



AIR CURTAIN / OVERPRESSURE SYSTEMS

Economic solutions for perfect hygiene

LF-Hy



ABOUT US

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

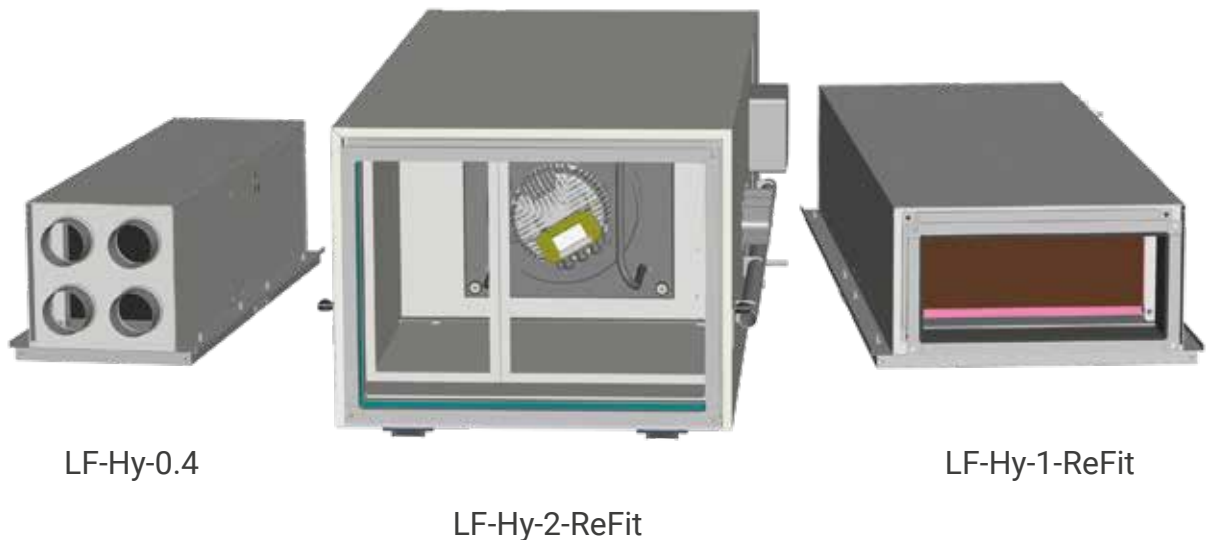
SOLUTIONS FOR FOOD POINTS OF SALE

LF-Hy series air curtain systems conforming to DIN 10505

Food hygiene

HANSA LF-Hy units are crucial for the improvement of food hygiene at points of sale for food and they also significantly influenced the development of the DIN 10505 standard. The HANSA system relies on an air curtain that is guided through the Coanda effect

in a manner that ensures neither fresh produce nor customers are adversely affected by the air flow. Particles and germs remain within the point of sale, while our LF-Hy air handling units process and sterilise the circulating air.



Economy

Our air curtain systems set benchmarks in economical and ecological terms through their design as recirculation units. The principle employed makes reheating or precooling of the airflow unnecessary. The air used already complies with VDI 2082.

Individualisation

Our current models do, of course, comply with DIN 10505 and also provide a variety of options for tailored solutions. For example, the units can be integrated into an on-site refrigeration system and controlled through external enabling.

A simple decision

Our experience gained in the last 40 years not only leads to durable and future-proof units, but also complete system solutions. Our portfolio provides units for counter lengths up to 25 m (LF-Hy-2) with which the air curtain and the appropriate overpressure required in the service area can be generated.

SYSTEM DESCRIPTION

Function

The air is drawn out of the sales area by the fan via the intake grille (1). Existing room conditions (see VDI 2082) ensure here that the treatment of this air in terms of temperature and humidity is unnecessary. The pre-filter (2) on the intake side protects the unit components, particularly the valuable bio-filter. Automatic monitoring and appropriate changing intervals increase the service life of the superior and, accordingly, expensive extra fine particle and bio-filter.

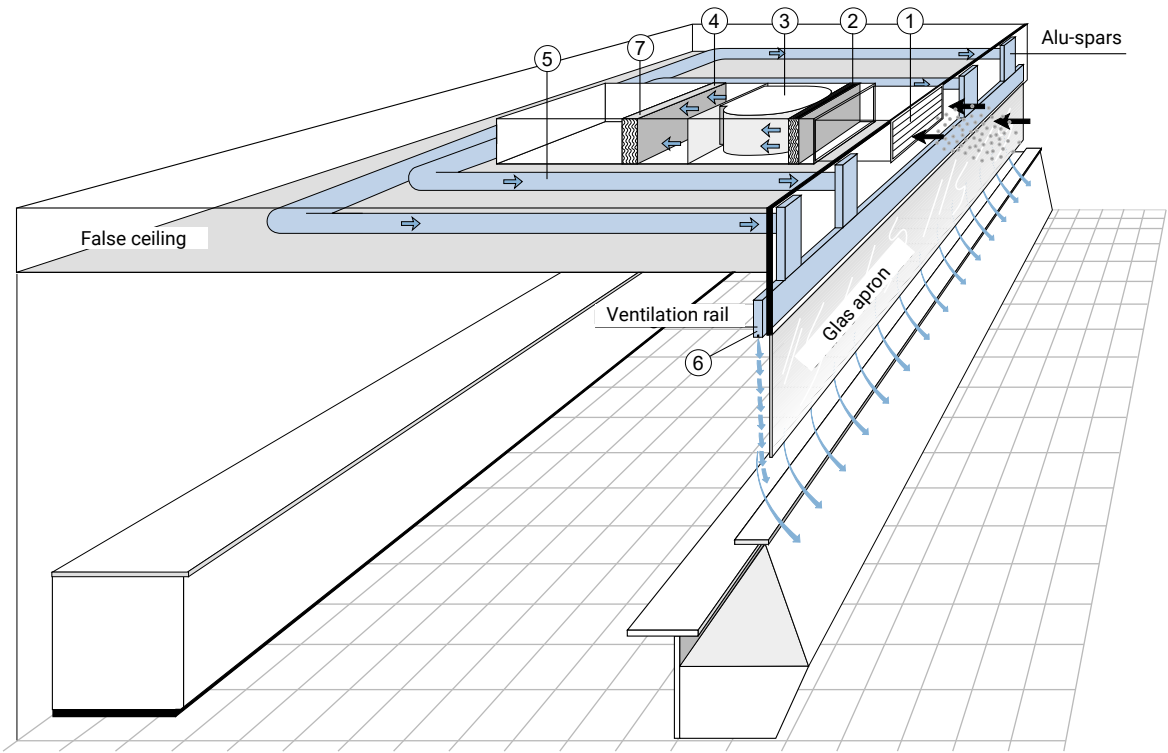
The fan (3) now pushes the precleaned air through the H13 bio-filter (4). This filter decontaminates the air, resulting in practically sterile air being blown into the fresh meat section via the distribution system (5).

The air ideally flows over the ventilation rail (6) as a stable air curtain along the glass skirting (Coanda effect), and then

through the counter opening and back into the sales area (extensive CAD calculations have indicated that, even in the absence of a glass skirting, a stable air curtain can be achieved through the use of a suitable ventilation rail). A stable air curtain is created over the entire length of the counter opening. The flow rate can be continuously adjusted.

The unit is fitted with a two-part inspection flap across the entire surface of the unit underside. One half of the inspection flap can be opened downwards following alternate loosening of the screws, rendering all components accessible for maintenance work. Maintenance work can then be performed with a minimum of effort.

The position of the central unit (7) is depicted below, but a location outside the sales area is also possible.



Air curtain

Our air curtain systems exploit the Coanda effect which guides the air flow along the serving side of the skirting into the customer area. This ensures that neither your fresh produce nor your customers are adversely affected. As a result, low air volumes are required for the air curtain and overpressure, and this distinguishes our system from others. Our system can also be used without glass skirting if not otherwise possible, but only in conjunction with our air slot rails, as these can induce an adequately high jet velocity to generate a stable

air curtain up to the counter surface. Exact distribution of air flows to supply the air curtain and maintain the required overpressure on the serving side of the stand is achieved through on-site volumetric flow controllers. According to DIN 10505, an additional air volume equivalent to 50% of the volume used for the air curtain must be introduced to the service area to generate overpressure and provide additional stability for the air curtain. This air volume can also be generated by the LF-Hy, as depicted in our calculation example (see right side).



LF-Hy-1 calculation example, use for simultaneous generation of air curtain and overpressure:

Our system requires a slot width of 3 mm and an emission speed of 6 m/s. An air curtain over a length of one metre requires a flow rate of

$$V_L = 0.003 \text{ m} \times 1 \text{ m} \times 6 \text{ m/s} = 64.8 \text{ m}^3/\text{h}$$

and a flow rate to maintain the overpressure of

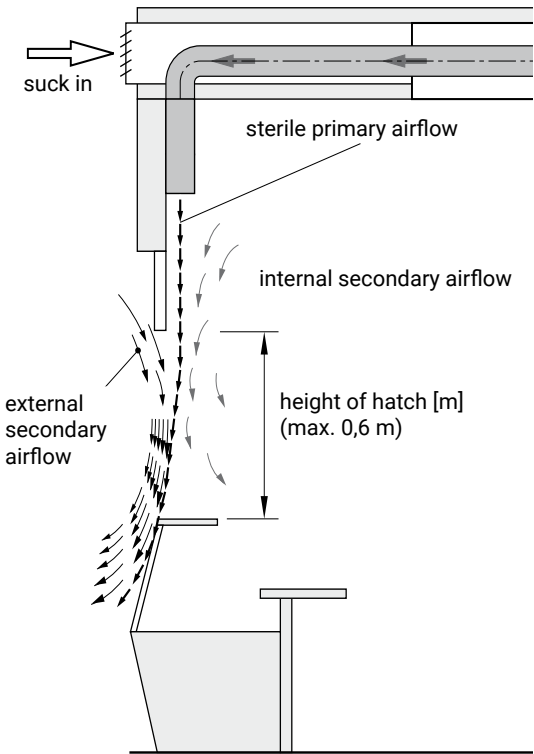
$$V_o = V_L / 2 = 32.4 \text{ m}^3/\text{h}.$$

Different counter lengths result in:

Length [m]	Flow rate [m ³ /h]
1	97
2	194
3	292
4	389
5	486
6	583
7	680
8	778
9	875
10	972

Air flows should be appropriately divided by the duct system.

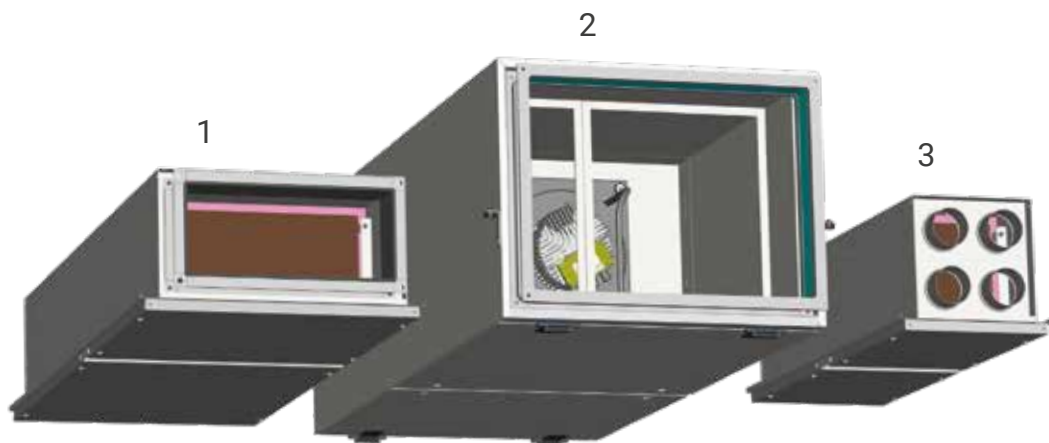
The maximum permissible filter contamination must be taken into consideration.



SYSTEM COMPONENTS

Air handling units

- **LF-Hy-1-ReFit (1)**
Flow rate up to 1,000 m³/h, flexible connector, pre-filter ISO ePM10 55%, fine filter H13, option for retrofitting of a coil (DV or KW)
- **LF-Hy-2-ReFit (2)**
Flow rate up to 2,500 m³/h, flexible connector, pre-filter ISO ePM10 55%, fine filter H13, option for retrofitting of a coil (DV or KW)
- **LF-Hy-0.4 (3)**
Like the LF-Hy-1 in a more compact and lighter design with 4 round connectors and 400 m³/h air capacity, pre-filter ISO ePM10 55%, fine filter H13



Control cabinet

Based on the differential pressure measured and jet pressure flow rate curve, the speed controller is calibrated once during commissioning and its position is noted.

Signalling devices indicate if a filter change is necessary and the required flow rate has been undershot (which can be corrected by simply increasing the speed). Operation can be entrusted to sales staff.



Naturally enough, the control cabinet conforms to DIN 10505. It has a fail-safe operating hours counter, and limiting pressures are indicated visually.

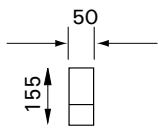
Slotted rails

The HANSA slotted rail system is an integral part of a DIN 10505-compliant system combined with LF-Hy air handling units. The rails contain a rectifier that achieves the maximum thrust distance with minimum turbulence. Rail lengths of 1,250 and 2,500 mm (which can be

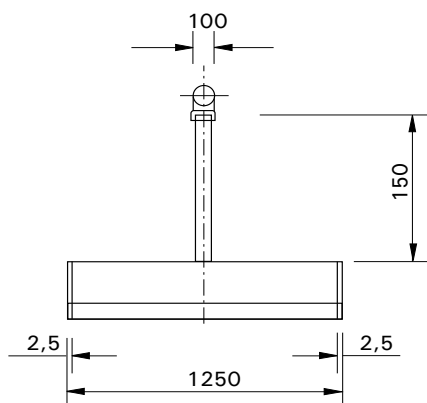
shortened) mean counters up to 25 m in length can be charged with air. The rails can be connected to the round connectors of the LF-Hy-0.4 and the flexible connector of the LF-Hy-1-ReFit and LF-Hy-2-ReFit using tubes or ducts.

Retrofitting

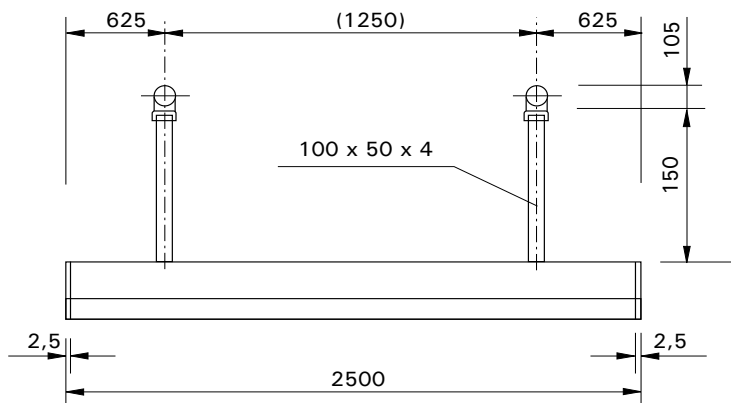
LF-Hy-1-ReFit and LF-Hy-2-ReFit can be retrofitted with coils for cooling. These can be direct evaporators for different refrigerants or cold water coils.



Slot rail profile



Construction module 1250 with a vertical bar



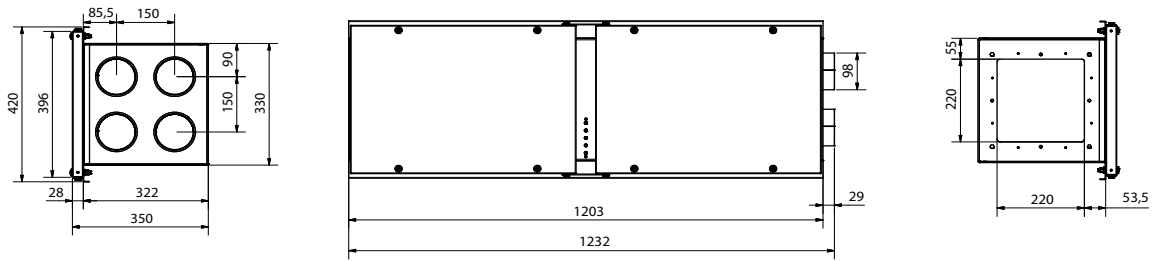
Construction module 1250 with two vertical bars

TECHNICAL DATA

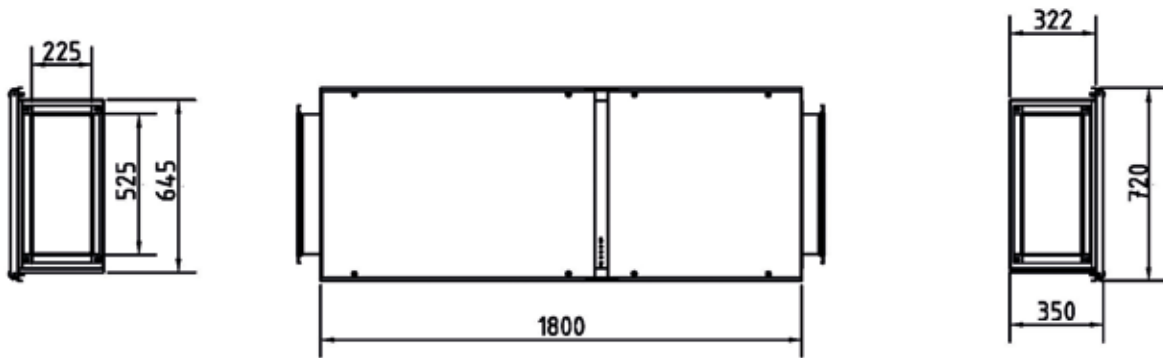
	LF-Hy-0.4	LF-Hy-1 ReFit	LF-Hy-2-ReFit
Supply air fan			
Flow rate	200 - 400 m ³ /h	500 - 1 000 m ³ /h	800 - 2 500 m ³ /h
Motor capacity	0.17 kW	0.55 kW	1.35 kW
Filters			
Pre-filter	ISO ePM10 55% (M5)	ISO ePM10 55% (M5)	ISO ePM10 55% (M5)
Fine filter	H13	H13	H13
Counter length			
Max. counter length (air curtain + overpressure)	4 m	10 m	25 m
Unit dimensions [mm]			
Height	350	350	656
Width	1400	1800	2150
Depth	500	900	1100
Unit weight [kg]	35	100	175
Supply voltage	230 V	230 V	230 V

Equipping with cooling coil: Cooling capacity details available on request

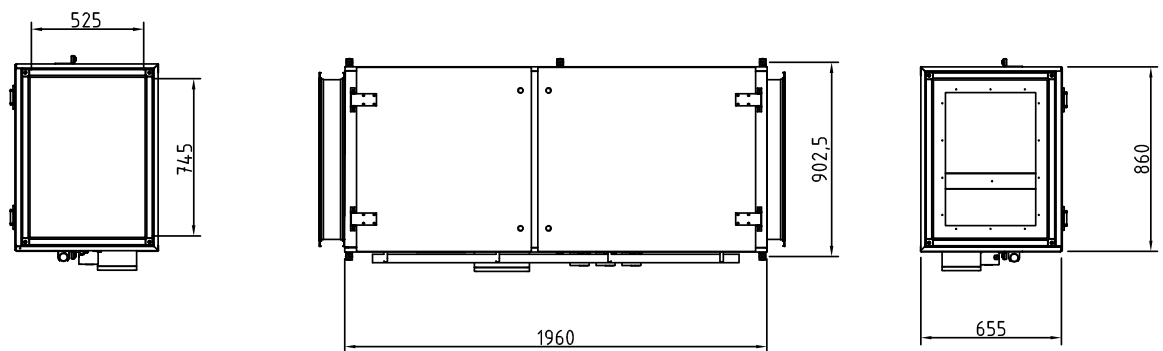
LF-Hy-0.4



LF-Hy-1-ReFit



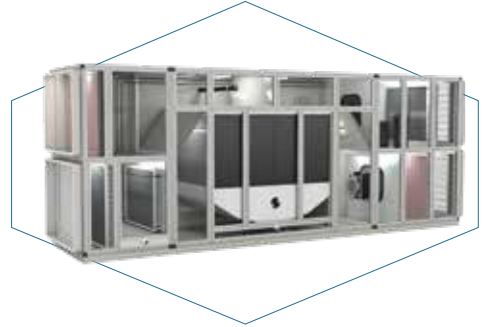
LF-Hy-2-ReFit



FURTHER PRODUCTS

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.



Slim Line

Manufactured in the thousands, the highly efficient and compact units for cooling rooms under high thermal stress have an energy advantage of over 70% when compared to purely recirculation or split units.



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.



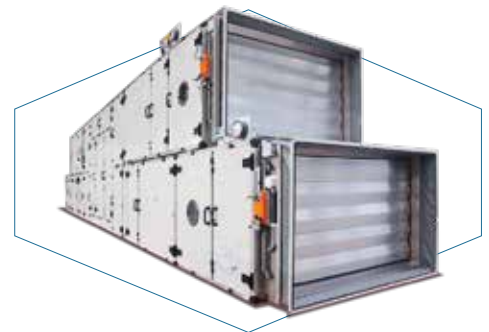
Pool Line

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.



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.



Special units

Special units encompass the 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.



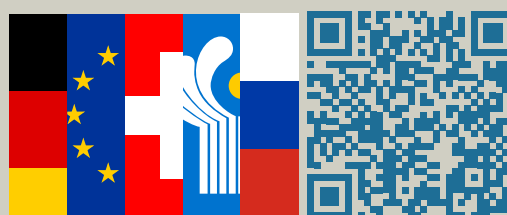
NOTES

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



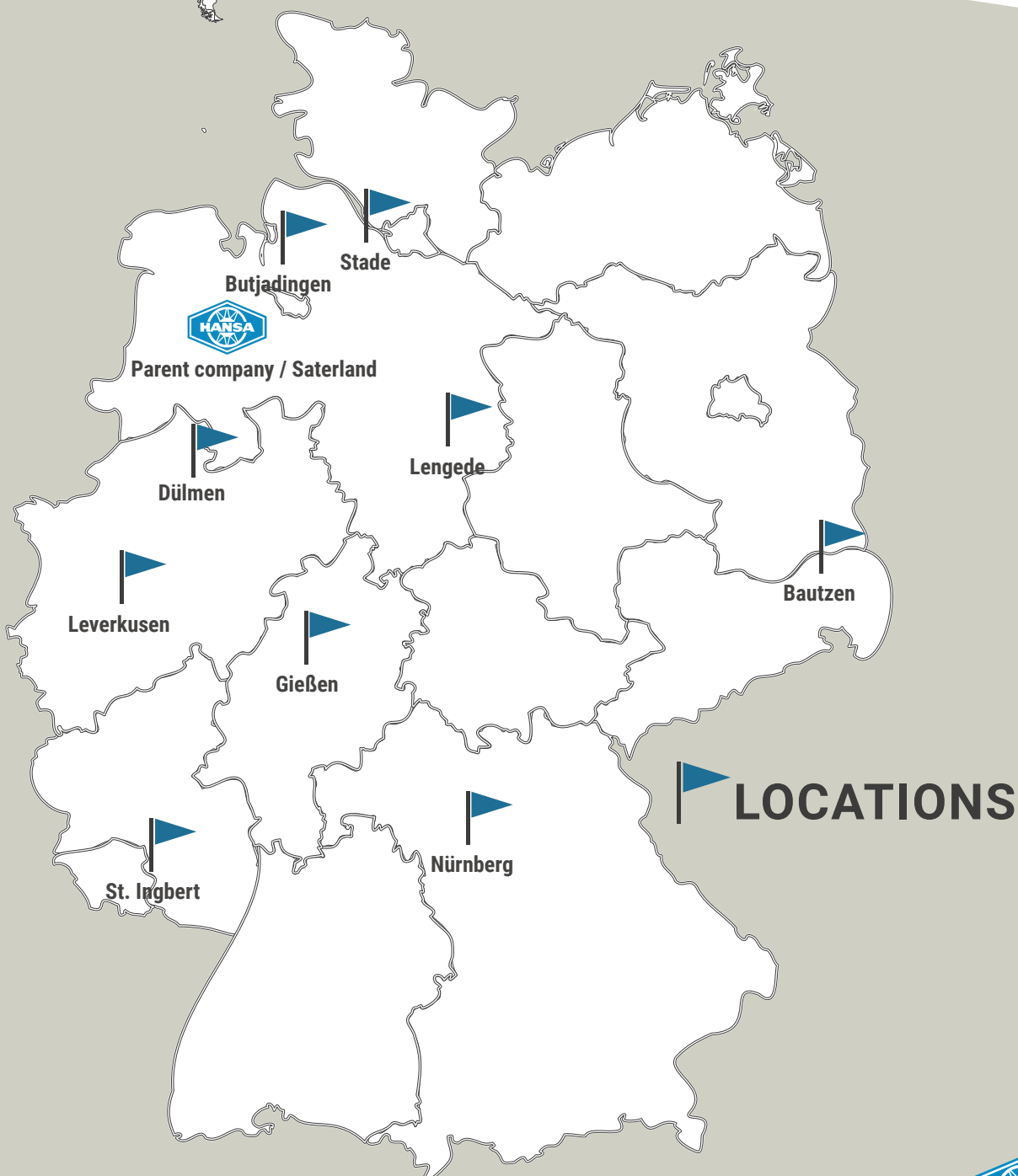
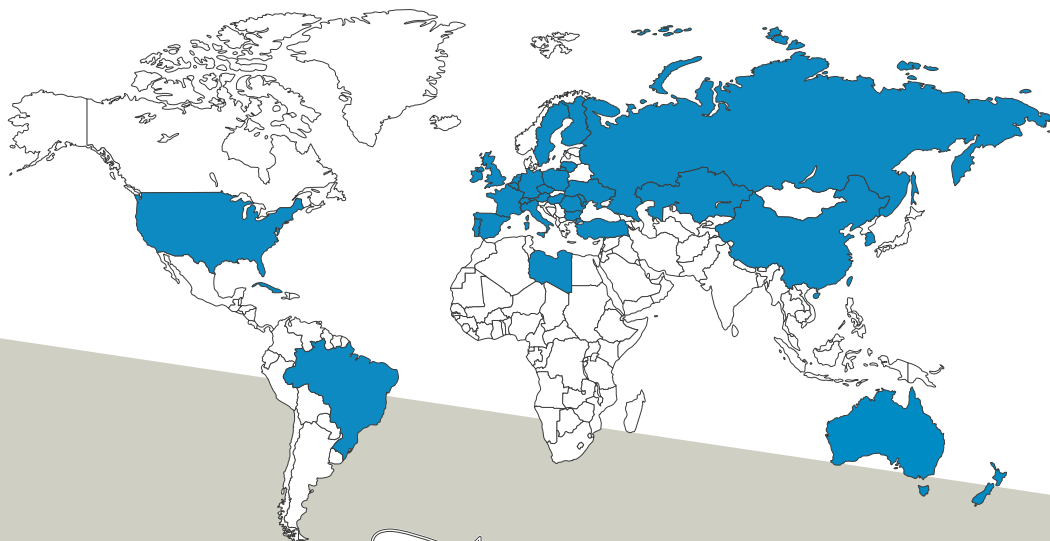
hansa-klima.de/en/distribution/national



hansa-klima.de/en/distribution/international



Our units around the world





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