WOLF
GEISENFELD

COMPACT CLASS

WK-com F
WOLF air handling units
with flat construction

Spirit of Air

ALWAYS THE RIGHT DECISION!

WOLF **WK-com F** compact flat units are ideal for convenient and efficient ventilation of demanding applications. The compact designs of the energy-optimised modules are versatile and feature a high output range.

Depending on customer requirements, maintenance is performed from below or from one side of the unit. All components are fully internally wired to the individually configurable **WOLF *C-max*** control unit and the terminal unit (if an on-site control unit is used), making these air handling units versatile and fully customisable for your application.

YOUR BENEFITS

- Units can be operated and serviced from the side or from below
- Compact design that complies with all standards and regulations
- Large output range of up to 3500 m³/h
- Designed to VDI 6022
- Compliance with Ecodesign Regulation 2018
- Efficient, high-grade and performance-tested fitted parts
- Acoustically optimised casing design for nearly silent operation
- Easy installation thanks to stable self-supporting casing design
- Prepared for suspended mounting as standard
- All internal cabling on externally mounted switch cabinet/terminal unit
- Optional switch cabinet with **WOLF *C-max*** DDC controller mounted or supplied loose for wall mounting
- Large selection of control devices, room programming units and touch panels
- Communication possible via Modbus, BACnet and LON
- Individually expandable with demand-optimised components, such as silencers, heating coils (PWW/electrical), cooling coils (PCW/direct expansion coil), filters and many more.
- Casing in zinc-plated sheet steel, stainless steel V2A, aluminium AlMg3, paint finish (RAL to customer requirements)
- Versatile application
- Calculation with tested and certified sizing program

***WK-com F** 34*
***WK-com F** 34*
***WK-com F** 26*
***WK-com F** 26*
***WK-com F** 16*

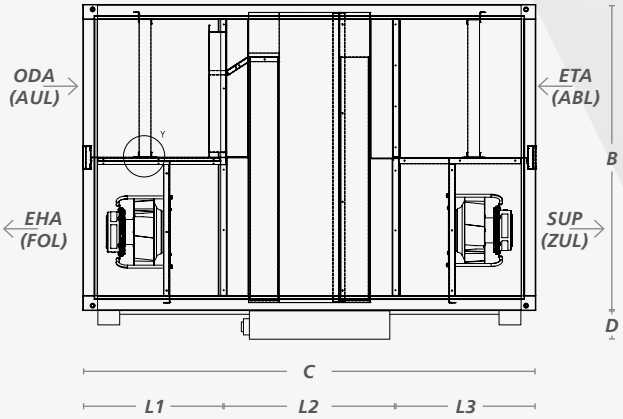
Quality guarantee

MADE IN GERMANY

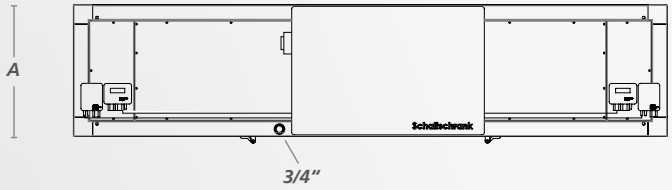
WK-com F dimensions

TOP VIEW

Dimensions for cut-outs – ceiling and floor



SIDE VIEW



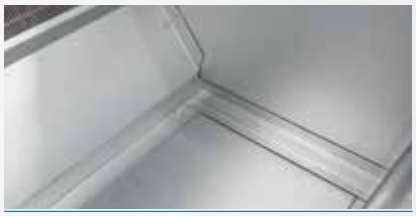
ODA = *Outdoor Air*
ETA = *Extract Air*
SUP = *Supply Air*
EHA = *Exhaust Air*

Type		WK-com F 16	WK-com F 26	WK-com F 34
Height	A mm	410	450	490
Width	B mm	1250	1830	2050
Length	C mm	1950	2050	2300
Width of switch cabinet / terminal box	D mm	120	120	120
Shipping units	Stück	1	3	3
Shipping unit length	mm	1950	L1 550 / L2 950 / L3 550	L1 550 / L2 1200 / L3 550
Weight per shipping unit	kg	250	92 / 165 / 92	115 / 195 / 115
Flow rate at V3 (2.0 m/s)	m³/h	1500	2450	3150
Flow rate at V2 (1.8 m/s)	m³/h	1350	2300	2850
Flow rate at V1 (1.6 m/s)	m³/h	1200	2050	2050
Heat recovery coefficient	%	> 90	> 90	> 90
Heat recovery class		H1	H1	H1
Filters to EN779 / ISO 16890		ePM 1 - ePM 10	ePM 1 - ePM 10	ePM 1 - ePM 10
Filter thickness	mm	48 / 96	48 / 96	48 / 96
Filter surface area	m²	2,9 / 5,4	4,9 / 9,2	6,1 / 11,4
Fan motor unit		EC	EC	EC
Energy efficiency class		IE4 / IE5	IE4 / IE5	IE4 / IE5
Supply voltage	V	1x230 / 3x400	1x230 / 3x400	1x230 / 3x400
Frequency	Hz	50 / 60	50 / 60	50 / 60

QUALITY – THE SUM OF INDIVIDUAL COMPONENTS!

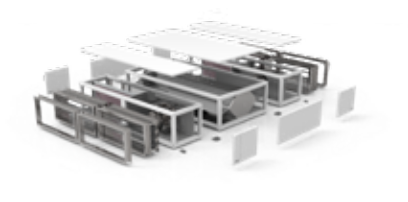
Compact flat unit WK-com F

The construction and design comply with the requirements of VDI 6022, while the efficient and high-grade fitted parts meet the energy requirements of ErP 2018. The self-supporting and inherently stable modular design with flush-fitted, double-skin cladding panels featuring 40 mm thick, non-flammable mineral wool insulation (A2 s1d0) to EN 13501 enables quick and easy installation.



Anti-fingerprint coating

The excellent sound-absorbing coefficient of the casing is achieved by inner and outer skins, each made of 1.0 mm thick sheet steel with an anti-fingerprint coating. Stainless steel V2A, aluminium AlMg3 and painted versions are available. All casing components are corrosion-resistant and can be fully dismantled and recycled in an environmentally responsible manner.



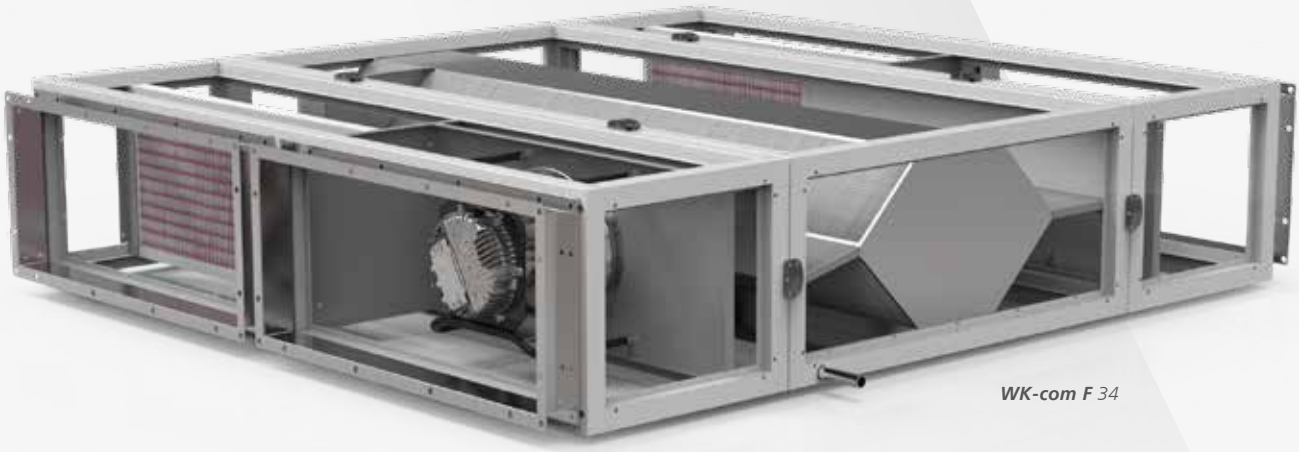
Smart modular design

The unit's modules are bolted together from the outside, making them airtight and easy to assemble.
Depending on customer requirements, operation and maintenance are possible from below via service doors with chrome plated, adjustable, maintenance-free hinges, casement fasteners and a catching device. On units operated from the side, inspection takes place via removable service covers with casement fasteners and handles. The cladding panels, inspection doors and covers are sealed with special tested, microbially inert, closed-pore sealing profiles according to VDI 6022.

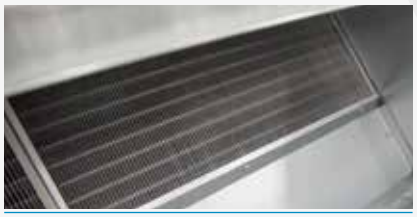
All moisture-sensitive structural components are made from a corrosion-resistant material and contain an insulated and completely drainable 3D aluminium or stainless steel pan.
The 3D pan has a three-dimensional fall, which reliably prevents water residues and the associated hygiene risks from bacterial growth.

3D stainless steel pan

»High performance, compact design«



***WK-com F** 34*



Heat recovery

The highly efficient, corrosion-resistant, counter-current plate heat exchanger excels with heat recovery coefficients of over 90 %. Equipped with an integral bypass and attached variable-speed servomotor, it has a summer mode without heat recovery (free cooling) and variable output control. The supply and extract air flows are fully separated from each other by thin, parallel aluminium panels according to the counter-current principle. This prevents a transfer of moisture and odours.

Heat recovery with 3D pan

Optionally available as exchanger package with epoxy coating, PET or with special membrane as enthalpy heat exchanger with humidity transmission. An insulated and fully drainable 3D condensate tray made of aluminium/stainless steel ensures that any condensate produced is drained off via the side outlet without leaving any residue.

Freewheeling impeller with EC motor

The high performance radial impeller with single-sided intake, without spiral housing and with a motor featuring the latest EC technology is infinitely variable over the entire permissible speed range. Optimally mounted and balanced, it enables quiet operation with highest efficiency levels. The electronics comply with EMC guidelines and meet all requirements relating to perturbation. Screened cables are not required. The unit electronics feature excess temperature protection by means of active temperature management and protection rating IP 54.

EC motor

The zinc-plated intake nozzle is equipped with a flow rate measuring device. The output data complies with accuracy class 2 according to DIN 24166; the efficiency class is IE4. The fan/motor unit is fitted on anti-vibration mounts and equipped with equipotential bonding.

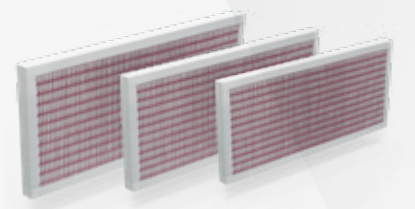
For further specifications, see unit itemisation.

Panel filter

»Made to measure output!«

Filter ISO ePM1 > 50 % and ISO ePM1 > 80 %
An incinerable panel filter of quality class filter ISO ePM1 > 50 % and ISO ePM1 > 80 % with a filter thickness of 48 or 96 mm is installed in the supply air. With a generously dimensioned filter surface, it acts as an excellent fine dust and pollen filter with a long service life. The temperature resistance is up to 60 °C. Filter monitoring via differential pressure switches mounted and wired as standard enables the best monitoring (contamination monitoring VDI 6022 and ErP 2018).

Filter ISO ePM10 > 50 %
Panel filters of quality class Filter ISO ePM10 > 50 % with a filter thickness of 48 or 96 mm used in the extract air are also classified with the same high-quality criteria: Long service life, generous filter surface, temperature-resistant up to 60 °C, incinerable, differential pressure switch fitted and wired as standard (contamination monitoring VDI 6022 and ErP 2018).

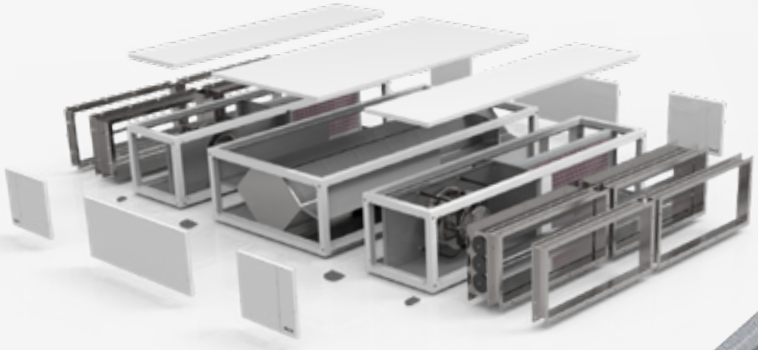


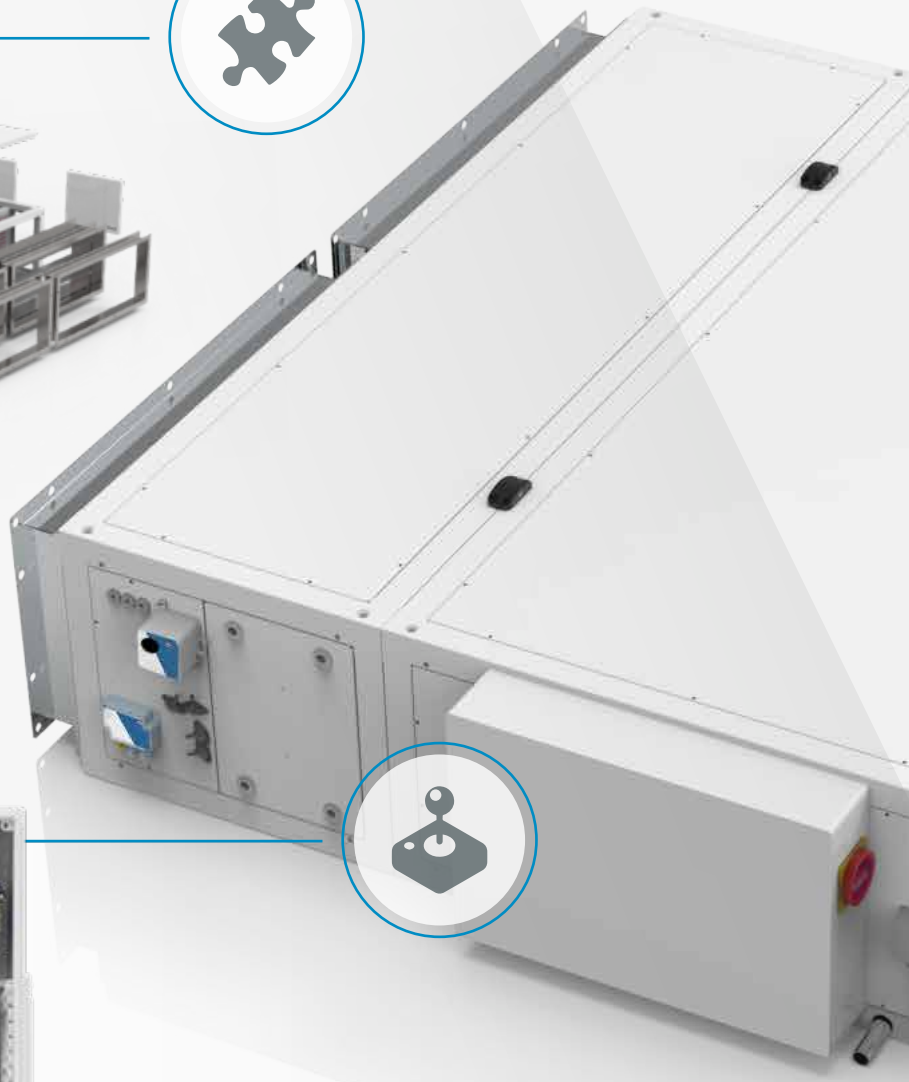
Panel filters F7, F9 and M5

WK-com F exterior

THE COMPACT SOLUTION

WK-com F air handling units are the ideal solution for providing rooms with optimum air conditioning from compactly sized units. The extremely slimline units of this series feature superior energy efficiency, power saving EC fans, efficient heat recovery systems and tested filter technology. The perfect system for your air handling requirements. With our modular system, there are no limits to your adaptation options. They air condition your project in line with demand, hygienically to VDI 6022 and efficiently to ErP 2018.





MODULAR DESIGN

Thanks to the modular, inherently stable framework construction, all arrangements and combinations are possible. The WOLF modular design allows a wealth of variations and solutions. You choose the side from which to operate. Whether you are looking for operation and maintenance from the side or below – every conceivable casing arrangement is feasible with WK flat units.

CONTROL

Combination of the **WK-com** flat units with the **WOLF *C-max*** control unit yields an intelligent system solution in which all components work together perfectly. Mounted fully wired on the air handling unit for quick and easy commissioning at the installation location.

Optionally without control unit, with internal wiring to externally mounted docking stations and terminal boxes.

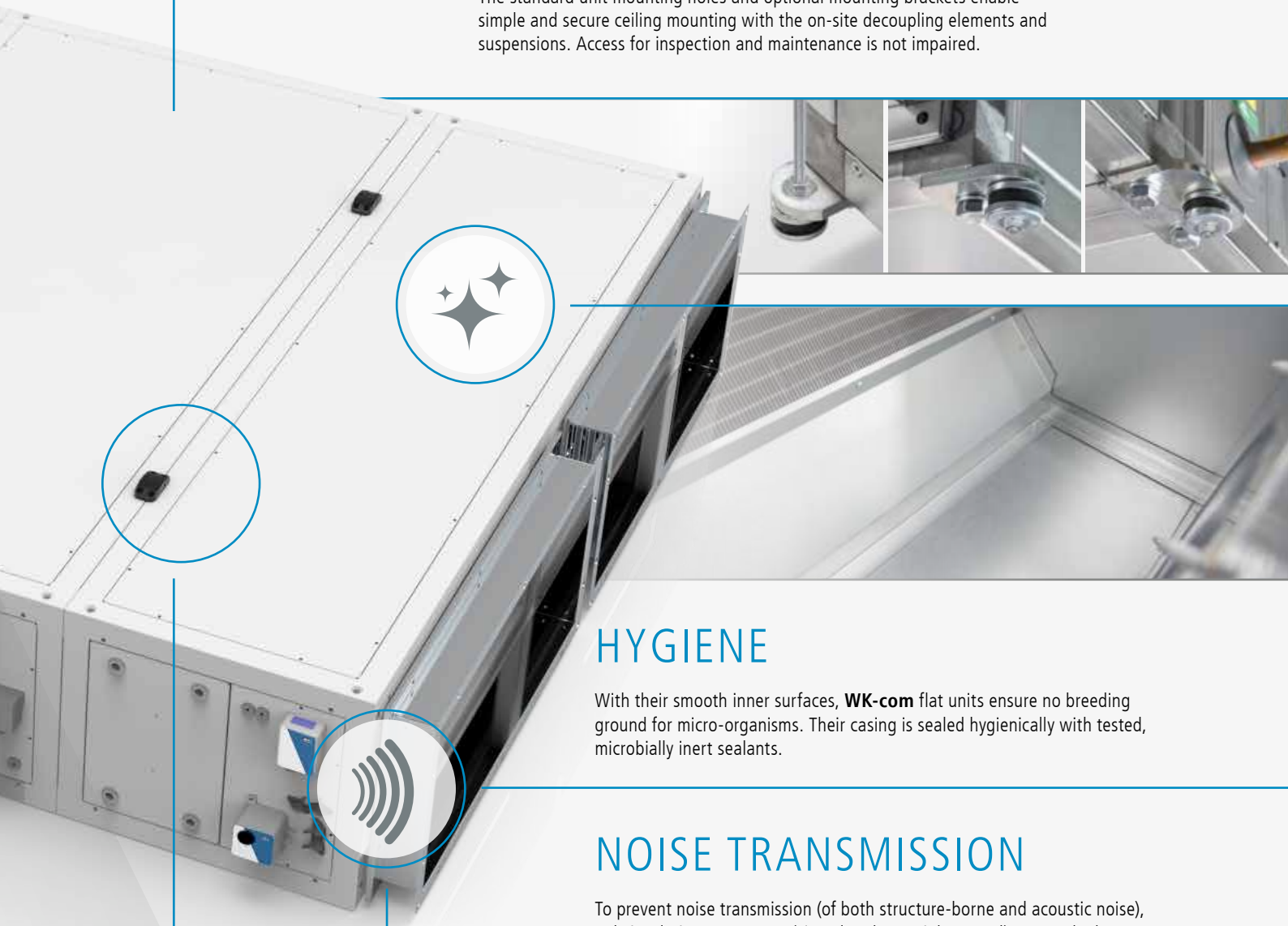
State of the art controls, expansion modules and communication modules (Modbus, BACnet, LON).

MATERIAL VARIETY

You decide on the material: zinc-plated, stainless steel, aluminium (AlMg3) or painted/coated to customer requirements. Even combinations, such as a stainless steel internal casing with a zinc-plated outer shell, can be implemented easily.

UNIT MOUNTING

The standard unit mounting holes and optional mounting brackets enable simple and secure ceiling mounting with the on-site decoupling elements and suspensions. Access for inspection and maintenance is not impaired.



HYGIENE

With their smooth inner surfaces, **WK-com** flat units ensure no breeding ground for micro-organisms. Their casing is sealed hygienically with tested, microbially inert sealants.

NOISE TRANSMISSION

18 up to dB(A)

To prevent noise transmission (of both structure-borne and acoustic noise), only insulating connectors (zinc-plated or stainless steel) are used. These can be completely isolated and insulated to prevent the formation of weak spots. **Whisper-quiet**: The acoustically optimised casing design with a sound-absorbing coefficient Rw of 38 dB to DIN 52210 minimises noise emissions from the fans.

UNIT CONNECTION

The externally mounted module connectors enable swift, secure and permanent unit installation.

WK-com F interior

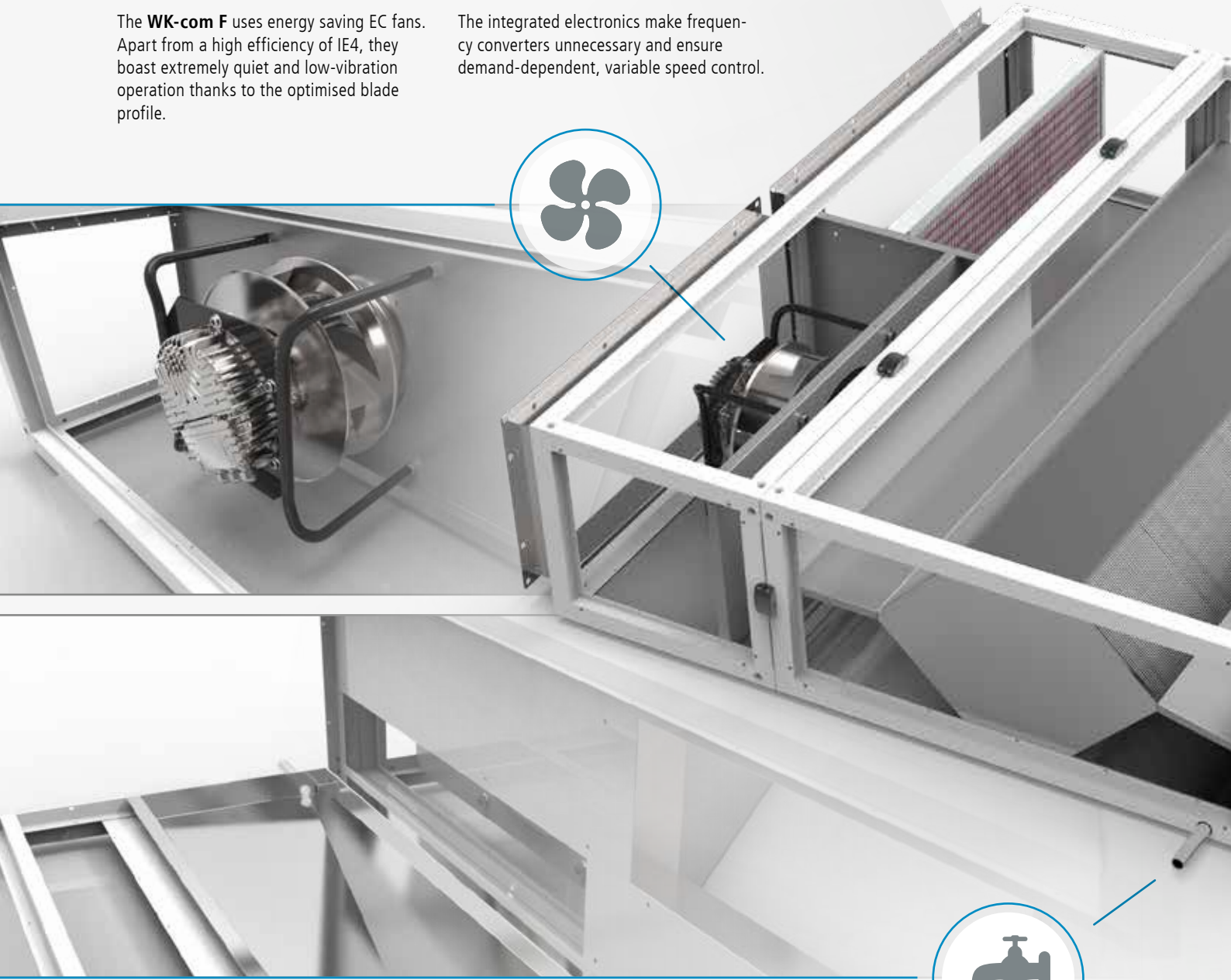
Quality guarantee:
DIN, VDI and hygiene tests, member of the AHU manufacturers' association

MADE IN GERMANY

FANS

The **WK-com F** uses energy saving EC fans. Apart from a high efficiency of IE4, they boast extremely quiet and low-vibration operation thanks to the optimised blade profile.

The integrated electronics make frequency converters unnecessary and ensure demand-dependent, variable speed control.



3D CONDENSATE PAN

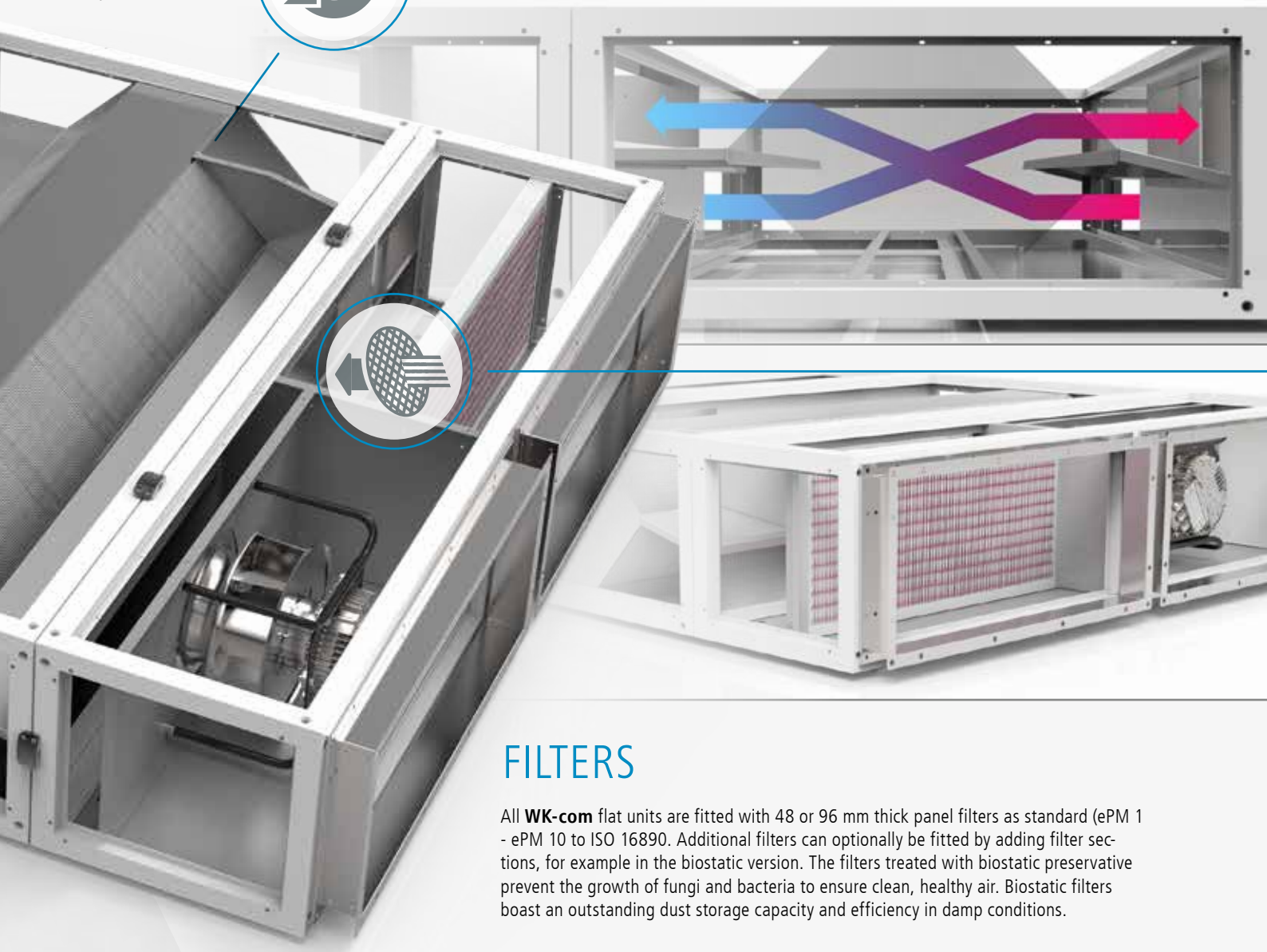
At high levels of heat recovery, condensate forms during cooling and humidification. This must be removed quickly and reliably. The WOLF 3D pan, made from aluminium or stainless steel, has a three-dimensional fall, which reliably prevents water residues and the associated hygiene risks from bacterial growth.

up to 90 %

Optional:
Exchanger surfaces with epoxy coating, PET or with special membrane for hygienic humidity transmission.

HEAT RECOVERY

High-grade counter-current plate heat exchangers with heat recovery coefficients up to 90 % recover valuable energy from the extract air. The wear-resistant systems impress with high operational reliability, relatively low costs of purchase and efficiency in operation. They are hygienically safe thanks to fully separated air flows. The standard integral bypass with control damper and servomotor enables optimum output control. The surroundings of the heat recovery system can also be used for free cooling (introduction of cool outdoor air for room cooling without any use of artificial cooling energy).



FILTERS

All **WK-com** flat units are fitted with 48 or 96 mm thick panel filters as standard (ePM 1 - ePM 10 to ISO 16890. Additional filters can optionally be fitted by adding filter sections, for example in the biostatic version. The filters treated with biostatic preservative prevent the growth of fungi and bacteria to ensure clean, healthy air. Biostatic filters boast an outstanding dust storage capacity and efficiency in damp conditions.

1. **Panel filter**
2. Compact filter
3. Small bag filter
4. Large bag filter
5. Grease trap filter
6. HEPA filter
7. Activated charcoal filter

WK-com F options, combination and extension modules

CASING OPTIONS

The frame is available in zinc-plated and stainless steel 1.4301 versions, whilst the cladding panels can be supplied zinc-plated, in aluminium AlMg3, stainless steel 1.4301 or with a RAL paint finish according to customer specification.

FAN MODULE

Various individually sized and optimised EC fans can be used for each unit size. With their integrated electronics, the fan/motor units allow continuously variable output control. The sizing takes account of all external and internal resistances and ensures that the optimum fan is always selected.

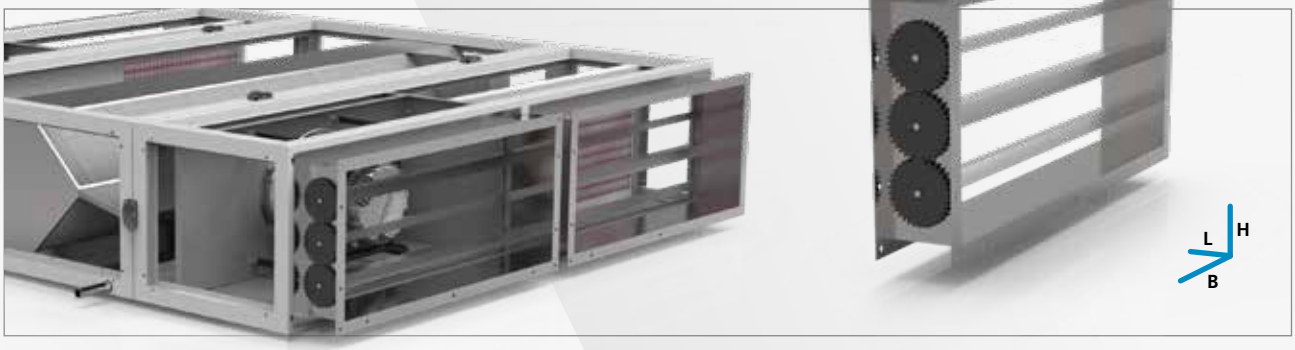
WK-com F		WK-com F 16	WK-com F 26	WK-com F 34
Length	(mm)	600	600	600
Width	(mm)	625	915	1025
Height	(mm)	410	450	490
Weight	(kg)	60	92	115

UNIT CONNECTION

Units are connected exclusively with solid insulating connectors made from zinc-plated sheet steel (optionally stainless steel) with an integral insulating element for structure-borne noise separation. This largely prevents transmission of acoustic and structure-borne noise.

WK-com F		WK-com F 16	WK-com F 26	WK-com F 34
Length	(mm)	100	100	100
Width	(mm)	525	815	925
Height	(mm)	310	350	390
Flange	(mm)	30	30	30

LOUVRE DAMPERS

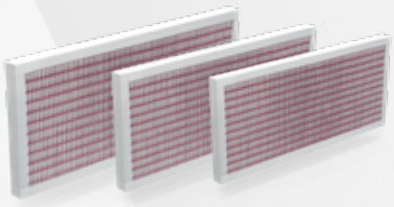


Tightly closing aluminium louvre dampers (tightness category 2 to EN 1751) with external gears and axle for servomotor connection.

WK-com F		WK-com F 16	WK-com F 26	WK-com F 34
Length	(mm)	100	100	100
Width	(mm)	525	815	925
Height	(mm)	310	350	390
Flange	(mm)	30	30	30

FILTER MODULE

The integrated panel filters with a very large filter surface area of grade M5-F9 (to EN 770 / grade ePM10 to ISO 16890) have an installed depth of 48 and 96 mm. Bag filters, compact filters, activated charcoal filters, HEPA filters or expanded metal filters can optionally be installed.



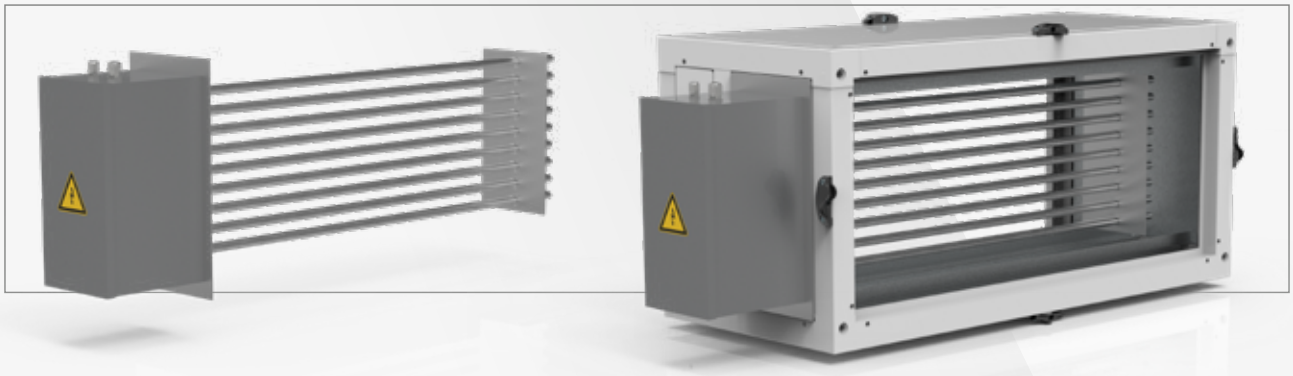
PWW HEATER MODULE

High-grade casing module equipped with a removable heat exchanger sized individually to the output and made from copper pipes with press-fitted aluminium fins.

Optional:

- Stainless steel coil frame
- Coated fins

ELECTRIC HEATER MODULE



High-grade casing module with removable electric heat exchanger individually adjustable to the required output and fitted with integral safety equipment. Connection, output and safety equipment compactly mounted on the module exterior.

SILENCER MODULE

High-grade casing module with integral silencer links and glass fibre cover to VDI 6022.
The module is sized individually in accordance with the required insertion attenuation.

PCW COOLING MODULE / DIRECT EXPANSION COIL

High-grade casing module with integrated aluminium condensate pan with a three-sided slope (to VDI 6022) towards the side condensate drain. The coil is removable for convenient and thorough maintenance.

The cold water heat exchanger (or direct expansion coil) consists of copper pipes with press-fitted aluminium fins and is sized for the required output.

Optional:

- Stainless steel coil frame
- Coated fins
- Removable mist eliminator

»True greatness does not need much space«

Actuator, filter monitoring and fan control fitted and wired to control system

Revision access for filter, fan and heat recovery

Filter monitoring and fan sensors with digital display

Temperature sensor installed and control cabinet wired

Revision option for filter and fan from above, below and sideways

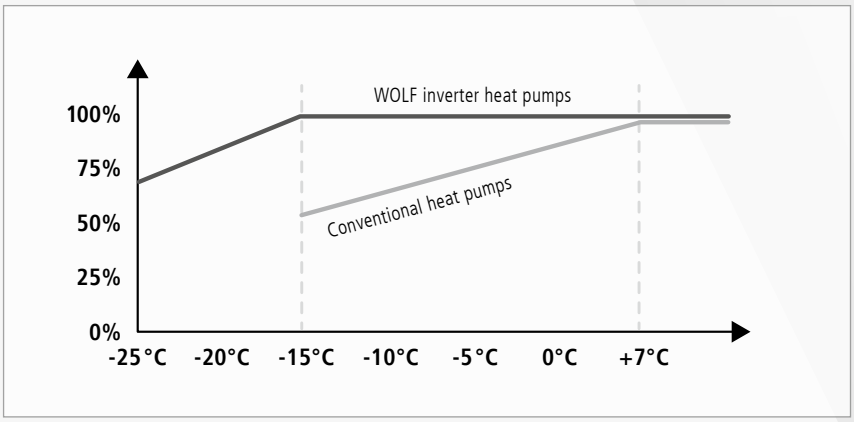
Internal wiring with temperature sensor, filter monitoring and volume flow control

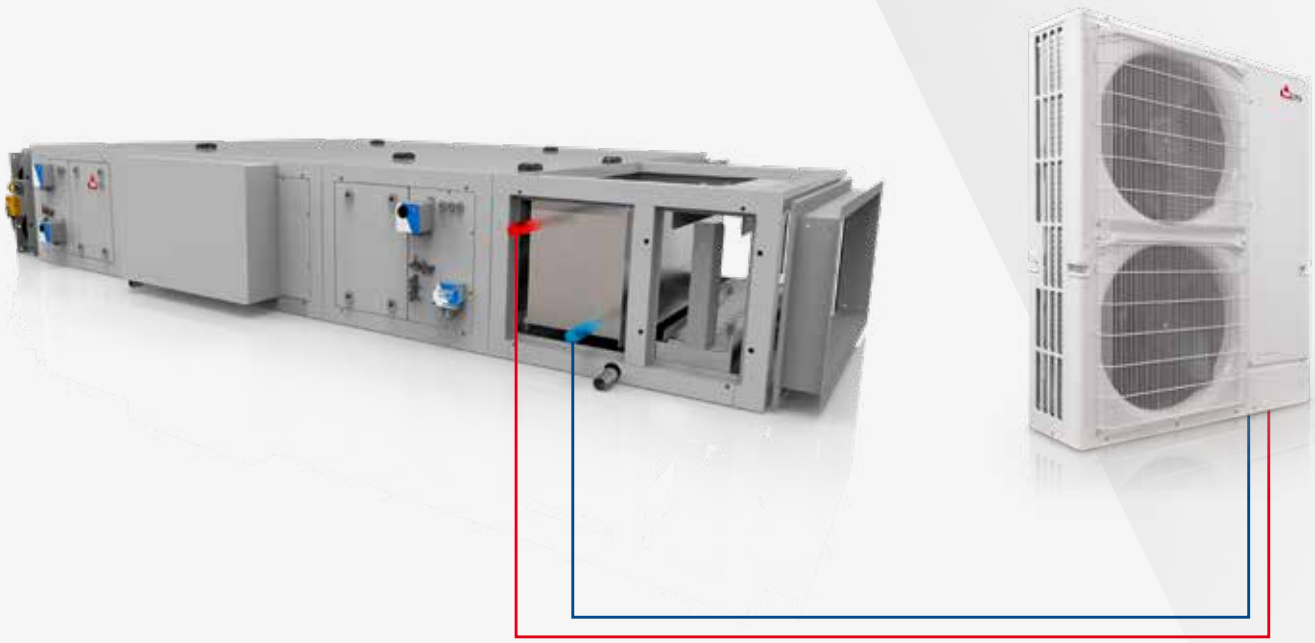
HEATING AND COOLING WITH WOLF INVERTER HEAT PUMPS

R32

A perfectly coordinated system ensures optimum temperatures in summer and winter operation.

- Continuous variable output control 20 – 100 %
- High operational reliability
- Self-sufficient system for heating and cooling operation
- Highly efficient and sustainable due to the use of the refrigerant of the future, R32
- Complete system solution from the manufacturer with continuous efficiency





WOLF *C-MAX* compact at a Glance

Your Benefits

- Cost-optimized standard switchboard
- Compact dimensions
- Easy installation
- Integrated main switch
- Two-sided cable entry plates for fast and efficient wiring
- Comprehensive language package (13 languages)

Magnetic control unit for free placement

Room unit

Switchboard

The compact standard switchboard (600 x 400 x 120 mm) with lateral cable entries and integrated main switch can be installed almost anywhere. It is handled by a control panel with 8-line LCD-display to be fixed magnetically anywhere on the switchboard or on the unit. The switchboard can be attached in vertical or horizontal position, but also laid flat onto the unit.

Air Quality Sensor

An air quality sensor in the room or in the extract air duct is controlling the air quality as required, keeping it on the requested level in the room.

Temperature Regulation

Whether constant supply air temperature or room / extract air – supply air cascade, WOLF ***C-MAX*** compact regulation offers all common possibilities..

Heating Module

Control of an electric register or a pump warm water register including plant-specifically designed control valve is heating up supply air to the requested nominal temperature. The pump warm water register is also able to cover a change-over function for cooling the air and moreover to control a heat pump.

Cooling Module

The air is being cooled either by an external refrigerating machine / heat pump (optionally also by WOLF) or by a pump cold water register with plant-specifically designed control valve by WOLF.

Heat Recovery

WOLF ***C-MAX*** compact is able to control heat recovery systems, plate exchangers and rotary exchangers. For icing protection, the exhaust air temperature is measured and controlled energyefficiently.

Fans

One supply and one extract air fan can be controlled, each, providing all possibilities regarding control variables such as speed, pressure and volume flow.

Smoke Detectors

Duct smoke detectors can be supplied optionally to switch off the plant in case of fire. Of course, the signal can be passed on to a building control system (GLT).

Remote Control

Compact, elegant room control unit for easy display of the current operating mode. Nominal temperature control, plant control and presence key for easy handling on site. Easy installation by twowire process bus.

Communication

Integration into the building automation can easily be done by an integrable Modbus or BACnet interface.

C-MAX Cloud

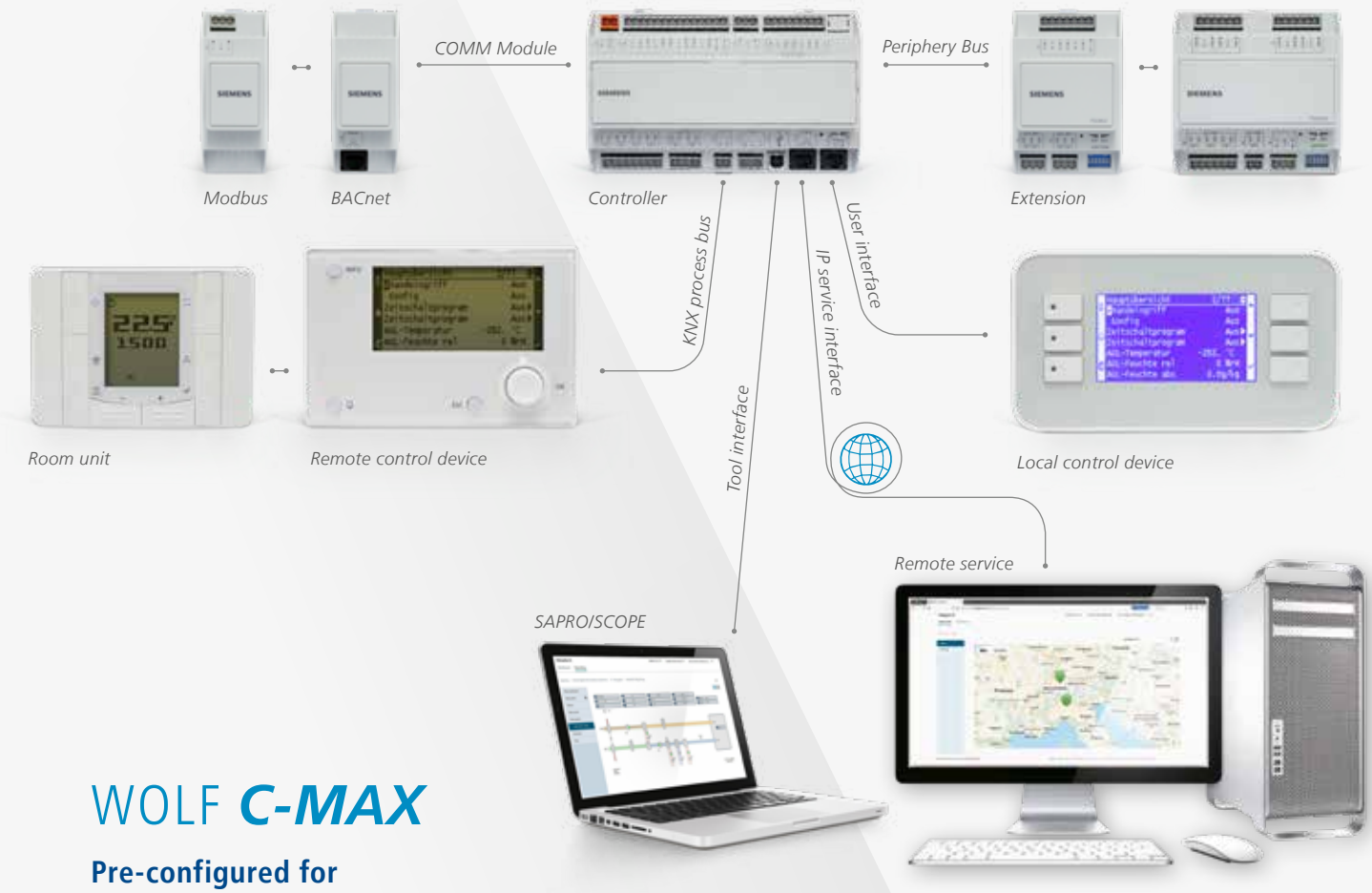
Die WOLF ***C-MAX*** Cloud offers extensive remote maintenance possibilities, saving expensive work on site.

Pre-Wiring

All sensors and devices of the unit can optionally be pre-wired in our factory, reducing considerably the assembly on site and saving time and money.

Further Options

- Web Server
- Room hygrostat
- Free night cooling
- Fire connection of building control system (GLT)
- Single display of fire protection flaps (BSK) in separate housing



WOLF *C-MAX*

Pre-configured for your system

For straightforward commissioning by the customer, the **WOLF *C-max*** is factory-configured specifically for every customer system. All that remains for the customer to do when commissioning the heat recovery unit is to specify the set values, fixed speeds, flow rate, pressure and switching times.

At a glance

- Room unit on-site control (optional)
- Programming unit (HMI) for commissioning and function extension
- Control unit ready programmed and factory-configured
- User friendly menu system
- Extension modules for BACnet, Modbus, interface (already programmed, integration of the module into existing BMS on site)
- Remote servicing via TCP/IP
- CO_2, pressure, constant flow rate control or humidity control are possible
- Software updates by SD card

Operating mode

- Variable 0-100 % via 3-stage automatic system
- Constant flow rate
- Constant pressure
- CO_2 control
- Humidity control

Summer / winter bypass

- Internal sensor with adjustable limit values for heat recovery
- Free cooling

Filter monitoring

- Pressure switch
- Pressure sensor

FACP shutdown

- Supply and extract air "OFF"
- Extract air "OFF"

Anti-icing protection of the heat recovery unit

- Temperature sensor

Control type

- Constant supply air
- Extract air/supply air cascade
- Room / supply air cascade

Reheater bank

- Pumped warm water coil (PWW)
- Electric heating coil
- Heat pump

Cooling

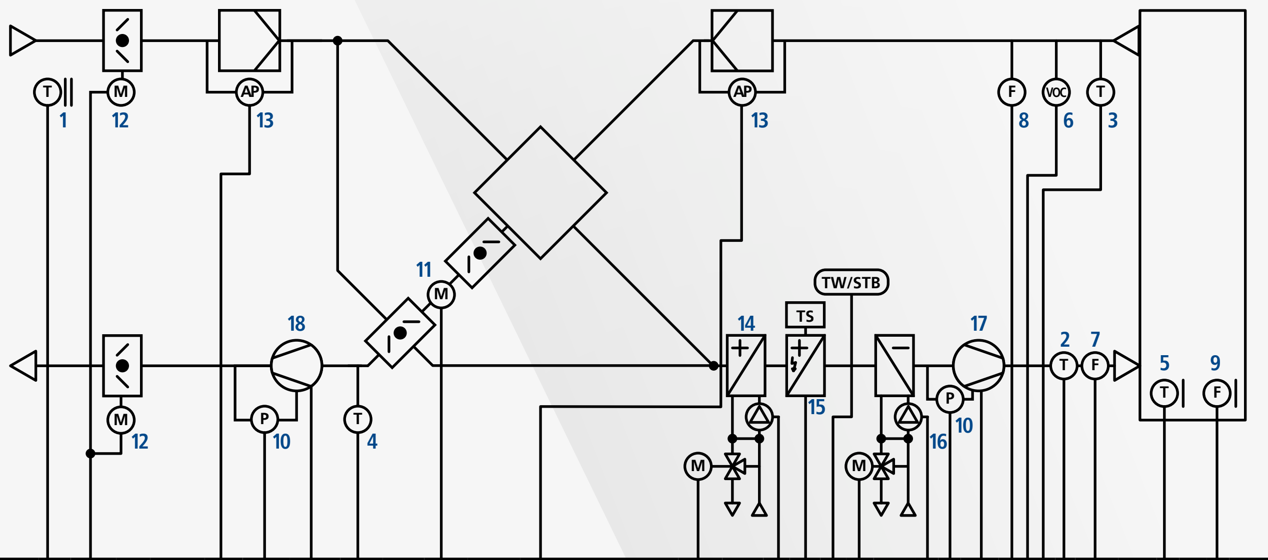
- Free cooling
- PCW cooling coil
- DX cooling coil (heat pump)

Communication

- SD card and internal memory
- Remote servicing via TCP/IP
- BACnet interface
- Modbus

Fire dampers

- Collective fault
- Individual display



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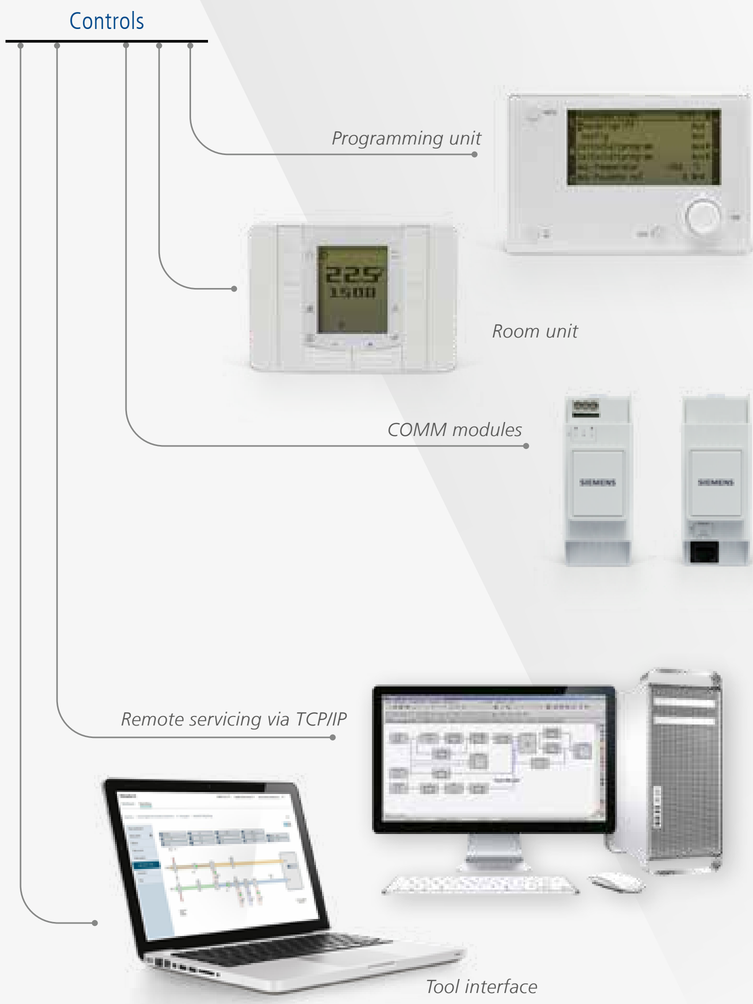
AO	1 1 1 1 1 1
DI	1 1 1 2 1
DO	1 1 1 1 1 1

No	Designation
1	Outdoor air temperature sensor
2	Supply air temperature sensor
3	Extract air temperature sensor
4	Exhaust air temperature sensor
5	Room air temperature sensor
6	Air quality sensor
7	Supply air humidity sensor
8	Extract air humidity sensor
9	Room air humidity sensor
10	Flow rate measurement
11	Heat recovery / bypass
12	Outdoor and exhaust air damper
13	Outdoor air and extract air filter monitoring
14	Pumped warm water heating coil
15	Electric reheater coil
16	Pumped cold water cooling coil
17	Supply air fan
18	Extract air fan



HEATING
VENTILATION
AIR CONDITIONING

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