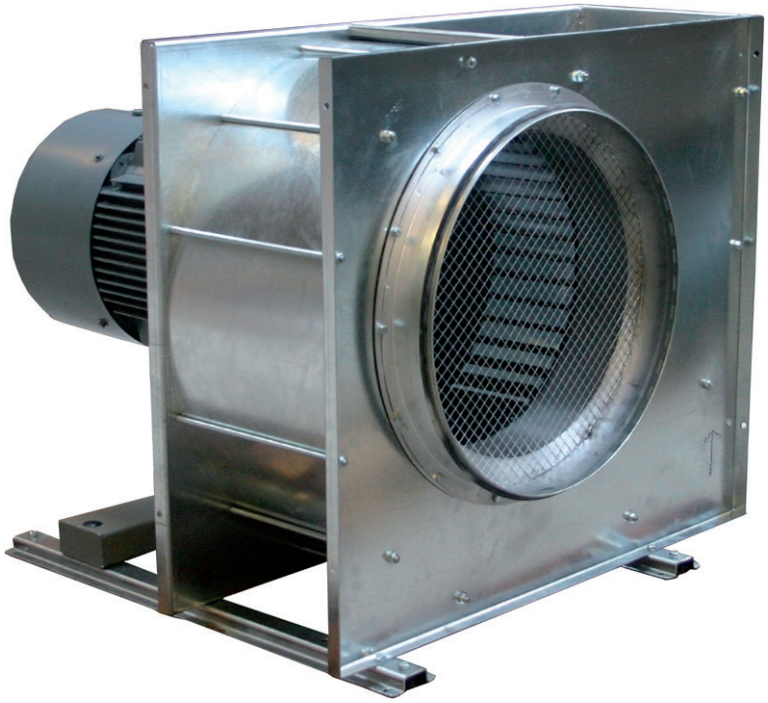
GEOVENT

INSTRUCTIONS MANUAL



FAN
LSKG-MSKG
280 - 450

Version 1.0

www.geovent.dk

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1.0 General safety precautions

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

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, since it impedes the commissioning of the equipment.

All electrical installations must be carried out by an authorised electrician.

1.1 Danger

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.

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

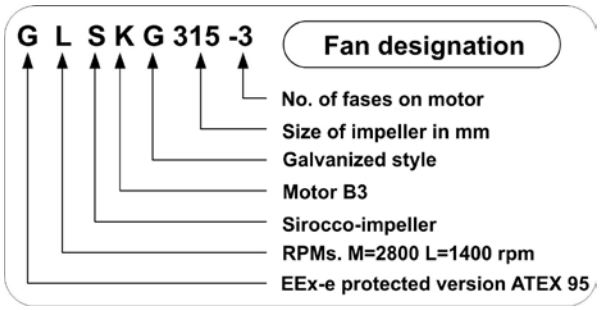
Always switch off the current when mounting something on the Fan or when servicing it.

1.2 Field of application

The GEOVENT Fan LSKG is typically used for comfort ventilation as well as for smaller process extraction jobs, where a high pressure is not required. The Fan MSKG is applied for process extraction within the industry for the extraction of welding smoke, exhaust gasses, grinding dust and vapours.

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.

1.3 Technical data



Temperature extracted air	**Max 180°C**
Temperature surroundings	**Max 40°C**

Fans 1.400 min^{-1}, noise emission to the surroundings

Type	Lp, dB(A)	Lp, 1m
LSKG-315	72	66
LSKG-355	73	67
LSKG-400	76	70
LSKG-450	78	72

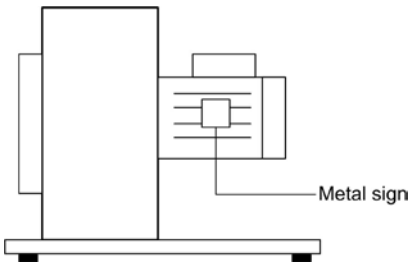
Fans 2.800 min^{-1}, noise emission to the surroundings

Type	Lp, dB(A)	Lp, 1m
MSKG-280	87	81
MSKG-315	90	84

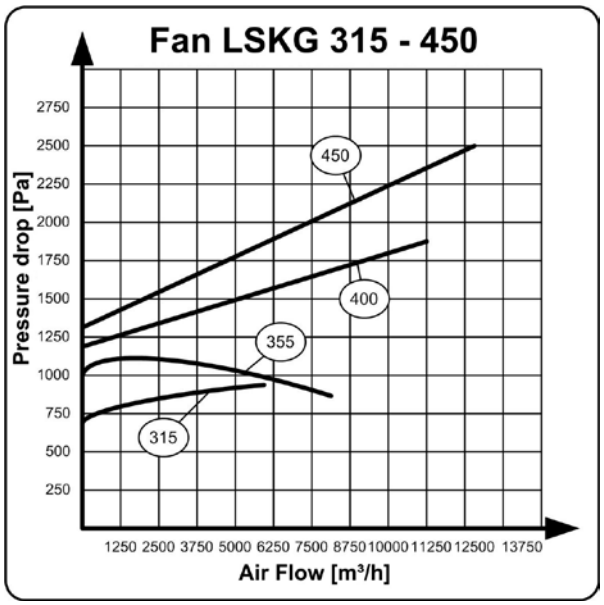
The sound level depends on various factors under various circumstances. For instance, where in the room the Fan has been installed, the size of the room, the temperature in the room, the sound of the room and also the connection (hose><pipe) of the Fan influences the sound level of the Fan. For more sound measurements – please refer to the data sheet for LSKG/MSKG-280 - 450.

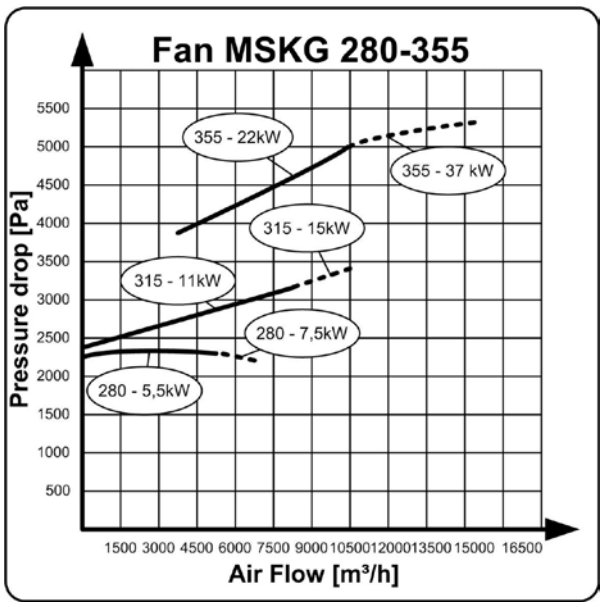
As a main rule, a sound box will reduce the actual sound level to only half the level without a sound box.

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

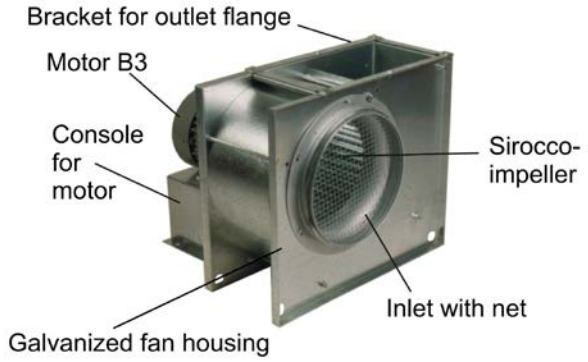


Graphs showing the pressure drop of the Fans





1.4 Construction



Fan housing: 100% hot-galvanized steel for optimal corrosion resistance. Console for motor and inlet with safety net are standard.

Fan wheel: Forward curved sirocco-fan wheel (F-wheel) in hot-galvanized steel sheet.

Motor: B5 flange motor, directly driven in protection class IP 54.

Table of dimensions

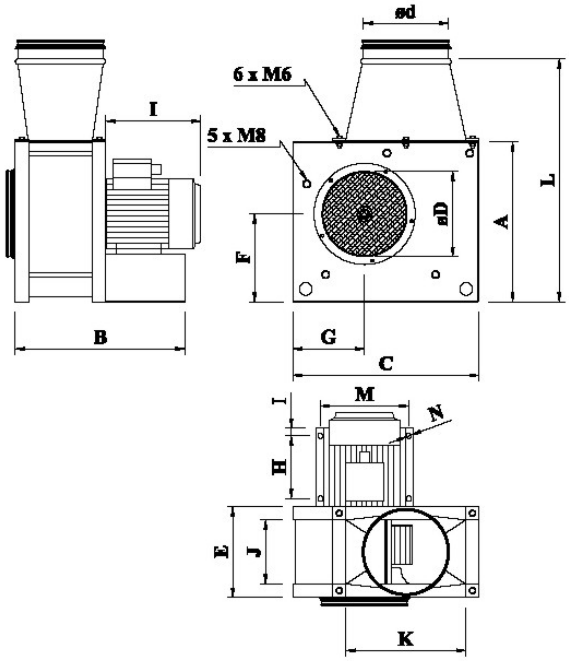


Table of dimensions LSKG/MSKG - 280- 450

Type	280	315*	355	400	450
A	455	510	570	650	715
B	515	550/570	655	687	915
C	545	600	680	760	850
D	315	315	400	450	500
E	235	260	284	310	340
F	260	290	329	370	408
G	215	240	272	305	340
H	235	190	190	300	354
I	374	335/478	90	40	160
J	185	210	234	260	290
K	325	400	450	500	560
L	680	720	770	945	1045
M	303	269/328	285	305	369
N	9	11	11	11	15
Vægt	87 kg	63/125kg	91 kg	105 kg	111 kg

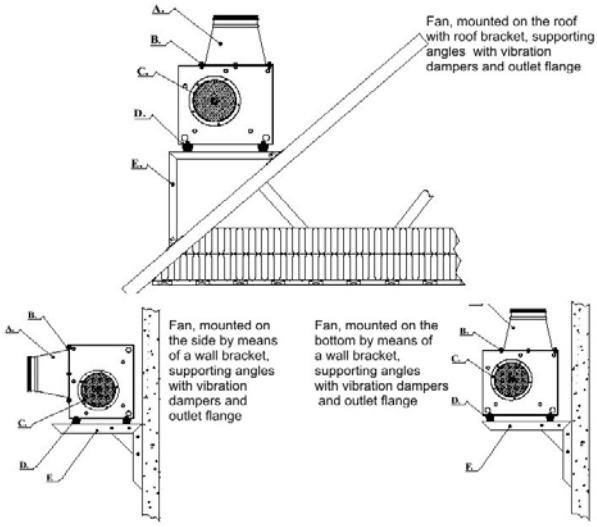
*The dimensions shown in the table are not similar for the Fans LSKG 315 and MSKG 315. The first number is LSKG.

2.0 Installation

The Fan is supplied in complete/assembled condition, ready for connection to piping and to the mains.

Before mounting the Fan, please make sure that the optimum installation area is selected. Is outdoor or indoor installation best? Is there space enough for carrying out satisfactory installation/service of the Fan? What about optimum connection possibilities for piping and automatics? If at all possible, please avoid bends just before the intake and after the outlet, since otherwise this would reduce the yield of the Fan. For outdoor mounting, any noise nuisances for neighbours should be taken into account and also ensure that the motor is kept out of heavy showers. To avoid problems we recommend the use of our sound box.

Figure 1



The following installation should only be carried out by a trained fitter

Procedure:

1. The Fan is solidly fixed 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 off M8 bolts. The Fan is to be mounted in one of the shown ways. Do not install the Fan with the intake in vertical direction.

2. The piping is connected to the Fan. On the inlet side, the pipe may be fastened by means of self cutting screws. Remember to seal the connection with filler!

3. On the outlet side, the pressure connecting piece (optional equipment) is attached to the Fan by means of the supplied clamps. Remember to seal the connection with filler!

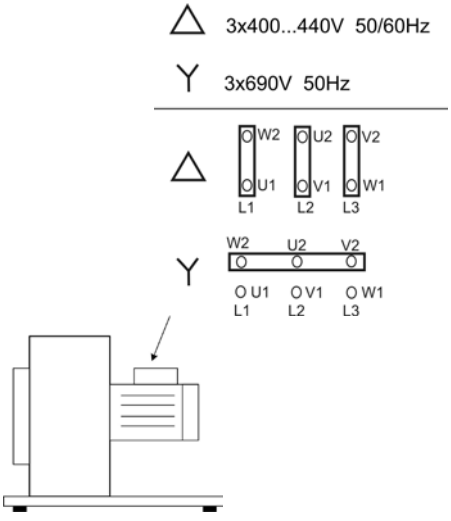
4. The pressure connecting piece is then attached to the piping on the outlet side by means of self-cutting screws. Remember to seal the connection with filler!

5. For outdoor mounting, it is important to protect the Fan from heavy rain and to seal the piping against leaks. Drill drainholes in housing and remove drainplugs in motor

Connection of the Fan to the mains:

6. The Fan should only be connected to the mains by a certified electrician and a motor protection switch should always be used.

7. Our 3-phase motors may be configured to either 3x400V…440V or 3x690V. From the factory, the motor has not been configured and the enclosed metal cover plates are to be mounted in such a way in the terminal box that they fit the voltage.



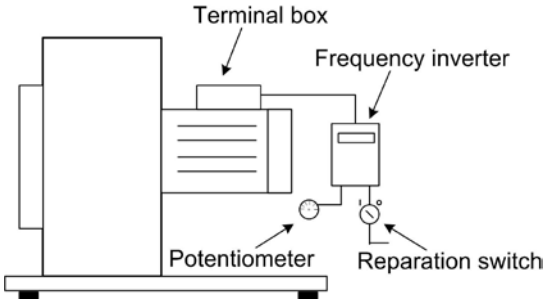
Always double check the metal sign on the motor and on the inner side of the cover for current configurations (diagram).

2.1 Mounting of optional equipment

Mounting of sound box

From the factory, the Fan will be installed in the sound box (optional equipment). The box must be mounted on horizontal surfaces and may only be mounted with vertical outlet.

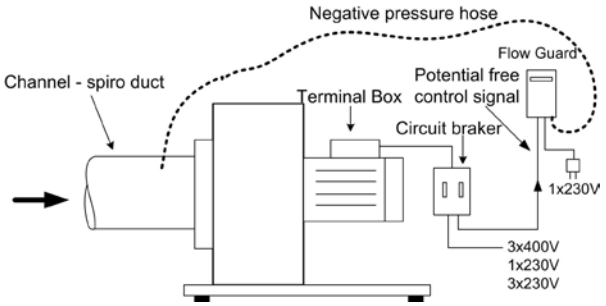
Mounting of frequency converter
Our standard 3-phase motors are particularly suitable for frequency converter operation (please see the separately enclosed manual (Digidrive)).



Potentiometer and reparation switch are to be connected to the frequency converter.

(Pressure control is not recommendable due to the characteristics of the pressure curve).

Mounting of the motor protection switch



Flow guard
In some countries, all Fans must be supplied with a control device for the control of correct suction in compliance with The Local Working Environment Service. Please refer to the separate instructions in this matter.

2.2 Trial run – exact adjustment

After the installation has been completed, please check whether there are any vibrations in the Fan.

We recommend checking whether the Fan supplies the correct volume of air, for which the equipment has been dimensioned. I.e. control the volume of air and make sure that it does not exceed the ampere capacity of the motor.

3.0 User instruction – application

When extracting large quantities of air, containing dust, the fan wheel may get out of balance due to dirt on the wheel. In order to avoid this, we recommend using a filter.

In many cases, the Fan is started by pushing the green button on the motor protection switch (if automatics are not used).
The Fan will not work according to the purposes if:
- Unauthorised parts have been mounted on the Fan (e.g. unauthorised wheel).
- The wheel runs in the wrong direction. It will still work, but the capacity will be reduced to a third of the normal capacity.
- No motor protection switch 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. Exchange 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 washing-up brush and dishwater. 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.

At least once annually, the whole point extraction plant should be overhauled by an authorised serviceman.

4.1 Trouble-shooting

Remember always to use a motor protection switch!

Always use adjustment damper!

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 below the stated level:
- Wrong direction of operation of the wheel. May be due to wrong electrical installation. Please double-check the direction of rotation. Change 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 central lid on the sound box is turned the wrong way and thus blocks the air.
- The suction net has been blocked by cotton waste, a cloth or the like.

Vibrations and noise

- The base is not even / stable.
- Elements coming from the outside are stuck in the Fan.
- Damaged wheel or motor.
- The wheel is loose.
- The wheel may have become unstable, for instance as a result of dirt on the impellers.
- The wheel is rotating 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 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 wheels 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 Instruction Manual in all respects.

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

6.0 Declaration of conformity

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

hereby declares that:

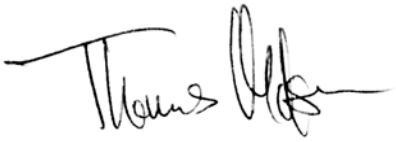
The product: Fan
Model: LSKG/MSKG 280 - 450

has been manufactured in compliance with the directions of the Directive Council of 14 June 1989 in common approximation to the legislation of the member states regarding machine safety (89/392/EEC amended by the directive 91/368/EEC) with special reference to appendix 1 in the Directive regarding basic health and safety requirements in connection with the construction and manufacturing of machinery.

GEOVENT A/S • HOVEDGADEN 86 • DK-8831 LØGSTRUP

Position: Managing Director
Name: Thomas Molsen

Date: 27/10-2014



Signature: _____

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