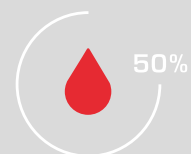


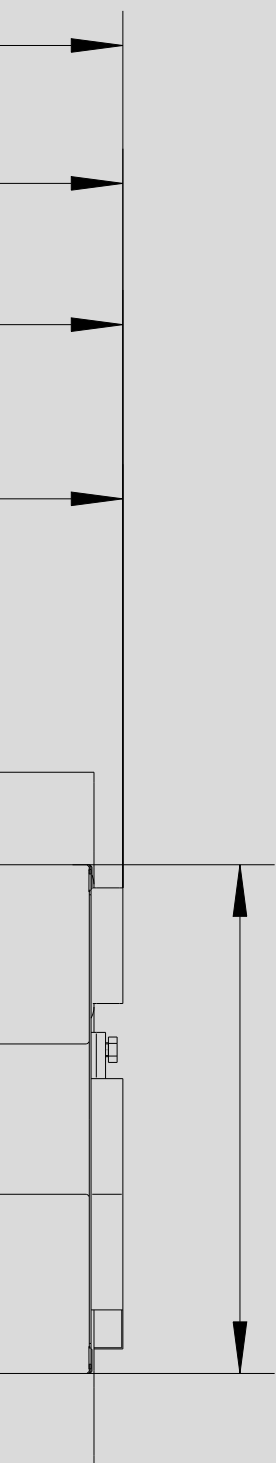
TECHNICAL DOCUMENTATION

WOLF AIR HANDLING UNITS

KG/KGW TOP 21-1000



WOLF



THE EXTENSIVE EQUIPMENT RANGE

from system supplier WOLF offers the ideal solution for commercial and industrial buildings, new build and modernisation projects alike.

The range of WOLF control units can meet any requirement for heating convenience.

All equipment is easy to operate, highly energy efficient and reliable.

Solar thermal systems can be swiftly integrated into existing systems.

WOLF equipment is easy and quick to install and maintain.

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CERTIFICATES QUALITY

EC DIRECTIVES



With the CE mark, the manufacturer declares that, pursuant to EU Regulation 765/2008, the product complies with the applicable requirements laid down in the Community harmonisation legislation.

AIR HANDLING EQUIPMENT - CERTIFIED ENERGY EFFICIENCY



Defines new energy efficiency labels on the basis of EN 13053 A1 2010. Assesses the velocity category, effective power consumption of the fan motor (P class) and energy conversion efficiency of the heat recovery system (H class)

DIN 1946 T4 12/2008



This standard regulates the requirements of the technical equipment level, sizing and design of air handling systems for operating theatres, and takes account of VDI 6022/31, ÖNORM H 6020 and SWKI 99-3.

In the 12/2008 issue, the technical rules and requirements from VDI 2167 guidelines, sheet 1 2007-08, are combined with those of DIN 1946.

TÜV NORD ISO 9001



Every product is subject to specific requirements and is produced according to individually required quality assurance measures.

At Wolf GmbH, we exceed these product requirements by implementing a comprehensive quality management system, with the goal of ensuring that everything our company does is in line with the requirements of our customers. Our products and processes are therefore subject to continuous improvement.

VDI 6022



VDI guideline for hygienic engineering, design and maintenance of air handling equipment.

Guideline VDI 6022 largely corresponds to Swiss standard SWKI VA 104-1 and Austrian standard H 6021

EMC DIRECTIVE



These products comply with Directive 2004/108/EC
Electrical compatibility of electrical and electronic products

ATEX



TÜV Süd certifies that Wolf GmbH is permitted to design and manufacture air handling systems in accordance with the conditions of Directives 94/9/EC (ATEX 95), provided that fundamental health and safety regulations are met.

**ENVIRONMENTAL
MANAGEMENT GUIDELINES**



The Environmental Pact of Bavaria is an agreement between the Bavarian State Government and the Bavarian Industry Association. It is based on voluntary participation, individual responsibility and cooperation. In the Environmental Pact, the Bavarian State Government and the Bavarian Industry Association declare their firm conviction that natural resources can be better protected with the help of voluntary and reliable cooperation between state and economy than with law and legislation alone. The main focus is on preventing future environmental damage, rather than repairing it after the event.

GOST-R






























This certificate proves that the product quality of Wolf air handling units meets the requirements of the relevant standards laid down by the Russian Federation.

GOST-TR

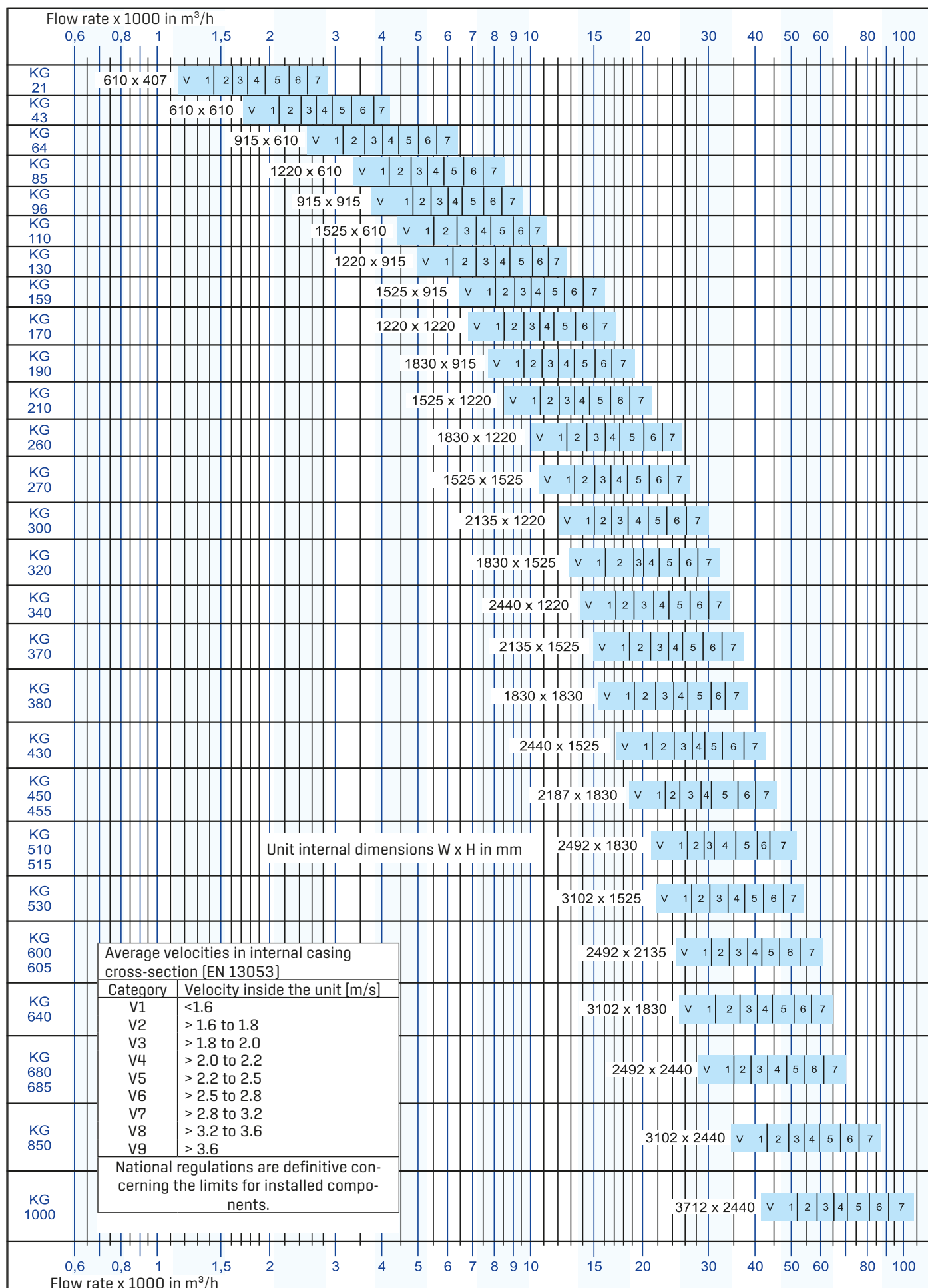


UNITS SELECTION

| SIZE | NOMINAL AIR FLOW RATE [M³/H] | FILTER ARRANGEMENT 1/1 FILTERS | FILTERS (PCE) | | | INTERNAL DIMENSIONS [MM] | | EXTERNAL DIMENSIONS [MM] | |
|--------------------------|------------------------------------|---|---------------|-----------|-------|--------------------------------|--------|--------------------------------|--------------|
| | | | Quarter | Half | Whole | Width | Height | Width | Height |
| KG TOP 21 | 2125 |  | | 1S / 2/3S | | 610 | 407 | 711 | 508 |
| KG TOP 43 | 4250 |  | | | 1 | 610 | 610 | 711 | 711 |
| KG TOP 64 | 6375 |  | | 1 | 1 | 915 | 610 | 1016 | 711 |
| KG TOP 85 | 8500 |  | | | 2 | 1220 | 610 | 1321 | 711 |
| KG TOP 96 | 9562 |  | 1 | 1 / 1S | 1 | 915 | 915 | 1016 | 1016 |
| KG TOP 110 | 10,625 |  | | 1 | 2 | 1525 | 610 | 1626 | 711 |
| KG TOP 130 | 12,750 |  | | 2S | 2 | 1220 | 915 | 1321 | 1016 |
| KG TOP 159 | 15,935 |  | 1 | 1 / 2S | 2 | 1525 | 915 | 1626 | 1016 |
| KG TOP 170 | 17,000 |  | | | 4 | 1220 | 1220 | 1321 | 1321 |
| KG TOP 190 | 19,125 |  | | 3S | 3 | 1830 | 915 | 1931 | 1016 |
| KG TOP 210 | 21,250 |  | | 2 | 4 | 1525 | 1220 | 1626 | 1321 |
| KG TOP 260 | 25,500 |  | | | 6 | 1830 | 1220 | 1931 | 1321 |
| KG TOP 270 | 26,562 |  | 1 | 2 / 2S | 4 | 1525 | 1525 | 1626 | 1626 |
| KG TOP 300 | 29,750 |  | | 2 | 6 | 2135 | 1220 | 2236 | 1321 |
| KG TOP 320 | 31,875 |  | | 3S | 6 | 1830 | 1525 | 1931 | 1626 |
| KG TOP 340 | 34,000 |  | | | 8 | 2440 | 1220 | 2541 | 1321 |
| KG TOP 370 | 37,185 |  | 1 | 2 / 3S | 6 | 2135 | 1525 | 2236 | 1626 |
| KG TOP 380 | 38,250 |  | | | 9 | 1830 | 1830 | 1931 | 1931 |
| KG TOP 430 | 42,500 |  | | 4S | 8 | 2440 | 1525 | 2541 | 1626 |
| KG TOP 450 KG TOP 455 | 44,625 |  | | 3 | 9 | 2187 | 1830 | 2289 2236 | 1984 1931 |
| KG TOP 510 KG TOP 515 | 51,000 |  | | | 12 | 2492 | 1830 | 2594 2541 | 1984 1931 |
| KG TOP 530 | 53,125 |  | | 5 | 10 | 3102 | 1525 | 3204 | 1679 |
| KG TOP 600 KG TOP 605 | 59,500 |  | | 4S | 12 | 2492 | 2135 | 2594 2541 | 2289 2236 |
| KG TOP 640 | 63,750 |  | | | 15 | 3102 | 1830 | 3204 | 1984 |
| KG TOP 680 KG TOP 685 | 68,000 |  | | | 16 | 2492 | 2440 | 2594 2541 | 2594 2541 |
| KG TOP 850 | 85,000 |  | | | 20 | 3102 | 2440 | 3204 | 2594 |
| KG TOP 1000 | 102,000 |  | | | 24 | 3712 | 2440 | 3814 | 2594 |

Schematic illustration of the filter arrangement; spare filters can only be ordered with the order number
S = vertical filter bags

UNITS SELECTION



UNITS

DESCRIPTION

UNIT CLASSIFICATION TO EN 1886

Air handling units in the KG Top / KGW Top series are classified as complete units in "non-flammable" category A1 to DIN 4102. All units can be designed in accordance with hygiene directive VDI 6022.

The units are HV-tested and earth-tested as standard and are CE designated.

The special casing design as a Faraday system guarantees EMC [electromagnetic compatibility] of the components installed.

| | KG Top | KG Top.eco |
|-----------------------------------|---------|------------|
| Heat transfer category | T2 | T2 |
| Thermal bridge category | TB3 | TB2 |
| Filter bypass leakage | ≤ 0.2 % | ≤ 0.2 % |
| Casing tightness class | L1 | L1 |
| Mechanical strength of the casing | D1 | D2 |

Insertion loss DE of the KG / KGW Top casing

| | Hz | 125 | 250 | 500 | 1000 | 2000 | 4000 | 8000 |
|------------|----|-----|-----|-----|------|------|------|------|
| KG Top | dB | 17 | 20 | 31 | 34 | 36 | 38 | 44 |
| KG Top.eco | dB | 17 | 21 | 31 | 34 | 36 | 38 | 44 |

SPECIFICATION

| | |
|--|--------------------------------------|
| Thermal insulation: Thickness of the casing panels | 50 mm |
| Material class [to DIN 4102] | A1 [non-flammable] |
| Thermal conductivity λ | 0.04 W/mK |
| Casing: Heat transfer coefficient k | 0.6 W/m ² K |
| Sound reduction index RW | 41 or 43 dB [with test verification] |
| [to DIN/EN ISO 717 Part 1] KG Top | |

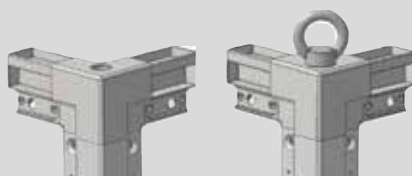
STRUCTURE



Air handling unit laid out in a modular design, consisting of inherently stable, self-supporting, fully galvanised units. If required, these can easily be separated from one another, and optionally split into all individual parts. The components can be recycled. Fully galvanised to EN 10142 and EN 10143. Permanently resilient seals between the units, suitable for positive and negative pressure, ensure maximum tightness of the unit.

All gaskets are closed cell, silicone-free, and resistant to disinfectants and ageing.

CASING CONSTRUCTION FRAME: 50X50X1.5 MM OR FRAME PROFILE: 76X76X2 MM



Self-supporting version [no base frame required]

Unit consisting of double square tube profiles secured with injection moulded angle joints.

Frame moulded and fully galvanised to EN 10142 and EN 10143

If required, the casing can easily be split thanks to injection moulded angle joints and removable sandwich panels.

CASING FOR INDOOR INSTALLATION



Thickness of casing panels 50 mm, comprising internal and external casing panels without thermal bridges made from fully galvanised sheet steel to EN 10142 and EN 10143.

For KG 450, 510, 600, 680, 850 and 1000 the bottom and top panels are 76 mm thick. Sound and thermal insulation is provided by high grade, non-flammable mineral wool insulation, material class A1 to DIN 4102. This is sandwiched between the internal and external casing panels and will not slip or be shaken out of position. Walk-on floor panels, designed to be hygienic, smooth and free of gaps.

Casing panels have smooth surfaces and are easy to clean. They are secured to the frame yet easy to remove.



Optional

- Internal casing panels made from stainless steel
- Powder coating using RAL colours [min. thickness 60 μ m]
- Inspection port, \varnothing min. 150 mm, in twin wall and thermally decoupled design
- Base frame 200 to 500 mm

WEATHERPROOF CASING



Thickness of casing panels 50 mm, comprising thermally decoupled internal and external casing made from fully galvanised sheet steel to EN 10142 and EN 10143 (with frame profile 76 mm [KG 450, 510, 600, 680, 850, 1000], bottom and top 76 mm thick). Sound and thermal insulation is provided by high grade, non-flammable mineral wool insulation, material class A1 to DIN 4102. This is sandwiched between the internal and external casing panels and will not slip or be shaken out of position. Walk-on floor panels, designed to be hygienic, smooth and free of gaps. Casing panels have smooth surfaces and are easy to clean. They are secured to the frame yet easy to remove. Walk-on angled roof made from galvanised sheet steel for complete water drainage, with all-round drip edge. Lateral roof projection 50 mm. All-round, fully galvanised drip strip mounted as standard on units with a fitted base frame.

Optional

- Internal casing panels made from stainless steel
- Powder coating using the RAL colour chart (min. thickness 60 µm)

Base frame 200 to 500 mm high. Version with or without thermal insulation. Intake/discharge hood with all-round drip moulding for controlled water drainage, equipped as standard with grille to keep wildlife out. Outdoor air intake section with corrosion-resistant, thermally insulated condensate pan with fall on all sides to the lateral drain connector integrated into the unit frame as per VDI 3803, for continuous, complete condensate drainage. Weatherproof porch to provide protection from the rain for external fittings and pipe-work.

INSPECTION DOOR



Lockable rotating closure



Rotating closure with automatic safety catch

The inspection door is 50 mm thick. The hinges of the inspection door are on the outside. Open the door using tools and the integral grip moulding. The contact pressure can be adjusted via the rotary latches. Special, all-round, non-ageing profile with double sealing lip is highly effective against excess pressure and underpressure. The inspection door consists of an internal and an external section made from fully galvanised sheet steel. High grade mineral wool insulation, material class A1 [non-flammable] to DIN 4102, is inserted between the internal and external sections and encased in metal on all sides. Thermal and acoustic properties such as thermal insulation between the casing panels. Door handles on the pressure side are equipped with automatic safety catches. According to VDI 3803, doors on units accessible to persons must also open from inside.

Optional

- Internal casing panels made from stainless steel
- Powder coating using RAL colours (min. thickness 60 µm)
- Inspection port, Ø min. 150 mm, in twin wall and thermally decoupled design
- Door catch
- Lever closures that can be locked from the outside, or continuous lever closures that can be opened from inside and out
- Removable door

UNITS

DESCRIPTION

EC FAN MOTOR UNIT WALL MOUNTED



Particularly quiet, highly efficient, centrifugal fan with single-sided intake, connected directly to a 50 or 60 Hz EC motor, energy category IE4. Variable speed control via 0 - 10 V control signal.

2D radial impeller with swirl diffuser, mounted on an electronically commutated external rotor motor with integral PCB.

Backward-curved impeller blades. Flow-optimised injection nozzle with pressure test connector made from galvanised sheet steel. Complete unit statically and dynamically balanced in accordance with DIN/ISO 1940 to balancing quality G 6.3 on two levels. EC external rotor motor with maintenance-free ball bearings and long lasting lubrication.

Unit can be used with all power supply utility networks with uniform air handling rate. Optimised motor technology, soft start, integral current limitation.

Control cable (0-10 V or 4-20 mA), supply voltage and floating fault message contact (250 V/2 A) routed out of easy-to-install and robust terminal box on the outside of the air handling unit. Highly compact electronics design with adjustable PID controller, fulfils all necessary EMC guidelines and all requirements relating to current regeneration.

EC FAN MOTOR UNIT FLOORSTANDING



Straightforward installation as no screened cable or additional inverter are required. Very low noise commutation logic, 100 % controllable.

Protection rating IP 54, insulation class B.

Maximum permissible air temperature 40 °C at rated output.

Complete unit is fitted with structure-borne noise insulation.

Safety mechanisms:

- Anti-blocking protection
- Motor soft start
- Mains undervoltage detection
- PCB and motor protected against excessive temperatures
- Short circuit protection
- Function tested

FREE-RUNNING IMPELLER



Fan/motor unit with free-running, backwards-curved, high performance impeller fitted directly on the motor shaft. Threaded, corrosion-protected support structure. Entire unit secured to C-profile sections and isolated through anti-vibration elements.

Impeller balanced with hub, balancing quality G 2.5 to ISO 1940 T1. Galvanized sheet steel intake nozzle at the rear for optimum flow to the impeller. Intake nozzle firmly secured to the support panel and adjusted to ensure optimum gap centres. Taper Lock hub made from grey cast iron with threaded fitting. IE2 three-phase standard motor, 400 V, 50 Hz, motor protection with PTC thermistor, thermal category F, motor suitable for inverter operation. Maximum permiss. air temperature 60 °C.

Option to measure the flow rate at the injection nozzle.

Optional

- Ring testing wire

FREE-RUNNING IMPELLER IN ATEX



Fan/motor unit with free-running, backwards-curved, high performance impeller in explosion-proof design compliant with ATEX 100 [electrically conductive paint, impeller with intake nozzle made from brass or copper, pressure-resistant encapsulation of motor in accordance with ATEX directives].

FREQUENCY CONVERTER



For variable speed control [5 to 90 Hz] of the fan motor with quadratic torque curve, radio interference suppression to EN 55011 and EN 61800-3 via radio interference suppression coil. Connecting cable between the motor and inverter with screened cable. Integral motor protection thanks to PTC thermistor monitoring. Prewired with control panel and preset at the factory.

Frequency converter for variable speed control of asynchronous three-phase motors, especially for driving air handling equipment

- No output reduction at nominal motor speed compared to direct mains operation
- Complete installation unit with integral butterfly valve to reduce perturbation
- Integral radio interference suppression coil to maintain the limits set by EN 55011 and EN 61800-3
- With automatic energy optimisation for maximum motor efficiency in partial load operation
- Output with switching stability, protected against short circuits and earth faults
- Operation permissible with multiple motors
- Ambient temperatures: 0 - 45 °C for protection rating IP 00/20 and IP 54

Graphic programming unit with plain text for commissioning settings and display of all data relevant for operation [for IP 20 units, can be removed with copy function], with keys for start, stop, manual and automatic mode.



Standard functions:

Automatic motor adjustment, automatic start-up and delay time adjustment, min. and max. speed restriction, fixed speed selection, synchronisation with motors that are already running, motor PTC thermistor analysis, V-belt monitoring, hours run meter, fault message memory, PID controller [scalable in process variables].

Operation with reduced speed at excess temperature, undervoltage or failure of a mains supply phase, real-time clock for time-dependent control, separate inverter hours run meter and motor hours run meter.

Inputs/outputs:

2x analogue inputs [reversible 0-10 V/0-20 mA], scalable and invertible

4x digital inputs 24 V logic, either H or L active

2x digital terminals 24 V logic, usable as either input or output

2x floating changeover contacts, programmable function and pick-up/drop-out delay

1x programmable analogue output 0/4-20 mA, scalable

internal auxiliary voltage supply:

24 V/DC for wiring the digital inputs and, if necessary, for supplying enabled actual value transducers

10 V/DC for set value potentiometer 1kOhm and motor protection PTC thermistor

Interfaces:

- USB port for PC communication with optional software
- RS-485 connection for Modbus RTU and BACnet MS-TP fieldbus connection

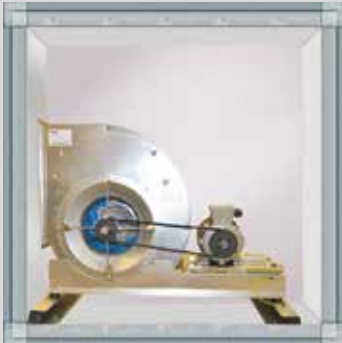
Optional

- Sinus filter [LC motor filter]
- Repair switch for on-site bypass circuit [which enables 50 Hz emergency mode]
- Installation kit for mounting the programming unit in an external casing in accordance with IP 54
- IP 00/20 for control panel integration

UNITS

DESCRIPTION

RADIAL FAN WITH V-BELT DRIVE



Fan and motor mounted on stable base frame; base frame positioned on flexible anti-vibration mounts.

High performance radial fan with double sided intake and backwards or forwards-curved impeller blades.

Shaft aligned to run true, reduced to standard diameter at both ends to accommodate V-belts.

With stable bearings and acoustically tested, precision, deep groove ball bearings, lubricated with ageing-resistant lithium soap grease. Impeller statically and dynamically balanced in accordance with VDI 2060.

Can easily be removed from the casing for repairs and maintenance work.

Driven by three-phase motor 400 V/50 Hz, model B3, thermal category F, protection rating IP 55, TÜV GS tested, wired motors HV-tested and earth-tested as standard.

Power transmission through high performance V-belt and pulleys.

Pulleys secured with Taper Lock clamping bushings to DIN 6885.

Fan and motor secured in the casing to be free from vibrations (up to motor model size 180 on tensioning carriage), with equipotential bonding as standard.

Connection between fan and airtight, vibration-isolated front panel.

Optional

- Flat belt drive with tensioning carriage
- Spiral fan housing with inspection port
- Spiral fan housing with condensate drain connection
- Protective door grille
- Fan/motor in ATEX 100
- Frequency converter

HEATING COIL SECTION



With removable PWW air heater [permissible operating pressure 16 bar, test pressure 30 bar], copper tubes with press-fitted, optimised and profiled high performance aluminium fins, header made from steel and coated at minimum, built into a galvanised sheet steel frame suitable for hot water or steam operation. Connections with inch thread or flange and mating flange, sealed off from the casing with rubber collars. Wall outlet with diffusion-proof and closed-cell insulation.

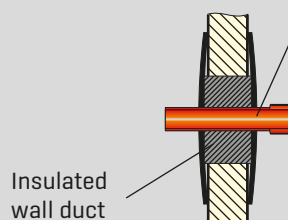
Optional

- Air heating coil in galvanised steel design
- Copper/copper air heating coil [copper tubes/copper fins]
- Air heating coil, copper/aluminium coated
- Header made from copper
- Air heating coil in stainless steel design
- Connections with air vent and drain plugs
- Removable frost protection frame with handle
- Angled connections for internal pipe routing
- With TÜV approval

HEATING COIL SECTION WITH REMOVABLE ELECTRIC AIR HEATER

- For 3 x 400 V, in separate casing
- Non-glowing heating grid with low surface temperature
- Fully wired terminal strip with integral temperature limiters and additional high limit safety cut-out

COOLING COIL SECTION



With removable PKW high performance air cooling coil [permissible operating pressure 16 bar, test pressure 30 bar], copper tubes with press-fitted, optimised and profiled high performance aluminium fins, copper header, built into a galvanised sheet steel frame suitable for pumped cold water operation.

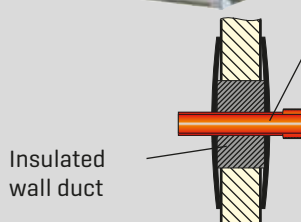
Imperial threaded connections. Wall outlet with diffusion-proof and closed-cell insulation. Mist eliminator made from PP, can be extracted via removable inspection panel and completely split into sections.

Corrosion-resistant, thermally insulated 3D aluminium pan with fall on all sides to the drain connector integrated into the unit frame for continuous, complete condensate drainage.

Optional

- High performance air cooling coil in galvanised steel design
- High performance air cooling coil, full coated in copper/aluminium
- High performance air cooling coil, copper/copper
- High performance air cooling coil in stainless steel design
- Connections with air vent and drain plugs
- Air cooling coil frame made from stainless steel
- 3D pan made from stainless steel
- Slide rails made from stainless steel
- Angled connections for internal pipe routing
- With TÜV approval

COOLING COIL SECTION (DIRECT EXPANSION COIL)



With removable high performance air cooling coil as direct expansion coil. Refrigerant connection with distributor for multiple injection. Copper tubes with press-fitted, optimised and profiled high performance aluminium fins, copper header, built into a galvanised sheet steel frame.

Wall outlet with diffusion-proof and closed-cell insulation.

Mist eliminator made from PP, can be extracted via removable inspection panel and completely split into sections.

Corrosion-resistant, thermally insulated 3D aluminium pan with fall on all sides to the side drain connector (including drain) integrated into the unit frame for continuous, complete condensate drainage.

Optional

- Direct expansion coil designed with separate and/or interlinked circuits
- Heat pump circuit
- Slide rails made from stainless steel
- High performance air cooling coil, full coated in copper/aluminium
- Angled connections for internal pipe routing
- With TÜV approval

UNITS

DESCRIPTION

BAG FILTER SECTION KG/KGW TOP 21 - 515, 605, 685



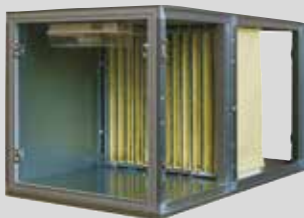
Equipped as standard with bag filter, removable from the side, clipped to inert closed-cell seal with quick-release mechanism, can be released manually, design compliant with VDI 6022. Temperature-resistant from 30 °C to 90 °C and 100 % relative humidity.

Filter frame press-mounted on all sides without gaps. Incident flow across the entire filter surface area as unit cross-section is optimised for filter dimensions.

High contact force due to leverage in the quick-release mechanism.

Filter surface area for bag filters at least 10 m² per 1 m² unit cross-sectional area.

OPTIONAL BAG FILTER SECTION CLIPPED INTO PLACE KG/KGW TOP 21 - 515, 605, 685



Bag filter, clipped to inert closed-cell seal, can be released manually and removed on the stale air side. Bag filters have no contact with the floor, therefore design is compliant with VDI 6022.

Temperature-resistant from 30 °C to 90 °C and 100 % relative humidity.

Filter frame press-mounted on all sides without gaps. Incident flow across the entire filter surface area as unit cross-section is optimised for filter dimensions.

High contact pressure due to elastic force and back pressure of the air handled.

KG/KGW TOP 530/640/680/850/ 1000

Bag filter, clipped to inert closed-cell seal as standard, can be released manually and removed on the stale air side.

Temperature-resistant from 30 °C to 90 °C and 100 % relative humidity.

Filter frame press-mounted on all sides without gaps. Incident flow across the entire filter surface area as unit cross-section is optimised for filter dimensions.

High contact pressure due to elastic force and back pressure of the air handled.

Optional for filter

- Synthetic filters
- Biostatic filters
- Active charcoal filters with mounting frame and bayonet catch
- Metal filters
- HEPA filters with mounting frame
- Bag filter section with 3D pan and drain
- Compact filters
- Filters that can be incinerated
- Frame made from stainless steel
- Frame coated (RAL colours, at least 60 µm)

COMBINED MIXED FILTER SECTION FOR KG/KGW TOP 21 - 380

Removable filter frame with V-shaped, renewable filter mat, grade G4, made from synthetic fibres; can be removed at the side. Inspection door on the operating side, opened with tools and integral grip moulding.

Optional

- Louvre damper to EN 1751 with counter-coupled, plastic-mounted profile fins with lip seal in tightness class 2, max. leakage 40 l/m²/s, linkage and adjusting lever for manual or motorised operation
- Flexible connection
- Insulating connector without folds and with soundproofing

HEPA FILTER SECTION



Special installation frame with press-mounting device for the filter, which provides tightly sealing filter fitting and optimised inspection options.

Absolute HEPA filter with frame made from galvanised sheet steel.

Filter surface area at least 80 times larger than the face area, thanks to the use of folded fibreglass medium and conical aluminium separators.

Casting compound between filter pack and frame made from polyurethane; seal made from neoprene.

Filter grade "S" to DIN 24184 or "H13" to EN 1822.

Filtration efficiency above 99.95 % or at least 99.997 % with 0.3 µm particle size.

Every filter is checked individually.

SILENCER SECTION



Flow-optimised mineral fibre splitters with glass fibre cover (tested to DIN EN ISO 7235), material class A1 (non-flammable to DIN 4102), treated on one side with absorbent and reflective material, encased in galvanised sheet steel frame. Surfaces are moisture-repellent, abrasion-resistant up to 20 m/sec and cleanable. Splitter width 200 mm.

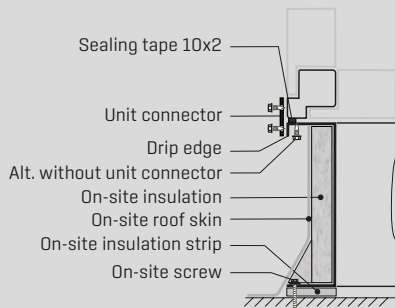
Optional

- Splitters with perforated plate cover
- Splitters can be removed at the side
- Splitter width 230 mm (for increased sound attenuation)
- Coated splitters

BASE FRAME SYSTEMS

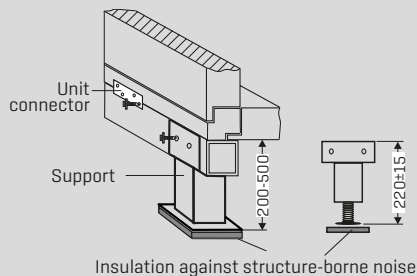


C BASE FRAME FOR OUTDOOR AND INDOOR INSTALLATION



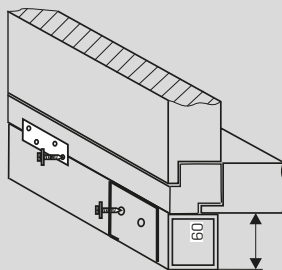
- C base frame in standard height 180 mm for outdoor and indoor installation.
- Special heights 100 mm, 305 mm, 400 mm and 500 mm can be supplied.
- With integral drip edge
- Base frames are supplied in steel - galvanised or powder-coated on request.
- The profile geometry enables simple on-site base frame insulation and integration into the roof skin.

BASE FRAME 60X60 FOR OUTDOOR AND INDOOR INSTALLATION



- Base frame with square profile 60x60 loose, for indoor and outdoor installation
- The base frame can only be supplied loose
- Base frames with special height and apertures for transport aids available on request
- Compensating base frame specially designed for installation next to adjoining grilles
- Base frames with square profile 60x60 and compensating base frames are pre-assembled in multiple sections
- A 3 mm steel plate must be positioned between the adjustable support and the insulation board to ensure even weight distribution.
- Base frames are supplied in steel - galvanised or powder-coated on request.
- Maximum vertical load per support 300 kg

COMPENSATING BASE FRAME 60X60 FOR OUTDOOR INSTALLATION



- Base frame height 60 mm (profile height).
- Unit frame connected to compensating frame with unit connector
- Base frame pre-assembled and, depending on length, supplied in multiple sections in a single shipping unit.
- Base frames with special height and apertures for transport aids available on request
- Compensating base frame specially designed for installation next to adjoining grilles
- A 3 mm steel plate must be positioned between the adjustable support and the insulation board to ensure even weight distribution.
- Base frames are supplied in steel - galvanised or powder-coated on request.

STRUCTURAL BASE FRAME FOR OUTDOOR AND INDOOR INSTALLATION



- Base frames made from U profiles to DIN 1026, welded and galvanised
- Base frame height 200 mm
- Lifting arms for transporting the complete unit by crane are available for loan
- Crane only required on the building site for a short time
- Minimal installation effort on the building site thanks to unit being largely factory-assembled
- Self-supporting frame does not need all-round support
- Can be quickly commissioned



The decision as to which fan model is used in operation is influenced mainly by the application and associated requirements, such as pressure increase, space requirement, flow rate, partial load characteristics, hygiene, explosion protection, etc.

Wolf offers the ideal drive system for every application.

FANS WITH EC MOTOR



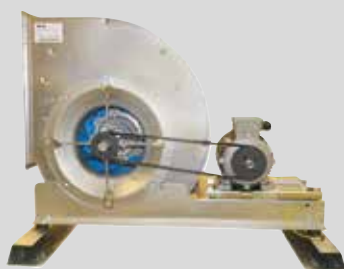
- Energy efficiency class IE4 (DIN 60034-30)
- 100 % controllability
- Low noise generation
- Highly efficient even in the partial load range
- Easy to clean due to unimpeded access to all components
- High operational reliability and easy maintenance thanks to direct drive
- No EMC issues as the control PCB is integrated into the motor
- Very long service life
- High control accuracy due to flow rate measuring device using calibrated intake nozzle
- Extremely high system efficiency

FREE-RUNNING IMPELLER



- Energy efficient operation due to demand-dependent matching of the air volume using the frequency converter
- Easy to clean due to unimpeded access to all components
- High operational reliability and easy maintenance thanks to direct drive
- High control accuracy due to flow rate measuring device using calibrated intake nozzle

FANS WITH SPIRAL HOUSING AND BELT DRIVE



- High fan efficiency levels
- High pressure increases possible
- Spare parts available quickly
- Drive with Taper Lock wedge disc system
- Optional:
 - Motor encapsulation
 - Flat belt drive
 - Condensate drain connector
 - Inspection cover

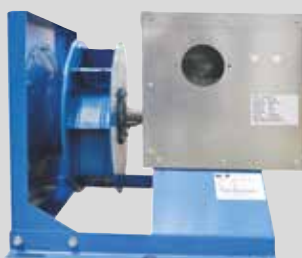
MISCELLANEOUS APPLICATIONS

ATEX



- Air handling units can be supplied in ATEX-compliant design for explosion protection zones 1 and 2
- TÜV Süd certification with EC certificate of conformity for both versions

ENCAPSULATED MOTOR



- Motor encapsulated with external ventilation
- Motor located in casing cooled with fresh air Suitable for conveying air with raised temperature, e.g. extract air from the kitchen. [Observe unit layout acc. to VDI 2052]

DIN 1946 / T4 (08/2012)

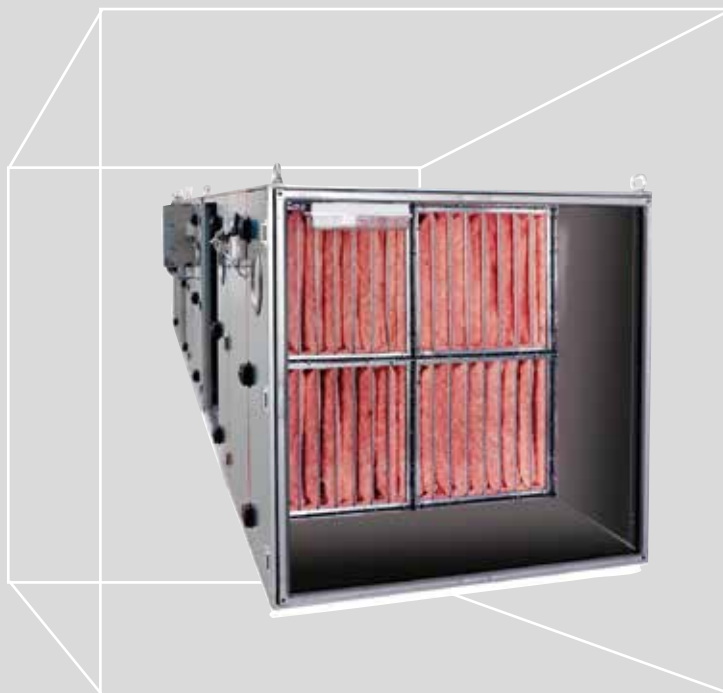


- For the highest hygiene requirements
- Motor/fan unit coated, easy to clean and 100 % controllable
- Motor/fan unit available with either EC or standard motor

MOTOR REMOVAL APPARATUS



- Crane rail to facilitate the removal and re-installation of even the heaviest motors for service and repair. Makes replacement possible in the shortest time



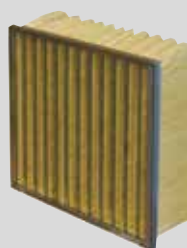
Wolf offers optimised filter systems with low operating costs for every application. The air filters are tested to EN 779, EN 1822 and EN ISO 16890.



- With Wolfair handling units, the entire internal cross-section is fully utilised as standard
- Filters are removable from the side with quick-release mechanism, which reduces investment costs as units can be shorter in length
- Maintenance costs are reduced due to filter change at the side

FILTERS IN A BAG DESIGN

ENERGY OPTIMISED BAG FILTER



- Bags always vertical
- Very short filter bags
- Special V-shape of the bags prevents contact with the floor
- Available ex stock in Mainburg
- Various filter grades available
- Large filter surface area compliant with VDI 6022
- Stable metal frame, temperature-resistant from -30 to +90 °C
- Very high number of bags

LONG BAG FILTER



- Bags always vertical
- Very long service life thanks to large filter surface area
- Low pressure drops
- Available ex stock in Mainburg
- Various filter grades available
- Stable metal frame, temperature-resistant from -30 to +90 °C

FILTER SYSTEMS

V FILTER



- Compact filter with extremely high dust storage capacity
- Low energy costs
- Fibre glass medium
- Can be incinerated
- Very long service life

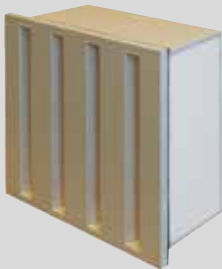
FILTERS FOR SPECIAL APPLICATIONS

GREASE FILTER



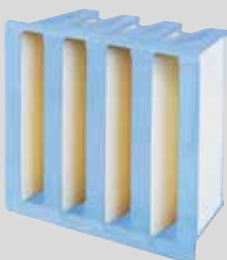
- Metal filter for filtration of grease or oil mist
- Stainless steel frame
- Stainless steel medium
- Can be cleaned
- Up to 95 % filtration efficiency on oil mist and grease aerosols
- Also effective against dust, sand, paint, etc.

HEPA FILTER



- HEPA-filter H 13 to EN 779
- Used in industry, research, medicine, pharmaceuticals and nuclear technology
- Filtration of airborne aerosols, viruses and bacteria
- Excellent tightness due to special mounting frame

CARBON FILTER F7

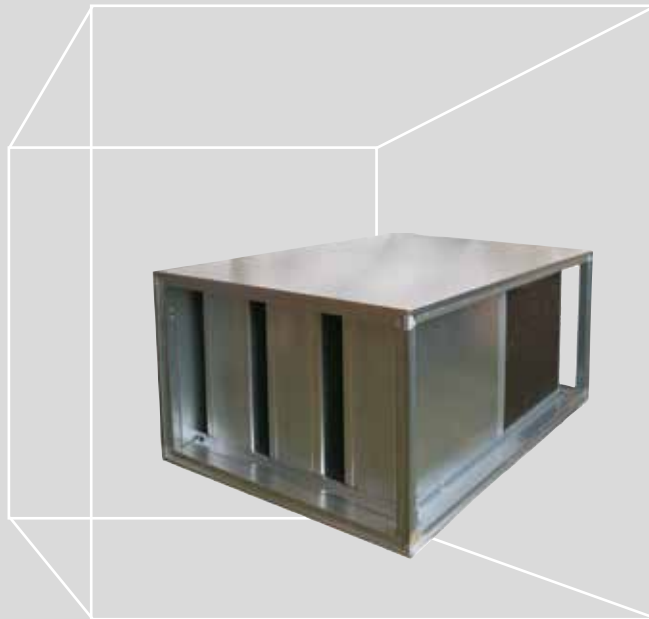


- Compact filters with high dust storage capacity
- With activated charcoal for odour filtration
- Fibre glass medium
- Can be incinerated
- NOx filtration above 90 %

ACTIVATED CHARCOAL FILTER



- For filtration of odours from organic and inorganic gases
- Renewable
- Low pressure drops
- Easy installation
- Pre-filtering with F7 filter grade in accordance with EN 779 is recommended



Wolf splitter silencer units are suitable for use in air handling units in accordance with VDI 6022, DIN 1946 T2 and T4, RLT 01 and VDI 3803.

FUNCTION



Silencer units are designed to minimise transmission to the ductwork of sound generated by the fan unit and from flow noise. By using different silencer types and splitter widths, we can optimally adjust sound emissions to the duct system to customer requirements, whilst keeping the pressure drop low.

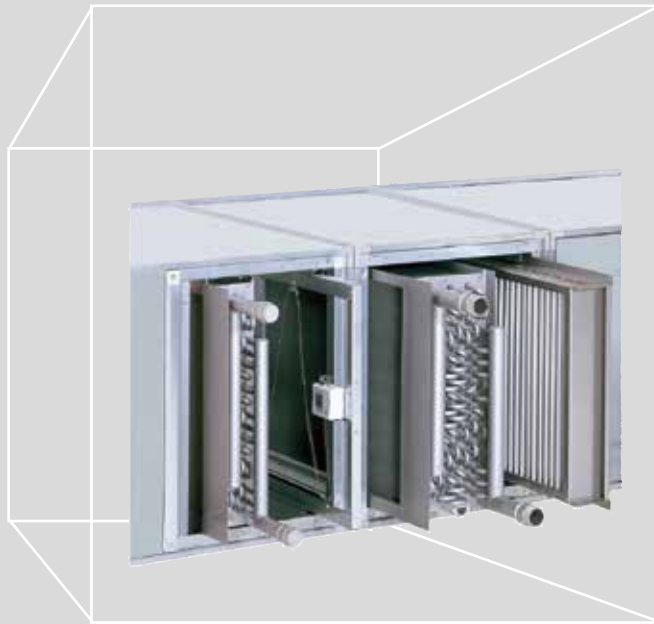
- Abrasion-resistant up to 20 m/s thanks to high grade glass fibre cover
- High biosolubility
- Impregnated to be rot-resistant and moisture-repellent
- Non-flammable to DIN 4102 A2
- Max. operating temperature up to 100 °C
- Low operating costs due to flow-optimised, profiled splitter frame

REMOVABLE SPLITTERS



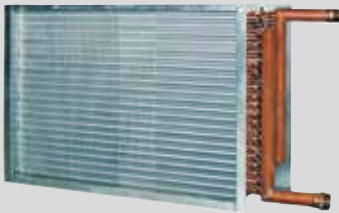
- Project-specific sound data in accordance with the TÜV-tested Wolf configuration program.
- Gap/splitter ratio optimally matched to pressure drop and sound attenuation thanks to the use of varying splitter widths
- Hygienically optimised due to:
 - Floor area free of vertical gaps
 - Easily cleanable splitters
 - Easily removable splitters thanks to levers or hinged fixings

HEAT EXCHANGERS



All heating and cooling coils meet the requirements of VDI 6022 and must be thoroughly cleaned. They are accessible from both sides and can be removed. Whether it is made from copper/aluminium, galvanised steel or copper/copper, every heat exchanger is specially configured for its application.

HEAT EXCHANGER (HEATING/COOLING COIL)



Options

- Hot-dip galvanised
- Epoxy-coated

MIST ELIMINATOR



The position of the mist eliminator behind the air cooling coil protects system components against rot.

For cleaning, mist eliminators can be removed easily and completely dismantled.

Mist eliminators are required for cooling coils and direct expansion coils from an air velocity of over 2 m/s.

QUICK-DRAINING 3D PAN

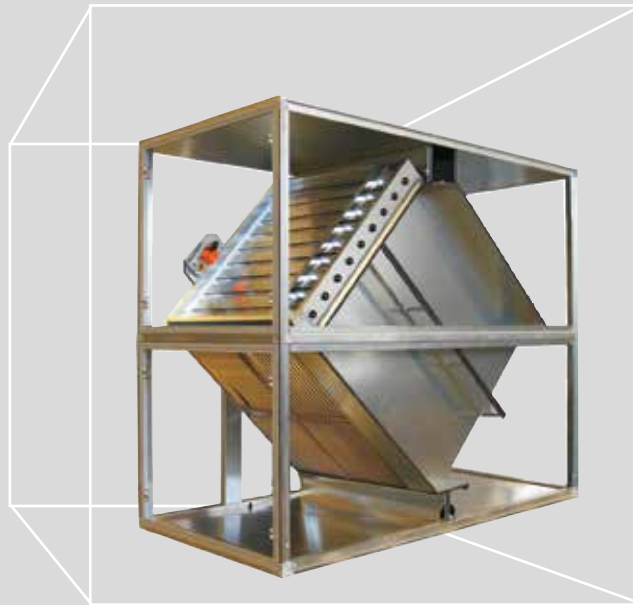


Condensate is created wherever air is cooled or humidified. It must be removed quickly and reliably.

The Wolf 3D pan, made from aluminium or stainless steel, has a three-dimensional fall, which reliably prevents water residues and the associated hygiene risks from bacterial growth.

Options

- Loose siphon
- Siphon with heating option



Function description

The hot and cold air are channelled past each other in the crossflow. Energy is recovered through the transfer of the hot/cold air flows. The air flows are completely separated from each other by aluminium panels.

Optional:

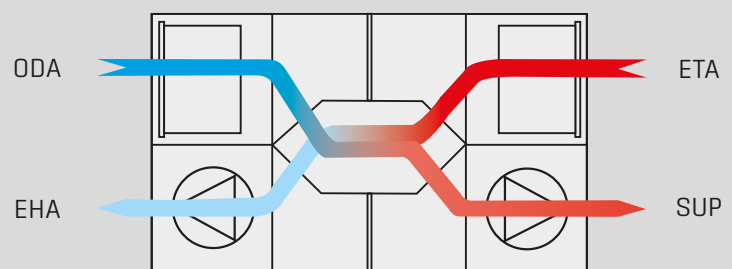
Integral recirculation air damper reduces energy consumption and installed length

COUNTERCURRENT PLATE HEAT EXCHANGER

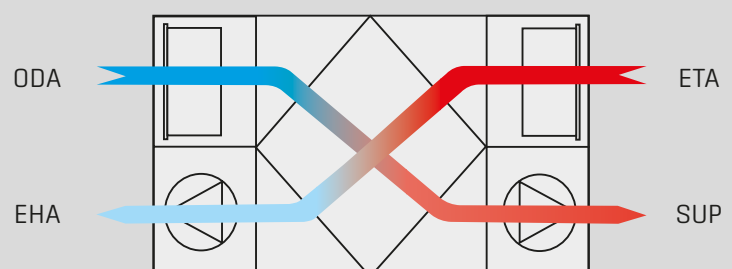


Benefits

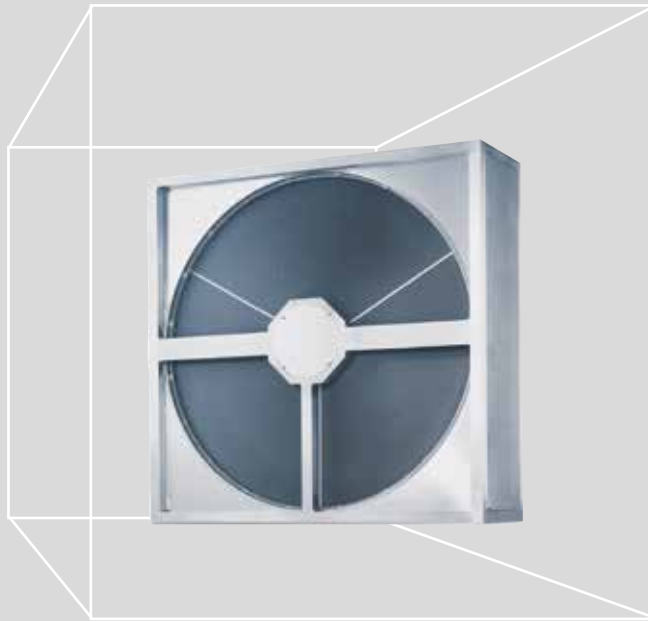
- Temperature efficiency up to 75 % dry
- Efficiency up to 90 %
- No moving parts
- Practically maintenance-free
- No moisture transfer
- No mixing of supply air and extract air
- Compact, efficient and economically ideal solution for small and medium air volumes
- Frost protection function via integral bypass
- Integral bypass enables summer bypass
- Sensible heat recovery only (moisture is extracted)
- Suitable for adiabatic cooling



HIGHLY EFFICIENT KGXD



ENERGY RECOVERY



Function description

Rotors suitable for heating and cooling mode.

The rotating accumulator mass absorbs the energy from the [hot] extract air flow and transfers it to the supply air flow.

THERMAL WHEEL HEAT EXCHANGER



Benefits

- Temperature efficiency level up to approx. 80 %
- Option for moisture transfer
- Easy to service
- Space saving due to short design
- Low pressure drops
- Optimum economic viability at higher air volumes
- Very low space requirement
- Self-cleaning effect thanks to countercurrent operation
- Latent and sensible energy recovery possible
- Generally the most economical solution for average and high air volumes

Optional

- Sorption rotor (highly efficient humidity transfer from extract air to supply air)
- Enthalpy rotor for humidity transfer from extract air to supply air
- Control unit for output optimisation, e.g. summer and winter mode
- Purging chamber
- Rotor with flat labyrinth gasket (leakage rate 2 % at $dp = 300 \text{ Pa}$)
- **Wolf Energy Lifting System** (easy and time saving installation of pre-assembled rotor in the casing)





Function description

Energy is recovered by being transferred to the heat exchanger in the extract air flow. The heated/cooled transfer medium then heats/cools the heat exchanger in the supply air flow and transfers its energy to this air flow.

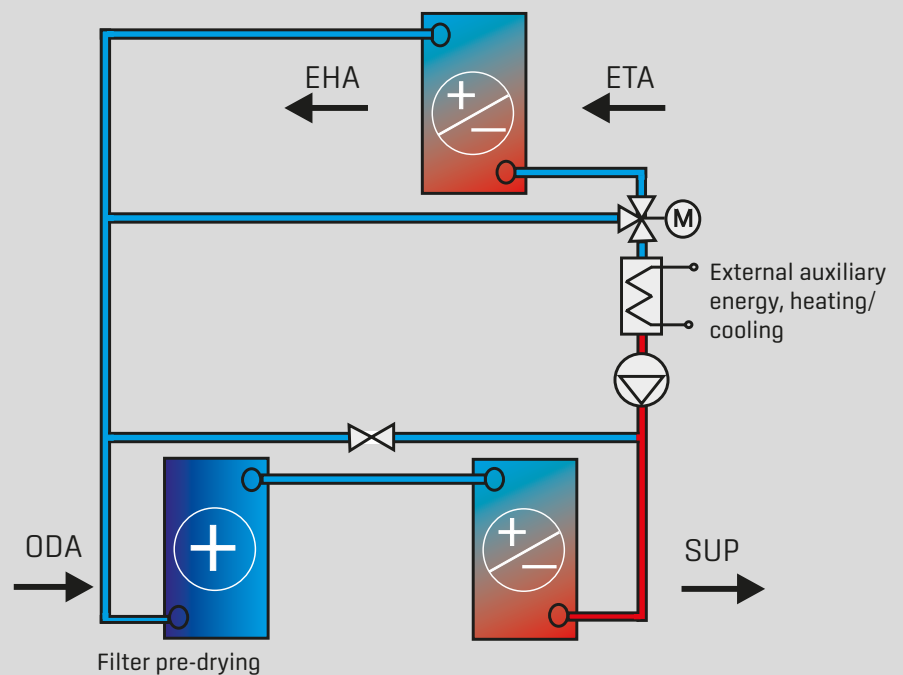
The run-around coil system enables an external auxiliary energy source to be integrated, to temper the supply air. In addition, a preheater coil can be integrated into the system for filter pre-drying.

RUN-AROUND COIL SYSTEM



Benefits

- Temperature efficiency up to approx. 70 % possible, subject to version
- Extract air and outdoor air completely separated from each other (compliant with DIN 1946 TH)
- Thanks to the special construction, no transfer of contaminated extract air into the supply air is possible
- Ideal for retrofitting in older systems
- If auxiliary energy is available on site, extended heating (or cooling) is possible, making a reheating coil superfluous



HUMIDIFICATION SYSTEM



Air humidification is extremely important in air handling systems. When the relative humidity in a room is within a comfortable range, the productivity of the occupants will be at its best. At the same time, their vulnerability to catching illnesses will be at its lowest. In order to prevent the air humidification itself becoming a source of disease, Wolf ensures that the design of its humidification systems is compliant with professional standards.

HIGH PRESSURE HUMIDIFIER

alternatively

LOW PRESSURE HUMIDIFIER



Overview of Wolf air humidifiers

- Extremely hygienic as there is no circulating water (only osmosis water)
- High humidifier output up to 90 % relative humidity, subject to demand
- Variable humidifier control via variable speed humidifier pumps (high pressure humidifier)
- Humidifier control via nozzle activation (low pressure humidifier)
- Complete drainage to the side through 3D pan
- Internal casing / 3D pan made from stainless steel
- Good accessibility via large inspection door
- Inspection port that can be blacked out to facilitate maintenance

STEAM HUMIDIFIER

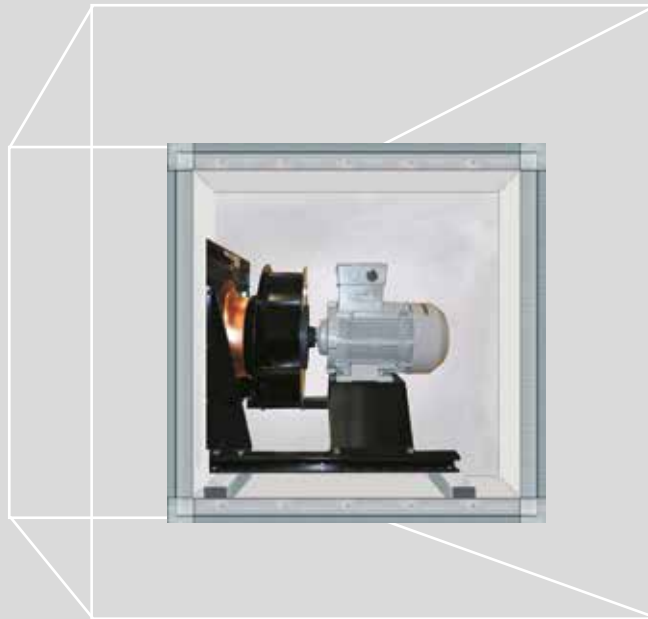


- Extremely hygienic due to sterile steam
- Easy to service thanks to large inspection door
- Highly reliable
- 3D pan included as standard

CONTACT HUMIDIFIER



- Suitable for adiabatic extract air cooling
- For circulating water or fresh water
- Complete drainage through 3D pan made from aluminium or stainless steel
- Internal casing made from stainless steel
- Good accessibility via large inspection doors to facilitate maintenance with inspection port that can be blacked out



The ATEX Directive describes the measures required to protect against explosion. It obliges both installer and operator to ensure the protection of people and property against the risk of explosion. Wolf Mainburg is one of the few manufacturers of air handling units that has experience with ATEX units in a variety of applications.

Applications for ATEX units



- Paint shops
- Petrol stations
- Production facilities with hazardous substances
- Pharmacies



A risk analysis using a checklist specially designed by Wolf helps the design engineer or property developer with the classification of air handling units in accordance with explosion prevention regulations.



| Checkliste (für VR zur Klassifizierung entsprechend der Explosionsschutzrichtlinie 94/9/EG) | | | | | |
|--|--|---|--|--|--|
| Klimageräte KG / KGW Top in explosionsgeschützter ATEX - Ausführung | | | | | |
| Kunde: | | Baugröße: | | Variante: | KGT <input type="checkbox"/> KGTW <input type="checkbox"/> <small>Innenaufstellung Außenaufstellung</small> |
| Projekt: | | Position: | | Nr.: | |
| Geräteart: | | Zuluftgerät <input type="checkbox"/> Abluftgerät <input type="checkbox"/> | | | |
| Kombiniertes Zu- und Abluftgerät (Nur Abluftgerät in explosionsgeschützter Ausführung) Zuluftgerät durch luftdichte, automatische Absperklappe geschützt. Keine Umluftklappe zulässig. <small>Wärmerückgewinnung: nur KVS möglich. Alternativ „Nur Zone 2“: KGX/KGXD bei Kundenbestätigung (s. unten).</small> | | | | | |
| Kombiniertes Zu- und Abluftgerät (Zu- und Abluftgerät in explosionsgeschützter Ausführung) Umluftklappe: Zone 2: Umluftklappe möglich Zone 1: Keine Umluftklappe möglich Wärmerückgewinnung: Zone 2: KVS / RWT / KGX/KGXD möglich Zone 1: Nur KVS möglich | | | | | |
| Achtung: Atmosphäre innerhalb und außerhalb des Gerätes ist anzugeben! | | Ausführung: | | | |
| | | Gerät | | Zone 2 <input type="checkbox"/> Klassifikation: II 3G c IIB Zone 1 <input type="checkbox"/> Klassifikation: II 2G c IIB | |
| | | Innen: | | Temperaturklasse: Zündtemperatur über: T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> > 450 °C > 300 °C > 200 °C > 135 °C | |
| | | Keine Zone | | <input type="checkbox"/> | |
| | | Gerät | | Zone 2 <input type="checkbox"/> Klassifikation: II 3G c IIB Zone 1 <input type="checkbox"/> Klassifikation: II 2G c IIB | |
| | | Außen: | | Temperaturklasse: T1 <input type="checkbox"/> T2 <input type="checkbox"/> T3 <input type="checkbox"/> T4 <input type="checkbox"/> | |
| | | Keine Zone | | <input type="checkbox"/> | |



Wolf offers the KG Top air handling units with certified hygiene quality to DIN 1946 T4 for use in hospitals, clean rooms and the food processing industry.

Hygiene components with special properties



- Fan in EC design (alternatively free-running impeller), easy to clean thanks to hygienic coating, cables kept short and routed to the outside, variable speed motor



- Airtight louvre dampers, internal in accordance with DIN 1946 T4, also in tightness class 2 and 4 in accordance with DIN 1759, can be designed with double lip, gears outside the air flow
- Servomotor designed as spring return motor; if there is a power failure, damper closes automatically due to non-electrical spring return



- Filter with clip design; free of gaps to prevent filter bypass leakage; at least 10 m² filter surface area per m² unit cross-section. Filter frame is corrosion-resistant thanks to foam seal; stainless steel floor is easy to clean



- Heating coil heat exchanger [Cu/Al]
Frame coated or made from stainless steel, fin spacing >2 mm
- Cooling coil heat exchanger [Cu/Al]
Frame made from stainless steel, header from copper, fin spacing >2.5 mm



- Thermally insulated condensate pan made from stainless steel with fall on all sides for complete drainage



Wolf combines individual air handling units with integral refrigeration technology to form complete units. The entire units come from a single supplier and the delivery and warranty limits are clearly defined. All refrigeration components are integrated into the air handling unit to save space. Thanks to the modular design of Wolf air handling units, the position of all function components is flexible. There is an individual and optimal solution for every single application.



Refrigeration components

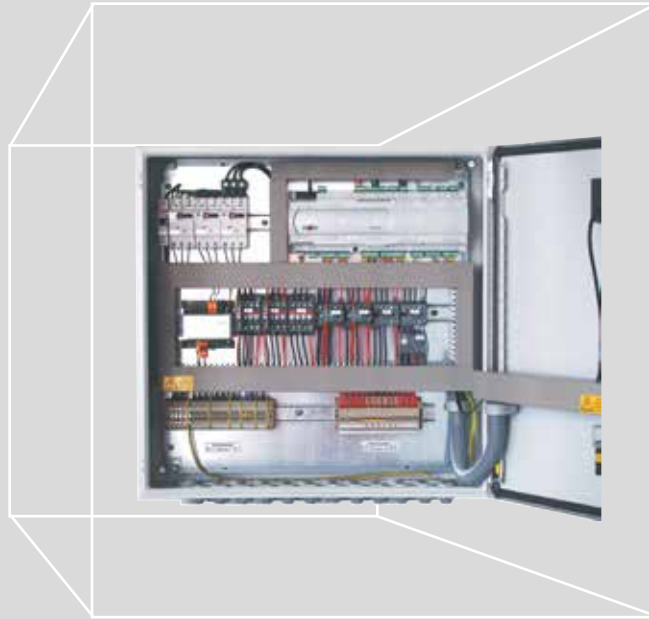
- Digital scroll systems with output-dependent control
- Piston compressor sets with cylinder shutdown
- Highly efficient inverter-controlled compressor sets
- Multi stage composite systems
- Heat exchanger for refrigeration or heat pump operation [optional]
- Integral or external condenser

Benefits of integral refrigeration technology

- High operational reliability
- Standalone
- Cooling capacity and medium temperature matched to demand
- Suitable for heat recovery in winter
- Synergy effect when dehumidifying/reheating and utilising the heat of condensation
- No distribution or standby losses

HRS-K

CONTROL EQUIPMENT



Air handling technology is constantly becoming more specialised and the demand for compatibility between air handling units and their associated control units is becoming ever more important. The Wolf control system therefore offers a customer-specific solution, whether it is integrated into the unit to save space or provided as a separate control panel.

The task of the control unit is to regulate air handling systems with a minimum of energy costs and operating effort, and to achieve an optimum level of operational reliability, economic viability and convenience.



Control functions

- Weather-compensated set value control
- Control of indoor air, extract air, supply air, temperature and humidity as a cascade with minimum and maximum limits (PI controller)
- Supply air temperature and humidity control (PI controller)
- Sequences for temperature and humidity (mixer dampers, heating coil, cooling coil, heat recovery, humidifier)
- Adaptation and time optimisation
- CO2 control

Control and monitoring function

- Time switch program
- Filter monitoring
- Frost protection
- Fire damper monitoring and signalling
- V-belt/fan monitoring
- Free night cooling
- Refrigeration control
- Heating control

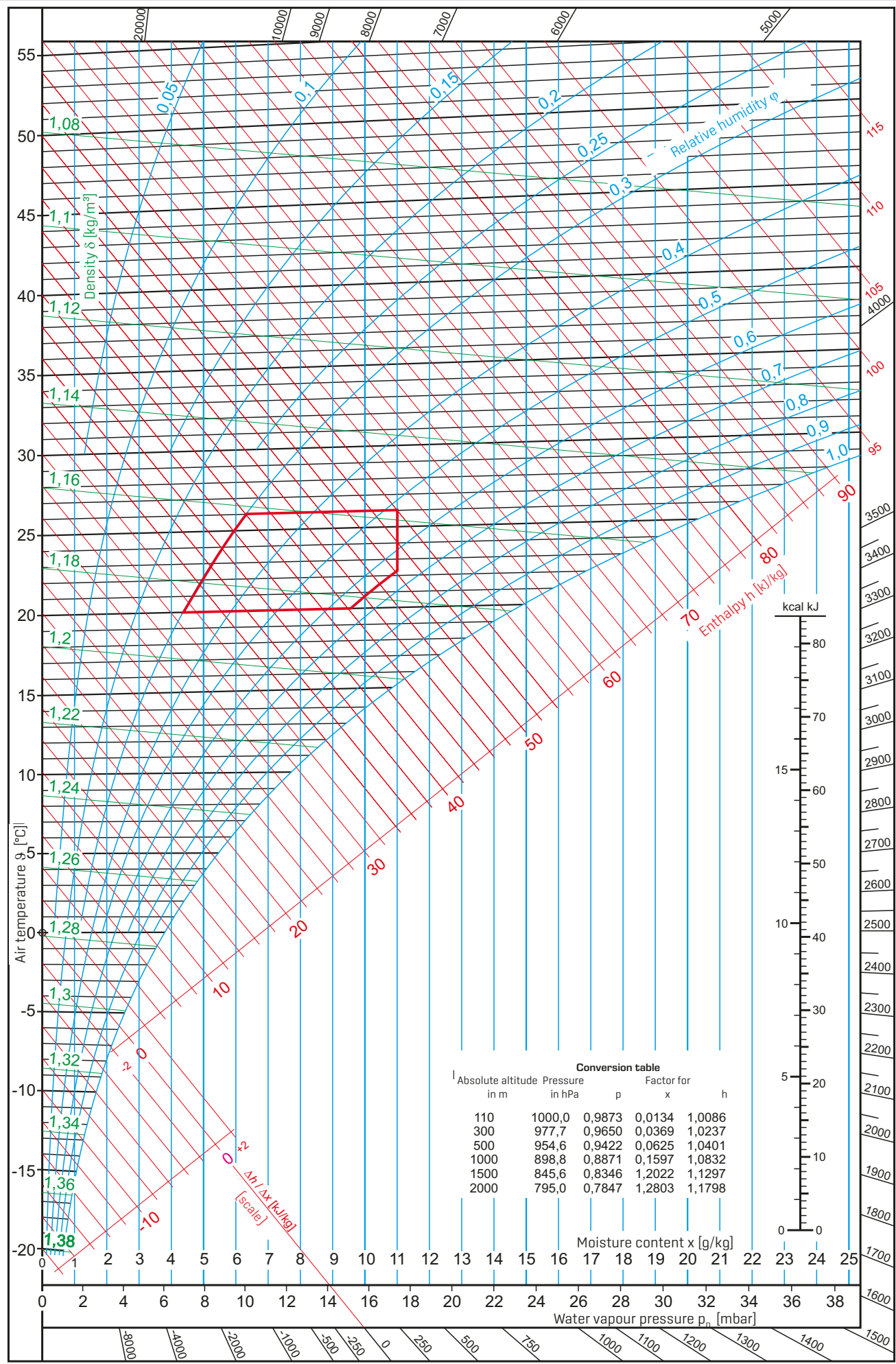
Unit control panel

- Space saving integration of all power and MSR assemblies into the unit
- Individual and flexible adaptation to the casing geometry

Installation

- EMC-compatible mounting on or in the unit
- Thermal motor protection
- Display and control of air volume, power consumption, etc.

MOLLIER
psychrometric chart



Dealer address

WOLF GMBH / P.O. BOX 1380 / D-84048 MAINBURG / TEL. +49.0.875174-0 / FAX +49.0.875174-1600 / www.WOLF.eu

