



**GEOVENT**

## INSTRUCTION MANUAL



## PLASTIC FAN

LPV and MPV  
122 – 456



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## 1.0 Introduction

This manual is made and designed in order to facilitate the best and most secure interaction with the product. The manual is relevant for people involved in transportation, stocking, installation, using, maintaining and all other thinkable interaction with the product.

The manual must be read in full and understood before interacting with the product.

When the manual has been read and understood in full, the table of contents can be used to find the relevant information in each case.

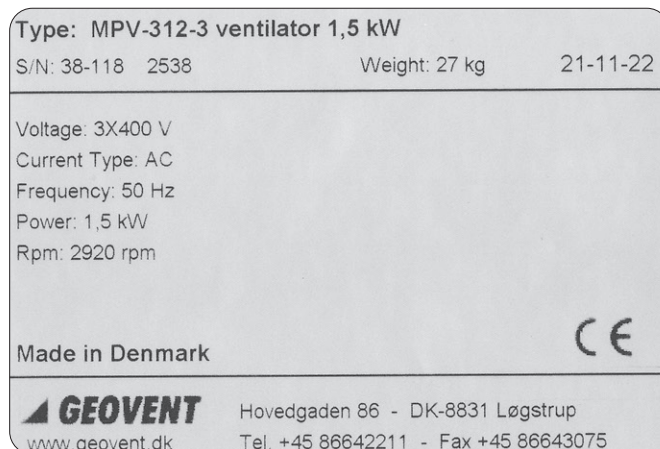
The product is manufactured by:

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Hovedgaden 86  
DK-8861 Løgstrup  
DENMARK

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www.geovent.com

This manual is to be used for all interactions with the product including: Transportation, stocking, installation, operation and maintenance.

This product is marked with: (example)



## 2.0 Safety

### 2.1 General safety

Carefully read this manual before use and observe the safety instructions in order to avoid injuries! Keep this manual in a safe place!

Secure that all users of the product have read this manual and that they follow the instructions as described. Observe all instructions marked on the product! Observe the indications of the manufacturer. Never use the product if you are in doubt about how it works or what you should do.

When doing maintenance follow the instructions in chapter 7.0.

Do not modify the product or use spare parts from other suppliers than Geovent, as this may hamper the product and the function.

### 2.2 Danger

You must wear safety gloves when handling or using the product to protect your hands from scratches etc.

Be aware that the product may tilt when you move it. You must handle the product with care and tie it safely to the truck or the fork lift when it is in transport.

Follow the instructions in chapter 7.0 when the product is maintained.

When handling the product be sure that there is no risk for the installer, and secure that there are no people around the product, secure that the product cannot fall down risking to injure persons or subjects.

The product is not to be used in areas categorised as ATEX zones, e.g. with dust from aluminium, flour, wood, and other mediums that present an explosion hazard.

If a repair is not possible you should dispose of the product. Please follow the instruction for disposal in chapter 10.0.

### 3.0 Machine overview

#### 3.1. Description

The Geovent plastic fan is typically used for general ventilation as well as for smaller process extraction jobs, where corrosive gases and fumes are extracted.

#### 3.2 Intended use

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

The plastic fans are suitable for extraction from corrosive processes, such as laboratories, battery rooms, washers and chemical processes etc.

The fan must not be used in areas categorised as ATEX zones, e.g. for extraction of aluminium, flour, textile and wood dusts as well as other media (e.g. vapours) associated with explosion hazards. For ATEX related processes, an ATEX fan shall be used.

The LPV/MPV is available in an ATEX version, zone 1 (3G/3D), called LPX/MPX. Exact type and version you will find in the order confirmation. Speed control of LPX/MPX may only be used to the extent specified in the order confirmation.

### 3.3 Machine specifications

#### 3.3.1 Design

The body is made of injection moulded P.E. (Polyethylene), and the wheels are made of P.P. (Polypropylene) with backward curved blades.

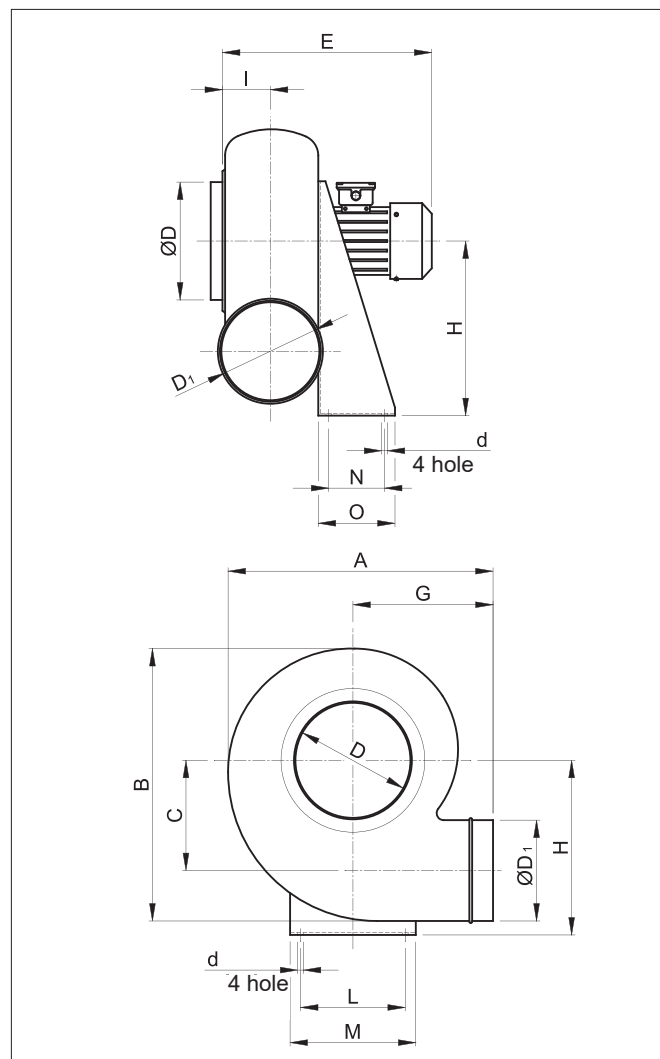
The motor bracket is made of powder-coated steel. Screws and bolts are made of stainless steel. The motor is a direct driven asynchronous motor as standard in 3 phase version (3x400V 50Hz), but can also be delivered in 1x230V 50Hz. It is available in an ATEX version for Zone 1 according to ATEX directive 2014/34/EU.

The fan is supplied as standard in RD0 version, but can be supplied in other positions on request. This is shown on next page.

#### 3.3.2 Technical data

Temperature extracted air:  
Temperature surroundings:

Max 70°C  
Max 40°C



Description	[kW]	[A]	[rpm]	Kg	dB(A)
MPV-122-3	0,12	0,4	2.800		
MPV-122-1	0,12	0,95	2.800		
MPV 202-3	0,18	0,49	2.750	9	65
LPV 254-3	0,12	0,42	1.370	10	56
MPV 252-3	0,37	0,87	2.820	13	72
LPV 284-3	0,18	0,58	1.370	14	59
MPV 282-3	0,75	1,66	2.820	19	75
LPV 314-3	0,25	0,8	1.400	19	62
MPV 312-3	1,5	3,15	2.850	26	78
LPV 354-3	0,37	1,13	1.400	23	64
MPV 352-3	2,2	4,4	2.870	32	80
MPV-402-3	4	7,2	2.850	57	81
LPV 404-3	0,55	1,75	1420	33	67
MPV-452-3	5,5	9,8	2.850	75	81
LPV 454-3	1,1	2,6	1.420	40	67

## 4.0 Transport, handling and storage

Always use gloves when handling.

The fan is best lifted with one hand under the motor and one under the housing. If two people are to handle the fan, one lifts under the motor and the other in the housing. Heavy fans are handled with suitable lifting equipment, and the lifting eye in the motor can be used to lift the entire fan. Check that the lifting eye is securely fastened before starting the lift.

During transport in a truck or in another means of transportation the product must be securely packed in a box or a pallet and covered with a water proof material. The product must be securely stowed in the truck so that it will neither tilt nor shift during transport.

During transport over a short distance e.g. in a stock or a factory, the product can be moved by means of a forklift or a stabeler.

When moved it must be secured that the product does not tilt or shift. And it must be secured that the limitations of the means of transportation is not exceeded.

Secure that there are no people around the product, when the product is moved.

The product must be placed in a dry place and covered securely, in order to secure that moist, metal parts or other substances do not damage the product. It is not allowed to place anything on top of the product.

## 5.0 Assembly, installation and start of operation

### 5.1 Location

The fan can be placed outdoors or indoors.

### 5.2 Installation

The fan is delivered complete/assembled, ready for connection of piping and mains.

Before installation, the following should be considered:

- Location (indoor/outdoor)
- Space conditions for mounting and servicing the fan
- Connection options for piping and automation

Important:

Avoid bends immediately before the inlet and after the outlet, as this will reduce the performance of the fan.

The weight of the inlet pipes must NOT be transferred to the fan. The inlet pipe must be supported, otherwise there is a risk of deformation of the fan housing.

When installing outdoors, take into account possible noise nuisance to neighbours and to avoid driving rain on the motor.

It is recommended to mount the fan with vibration dampers.

For outdoor installation it is important to protect the fan against driving rain and to seal the piping against leaks. Furthermore, a drain hole must be drilled in the fan housing and the drain plug in the motor removed.

Procedure:

1. Fix the fan securely to the roof/floor, ceiling or wall bracket. The fan is fixed at three points.

2. The piping is connected to the fan.

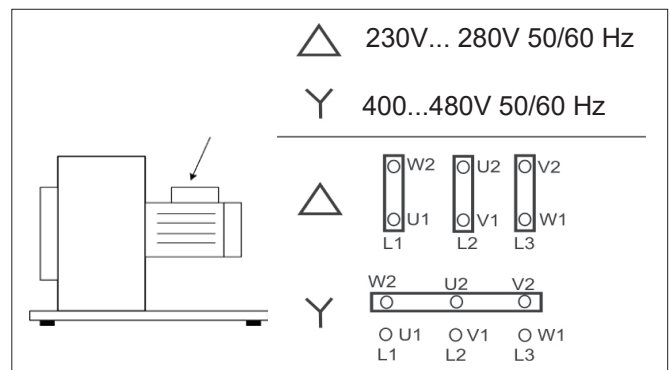
Connecting the fan to the mains:

1. The fan may only be connected to the mains by an authorised electrician and a repair switch and motor protector or similar must always be used.

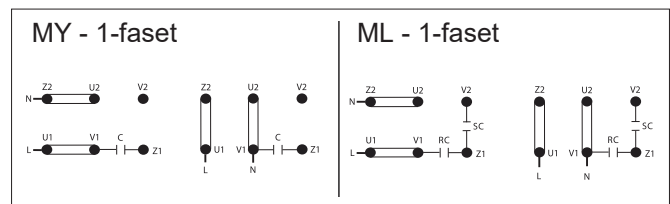
2. Our plastic fans with 3-phase motors can be configured for both 3x230V and 3x400V.

The motor is unconfigured from the factory and the metal lugs supplied must be fitted in the terminal box as shown, depending on the voltage.

Note: The wiring diagrams below are indicative. Always follow the instructions in the terminal box.



3. Wiring diagram 3-phase motor.



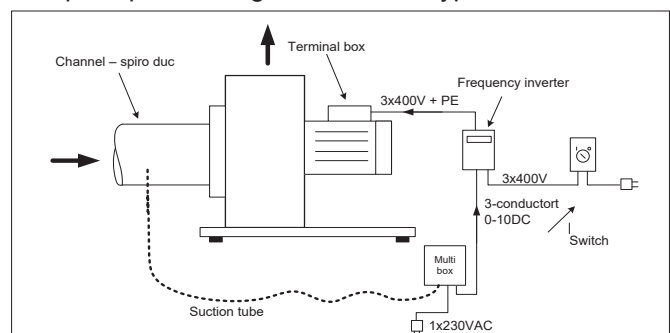
4. Wiring diagram 1-phase motor from Busck & Co.

Mounting a frequency inverter

Our standard 3-phase LPV/MPV fans are suitable for operation with frequency inverter. (Min. 10Hz)

When installing a frequency inverter, please refer to the separate manual supplied by the manufacturer.

The principle drawing below shows typical installation.



Potentiometer and repair switch are connected to the frequency inverter.

Standard 1-phase motor is not controllable with frequency inverter.

Installation of motor protector and pressure guard in Denmark: All fans for process ventilation must be fitted with a control device for checking the correct suction according to the Danish authority: Arbejdstilsynet. See separate installation instructions for this.

After starting the fan:

- Check that the direction of rotation is in accordance with that indicated by the arrow.
- Check that the absorbed current is not greater than the motor rating plate.
- Check that the fan is free from excessive vibration.

**Important:**

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

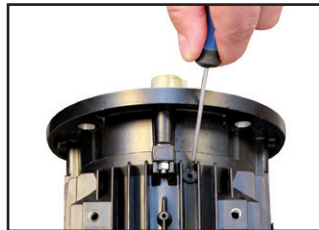
For outdoor installation, be aware of noise. It is also important to ensure the fan is protected against heavy rain, and to seal the pipe system against leaks.

Rain and noise can be remedied by installing the fan in a sound box.

Drilling 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

## 5.3 Control and test of the security system

After installation check:

- Vibrations in the fan. See section 9.0 Troubleshooting.
- Air flow. Check that rotation direction is in accordance with the arrow. The fan must deliver the air flow for which the installation is dimensioned. Adjust to correct airflow using dampers.
- Power consumption (Ampere). If the system has excess capacity (air volume), the current consumption may exceed the capacity of the motor and cause the motor to burn out. See the manufacturer's manual.

Use correctly set Circuit breaker with motor protection and adjust to correct airflow.

Check that the wheel runs the right way. The direction of the wheel is indicated by the arrow on the motor.

## General information

Possible noise problems can be minimized by using vibration dampers and flex connections.

## 6.0 Commissioning

The fan is started in the standard installation without automatic by pressing the start button on the motor guard.

The fan will not operate as intended if...

- non-original parts are fitted to the fan (e.g. non-original wheel).
- the wheel is running in the wrong direction. Will still suck, but capacity is reduced to 1/3.
- if a motor protection has not been used.

## 6.1 After installation

Check the installation according to chapter 5.3.

## 7.0 Control, test and maintenance

### 7.1 Control

Check the installation according to chapter 5.3.

### 7.2 Maintenance

#### Periodic maintenance

- The impeller and fan housing should be cleaned annually or as needed. The wheel and housing can be cleaned with a washing-up brush and dishwashing water. Remember to disconnect the power before washing and to wipe with a dry cloth. This operation ensures longer fan life.
- Maintenance of the motor must only be carried out according to the manufacturer's instructions, see the manual supplied.

Only original spare parts may be used.

## 8.0 Cleaning

The outside of the product is cleaned with a vacuum cleaner or a cloth.

The impeller and fan housing should be cleaned annually or as needed. The wheel and housing can be cleaned with a washing-up brush and dish washing water. Remember to disconnect the power before washing and to wipe with a dry cloth. This operation ensures longer fan life.

## 9.0 Troubleshooting

**Always remember to use a repair switch and motor protector.**

**Always use a cut-in damper!**

In case of problems with the fan, the following points can be reviewed:

**Air flow or pressure is below the indicated value:**

- Incorrect direction of the wheel. May be due to incorrect electrical installation. Double check direction of circulation. Switch 2 phases if necessary.
- Leaky duct system.
- Poor inlet/outlet options close to fan may reduce performance (e.g. 90° bend before inlet)
- Damaged impeller.
- Rotation speed set lower.
- If temperature differs significantly from laboratory measurements, where temperature was 20°C with atmospheric pressure of 101.4 kPa.
- The coils are not properly adjusted.

**Vibration and noise:**

- Foundation is not level/stable.
- External elements that have entered the fan
- Damaged impeller or motor.
- The wheel is loose.
- The wheel may have become unstable, e.g. due to dirt on the blades.
- The wheel is running in the wrong direction.
- The inlet is loaded by the weight of the inlet tube, which deforms the fan housing.
- The fan delivers more air than the system is sized for. Use adjustment dampers.
- Loose bolts or screws.

**Motor is overloaded:**

- Motor is wired incorrectly.
- Shaft is bent.
- The fan has excess capacity in relation to the resistance of the system. Use a variable speed damper.
- Motor speed is too high.
- Defective motor - contact dealer!

## 10.0 Dismantling, disabling and scrapping

Deactive the product by disconnection the electrical mains. Dismantle compressed air pipes and other pipes or wires etc.

Dismantle the metallic parts by unscrewing screws and bolts. Afterwards cut the larger pieces into smaller pieces and dispose of it according to local regulation.

Dismantle plastic parts and dispose of it according to local regulations.

The packing material must be sorted according to local regulation in order to be able to reuse the material.

Dismantle the metallic parts by unscrewing screws and bolts. Afterwards cut the larger pieces into smaller pieces and dispose of it according to local regulation.

Dismantle electrical and electronic parts and place them in a bag designed for the purpose. Then dispose of them according to local rules and regulations.

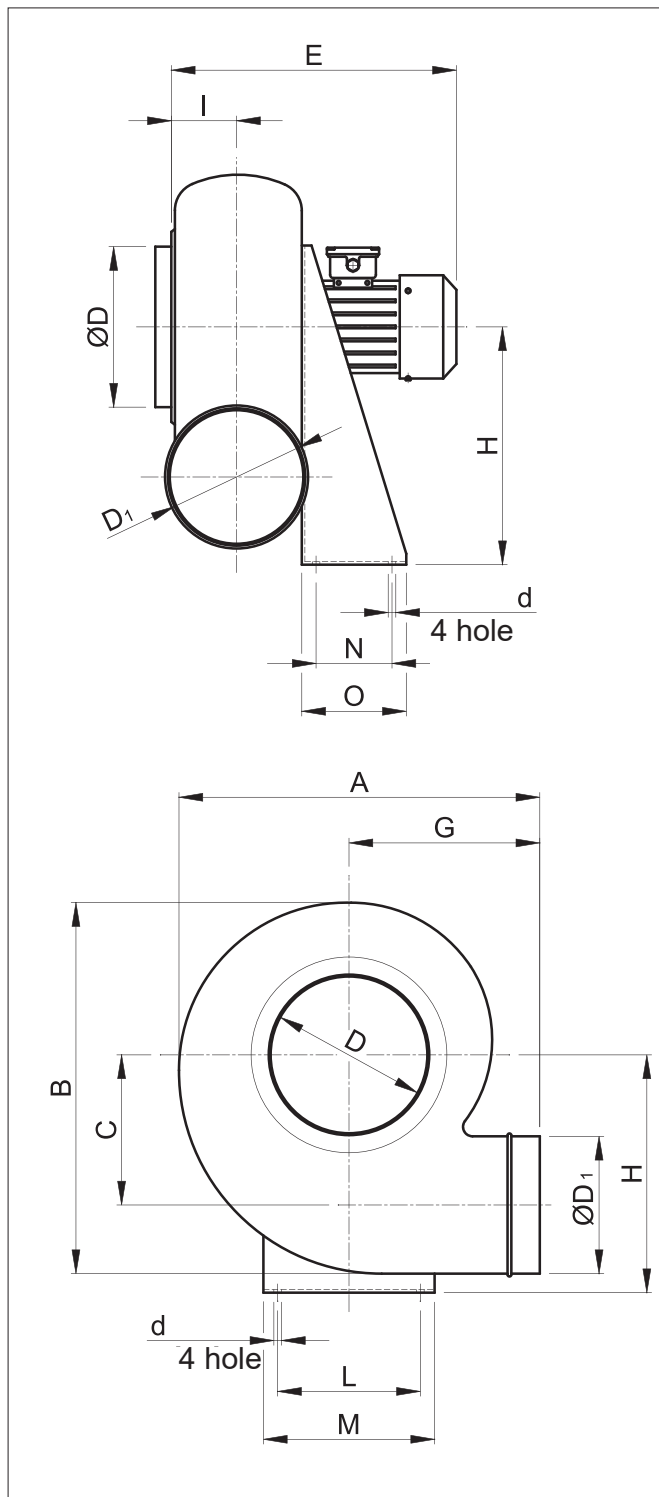
Dismantle plastic and rubber parts and place them in a bag intended for the purpose. Dispose of in accordance with local rules and regulations.

The packing material must be sorted according to local regulations in order to be able to reuse the material.



## 11.0 Dimensions

Plastic fan



## 12.0 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 the 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 on parts such as filter cartridges and hose is 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 instruction manual in all respects.

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

Please refer to the current sales and delivery conditions at [www.geovent.com](http://www.geovent.com)



### 13.0 Declaration of conformity

The manufacturer: GEOVENT A/S  
HOVEDGADEN 86  
DK-8831 LØGSTRUP

Hereby declares that:

The product: Plantic fan  
Model: MPV/LPV

Complies with the relevant parts of the following directives and standards:

Directive 2006/42 / EC of the European Parliament and of the Council of 17 May 2006 on machines and amending directives 95/16 / EC.


This declaration is no more valid if changes are made to the product by others than the manufacturer.

Authorized to collect the technical file:

Lise Cramer

Date: 17.01.2023

Position: Director  
Name: Thomas Molsen



Signature: \_\_\_\_\_









**GEOVENT**

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