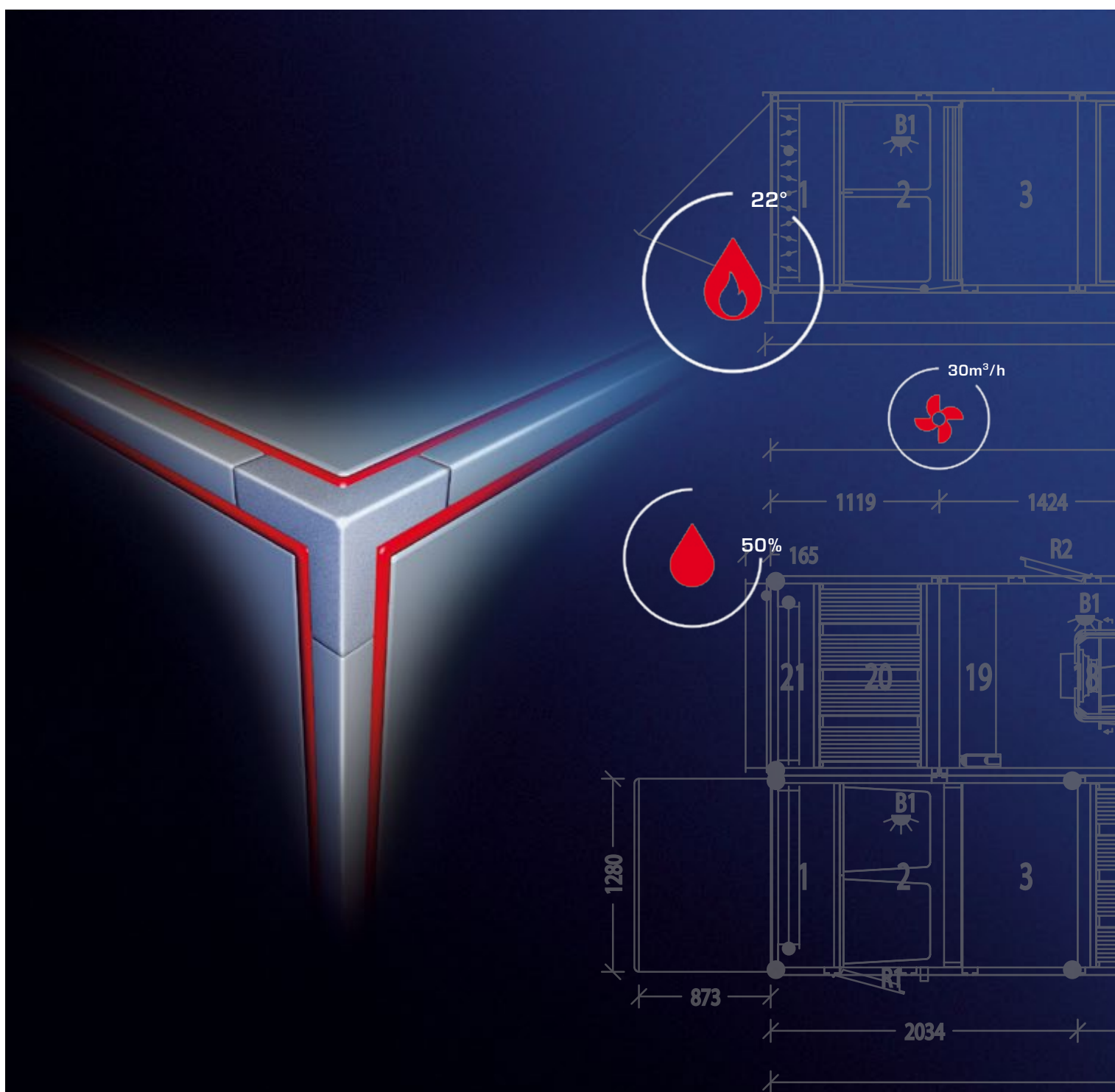



WOLF AIR HANDLING UNITS

CUSTOMISED AND CLEVER FOR OPERATORS AND DESIGN ENGINEERS



PERFECTLY IN TUNE WITH YOU.



A low-angle shot looking up at a large, rectangular, metallic air handling unit being hoisted by a crane. The crane's boom, painted in blue and yellow, extends from the top right towards the center. Several thick steel cables connect the crane's hook to the top of the unit. The unit itself is a complex of metal panels with various bolts and structural elements visible. The background is a clear blue sky with a bright sun in the center, creating a strong lens flare that radiates across the frame. The overall scene conveys a sense of heavy industrial work and large-scale construction.

A WOLF air handling unit, fully fitted on a base frame, being moved by crane.

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35,000



Compact

100,000



KG Top
modular air handling units
with especially short delivery times

AHU TE

modular air handling units
with especially short delivery times



CKL POOL
spa and pool unit



KG Flex
individually customised air handling units

Modular

Customised

HIGHEST QUALITY - SMALLEST FOOTPRINT

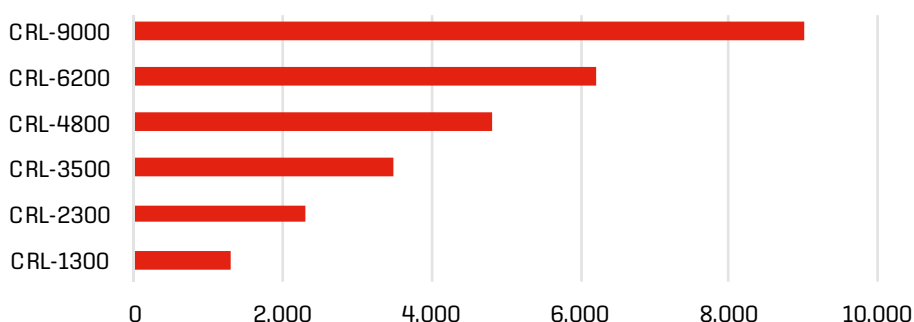
OVERVIEW OF THE COMPACT CLASS

Compact, quickly available, straightforward. A project is often thwarted by the supposedly large space requirement or the mistaken assumption that it will involve high operating/acquisition costs and long delivery times. This is where WOLF's „ultra-compact“ appliances come into their own. Always large enough to ensure maximum comfort and small enough to be deployed anywhere. And what's more, they are fully fitted so you can get going straight away.

- › All units are fully wired for fast, straightforward commissioning
- › Premium field devices and highly efficient, EC fans with variable speed control (energy efficiency class IE4 to EN 60034-30)
- › High quality, powder coated (optional for CFL) and robust casing
- › Unique in this sector: specially developed outdoor units for every output size of the CKL and CRL units in weatherproof version
- › Straightforward integration into the WOLF web portal and Smartset app via WOLF Link pro
- › Proven WRS-K control unit with many programmable inputs and outputs as standard
- › Wide range of BMS interfaces (LON, BACNET, ETHERNET, MODBUS and KNX)
- › Programming unit can also be used as a remote control
- › Extensive range of accessories (WOLF Clima Split system, heating coils, cooling coils, silencers, etc.)
- › Compliance with all relevant standards and guidelines, such as VDI 6022 and VDI 3803
- › All units comply with air handling regulations and ErP 2018
- › Very short standard delivery time

CRL COMPACT VENTILATION UNIT WITH THERMAL WHEEL HEAT EXCHANGER

- › Compact ventilation system with integral high performance thermal wheel heat exchanger
- › Wide range of rotor types:
 - › Sorption rotor (recommended by WOLF - particularly high moisture recovery in winter and pre-cooling in summer)
 - › Enthalpy rotor (efficient moisture transfer or transfer of sensible and latent heat)
 - › Condensation rotor (transfer of sensible heat)
- › Patented WOLF labyrinth seal with 98 % tightness
- › Extremely straightforward handling thanks to slim or sectional units
- › Very flexible application options due to highly versatile air routing (iD, iDH and iH)



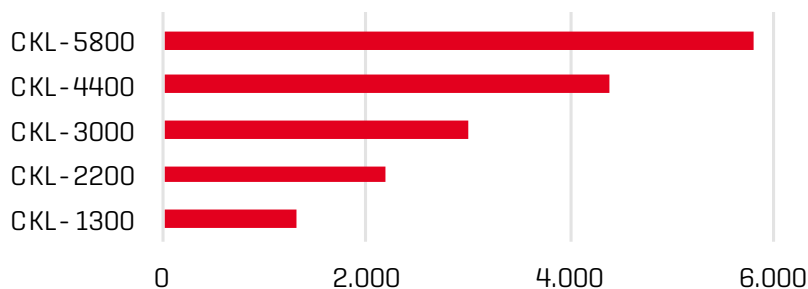


CKL COMPACT VENTILATION UNIT WITH PLATE HEAT EXCHANGER

- > Compact ventilation system with integral plate heat exchanger
- > Countercurrent plate heat exchanger with heat recovery rate > 90 % (with bypass for night ventilation in summer)
- > Automatic frost protection control to prevent the heat exchanger freezing up
- > Unique feature of CKL-4400 and -5800 units - they can be split lengthways to minimise installation effort and ensure handling is as straightforward as possible
- > Very flexible application options due to highly versatile air routing (ID and IH)

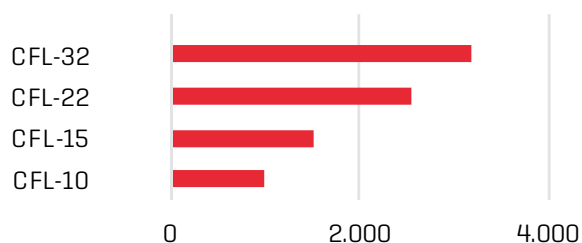


CKL-4400 and -5800, can be split lengthways for easier handling.



COMPACT VENTILATION UNIT IN SLIMLINE DESIGN CFL

- > Compact bidirectional ventilation system with integral, highly efficient plate heat exchanger
- > Particularly slimline design for ceiling installation
- > Highly efficient countercurrent heat exchanger with heat recovery rate > 90 % (with bypass for night ventilation in summer)
- > Automatic frost protection control to prevent the heat exchanger freezing up
- > Special filters available for use in the food processing industry (e.g. deli counters)



MODULAR UNITS

WOLF KG TOP AND AHU-TE

Achieving the ideal unit - module by module. The modular design of the KG Top and AHU-TE series makes it possible to assemble a unit consisting of 28 differently sized sections in next to no time. Here, we bring together the benefits of standard production and the flexibility of individual configuration.

If an even higher level of customisation is required, the units from the KG Flex series are available - our tailor-made range.

Close interaction between software and production, unique in the sector, allows a high degree of flexibility in the configuration of the units and at the same time, efficient manufacture with particularly short response and delivery times.

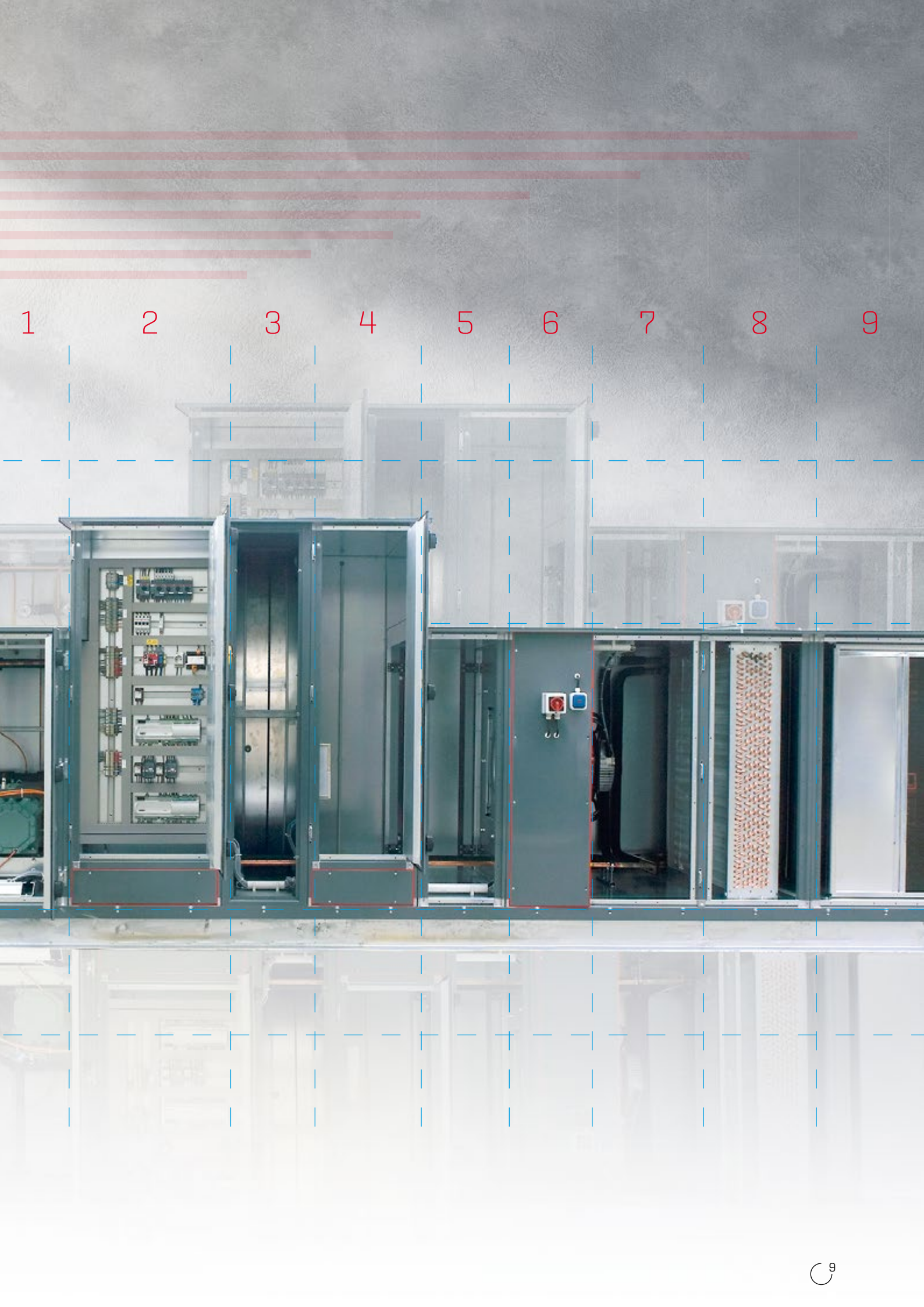
Every single module can boast more than 50 years of expertise: this is where clever, practical solutions meet the latest technology for maximum efficiency. This does not just mean always using the latest generation of fans and heat recovery systems, but also keeping one step ahead. As with our compact appliances, these units can be fully wired and equipped with a complete control unit, and naturally, can also be operated via app and PC.

Handling on site is facilitated by WOLF technology such as the Easy Lifting system. We place great importance on ease of transportation and installation-friendly connection technology, which both save time and ensure that the units function perfectly with maximum hygiene standards.

Our air handling units are, of course, also available as "Plug&Play" versions, in which case the entire unit is pre-installed on a base frame, complete with control unit and wiring. To put it briefly: transport, wiring and ducting... done! On request, the heat generator and refrigerating unit also manufactured by WOLF can even be integrated into the air handling unit.

"A thing of beauty" - if required, our units can make themselves invisible: WOLF air handling units from the KG Top and AHU-TE series can simply be coated in any RAL colour. The result is that they blend almost seamlessly into external walls and roofs, which is a selling point not only for developers and architects.

Compliance with all relevant regulations and standards goes without saying for WOLF. Furthermore, our units in the AHU-TE series are certified to EUROVENT. Thanks to our international experience, projects abroad can also be completed with the aid of our professional consultants.



CUSTOMISED UNITS

WOLF KG FLEX

Highest levels of flexibility in configuration, fast and straightforward handling during transport and installation, and maximum efficiency for the operator - these are the benchmarks for an advanced, futureproof air handling unit with highly individual features. The WOLF KG Flex series offers tailor-made, efficient air handling technology to suit any building project with a high air flow rate. Its innovative design supports the perfect interplay between all of the new elements of this air handling unit. The sectional units and the plug-in frame structure simplify transport, handling, installation and maintenance. The advanced design also provides maximum energy efficiency and reduces operating costs. Unlimited sizes and the option to combine as many different ratings as you like, so offering plenty of scope for the optimum design and implementation of your project.

The flexible design means that all requirements for industrial applications can be met, e.g. air flow rates above 100,000 m³/h at 1.5 m/s.

Your requirements - our solution (examples)

Cooling for a mainframe computing centre with awkwardly placed pillars, maximum hygiene for a complex operating theatre or dehumidification of the local indoor swimming pool in a plant room with a very low ceiling: the applications and possibilities with the KG Flex series are endless. Speak to your WOLF air handling advisor.

WOLF offers a tailor-made solution for every application

Meeting places and retail premises: stadiums, exhibition halls, shopping centres, cinemas, hotels/restaurants, administration buildings; industry: pharmaceuticals, chemical industry, metalworking, installation, automotive industry, machine tools

Clean rooms: hospitals, practices, laboratories

IT: server rooms

Offshore coatings for extreme weather conditions

C5m paint finishes or stainless steel (inside and out)

The additional KG Flex paint finishing option ensures a long service life under particularly tough conditions. The hard-wearing top coat and a special 2-layer, epoxy resin-based undercoat have been tested under the most extreme weather conditions and are particularly suitable for offshore applications.

If all of that is still not enough, a version in V4A stainless steel (inside and out) is a further option.



PLUG&PLAY FOR POOLS

WOLF CKL-POOL

The new CKL-Pool was specially designed to intelligently condition small indoor swimming pools. It removes indoor air with high humidity levels and supplies dry air into the interior. Full integration of the refrigerant circuit and control unit makes selection, installation and commissioning incredibly easy.

The new CKL-Pool at a glance:

- › Fully integrated heat pump and control unit as a single complete system
- › Robust indoor unit, particularly easy to install and maintain
- › Ventilation and dehumidification of small indoor swimming pools
- › Complies with VDI 6022 and VDI 3803
- › High efficiency thanks to heat recovery system and EC fans
- › Two models are available, featuring compact dimensions and a nominal flow rate from 2000 m³/h to 3000 m³/h
- › Resistant to corrosion: fully coated
- › Compatible with the WOLF Smartset system for easy connection to smartphones and browsers - locally or via the internet
- › Optional pool water condenser



MODULAR UNITS FOR ALL POOLS

KG FLEX POOL

KG Flex pool units are available in 18 standard sizes and with numerous optional extras which can be selected as required for the project in question. The size and functionality of these units is fully adaptable and they meet the highest standards for room utilisation and technology.

Components are selected and the units developed with a strong focus on corrosion protection, in order to satisfy the stringent requirements in typical pool settings.

The KG Flex Pool at a glance:

- › Version for indoor and outdoor areas
- › Optimum component selection depending on project requirements
- › Integral heat pump with optional process reversal
- › Certified corrosion-resistant components
- › Optional pool water condenser
- › Graphic web interface for controlling, trouble-shooting and monitoring the unit



CERTIFIED AND SECURE QUALITY ABOVE ALL ELSE

With WOLF, all structural, energy and hygiene requirements, regulations and statutory specifications are implemented consistently and verifiably. Approved system design and efficient operation depend upon strict compliance with standards concerning a wide variety of quality guidelines. We actively engage with professional bodies, quality associations, societies and institutions to ensure that we are ready to comply with future standards without delay. In this way, we are able to meet the increasingly strict hygiene and energy requirements of design engineers, developers and operators and provide far-sighted answers to issues such as energy-conscious construction ("green construction"), "sick building syndrome" (SBS) and professional, comprehensive building cost management ("lifecycle costs").

It is important that air handling/ventilation systems are compliant with the required standards. Here are a few of the most important that are met by our air handling units:

WOLF offers hygienic units according to the following standards

TÜV certification to DIN 1946 Part 4, VDI 6022, ÖNORM H 6022, SWKI 99-3. WOLF units meet all hygiene requirements pertaining to these standards and are therefore also approved for use in operating theatres.



EUROVENT

The following WOLF products are EUROVENT certified: CRL, CKL and AHU-TE.



German AHU Manufacturers Association

The German AHU Manufacturers Association defines energy efficiency ratings and labels on the basis of EN 13053 A1 2010. WOLF meets all requirements as per "RLT-TÜV-01" and is authorised to use test marks with energy efficiency class A+, A and B.



CE mark

The CE mark confirms that WOLF units conform with EU regulation 765/2008 and permits WOLF to sell appliances within the European Union.



ATEX Equipment Directive

ATEX certification from the TÜV confirms that WOLF complies with the Directive 94/9/EC for equipment and protection systems intended for use in potentially explosive atmospheres. Also especially for the Russian Federation.



VDE high voltage test to VDE 0700

Prevention of electromagnetic interference, directive 2004/108/EC

WOLF units comply with Directive 2004/108/EC for electromagnetic compatibility of electrical and electronic products [EMC].

Import certificate for the Russian Federation

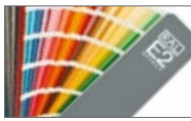
The EAC (Eurasian Conformity) certificate confirms that WOLF units comply with the requirements and standards of the Russian Federation and that they are approved for sale in Russian Federation markets.

ISO 9001

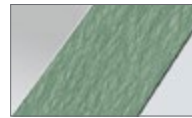
WOLF manufactures its products in compliance with a stringent quality assurance system and, in addition to the product requirements, meets the specifications of a comprehensive quality management system, with the goal of aligning the whole organisation to the requirements of its customers. WOLF products and processes are therefore subject to continuous improvement management.



Coating for inside and out: Unit powder coated in any RAL colour or with salt water-resistant C5m paint finish



Casing panels: Removable, smooth, without thermal bridges, with 50 mm high grade, non-combustible mineral wool insulation, material class A1 to DIN 4102 (non-combustible), thermal transmission category T2, thermal bridge factor TB2, tightness class L1



Louvre dampers: Airtight, externally mounted or integrated to EN 1751, tightness categories 2 and 4, optionally with double lip and zinc-plated, powder coated or stainless steel finish. Particularly hygienic: gears outside the air flow.



Filters: The right filter for every purpose. With its own filters developed in-house, WOLF goes above and beyond standard requirements, e.g. bag filters with no floor contact for top hygiene.



Floors, tops and walls: Absolutely smooth and gap-free on the inside, guaranteeing optimum hygiene. Zinc-plated, powder coated and/or stainless steel versions available



Unit base frame: Internal frame optionally with height-adjustable feet, unit base frame 60 mm, unit base frame height 200-500 mm (optional)



Additional benefits of the WOLF KG Top and AHU-TE:

- › Also available with stainless steel panels
- › Heating coil to VDI 6022 as standard
- › Highly efficient energy recovery system
- › HV-tested to VDE 0700 as standard
- › Customer service provided by WOLF TGA experts
- › On-site commissioning and installation supervisor on request

Sight glasses:
Without thermal
bridges, double
glazed



Complete wiring:
On request, we deliver
every unit to site fully
prewired



**Field devices, actuators
and sensors:** Individu-
ally matched and fitted
quality components



**Control and monitoring
equipment:**
Control unit included:
on request, every unit
can be equipped with
a control unit. Special
programming is also no
problem.



**Fan: individual and
optimised solution for
every application:**

- > EC or PM fans
- > Free-running impeller
with inverter operat-
ed radial fans



Removable heating
coil, cooling coil and
mist eliminator
Operating with water
or refrigerant media



Silencer:
Optional glass fibre
lamination, removable
from the side



Doors: All doors
equipped with glass
fibre-reinforced handle
and rotary closure with
automatic safety catch
and/or lever/twin-lever
closure, optionally
lockable



3D condensate pan:
With slope on all sides
for complete draining.
Top hygiene. No base
frame required

EFFICIENT INTERACTION

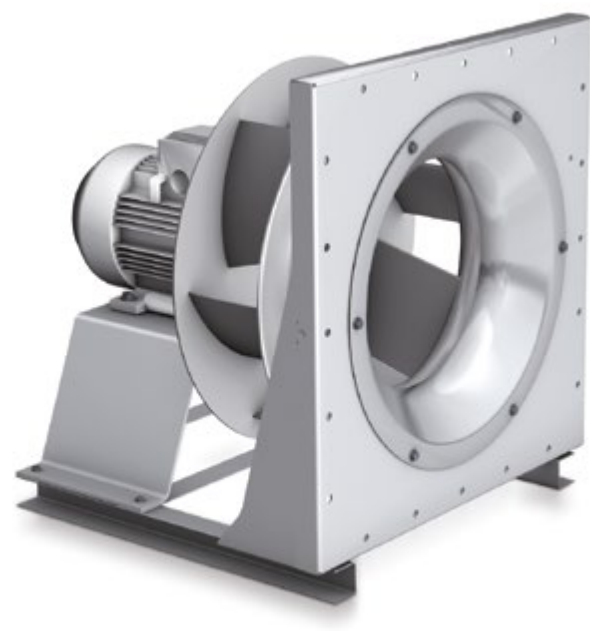
FANS AND DRIVE SYSTEMS

Choosing the most suitable drive system is of vital importance when it comes to best results. In addition to compliance with standards and regulations, the individual operational requirements are a decisive factor when selecting the ideal system. WOLF offers the optimum solution for every application and provides support during the implementation of your system concept.



EC fan with free-running impeller:

- › Energy efficiency class IE4
- › High system efficiency even in the partial load range
- › Integral PID controller for variable output control 0-100 % of the electronically commutated synchronous motors with virtually no power loss
- › Simple and precise output control due to flow rate measuring device
- › Maximum operational reliability and easy maintenance thanks to direct drive
- › Low noise generation
- › Short installed length
- › High outputs enabled by "fan wall"
- › Maintenance-free drive system with low wear and long service life
- › Extremely smooth running, virtually no structure-borne noise emissions
- › No shielded connection cable necessary



AC/DC fan with free-running impeller:

Energy efficiency class IE2 as AC motor and IE3 as DC motor:

- › AC or DC motors for variable output control with inverter
- › Simple and precise output control due to flow rate measuring device
- › High operational reliability, easy maintenance and hygiene thanks to direct drive
- › Optional versions for ATEX, contaminated extract air [e.g. kitchens]
- › Inverter as accessory



Hybrid PM fans:

- › Free-running radial fans in compact design
- › Combined with the effect of conventional housed fans
- › Unique air routing and housing geometry
- › Particularly high energy savings



Fan walls:

- › For high air flow rates
- › Hygienic, clear of the floor even for high air flow rates
- › Extremely short installed lengths
- › Perfect conveyance of the air flow to the next section (replaces diffuser)

VIRTUALLY NO LOSSES

HEAT RECOVERY SYSTEMS

The technically and economically efficient use of available heat, humidity and cooling is made possible by deploying individually calculated energy recovery systems matched to demand. This enables a sustainable reduction in the use of primary energy and has a positive impact on the system's payback period. The capacity needing to be installed can be significantly reduced, thereby also reducing investment and operating costs. The use of energy recovery systems is a mandatory requirement of many national and international standards and regulations and must be documented.

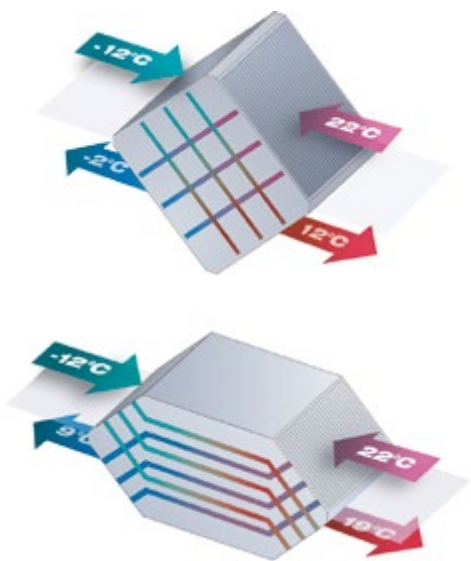
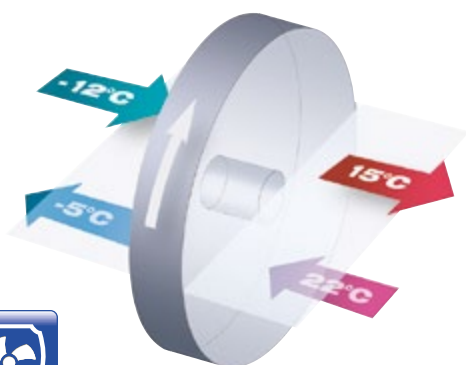


Plate heat exchanger:

As a countercurrent or crosscurrent heat exchanger

- › Efficiency of up to 90 %
- › No moisture or odour transfer
- › Variable output control via bypass
- › Failsafe and low maintenance, as no mechanical moving parts
- › Suitable for adiabatic cooling
- › Integral air recirculation possible
- › Compact design
- › High temperature version possible
- › Exceptional air tightness
- › Hygienically sound



Thermal wheel heat exchanger:

- › Efficiency up to 90 %
- › Moisture recovery possible
- › Variable output control via rotation speed
- › Low pressure drop
- › Space saving unit installation, even for high flow rates
- › Self-cleaning effect due to mode of operation
- › Drive and gasket require maintenance
- › Aluminium and zeolite-coated aluminium versions for moisture recovery
- › High temperature version possible
- › With patented, highly efficient labyrinth seal with 98 % tightness





Integral heat pump:

Units with an integral heat pump are ideal for customised solutions thanks to the numerous possibilities that are available.



The WOLF HKVS
Plug&Play unit

High performance run-around coil system:

- › Complete separation of supply/extract air
- › Fully pre-assembled including wiring, control unit and pipework
- › ErP 2018-ready thanks to heat recovery rate $\geq 70\%$
- › Hydraulic module with minimised pressure drop, high efficiency pump with variable output control and precise flow rate capture using integral ultra-sonic meters
- › Optional injection of heating/cooling energy
- › Complete integration into the WOLF WRS-K air handling control system
- › Permanent function and performance monitoring

FEEL-GOOD ENVIRONMENT ALL ROUND

AIR HUMIDIFICATION COMPONENTS

Personal wellbeing, just like process and production environments demand a controlled and optimised level of air humidity, as well as a defined temperature. The use of adiabatic humidification systems in combination with efficient heat recovery can also enable a reduction in operating costs.

Benefits of controlled air humidification:

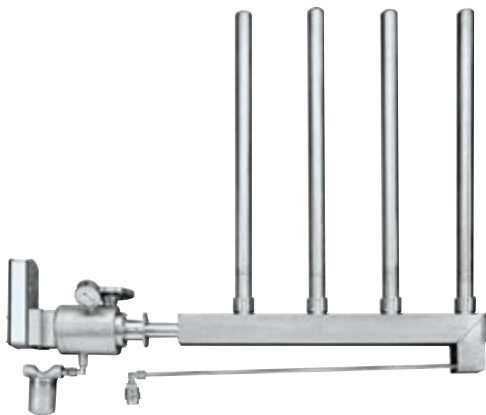
- › Ideal indoor environment in all seasons
- › Safeguarding trouble-free process engineering
- › Prevention of electrostatic charging, important in IT areas
- › Reduction of the electrical cooling capacity if necessary

WOLF offers structurally and hygienically matched system solutions for a wide variety of humidification systems. Hygiene requirements, accessibility, cleaning capability and compliance with all current standards and regulations are naturally assured.

You can expect and assume high standards:

- › Internal, stainless steel humidifier chamber
- › Stainless steel drip pan with 3D slope to drain outlet
- › Sight glass with blackout option
- › Moisture-proof lights with cabling
- › Extensive servicing and cleaning options

SUPPLY AIR HUMIDIFIER FOR SPECIAL HYGIENE REQUIREMENTS



Steam humidifier:

- › Deployed in supply air flow for linear air humidification
- › Water is brought to a boil in the humidifier, using electricity or gas, and evaporates. This separates out or destroys all minerals and biological constituents. The pure water vapour is mixed into and absorbed by the airflow via the steam lances fitted inside the air handling unit. The condensate produced is collected in a stainless steel pan with three-sided slope to the side drain and is discharged in a controlled manner.

Benefits:

- › Completely hygienic
- › Variable output control possible
- › Low water losses [condensate]
- › No air reheating required
- › Short installed length possible
- › Easy to service
- › Suitable for various water qualities

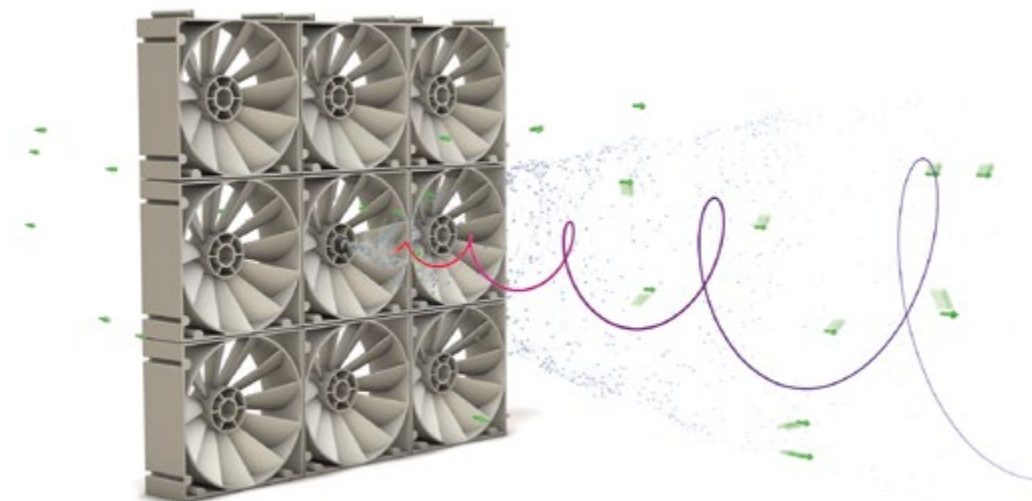
SUPPLY AIR HUMIDIFIER FOR MAXIMUM EFFICIENCY

High pressure humidifier:

- › Deployed in supply and extract air flow for adiabatic humidification
- › Treated, fully desalinated water is injected by a high pressure pump module via a jet wall integrated into the air handling unit. The previously heated air in the supply air or the warm extract air absorbs the water and is adiabatically humidified. Waste water is collected in a stainless steel pan with three-sided slope to the side drain and is discharged in a controlled manner.

Benefits:

- › Very hygienic as there is no circulating water [osmosis water]
- › High humidifier output of up to 90 % relative humidity
- › Variable output control via speed-controlled humidifier pump



EXTRACT AIR HUMIDIFIER FOR ADIABATIC COOLING

Contact humidifier:

- › Deployed in extract air flow for adiabatic cooling
- › Cold tap water is distributed by a pump module via an evaporation surface integrated in the air handling unit. The warm extract air absorbs the evaporated water and is adiabatically humidified. The evaporator is treated with a germicidal [silver ionisation] coating. Hygienic safety can be further improved with UV light and blow-down equipment.

Benefits:

- › No water treatment required
- › High humidifier output of up to 90 % relative humidity
- › Multi-stage output control



PURE AIR AT ALL TIMES

FILTER TECHNOLOGY

State of the art filter technology in WOLF air handling units ensures top hygiene, high indoor air quality, component protection, environmental protection and low operating costs. The standardised solutions, some of which were developed especially with WOLF, are selected and calculated on a project-specific basis for all requirements and output ranges.

Fresh air - with no pollen, fine dust or pollutants - guarantees the maximum feel-good environment for people, animals and industry. With the right filters, not even odours stand a chance.

WOLF carries all filter technologies in its product range and, naturally, meets new ISO 16890 filter standards.

Installation versions

Filter frame removable at the side:

- › Straightforward filter replacement from the side with quick-release mechanism
- › Reduced unit length
- › Reduced unit weight

Fixed integrated filter frame:

- › Filter maintenance on stale air side



Filter clamp:

- › Even simpler filter change
- › Filter bypass hardly ever required



Panel filter
Length 48/96 mm
Category G4-F9



Bag filters
Length 380/580/600 mm
Category G4-F9



Energy-optimised bag filter with large filter area and special compact design for VDI 6022-compliant usage with no floor contact

RECOMMENDATION:



HEPA filter
Filtration of aerosols, viruses and bacteria
Category H10-H13



Hybrid filter
F7 carbon filter with activated charcoal insert in compact design to remove odours and pollutants (NO_x), and filter out particles in filter category F7



Compact filter
with reduced length (292 mm)
Category M5-F9



Expanded metal filter
Filtration of grease or oil mist
Material: stainless steel or aluminium
Category G2-G4



Activated charcoal filter
Filtration of odours, bacteria and viruses.
Cartridge material: stainless steel, zinc-plated sheet steel, plastic

INDUSTRIAL APPLICATIONS

PREPARED FOR ALL EVENTUALITIES

Modular KG Top air handling units and individually customised KG Flex air handling units are the perfect solution for industrial applications. This may include systems for hall ventilation or process air, and special applications of every kind which make the highest demands of air conditioning equipment.

The units are constructed from a twin wall panel without thermal bridges, secured from the outside, 50/60/100 mm thick, and profiles that also prevent thermal bridges.

The units are designed with a focus on particularly smooth surfaces in order to meet the highest hygiene standards. This can be highly significant, both for people and for production processes.

Every unit in the WOLF KG Flex series is designed and manufactured individually, with no restrictions on the size of the unit dimensions.

This flexibility over dimensions allows the unit size to be optimally adapted to spatial conditions in the case of new and renovated systems.

Suitable for almost any application area:

- › Automotive industry and supply industry
- › Pharmaceutical industry
- › Food processing industry
- › Chemical industry
- › Tobacco industry
- › Energy industry
- › Shipbuilding industry
- › Paper industry

WOLF benefits:

- › No restrictions on the size of unit dimensions
- › Air handling units for air flow rates of up to 100,000 m³/h at 1.5 m/s
- › Casing designed in stainless steel - entirely or only the panels
- › Air handling units with heat pumps for higher cooling capacities
- › Use of reversible heat pumps (heating/cooling)
- › Use of optimum heat recovery systems
- › Special design and component selection according to customer requirements



EXPLOSION PROTECTION

ATEX CERTIFIED

A comprehensive risk and hazard analysis forms the basis for effective explosion control measures. WOLF air handling units with ATEX certificate to Directive 94/9/EC guarantee protection from various ignition source types, such as static electricity, impermissible surface heating, mechanical sparks, flames, hot gases, lightning strike and adiabatic compression. WOLF air handling units are ideal for safe use in areas at risk of explosion.

The ATEX directive obliges manufacturers to conduct a comprehensive risk analysis for the appliance, to define a specific application field and to have conformance verified independently. TÜV SÜD confirms that WOLF appliances and components comply with Directive 94/9/EC [ATEX 95] for their intended use in areas at risk of explosion in safety categories [2G and 3G], temperature classes [T1 to T4] or zones of use [1 and 2].

In parallel to ATEX Directive 94/9/EC [ATEX 95] for the installer, ATEX Directive 1999/92/EC [ATEX 137] describes minimum requirements for the user, which must also be considered during planning. Compliance with both directives has been prescribed by law in all member states of the European Union since 1 July 2003.

Special features of WOLF air handling units, ATEX versions:

- › All casing components and fitted parts are electrically conductive and equipped with equipotential bonding
- › ATEX-certified air filters with conductive filter medium in conductive filter mounting frame
- › Fans with ATEX certification according to classification
- › All components [coils, silencers, louvre dampers, heat recovery, etc.] are electrically conductive and earthed
- › No materials are used that enable sparks or electrostatic charges
- › All fitted parts also in ATEX-compliant design

A checklist specially developed by WOLF makes it easier for design engineers, operators and installers to classify air handling units according to the directives.



WOLF



CUSTOMISED COMPLETE SOLUTIONS IN THE SMALLEST OF SPACES

At WOLF, we pride ourselves on our exceptional level of system competence. We are the only manufacturer in Europe to offer a complete range of air handling and heating equipment from one source: ventilation, air handling, cooling, heating, humidification and energy recovery using customised systems and advanced heating technology with DHW heating, provided by gas/oil condensing boilers, combined heat & power modules (CHP), heat pumps and solar thermal.

We are able to combine all of these components to create reliable and exceptionally efficient systems. This means that our customers are able to enjoy the reliability of optimally coordinated systems featuring comprehensive control and regulation technology - all without interface problems.

One example of a special WOLF "all-in-one solution" is the rooftop answer for the catering industry. At the heart of the system is an air handling unit featuring integrated cooling, central heating, DHW heating and a highly efficient heat recovery system. The system is suitable for any type of boiler selected by the operator. This complete solution operates as a standalone unit with measuring, control and regulation technology from WOLF.

Naturally, it is compatible with the operator's building management system and can also be extended with on-site consumers, such as additional warm air curtains, radiators or heating circuits. Each unit is supplied fully wired and can be installed immediately and quickly on the building roof, thereby minimising operational interruptions.

And since everything is fitted on a base frame, all that is left to do is simply lift the unit onto the roof.



Integral refrigeration unit
for any demand



Integral WOLF WRS-K
control panel



Link pro interface module for
control via Smartset app and
portal



Complete control unit for heating,
air handling and ventilation

Installation by crane on the
roof of a catering company
building



WOLF 120 litre
CSW-120 DHW cylinder



Integral WOLF CGB-2 wall mounted gas
condensing boiler featuring state of the
art condensing technology for peak loads

WOLF CLIMA SPLIT SYSTEM

ELITE PARTNER FOR HEATING AND COOLING

The WOLF Clima Split system consists of an air source heat pump equipped with inverter for connection to a direct expansion coil in the air handling unit. The split unit is installed outdoors and is equally suited to cooling (4-24 kW) and heating (4.5-27 kW), and can be used both for new installations and for retrofitting.

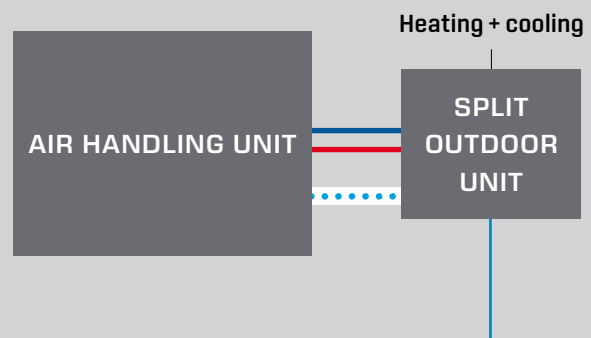
The new Clima Split system at a glance:

- > Perfect communication between air handling unit and split unit via SplitCom communication system
- > Constant supply air temperatures
- > Smart defrosting management
- > Cold air (including for less sizeable applications) has never been easier or more affordable!
- > Up to three split units can be combined in a cascade
- > Extremely quick response speed at changing air flow rates
- > Cooling capacity: 4-24 kW (72 kW in a cascade); heating output: 4.5-27 kW (81 kW in a cascade)
- > Compatible with all WOLF appliances with control units
- > No measures necessary to prevent pipework freezing up!



SYSTEM INTELLIGENCE: WOLF SPLITCOM

The communication system between the air handling unit and the split unit ensures consistent supply air temperatures thanks to perfect communication.



INTEGRAL HEAT PUMPS

BUILT-IN HEATING AND COOLING SOURCES

Generating heating and cooling energy in a compression process is all the rage. It is both practical and good sense from a primary energy point of view. Trouble-free operation requires a high level of expertise - after all, no-one should have to put up with rooms that are too hot or too cold.

In addition to many years of experience in the field of refrigeration technology, WOLF also makes use of the latest technologies in the refrigeration process, which are perfectly matched to the control systems in WOLF air handling units. For example, inverter-controlled scroll compressors which can be regulated across a wide output range - particularly important when using EC fans which are operated on the basis of CO₂ levels. Both modular and fully customisable solutions are available and can be fine tuned to suit the relevant application. Plug&Play solutions which simply need to be connected on site, or modular systems: when it comes to integrated compression technology, WOLF offers a complete range of solutions, from small to large scale.

Benefits

- > Decentralised, integral supply of heating and cooling energy
- > Maximum efficiency through utilisation of the extract air
- > Plug&Play solutions for particularly fast installation
- > Comprehensive expertise in consultation and design
- > Extensive WOLF Service
- > Selection of advanced components
- > Perfect interaction between compressor and control unit
- > No risk of pipework freezing up



WOLF 2-MINUTE CONFIGURATOR

THE FAST TRACK TO YOUR AIR HANDLING UNIT

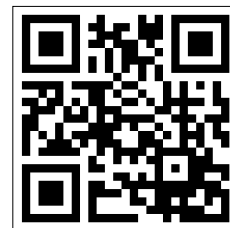
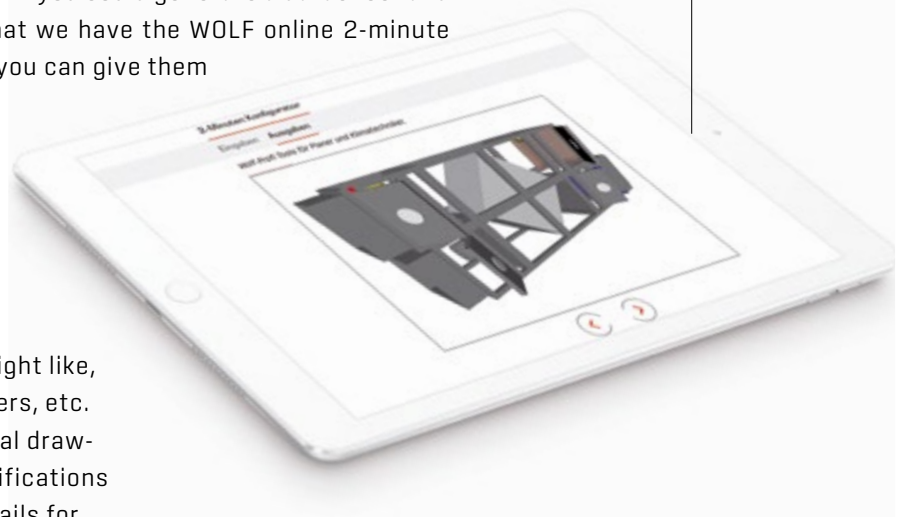
BIM ready - handover in Autodesk Revit with WOLF BIM browser

Wouldn't it be nice if you could reduce the time it takes to configure an initial design for an air handling system? If we could automatically find the right system with all key data and efficiency classes clearly laid out once we enter the flow rate, air velocity and temperature? And what if you could generate a datasheet and drawing yourself? It's a good thing then that we have the WOLF online 2-minute configurator. Your architect will love you if you can give them

Rough key data like length, width, height and weight - in just 2 minutes.

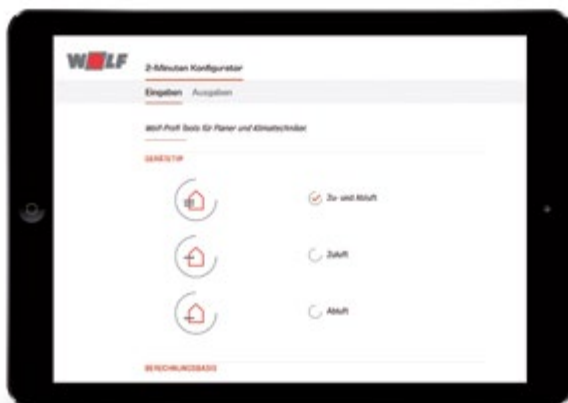
Your benefits at a glance:

- › Enter just a few basic parameters
- › Predetermine optional components you might like, such as heating coils, cooling coils, silencers, etc.
- › Exportable files such as AutoCAD, technical drawings as PDFs, tender documentation, specifications including handling dimensions, weight details for installation on a roof, etc.
- › Summary of all label classes in accordance with EN 1886
- › BIM ready: output via WOLF BIM browser in Revit
- › Compatible with smartphones and tablets for use on site



Direct link to the configurator:

www.wolf.eu/2min-conf



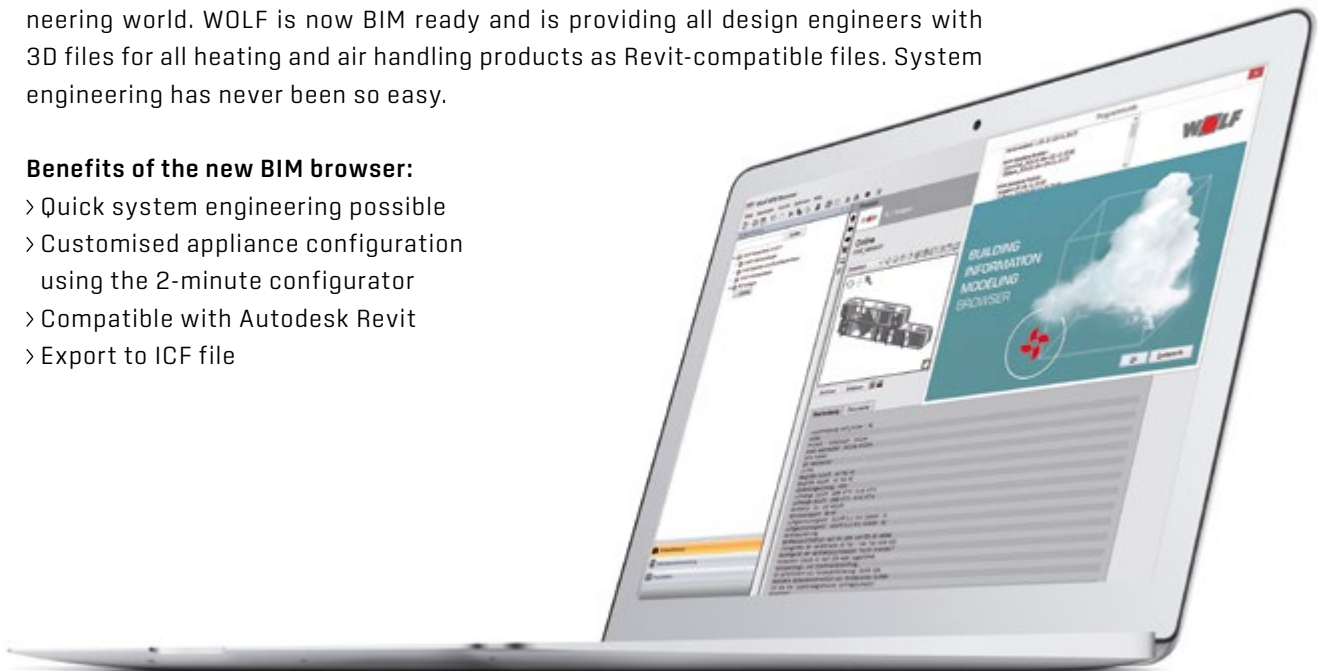
WOLF BIM BROWSER

FROM SYSTEM DESIGNER TO TIME SAVER

Building information modelling, BIM for short, is revolutionising the design engineering world. WOLF is now BIM ready and is providing all design engineers with 3D files for all heating and air handling products as Revit-compatible files. System engineering has never been so easy.

Benefits of the new BIM browser:

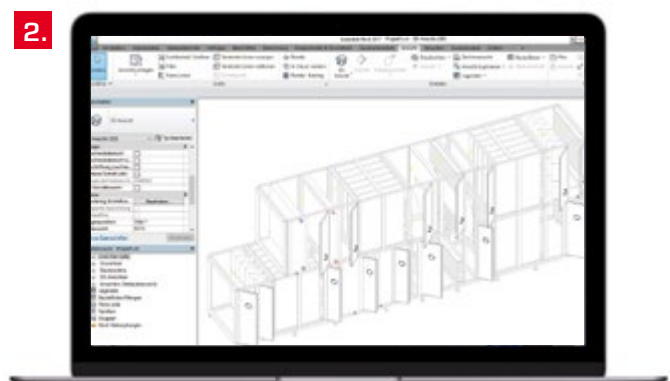
- › Quick system engineering possible
- › Customised appliance configuration using the 2-minute configurator
- › Compatible with Autodesk Revit
- › Export to ICF file



Your direct link to the BIM browser:

www.wolf.eu/bim-browser

Customised appliance configuration using the 2-minute configurator



WOLF EASY LIFTING SYSTEM

YOUR AIR HANDLING UNIT IS READY FOR LIFT OFF

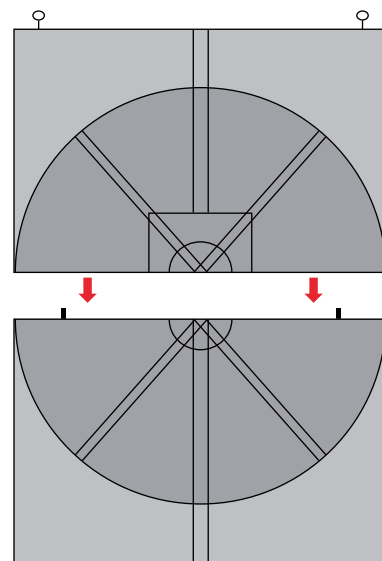
Difficult site conditions for engineers and installers? WOLF offers just the right answer - the "Easy Lifting System". It makes handling onto or into a building much easier, as well as the installation of these functional units quicker and more accurate. It's so simple that even our largest components, such as thermal wheel or plate heat exchangers, can be easily brought into any building or onto the roof.



Benefits of the Easy Lifting System:

- > Easy handling and installation
- > Lifting eyes for particularly straightforward lifting by crane or helicopter
- > No balance problems: lifted from the top instead of the bottom (on bars, rails, etc.)
- > Cube joiners for quick assembly and perfect Class L1 tightness to EN 1886
- > Optimised design of large components, such as thermal wheel or plate heat exchangers

THERMAL WHEEL HEAT EXCHANGER

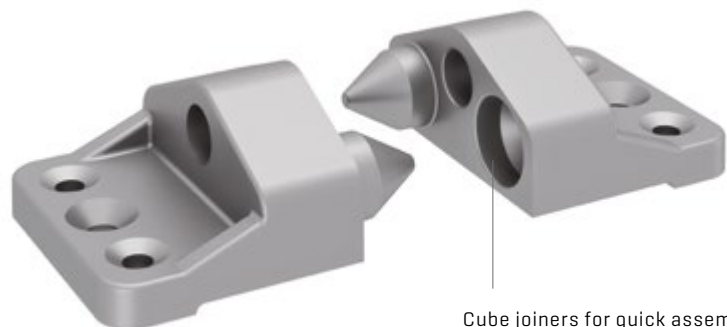


LIFTING EYE



Suitable for lifting
by crane or helicopter

CASING JOINERS



Cube joiners for quick assembly
and perfect tightness

Our tip:

If you're rather unsure about splitting assemblies, we'd be happy to deliver all our appliances fully fitted on a base frame - and even fully wired on request.



FIRST CHOICE FOR ARCHITECTS

GETTING THE VISUAL APPEARANCE JUST RIGHT

No matter whether an air handling unit is installed inside a building, outside or on the roof, it is important that it harmonises with the architecture. Ideally, the building structure and installed equipment should blend into one - not only technically, but also visually. This effect looks good on a satellite image, too. Modular and customised air handling units can be coated on request in any RAL colour. A C5m coating is naturally also available for extreme environmental influences.





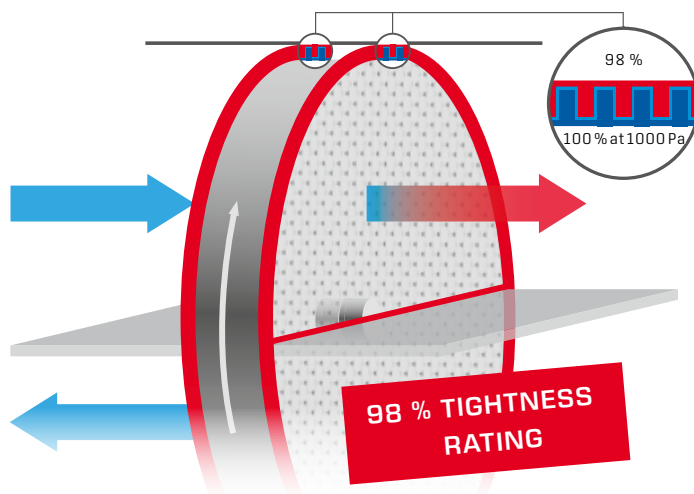
WOLF SUPERSEAL CLOSER TO THE LIMIT

Redefining standards: the WOLF SuperSeal system achieves an unprecedented level of tightness in all critical parts of an air handling unit. This starts with the labyrinth sealing system, which can reach up to 98 % tightness (to VDI 3803/5). Previously, the manufacturer would have had to take additional air flow rates for supply and exhaust air into account when sizing fans; in future this will no longer be necessary. Output supplements and higher power consumption in operation for supply and extract air fans are also a thing of the past, thanks to WOLF SuperSeal. F7 carbon filters in the supply and extract air lines keep undesirable odours exactly where they belong - in the exhaust air. It does not stop there - the extra wide double-lip cascade seal on the doors is yet one more useful system feature. And together with our distinctive red sealing profiles, we achieve Class L1 (to EN 1886) as standard. Besides minimum losses and maximum efficiency, this also ensures that no dirt is drawn in, keeping hygiene levels high.

All of the benefits at a glance:

- › Standard for all WOLF air handling units
- › Excellent hygiene thanks to the sealed casing - no impurities are drawn in from the installation surroundings
- › No filter bypass, no heat exchanger bypass, no unwanted ambient air in the unit

Innovative, patented
labyrinth sealing system



L1

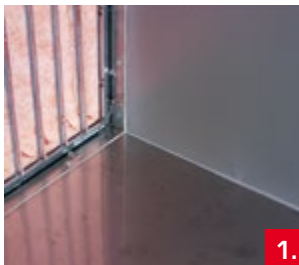


WOLF HYGIENE APPLICATIONS

NOT JUST CLEAN BUT SPOTLESS

WOLF air handling units are designed strictly in line with DIN Standard 1946, Part 4, and built with the greatest of care. For engineers and developers this guarantees straightforward design, problem-free approval and safe operation in hospitals, clean rooms and areas with the strictest hygiene requirements.

In addition to the general standards and regulations to be observed, WOLF hygiene units have been certified as complying with and implementing the design and structural requirements of DIN 1946, Part 4, as part of the TÜV SÜD type test.



1.



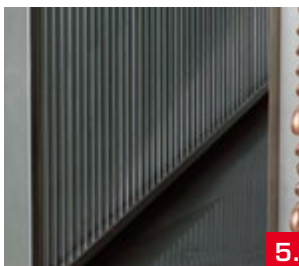
2.



3.



4.



5.



6.



Clean air of the highest quality: the hygiene versions of WOLF air handling units are suitable for highly sensitive, Class 1A air flows in surgical departments and can be integrated into low-turbulence, displacement flow ceilings in operating theatres, for example.

Strict adherence to design regulations to DIN 1946, Part 4:

- > Smooth interior surfaces can be cleaned leaving no residue [1]
- > All gaps and grooves are sealed with closed-cell, microbologically inexploitable and harmless sealing materials
- > All components accessible from both sides
- > Door seals can be removed for cleaning purposes [2]
- > Lights and sight glasses (optionally with blackout) integrated in service and function units
- > Stainless steel filter mounting frame with foam seal, gapless [3]
- > Insulated 3D condensate pan with all-round slope to drain for complete draining [4]
- > Mist eliminator with stainless steel frame, can be fully dismantled for cleaning
- > Airtight louvre dampers to EN 1751, gears or linkage located outside the air flow

Strictest material requirements:

- > Insides of floor panels in stainless steel 1.4301 [4]
- > Insides of walls and top panel with powder coating (stainless steel 1.4301 as option)
- > Floor pan with all-round slope in stainless steel 1.4301
- > Filter mounting frame and slide rails in stainless steel 1.4301 [5]

Quality-tested components:

- > Filter categories F6-F9, H10-H13 with test certificate
- > CuAl heating coil with coated frame or stainless steel 1.4301 and minimum fin spacing of 2.0 mm [6]
- > CuAl cooling coil with frame in stainless steel 1.4301, copper receiver and coated fins with minimum fin spacing of 2.5 mm
- > Free-running EC fans in hygiene version with coated impeller, fully accessible and easy to clean

AIR HANDLING UNIT GOES ONLINE PROGRAMMED FOR SIMPLICITY AND SERVICE

The WOLF Link pro interface module draws all WOLF products together and brings air handling units into the digital age. Not only that, but it also means all of WOLF's other products can now be integrated in a portal and app. Now all WOLF appliances can be controlled via app [iOS and Android] or browser. Easy and clear for users or with precise online system monitoring for professionals - with email notifications, of course. Set up your own "mini BMS system" with WOLF - access to the WOLF Smartset portal and apps is and will remain free of charge, of course.

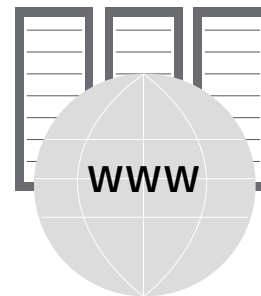
Benefits that speak for themselves:

- › Brings all WOLF products online with ease
- › Operation via app, tablet and PC
- › Full monitoring and remote access via complimentary contractor access
- › Extremely easy worldwide access [no VPN, no open firewalls, etc.]
- › Highly secure thanks to 128-bit encryption and server location in Germany

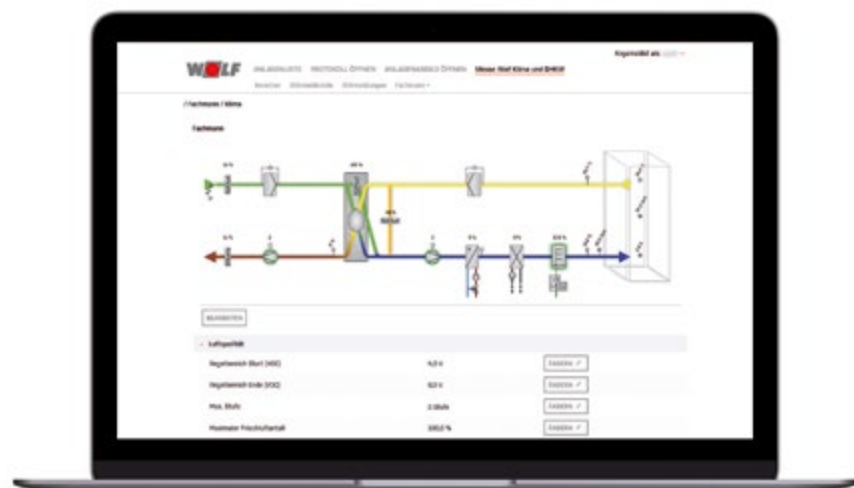
HOSTED IN
GERMANY



WOLF
portal-server



128 BIT SECURITY
ENCRYPTION



HEAT GENERATOR



DSL-ROUTER

LAN/WLAN



Link pro



AIR HANDLING UNIT



COMBINED HEAT & POWER MODULE

THINKING AHEAD

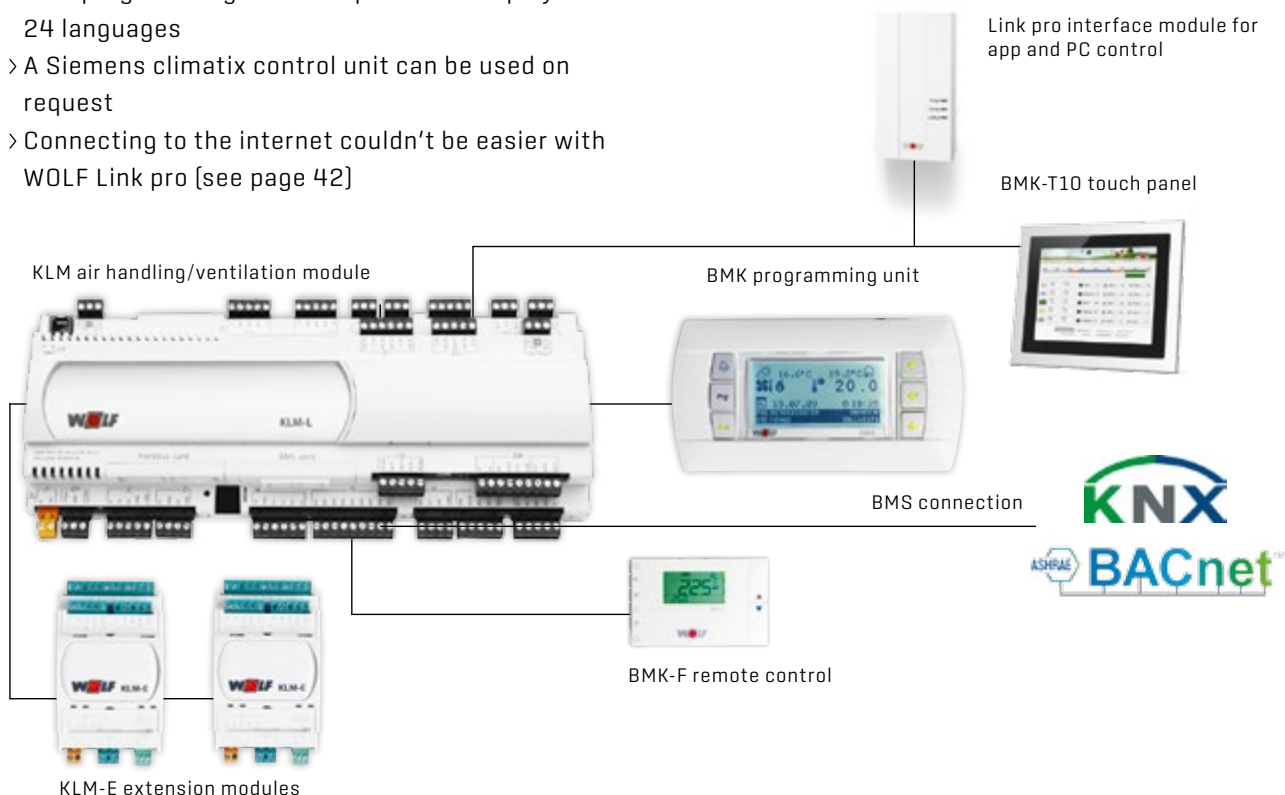
INTELLIGENT WOLF CONTROL SYSTEMS

Accurate control is essential for optimum operation of air handling and ventilation systems. The WOLF WRS-K control system makes operation even more convenient, ensures maximum energy efficiency and enables individual system configuration. Comprising a KLM air handling/ventilation module, BMK programming unit and BMK-F remote control, the system is deployed in CKL, CRL, CFL, AHU-TE, KG Top and KG Flex. KLM-E extension modules enable easy retrofitting or expansion of functionality [e.g. humidification, adiabatic cooling, etc.]. In addition, various interface modules facilitate communication with a building management system [e.g. via BACnet or KNX].

For the purpose of user friendly commissioning, the control unit is pre-configured at the factory to match specific system and customer requirements, using the WOLF configuration assistant. Users only need to select their required switching times and set values to be up and running.

Key features of the WRS-K:

- › Software configured individually for the specific system
- › Perfect interaction between air handling unit and control unit
- › Special programming possible on request
- › Factory preprogrammed control application, optimally calibrated for the specific appliance configuration
- › Subsequent function extensions can be configured retrospectively at any time using the programming unit
- › BMK programming unit with plain text display in 24 languages
- › A Siemens climatix control unit can be used on request
- › Connecting to the internet couldn't be easier with WOLF Link pro [see page 42]



We can take care of all the wiring - neatly and precisely!

Not only for compact units but also for all other WOLF appliances, we can take care of all the wiring - a service we highly recommend to all those involved in project. The days of "botch jobs", when wiring often had to be carried out on the side, under difficult site conditions, can be consigned to the past. Our industrial standards allow immaculate and optimised routing of all cables and leads, with no damage to the casing. Even the risk of moisture getting in, especially to outdoor installations, is prevented through the use of innovative solutions. Furthermore, installation on a terminal strip ensures a clean interface between the components - the best results are only achieved in conjunction with the WOLF control unit.



For example, we go to great lengths to find the perfect sensor position. This is the only way to obtain maximum efficiency from the high quality components. Probes and sensors installed on site are generally not fitted in the ideal location, which can lead to reduced efficiency or even malfunctions. The air handling unit of the future is fully wired and comes complete with control unit - naturally "Made by WOLF".

REFERENCES

FROM AROUND THE WORLD

Airports

- › Dortmund Airport, Germany
- › Munich Airport, Erding, Germany
- › Vienna Airport, Austria
- › Domodedovo Airport, Moscow, Russia

Banks

- › Commerzbank, Berlin, Germany
- › Deutsche Bank, Frankfurt am Main, Germany
- › Nationalbank, Brussels, Belgium
- › Bank of Ireland, Dublin, Ireland
- › Barclays Bank, United Arab Emirates

Automotive centres

- › Ford Plant, Cologne, Germany
- › BMW, Munich, Germany
- › Mercedes Centre, Düsseldorf, Germany
- › Audi, Ingolstadt, Germany
- › Opel Plant, Antwerp, Belgium

Hospitals

- › Marburg Eye Clinic, Germany
- › Helios Hospital, Krefeld, Germany
- › State Children's Hospital, Nizhnevartovsk, Russia
- › Merkurhof Rosenlinik Hospital, Rapperswil, Switzerland

Hotels

- › Super 8 Hotel, Munich, Germany
- › Novotel Hammersmith, London, United Kingdom
- › Schlosshotel Fuschl, Austria
- › River Park Hotel, Novosibirsk, Russia
- › Convencion, Madrid, Spain

Industry

- › E.ON, Regensburg, Germany
- › Haribo, Graftschaft, Germany
- › Puma, Herzogenaurach, Germany
- › Siemens factory buildings, Berlin, Germany
- › Federal Printing Office, Berlin, Germany
- › Med-E-Med, Salvador de Bahia, pharmaceutical industry, Brazil
- › LEONI Cable, Chihuahua, Mexico
- › State Printing Office, Vienna, Austria
- › Miele Uničov, manufacturing plant, Czech Republic

Schools & universities

- › University of Regensburg, Germany
- › TU Darmstadt, Darmstadt, Germany
- › Scuola Germanica, Rome, Italy
- › Academy of Art and Design, Enschede, Netherlands
- › Technical University, Vienna, Austria

Office buildings

- › World Trade Center, Dresden, Germany
- › DHL Express, Hamburg, Germany
- › Pro 7, Munich, Germany
- › Hessian State Parliament, Wiesbaden, Germany
- › Microsoft, registered office, France
- › British Telecom, Reigate, computer centre, United Kingdom
- › Microsoft, head office, Italy
- › Apple Computer, Dublin, Ireland
- › Viertel Zwei, residential, commercial and office building, Vienna, Austria
- › "Usadiba-Zentrum" office centre, Moscow, Russia
- › Postal Center, administration building, Riyadh, Saudi Arabia

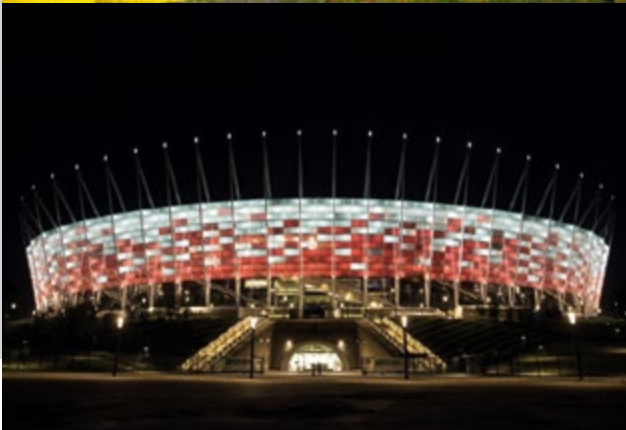
Retail, gastronomy, tourism and entertainment

- › Luisenforum shopping centre, Wiesbaden, Germany
- › Gletschergarten Restaurant, Garmisch-Partenkirchen, Germany
- › Limbecker Platz shopping centre, Essen, Germany
- › Phantasialand, Brühl, Germany
- › Television tower, Dortmund, Germany
- › Deutscher Reichstag, Berlin, Germany

- › Eiffel Tower, Paris, France
- › State Opera House, Vienna, Austria
- › Hofburg Palace, government building, Vienna, Austria
- › Theatre, Barakaldo, Spain
- › Kremlin Congress Palace, administration building, Moscow, Russia
- › Indoor swimming pool, Kilchberg, Switzerland
- › Bory Mall, Bratislava shopping centre, Slovakia

Stadiums & arenas

- › Westfalenstadion, Dortmund, Germany
- › O₂ World, Berlin, Germany
- › Olympic Stadium, Berlin, Germany
- › Allianz Arena, Munich, Germany
- › Riga Ice Rink, Latvia
- › Ernst Happel Stadium, Vienna, Austria
- › European Championship Stadium & Sportpark, Klagenfurt, Austria
- › Volkswagen Arena, Wolfsburg, Germany
- › Warsaw National Stadium, Warsaw, Poland



Many more references at
www.wolf.eu

OUR PROFESSIONAL CONSULTANTS ARE MORE THAN HAPPY TO HELP:

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Sales companies and representatives

A detailed overview of all our sales companies
and representatives can be found at:

www.WOLF.eu/unternehmen/ueber-uns/wolf-weltweit/

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