Heating - Ventilation - Air Conditioning
Heizung - Lüftung - Klimatechnik

Climate cubed

WK-com N, S, H: WOLF Comfort Air-Conditioning Units-Series

Spirit of Air®

WOLF
GEISENFELD

Consistently Efficient, Flexible and Individual with Highest Design Quality ...

Compentence

WOLF Anlagen-Technik stands for flexibility, innovation, top quality, intelligent technology and efficiency. We have been setting new trends and developing visions for a more comfortable life in the world of work and leisure since foundation in 1950.

This is appreciated by our customers who rely on our competent advice and our engineers' individual solutions with creative planning potential.

This makes WOLF an ideal partner for keeping deadlines, top-level production and individual solutions.

WK-com **N**

for indoor erection

30 mm housing walls / ceiling
68 mm housing floor

weatherproof for outdoor erection

double coated (+50 mm)
80 mm housing walls / ceiling
roof with 80 mm roof projection and drop edge all around, complete surface glued with 2,8 mm thick, UV-resistant special plastic foil.

up to unit size 510

WK-com **N** 170
for indoor erection

weatherproof
for outdoor erection

Advantages

- individual project realization
- integral system solutions
- innovative technology
- professional support during realization
- high production depth
- most modern production processes
- optimal customer orientation
- short delivery times
- highest design quality
- cost-optimized production
- approved after-sales service on site all over Germany
- silicon-free units
- same internal dimensions of **N**, **S** and **H** units

MSR-Technology

Electronic regulation systems for modern air-conditioning units.

WOLF realizes and supplies the necessary electronic regulation technology for ambitious, modern air-conditioning units.

- integrated regulation possible
- adjustment to various interfaces (LAN, BAC-Net, Mod-Bus)
- remote maintenance (Remote-Control)

WK-com **S**

for indoor erection

60 mm housing walls / ceiling
104 mm housing floor

weatherproof for outdoor erection

double coated (+50 mm)
110 mm housing walls / ceiling
roof with 80 mm roof projection and drop edge all around, complete surface glued with 2,8 mm thick, UV-resistant special plastic foil.

up to unit size 1270

Also in **T1 / TB1**

WK-com **H**

for indoor erection

60 mm housing walls
68 mm housing floor / ceiling

weatherproof for outdoor erection

60 mm housing walls
housing ceiling with 50 mm rain protection sheet (protruding) and drop edge all around, complete surface glued with 2,8 mm thick, UV-resistant special plastic foil.

up to unit size 510

Also in **T2 / TB2**

WK-com **S** 170
for indoor erection

weatherproof
for outdoor erection

WK-com **H** 85 / 63
for indoor erection

weatherproof
for outdoor erection

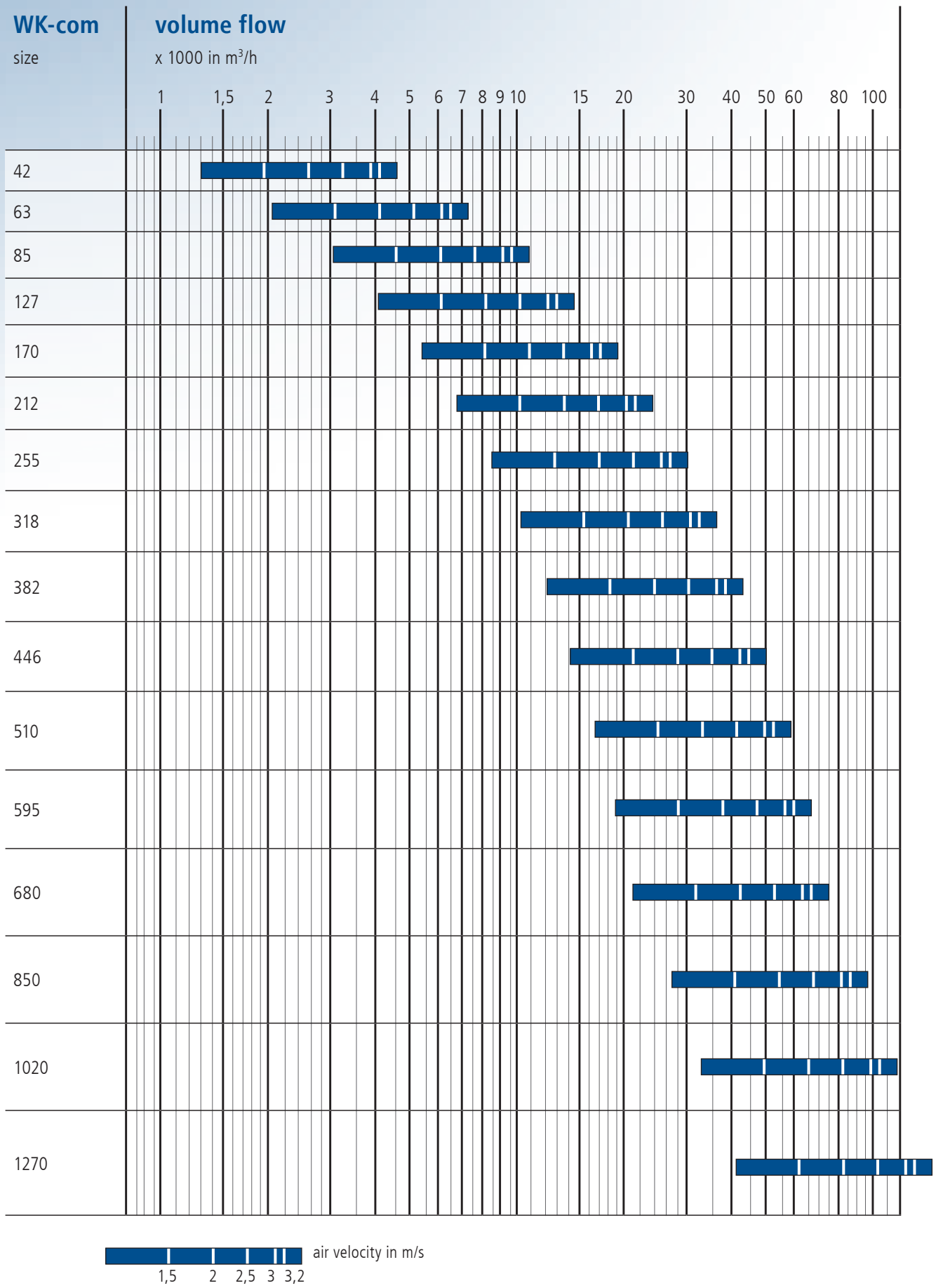
WK-com Air-conditioning Units - Quickly Made the Right Choic

WK-com size	**filter** scheme	number		**inside dimensions** h x w (mm)	**outside dimensions** h x w (mm) **plus weatherproof equipment**		
		1/1	1/2	**N, S, H**	WK-com **N**	WK-com **S**	WK-com **H**
42		1	0	612 x 612	748 x 671	820 x 731	748 x 731
63		1	1	612 x 918	748 x 977	820 x 1037	748 x 1037
85		1	2	918 x 918	1054 x 977	1126 x 1037	1054 x 1037
127		2	2	918 x 1224	1054 x 1283	1126 x 1343	1054 x 1343
170		4	0	1224 x 1224	1360 x 1283	1432 x 1343	1360 x 1343
212		4	2	1224 x 1530	1360 x 1589	1432 x 1649	1360 x 1649
255		4	4	1530 x 1530	1666 x 1589	1738 x 1649	1666 x 1649
318		6	3	1530 x 1836	1666 x 1895	1738 x 1955	1666 x 1955
382		9	0	1836 x 1836	1972 x 1895	2044 x 1955	1972 x 1955
446		9	3	1836 x 2142	1972 x 2201	2044 x 2261	1972 x 2261
510		9	6	2142 x 2142	2278 x 2201	2350 x 2261	2278 x 2261
595		12	4	2142 x 2448	---	2350 x 2567	---
680		16	0	2448 x 2448	---	2656 x 2567	---
850		20	0	2448 x 3060	---	2656 x 3179	---
1020		24	0	2448 x 3672	---	2656 x 3791	---
1270		30	0	3060 x 3672	---	3268 x 3791	---

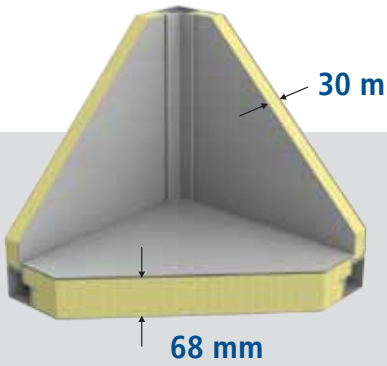
▮ half filter

■ whole filter

--- is not being produced in this size


WK-com
size
volume flow
x 1000 in m³/h
1
1,5
2
3
4
5
6
7
8
9
10
15
20
30
40
50
60
80
100
42
63
85
127
170
212
255
318
382
446
510
595
680
850
1020
1270
air velocity in m/s
1,5
2
2,5
3
3,2

The Economic



30 mm housing walls / ceiling
68 mm housing floor

Size:
WK-com **N** 85

Guarantee for Quality: DIN-, VDI- and Hygiene Certificates,
Member of Manufacturers' Association RLT

Description

The air-conditioning unit WK-com **N** is our approved standard air-conditioning unit for various applications. It is especially efficient in purchase and operation and moreover highly flexible by possible special and mixed sizes.

The units can be adjusted to any customer's wish and are completely knock-down.

Inside dimensions are the same for all WK-com serial units.

Flexible Housing Arrangement

The modules can be arranged side by side or on top of each other, assuring free planning.

Flexibility is one of the great strengths of our series WK-com!

Technical Data

Air-conditioning unit WK-com **N** is available up to size 510 and supplies a max. volume flow of up to 50.000 m³/h
(cf. volume flow / selection table page 5).

The housing walls / ceiling are 30 mm thick, the housing floor 68 mm.

For weatherproof design for outdoor erection, walls and ceiling are double coated, 80 mm thick. (cf. WK-com for outdoor erection, page 14)

Careful Finish

The housing has no cut edges or weld seams (neither inside nor outside). All units have hygienically smooth floors easily to be wiped.

Certified Quality

Approved test seals and certificates by renowned institutes prove the high quality and technical maturity of series WK-com.

The air-conditioning unit WK-com can be wiped acc. to VDI 6022 and is easily accessible all around for maintenance or cleaning.

Membership in RLT Manufacturers' Association is assuring permanent control of current production standards.

All WK-com units can also be supplied in hygiene design acc. to VDI 6022.

The constantly high product quality is guaranteed by Quality Control System DIN EN ISO 9001.

N

30 mm Wall Thickness, up to Size 510

Door Fitting: Smooth inside wall

Doors Smooth Inside

All WK-com units have specially developed door handles not penetrating the inside wall of the unit and thus sustaining the smooth inside all over, even here in the sensitive door range.

Advantages

- **up to 50.000 m³/h**
- can be installed side by side or on top of each other, also different sizes combined
- optionally completely knock-down
- easy to maintain
- wipeable sheet steel galvanized with smooth floor
- optionally available in high-grade steel, aluminium or painted
- long-life
- very silent

Safety Catch

Safety Catch

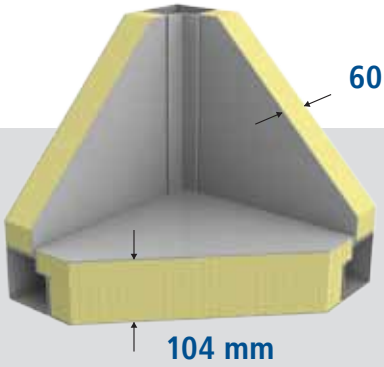
In overpressure range, the housing door is secured by a safety catch with spring bolt integrated in the lever lock.

Locking Device

Outdoor units exposed to wind get locking devices at the doors, if necessary, in order to provide a comfortable and safe access to the unit.

Locking Device

The Strong



60 mm housing walls / ceiling
104 mm housing floor

Size:
WK-com **S** 170

Guarantee for Quality: DIN-, VDI- and Hygiene Certificates,
Member of Manufacturers' Association RLT

Description

Due to its thicker insulation, the air-conditioning unit WK-com **S** is designed for more ambitious tasks and high air capacities. With a max. volume flow of up to 100.000 m³/h, it is ideally suited for large buildings or production halls. The thicker insulation is providing more stability and smooth running.

Optimal energy-saving potential, certified by energy-efficiency class A+.

Inside dimensions are the same for all WK-com series units..

Flexible Housing Arrangement

The modules can be arranged side by side or on top of each other, assuring free planning.

Flexibility is one of the great strengths of our series WK-com!

Technical Data

The air-conditioning unit WK-com **S** is available up to size 1270 and supplies a volume flow up to 100.000 m³/h (cf. volume flow / selection table page 5).

The housing walls / ceiling are 60 mm thick, the housing floor 104 mm.

For weatherproof design for outdoor erection, walls and ceiling are double coated, 110 mm thick. (cf. WK-com for outdoor erection, page 14)

Careful Finish

The housing has no cut edges or weld seams (neither inside nor outside). All units have hygienically smooth floors easy to be wiped.

Certified Quality

Approved test seals and certificates by renowned institutes prove the high quality and technical maturity of series WK-com.

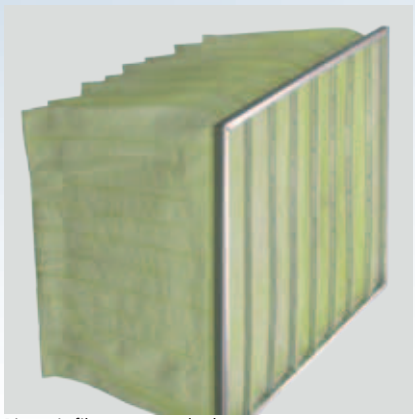
The air-conditioning unit WK-com can be wiped acc. to VDI 6022 and is easily accessible all around for maintenance or cleaning.

Membership in RLT Manufacturers' Association is assuring permanent control of current production standards.

All WK-com units can also be supplied in hygiene design acc. to VDI 6022.

The constantly high product quality is guaranteed by Quality Control System DIN EN ISO 9001.

60 mm Wall Thickness, up to Size 1270



Biostatic filters are standard

Biostatic Filters

All WK-com units are in series equipped with filters acc. to DIN EN 779 (2012). On request, also different filters are available, e.g. biostatic filters.

The filters treated with biostatic preservatives prevent fungi and germs from growing and thus provide healthy air.

Biostatic filters stand out for an excellent dust storage capacity and performance in case of humidity..

Fast emptying 3D-Condensate Tub

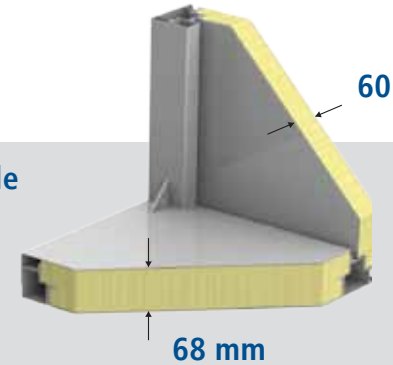
3D-Condensate Tub

The 3D-tub made of aluminium or high-grade steel has got a three-dimensional slope, safely avoiding water residues and thus hygiene dangers by germ growth.

Advantages

- up to 100.000 m³/h, combined **up to 200.000 m³/h**
- can be installed side by side or on top of each other, also different sizes combined
- optionally completely knock-down
- easy to maintain
- wipeable sheet steel galvanized with smooth floor
- optionally available in high-grade steel, aluminium or painted
- long-life
- very silent
- high sound insulation

The Hygienic



C-Profile

60 mm housing walls
68 mm housing floor / ceiling

Size:
WK-com **H** 85 / 63

Guarantee for Quality: DIN-, VDI- and Hygiene Certificates,
Member of Manufacturers' Association RLT

Description

The air-conditioning unit WK-com **H** is the high-tech-product among air-conditioning units and presents the most economic solution in WOLF WK-com series in this housing class due to a modular construction. At the same time, this product provides the basis for higher demands such as swimming pool technology, clean room technology or hygiene technology. Thus, WK-com **H** is as individual and flexible as all WOL air-conditioning units.

Flexible Housing Arrangement

The modules can be arranged side by side or on top of each other, assuring free planning.

Flexibility is one of the great strengths of our series WK-com!

Technical Data

Air-conditioning unit WK-com **H** is available up to size 510 and supplies a max. volume flow of up to 50.000 m³/h
(cf. volume flow / selection table page 5).

The housing walls have a profile thickness of 60 mm, the housing floor and ceiling 68 mm.

For weatherproof design, the roof is provided with a rain protection sheet (projection 50 mm) all around, complete surface glued with a special plastic foil (2,8 mm thick, UV-resistant) (cf. WK-com for erection outdoors, page 14).

Careful Finish

The housing has no cut edges or weld seams (neither inside nor outside). All units have inside uniquely hygienically smooth ceilings, walls and floors easy to be wiped.

Certified Quality

Approved test seals and certificates by renowned institutes prove the high quality and technical maturity of series WK-com.

The air-conditioning unit WK-com can be wiped acc. to VDI 6022 and is easily accessible all around for maintenance or cleaning.

Membership in RLT Manufacturers' Association is assuring permanent control of current production standards.

All WK-com H units can also be supplied in hygiene design acc. to VDI 6022 or DIN 1946 T.4.

The constantly high product quality is guaranteed by Quality Control System DIN EN ISO 9001.

H

60 mm Wall Thickness, up to Size 510

Completely smooth inside

Airtight Louver Flaps

Smooth Inside Wall

All WK-com **H** units have got smooth inside walls without joints or edges, so that micro-organisms don't find any kind of breeding ground.

The housing is hygienically sealed with approved, microbially inert sealants.

This feature can optionally be integrated into all WK-com units and is available in high-grade steel or aluminium.

Airtight Louver Flaps

Additional airtight louver flaps (DIN 1946 T.4) enable a safe operation even in extremely sensitive areas like surgery rooms, where sterility becomes a question of survival.

Silent

The unit WK-com is running very silently. Fan and motor are installed on vibrating frames and beared on rubber vibration dampers, alternatively spring vibration dampers.

Advantages

- **up to 50.000 m³/h**
- can be installed side by side or on top of each other, also different sizes combined
- optionally completely knock-down
- easy to maintain
- wipeable - highest hygiene standard
- optionally available in high-grade steel, aluminium or painted
- long-life
- very silent

Spring Vibration Dampers

The Indoor-Worker

For any room

WK-com indoor units are available in all three housing varations **N**, **S** and **H**.

The units achieve excellent sound damping coefficients.

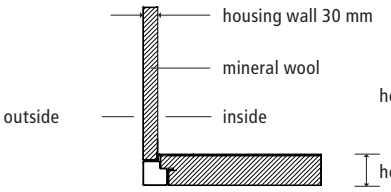
All WK-com units are in series equipped with biostatic filters.

Advantages

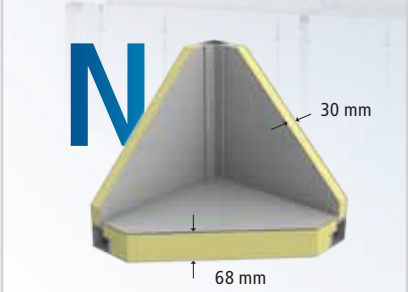
- up to 200.000 m³/h
- three housing wall thicknesses available
- can be installed side by side or on top of each other
- optionally completely knock-down
- easy to maintain
- long-life
- very silent
- technically perfected
- standard up to hygiene design

Housing Wall 30 mm

Fire Class A2, s1d0 acc. to DIN 13501-1



frame profile

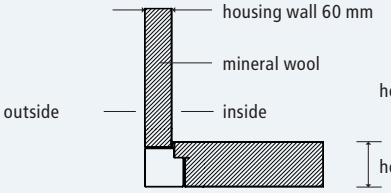


sound damping coefficient acc. to DIN 52210 - R´w 38 dB

octavo volume	f	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
sound damping coefficient R´	dB	34	37	37	36	33	50	53

Housing Wall 60 mm

Fire Class A2, s1d0 acc. to DIN 13501-1



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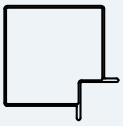
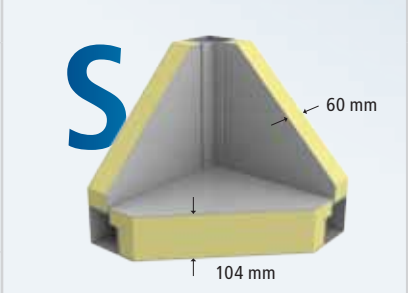


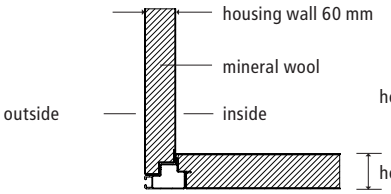


sound damping coefficient acc. to DIN 52210 - R´w 38 dB

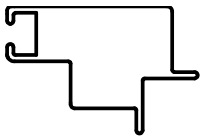
octavo volume	f	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
sound damping coefficient R´	dB	33	42	48	44	44	51	52

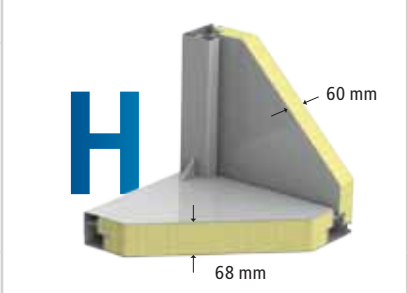
C-Profile Housing Wall 60 mm

Fire Class A2, s1d0 acc. to DIN 13501-1



frame profile





sound damping coefficient acc. to DIN 52210 - R´w 38 dB

octavo volume	f	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
sound damping coefficient R´	dB	33	41	46	44	43	51	52

Air-conditioning Unit
WK-com **H**
for Indoor Erection

hinge height and laterally adjustable for WK-com **H**

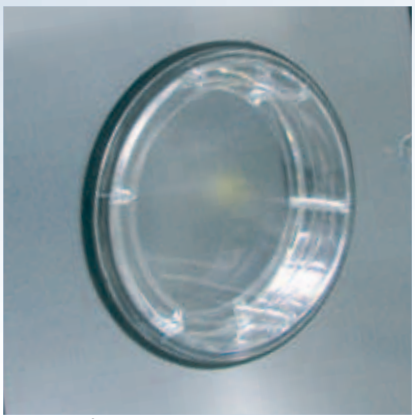
Inspection Doors

All WK-com inspection doors are equipped with re-adjustable, height and laterally adjustable, maintenance-free hinges.

All fittings, whether door hinges or door closers, are installed on the unit outside.

Thus, the air-conveying inside walls remain smooth, free of pollution and easy to clean.

Also inspection covers are equipped with outside panel clips and handles.



sight-glass for easy visual inspection

panel clip for WK-com **H**

Clean

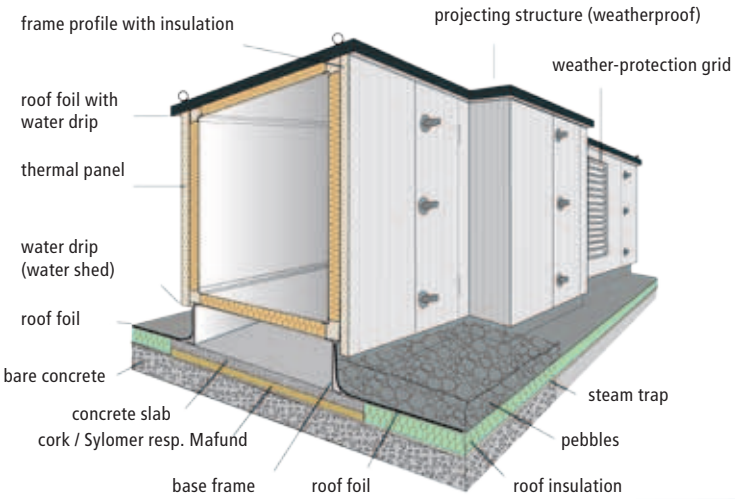
By sight-glasses, the unit inside can be inspected quickly at any time.

Tightness

By especially stable panel clips for fixing the panels, we achieve an enormous housing tightness of our WK-com H air-conditioning units. In case of high inside pressure, accordingly more panel clips are used.

optionally: LED-inside lighting

The Outdoor Professional

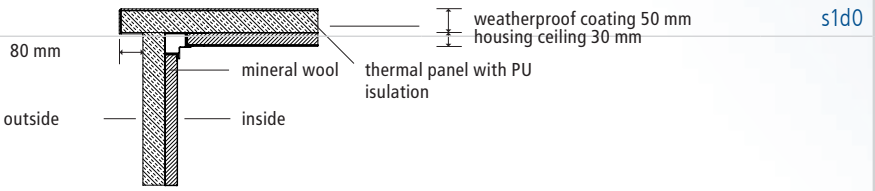


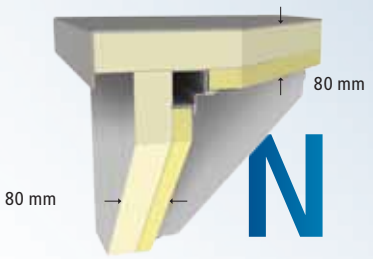
Advantages

- very silent
- energy-saving by high insulation
- no danger of moisture penetration
- no cold bridges
- condensation water and vapour tight
- corrosion-proof
- short assembly times
- easy to maintain
- thermal panels coated in RAL 7037 on both sides

Cladding 80 mm

Outside Cladding 50 mm Bs3, Inside Cladding 30 mm A2 s1d0



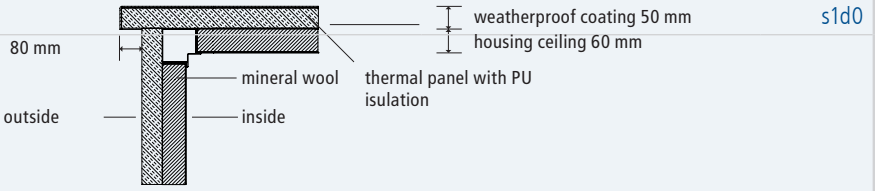


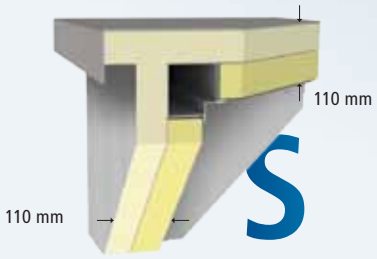
sound damping coefficient acc. to DIN 52210 - R´w 38 dB

octavo volume	f	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
sound damping coefficient	dB	33	42	48	44	44	51	52

Cladding 110 mm

Outside Cladding 50 mm Bs3, Inside Cladding 60 mm A2 s1d0



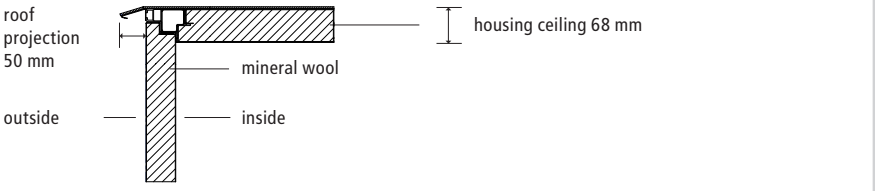


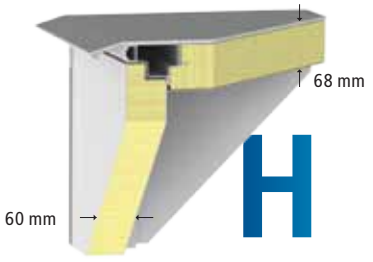
sound damping coefficient acc. to DIN 52210 - R´w 38 dB

octavo volume	f	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
sound damping coefficient	dB	37	51	54	55	61	65	61

Cladding 60 mm

Inside Cladding 60 mm A2 s1d0





sound damping coefficient acc. to DIN 52210 - R´w 38 dB

octavo volume	f	125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
sound damping coefficient	dB	33	41	46	44	43	51	52

Air-conditioning Unit
WK-com **N**, **S** - W
with weather-protection
grid and base frame

Extremely silent

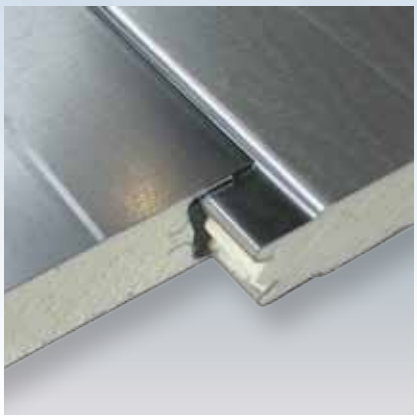
We take the problem „sound" very seriously. Our weatherproof units therefore rank among the most silent air-conditioning units worldwide!

For this, we have developed various cladding variants. Our weatherproof air-conditioning units are available in almost any wall thickness from 30 mm to 110 mm, and even more, if necessary.

The inside claddig is incombustible A2 and hardly inflammable B1 in outside coating.

Suction Openings

Suction openings can be realized both with weather-protection grids (up to a max. inflow velocity of 2,5 m/s) and with suction cowls.



thermal panels coated in RAL 7037 on both sides

suction cowls

Outside Cladding

The outside cladding consists of groove and tongue thermal panels which are hardly inflammable acc. to DIN 4102 B1, without danger of moisture penetration and coated in RAL 7037.

Roof

The roof panel projecting all aroung are completely glued with 2,8 mm thick, UV-resistant special plastic foil. Drop edge all around.

Certified Quality

Weatherproof air-conditioning units have a base frame all around.

The air-conditioning units for erection outdoors are certified acc. to DIN 31001 and VDE 0700.

WK-com TB1 in detail

Do you know a better one?

Cold bridge-free design

WK-com TB1

The rock among the milestones
Our latest WK-com TB1 has been developed based on our approved and tested double-planked, weatherproof **WK-com N** 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, i.e. even after being opened and closed many times, meets the required thermal and mechanical values is particularly sophisticated. The design with our double doors ensures absolute certainty these characteristics are met.

Decoupling the inner and 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 leakage losses and contributes to energy-saving operation. The mounted seal on the frame of the inner door prevents condensation from leaking, like a tub.

Double doors

2 New internal locking

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

Extremely flat, uncoupled inner lock

3 Sturdy design

The double-shell design (30 mm thick panels insulated with mineral wool inside, 50 mm thick PU cladding outside) yield outstanding thermal properties. The mechanical values such as housing leakage and deflection also meet the highest classes, D1 and L1.

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

4 Boarded corners

Corners and edges are also delicate areas in a thermally high-efficient 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 profile sheets.

Cold bridge-free design

Advantages

Rock Solid

- TÜV certified to DIN EN 1886
- for indoor and outdoor installation
- double housing design
- best thermal values T1 / TB1
- best mechanical values L1 / D1
- no cold bridges

Profile

5 Details

Many detailed solutions prevent thermal bridges.

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

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						
			+	-	+	-	+	-	+	-	125	250	500	1k	2k	4k	8k
	[mm]		Kl	Kl	Kl	Kl	Kl	Kl	Kl	Kl	[dB]						
WK-com TB1	82.5	30 mineral wool 50 PU panels	L1	L1	D1	D1	F9	F9	**T1**	**TB1**	15.4	25.7	32.5	37	40.9	51.9	59.2

WK-com Variations

Swimming Pool Technology

Apart from the high basic standard, swimming pool units **WK-com H Swimming Pool** offer further equipment.

- The housing inside walls are in series made of aluminium (AlMg3).

By consistently observing the constructive requirements of Hygiene Guideline VDI 6022, a hygienically perfect and safe operation of the unit can be reached and permanently secured.

Options

- Housing inside wall epoxy-resin coated
- Refrigeration Technology
- Air De-humidification
- Heat Pump Technology
- MSR-Technology

Clean Room Technology

Standard Unit **WK-com H Clean Room**

- All air-conveying components can be inspected without any problems and easily cleaned.
- By the three-dimensional slope, the condensate tub is emptied quickly and completely.
- For the filters, the filter areas prescribed by VDI.

Options

- housing inside wall high-grade steel, aluminium or coated
- refrigeration technology
- air humidification
- MSR-technology

Hygiene Technology

The highest demands are placed on the hygienically perfect construction of the housing of hygiene units **WK-com H Hygiene**.

Additionally jointed, absolutely smooth corners inside and airtight louver flaps (DIN 1946 T.4) enable a safe operation even in extremely sensitive areas like surgery rooms, where sterility becomes a question of survival.

The housing floor is made of high-grade steel or aluminium (AlMg3).

Strictest tests by TÜV Süddeutschland and the Institute for Air Hygiene ILH Berlin confirm the compliance with all valid hygiene requirements.

WK-com has passed all tests with distinction.

Large Units

By the extremely stable profile of **WK-com S**, large units can be realized very individually according to the respective project.

Combined up to 200.000 m³/h.

Options

- competent consulting for conception of the units
- high flexibility for arranging the unit parts
- special solutions like walkable inspection aisles etc.

ATEX

We are able to fulfil the unit demands required for ATEX designs with all 3 unit types **N**, **S** and **H**.

Even for the hard use on offshore oil rigs or in the Russian steppe etc., we have conceived and built ATEX units for indoor and outdoor erection together with our customers.

Options

- housing outside wall made of high-grade steel, aluminium or painted
- profiles made of high-grade steel V2A

Offshore / Containers

Special design of a weatherproof air-conditioning unit. Plug-in refrigeration / air-conditioning technology without water connection, with directly fired, corrosion-proof heat exchanger and complete regulation.

- Air-conditioning unit installed in ship container.
- Unit remains in the container, serving as weatherproof outside cladding.
- Unit needn't be assembled.
- with complete refrigeration block (compressor, liquefier, evaporator and electric cabinet are fully integrated)
- silent, environmentally friendly operation
- with complete regulation (refrigeration technology, air-conditioning technology, fans, direct heating) and wiring also acc. to US-standard

WK-com Variations

Ventilation Concept for Fishmeal Factory

An overpressure concept and active carbon filters on supply air side reliably protect the administration building of a fishmeal factory from annoying odours from the near production hall.

- overpressure concept: 4.500 m³/h supply air to 3.600 m³/h extract air
- space-saving erection outdoors (weatherproof, double-coated unit)
- optionally with UV-C ozone treatment
- silencer for almost noiseless operation
- prefilter on air inflow side
- one active carbon filter before and after heat recovery, each
- energy-efficient due to inlet air heating by 14 kW/h air / water heat pump

Desert-proof

Air-conditioning units for operation in canteens, kitchens etc. in extreme climatic regions such as the Afghan desert.

For erection outdoors, double coating has proven itself.

- Units are designed precisely fitting for dispatch in planes etc.
- up to 4 filter steps
- difficult transport by land and rail
- cold water sets adjusted to hard desert conditions
- switchboards in extract air for ventilation with clean air

Machinery Technology for Spray Booths

Our high-performance machineries of series WLE-S for spray booths and ovens are vailable in graded capacities.

The machineries are rated for drying temperatures of up to 110 °C.

The housing consists of galvanized, double-shell, insulated panels, incombustible acc. to DIN 4102. In addition to the integrated heat recovery, the spray booth machineries are controlled by most modern mode programmes where power and heating requirements are optimally adjusted to the respective working process.

- sturdy and economic
- most modern control technology
- intelligent energy management
- lowest operating costs
- high process safety

CONAQUA© Air-conditioning Unit for Humidification

Innovative air-conditioning unit especially for hop resp. tea conditioning with honeycomb humidifier.

Optimal results by conditioning in all weathers. By the hop management system LUPUS 3 ®, the humiditiy content can be regulated resp. put in acc. to LFL-diagram at any time.

By the louver flap servomotors of the mixed air part, the optimally mixed air is produced.

Then the mixed air is adequately enriched in the honeycomb humidifier by a freshwater cascade.

An integrated air filter is protecting the humidifier from contamination and increasing the hop quality.

- plug-in
- energy-saving
- high quality
- energy-saving conditioning for high yields

Kitchen Extract Air

Air-conditioning units for kitchen exhaust air have got special requirements:

- Motor is either outside the air flow or
- Motor is encapsulated, with separate ventilation
- In case of erection outdoors, separate ventilation must additionally be sound-insulated.
- Grease filters must be used as first filter step.
- optionally unit inside wall made of aluminium, high-grade steel, painted or coated
- suited for subsequent installation by knock-down design
- easy to clean by smooth inside surfaces

Equipment for certified buildings

Due to the high energy efficiency of our units they can also be used in buildings rated according to various criteria (DGNB, LEED, etc.)

DGNB®
Deutsche Gesellschaft für Nachhaltiges Bauen e.V.
German Sustainable Building Council

WK-com Variations

Theatre Air

silent and fresh air = feel-good climate

- hygiene requirements acc. to VDI 6022
- connection to existing building technology
- high sound insulation
- Fulfils the high demands to placing and geometry of the units due to upgrading and renovation of plants and houses.

Sales Markets

In sales markets, often different units with various requirements are needed, for example intermediate ceiling units without heat recovery for the meat counter, units with high-performance heat recovery systems for the sales room or air heaters for the storeroom.

Since the time schedule on the building site is often very tight, a short delivery time and keeping of deadlines is necessary.

Breweries

In breweries and also beverage bottlers, there are high demands to air-conditioning units regarding air quantity, humidification and de-humidification of the air and the high hygiene requirements.

Also by their smooth inside walls, all three series of air-conditioning units WK-com fulfil the requirements of VDI 6022.

Optionally, the panels of the units can be supplied also in high-grade steel, aluminium or coated design.

Extreme Conditions

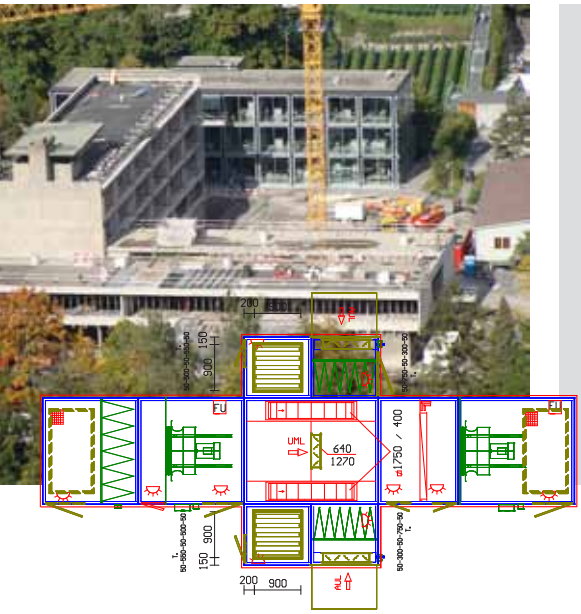
In order to assure their functioning even in heavy cold, our units are optionally equipped with additional components:

- additional heating for louver flaps
- additional heating for frequency converters
- electric heating register
- motor suitable for temperatures up to minus 40 °C
- tub heating

Coldness

Conception, rating, assembly and commissioning of cold components in WK-com units are done by WOLF - refrigeration specialists.

- Integrated coldness, i.e. all components incl. capacitor are fully installed in the unit ready for use.
- Heat pump function in the unit, i.e. cooling in summer and heating in winter, mostly also in connection with high-performance heat recovery systems.



Precisely fitting (Renovation)

The demand for air-conditioning units which are to replace or be added to existing plants is increasing.

Also by changes in use of buildings, special requirements to air-conditioning units are arising.

- high flexibility in dimensions
- special geometric shapes
- competent consulting in conception, mostly also on site

Strong in Detail

Design

The housings of the air-conditiong units series WK-com are distinguished by modular frame construction made of hot-dip galvanized, closed special tubular profile.

The housing modules are to be arranged in modular system in series, beside or on top of each other.

The profiles are screwed with corner connectors made of aluminium die-cast to a frame unit. The frame is completely knock-down and extremely stable.

Special dimensions can easily be realized.

These constructive properties enable a rating of our units customized to 100 %.

Advantages

- solid frame construction
- modules to be arranged beside and on top of each other
- short assembly times
- completely knock-down
- easy to maintain
- many design variants

WK-com **S** 170

housing connection with cover

centering arbor for precisely fitting connection

Modular Construction

Due to well-considered constructive details, the housings of air-conditioning units series WK-com can be assembled especially fast and easily.

The modules are usually supplied pre-assembled.

For special sites, however, the unit can be completely dismantled.

For an easy assembly, the respective modules are screwed airtight on the frame inside.

The double-shell, hot-dip galvanized cladding panels are screwed airtight into the frame construction and can be removed on all sides.

The centering arbor at the corner connectors assures a fast and absolutely precisely fitting assembly of the module blocks.

drop separator, cooler extensible

removable exit rails for cooler and drop separator

encapsulated motor with separate ventilation

weatherproof cover of repair switch

3D-condensate tub is emptied quickly and completely

exit rail for replacing the fans

sight glass with weatherproof protective flap

wall passage with Armaflex insulation

Modular Construction

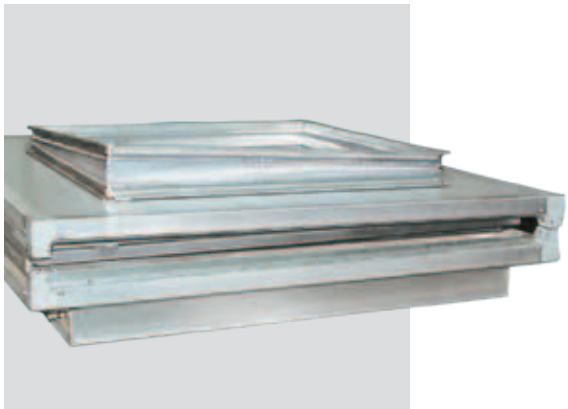
Unbelievably Small for this Size …

The unit modules are usually supplied pre-assembled.

However, a WK-com air-conditioning unit can also be completely dismantled into its components.

So even the biggest unit gets through the smallest access.

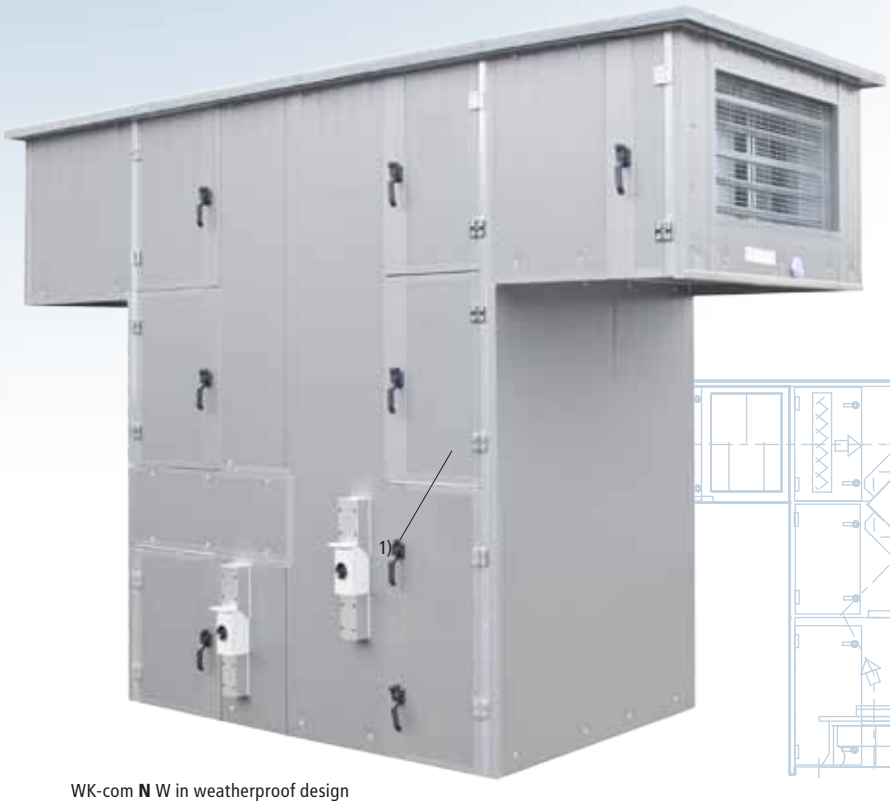
WK-com **S** 170



The dismantled unit gets through any door.

1) even large heat recovery units are available knock-down for getting through small accesses

WK-com **N** in standing design



WK-com **N** W in weatherproof design
with special air guidance

WK-com Fan Module

Optimized Fan Capacity

WOLF offers a selection of various fans.

For each application, the optimal fan is to be chosen.

Choosing the optimal fan assures that the used energy is optimally exploited and the admissible noise emission is not exceeded..

Volume Flow Regulation

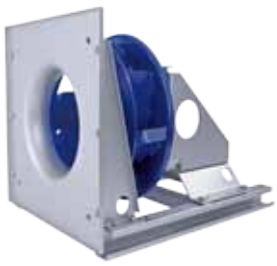
The integrated volume flow measuring device enables a simple and reliable determination of the air quantity and/or its supervision when installed.

- simple
- low-cost
- efficient

fan module

vibration damping by spring dampers optional

The Unit's Heart

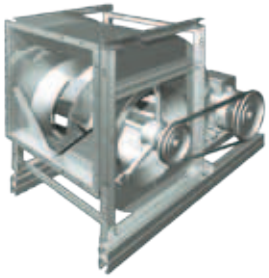


Free-running Fan Wheel

- single-flow installation fan for pressures up to approx. 2.000 Pa
- variable speed by frequency converters
- high efficiency
- low construction depth
- with PM motor IE4

Direct drive with Tire Coupling

- direct drive for the upper performance range
- fan with laterally installed standard motor, variable speed by frequency converter



Belt Drive

- even for high pressures
- low noise emission by blade profile and inclined tongue at fan exit
- optionally with flat belt

with EC-Motor

- even for high pressures
- low noise emission by blade profile and inclined tongue at fan exit
- high efficiency factor

Direct drive by Installed External Rotor Motor

- cost-saving by maintenance-free operation
- no second filter step required, since no belt abrasion
- high system efficiency

in ATEX

- pressure-tight encapsulated motor
- inflow jet made of brass
- design as free-running wheel, variable speed

High Standard

By ventilating and air-conditioning units of generation WK-com, the optimum regarding hygiene has now been reached - down to the smallest detail.

An example is also the standard use of air filters in all units of series WK-com **N**, **S** and **H** acc. to DIN EN 779 (2012).

With these filters, germs have no chance of survival at all even with high moisture load of the filters.

The exploitation of the whole cross-section provides large filter areas, high lifetimes, a low pressure loss and thus an increased energetic efficiency.

Filter Module

Filter Frame extensible

- low-price
- space-saving, shorter construction
- weight saving
- quick-clamping device for filter frame

Filter frame firmly installed

- lowest air leak rate
- filter exchange on dust air side
- longer construction

Filter Classes

The filter classes are defined by mean efficiency (Em) at 0,4 µm particle diameter.

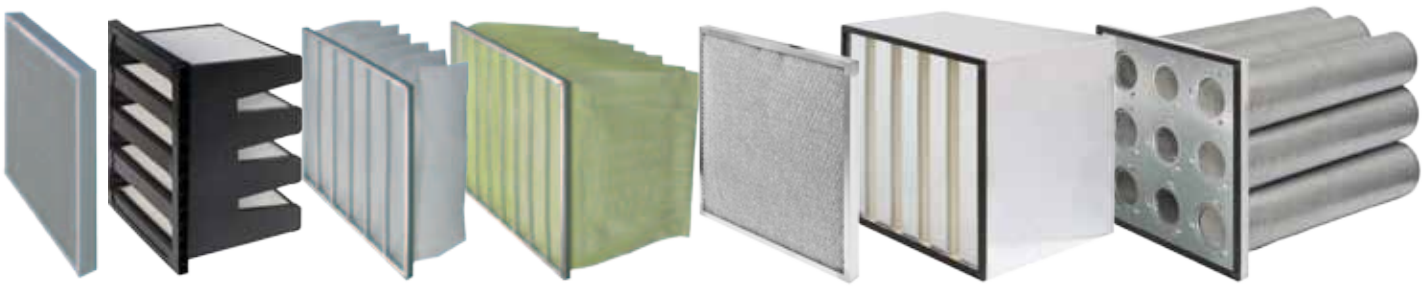
F9: 95 % ≤ Em
F8: 90 % ≤ Em < 95 %
F7: 80 % ≤ Em < 90 %
M6: 60 % ≤ Em < 80 %
M5: 40 % ≤ Em < 60 %

Clean and versatile

filter frame extensible

filter frame firmly installed

Filter Types



panel filters | compact filters | pocket filters short | pocket filters long | grease filters | aerosol filters | active carbon filters

WK-com Heat Exchanger Module

Heat Exchanger
Heater / cooler

All heat exchangers fulfil the requirements of VDI 6022 and can completely be cleaned, since they are accessible on both sides or extensible.

Options

- hot-dip galvanized in acid bath
- epoxy-resin coated
- squared-off connections
- frames V2A, V4A, (ALMG3)
- sectioned design (horizontally / vertically)

heat exchanger

heater module: heat exchanger and anti-frost frame extensible

cooler module with 3D condensate tub: heat exchanger and drop separator extensible

wall passage with Armaflex insulation

Drop Separator

The arrangement of the drop separator after the air cooler successfully protects the unit parts from damage by moisture. For easy cleaning, drop separators are easily extensible and completely knock-down, thus also suited for hygiene ranges.

Quickly emptying 3D Condensate Tub

Where air is cooled or humidified, condensed water is produced which has to be discharged quickly and reliably.

The WOLF 3D-tub made of aluminium or high-grade steel has a three-dimensional slope, safely avoiding water residues and thus hygiene dangers due to germ growth.

WK-com Direct Firing Module

directly fired air-conditioning unit
(weatherproof)

Economic Heat

One of the most economic systems for air-conditioning is heating the supply air by an oil or gas fired heat exchanger.

Advantages

- high economy by direct heating of supply air
- high fuel-engineering efficiency (90-93 %)
- no losses by supply pipe (standstill losses)
- corrosion-proof heat exchangers
- no freezing, since no water-conveying parts
- exact adjustment of inlet air temperature by room resp. extract air cascade regulation

The heart of the air heater is the heat exchanger with flue gas box made of corrosion-proof high-grade steel.

Advantages:

- *large combustion chamber for favourable flow (with flame reversal)*
- *heating pockets with turbulators*
- *easy to clean*
- *high lifetime of combustion chamber by using high-grade materials*

Certified Quality

Out air heaters are certified acc. to DIN 4794 by TÜV and hold the DVGW-EG Type Test Certificate with DVGW Quality Mark.

So convenient, so effective …

Please note

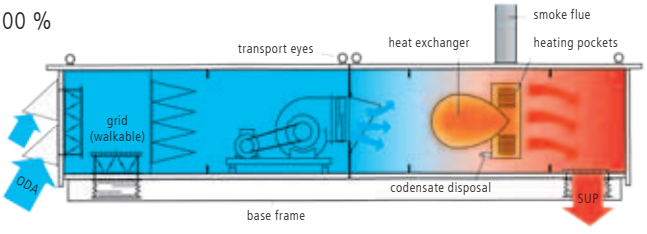
- Condensate disposal required acc. to ATV Instruction Sheet M 251. Pay attention to local waste water guidelines resp. obtain waste water approval for granule neutralization.

  Adequate neutralization plants are available.

Operation

- condensing operation possible
- constant supply air temperature regulation
  - modulating 40 - 100 %
  - 2-/ 3-step sliding
- outdoor air operation
  - modulating 40 - 100 %
  - 2-/ 3-step sliding

directly fired air-conditioning unit WK-com with corrosion-free heat exchanger



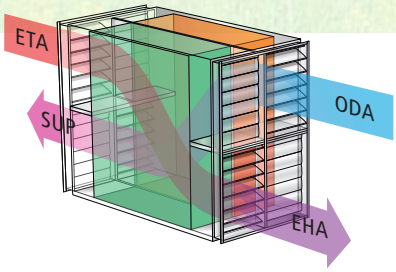
WK-com Heat Recovery Module

Heat Recovery (HR)

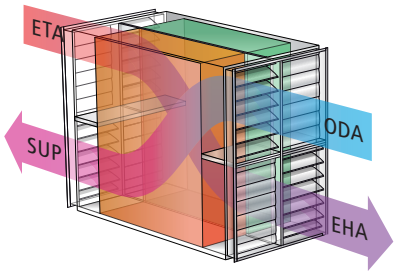
By using heat recovery systems, not only operating costs are directly reduced, but also the environment is indirectly protected.

Regulated HR-systems in most various designs have become indispensable for modern air-conditioning technology.

heat accumulator



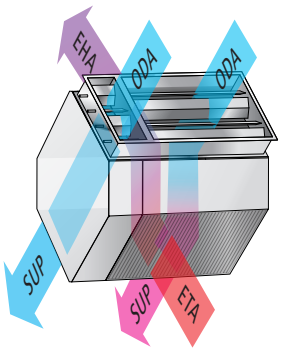
heat accumulator: left side is loaded



heat accumulator: right side is loaded

Heat Accumulator

- heat withdrawal in winter
- cold absorption in summer
- subsequent heater superfluous
- saving of humidifier capacity (in winter and spring/autumn high return humidity coefficient)
- air quantities up to 60.000 m^3/h
- heat recovery coefficient up to **bis 95 %**



counterflow with bypass

Counterflow

- separated air flows
- no transfer of humidity
- compact construction with high efficiency
- no contamination of outdoor air
- high operation safety
- circumvention with bypass possible
- heat recovery coefficient **up to more than 90 %**

ODA = Outdoor Air = Außenluft (AUL)
ETA = Extract Air = Abluft (ABL)
SUP = Supply Air = Zuluft (ZUL)
EHA = Exhaust Air = Fortluft (FOL)

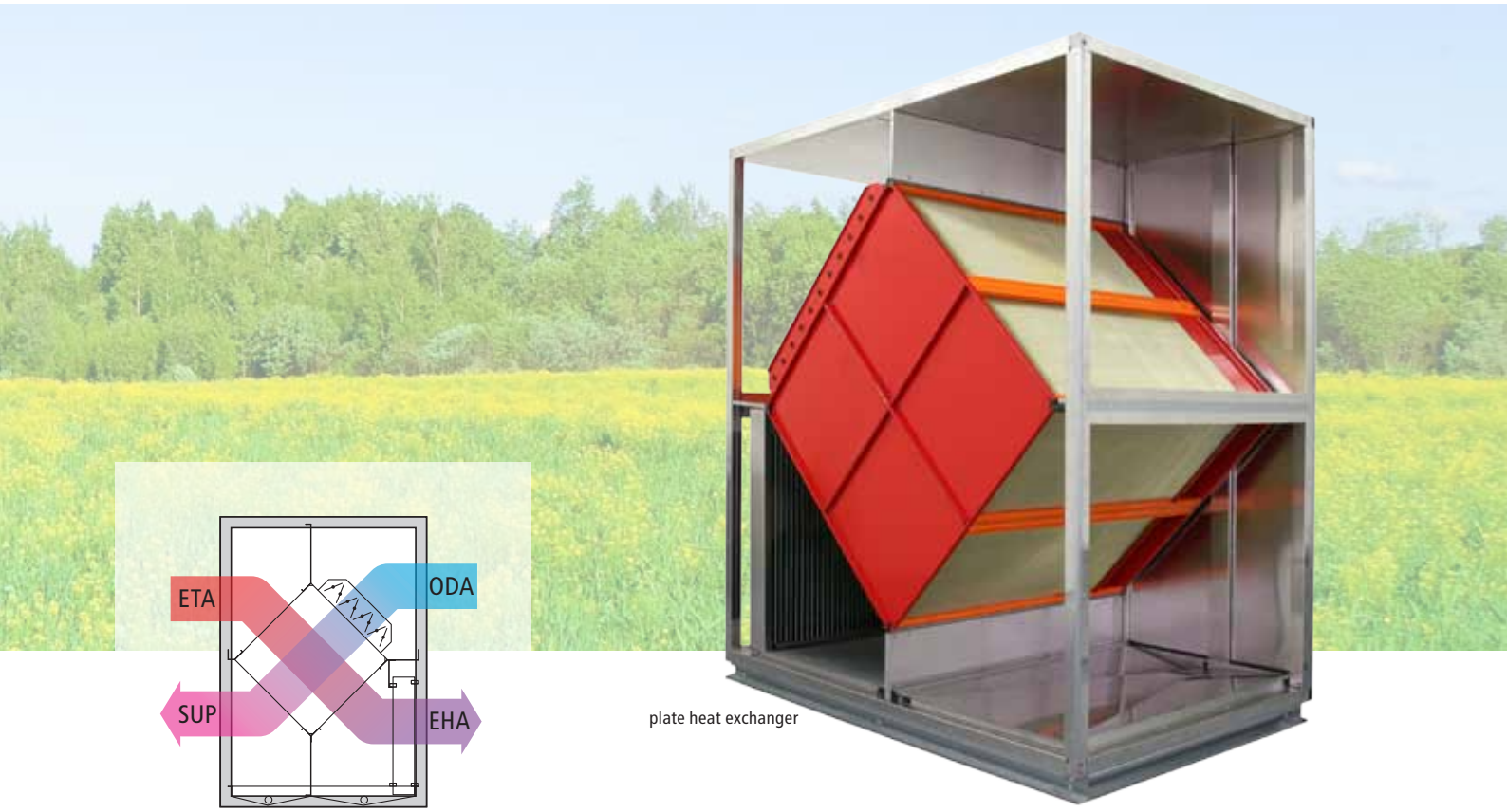
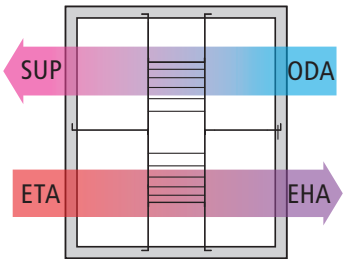
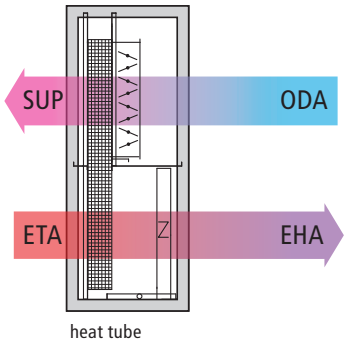


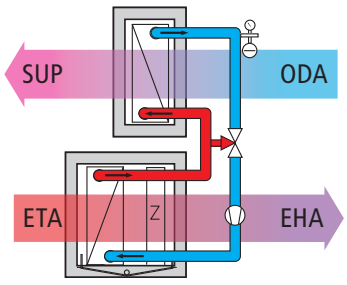
plate heat exchanger



rotation heat exchanger



heat tube



cycle compound system (KVS)

plate heat exchanger

… energy-efficient

Plate Heat Exchanger

- wear-resistant, no mechanically moving parts
- safe operation
- easy installation
- no mixing of air flows
- circumvention with bypass possible
- very economic solution of heat recovery
- heat recovery coefficient **up to approx. 75 %**
- optionally with integrated recirculating air flap

Rotation Heat Exchanger

- heat transfer with possibility of humidity transfer
- self-cleaning effect by counterflow circuit of outdoor and exhaust air
- very well adjustable by number of revolutions
- for high air quantities
- circumvention with bypass possible
- low pressure loss
- heat recovery coefficient **up to approx. 80 %**

Heat Tube

- low space requirement
- wear-resistant, no mechanically moving parts
- circumvention with bypass possible
- is used for united outdoor and extract air flows
- heat recovery coefficient **up to approx. 50 %**

Cycle Compound System (KVS)

- outdoor and extract air flows can be spatially separated
- low construction length
- subsequent installation into existing plants possible
- suitable even for higher temperatures due to possible variations of the used registers regarding pipe rows and used material (Cu/Al or Stv)
- heat recovery coefficient up to approx 50 %, high-performance system by serial arrangement of several systems **up to approx. 80 %**

WK-com Humidifier Module

Air Humidification

Healthy climate requires not only a convenient temperature, but also the optimal air humidity.

Therefore, functional and hygienic humidification systems are getting more and more important in modern air-conditioning technology.

Depending on the task, the following systems are used:

- high-pressure humidifier
- vapour air humidifier
- adiabatic humidification
- spraying humidifier or washer
- honeycomb humidifier

The use of regulated UV-light inside the unit and the fast and complete discharge of humidity in the unit are assuring hygiene.

high-pressure humidifier

high-pressure humidifier jets

drop separator for high-pressure humidifier

Contact humidifier with three cascades

Evaporation Humidifier

High-pressure Humidifier

In a swirl grid, solid longitudinal turbulences are generated.

Water is injected with high pressure into the centres of each turbulence. Evaporation is effected in the subsequent reaction room.

Advantages

- hygienic, since no recirculating water and no water-storing components
- stepless capacity regulation
- high humidifier capacity

vapour humidifier

vapour humidifier lance with condensate pipe

jet humidifier

Jet Humidifier
Air Washer

Spraying of water in a separate humidification chamber.

Due to the relatively large drops, only a part of the injected water is evaporating; the remaining water is collected in a tub and fed back to the jets.

Advantages

- no water treatment required
- low-cost

But it takes more than temperature

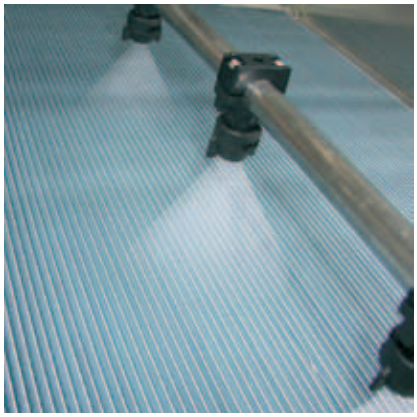
Vapour Humidifier

Water is made boil in a cylindrical container. The produced water vapour is transported through pipes to the ventilation duct and distributed in the air flow in a vapour lance.

Advantages

- hygienic
- no water treatment required
- very reliable operation
- easy to maintain

Vapour humidifier with 3D condensate tub: When humidifying air, condensate water is always produced, which is discharged quickly and completely by the shown 3D condensate tub.



adiabatic humidification

Adiabatic Humidification

In winter operation, the humidifier is used for a most efficient humidification of the heated supply air.

In summer operation, often a mechanic cooling is not required due to the energy-saving, environmentally friendly adiabatic cooling of extract air and transfer of coldness to supply air = adiabatic cooling.

- low flow losses on air side
- low driving energy on water side by effective pumps with regulation
- avoiding capacity reductions by deposits on water side (recommended water quality acc. to VDI 3803)

WK-com Refrigeration Module

Cooling Systems

- **direct cooling** (air cooling)
  direct evaporator with compressor
- **indirect cooling** (water cooling)
  cold water cooler with cold water set
- **adiabatic cooling**
  cooling by evaporation
- **heat pump**
  heating and cooling operation

Direct Cooling

The air flow is cooled directly, the refrigerant evaporator is lying directly in the air flow to be cooled. Therefore, this kind of refrigerator is called air cooler.

direct cooling:
WK-com **H** refrigerator with direct evaporator

Advantages

- low investment
- low space requirement
- low operating costs
- high flexibility in erection
- low planning expenditure
- few services to be provided by customer
- no water problems (freezing danger, glycol concentration, corrosion)
- saving of equipment like recirculating pumps, cooling water circuit, cold water set, cold water circuit, storage and extension vessels, ventilating and emptying installations, pipe installations etc.
- low distribution losses
- high total efficiency
- good de-humidification capacity

direct cooling with direct evaporator

Indirect Cooling

The water is colled in the refrigerant evaporator, the circulating water serves for cooling the air flows by further heat exchangers. This refrigerator is a water refrigerator.

Advantages

- regulating circuits of air-conditioning unit and refrigerator largely separated
- regulation is controlling cold water throughput by air cooler
- refrigerator regulation is keeping cold water temperature approx. constant
- cold and warm water distribution systems are identical and thus familiar to technician
- clear separation of performance guarantees between air-conditioning and refrigeration technology

cooling air conveyance by sickle fans

indirect cooling with cold water set

WK-com **H**
adiabatic cooling
with plate heat exchanger

3D-tub with
condensate discharge

Adiabatic Cooling

Plate heat exchanger for refrigerant-free supply air cooling (gentle cooling)

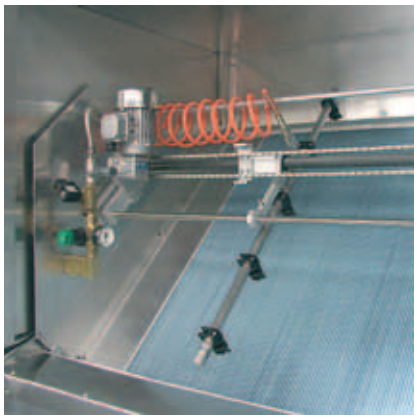
By the adiabatic cooling (indirectly evaporative), a cooling of around 10 °C (for example from 32 °C to 22 °C) can be reached environmentally friendly, without cold compressor and without refrigerant.

The operating costs of such a plant are about 50 % lower than those of a plant with conventional technology.

Advantages

- cooling in summer, heat recovery in winter
- extremely low maintenance required
- manageable technology
- secured hygiene in case of correct operation
- minimal construction length
- to be installed into plants from 2000 m³/h air quantity on
- massive energy savings - up to 40 % compared to conventional plants with mechanical coldness!
- optimized water consumption: Residual water quantities of less than 15 %
- environmentally friendly: no refrigerants, no FCKW
- infinitely variable

Gentle Cooling, Healthy Air



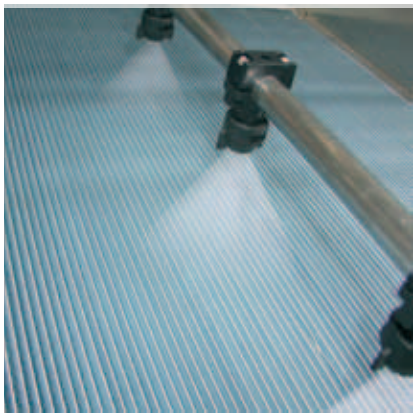
Comfort Combination

Air-conditioning unit with upstream adiabatic cooling and downstream cold unit (air cooling) with regulation.

By the plate heat exchanger, a unit can be used for heat recovery in winter and for cooling the supply air in summer.

Advantages

- no or minimal refrigerant use
- low investment costs by double benefit (summer/winter)
- electric power input is reduced



Spraying jets are humidifying the heat exchanger

regulated water pressure

WK-com Comfort for Environment: Sorption Technology

Sorption Technology

By sorption technology, the evaporation coldness produced by air humidification is used for cooling.

The de-humidification rotor used is working far more efficiently than cooling by temperature below dew point by cooler.

The required temperature below dew point is consuming a high quantity of energy for conventional cooling.

Sorptionsrotor

Functional Diagram (Summer)

❶ The outdoor air enters the sorption wheel, which is absorbing part of the humidity contained. During this sorption process, the temperature of the de-humidified air is rising.

❷ In the subsequent heat recovery (regenerative rotation heat exchanger), the air is cooled again.

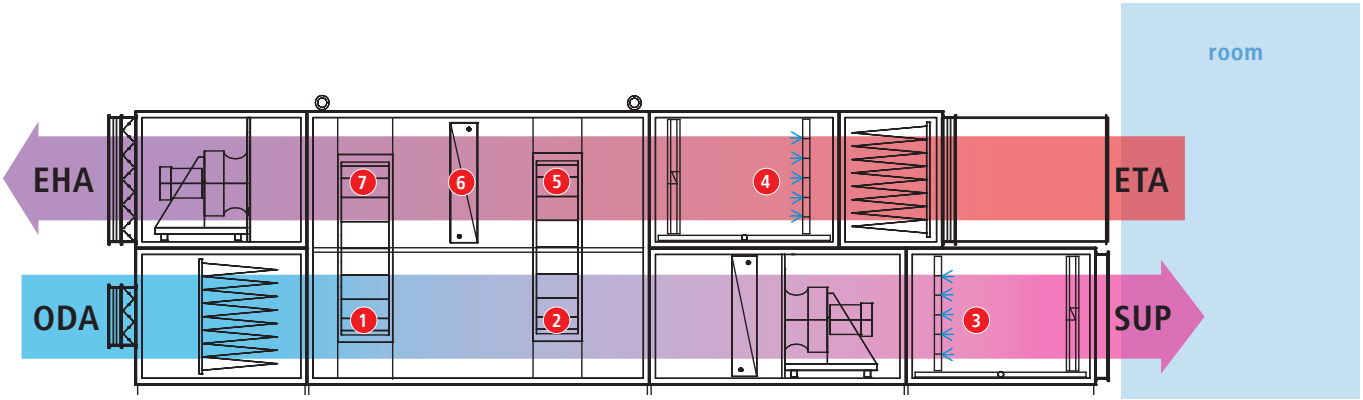
❸ By the subsequent humidification (frequency converter controlled high-pressure humidifier), the temperature is reduced. The air conditioned to nominal value is fed into the room to be air-conditioned.

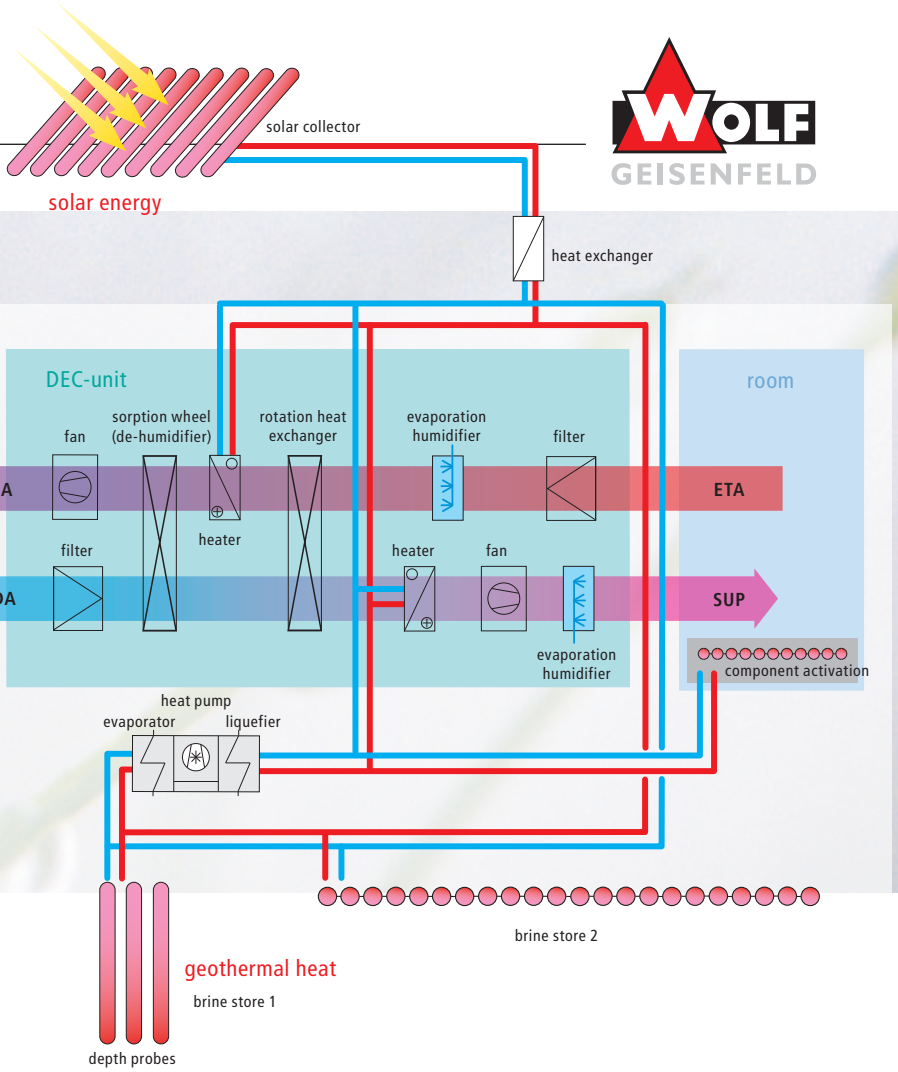
❹ The extract air heated in the room is flowing through the frequency converter controlled high-pressure humidifier. The extract air is adiabatically humidified to nearly the humid ball temperature (max. temperature difference / cooling) and thus cooled.

❺ This adiabatically humidified and cooled air then enters the heat recovery, acting as cooling air and absorbing the heat.

❻ In the subsequent heater which is heated by a storage medium by solar collectors, the air is heated to the required temperatur.

❼ Then it is fed to the sorption wheel as regeneration air. By the extract air fan, the air is leaving the plant.





Energy-saving

- heat generation by heat pumps with underground store
- heat generation by solar collectors
- cooling by sorption technology
- air-conditioning without cooling unit
- DDC-Regulation

Climate with Energy from Sun and Earth

Eco-friendly

The abbreviation DEC means „Dessicant and Evaporative Cooling" and enables air de-humidification and cooling in summer without a cooling unit being necessary.

In winter, the sorption rotor can be used as additional heat recovery with humidity transfer.

Without the necessity of refrigerants, no materials damaging the ozone layer and thus contributing to greenhouse effect resp. being toxic, combustible or explosive are used.

Economic

Cooling is important mainly in summer. By sunlight and cooling load taking place largely at the same time as well as by the relatively low driving temperatures for the cooling process, DEC-technology is especially suitable for the combination with solar energy.

Also the use of low-cost exhaust air such as district heat or heat from block heating power stations or heat pumps is possible.

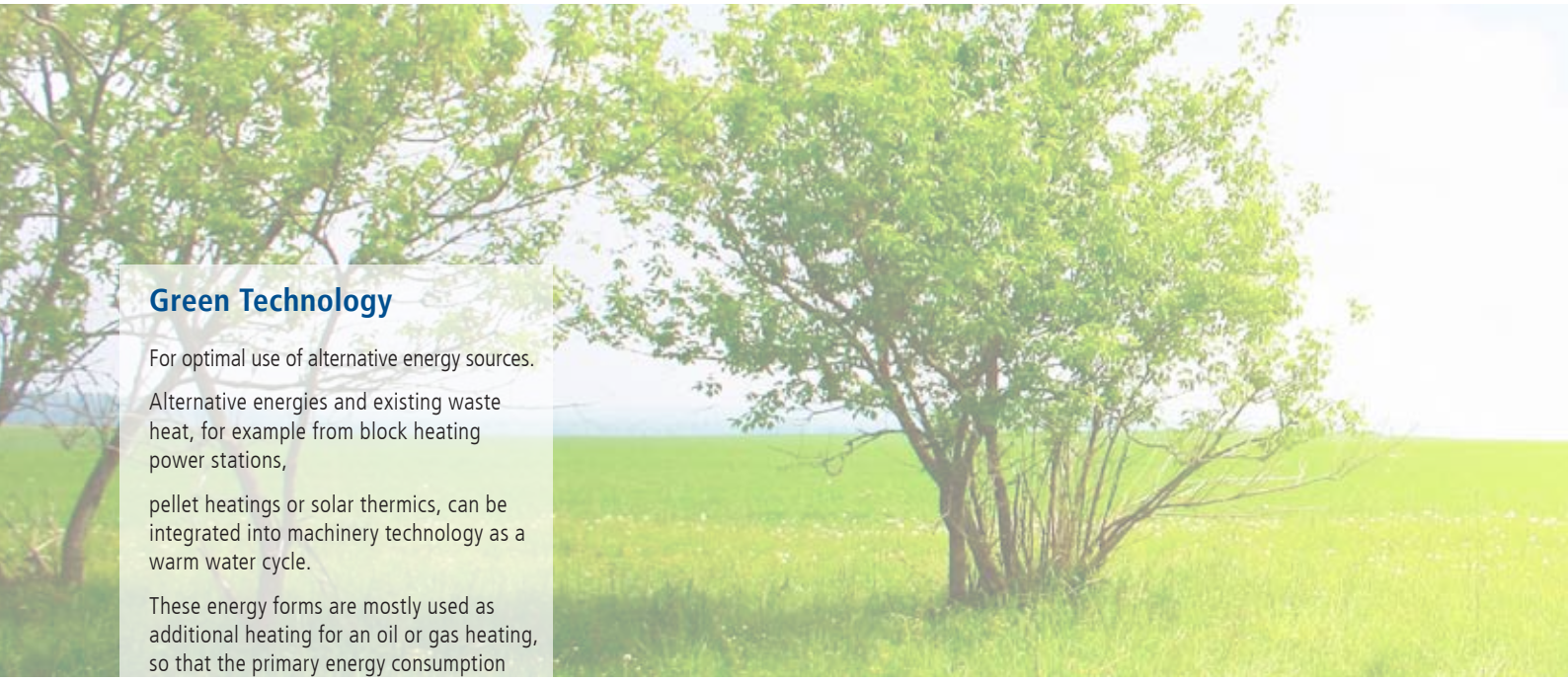
Summary

- economic de-humidification and cooling in summer
- heat recovery with humidity transfer in winter
- minimal energy consumption with high cooling capacity
- regenerative energy sources can be used.

40 % lower operating costs!

Technical innovation is saving resources and protecting environment.

WK-com Comfort from regenerative Energies



Green Technology

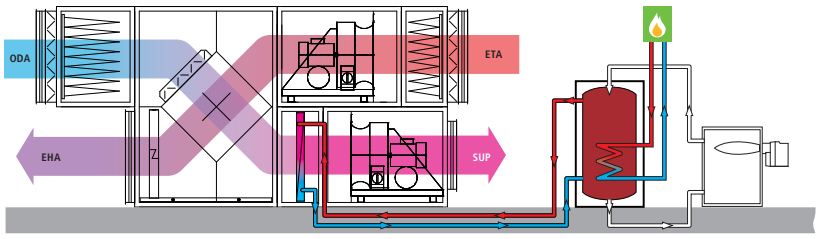
For optimal use of alternative energy sources.

Alternative energies and existing waste heat, for example from block heating power stations,

pellet heatings or solar thermics, can be integrated into machinery technology as a warm water cycle.

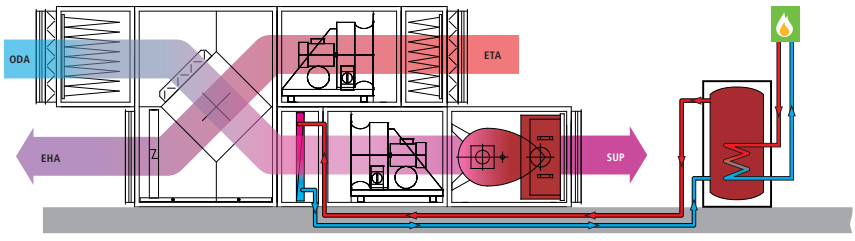
These energy forms are mostly used as additional heating for an oil or gas heating, so that the primary energy consumption can be reduced drastically at low expenditure.

We kindly provide extensive support for your planning.



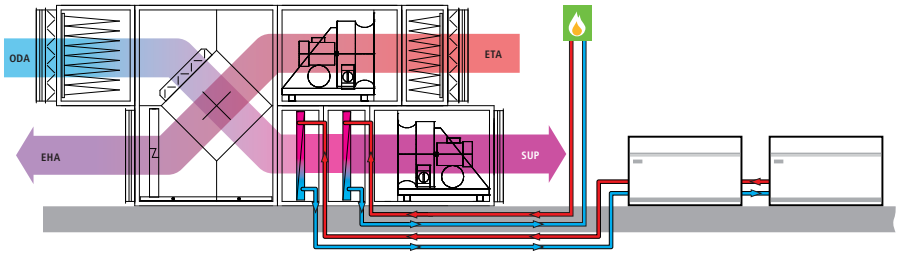
WK-com Standard

The air-conditioning unit WK-com with warm water register is heated from a stratified storage. The storage is fed by solar thermics, pellet heating, block heating power station, process waste heat or earth heat with a possible additional heating by an external heating.



WK-com directly fired

For using regenerative energies, an additional warm water register is put in front of the direct firing.



Process Heat Integration

By an additional register, a coolant cycle can also be used to the warm water cycle as additional heating for waste heat utilization.

ODA = Outdoor Air = Außenluft (AUL)
ETA = Extract Air = Abluft (ABL)
SUP = Supply Air = Zuluft (ZUL)
EHA = Exhaust Air = Fortluft (FOL)

Spraying / Drying Machinery

Due to the high air exchange during spraying and the necessary drying at 70 - 100 °C, the energy consumption of spray booths of our Business Division Surface Engineering is especially high. We therefore offer new and directive technologies, reducing the energy consumption during spraying and drying process drastically.

drying booth machinery
for supply air up to 100 °C

spray booth machinery
for supply air up to 100 °C

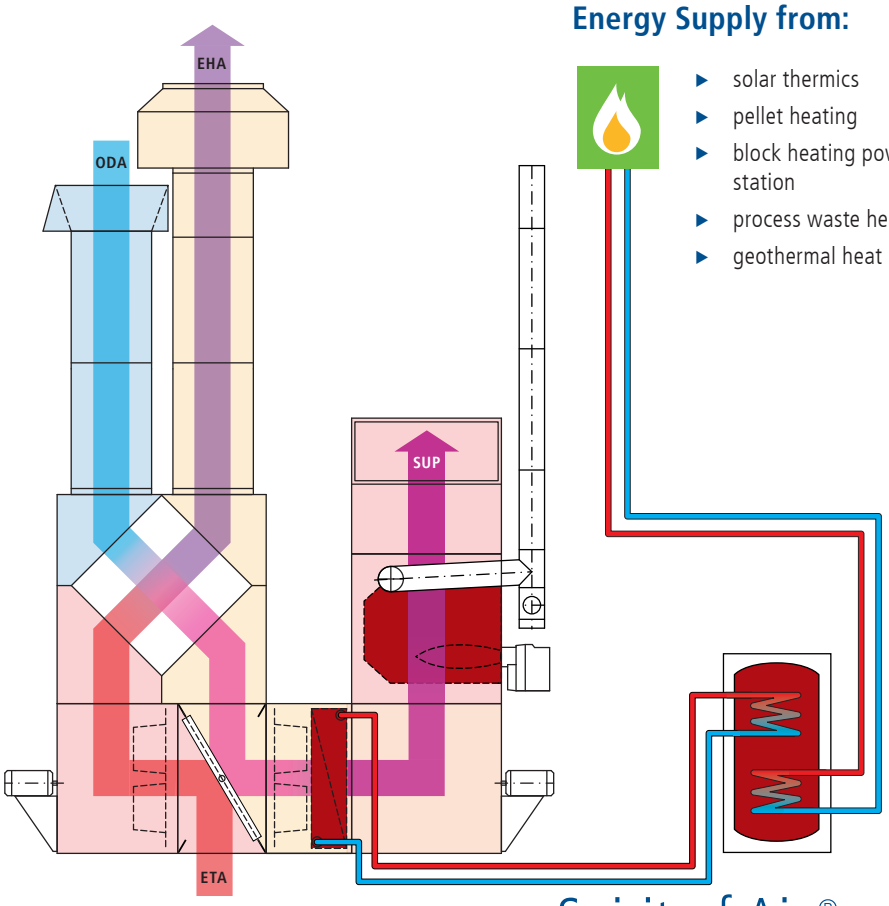
is Saving and Protecting the Environment

Intelligent Energy Use

By the laser-supported temperature sensor Red-Eye®, the drying process is regulated exactly acc. to the determined surface temperature of the component. By this technology, no degree too much and no minute too long is heated.

The new heat recovery VARIO©HR is immediately switched on when energy is required - not only during spraying, but also during drying process. The heat recovery needn't be removed in summer any more.

The concept Green Technolog by WOLF enables feeding alternative energies from solar thermics, pellet heatings or geothermal heat as well as a connection to block heating power stations. Thus, the demand for fossile combustibles like oil or gas can be minimized.



spray booth machinery
with additional register
for using regenerative energies

Energy Supply from:

- solar thermics
- pellet heating
- block heating power station
- process waste heat
- geothermal heat

WK-com Regulating Technology for Comfort Climate

Teamwork

Nowadays, nearly all air-conditioning units are equipped with digital control systems.

Air-conditioning technology is becoming more and more special and the control of air-conditioning units more and more demanding. The market offers innumerable solutions, more or less convincing.

For hard- and software, we rely on perfected control solutions made by Siemens.

Modern Control System

The control system has to control air-conditioning units with a minimum of energy costs and operating effort to an optimal extent of operating safety, economy and comfort.

Basic Variables

- control variable (x)
- manipulating variable (y)
- disturbance variable (z)
- reference variable (w)

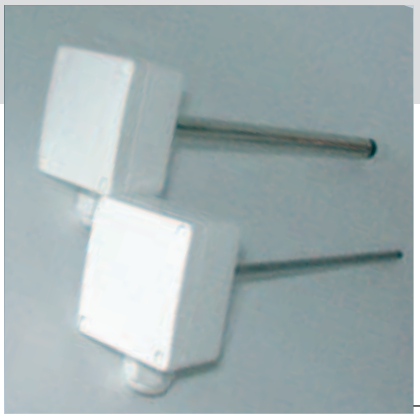
Controlling is a process permanently recording a variable (x) and affecting it by comparing it to another variable (w), adjusting it to this reference variable.

So controlling is combining two processes: comparing and setting.

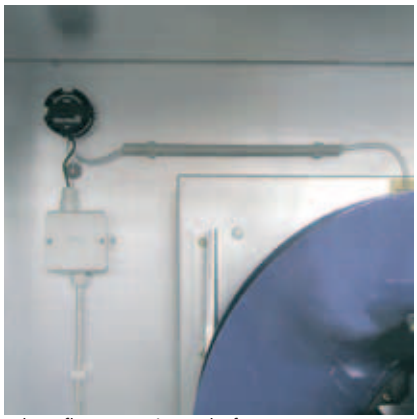
The process is realized in a closed circuit, the control circuit.

separate operating device for Synco universal-regulator

SyncoTM 700 universal-regulator



duct sensor - temperature and humidity



volume flow measuring at the fan

room sensor - temperature and humidity

differential pressure manometer (filter supervision)

Regulating Functions

- nominal value guidance depending on outside temperature
- room, exhaust air, supply air, temperature and humidity regulation as cascade with min. and max. limit (PI-regulator)
- supply air, temperature and humidity regulation (PI-regulator)
- sequences for temperature and humidity (mixing flaps, heater, cooler, heat recovery, humidifier)
- adaption and time optimizing
- CO_2 Regulation

Control and Supervising Functions

- timing programme
- filter supervisiong
- frost protection
- fire protection flap supervision and signalling
- V-belt / fan supervision
- pump control
- smoke detector
- free night cooling

Plug-in extension modules

Synco™ 700 Regulator and extension modules

Regulator and extension modules have the same basic hardware and are connected with each other by the extension bus.

On one regulator, several extension modules can be combined and several languages lodged.

Operating Devices

Regulator and extension modules are operated by the push-on operating device or by a separate operating device, for example on the switchboard door.

Room Unit

The display panel of the room unit shows you room temperature, kind of operation or failures.

Here, for example, the temperature nominal value can be corrected or time adjustment for comfort operation varied.

Measuring, Controlling, Regulating

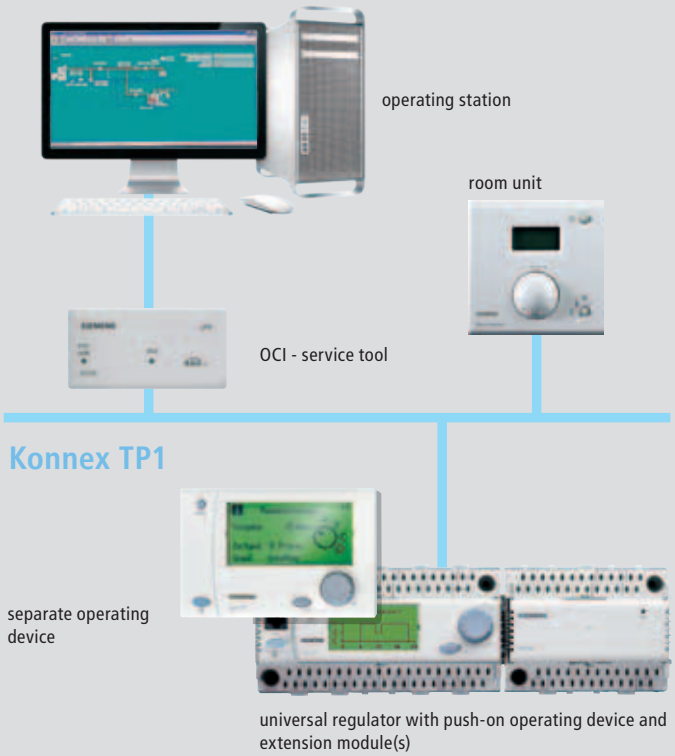
Konnex-Bux

The Konnex-Bus is using a network structure deduced from European Installation Bus (EIB).

Advantages

- bus cable 2-core pair-twisted, no screening required
- decentral bus feeding (Synco regulator)
- compatible to EIB

Regulation Diagram Siemens Synco™ 700



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WOLF + Online service center
Field services
Sales staff

Extensive Distribution Network

By our nation- and worldwide distribution network, we can guarantee you a direct contact person on site, assisting you for your planning.

As a link between you and our company headquarters, our sales representatives are working close to the customer and help you in word and deed.

The mutual trust between customer and manufacturer is the foundation of our success.

That's why we try to offer our service all over Germany apart from our distribution network, in order to be quickly on site.

The WOLF Service Center

We see long-term customer relations as an essential factor of any business activities.

The company-owned WOLF Service-Centre is strengthening these foundations, coordinating support enquiries and passing them on to permanently employed service engineers or to service partners abroad.

As a real manufacturer, our staff knows the plants down to the last detail, assuring maximal plant availability for our customers.

Most modern Technology

Most modern IT-systems are supporting our service engineers' work and transferring failures in real time to our online specialists who adjust the process and plant parameters, if required, in order to put the plant into operation again as soon as possible.

The comprehensive stock of original spare parts in our factory provides our customers quickly and easily and guarantees a high plant availability.

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WK-com Certificates

TÜV-SÜD acc. to DIN 1946 Part 4, VDI 6022 Sheet 1, DIN EN 1886, DIN EN 13053

Inspection by TÜV-SÜD. Air-technical examination observing the hygienic requirements acc. to:

- DIN 1946 Part 4 / VDI 6022 Sheet 1

Tightness of the unit housing and the filter bypass has been inspected acc. to DIN Standard:

- DIN EN 1886 / DIN EN 13053

EN 1886

The required unit inspections were effected in the test laboratory of TÜV Süddeutschland Dept. Air-conditioning and Ventilating Technology acc. to DIN EN 1886.

Scope of Inspections:

- housing wall heat losses / housing thermal bridges / housing insertion attenuation / housing deflection / housing leakage / filter bypass leakage

RLT Manufacturers' Association

WOLF Geisenfeld fulfils the general requirements to Technical Equipment for Room Air acc. to the Inspection and Certification Programme „RLT-TÜV-01" of TÜV SÜD Industrie Service GmbH and thus is entitled to use approval marks with energy efficiency class A+, A and B.

ISO 9001

WOLF Geisenfeld introduced and certified Quality Control Standard ISO 9001 already in 1996 in the ranges projecting, production development, distribution and service. This is a further proof for the global level of the units by WOLF Geisenfeld.

TR-Certificate by DIN GOST

GOST R / TR - Certificates confirm compliance with the legal regulations enacted for assuring safety of consumers' life, health and property and for environmental protection in Russia.

Directive for Units and Protective Systems for Intended Usage in Potentially Explosive Zones 94/9/EG

All WOLF Geisenfeld ATEX air-conditioning units are equipped with specially encapsulated motors, switches etc., in order to comply with Explosion Protection Directive 94/9/EG in potentially explosive zones.

CE

The EC-Conformity Declaration confirms that WOLF Geisenfeld air-conditioning units comply with the basic directives (European Law 2066/42/EG) of the EG-Machine Directive 2006/42/EG (CE-mark) and can be sold on the markets of the European Union.

Machine Directive

WOLF Geisenfeld air-conditioning units fulfil the EU-directives regarding the Machine Directive 2006/42/EG.

EMV-Directive

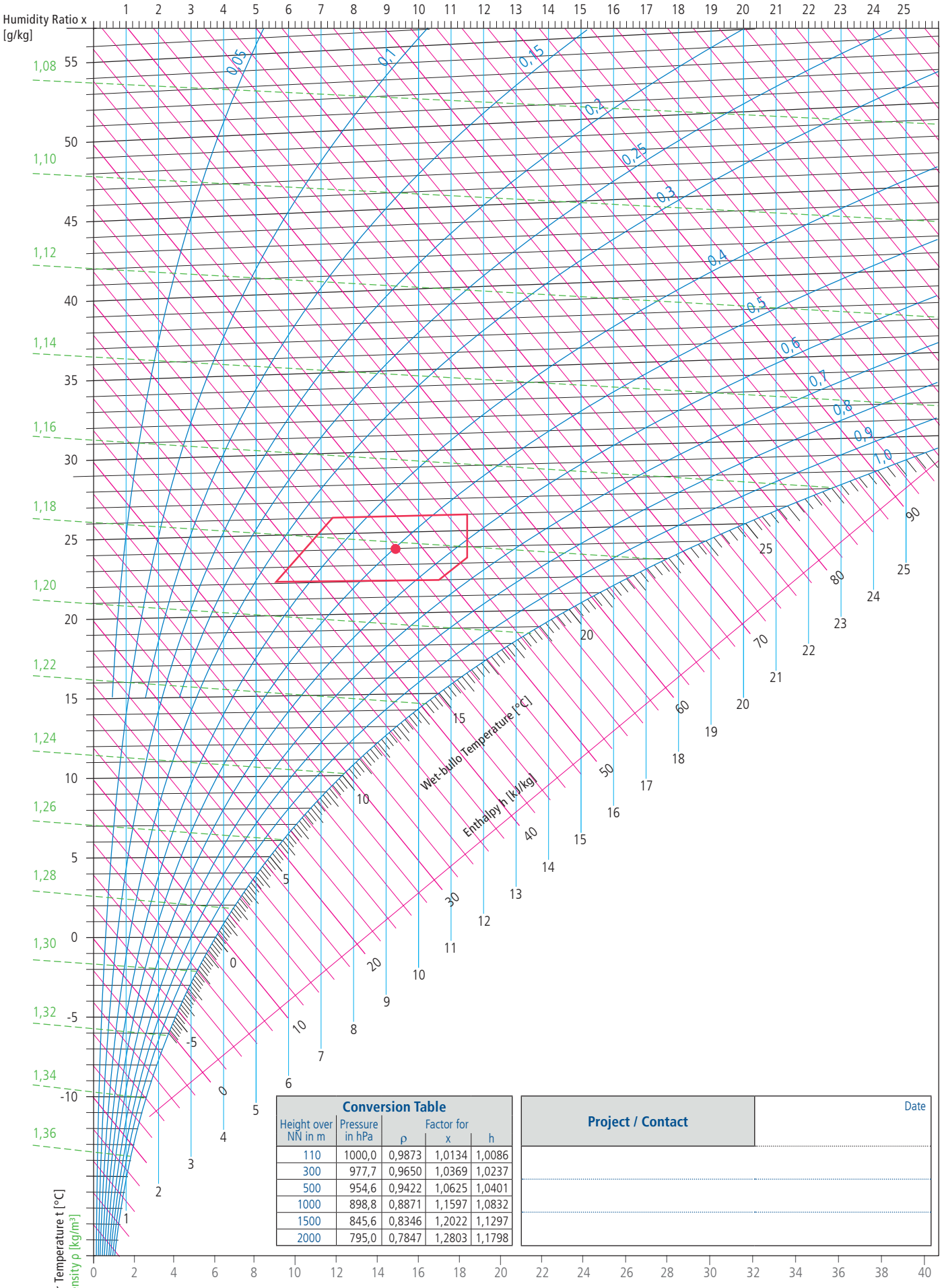
WOLF Geisenfeld air-conditioning units fulfil the EU-directives regarding Electromagnetic Compatibility 2006/42/EG.

Low Voltage Directive

Inspections have confirmed the compliance of WOLF Geisenfeld air-conditioning units with EU-Low Voltage Directive 2006/95/EG.

Mollier´s h,x-diagramm

Value for Air Pressure 1013,25 mbar



Conversion Table

Height over NN in m	Pressure in hPa	Factor for ρ	Factor for x	Factor for h
110	1000,0	0,9873	1,0134	1,0086
300	977,7	0,9650	1,0369	1,0237
500	954,6	0,9422	1,0625	1,0401
1000	898,8	0,8871	1,1597	1,0832
1500	845,6	0,8346	1,2022	1,1297
2000	795,0	0,7847	1,2803	1,1798

Project / Contact

Date

Spirit of Air ®

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WOLF at www.youtube.com/wolfanlagentechnik

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4M04ND1 Subject to changes in design