WOLF GEISENFELD

WK-COM THERMO

T1 / TB1 Performance in the standard version

Spirit of Air

WK-com THERMO

» HIGHEST STANDARD THANKS TO THERMAL BRIDGE OPTIMISED DESIGN

BENEFITS

- Highest housing energy efficiency class T1/TB1, TÜV (German Association for Technical Inspection) certified
- Extremely flexible geometry, any dimension can be implemented
- Universally usable for all areas of application, V2A, V4A, AlMg3 or coated inner surfaces
- Hygienically smooth and wipeable, no indentations or dirt-collecting corners
- Can be fully dismantled, threaded and push-fit design
- No risk of penetration of moisture, condensate-free and vapour-proof
- For indoor or outdoor installation
- Corrosion-resistant
- Structural tight, tongue and groove construction with thermal panel
- Inherently stable and self-supporting framework design
- Lifting and positioning from above using screw-in crane eyes
- Unit modules easy to secure with screws from the inside for an airtight installation

EXCEPTIONAL PERFORMANCE!

WK-com THERMO

The WK-com THERMO series unit in its standard design underwent **TÜV SÜD (German Association for Technical Inspection) testing acc. to EN 1886** and recorded an **outstanding** performance in all test parameters.

The WK-com THERMO air handling unit is available both as an indoor unit and in a weatherproof design with air flow rates of up to 120,000 m³/h.

From the hygiene version (VDI 6022 / DIN 1946 T4) and swimming pool design right through to the economical standard solution – the WK-com THERMO covers all applications and complies with all current standards and guidelines.

This means that you can respond flexibly to any structural conditions knowing that the regulatory and energy efficiency aspects are covered.

MADE IN GERMANY

Quality guarantee

The WK-com THERMO air handling unit complies with all hygiene, energy efficiency and structural standards and guidelines. The design meets the highest of requirements. Optimum maintenance and cleaning is ensured by the perfected series design.

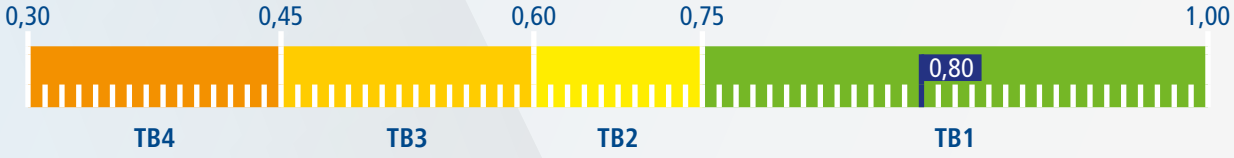
Membership of the AHU manufacturers' association and EUROVENT with inspections by external institutions guarantee a high product and quality standard.

» RECOGNISED SEAL OF APPROVAL AND CERTIFICATION FROM RENOWNED INSTITUTES ARE A TESTAMENT TO THE HIGH QUALITY AND TECHNICAL MATURITY OF THE WK-com UNIT SERIES

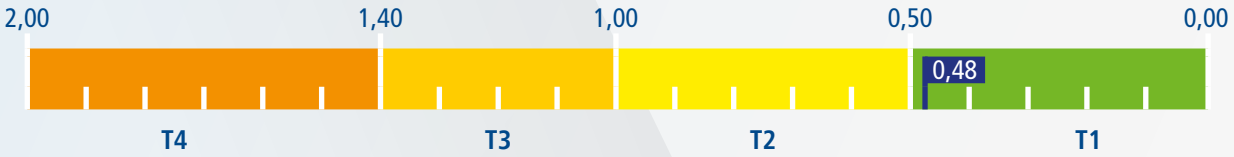
Test results by TÜV-Süd

MECHANICAL AND THERMAL VALUES
WK-com THERMO (sample box) acc. to EN 1886

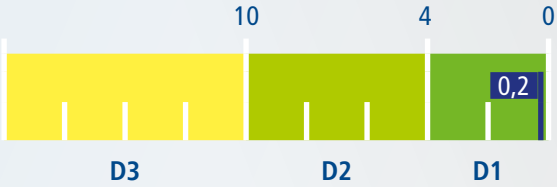
THERMAL BRIDGE FACTOR kb



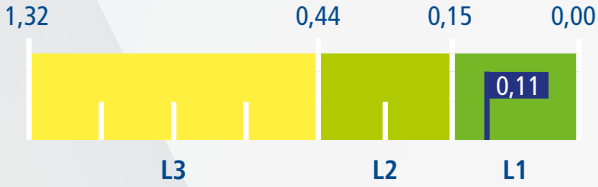
THERMAL INSULATION U [W/m²K]



HOUSING DEFLECTION AT 1000 Pa [mm]



HOUSING AIR LEAKAGE AT -400 Pa [l/(s*m²)]



SOUND

Extremely quiet

The double-shell design with three integral panel thicknesses ensures ideal separation of the outer and inner skins. Aside from excellent thermal values, this unique design also has an extremely positive impact on the acoustic properties. Resonances are attenuated optimally for whisper-quiet operation. The WK-com THERMO with thermal panels achieves insertion attenuation with a peak value of Σ 53.3 dB.

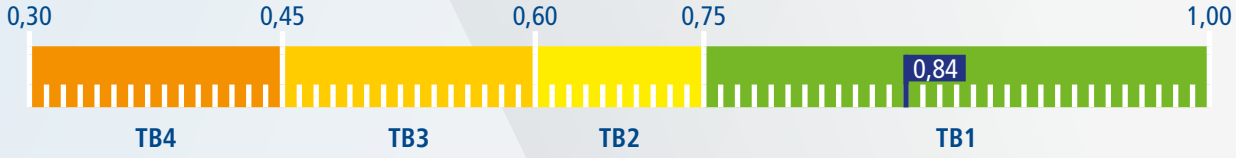
Insertion attenuation of the housing

Housing sound absorption

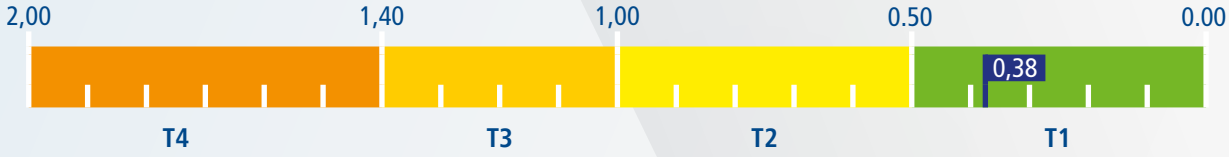
[Hz]	125	250	500	1k	2k	4k	8k
[dB]	17.4	23.0	31.8	34.4	42.8	47.3	51.0

MECHANICAL AND THERMAL VALUES
WK-com THERMO-PLUS (sample box) acc. to EN 1886

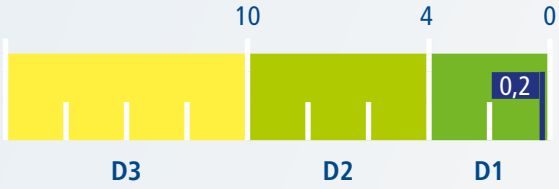
THERMAL BRIDGE FACTOR kb



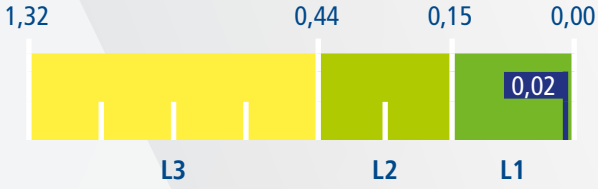
THERMAL INSULATION U [W/m²K]



HOUSING DEFLECTION AT 1000 Pa [mm]



HOUSING AIR LEAKAGE AT -400 Pa [l/(s*m²)]



Insertion attenuation of the housing

Housing sound absorption

[Hz]	125	250	500	1k	2k	4k	8k
[dB]	15.4	25.7	32.5	37.0	40.9	51.9	59.2

» WE TAKE THE PROBLEM OF NOISE EXTREMELY SERIOUSLY. THIS IS WHY OUR AIR HANDLING UNITS ARE AMONG THE QUIETEST IN THE WORLD!

WK-com THERMO in detail

1

INTAKE APERTURES

Intake apertures can be designed with insulating connectors, flexible connectors or dampers in various materials and dimensions for on-site ducting.

The design is available with weather protection grilles (up to a maximum intake speed of 2.5 m/s) and intake covers (up to 4.5 m/s flow speed).

DOUBLE-SHELL – TIGHTNESS ENSURED

2

Wall and ceiling mounted design as triple skin system comprising 50 mm thick PU thermal panels in RAL 7037 with tongue and groove connections without risk of penetration of moisture, for permanent structural tightness.
Optional: other RAL colours possible
+ additionally inserted mineral wool insulation 40/60 mm

All frame parts are on the inside and are fully enclosed by the thermal panels. This design, optimised for acoustic performance and energy efficiency, ensures compliance with T1/TB1 requirements.
Optional: thermal panels in A1 with rock wool insulation

UNIT BASE FRAME

3

Unit design with base frame all around with a height of 100, 200, 300 or 500 mm. Custom base frame heights are also available if required.
Optional: unit base frame with securing points for transportation

4

WELL-CONSIDERED

Units for outdoor installation with additional roof projection and dripping rim. A UV-resistant special film ensures permanent tightness.

5

FRAME PROFILE – SELF-SUPPORTING

Self-supporting and inherently stable framework with threaded and push-fit connections. Fully internal and enclosed by thermal panels, for permanently airtight and weatherproof installation. The stable structure enables straightforward installation with crane unloading. This occurs from above using the crane eyes at the corners of the housing. A unit base frame is not required for stability purposes.

6

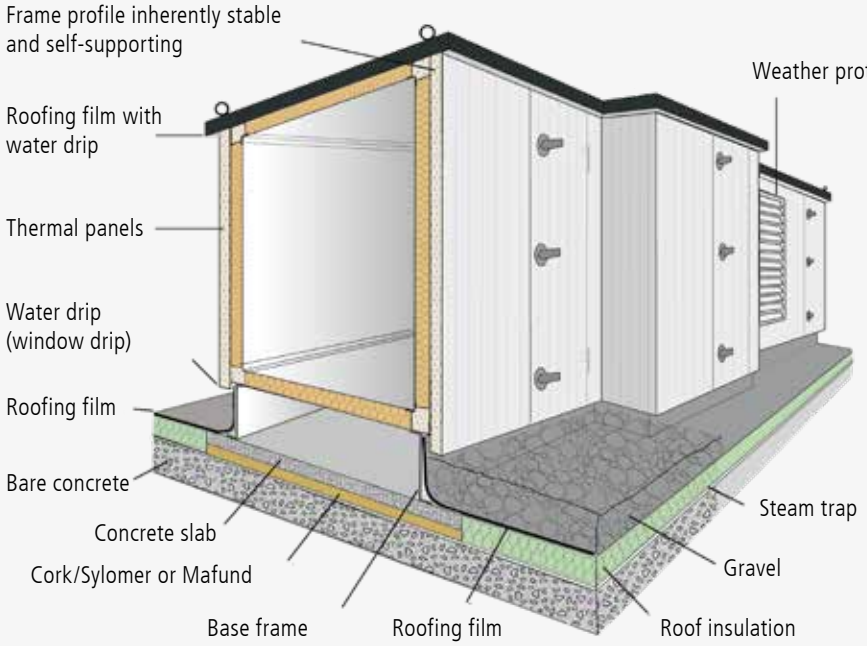
UNIT FLOOR

A floor that can be walked upon in double skin design with a panel thickness of 68/104 mm and inserted insulation made of mineral wool, non-flammable acc. to EN 13051.

7

PROTECTIVE COVER FOR ELECTRICAL MOUNTED PARTS

Electrical components mounted on the outside are additionally equipped with a protective cover made of stainless steel. This prevents water from penetrating electrical components.



The unit can be fully dismantled and is virtually 100 % recyclable.

Maximum tightness

The attached and sealed door gaskets are located in the door frame.
This creates a system with a high tightness level.
The rounded corners ensure consistent laying of the sealing profile without gaps.
Neither heat nor sound permeate to the outside.

Door closure system

The operating doors are equipped with coated, adjustable, maintenance-free hinges and have manual lever locks, which are located outside of the air stream. In the overpressure range, the housing door is secured by a catching device. Double lever locks can be used as an option. All locks can be supplied as lockable with locking cylinder.

3D condensate pan

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

Clamping device

Outdoor units have clamping devices on the doors to prevent the wind accidentally closing them and to ensure easy and safe access.

You won't find better!

Thermal bridge-free construction

WK-com THERMO-PLUS

The rock among the milestones
Our latest **WK-com THERMO-PLUS** has been developed based on our approved and tested double-planked, weatherproof **WK-com THERMO** series air handling unit.

Structural precision work has made it the perfect air handling unit for extreme applications thanks to its outstanding housing ratings.

Guaranteed quality: DIN, VDI and hygiene testing,
member of the Herstellerverband RLT (German AHU Manufacturers Association)

1 DOUBLE DOORS

The construction of doors which permanently meet the required thermal and mechanical values, even after being opened and closed many times, is particularly sophisticated. The design of our double doors ensures absolute certainty these requirements are met.

Separating the inner from the outer door on one hand reduces sound propagation, and on the other hand increases insulation. This saves energy and makes the unit extremely quiet to operate.

The triple door seal significantly reduces losses due to leakage and contributes to energy-saving operation. Through the seal mounted on the frame of the inner door, the airtightness of the entire device is increased to the maximum possible.

Double doors

2 NEW INTERNAL LOCKING

The extremely slimline inner closure with sturdy metal housing is thermally separated from the inside of the unit, reducing losses due to leakage and thermal bridges. The lock has a safety function preventing the door from opening on the discharge side.

3 STURDY DESIGN

The double-shell design (40 / 60 mm thick panels insulated with mineral wool inside, 50 mm thick PU cladding outside) yields outstanding thermal properties. The mechanical values such as housing leakage and deflection also meet the highest standards, D1 and L1.

The values of the housing soundproofing are equally high (see table).

4 INSULATED CORNERS

Corners and edges are also delicate areas in a thermally high-efficiency air handling unit. Of course, they need to ensure the required values long-term and, in our experience, they also have to be sturdy and tough against external influences.

We have therefore specifically insulated all corners and edges to prevent any thermal bridges and have additionally faced the outside with sheet metal profiles.

Thermal bridge-free design

Advantages

- TÜV tested according to DIN EN 1886
- for indoor or outdoor installation
- double housing construction
- additionally decoupled door construction
- best thermal values T1 / TB1
- best mechanical values L1 / D1
- thermal bridge free

5 DETAILS

Many detailed solutions to prevent thermal bridges.

The process involves special joints between panels, and our design also allows for the use of crane eyes for lifting the units.

Profile

Boarded corners, thermally separated screw fitting

Values as tested acc. to DIN EN 1886

Unit type Series	Insulating thickness	Insulating material	Housing leakage		Deflection		Filter bypass leakage		U	kb	Housing soundproofing						
	[mm]	[mm]	+ Kl	- Kl	+ Kl	- Kl	+ Kl	- Kl	+ Kl	- Kl	125	250	500	1k [dB]	2k	4k	8k
WK-com THERMO-PLUS	82.5	Mineral wool, 30 PU panels, 50	L1	L1	D1	D1	F9	F9	**T1**	**TB1**	15.4	25.7	32.5	37	40.9	51.9	59.2

Housing versions

INDOOR DESIGN

Thanks to the thermal bridge optimised design, the unit series is ideal for any challenging application.

The insulating PU thermal profiles (optional rock wool) are already coated as standard in RAL 7037.

As an option, you can, of course, choose the RAL colour that suits your requirements.

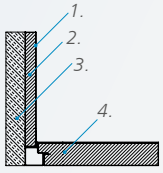
WK-com THERMO

THERMO

The standard T1 / TB1 air handling unit for a wide range of challenging applications.

Numerous special and mixed sizes enable maximum flexibility for matching the unit to the relevant project requirements.

- Flow rate up to 120,000 m³/h



1. *Housing inner shell, zinc-plated, aluminium, VA, coating*
2. *Mineral wool, 40/60 mm*
3. *Thermal panel, 50 mm PU/A1*
4. *Housing floor, 68/104 mm mineral wool*

WK-com THERMO-PLUS

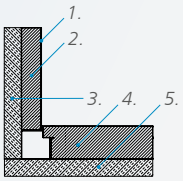
THERMO-PLUS

Thanks to the thermal bridge-free construction, it is designed for use to the highest requirements.

All geometries can be implemented.

The internal dimensions are the same for both THERMO and THERMO-PLUS versions.

- Flow rate up to 120,000 m³/h



1. *Housing inner shell, zinc-plated, aluminium, VA, coating*
2. *Mineral wool, 40/60 mm*
3. *Thermal panel, 50 mm PU*
4. *Housing floor, 68/104 mm mineral wool*
5. *Thermal panel, 50 mm PU*

OUTDOOR DESIGN

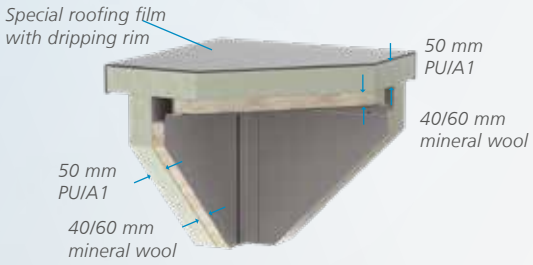
Thanks to the double-shell design, the unit series is ideal for outdoor installation.

The insulating PU thermal profiles (optional rock wool) are already coated as standard in RAL 7037 and offer optimum protection against corrosion. Of course, you also have the option to choose the RAL colour that suits your requirements.

The roof with projecting roof panels is fully sealed with a special weatherproof and UV-resistant film and has a dripping rim.

Weatherproof units are supplied on an all-round base frame. Optimum use outdoors is tested in accordance with EN ISO 13857.

WK-com THERMO

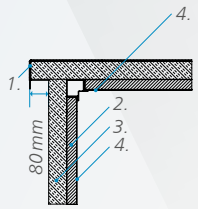


THERMO – OUTDOOR

It is also the standard T1 / TB1 unit for various challenging outdoor applications.

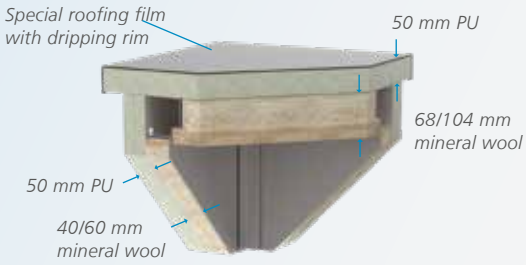
Numerous special and mixed sizes enable maximum flexibility for matching the unit to the relevant project requirements.

- Flow rate up to 120,000 m³/h



1. Special UV-resistant film with dripping rim
2. Mineral wool, 40/60 mm
3. Thermal panel, 50 mm PU/A1
4. Housing inner shell, zinc-plated, aluminium, VA, coating

WK-com THERMO-PLUS



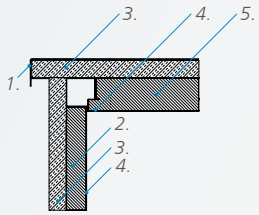
THERMO-PLUS – OUTDOOR

Outdoors too, thanks to the thermal bridge-free construction, numerous individual requirements can be met.

All geometries can be implemented.

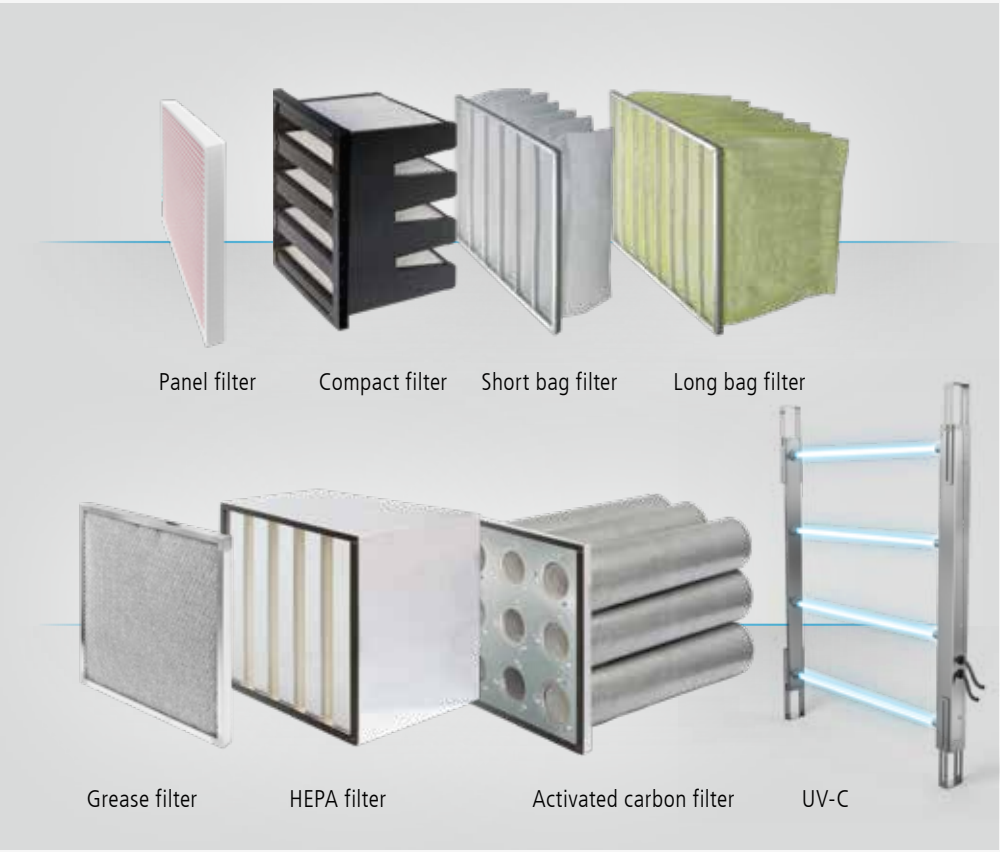
The internal dimensions are the same for both THERMO and Thermo-PLUS versions.

- Flow rate up to 120,000 m³/h



1. Special UV-resistant film with dripping rim
2. Mineral wool, 40/60 mm
3. Thermal panel, 50 mm PU
4. Housing inner shell, zinc-plated, aluminium, VA, coating
5. Mineral wool, 68/104 mm

Filters and hygiene



FILTERS

All **WK-com** units are fitted as standard with filters of filter classes ISO ePM10 > 50 % to ISO ePM1 > 80 % acc. to ISO 16890. Individual filters are also available on request (oil filter, grease filter, UV-C/ozone or activated carbon filter).

The filters with optional treatment with biostatic preservative prevent the growth of fungi and bacteria.

Biostatic filters boast an outstanding dust storage capacity and longer service life in damp conditions.

Filter classes

ISO 16890 divides filters into groups.
The filters are grouped according to separation efficiency with reference to PM_1, $PM_{2.5}$ and PM_{10} (0.3-10 µm particles), dust storage capacity, gravimetric separation efficiency and differential pressure.

Coarse	ePM_{10}	$ePM_{2,5}$	ePM_1
> 60 %	≥ 50 %	≥ 50 %	≥ 50 % / ≥ 80 %

Lowest filter bypass leakage F9 ► applicable filter class ePM1 ≥ 80 %

With a peak value of < 0.1 % leakage, testing by TÜV-Süd confirms the perfected and design optimised solution of the filter insertion device.

HYGIENE

The internal design is of the same highest hygiene standard in all series.

All WK-com units can be supplied in a hygiene design in accordance with VDI 6022-1, DIN 1946-4 and EN 13053.

» WOLF NEVER COMPROMISES ON HYGIENE

WK-com THERMO IN HOUSING DESIGN T1/TB1

BEST PERFORMANCE IN STANDARD VERSION

Inherently stable housing in modular design for crane unloading using screw-in transport lugs in the housing corners. The housing is smooth on the inside in accordance with VDI 6022 to ensure a perfect level of hygiene. The unit floor is designed without indentations for wiping clean. All housing surfaces are smooth on the inside, hygienically sealed with tested, microbially inert sealants in accordance with VDI 6022.

All housing components are corrosion-resistant, and the overall structure has no welds, rivets or cut edges. The housing can be fully dismantled and recycled in an environmentally responsible manner.

The unit modules are screwed together from the inside, making them airtight and easy to assemble. The units are inherently stable and can be transported and set up without a base frame. All unit modules can be lifted and positioned from above using the crane eyes.

The self-supporting framework consists of hot-dip galvanised, enclosed special pipe profiles that are screwed to an inherently stable frame unit with die-cast aluminium corner connectors. Mechanical stability in accordance with testing by TÜV Süd to EN 1886 (M): D1

Wall and ceiling mounted design comprising a triple skin system with three integral panels, which are separated by insulation of fire class A2 s1d0 on the inside and B1 on the outside. The cladding thickness is 80/110 mm. The inner cladding is made of 1.0 or 1.5 mm thick hot-dip galvanised sheet steel, optionally aluminium, stainless steel or with a coating.

The self-supporting and inherently stable framework is enclosed by the outer cladding with tongue and groove system, made of strip-coated hot-dip galvanised sheet steel in RAL 7037 (different RAL colours available to choose from), for a permanently airtight and weatherproof enclosed installation. Floor in double skin design with a panel thickness of 68/104 mm and inserted insulation made of mineral wool, non-flammable (A2 s1d0) acc. to EN 13501. Unit floor wipeable and walkable.

This design eliminates any risk of penetration of moisture or thermal bridges. All frame parts are arranged on the inside and are fully enclosed by the outer panels. High grade thermal insulation achieves housing class T1 (heat transition coefficient U: (0.48 W/m2K) for heat losses via the housing and housing class TB 1 (thermal bridge factor: 0.83) for thermal bridges of the housing.

The overall structure also ensures optimum airtightness of the housing, tightness class L1. All values are type-tested and have been verified by means of TÜV Süd testing to EN 1886.

The operating doors in the housing design are equipped with chrome plated, adjustable, maintenance-free hinges, and can be fitted with manual lever locks as single lever or double lever locks, with optional disable. In the overpressure range, the housing door is secured by an integral safety catch in the lever lock. Inspection covers have clamps and handles on the outside. Inspection doors and covers are sealed with tested special microbially inert, closed-pore sealing profiles.

Moisture-sensitive structural components are made from a corrosion-resistant material and have 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.

All functional units are easily accessible on both sides for inspection and maintenance purposes or extensible up to a unit clearance height of 1.6 m. The inner surfaces are completely smooth without any cut edges. All joints and grooves in the unit have been sealed to ensure that they are disinfectant-proof and can be cleaned without any residue. Fan, filter and dehumidifier parts have double wall sight-glasses as standard from a unit clearance height of 1.30 m, as well as humidifier parts at a unit height upwards of 0.8 m. All components are factory-cleaned in line with the applicable hygiene standard and packaged in film.

In the weatherproof design, roof panels are also fitted so that they protrude 80 mm all round. Roof sealing with affixed 2.8 mm thick, special UV-resistant, airtight and watertight film with dripping rim all around. All unit separation points, roof openings and threaded holes for crane eyes are permanently sealed with special UV-resistant roofing film to ensure that they are airtight and watertight. All mounted parts have additional UV and weather protection.

WK-com THERMO-PLUS
THERMAL BRIDGE-FREE T1/TB1
A PERFORMANCE PLUS

Inherently stable housing in modular design for crane unloading using screw-in transport lugs in the housing corners. The housing is smooth on the inside in accordance with VDI 6022 to ensure a perfect level of hygiene. The unit floor is designed without indentations for wiping clean. All housing surfaces are smooth on the inside, hygienically sealed with tested, microbially inert sealants in accordance with VDI 6022.

All housing components are corrosion-resistant, and the overall structure has no welds, rivets or cut edges. The housing can be fully dismantled and recycled in an environmentally responsible manner.

The unit modules are screwed together from the inside, making them airtight and easy to assemble. The units are inherently stable and can be transported and set up without a base frame. All unit modules can be lifted and positioned from above using the crane eyes.

The self-supporting framework comprises hot-dip galvanised, enclosed special pipe profiles that are screwed to an inherently stable frame unit with die-cast aluminium corner connectors. Mechanical stability in accordance with testing by TÜV Süd to EN 1886 (M): D1

Wall mounted design comprising a triple skin system with three integral panels, which are separated by insulation of fire class A2 s1d0 on the inside and B1 on the outside. The cladding thickness is 80/110 mm. The inner cladding is made of 1.0 or 1.5 mm thick hot-dip galvanised sheet steel, optionally aluminium or stainless steel.

The self-supporting and inherently stable framework is enclosed by the outer cladding with tongue and groove system, made of strip-coated hot-dip galvanised sheet steel in RAL 7037 (different RAL colours available to choose from), for a permanently airtight and weatherproof enclosed installation. Floor and ceiling in triple skin design with a panel thickness of 118/154 mm, with 68/104 mm inserted insulation made of mineral wool, non-flammable (A2 s1d0) to EN 13501 and additional thermal panels with a thickness of 50 mm. Unit floor wipeable and walkable.

This design eliminates any risk of penetration of moisture or thermal bridges. All frame parts are arranged on the inside and are fully enclosed by the outer panels. High grade thermal insulation achieves housing class T1 (heat transition coefficient U: (0.38 W/m2K) for heat losses via the housing and housing class TB 1 (thermal bridge factor: 0.84) for thermal bridges of the housing. The housing corners and edges are also insulated and fitted with profile panels as additional formwork.

The overall structure also ensures optimum airtightness of the housing, tightness class L1, and maximum stability D1. All values are type-tested and have been verified by means of TÜV Süd testing to EN 1886.

The operating doors are designed as thermally fully separated double doors, each with their own hinges and special internal locks and an additional lever lock with optional disable. The internal lock with stable metal housing is thermally separated from the inside of the unit. In the overpressure range, an integral locking function prevents the unwanted slamming open of the door. Inspection covers have clamps and handles on the outside. Inspection doors and covers are sealed with tested special microbially inert, closed-pore sealing profiles.

Moisture-sensitive structural components are made from a corrosion-resistant material and have 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. All openings in the housing are also thermally separated.

All functional units are easily accessible on both sides for inspection and maintenance purposes or extensible up to a unit clearance height of 1.6 m. The inner surfaces are completely smooth without any cut edges. All joints and grooves in the unit have been sealed to ensure that they are disinfectant-proof and can be cleaned without any residue. All components are factory-cleaned in line with the applicable hygiene standard and packaged in film.

In the weatherproof design, roof panels are also fitted so that they protrude 80 mm all round. Roof sealing with affixed 2.8 mm thick, special UV-resistant, airtight and watertight film with dripping rim all around. All unit separation points, roof openings and threaded holes for crane eyes are permanently sealed with special UV-resistant roofing film to ensure that they are airtight and watertight. All mounted parts have additional UV and weather protection.

Design examples

MADE IN GERMANY

HEATING
VENTILATION
AIR CONDITIONING

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