971.

course of our development work, numerous property rights have been registered with the European Patent Office, where they were found to be patentable and worthy of protection.

As a member of RLT Herstellerverband e.V., the AHU manufacturers' association, we design our units to comply with AHU directives, ensuring that our customers and the operators of our systems enjoy quality, operational reliability and legal certainty at all times.

## Our team

We continuously train our employees and young talent in order to safeguard our future. The HANSA team consists of experienced skilled professionals in the areas of air handling equipment manufacturing and the associated specialised divisions for refrigeration technology and control technology and systems.

Design and production are executed under QM conditions and in accordance with DIN EN ISO 9001:2015.

Our sales team consists of experts who are certain to plan and develop the ideal solution for you.

## Our philosophy

Our goal is to fulfil our customer's wishes in an optimum manner and, also, contribute to the protection of the environment. We provide systems for this purpose which, thanks to flexible production processes and modern components, can be adapted to the individual operating conditions at customers while simultaneously consuming as little energy as

possible. Investment and energy costs also fall, as the energy needs of the entire system and individual modules can be reduced without impairing the performance of the system.

We have been a climate-neutral company since 2020, and the manufacture of our products is also climate-neutral.

## Committed to the climate – and not only through our equipment



HANSA is a member of the Herstellerverband Raumlufotechnische Geräte e.V. association for AHU manufacturers

# COMPACT & POWERFUL

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## Slim Line wall units

Intelligent damper technology make this the slimmest unit in the Slim Line series. Our wall unit is available with a cooling capacity of 7 kW and 10 kW and has provided our customers with excellent ser-

vice for many years. Aside from an unbeatable price-performance ratio, Slim Line units of this design are extremely compact, yet perfectly adaptable to your requirements.

- Ultra-flat air conditioning unit with a separate exhaust air and outside air unit
- Design of fans in state-of-the-art EC technology
- Supply air guiding at front or in a double base
- Proven performance over many years
- Low noise emissions
- Sophisticated technology
- Turnkey design ready for connection
- Cooling circuit hermetically sealed

## Slim Line Q

The compact Slim Line Q air conditioning unit fills the gap between the Slim Line and our Free Line units.

Numerous clever detailed solutions meant that a separate external unit could be dispensed with, and this without losing the significant advantage of the Slim Line series, namely usage where spatial conditions are confined.

Our concept offers you uncomplicated and, consequently, cost-effective installation and a high degree of profitability for your investment.

The Slim Line Q is also VDI 6022-compliant.

And all of this is, of course, distinguished by proven HANSA quality.

### Our Slim Line Q units:

- Compact and powerful up to 15 kW
- Easy installation
- Mobile if necessary, and can be moved with little effort
- Available with 7 and 15 kW Cooling capacity
- Variable connection options
- Powerful energy-efficient fans
- VDI 6022 compliant
- Cooling circuit hermetically sealed
- Available with digital scroll and low GWP R513A refrigerant (GWP: Global Warming Potential)



We have had the VDI 6022 conformity of our Slim Line Q units certified by an independent institute.

# EFFICIENCY

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## Reduction of operating costs

Circulating units (also known as split units) only cool the air in a room subjected to thermal stress and, consequently, rely on the continuous and operationally costly use of a mechanical cooling system. On the other hand, our SLIM LINE units exploit freely available cooler outside air, thereby reducing the running time of the mechanical refrigeration system.

Outside air temperatures in Central Europe rarely exceed the temperatures aimed for in rooms under high thermal

stress (e.g. server rooms). Our compact Slim Line air conditioning units use this outside air to reduce the running times of the mechanical refrigeration system in Germany (data pursuant to DIN 4710, Frankfurt a. M.) to approx. 7% of the service life (Fig. 1) and, consequently, reduce operating costs considerably when compared to recirculating air cooling units. Added to this is performance control of the supply and exhaust air fans relative to the thermal load and outside air temperature.



Fig. 1: The refrigeration system of a Slim Line Q15 air conditioning unit is used during about 7% of its service life.

The histogram shown in Fig. 2 illustrates the distribution of hours / year for each temperature. The temperature range in which the mechanical refrigeration system is active is marked in red. The total power requirement of the compressor

and controlled fans per hour and temperature for the Slim Line Q15 (green) and a 15 kW recirculating air cooling unit with external condenser (yellow) is also illustrated.

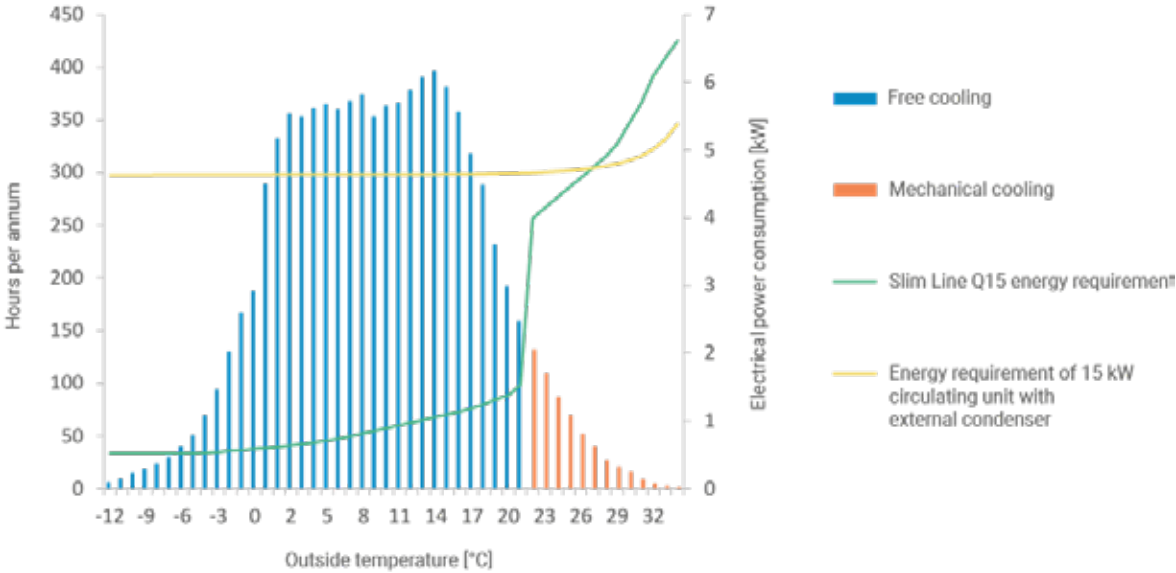


Fig. 2: The distribution of annual hours over the temperature range -12 °C to 32 °C. The refrigeration system compressor operates as of 22 °C, while the energy requirement decreases considerably at low outside air temperatures through deactivation of the compressor and gradual speed reduction of the fans.

The reduction in the power requirement of the Slim Line units following deactivation of the refrigeration compressor for outside air temperatures below 22 °C is

clearly identifiable, while the recirculating air cooling unit consumes a practically constant level of power for the refrigerator and circulating fan.

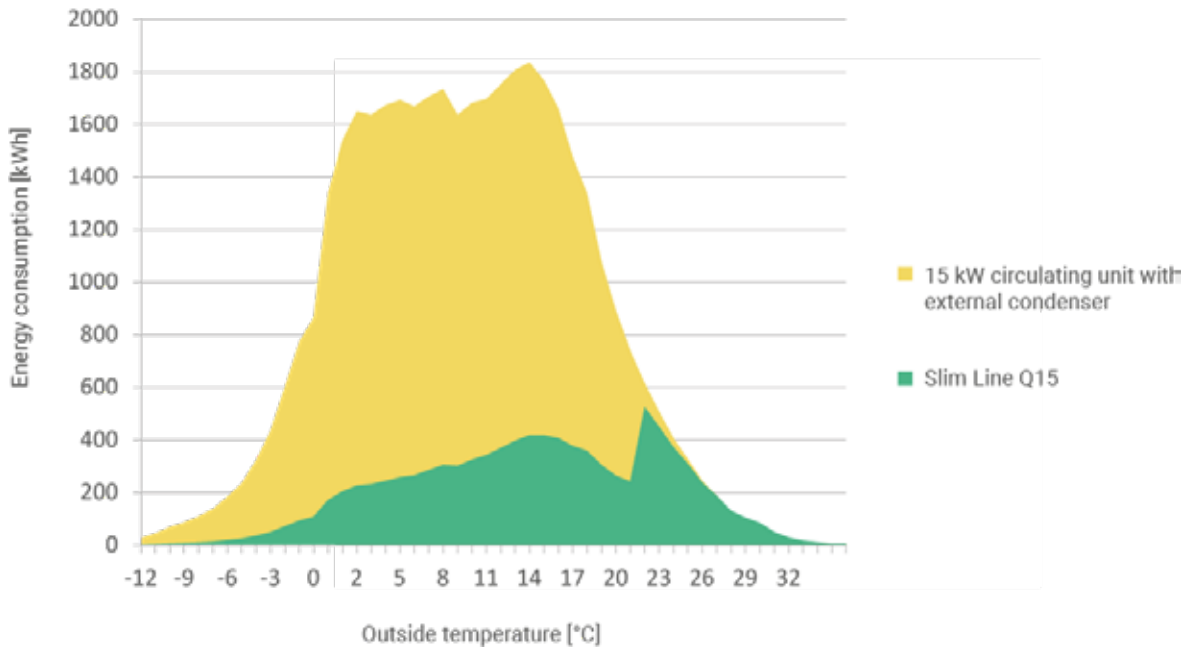


Fig. 3: The total energy requirement of the main consumers (refrigeration compressor and fans) relative to temperature calculated over a year. Slim Line units use their advantage over purely recirculating air cooling units at temperatures below 22 °C by exploiting free cooling.

The total energy requirement resulting from use of mechanical and free cooling and operation of the drive of both fans is indicated in Fig. 3 for the relevant temperature range (green). The requirement of a recirculating air cooling unit with an identical refrigeration system (yellow) is also indicated.

The annual requirement for cooling by both systems (each 15 kW cooling capacity) over the entire temperature range is as follows:

Recirculating air cooling unit: 40,550 kWh

Slim Line: 9,671 kWh

This is equivalent to a saving of approx. 76%. The operating costs in this regard at an electricity price of €0.30 / kWh are as follows:

Recirculating air cooling unit: €12,165 per annum

Slim Line €2,901 per annum

**Savings: €9,264 per annum**



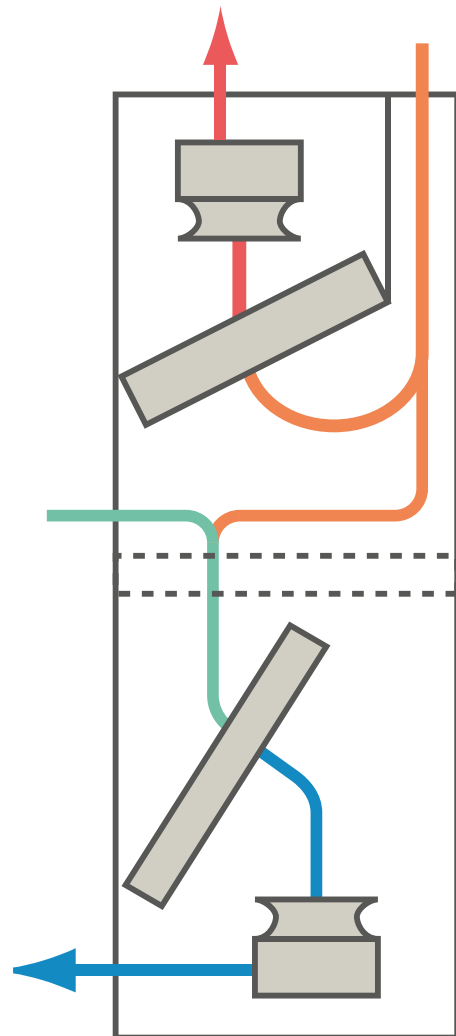
# OPERATING MODES

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## Cooling with outside air

As long as outside air can cool the room according to your specifications, the Slim Line unit exploits this free cooling without activating the mechanical refrigeration system.

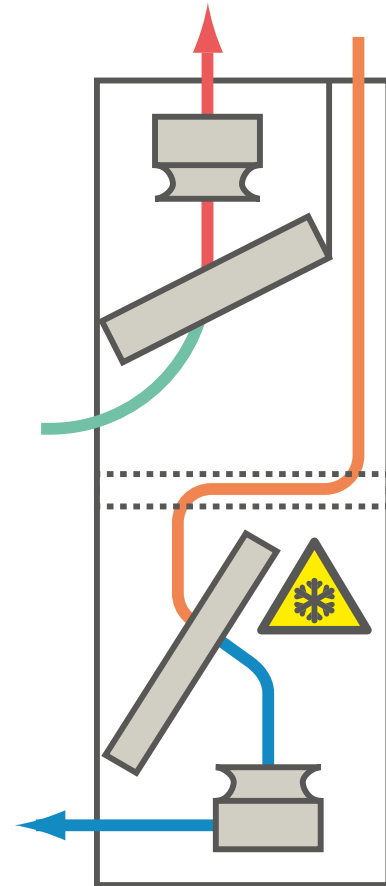
The flow rate supported is reduced as far as possible relative to the room load. Enough room air is added to the cooler outside air to achieve the desired supply air temperature.



## Cooling with outside air and refrigeration system

The refrigeration system is activated when outside air alone no longer meets the requirements.

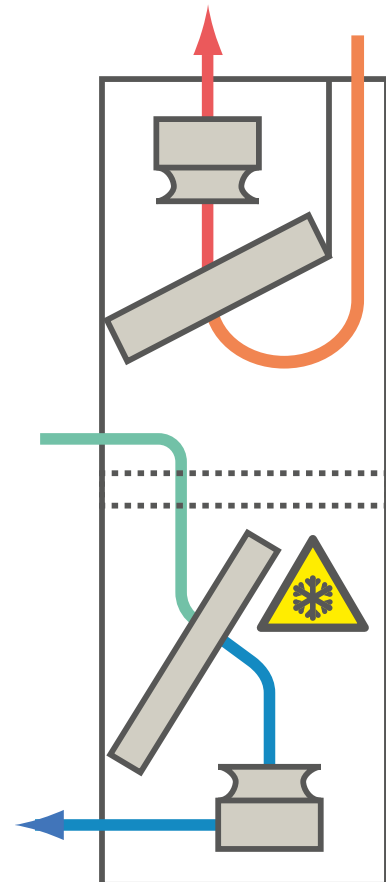
The exhaust air fan with continuous speed control ensures a balanced flow ratio.



## Cooling with circulating air and refrigeration system

The cooler room air is conditioned if outside temperatures are high. The exhaust air fan draws in outside air and adds this to the exhaust air for the recooling of the condenser.

Increasing the speed of the exhaust air fan with continuous speed control enables it to convey an increased flow rate to ensure condenser recooling.



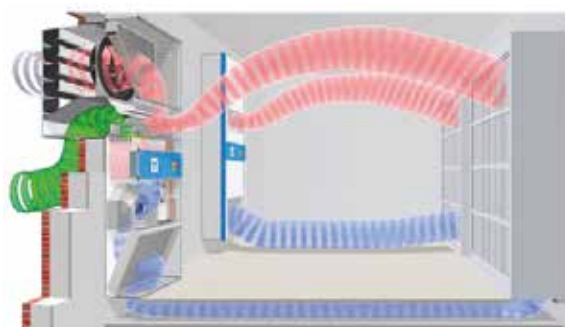
# FUNCTION & CONTROL

## Optimum adaptation to thermal conditions

AHU units in the Slim Line series are specially designed for use in confined spatial conditions in rooms with a high thermal load.

The concept of supply air and exhaust air conveyance in the floor or ceiling area corresponds to the thermal flow behaviour of the air and, consequently, ensures maximum efficiency.

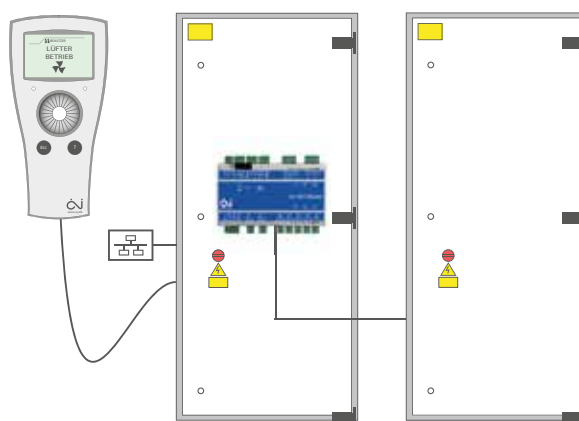
Supply air can be introduced via a double base or duct.



## Flexible control

Our Slim Line units can be parameterised via the operating display or web interface by any Internet-capable PC and then work completely independently. Redundancies can also be developed according to the n+1 principle through DDC control of the Slim Line series.

The communication required for the redundancy and system switching is realised via a BUS line between DDC systems. Intermittent operation and regular load switching can also be realised through DDC control.

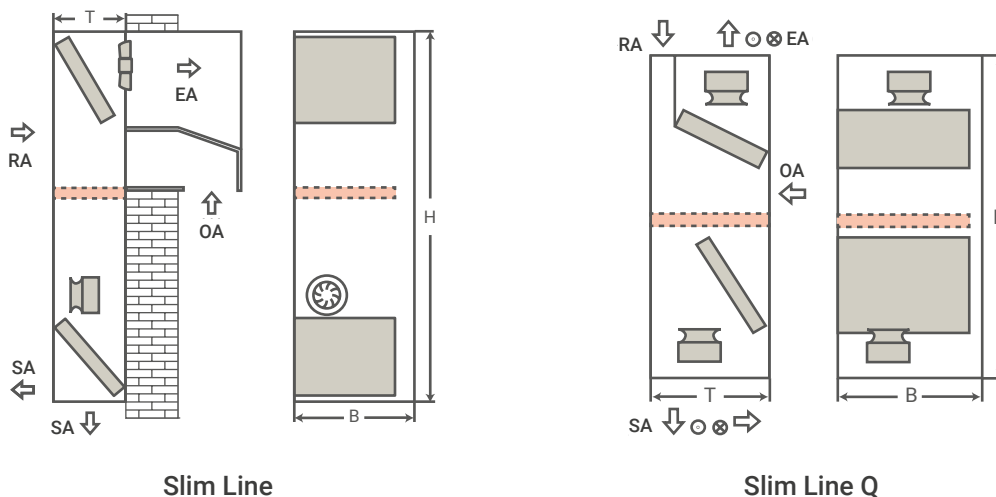


# TECHNICAL DATA

	Slim Line 7 kW	Slim Line 10 kW	Slim Line Q7 kW**	Slim Line Q15 kW**
Supply air fan flow rate	1 700 m <sup>3</sup> /h	2 300 m <sup>3</sup> /h	1 700 m <sup>3</sup> /h	3 214 m <sup>3</sup> /h
Input power	0.05 ... 0.49 kW (230 V)	0.05 ... 0.49 kW (230 V)	0.05 ... 0.75 kW (230 V)	0.05 ... 1.14 kW (400 V)
Power consumption at operating point	0.16 kW freely discharging	0.33 kW freely discharging	0.37 kW at 200 Pa external	0.8 kW at 250 Pa external
Speed	0 ... 2 435 min <sup>-1</sup>	0 ... 2 435 min <sup>-1</sup>	0 ... 3 000 min <sup>-1</sup>	0 ... 2 400 min <sup>-1</sup>
Exhaust air fan flow rate	0 ... 1 900 m <sup>3</sup> /h	0 ... 2 800 m <sup>3</sup> /h	0 ... 1 900 m <sup>3</sup> /h	0 ... 4 000 m <sup>3</sup> /h
Input power	0.05 ... 0.41 kW (230 V)	0.05 ... 0.41 kW (230 V)	0.05 ... 0.75 kW (230 V)	0.05 ... 1.32 kW (400 V)
Power consumption at operating point	0.12 kW freely discharging	0.29 kW freely discharging	0.26 kW at 200 Pa external	0.75 kW at 250 Pa external
Speed	0 ... 1 630 min <sup>-1</sup>	0 ... 1 630 min <sup>-1</sup>	0 ... 3 000 min <sup>-1</sup>	0 ... 2 060 min <sup>-1</sup>
Cooling capacity (t <sub>a</sub> 36 °C, 30% RH)	7 kW	10 kW	7 kW	15 kW
Refrigerant	R407C	R407C / R513A	R407C / R513A	R407C / R513A
Refrigerator operating voltage	230 V / 50 Hz	400 V / 50 Hz	230 V / 50 Hz	400 V / 50 Hz
Refrigerator power consumption	2.30 kW	3.00 kW / 4.07 kW	2.30 / 2.2 kW	4.60 / 4.3 kW
Outside air filter quality	ePM1 50%	ePM1 50%	ePM1 50%	ePM1 50%
Unit dimensions (H x W x D)	2 372 x 760 x 323 mm	2 372 x 760 x 420 mm	2 050 x 650 x 650 mm	2 065 x 900 x 750 mm
Outer component dimensions (H x W x D)	972 x 678 x 382 mm	972 x 678 x 382 mm	-	-
Unit weight	156 kg	180 kg	200 kg	315 kg
Sound pressure level, A assessed at 5 m distance, free field	40 dB(A)	46 dB(A)	78 dB(A)*	80 dB(A)*
Supply voltage	230 V	400 V	230 V	400 V

\* Silencer (optional)

\*\* Electric heater (optional)



# REFERENCES

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## Deutsche Telekom

More than 8,000 HANSA AHU systems with mechanical cooling capacities between 7 and 125 kW and flow rates of at least 1,500 m<sup>3</sup>/h were installed.



## EWE

2009 saw the cornerstone being laid for promising cooperation with the energy provider EWE.



## Rittal

Rittal GmbH & Co. KG uses HANSA Slim Line units in its internationally successful data centre containers.

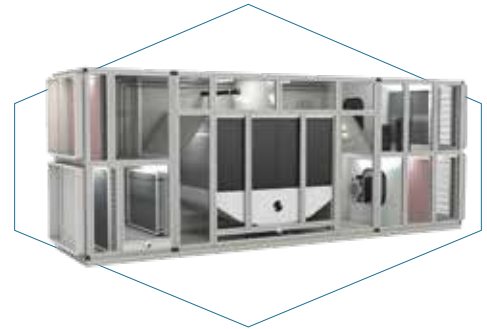


# FURTHER PRODUCTS

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## Blue Line

Highly customisable air handling and full air conditioning units with a central heat recovery system and maximum energetic efficiency. As heat recovery systems, all conventional systems can be integrated: plate exchangers, rotors, closed-loop systems and Accublock.



## Compact Line

The concept behind this product line enables cost-effective manufacturing with simultaneous flexibility and application freedom, thanks to modularisation. A higher quality standard and cost-effective operation are guaranteed.



## Free Line

Our Free Line units are freely adaptable and configurable air conditioning units for free cooling of server rooms or general dissipation of process heat. They can be perfectly adapted to a range of application areas.



## ReCool Line

Recirculating air cooling units for cooling rooms under high thermal stress. Whatever the marginal conditions may be, place your trust in HANSA, the air conditioning specialist, and select the right recirculating air cooling unit for your needs.



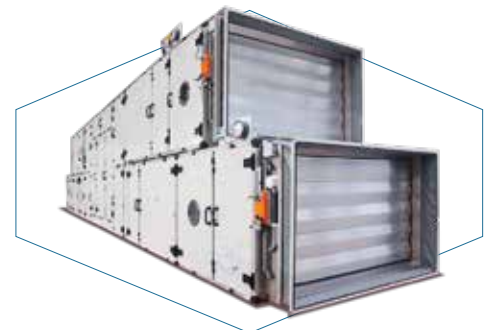
## Pool Line

Swimming pool dehumidifiers provide guaranteed comfort and constant building protection. You too can benefit from the durability and energy efficiency of our units while, simultaneously, also reducing your operating costs.



## Blue Line Hy

Clean germ-free air is essential for hygienic rooms. Air can be treated according to respective requirements with our Blue Line Hy air handling units.



## Special units

Special units encompass the LF-HY (food hygiene) and Hygro Line (recirculating air dehumidification) product series and Hepa Tower (400 and 1200) air handling units. You can obtain more precise information on all products on our website.



# NOTES

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# NOTES

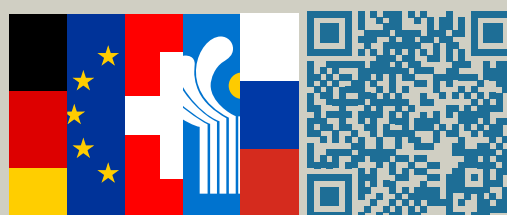
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**FIND YOUR CONTACT IN GERMANY  
AND INTERNATIONALLY ON OUR WEBSITE:**



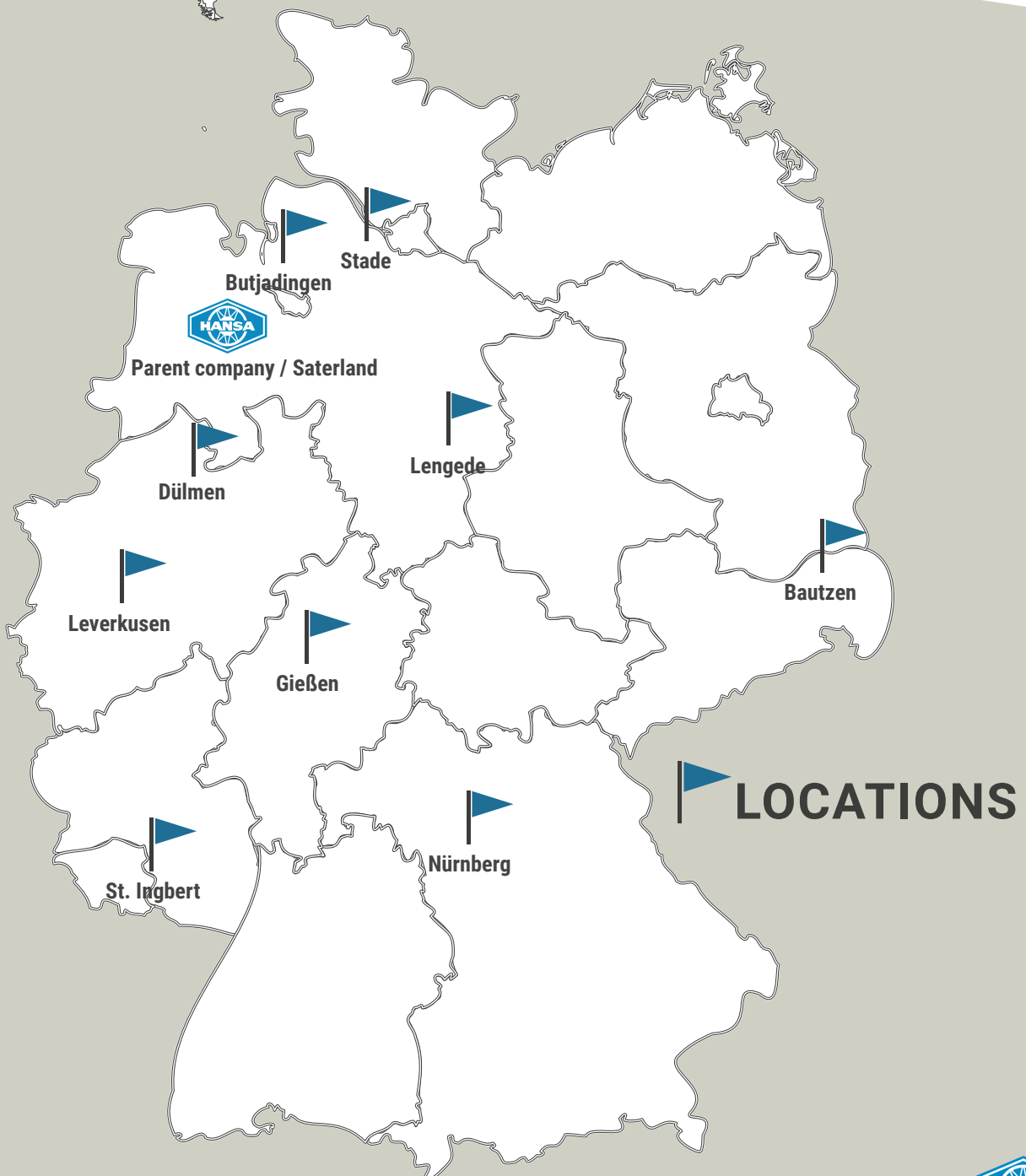
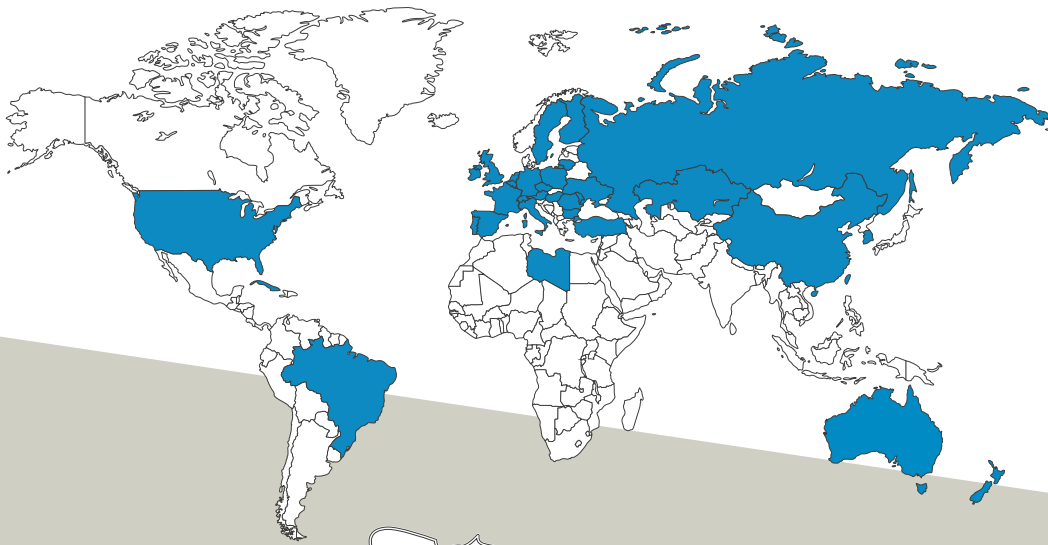
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[hansa-klima.de/en/distribution/international](https://hansa-klima.de/en/distribution/international)



# Our units around the world





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[hansa-klima.de/en](http://hansa-klima.de/en)