



# Installation and Maintenance Instructions

**KG / KGW Standard air-conditioning units**



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**General**

These Installation and Maintenance Instructions apply only to WOLF KG and KGW Standard air-conditioning units.

The persons charged with the installation, initial operation or maintenance of the equipment must read these instructions before commencing work. Compliance with these instructions is mandatory.

Non-compliance with the installation or maintenance instructions voids the WOLF guarantee.

**Warnings**

The following symbols and warnings are used in these Installation and Maintenance Instructions:



Non-compliance with notes marked in this way can endanger persons.



Non-compliance with notes marked in this way can result in damage to the air-conditioning unit or its components.

In addition to the warnings in these Installation and Maintenance Instructions, adhesive warning labels are affixed to the air-conditioning unit. Compliance with these warnings, too, is mandatory.

**Notes on safety**

- Installation, initial operation, maintenance and operation of the air-conditioning unit must be entrusted to adequately qualified and trained persons.
- All work on electrical systems must be performed by a trained and qualified electrician.
- Work on electrical systems is subject to VDE regulations and the regulations of the local power utility.
- Operate the air-conditioning unit only within the nominal range specified in the WOLF technical documentation.
- Use as designated by the manufacturer is use solely for the purposes of ventilation.  
Atmospheric air is the only permitted medium.  
This air must be free of noxious, flammable, explosive, aggressive, corrosion-promoting or otherwise hazardous constituents.  
(Air-conditioning units rated "Ex-Schutz" in compliance with VDMA Guideline 24169/1 (suitable for use in hazardous environments) can be used to handle air mixed with explosive gases, vapours or mists in accordance with the equipment ratings for hazardous-environment classes 1 and 2).
- Do not remove or bypass safety devices or monitoring devices, or render such devices ineffective in any other way.
- Do not operate the air-conditioning unit unless it is in perfect working order. Faults and damage detrimental to or potentially detrimental to safety must be repaired immediately by a specialist.
- Use only genuine WOLF components as replacements for damaged or defective parts and components.

**Standards**

The standards and regulations applicable to the KG 15-250 Standard series and the KG/KGW 630-1000 series air-conditioning units are as follows:

- EC Directive 89/392/EC with Addendum 93/44/EC  
(9th Ordinance, Equipment Safety Law)
- E Directive 89/336/EC with Addendum 92/31/EC  
(Law concerning Electromagnetic Compatibility of Devices)
- EC Directive 73/23/EC (Low Voltage Directive)  
(1st Ordinance, Equipment Safety Law)
- DIN 31001/1            Safety design of technical products
- DIN EN 292            Safety of machinery, basic concepts
- DIN EN 294            Safety of machinery, safety distances
- DIN EN 349            Safety of machinery, minimum gaps
- DIN ISO 1940/1        Mechanical vibration, balance quality requirements
- VDMA 24167            Fans; safety requirements
- VDE 0100              Erection of power installations with rated voltages below 1000V
- VDE 0105              Operation of power installations
- VDE 0700/Part 500    Safety of household and similar electrical appliances
- VDE 0701/Part 1      Repair, modification and inspection of electrical appliances
- VBG 5                  Powered equipment
- VBG 7w                 Fans

Plus the following, only for special air-conditioning units for use in hazardous environments:

- VDMA 24169/1        Guideline for fans for handling atmosphere containing flammable gases, vapours or mist.

Plus the following, only for weatherproofed air-conditioning units:

- VDMA 24175            Roof-mounted air-handling units

## Delivery to site

KG 15-250 and KG/KWG 630-1000 series air conditioners are delivered to site in transportable units.

Check all incoming goods for signs of damage in transit.

Make a note of all damage or suspected damage on the waybill and have this damage report countersigned by the delivering freight forwarder.

Immediately report the situation to WOLF.

## Transport

**Caution**

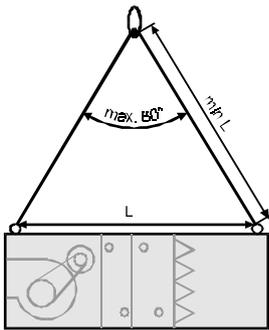
The equipment must always be transported right way up, in other words in the position corresponding to the as-installed position.

Exception: KGXD 160/250 upright is transported on its side (turned through 90°).

Use straps of adequate load-bearing strength to carry the suspended load.

If you use a fork-lift or rollers to move the equipment, always make sure that the forks or rollers are beneath the frame sections, not beneath the floor panels.

If you suspend the load by means of eyebolts (on request), make sure that the length of each rope run is at least equal to the distance between the eyebolts L. Make sure all ropes are the same length.



The weatherproofed KGW 630 to 1000 air-conditioning units are fitted with lifting eyes as standard.

Always use cross-bars when lifting items of equipment fitted with more than four eyebolts.

## Clearances

Clearance on the operating side should be at least equal to the width of the unit to permit access for installation, operation and maintenance (see list below).

Space required for installation, operation and maintenance:

Fan section	0.8 x width of unit
Chiller, heater section, KVS	1 x width of unit + 250 mm
Filter section up to KG 100	1 x width of unit
KG 160 and larger	0.5 x width of unit

In a side-by-side configuration, allow the clearances as stated above for installation, operation and maintenance on each side.

Those units which require a siphon (washer, humidifier, chiller, KGX/KGXD, drip separator) must be installed in such a way as to ensure correct installation and operation of the siphon (do not forget to allow for height of foundation).

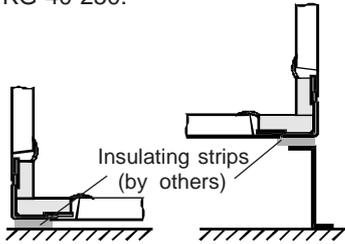
In Germany, special statutory conditions apply to extractor systems for enclosed parking lots. Comparable legislation may apply in other countries.

## Foundation

**Caution**

Install the units and components on a surface which is smooth, level and of adequate load-bearing strength.

KG 40-250:

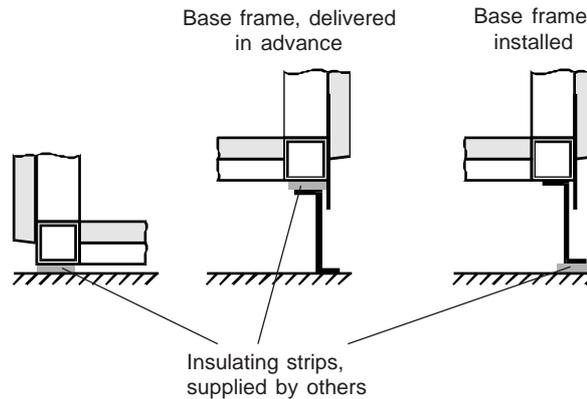


The base frames must be horizontal and the foundations must be smooth-topped and horizontal.

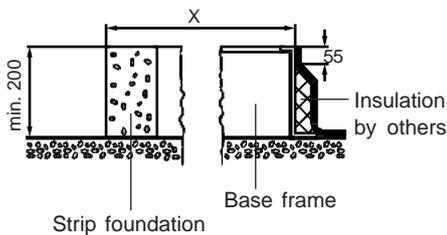
Make sure that the bottom of the frame is in full-face contact with the supporting surface: spot support is not permissible.

Permanently elastic inserts must be placed between supporting surface or foundation and air-conditioning unit or, more accurately, base frame, in order to prevent the operating noise of the air-conditioning unit carrying into the building as structure-borne sound. By preference, these inserts should be in the form of insulating strips placed lengthways under the sectional frame members.

KG/KGW 630-1000:



KGW 630-1000:



The units and components must be installed on a base frame or strip foundation.

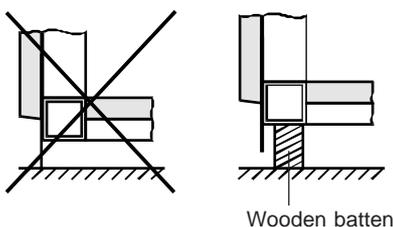
Height to suit local snowfall, min. 200 mm.

X = width or length of unit, as appropriate - 20 mm

The base frames must be horizontal and the foundations must be smooth-topped and horizontal.

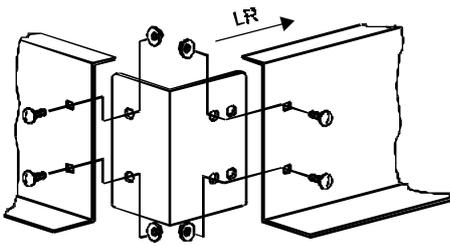
Make sure that the bottom of the frame is in full-face contact with the supporting surface: spot support is not permissible.

Permanently elastic inserts must be placed between supporting surface or foundation and air-conditioning unit or, more accurately, base frame, in order to prevent the operating noise of the air-conditioning unit carrying into the building as structure-borne sound. By preference, these inserts should be in the form of insulating strips placed lengthways under the sectional frame members.



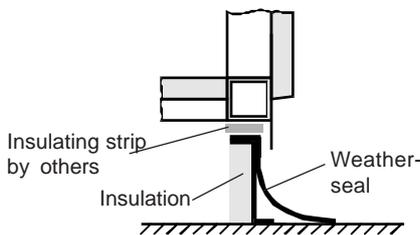
Do not set down the unit on a flat surface, as this would damage the drip nose (see drawing). Use wooden battens of adequate thickness as supports to avoid this difficulty.

Base frames are either secured to the unit or delivered separately (in advance).



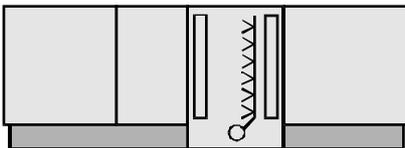
Base frames delivered in advance are in sections and must be assembled on site in accordance with the instructions enclosed with the shipment, then aligned and secured to the supporting surface.

The matrix of base frames of sectional units delivered complete with their base frames matches that of the units.



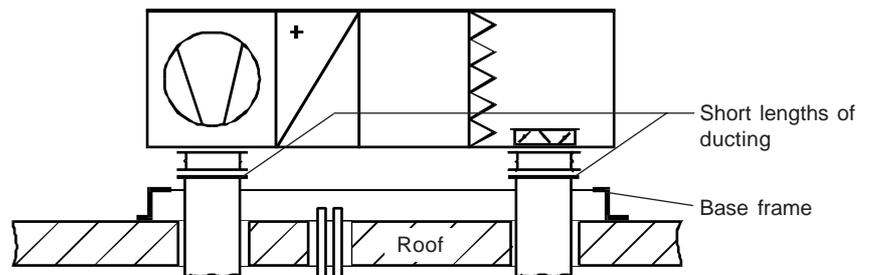
KGW: The base frame has to be insulated and integrated into the roof sealing system on site. It is advisable to insulate base frames delivered in advance on the inside, because this makes it considerably easier to integrate the weatherseal into the roof sealing system.

The units have to be lowered onto the base frame or foundation and aligned in such a way that the gap between base frame or foundation and drip nose is approx. 10 mm all round.



KG and KGW configurations incorporating a washer section require a base frame or foundation lower at the floor of the washer unit than elsewhere, because the bottom of the washer section is lower than that of the other sections. The height of the base frame depends on the type of washer and is specified when the design of the air-conditioning system is configured.

If the unit has intake from below or discharge downwards, remember to install short lengths of ducting before lowering the unit onto the foundation.

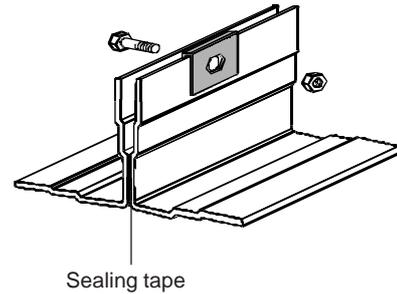
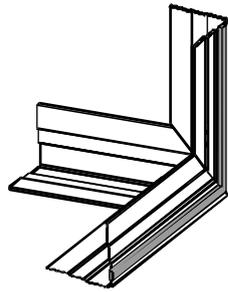
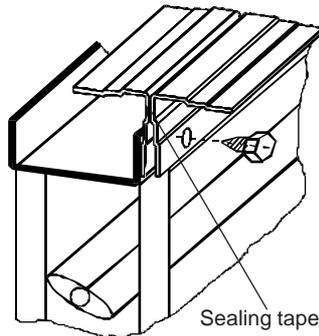


**Securing the sections**

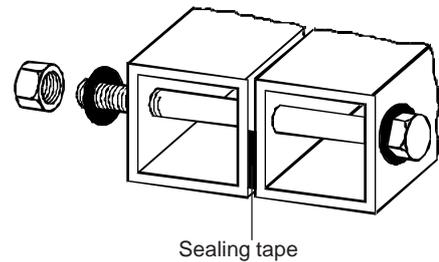
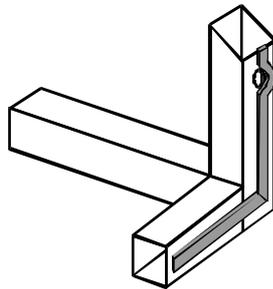
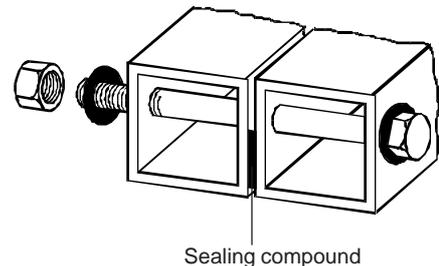
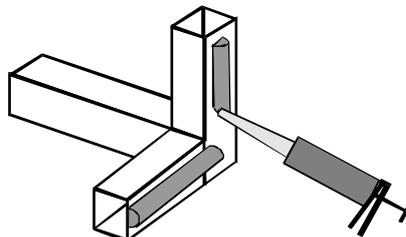
Sections with angle-section frames (KG 40-250) are secured by means of M6 threaded fasteners and clip spacers. Sections with square-section tubular frames (KG/KGW 630-1000) require M12 bolts.

The cubes have pre-drilled holes to accommodate the threaded fasteners. All the small items required for assembly are shipped along with the accessories packed inside a section with an inspection door (usually the fan section). This section bears an adhesive label marked "Zubehör im Gerät" (accessories inside) by way of identification.

To ensure that the sections are fully sealed, before bolting the cubes together make sure that the self-adhesive sealing tape (KG) or the permanently elastic sealing compound (KGW) supplied with the sections is correctly installed.

**KG 15-250****KG 40-250**

Only for recirculating-air flap  
and hex. self-tapper  $\varnothing 8 \times 25$

**KG 630-1000****KGW 630-1000**

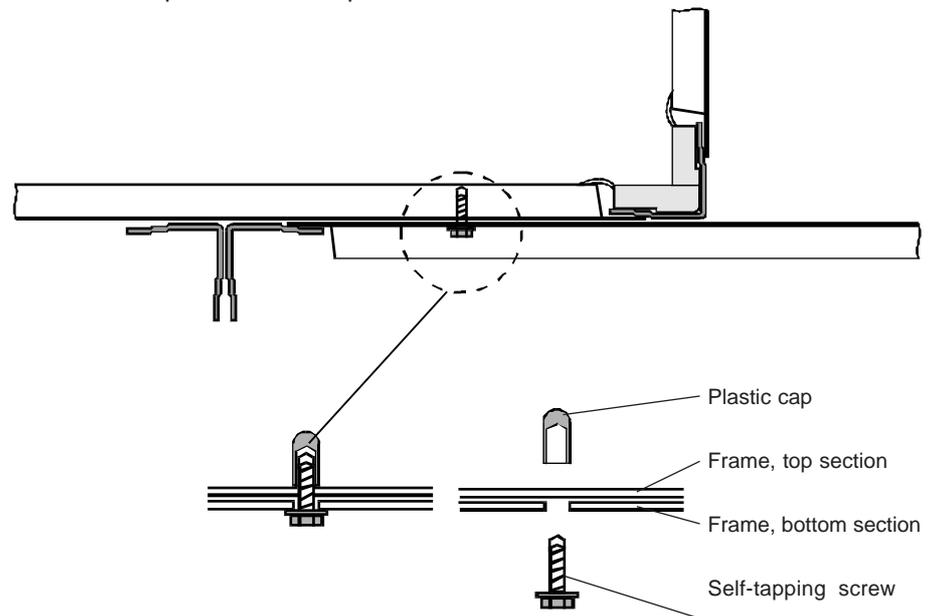
**Configurations:  
stacked or side-by-side**

Sections for stacked configurations are delivered to site separately and must be secured together on site with the aid of the enclosed self-tapping screws (KG 40-250) or enclosed accessories (KG/KGW 630-1000).

The sections which make up the stacked or side-by-side configuration cannot be secured together until the various transportable units have been installed on site in their final positions.

To facilitate assembly on site, the frame of the bottom section for a stacked configuration or one side section for a side-by-side configuration is pre-drilled ex-works to accommodate the self-tapping screws. After securing the sections together, do not forget to fit the enclosed plastic caps to the tips of the self-tapping screws (KG 40-250).

An adhesive label on the face of the skinning panel bearing the words "Zur Gerätemontage Verkleidungsplatte abnehmen" (remove panel for assembly) indicates the positions of the pre-drilled holes.

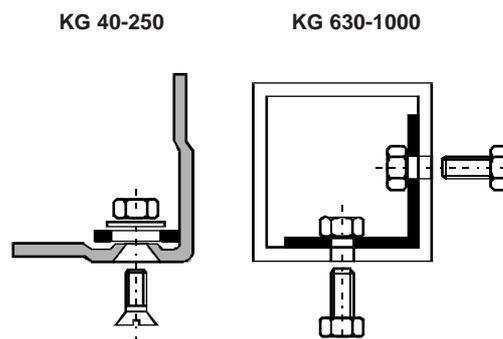


**For separation  
(on request)**

The unit is delivered to site fully assembled. The sections can be separated for handling and reassembled at the final location.

The sectional frames of a separable unit are in two parts held together by a steel flat or an angle.

Separating the sections of a KG 40-250 entails removing the frame insulation (if fitted). Do not forget to reinstall the insulation before bolting the cubes together.



## KGW roof

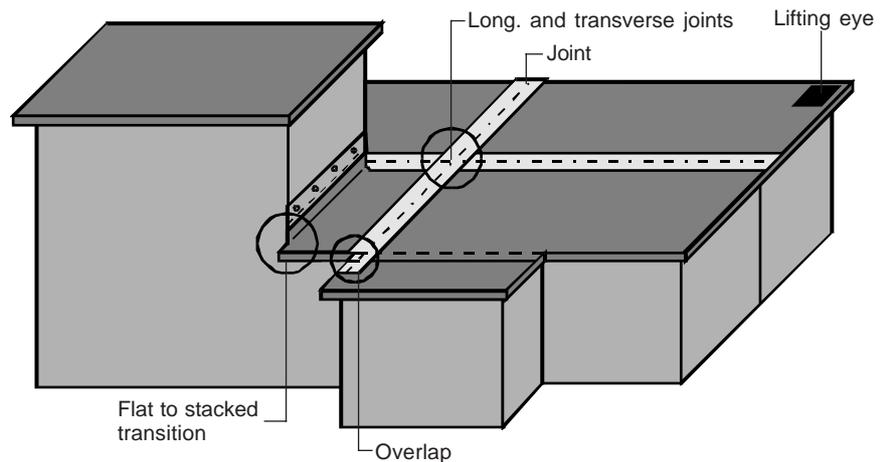
The weatherproofed KGW 630-1000 air-coinditioning units have a UV-resistant, weatherproof skinned roof.

Fully assembled units are supplied complete with the roof pre-installed.

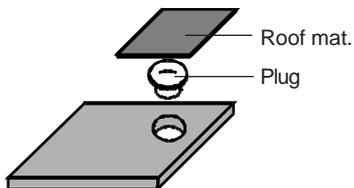
Each section of a sectionalized unit has its own roof; the butt joints in the roof must be sealed on site once the sections are installed. The appropriate quantities of sealing materials (Rhepanol paste, self-adhesive strips of roofing material, bonding material) are enclosed with the sections.

Have the work of sealing the roof carried out by a specialist company. Cleanliness and meticulous care are important for an adequate seal.

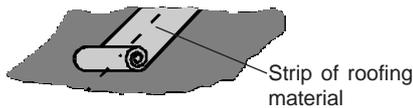
The roof is not resistant to organic solvents (e.g. benzine) or substances which contain solvents (e.g. paints). Use only the bonding agent, Rhepanol paste and adhesive supplied with the air-conditioning unit.



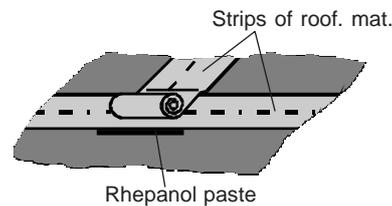
### Lifting eye



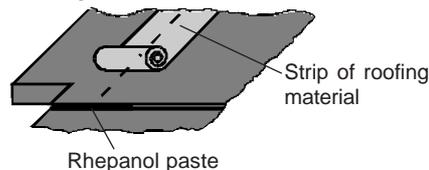
### Joint between sections



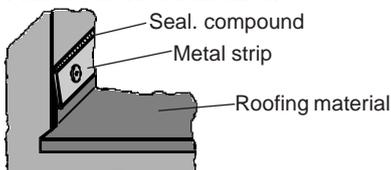
### Long. and trans. joints



### Overlap



### Flat to stacked transition



Unscrew the lifting eyes after the sections have been bolted together. Cut out a plug of the roof material directly above each of the tapped bores for the lifting eyes. Insert the plugs supplied for the purpose to seal the tapped bores and apply patches of self-adhesive roofing material (10x10 cm). Coat the joints with bonding agent, remove the backing paper and press the patches down firmly.

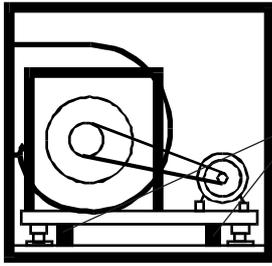
Coat the butt joints between the sections with bonding agent and position the strips of self-adhesive roofing material over the joints, remove the backing paper and press down firmly. Fill the joints between sections which carry air above atmospheric pressure (those downstream of the fan, in other words) with Rhepanol paste before applying the strips of roofing material.

At the intersections of longitudinal and transverse joints between sections, run a bead of Rhepanol paste approx. 5 mm thick and at least 12 mm long as illustrated before affixing the topmost strip of roofing material.

Where the roofing material overlaps at a joint (e.g. projection), apply a bead of black Rhepanol paste 5 mm thick and at least 12 cm long at the overlap as illustrated before affixing the strip of roofing material.

Where two adjacent sections are of different heights, affix the flap of roofing material to the vertical sidewall with adhesive and use the metal strips to secure the flap in position. Run a bead of transparent sealing compound along the top edge of the metal strips to seal.

### Fan section



**Caution**

The fan shaft must always be horizontal.

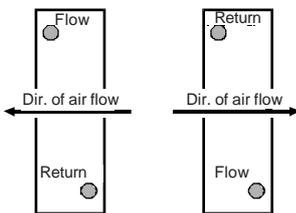
Remember to remove the transportation locking devices of fans mounted on vibration damper springs.

When installing, bear in mind that the maximum permissible distance between the connecting flanges is 100 mm, in order to ensure that the sailcloth adapter has full freedom of movement.

Sailcloth adapters might require on-site insulation against acoustic emissions and condensation.

### Sailcloth adapter

### Heat exchanger



**Caution**

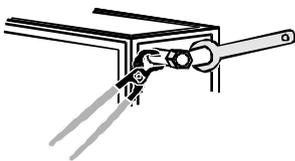
The heat exchangers (chillers, heaters) work on the counter-flow principle, in other words the heating or chilling medium flows in the direction opposite to that of the airstream. This, in turn, means that the flow connection for the medium is always situated on the air-outlet side of the heat exchanger.

Connect the heat exchangers in such a way that no mechanical stresses and strains from the piping system are transferred to the heat exchangers.

Also provide reliable means of preventing the transmission of vibration from air-conditioning unit to piping system.

Make sure that the connecting pipework does not hinder access to other parts of the air-conditioning unit (fan, filter, washer, etc.).

The steam inlet of steam registers is always at the top (large-diameter port) and the condensate drain must always be at the bottom.



**Caution**

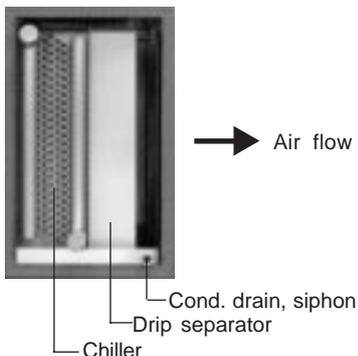
When connecting the flow and return pipes, always counter-hold the threaded adapters of the heat exchanger to avoid torsional loading.

Make sure that adequate provision is made on site for bleeding and draining.

Make sure that a siphon is connected to the condensate drain of the chiller tray.

Outside the skinning panels, the pipes must be insulated on site.

### Chiller installed on site:



Remove the side panel and remove the drip separator with condensate tray (the unit is shipped with the drip separator located in the guide rails).

Run a bead of sealing compound around the drip-separator frame and secure it to the chiller element.

**Caution:** Make sure that the condensate drain apertures of the drip separator are at the bottom.

Secure the clip-on shield to the collector side of the chiller element at the air inlet: note that the arrangement depends on the direction of air flow.

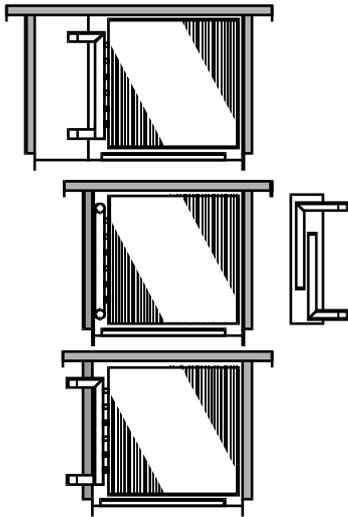
Arrangement of components along the direction of air flow:

Chiller element, drip separator, condensate drain.

Slide the fully assembled unit into the chiller section; the chiller element is held in the guides.

Reinstall the side panel.

## KGW630-1000 weatherproof enclosure:

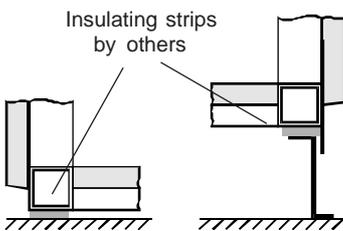


The weatherproof enclosure is made of sandwich panels with an inspection door. The pipes have to be insulated on site.

Connections inside the enclosure, either in or opposed to the direction of air flow. Installation of the pipes and fittings in an adjacent section.

Connections to the side, outside the side panel. Installation of the pipes on site.

## Washer section



When installing, take care to ensure that no dirt or other foreign matter penetrates inside the washer.

The water used for the washer under normal conditions must meet the following minimum quality requirements (VDI 3803):

Appearance	clear, colorless, no settlement
pH value	7 to 8.5
Total salt content	< 800 g/m <sup>3</sup>
Electrical conductivity	< 100 mS/m (at 20°C)
Calcium ion content	> 0.5 mol/m <sup>3</sup>
Carbonate hardness	< 4.0 °d
Carbonate hardness in conjunction with hardness stabilizers	< 20 °d
Chloride content	< 180 g/m <sup>3</sup>
Sulfate content	< 290 g/m <sup>3</sup>
KMnO <sub>4</sub> consumption	< 50 g/m <sup>3</sup>
Germ count	< 1000 ml <sup>-1</sup>

Connection of the washer to the public water supply is subject to the stipulations of DIN 1988.

## Odor trap

**Caution**

A siphon must be connected to the condensate drains from chiller tray, washer overflow and KGX/KGXD tray to ensure the reliable removal of condensate.

Each condensate drain requires an siphon of its own.

It is not permissible to connect two or more drains to a common siphon.

Siphons are available from WOLF as accessories. In this case the height of the siphon is calculated ex-works.

If the siphon is obtained from other sources, calculate the height as shown in the illustration on the left.

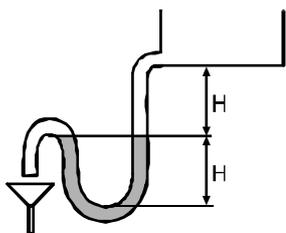
The effective odor-trap height  $H$  (mm) must be greater than the maximum partial vacuum or overpressure (in Pa) in the air conditioning unit (1 mm WG = 10 Pa).

The difference in height between the drain outlet and the siphon overflow must also be  $H$  (mm).

It is always important to take the height of the foundation into account, in order to ensure that sufficient clearance is available for installing the siphon.

The siphon must drain to the open, and not directly to the waste-water drainage system (see illustration). Long drain lines require ventilation in order to avoid a build up of condensation in the line.

Fill the siphon with water prior to initial operation and after long stoppages.



Odor trap connection  
1 1/4" outside thread

## Connection to electricity supply



The air-conditioning unit must be wired by a trained, qualified electrician in accordance with the applicable regulations (VDE, local power utility, etc.).  
**If the intake fan or discharge fan is switched off or fails, all control valves must close automatically and the hot-water/cold-water and washer pumps must shut down.**

Install only control valves which are closed when de-energized and a frost-protection thermostat without restart disabler.

Install a lockable repair switch for each drive motor to ensure that the air-conditioning unit can be reliably shut down.



Completion of the electrical wiring work must be followed by a safety inspection of the installation in accordance with VDE 0701 Part 1 and VDE 0700 Part 500 or comparable national safety codes.

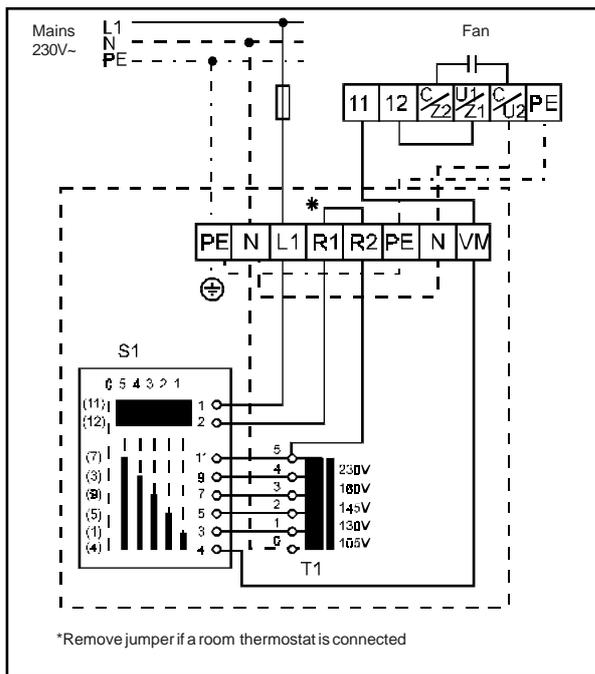
**Caution**

Use only electric motors designed to drive fans.

**Always comply with the wiring diagram in the terminal box.**

Use a thermistor-type trigger for a motor with PTC thermistor, an interlock contactor for a motor with thermo-contacts, or a thermal overcurrent relay for a motor without PTC thermistor or thermo-contacts.

### KG 15

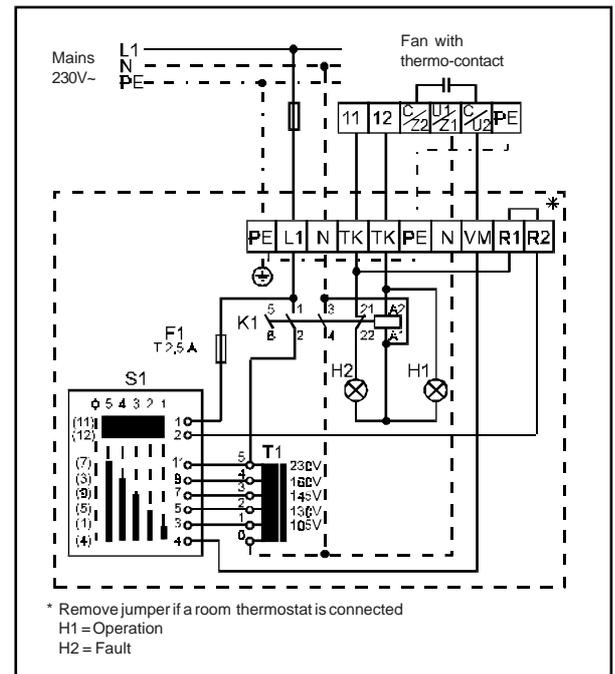


### 5-stage control

1 unit: Switch: E5-3  
 2 units parallel: Switch: E5-7

Switch type	E5-3	E5-7
Voltage	230V	230V
Current max.	3A	7A
Weight	4.7 kg	8.5 kg
Protection	IP 40	IP40

### KG 20



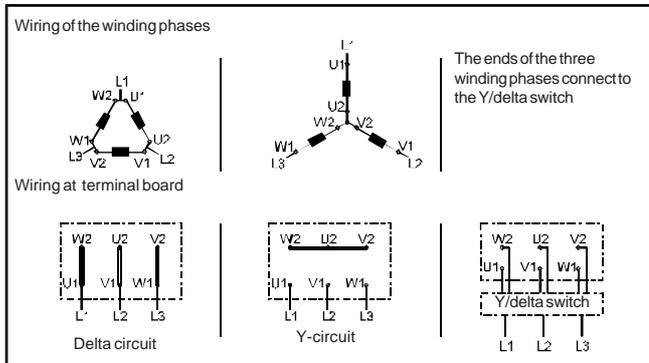
### 5-stage control

1 unit: Switch: E5-7T  
 2 units parallel: Switch: E5-14T

Switch type	E5-7T	E5-14T
Voltage	230V	230V
Current max.	7A	14A
Weight	8.5 kg	12.5 kg
Protection	IP 40	IP20

## Wiring for single-speed drive

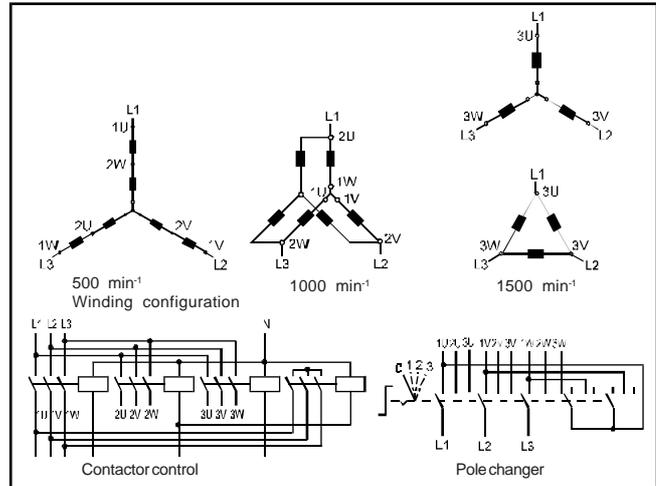
Motors up to 2.2 kW usually have direct startup, whereas a star-delta circuit is usual as of 3 kW.



## Wiring for three-speed drive

(2 separate windings, 1 is a Dahlander winding)

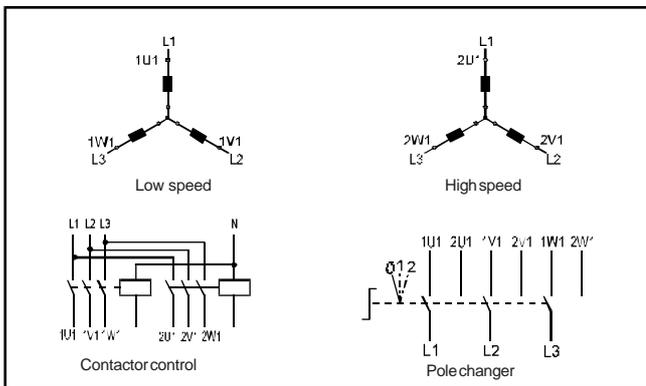
For fan drives with speeds of 500/1000/1500 rpm or 8/6/4-pole; 500/1000 rpm with Dahlander winding.



## Wiring for two-speed drive

(2 separate windings)

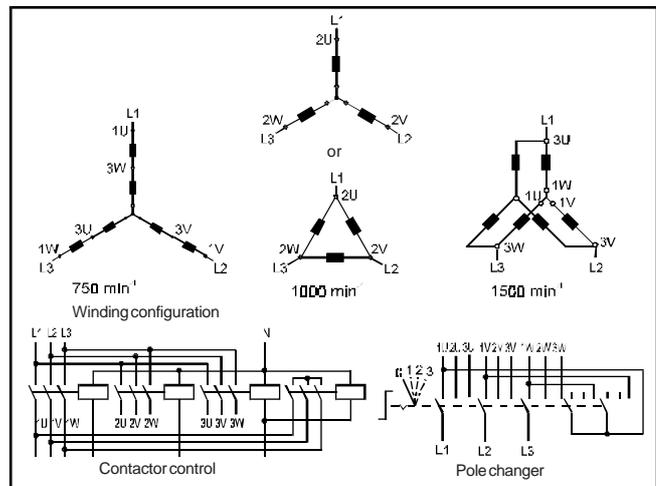
For example, for 1000/1500 rpm or 750/1000 rpm



## Wiring for three-speed drive

(2 separate windings, 1 is a Dahlander winding)

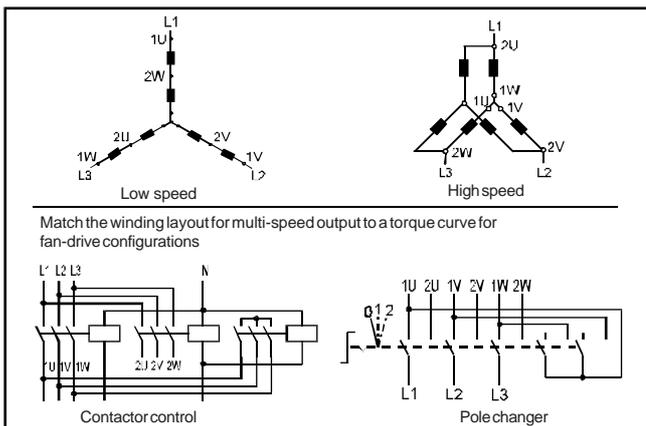
For fan drives with speeds of 750/1000/1500 rpm or 8/6/4-pole; 750/1500 rpm with Dahlander winding.



## Wiring for two-speed drive with 1:2 ratio

(Dahlander winding)

For example, for 1500/3000 rpm or 750/1500 rpm



Wait until the fan or fans run down to a complete standstill before you open the inspection door.



Check that safety devices and monitoring devices are correctly installed and fully functional.

### Fan section

- Do not start the unit until all ducts have been connected and the inspection doors closed. Otherwise, there is a danger of motor overload.
- Check that the Vee-belt pulleys and the locking screws of the clamping sleeves are secure.

#### Caution

The adjustable Vee-belt pulley disks are not adjusted before the unit leaves the factory. The disks have to be adjusted on site before the air-conditioning unit is started for the first time.

This adjustment allows for a 10% change in the speed of the fan.

Adjusting:

The effective diameter of the pulley can be changed by moving the adjustable disk axially on a threaded adapter (see drawing on left).

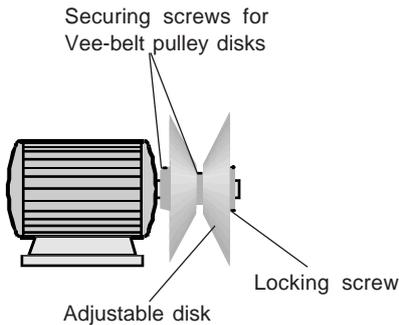
To adjust the disk, relieve the tension of the Vee belt and use an Allen wrench to slacken the securing screws on the adjustable pulley disk. Adjust the pulley disk, retighten all screws and tension the Vee belt. Make sure that both securing screws are seated against the flats of the threaded adapter.

- Check that the Vee belt is correctly tensioned (See Page 18 / Maintenance for instructions on tensioning the Vee belt).

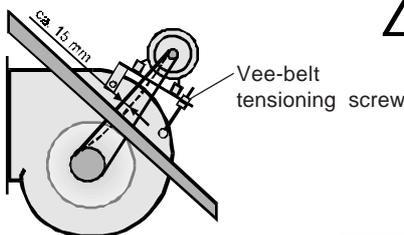
Make sure that the Vee-belt pulleys are in correct alignment.

- Switch on the mains switch.
- Briefly switch on the drive motor and check that the fan impeller's direction of rotation is correct. Reverse the direction of rotation if necessary.

The inspection door of the fan section has to be opened for this purpose, so proceed with the utmost caution.



### KG 40-100



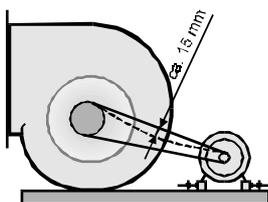
- Measure the air throughput. Check pressure losses.

- Measure the current draw of the fan motor: Make sure that the motor current does not exceed the value stated on the motor rating plate.

#### Caution

If the air-conditioning unit has a variable-speed motor and/or variable recirculating-air section, measure maximum current draw over the entire variable-speed control range.

### KG 160-250



If necessary, correct the air throughput rate by changing the Vee-belt pulleys (or by adjusting the variable pulleys, if fitted, see above).

### Louver flaps

Check that all louver flaps and linkages move easily.

Check that the flap positioning motor(s) of the louver flap(s) rotate in the correct direction. If necessary, reverse the direction of rotation by means of switch S (see illustration on left).



Switch S for reversing direction of rotation

If the unit has internally fitted flaps, consult the enclosed installation instructions for the flap positioning motor.

## Heater

(Warm water/hot water/steam)

Check the entire piping system for leaks before initial startup.

- Bleed the heat exchanger and the piping system.
- Make sure that condensation drains correctly from the steam register, if fitted, to avoid the danger of steam shocks damaging the register.
- Do not switch on the hot-water pump or open the water/steam valve unless the fan is running, to avoid overheating due to insufficient removal of heat.
- Check the discharge air temperature: the max. permissible discharge-air temperature for a configuration with the heater on the intake side is 40 °C, because higher temperatures could cause the motor to overheat.



Beware of hot surfaces of heat exchangers and pipe adapters.

## Electric heater

To avoid overheating, make sure that the air flow rates are not less than the minimum rates as stated in the table below (in m<sup>3</sup>/h):

Air conditioner KG	15	20	25F	40F	40	63	100-1000
Min. air flow (m <sup>3</sup> /h) horizontal + vertical ↑	550*	900	900	1600	1600	2500	depends on design
Min. air flow (m <sup>3</sup> /h) vertical ↓	800*	1300	1300	2200	2200	3200	depends on design

\*for 15kW heating power

Air-conditioning units with multi-speed or variable-speed motors must comply with these specifications for minimum air flow rate at the lowest motor speed, irrespective of the heating power of the electric heater.



Always comply with all applicable safety regulations.

### Caution

It is always important to ensure that if the air flow is interrupted the electric heater shuts down **automatically**. Also ensure that the contactor or contactor array which switches the electric heater incorporates the series-connected safety temperature monitor (STW) in its control circuit. Make sure that there is at least one overhead STW secured to the ceiling of the heater compartment.

The electric heater must be protected against humidity and water.

## Chiller

(cold water)

Check the entire piping system for leaks before initial startup.

- Bleed the heat exchanger and the piping system.
- Make sure that condensation drains correctly to prevent the condensate tray from overflowing.
- Before starting up a cold-water chiller for the first time, check that the concentration of antifreeze agent in the chilling water is adequate for the anticipated temperature range. If antifreeze has to be added, note that the chiller's cooling power diminishes in proportion to the increase in concentration of antifreeze agent to cold water.



Antifreeze agents are hazardous to health. Compliance with the manufacturer's safety instructions is mandatory if antifreeze agents are used on site.

**Chiller**  
(direct evaporator)

Before filling the chiller system with refrigerant, adopt suitable measures to ensure that no traces of moisture are left in the piping system (e.g. by evacuation or by flushing with dry nitrogen).

Check the air-discharge temperature: min. air-discharge temperature +2 °C, at air-discharge and refrigerant temperatures lower than + 2 °C there is a danger of the heat exchanger icing.

Caution: The direct evaporator can achieve its rated performance only if the refrigerant employed as the basis for calculating the design rating is used (R22 or R134a).



Do not permit refrigerant to evaporate into the atmosphere: use a suitable vacuum extractor.

**Washer**

- Check the piping and the pump for leaks.
  - Make sure the nozzle stem and the nozzles are securely seated.
  - Check that the siphon drain line is free of obstruction.
  - Fill the siphon with water.
  - Fill the washer tray until water drains off through the siphon.
  - Briefly start the washer pump and check the direction of rotation; reverse the direction of rotation if necessary.
- Check the current consumption of the pump motor.

**Caution**

Do not permit the washer pump to run dry.  
The pump will suffer severe damage if it runs dry.

- Switch on the air-intake fan.
- Switch on the washer pump.
- Adjust the float valve: the water level in the tray must be at least 10 mm above the pump intake and max. 10 mm below the overflow outlet.
- If fitted: adjust dry-run cut-off and automatic desalination (see separate enclosed instructions).

Note: On account of its surface structure, a new drip separator will sweat drops of water for a limited period of time.  
This is not a technical defect.

**Sludge remover:**  
(option)

Adjust the manually operated valve to set the sludge-removal rate.  
(This rate depends on the hardness of the water and the quantity of dust in the air.  
As a rule of thumb, take twice the quantity of evaporated water).

Before starting maintenance work, always switch off the main switch and repair switch(es) and lock them in the OFF position.  
Wait until the fan runs down to a standstill before opening the inspection door.

Lubricatable fan bearings must be lubricated with lithium-saponified grease every 2500 operating hours.

Maintenance-free bearings have life-long lubrication and are labeled accordingly.

## Fan section

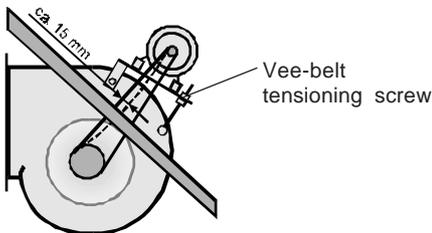
Standard three-phase motors are maintenance-free.

Comply with the manufacturer's instructions for special motors.

**Caution** Retension the Vee-belts for the first time after 50 operating hours. Thereafter, check tension at regular intervals depending on operating conditions, but every 4 months at the latest.

Always replace the belts of a multi-groove drive as a complete set.

The drive motor of the KG 40-100 Standard is mounted on a rocker. To tension the drive belt, slacken the locknut on the tensioning screw, tighten the tensioning screw until belt tension is correct and retighten the locknut.



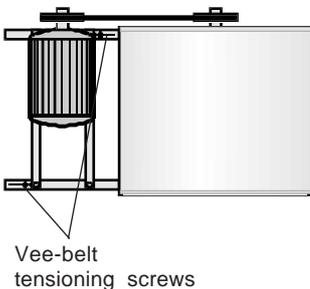
The drive motor of the KG 160/250 and 630-1000 can be moved on its rectangular-section mounts. To tension the drive belt slacken the securing screws of the rectangular-section mounts and the locknuts of the tensioning screws. Tighten the tensioning screws until belt tension is correct, while checking that the belt pulleys are in perfect alignment.

Tighten the locknuts and the securing screws.

Correct Vee-belt tension:

The Vee belt is correctly tensioned if thumb pressure applied midway between motor and fan shaft deflects the belt approximately 15 mm.

Make sure that the vee-belt pulleys are in correct alignment.



At regular intervals, check for foreign-matter accretions and clean.

Clean the heat exchangers by:

- Vacuum extraction
- Blowing clean with compressed air
- Spraying with water or steam

## Heat exchangers (heater / chiller)

Make sure the pressure of the air/water/steam for cleaning is not in excess of 5 bar.

Check the condensate drains.

Open the siphon, clean and refill with water.

Use commercially available scale removers to clean the drip-separator sections.

**Caution** Do not oil the louver-flap shaft.  
Blow clean with compressed air: no other maintenance is required.

## Louver flaps

### Washer

The washer and drip separator must be cleaned at regular intervals. The cleaning cycle depends on the operating mode, the condition of the air and the water quality. The tray has to be drained for maintenance and rinsed with clean water or with a high-pressure cleaner.

**Caution** Reduce the spray pressure when cleaning pipes and nozzle stem. Risk of breakage.

Commercially available descaling agents can be used.

Do not use cleaning agents which foam.

The washer pump is maintenance-free.

It is, however, advisable to rinse the pump and piping with clean water when cleaning the washer.

**Caution** If the washer is out of use for a prolonged period of time, operate the pump for approximately 5 minutes once a week to prevent the bearings seizing (do not run dry).

### Filter

The filter elements of the KG 40-1000 pull sideways out of the housing for cleaning or replacement once the inspection door has been opened.

The quality class G4 synthetic-fiber mats used for the filter elements can be regenerated. They can be tapped clean, blown clean with compressed air, or washed in lukewarm water containing a detergent for sensitive fabrics. Allow the mats to drip-dry - do not wring out.

The bag-type filters cannot be regenerated and must be replaced when clogged to the extent that the pressure loss increases to the maximum permissible limit.

### Frost protection

#### Heat exchangers

Warm-water/hot-water heaters and cold-water chillers:

- Operation with commercially available antifreeze agents and frost-protection thermostat.
- If the heating system is switched off drain all water-retaining components and blow out residual water with compressed air.

Steam registers:

- If the heating system is switched off drain all water-retaining components and blow out residual water with compressed air.

Electric heater:

- No frost-protection measures necessary.

#### Washer

Insulate the water supply pipe on site; install pipe heating if necessary.

Drain tray and pipes and blow residual water out of pipes with compressed air.

Drain the pump (see pump manufacturer's enclosed instructions).

#### Siphon

Provide adequate on-site measures to ensure that siphon does not freeze.

# EC DECLARATION OF CONFORMITY

WOLF GmbH  
Industriestraße 1  
D-84048 Mainburg  
Germany

We hereby declare that on account of their design and construction and in the versions placed in circulation by us, the machines listed below are in compliance with the applicable basic health and safety requirements of the EC Directive. Modifications to the machines undertaken without our prior consent void this Declaration of Conformity.

<b>Designation of equipment</b>	Airconditioning units for indoor installation Airconditioning units for outdoor installation Airconditioning units with indirectly fired air heater	
<b>Type designation:</b>	KG KGW KG/WO	
<b>Applicable EC directives</b>	EC Machinery Directive	89/293/EEC as amended 93/44/EEC
	EC Explosion-Protection Directive	94/9/EC (explosion-proof devices)
<b>Applied harmonised standards:</b>	DIN EN 292 Part 1 and 2	Safety of machines – Basic terms, general design principles
	DIN EN 294	Safety distances to prevent upper limbs from touching danger points
	DIN EN 349	Safety of machines – Minimum distances to prevent crushing of body parts
	DIN EN 418	Safety of machines – EMERGENCY STOP device
<b>Applied national standards, e.g.</b>	DIN 31001 Part 1	Protection devices
	DIN VDE 0700 Part 1	Safety of electric equipment (IEC 335-1)
	BG Chemie explosion protection guideline	(explosion-proof devices)
	VDMA 24169 Part 1	Structural measures for explosion protection in fans (explosion-proof devices)

We hereby declare that the electrical equipment for Wolf airconditioning units type KG, KGW and KG/WO including the special control cabinets for said products and the control accessories:

room thermostats, room-thermostat timers, remote-control units, actuating motors, valves, valve drives, channel sensors, room-temperature sensors, room-temperature sensors with setpoint generators, antifreeze thermostats, remote setpoint generators, differential-pressure sensors, safety temperature monitors, double safety thermostats airflow monitors, repair switches, auxiliary switches, mixer motors, mixers, pumps and motors

are in compliance with the following guidelines, standards and directives:

Low Voltage Directive:	72 / 23 / EEC
EMC Directives:	89 / 336 / EEC
	EN 50081-1
	EN 50082-2
Product standards:	EN 60730

Mainburg, 16.10.2000

  
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Norbert Gruber  
Managing director sector air handling - ventilation