



***GEOVENT***

## INSTRUCTIONS MANUAL



# FAN

MHF 400-500

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## 1.0 General safety precautions

**IMPORTANT** - Please study all the instructions before mounting and commissioning.

This instruction manual is valid for MHF fans.  
More specific data regarding frequency inverters can be found in the specific manual for the inverter.

Please keep these instructions in a safe place and instruct all users in the function and operation of the product.

Do not dismantle any factory-mounted parts, as it impedes the commissioning of the equipment.

All electrical installations must be carried out by an authorised electrician

### 1.1 Danger

Mounting must be completed before connecting and using the fan.

Removing the protection net on the fan whilst in operation involves a risk of mutilation.

Always switch off the current when mounting the Fan or when servicing it.

### 1.2 Field of application

The Fan MHF is applied for process extraction within the industry for the extraction of welding smoke, exhaust gasses, grinding dust and vapours.

**Explosive media** – The Fan is not suitable for the extraction of aluminium dust, flour, textile dust nor for sawdust or other media, which are connected with danger of explosion, without specific approval from Geovent A/S.

The actual ampere consumption and the kW of the motor are shown on the metal sign on the Fan.

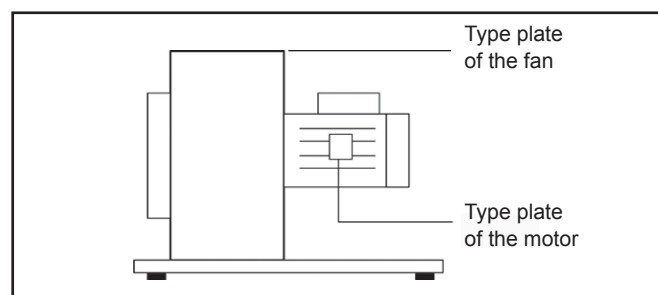
The sound level depends on various factors under various circumstances. For instance, where in the room the Fan has been installed, the size of the room, the temperature in the room, the sound of the room and also the connection (hose><pipe) of the Fan influences the sound level of the Fan.

### 1.3 Handling

Always use gloves when handling the fan.

The fan should be lifted by using one hand under the motor and one under the casing.

#### 1.3.5 Technical data



#### Temperature

Temperature extracted air	Max 80°C
Temperatur surroundings	Max 40°C

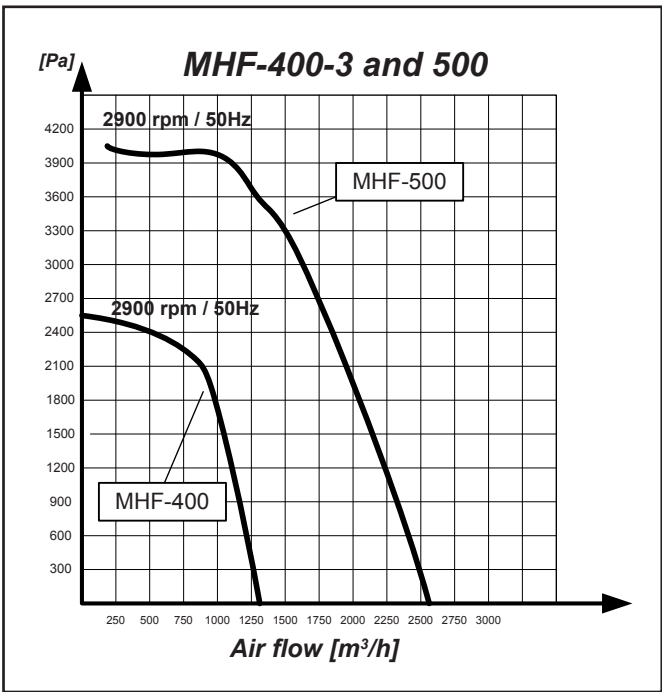
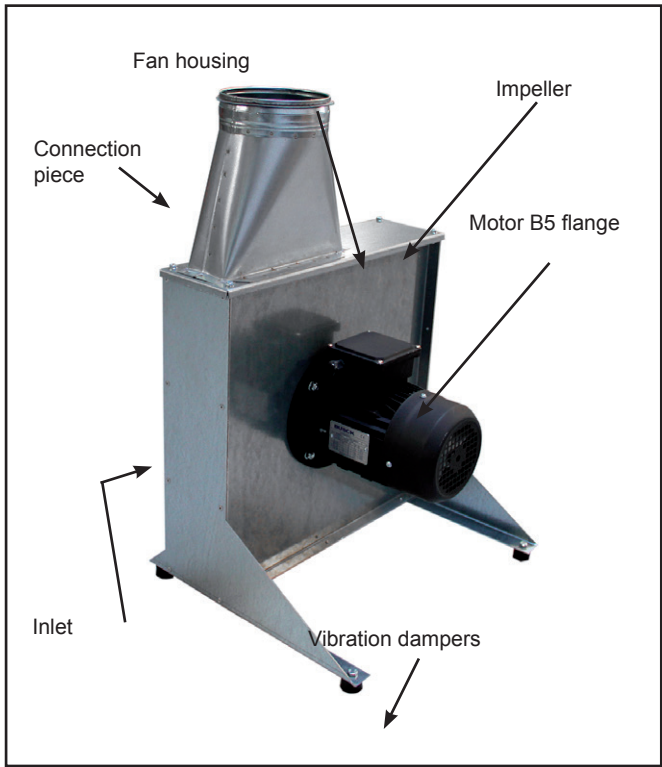
If the temperature of the extracted air exceeds 80°C, special bearings must be used. Please contact your dealer.

## 1.4 Construction

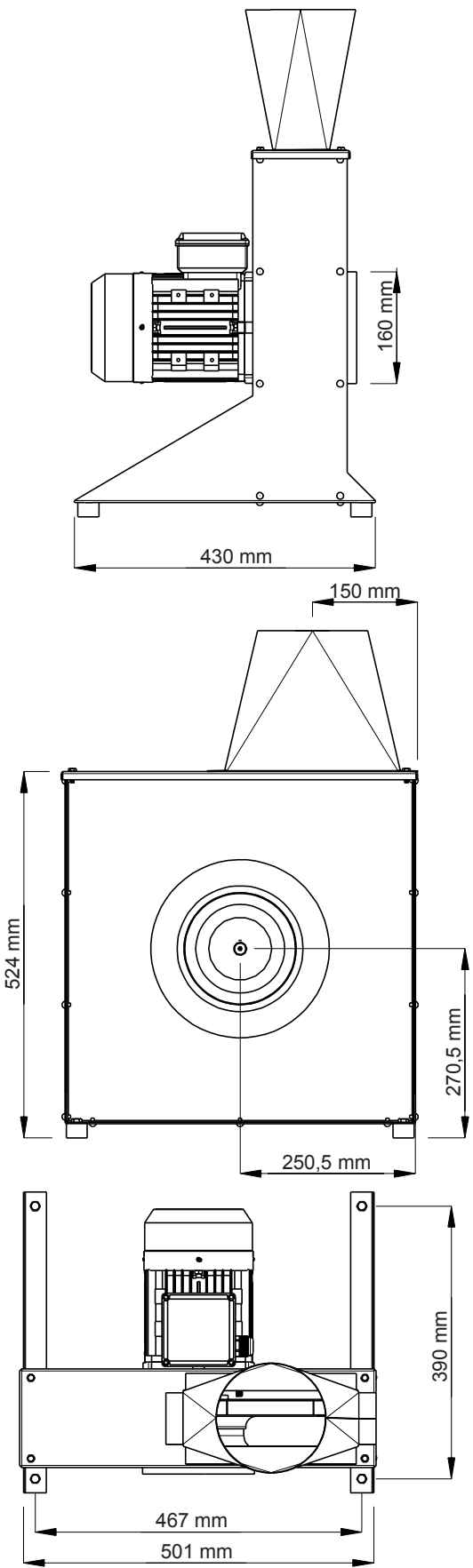
Fan housing: 100% galvanized steel for optimal corrosion resistance. Brackets with vibration dampers are standard on all fans as well as inlet nozzle with safety net.

Impeller: Backward curved closed B-impeller in galvanized sheet metal.

Motor: B5 flange motor, directly driven IEC/DIN B5 EFF2 quality motor in painted die cast aluminium in protection class IP-55.



## 1.4.5 Dimensions



## 2.0 Installation

The fan is supplied assembled and ready for connection to piping and to the mains.

Before mounting the fan, please consider the following:

- Placement (inside/outside)
- Ample room for mounting and service.
- Connection of ducts and automatics

### Important:

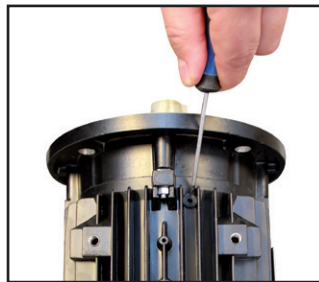
Avoid as far as possible bends just before inlet and after outlet, as it will decrease the fan performance.

For outdoor installation, be aware of noise, it is also important to ensure the fan is protected against heavy rain, and to seal the pipe system against leaks. (Rain and noise can be remedied by installing the fan in a sound box.)

Draining holes should be drilled at the bottom of the scoop and the drain plug / screws in the engine removed in order to drain away condensation water.



Drain screws

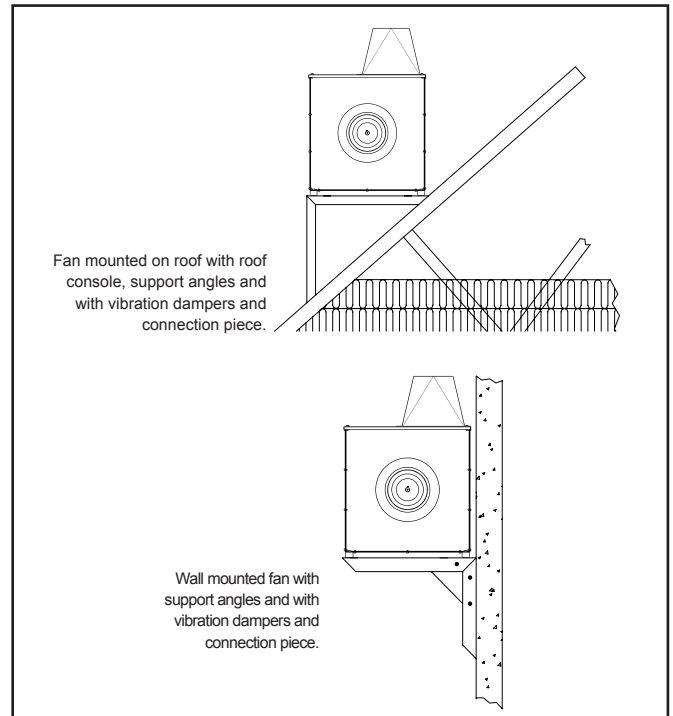


Drain plugs



### Rain shield

Rain shield is optional and ordered along with the fan. We recommend using rain shield when placing the fan outside to protect it against driving rain.



The following installation is to be carried out by a trained professional.

### Procedure:

1. Secure the fan is solidly to the roof/floor or to a ceiling bracket or wall bracket (see figure 1).  
The fan is fixed by attaching the vibration dampers with 4 M8 bolts.  
The fan is to be mounted in one of the ways shown in the illustration below.  
Do not install the Fan with the intake in vertical direction.
2. The piping is connected to the Fan. On the inlet side the duct can be secured using self tapping screws.
3. On the outlet side, the connecting piece (optional equipment) is attached to the fan using the supplied clamps.  
Remember to seal the connection with filler!
4. The connecting piece is then attached to the piping on the outlet side using self tapping screws.  
Remember to seal the connection!
5. In outdoor installation, it is important to secure the fan seal for rain and the piping against leaks.

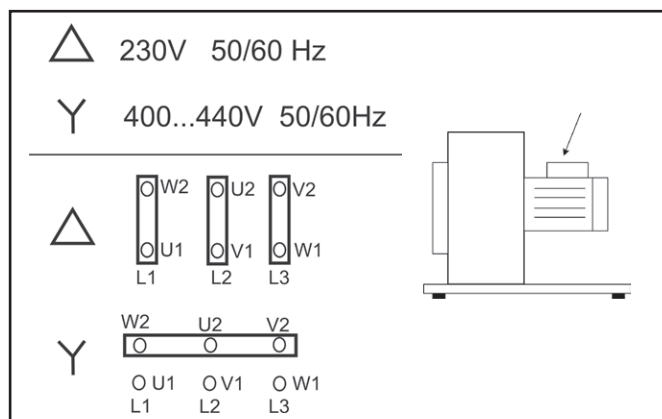
### 2.1 Connection of fan to the mains - standard motor

1. The fan should only be connected to the mains by a certified electrician and a motor protection switch should always be used.
2. Our 3-phase motors may be configured to both 3x230V and 3x400V.  
4,0 kW and above 3x400V and 3x690V (Se pkt 8.)

By default, the motor is not configured and the enclosed metal cover plates are to be mounted in such a way in the terminal box that they fit the voltage.

Note: Diagrams shown are indicative.

### 3. Diagram 1 phase motor.

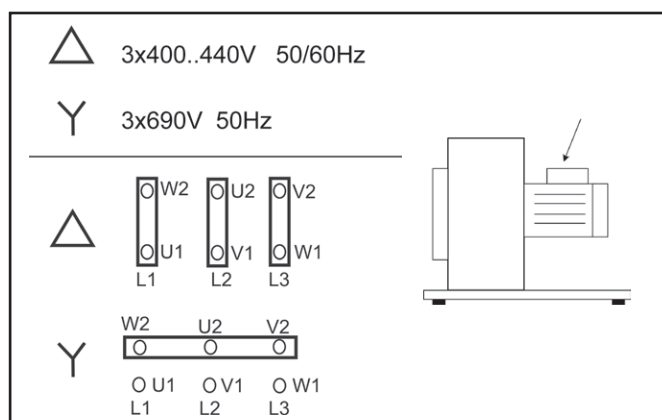


From 4,0 kW motors and up:

### 3. Our 3 phased motors at 4,0 kW and larger are configurable for both 3x400, 440V and 3x690V.

By default the motor is not configured and the jumper bars must be installed in the terminal box according to voltage.

Double check the metal sign on the motor and the inside of the lid for current configuration.



Standard 1-phase motor can not be regulated with a frequency inverter, by default.

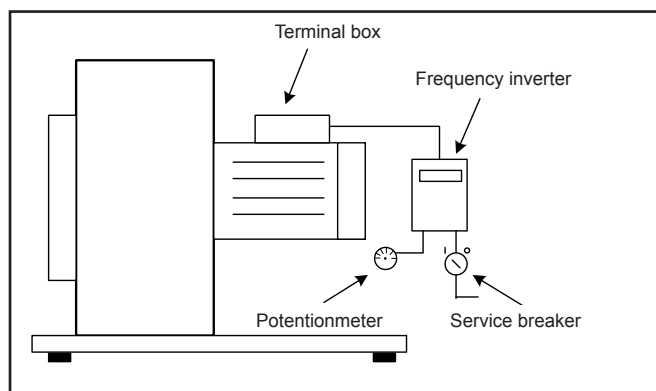
## 2.2 Optional equipment

### Installation of frequency inverter

Our standard 3-phased MHF fans are highly suitable for operation with frequency inverter allowing for pressure control and speed control.

When installing frequency inverter please refer to manufacturer's manual.

Illustrations shown here are indicative.



## 2.2 Test run - exact adjustment

- After the installation has been completed, please check whether there are any vibrations in the Fan.
- Air flow: Does the fan deliver the air flow for which it is dimensioned? Adjust using shut off damper.
- Power consumption (Ampere).

If the fan has an over capacity of air flow the power may exceed the capacity of the motor which in turn may cause the motor to burn of.

## 3.0 User instruction – application

Start the fan at default installation by pushing the button on the motor guard.

The fan will not work as intended if:

- Unoriginal parts are mounted on the fan. e.g. unoriginal impeller.
- The impeller turns in the wrong direction. The fan will still work but only at about one third of its capacity.
- If no motor guard is used.

## 4.0 Maintenance

Periodic maintenance.

In principle, the motor is maintenance-free because of the factory-mounted, completely closed special ball bearings, which do not require any maintenance.

Replacement of worn bearings should only be handled by an electrician.

The wheel and the fan housing should be cleaned every year or according to requirement.

The wheel and the housing may be cleaned by means of a soft brush and detergent.

Remember to disconnect the power before the washing and to wipe the parts afterwards with a dry cloth.

This operation results in a longer life of the fan.

Use only original parts.

## 4.1 Trouble shooting

When performing maintenance, always use safety switch and motor guard.



In case of problems with the Fan, the following items may be reviewed in order to check whether:

The volume of air or the pressure is too low:

- Wrong direction of operation of the wheel. May be due to wrong electrical installation. Please double-check the direction of rotation.  
Swop two phases, if necessary.
- Leaky channel system.
- Poor inlet/outlet possibilities near the Fan may reduce the yield (e.g. 90° bend before the inlet).
- Damaged wheel.
- The rotation speed has been set lower.
- If the temperature deviates substantially from the lab measurements, where the temperature was 20°C with an atmospheric pressure of 101.4 kPa.
- The dampers have not been correctly adjusted.
- The suction net has been blocked by cotton waste, a cloth or the like.
- The motor runs on only 2 phases and not 3.

### Vibrations and noise

- The base is not level/stable.
- Foreign objects are stuck in the Fan.
- Damaged wheel or motor.
- The impeller is loose.
- The wheel may have become unstable, for instance as a result of dirt on the impellers.
- The wheel turns in the wrong direction.
- The fan supplies more air than for which the equipment has been dimensioned.  
Use adjustment damper.
- Loose bolts or screws.

### The motor is overtaxed

- The cabling of the motor is not correct.
- The impeller shaft has been bent.
- The fan has over-capacity in relation to the resistance in the system. Use adjustment damper.
- The speed of the motor is too high.
- Defective motor – please contact your dealer!

## 5.0 Liability

### Warranty

Geovent A/S grants a warranty for products, which are defective, when it can be proved that the defects are due to poor manufacture or materials on the part of Geovent. The warranty comprises remedial action (reparation or exchange) until one year after date of shipment. No claims can be made against Geovent A/S in relation to loss of earnings or consequential loss as a result of defects on products from Geovent.

Wear parts like fan impellers are not included in the warranty.

### User liability

In order for Geovent to be capable of granting the declared warranty, the user/fitter must follow this manual in all respects.

Under no circumstances may the products be changed in any way, without prior written agreement with Geovent A/S.



In some cases and with high resistance in the outlet (high chimney, high air speed, damper, etc.), leaks can occur at the inlet ring of the fan. This is remedied by sealing the joint with a sealant.



## 6.0 Declaration of conformity



# **GEOVENT**

HOVEDGADEN 86 • DK-8831 LØGSTRUP  
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Hereby declares that:

Product: Fan  
Model: MHF

has been manufactured in compliance with the following directives and standards:

European Parliament and Council Directive 2006/42/EC of 17 May 2006 on machinery, and amendments to Directive 95/16/EC.

EN ISO 14121-1:2007 Risk assessment – part 1

EN ISO 12100-1:2005 Basic concepts and general principles for design.

EN ISO 12100-1:2009 Construction and design Part 1: Basic terminology and methodology

EN ISO 12100-2:2005 Basic concepts and general principles for design.

EN ISO 12100-2:2009 Construction and design Part 2: Technical principles

Authorized to assemble the technical file:

Ole Madsen

Date: 11/12-18

Position: Direktør  
Name: Thomas Molsen

Signature :





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