

Quality of air means quality of life



De Baaije, Auroch



Efficient dehumidification
and climate control solutions
for your swimming pool



HANSA is a member of the association of manufacturers
for air conditioning devices (Raumlufotechnische Geräte e.V.)

Pool Line

About us

Since 1961, the headquarter of HANSA Klimasysteme GmbH is located in Strücklingen in the district of Saterland, which, along with its Sater Friesian, is known as Germany's smallest linguistic enclave. In contrast, we speak in plain language about our products. Since that time, our company has been a guarantor for the production of high-quality ventilation and air-conditioning systems.

The company

Since the founding of the company, we have been known for the construction of air-conditioning systems for schools, sports halls, swimming pools and hospitals as well as for the use in industries and process engineering in Germany and far beyond. Based on our experience with these systems, we have developed a wide range of air conditioning devices that we are pleased to present in our delivery program.

Our constructive solutions for the continuously increasing of today's indoor air quality needs guarantee a constant quality, functionality, and reliability with increasing energy efficiency levels. Many property rights have been registered at the European Patent Office during the development processes and have been considered worthy of patents and protection.

As member of the association of manufacturers for air conditioning devices (RLT Herstellerverbandes e.V.), we undertake to construct our devices according to the associations' guidelines to always guarantee quality, operational safety and legal security for our customers and operators of our devices.

Our Team

We continuously train our employees in order to educate our team to be well-prepared for the changing needs of the industry. The HANSA team consists of experienced experts in the field of air conditioning device production and the associated specialized fields of refrigeration technique, control engineering and control. We have excellent organizational means and state-of-the-art manufacturing machines. The construction and production are performed in QM-conditions according to DIN EN ISO 9001:2015.

Our philosophy

Our goal is to optimally comply with the climate requirements of our customers and to contribute to the protection of the environment. We offer therefore systems that can be adapted to the individual operating conditions of the customers at low energy consumption thanks to flexible production processes and up-to-date components. As the energy demand of the overall system and the individual modules can be reduced without affecting the efficiency of the system, the investment and energy costs will decrease likewise.

Since 2020, we have been a climate-neutral company and our products are produced in a climate-neutral way.



Pool dehumidification

The task

Guaranteeing a high level of comfort and protecting health:

- Adequate exchange of fresh air.
- Compliance with humidity limits.
- Removal of odorous and noxious substances (chlorine / trihalogen methane concentrations).
- Preventing mold growth.
- Air/temperature regulation according to requirements.

Providing building protection:

- Preventing damp spots on wall and ceiling elements.
- Preventing corrosion by adhering to humidity limits.
- Preventing excessive diffusion of steam.

The challenge

- Maximum energy-efficiency management.
- High level of corrosion protection for the unit and all of its components.
- Ensuring high availability.

The HANSA solution

- Careful selection of high-efficiency components for the unit.
- All of the units in our Pool Line series are optimized for their respective application.
- HANSA controller, produced in house, with the optimized Pool Line Energy Management System developed over many years of experience.
- High-efficiency heat recovery systems.
- High level of corrosion protection of all materials and components used.
- Only components from well-known manufacturers are used.

Why HANSA?

- Benefit from our experience: We have been producing swimming pool dehumidifier units for decades.
- Benefit from the durability of our units: Our customers can confirm that they have achieved service lives of several decades despite the units being installed in corrosive atmospheres.
- Reduce your operating costs: Our controller expertise in conjunction with energy-efficient components from well-known manufacturers guarantees optimum energy use and therefore low operating costs for these units.

Our references speak for us:



Pool Line references



etaSmart: AI-based model-based predictive control

What's etaSmart?

Eta (η): Greek letter, it stands for the efficiency of a technical process

Smart: The most intelligent control possible, to run a system with highest efficiency



What exactly does that mean?

etaSmart is the generic term for our new developed model based predictive controller (MPC) for pool dehumidification units

Predictive » able to predict the behavior of the unit in a certain time frame

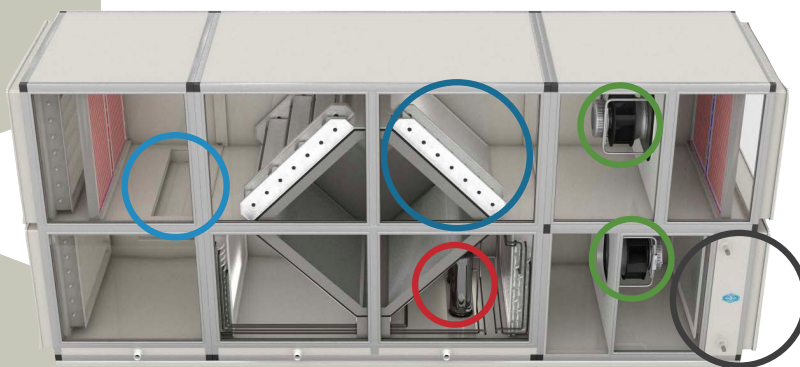
model based » physical behavior of the unit can be calculated using a model

And why?

Influencing variables

- » outside air temperature
- » outside air humidity
- » people in the pool
- » solar radiation
- » weather forecast

Example: HKG-PL-GS-WPD
Pool Line unit with counterflow heat exchanger
Heat pump digital scroll type



Controlled variables

- » mixing air amount
- » heat pump power
- » volumetric flow
- » recirculation air amount
- » hot water power

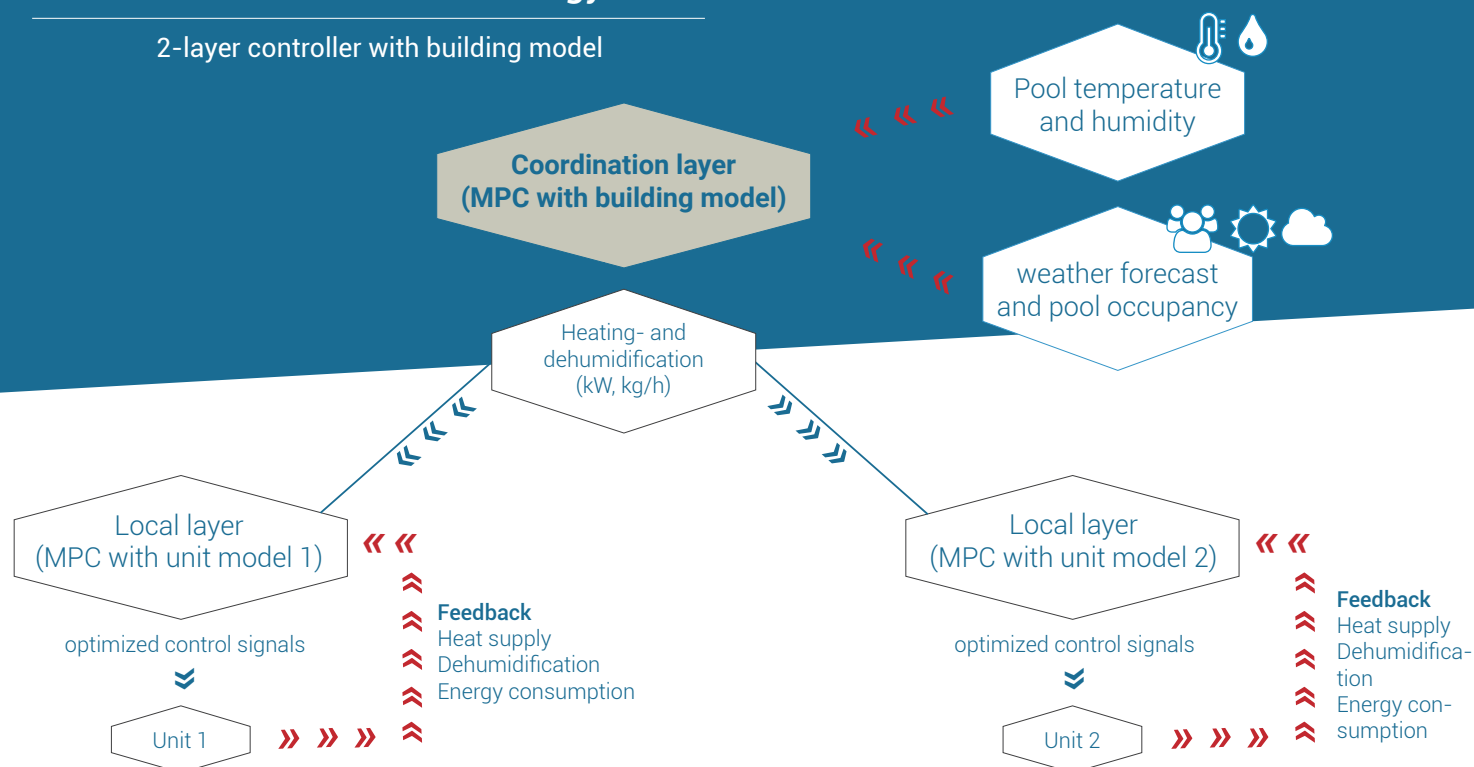
Setpoint variables

- » room air temperature
- » room air humidity
- » lowest energy consumption
- » good comfort

- » Conventional control systems already attempt to optimally adjust the operating mode depending on various influencing variables.
- » As a rule, however, the unit is considered more or less autonomous, without taking into account the influences of the building or to learn from repetitive operating conditions.
- » For a conventional controller without model knowledge of the unit, it is not possible to preset and regulate the optimum operating mode for all possible boundary conditions.

Overview of control strategy

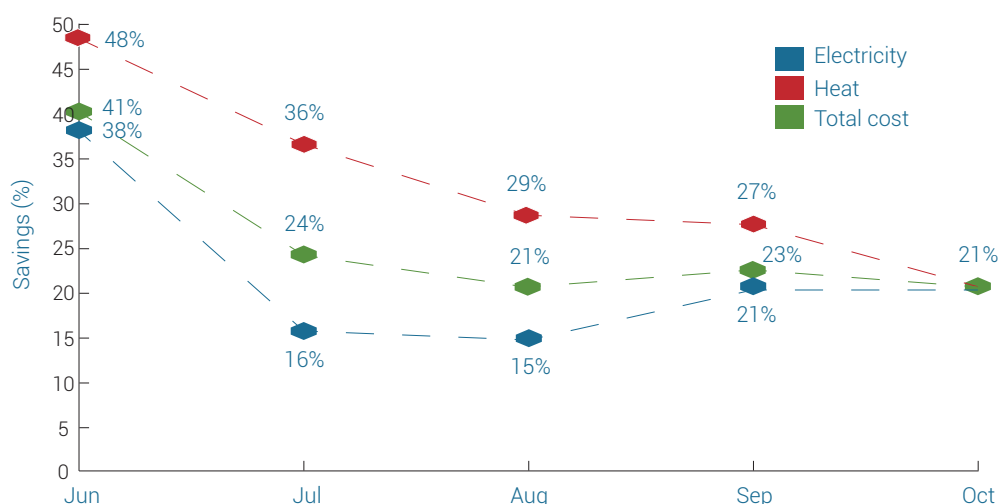
2-layer controller with building model



Execution example: Public pool Ramsloh

- » Main pool 25 x 10m
- » Baby pool
- » 57 m slide
- » Unit 1: HKG-PL-GS-WPD-CS with 12.000 m³/h
- » Unit 2: HKG-PL-DPT-CS with 10.000 m³/h
- » Modelling of units and building

Results for 5 month 2021



Pool Line PL-P



**ErP
READY
2018**

Complies to regulation (EU) 1253/2014 regarding to ecodesign requirements for ventilation units

- Compact units with dual-plate heat exchangers
- Air flow from 1 500 m³/h up to 3 400 m³/h
- Private pool up to 105 m²
Public pool up to 74 m²
Leisure pool up to 54 m²
Wave pool up to 44 m²
Therapy pool up to 25 m²
- optionally available with a freely-controllable heatpump
- Housing design: Highly rigid thermally insulated 30 mm profiles with appropriate panneling, for indoor installation
- Latest generation EC-fans
- Includes unit controller mounted to the side of the unit with optimized operating strategy

The model features and design parameters displayed here have been configured as an example to adhere to the values of the Ecodesign Directive and therefore also to the values of HVAC energy efficiency class A+, without an integrated heat pump. We would be happy to supply a unit optimized to suit your particular application.

Talk to us!



	P-015	P-023	P-034
Width [mm]	670	880	1 080
Height [mm]	2 000	2 000	2 100
Length [mm]	1 860	1 860	2 070
Weight [kg]	565	720	855

Examples of possible different operation strategies



Operation with high recirculation air amount, e.g. winter



100% outside air



Operation @ high outside air temperatures



Recirculation only, e.g. night operation

Area of application ¹⁾		P-015	P-023	P-034
Private pool	m ²	44	67	105
Indoor public pool	m ²	33	51	74
Leisure pool	m ²	24	37	54
Wave pool	m ²	19	29	44
Therapy pool	m ²	11	16	25
Nominal air flow	m ³ /h	1 500	2 300	3 400
Dehumidification capacity ²⁾	kg/h	9,7	14,9	22
Energy recovery				
Power ³⁾	kW	18,2	28,1	41,5
Degree of efficiency acc. to DIN EN 308 ⁴⁾	%	77,6	77,4	78,8
Ext. pressure drop				
Outside air - supply air	Pa	400	400	400
Return air - exhaust air	Pa	400	400	400
Supply air fan				
Electrical system power	kW	0,54	0,87	1,45
Rated motor power	kW	0,75	1,05	1,8
Return air fan				
Electrical system power	kW	0,51	0,83	1,38
Rated motor power	kW	0,75	1,05	1,8
Heating coil ⁵⁾				
Power	kW	8	12	18
Heat pump (optional)				
Heating capacity	kW	7	10,3	15,2
Coefficient of performance	COP	4,6	4,5	4,6
Sound power level at				
Air inlet nozzle	dB(A)	80	82	85
Air outlet nozzle	dB(A)	68	69	73
Outside air nozzle	dB(A)	58	60	63
Exhaust air nozzle	dB(A)	71	73	76
Electric connection data @ 400 V / 50 Hz (with heat pump)				
Voltage	V	230/400	400	400
Connected load	kW	5	6,7	9,6
Power consumption	A	9	12	18
Filters				
Exhaust air filter DIN ISO EN 16890	Klasse ePM1	50%	50%	50%
Outside air filter DIN ISO EN 16890	Klasse ePM1	50%	50%	50%

1) according to VDI 2089 bei $T_{\text{water}} = 28^{\circ}\text{C}$ and $T_{\text{room}} = 30^{\circ}\text{C} / 54\% \text{ r.F.}$, based on the surface of the water

2) according to VDI 2089 at nominal flow rate

3) @ nominal flow rate for $T_{\text{outside air}} = -12^{\circ}\text{C} / 90\% \text{ r.F.}$; $T_{\text{return air}} = 30^{\circ}\text{C} / 54\% \text{ r.F.}$

4) @ nominal flow rate for $T_{\text{outside air}} = 5^{\circ}\text{C} / 10\% \text{ r.F.}$; $T_{\text{return air}} = 25^{\circ}\text{C} / 10\% \text{ r.F.}$

5) air inlet temperature: 18°C ; water temperature: $60^{\circ}\text{C} / 40^{\circ}\text{C}$

Pool Line PL-PGS



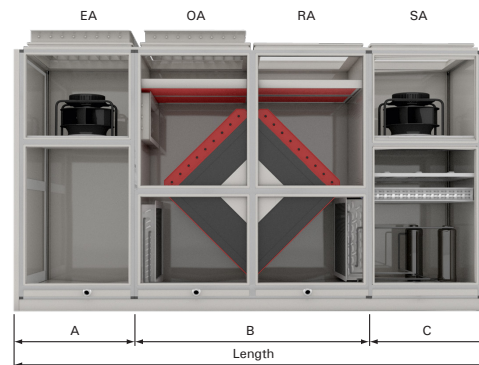
**ErP
READY
2018**

Complies to regulation (EU) 1253/2014 regarding to ecodesign requirements for ventilation units

- Compact units with counter flow heat exchangers
- Air flow from 4 000 m³/h up to 8 000 m³/h
- Private pool up to 227 m²
Public pool up to 174 m²
Leisure pool up to 124 m²
Wave pool up to 100 m²
Therapy pool up to 56 m²
- optionally available with a freely-controllable heatpump
- Housing design: Highly rigid thermally insulated 30 mm profiles with appropriate panelling, for indoor installation
- Latest generation EC-fans
- Includes unit controller mounted to the side of the unit with optimized operating strategy

The model features and design parameters displayed here have been configured as an example to adhere to the values of the Ecodesign Directive and therefore also to the values of HVAC energy efficiency class A+, without an integrated heat pump. We would be happy to supply a unit optimized to suit your particular application.

Talk to us!



	PGS-040	PGS-048	PGS-065	PGS-080
Width	1 080	1 280	1 280	1 590
Height	1 865	1 865	2 140	2 140
Length	3 210	3 210	4 060	4 060
A	785	785	1 030	1 030
B	1 640	1 640	2 000	2 000
C	785	785	1 030	1 030

All dimensions in Millimeter

Examples of possible different operation strategies



Operation with heat pump support



100% outside air



Operation @ high outside air temperatures



Recirculation only, e.g. night operation

Area of application ¹⁾

		PGS-040	PGS-048	PGS-065	PGS-080
Private pool	m ²	117	140	191	216
Indoor public pool	m ²	90	108	145	166
Leisure pool	m ²	64	77	105	118
Wave pool	m ²	51	62	83	95
Therapy pool	m ²	28	35	47	53
Nominal air flow	m ³ /h	4 000	4 800	6 500	8 000
Dehumidification capacity ²⁾	kg/h	25,9	31,1	42,1	51,8

Energy recovery

Power ³⁾	kW	50	61	82	102
Degree of efficiency acc. to DIN EN 308 ⁴⁾	%	76,5	76,5	77,5	77,5

Ext. pressure drop

Outside air - supply air	Pa	400	400	400	400
Return air - exhaust air	Pa	400	400	400	400

Supply air fan

Electrical system power	kW	1,34	1,61	2,23	2,65
Rated motor power	kW	1,90	2,50	4,45	3,90

Return air fan

Electrical system power	kW	1,34	1,59	2,20	2,63
Rated motor power	kW	1,90	2,50	4,45	3,90

Heating coil ⁵⁾

Power	kW	23	30	41	50
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Heat pump (optional)

Heating capacity	kW	13,0	16,0	23,0	27,0
Coefficient of performance	COP	5,0	5,0	4,9	5,2

Sound power level at

Air inlet nozzle	dB(A)	84	84	85	85
Air outlet nozzle	dB(A)	66	66	66	68
Outside air nozzle	dB(A)	65	65	65	67
Exhaust air nozzle	dB(A)	84	84	85	85

Electric connection data @ 400 V / 50 Hz (with heat pump)

Voltage	V	400	400	400	400
Connected load	kW	8,5	11,5	15	15
Power consumption	A	18	23	30	30

Filters

Exhaust air filter DIN ISO EN 16890	Klasse ePM1	50%	50%	50%	50%
Outside air filter DIN ISO EN 16890	Klasse ePM1	50%	50%	50%	50%

1) according to VDI 2089 bei $T_{\text{water}} = 28^{\circ}\text{C}$ and $T_{\text{room}} = 30^{\circ}\text{C} / 54\% \text{ r.F.}$, based on the surface of the water

2) according to VDI 2089 at nominal flow rate

3) @ nominal flow rate for $T_{\text{outside air}} = -12^{\circ}\text{C} / 90\% \text{ r.F.}$; $T_{\text{return air}} = 30^{\circ}\text{C} / 54\% \text{ r.F.}$

4) @ nominal flow rate for $T_{\text{outside air}} = 5^{\circ}\text{C} / 10\% \text{ r.F.}$; $T_{\text{return air}} = 25^{\circ}\text{C} / 10\% \text{ r.F.}$

5) air inlet temperature: 18°C ; water temperature: $60^{\circ}\text{C} / 40^{\circ}\text{C}$

Pool Line HKG-GS



**ErP
READY
2018**

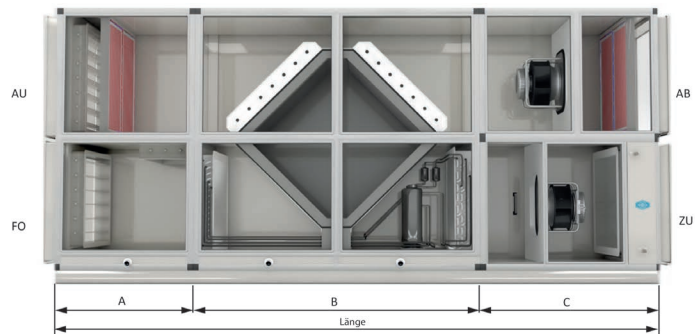
Complies to regulation (EU) 1253/2014 regarding to ecodesign requirements for ventilation units



- Compact units with counter-flow heat exchanger, connections on side.
- Air flow from 4 600 m³/h to 35 000 m³/h, higher flow rates available dependent on boundary conditions
- optionally available with a freely-controllable heatpump
- Housing design: Highly rigid, thermally insulated 30 / 50 mm profiles with appropriate panelling, for indoor and outdoor installation (weatherproof). With 50 mm panelling T2/TB1 housing quality possible
- Latest generation fans
- AI-controller etaSmart available

The model features and design parameters displayed here have been configured as an example to adhere to the values of the Ecodesign Directive and therefore also to the values of HVAC energy efficiency class A+, without an integrated heat pump. We would be happy to supply a unit optimized to suit your particular application.

Talk to us!



	GS-4	GS-6	GS-9	GS-12	GS-16	GS18	GS-23	GS-30	GS35
Width	1080	1080	1590	1890	2240	2540	2850	3150	3460
Height	1760	2060	2060	2460	2740	2740	2740	3360	3360
Length	3850	4510	4660	5410	5470	5620	6020	6260	6660
A	750	860	860	1050	1050	1050	1050	1190	1290
B	1700	2100	2100	2500	2540	2540	2940	3040	3340
C	1400	1550	1700	1860	1880	2030	2030	2030	2030

All dimensions in Millimeter

Examples of possible different operation strategies



Operation with heat pump support



100% outside air



Operation @ high outside air temperatures



Recirculation only, e.g. night operation

Area of application ¹⁾		GS-4	GS-6	GS-9	GS-12	GS-16	GS-18	GS-23	GS-30	GS-35
Private pool	m ²	130	180	260	350	470	550	670	880	1020
Indoor public pool	m ²	100	130	200	260	350	410	510	660	770
Leisure pool	m ²	73	98	142	190	253	297	365	476	555
Wave pool	m ²	55	75	110	150	200	235	290	375	440
Therapy pool	m ²	32	44	64	85	114	133	164	214	250
Nominal air flow	m ³ /h	4600	6200	9000	12000	16000	18500	23000	30000	35000
Dehumidification capacity ²⁾	kg/h	30	40	58	77	103	118	149	194	226
Energy recovery										
Power ³⁾	kW	58	78	113	150	198	231	295	381	438
Degree of efficiency acc. to DIN EN 308 ⁴⁾	%	76,1	76,1	76,3	76,6	75,8	75,6	77,1	77,9	75,7
Ext. pressure drop										
Outside air - supply air	Pa	400	400	400	400	400	400	400	400	400
Return air - exhaust air	Pa	400	400	400	400	400	400	400	400	400
Supply air fan										
Electrical system power	kW	1,67	2,21	3,12	3,78	5,40	6,32	7,71	10,25	12,33
Rated motor power	kW	1,9	2,9	5	5	7,8	10	10	15	15
Return air fan										
Electrical system power	kW	1,65	2,15	3,1	3,67	5,32	6,24	7,58	9,97	12,03
Rated motor power	kW	1,9	2,9	5	5	7,8	10	10	15	15
Heating coil ⁵⁾										
Power	kW	38	52	71	98	130	150	185	240	270
Heat pump (optional)										
Heating capacity	kW	7,5	10	12	17	24	27	33	43	49
Coefficient of performance	COP	6,0	5,9	6,0	6,0	6,0	6,0	6,2	6,2	6,3
Sound power level at										
Air inlet nozzle	dB(A)	83,3	83,2	84,0	85,5	86,4	87,0	88,4	88,8	90,6
Air outlet nozzle	dB(A)	72,2	72,0	71,7	74,0	76,2	74,9	76,7	76,7	78,8
Outside air nozzle	dB(A)	66,7	67,0	66,2	68,0	70,2	69,3	70,7	71,1	72,8
Exhaust air nozzle	dB(A)	78,7	78,4	79,0	80,9	81,8	82,7	84,1	84,5	86,3
Electric connection data @ 400 V / 50 Hz (with heat pump)										
Voltage	V	400	400	400	400	400	400	400	400	400
Connected load	kW	6	11	13	14	21	26	27	38	40
Power consumption	A	11	20	24	27	39	48	50	68	72
Filters										
Exhaust air filter DIN ISO EN 16890	Klasse ePM1	50%	50%	50%	50%	50%	50%	50%	50%	50%
Outside air filter DIN ISO EN 16890	Klasse ePM1	50%	50%	50%	50%	50%	50%	50%	50%	50%

1) according to VDI 2089 bei $T_{\text{water}} = 28^{\circ}\text{C}$ and $T_{\text{room}} = 30^{\circ}\text{C}$ / 54% r.F., based on the surface of the water

2) according to VDI 2089 at nominal flow rate

3) @ nominal flow rate for $T_{\text{outside air}} = -12^{\circ}\text{C}$ / 90% r.F.; $T_{\text{return air}} = 30^{\circ}\text{C}$ / 54% r.F.

4) @ nominal flow rate for $T_{\text{outside air}} = 5^{\circ}\text{C}$ / 10% r.F.; $T_{\text{return air}} = 25^{\circ}\text{C}$ / 10% r.F.

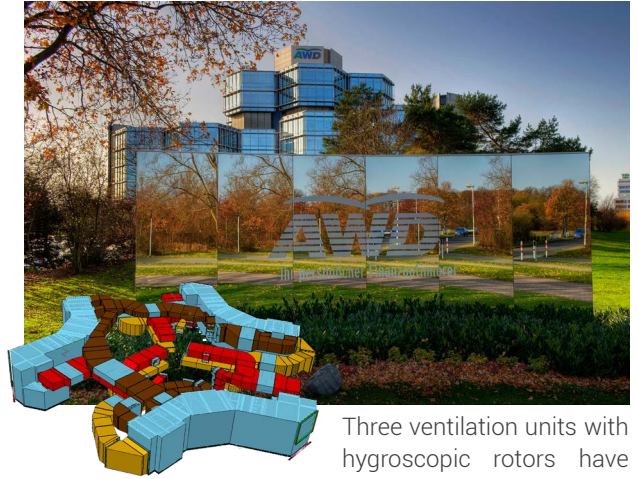
5) air inlet temperature: 18°C ; water temperature: 60°C / 40°C

Other products in our portfolio

Custom ventilation and air conditioning equipment

Upon customer request, we can produce high-grade, custom ventilation and air conditioning equipment for a wide range of applications. Our HVAC systems are designed with a program certified by TÜV Süd and labelled according to their energy efficiency rating.

Blue Line



Three ventilation units with hygroscopic rotors have been mounted in the former AWD headquarters exactly in the wings of the building (inset bottom left, blue elements).

Kompakt Line air handling units/ air conditioners

The Kompakt Line air conditioning units are ideal for use in confined spaces because they have a very small footprint, overhead duct connections and DDC. They provide flow rates from 800 of up to 8,000 m³ / h and 400 Pa and highly efficient heat recovery with a dual-plate or counter flow heat exchanger.



An KL-P-034 ventilates the new laboratory building of the Fraunhofer Institute in Ilmenau.

LF-Hy high pressure and filtration systems for fresh produce departments

A reliable system solution: Turnkey equipment with complete production control system and perfect production of the air curtain using slot rails made of aluminium (variable length). Our systems meet the stringent Regulation (EC) No. 852/2004 requirements for hygiene and the DIN 10505 requirements in an exemplary manner. These systems have been installed for years, and proven their worth thousands of times over. Each device can supply a counter length of up to 25 m.



HANSA LF-Hy high pressure and air curtain systems for fresh produce counters offer compact, reasonably-priced and efficient system solutions which satisfy DIN 10505, as are used for example in the eat happy sushi bars.



In the Heart Centre Leipzig, several Blue Line Hy units provide health and standards-compliant ventilation of the stations, etc.

Blue Line Hy hygiene devices in health care

In addition to our DIN EN ISO 9001:2015 certified Quality Management System, numerous certificates and reports attest to our high-quality and efficient equipment (e.g. TÜV: meets VDI 3803; ILH Berlin: in compliance with DIN 1946-4, and VDI 6022) the quality of our climate control solutions in the health care industry.



More than 8 000 HANSA HVAC systems with a mechanical cooling capacity that is between 7 and 125 kW and with air flows of at least 1 500 m³/h have been built and installed for Deutsche Telekom.

Slim-Line compact heat dissipation units

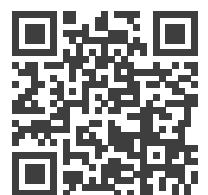
Heat dissipation units for telecommunications facilities, data centres, server rooms and control rooms, etc. Energy-optimised and highly compact units with free and mechanical cooling, on request in VDI 6022 version. Our slim-line devices have a DDC that allows the creation of redundant cooling and integration into your BMS (Modbus, BACnet, S-Bus).



Heat dissipation of the DolWin 3 converter station, 4 Free Line units with air flow of 50 000 m³/h, cooling capacities of 320 kW and integrated electric fan heaters.

Free Line heat dissipation units

Freely configurable heat dissipation units with free and mechanical cooling, optionally available with humidifier and heater coil for plant rooms and data centres.



HANSA Products

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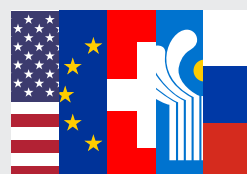
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