GEOVENT

INSTRUCTIONMANUAL

CHANNEL DUCT

Type 25

Version 1.0 25.03.21

www.geovent.com

Contents

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

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.

Power cables and pneumatic air hoses should be replaced at once, if they are damaged. This should only be done by authorised and qualified personnel.

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

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

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 hen the product is maintained.

When handling the product be sure that the 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.

In case of an accident or a fire:
Call for help. Disconnect the product from the mains supply.

The product can only be installed in such a way
that the rubber lips point either directly up or down.

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.

In case of problems:
If a repair is not possible you should dispose of the product. Please follow the instruction for disposal in chapter 8.0.

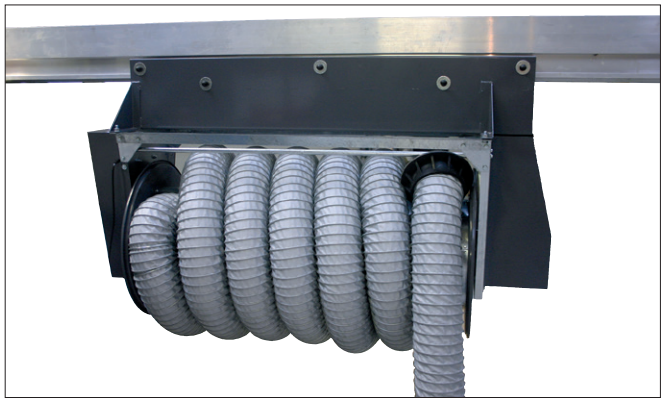
3.0 Machine overview

3.1. Description

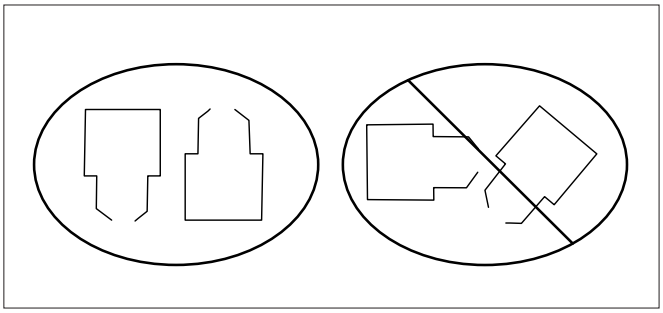
The GEOVENT Channel Duct System is a rail system, developed for the extraction of exhaust fumes and welding smoke. When the trolley has been correctly installed in the Channel Duct, the trolley may be moved linearly to the area, where it is to be used.

3.2 Intended use

The GEOVENT Channel Duct System is a rail system, developed for the extraction of exhaust fumes and welding smoke. The system can be used in different ways and various optional extras are available. Normally one or several trolleys will be installed in the Channel Duct, the trolley may be moved linearly to the area, where it is requested. The hose is pulled down and the nozzle is fixed to the exhaust pipe.



It is also possible to mount a hose trolley prepared for a hose reel (type GTE or GTS). Alternatively, the Trolley may be mounted with a point extraction arm instead (type WING or COMPACT). The arm can rotate 360° and is suitable for the removal of welding smoke, etc.



The Channel Duct can only be installed in such a way that the rubber lips point either directly up or down. The Channel Duct may not be used in areas classified as ATEX zones, for example extraction of aluminum, flour, textiles and wood dust and other media (eg. vapor / gas) which is associated with danger of explosion.

3.3 Machine specifications

3.3.1 Design

The Chanal Duct:
The rail: The actual Channel Duct (the rail) is made of extruded aluminium profile. Neoprene rubber lips are fixed to the rail and are completely tight-fitting at a 5-600 Pa pressure. They are self-sealing. The neoprene rubber lips cannot be used for oil/oil vapours. Please order the Channel Duct with nitrile rubber lips instead in such cases.

Trolley: Powder coated steel, complete with 8 smooth-running nylon wheels. Take contact to Geovent if you need trolleys for special applications which is available on request.

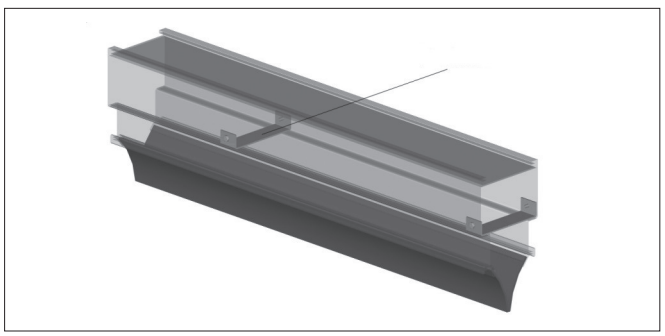
Balancer: Safeguards that the hose does not take up floor space and that it is easy to operate. The length and capacity vary from system to system (optional extras).

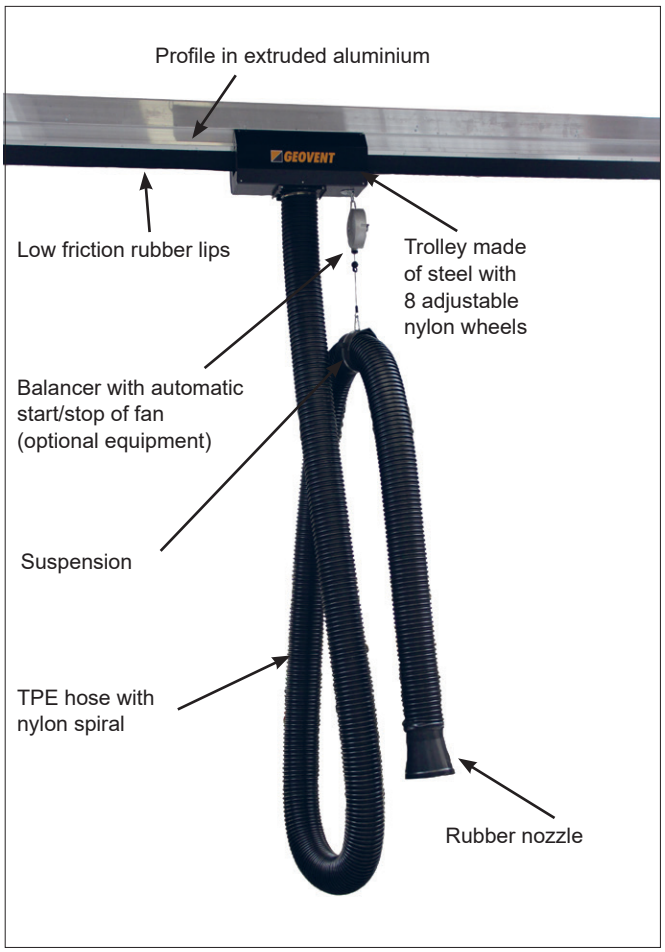
Hose: TPE hose with nylon spiral. The hose may conditionally be run over. Temperature resistant up to 150°C, however briefly up to 170°C.

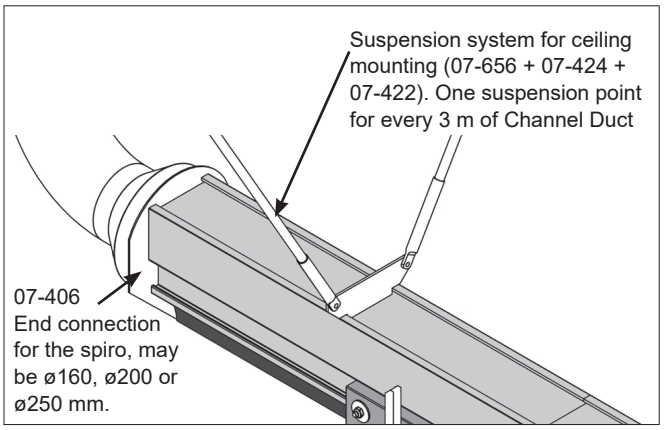
Nozzle: Is to be fixed to the exhaust pipe of the vehicle. Available in many different executions, such as rubber and steel, with or without vise grip, etc.

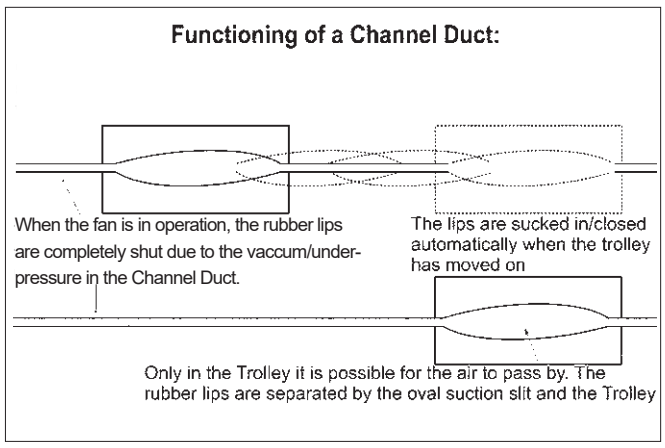
Weight:
The Channel Duct weighs 9 kg/m without rubber lips, mounting parts, trolley etc.

Capacity:
The profile of the Channel Duct corresponds to a ø180 mm spiro pipe. Recommended max. volume of air per trolley = 2.000 m³/h
For air volumes > 1.200m³/h a special trolley is necessary. In situations with high pressure, it will be necessary to use a reinforcement bracket to stabilize the Channal Duct. The bracket should always be used when a welding arm is mounted on the trolley or if the pressure drop exceeds 1.700 Pa.









3.3.2 Technical data

Temperature exhaust air	Max. 150°C
Temperature surroundings	0 - 50°C

In special situations, where the temperature of the exhaust air is higher than 150°C, the standard hose may melt. In order to avoid such a problem, various precautions may be taken: Please refer to chapter 9.0 regarding troubleshooting.

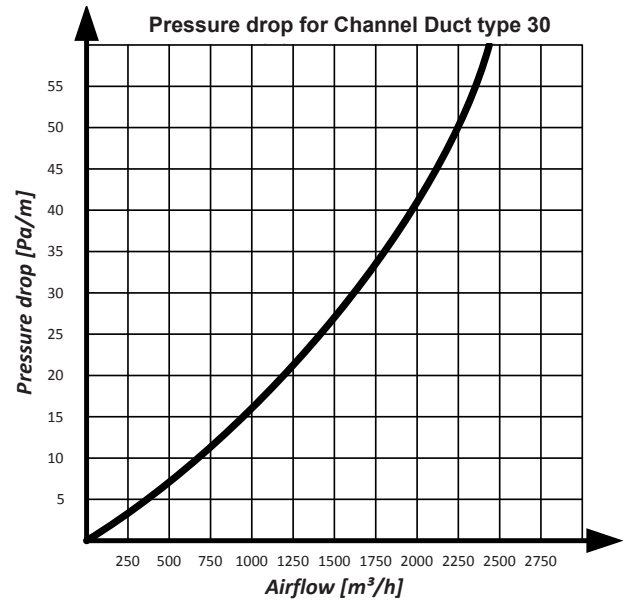
Noise data
The actual Channel Duct System does not emit any noise in itself. The noise level depends on several factors, primarily the relation between the diameter of the hose and the extracted volume of air. If the hose has been under dimensioned in relation to the required volumes of air, wind roar may occur.

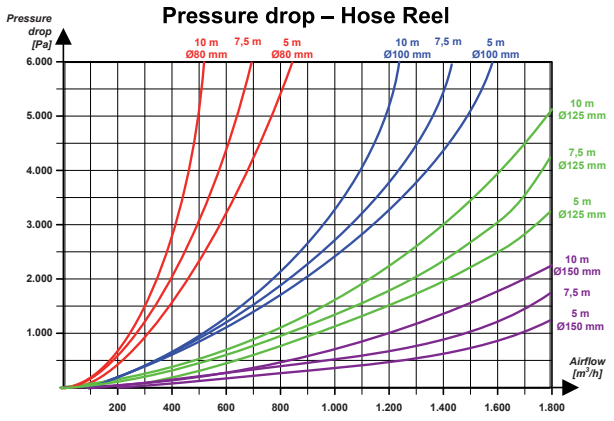
Optimum volume of air
Several factors are of importance when selecting the optimum Channel Duct solution. Depending on the application, the table below may be used as a guideline for the volume of air, which is requested for the various requirements.

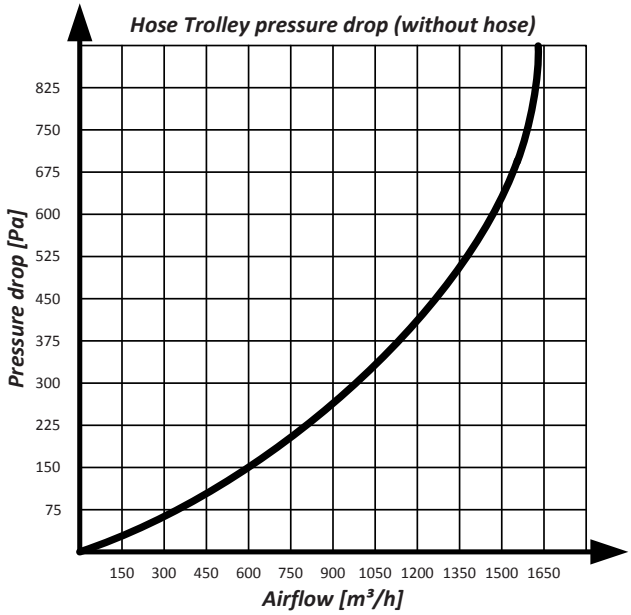
Type of vehicle	Recomm. air volume	Recomm. hose dia.
Small cars	300 m³/h	ø80/ø100
Smaller private cars	400 m³/h	ø100
Private cars > 3000 ccm	600 m³/h	ø125
Vans/smaller trucks	800 m³/h	ø125
Trucks	1000 m³/h	ø150
Contractors machinery	1000 m³/h	ø150
Test stand	1-2.000 m³/h	ø150/ø200

The previous mentioned data cover idle running and are only intended as a guideline. Different projects may involve situations, where deviations from the table occur.

Pressure drop for Channel Duct System







At the adjustment, the trolley is placed on the rail system in such a way, that the trolley is as far away from the fan as possible.
A number of factors may influence the drop of pressure in the system. For example, it depends on how many trolleys that are connected to the Channel Duct System, where they are placed as well as how many duct connections there are – and how the duct connection for the fan are placed. In addition to this, the length and the dimension of the hose as well as the way in which it is suspended are decisive for the pressure drop.

The reinforcement bracket is mounted at intervals of 2 meters.

4.0 Transport, handling and storage

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 proff 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 product is placed 3 to 5 meters above the floor.

5.2 Installation

The Channel Duct System is supplied disassembled. The Channel Duct is supplied in lengths of either 3 or 6 meters.
The Channel Duct should be fixed for every 2 to 4 meters.

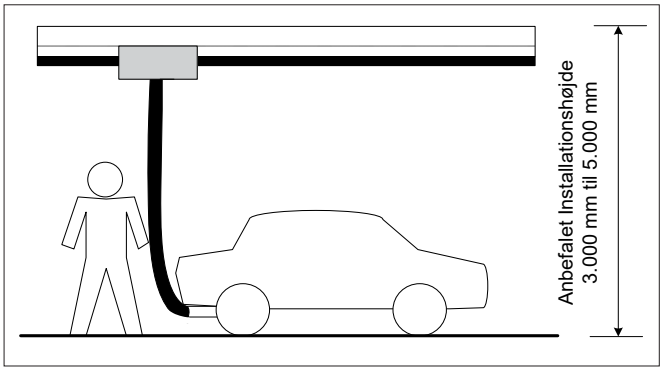
The following installation should only be carried out by a skilled fitter.

Before mounting, please consider the following:

- Space requirements for the satisfactory installation and service of the Channel Duct System.
- Optimum connection possibilities for piping and automatics

The Channel Duct may be mounted both in an even and in a sloping ceiling, on a concrete girder/rafter and on the wall. Furthermore, the Channel Duct may also be mounted on a column or on a carrying arm (special equipment).

The drawing below shows the recommended installation height.

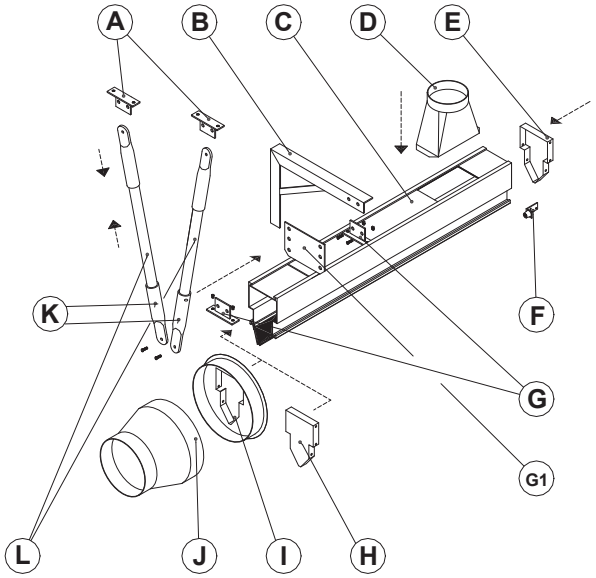


Tools to be used
Drilling/screwing machine, mounting kit (accessory bag with screws, etc.) compass saw, felt tip, spanner or socket wrench set, silicone or aluminium filler.

For Channel Ducts of more than 50 meters also a Loctite quick glue or similar for the joining of the rubber lips is requested (optional equipment).

We also recommend using two lifts for lifting the Channel Duct up to the required mounting height.

Component overview
Depending on the individual application, one or several of these components may not be included in the individual project.



A: Ceiling bracket, capable of tilting, depending on the angle and the inclination of the roof. Two brackets are required for every attachment point.

B: Wall bracket for the mounting of the Channel Duct on a wall.

C: Channel Duct, type 25 in extruded aluminium with heat resistant neoprene rubber lips.

D: Transition piece (pressure connecting piece) for round channel for top mounting.

E: End cover, type 25 in galvanised steel (remember to use sealing agent).

F: Stop. To be mounted on the rail system at the end of the Channel Duct length approx. 5 cm from the end.

G: Suspension brackets, type 60 in galvanised steel. To be used both for mounting in the ceiling and on the wall. For suspension on the side of a concrete girder, please use suspension bracket, type160 (G1) instead.

H: End cover, type 25 in galvanised steel.

I: End transition piece, nipple ø250 mm, the end of the Channel Duct to round channel. Remember to use sealing agent.

K: Coupling bracket for distance pipes (set of two) galvanised. Two sets are necessary per attachment point.

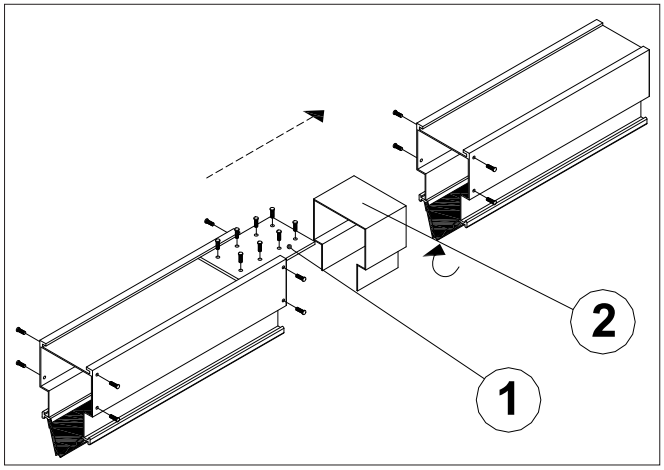
L: Distance pipe 3/8”, galvanised. To be joined by means of coupling brackets in both ends. Two sets are necessary per attachment point.

Procedure:

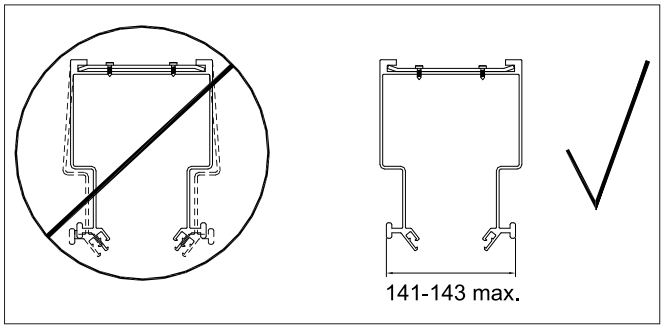
1. Start by fixing the bracket in the ceiling, on the wall or on a concrete girder with a suitable distance on the required surface. (Please refer to symbol A, B or G1 (see previous figure), for example.) Remember that the mounted Channel Duct works best, if it is mounted in a height of 3-5 meters.

2. When using a ceiling bracket and distance pipes, please make sure that the Channel Duct is level, since the trolley is operated optimally, when the installation is completely level.

3. The Channel Duct pieces are to be assembled to the required length. Do so by laying the Channel Duct pieces end to end; then assemble the pieces individually. Half of the smaller union is mounted in one of the Channel Duct lengths, where it is fixed as shown on the picture.



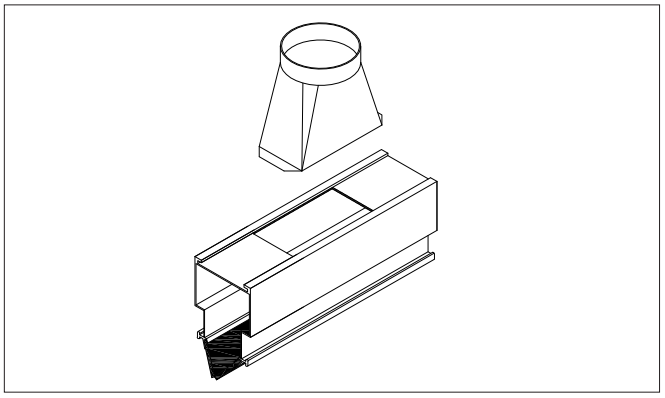
4. Remember to turn the junction plate (①) the correct way. I.e. with the bend turning up.



5. The other Channel Duct pieces is assembled by means of the union, which is fastened. Follow this procedure until the required total Channel Duct length is assembled.

6. If the connection of the Channel Duct to the fan/piping system is to be top mounted (See item D in the assembly drawing above), then the holes for the duct connections must be made. As a rule of thumb, top mounting is always to be preferred. The connection at the end of the Channel Duct should only be used on Channel Duct lengths of up to 18 meters. Go to item 7, if the connection is to be made at the end of the Channel Duct.

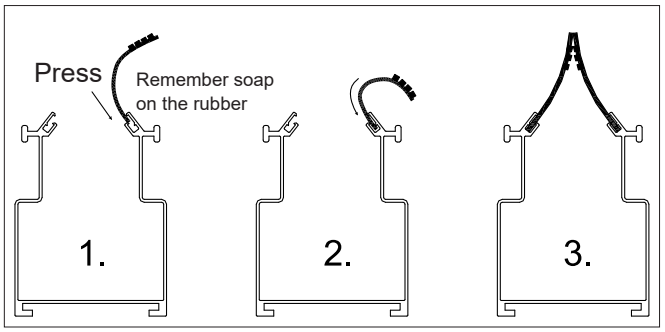
7. Now the pressure connecting piece is placed in the required place, and subsequently the hole to be sawn is drawn up by means of a felt tip from the inner side of the pressure connecting piece. The pressure connecting piece is removed and a hole is drilled on the line drawn up. Make sure that the line is long enough so that a compass saw can be used. The same procedure is followed in all places, where top duct connections are to be made. The hole should not be any closer than 1 meter from the end of the Channel Duct. Remember to place the duct connections at regular intervals on the Channel Duct in order to even out the drop of pressure over the whole length of the Channel Duct.



8. The rubber lips are fastened to the profile (after the assembly of the Channel Duct lengths).
   Do this before the suspension of the Channel Duct.
   Apply sufficient of the supplied soap (the brown substance in a bag!) to the slit of the Channel Duct. If the Channel Duct is more than 50 meters, see section 5.2.1.

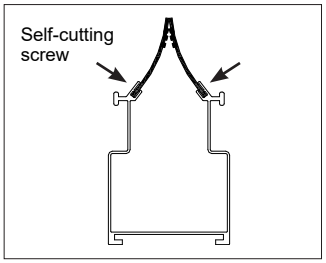
NEVER use grease or oil-containing substances

Start from one end and press approx. 30 cm of the neoprene rubber lips into place (in the slit) at a time. Get a good hold with both hands and press a small part down at a time. This is an operation requiring a great deal of patience. A screwdriver may be used for pressing down the rubber.



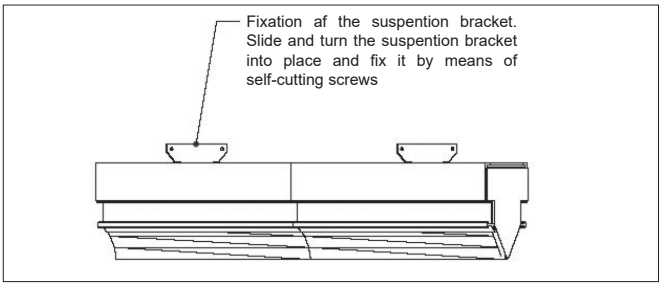
9. Geovent can also offer the use of an assembly trolley to facilitate the mounting of the rubber lips on the Channel Duct. If you choose this option do the following: use the soapy substance in the slit on the Channel Duct and start from one end. Assembly with tools is possible, when the Channel Duct has been installed. Please note: Two fitters are required for this process – one to operate the assembly trolley, while the other one holds the roll with rubber lamella.


Assembly trolley

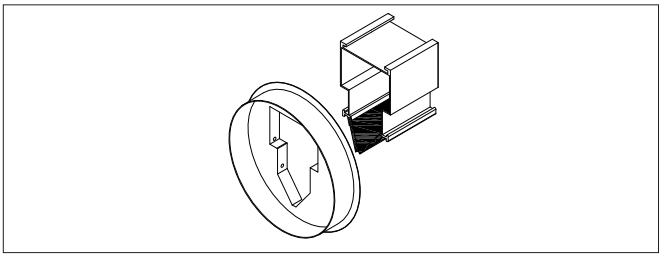


10. Now test that the neoprene rubber lips have been properly fixed to the Channel Duct. Subsequently they are fastened with a self-cutting screw in both ends of the Channel Duct, approx. 2 cm from the end and for every 40 cm.

11. Suspension of the Channel Duct in the ceiling, on the wall or on a concrete girder: We recommend using two lifts, so that the Channel Duct can be lifted at the same time. The suspension brackets are turned onto and are fastened on the bracket from the wall or from the ceiling. Subsequently, the bracket is to be fixed to the Channel Duct by means of self-cutting screws.



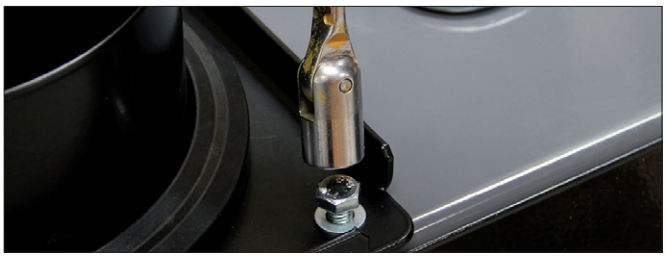
12. The connection of the Channel Duct to the fan/piping system may take place either via topmounting or by connecting a transition piece to the end of the Channel Duct. To be fixed by means of self-cutting screws.



Preparation and installation of trolley

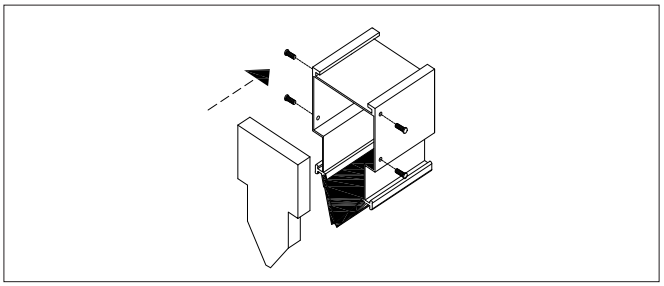
1. Mount the flange on the trolley.

Please note that the flange is different depending on whether an arm or hose is to be fitted.



2. Fix the flange with the 4 pcs. M8 x 20 bolts and friction discs. Then mount the trolley on the channel duct.

3. Adjustment of the friction of the Channel Duct. See 9.0.



5. Now the stop and the end cover are to be mounted. The end cover is fixed by means of self-cutting screws, and the stop is fixed with a bolt.

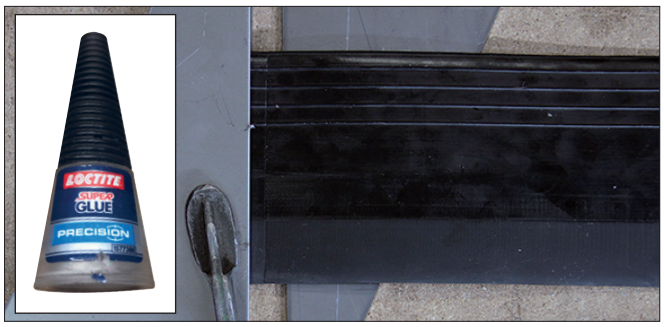
6. Now the Channel Duct System is to be sealed. Do so carefully by using silicone or the aluminium sealing agent in places, where a system is not tight. Often, this is the case at the end of the Channel Duct and by the duct connections.

5.2.1 Assembly of rubber for Channel Duct

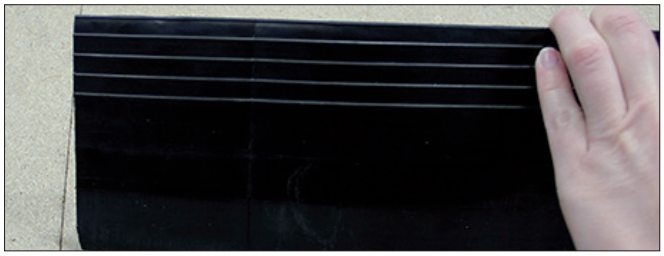
If more than one piece of rubber is to be used for the Channel Duct, the 2 pieces must be assembled.

1. Cut a straight edge at 90°.

2. Clean the surfaces to be glued on. Use a file as it gives a slightly rough surface and better adhesion. Then dry with thinner so the surface is completely clean.



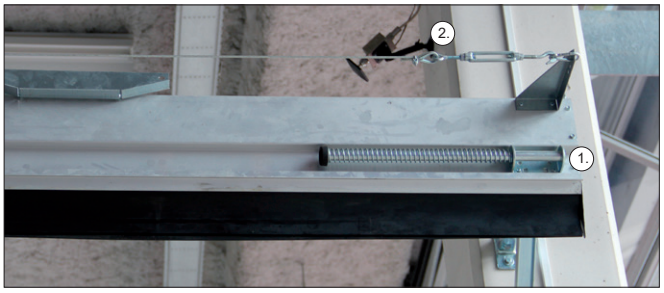
3. Lay the rubber on a flat surface during gluing. Apply Loctite glue or equivalent glue and put the edges of the 2 pieces of rubber together. Place a plate on top of the joint. Keep the rubber and assembly completely level and press down. Let it harden for about 5-10 min.



Finished assembly of 2 rubber pieces.

5.2.2 Optional equipment

Cables that can be hung on the wire can be power cables, but also hoses for compressed air. For start / stop of the fan and / or damper, and for disconnection of nozzle.

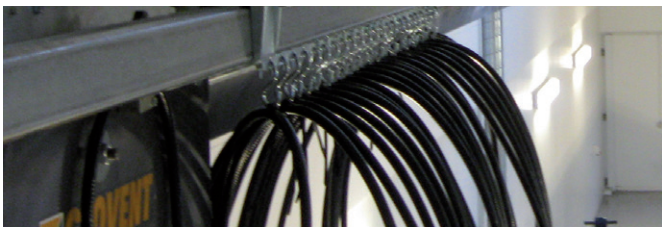


1. Securing of mounting brackets for wire. The longer the channel (wire), the better the brackets must be. It must be anchored at both ends of the channel. Suited securing point could be concrete rafters or walls.

2. Secure the wire at one end.

3. Slide the plastic rings on the wire ③, use approx. 1 per meter.

4. Secure the wire to the other end. It is important that this is tightened up use the tensioner ②, so that there is no slack. Do also the tightening as a part of the service check.



System used with c-profile. Here hooks have been used instead of rings.

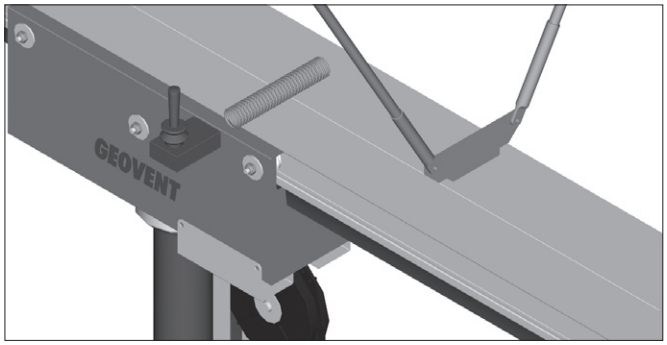
5. Attach the cabel to the rings. it is important to let the cable follow it is natural path to avoid twisting. It is important that the cable dosen't get cluttered up in use. This must be tested.

6. For more vehicles separate cables are recommended. Either starting from each end of the channel, or if possibe mounted on the opposite side of the channel.

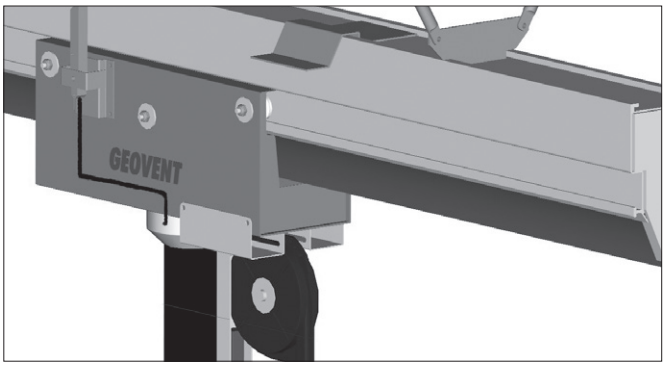
5.2.2 Optional equipment

The Channel Duct System may be supplied with optional extras. Below, you will find some advice for the installation/connection of some of the most common types of optional equipment.

Automatic uncoupling, pneumatically
By using a compressed air nozzle (pneumatic), the nozzle can be uncoupled at the end automatically.



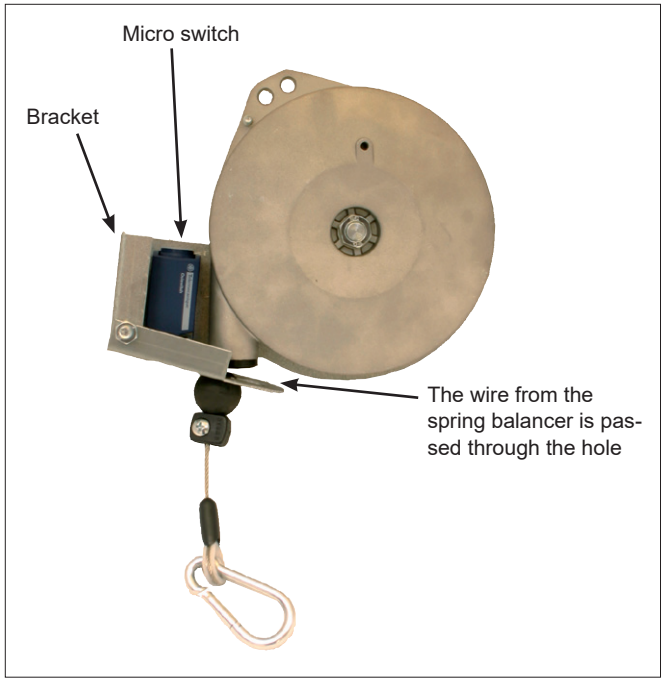
Automatic decoupling, mechanically
For mechanic uncoupling, a Bowden cable and a nozzle with tool and release device must be used.



Automatic return system
The channel duct can be equipped with automatic return of the trolley to the starting point. Typically used in MOT test centers.
See separate manual for this.

5.2.3 Mounting of balancers

A balancer is mounted on the trolley when there is a desire for automatic lifting of the hose when it is released.

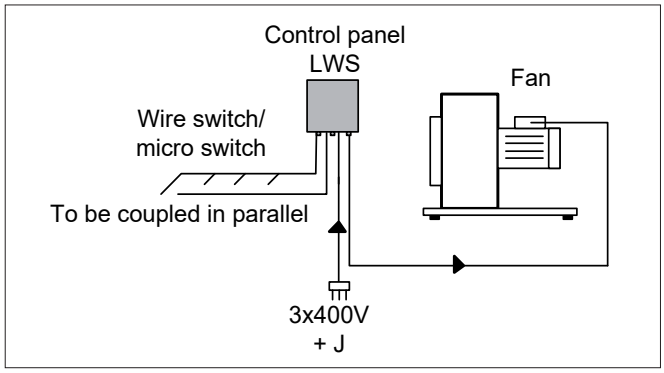


Insert the carabiner into the lashing bracket.

Insert the carabiner through the balancer.

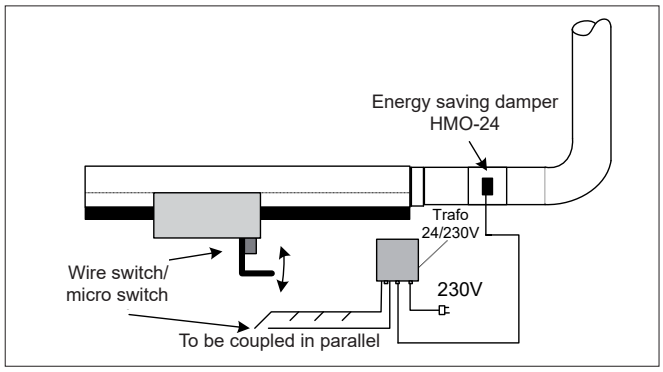
Insert the carabiner through the clamp on the suspension.

5.2.4 Connection of controls and motors



Connection diagram for GFD damper.

The start/stop automatics may also be used together with a quick-action motor damper (for connection, please refer to the drawing below).



Procedure

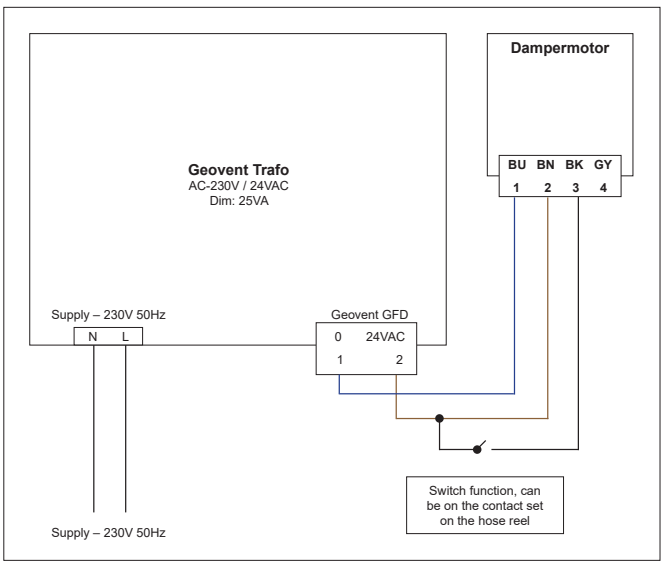
1: Connect main power supply (230V)

BU 1 – 1 (0) GND
BN 2 – 2 (24VAC)
BK 3 – 2 (24VAC/Contact)

2: Tilslut kabel ”1” og ”2” fra spjældmotoren til terminal ”1” og ”2” i strømforsyningen.

3: Connect wire ”3” to terminal ”2” through a switch. When the swich is on, the damper motor is activated.

NB: The DIP switches should not be set.



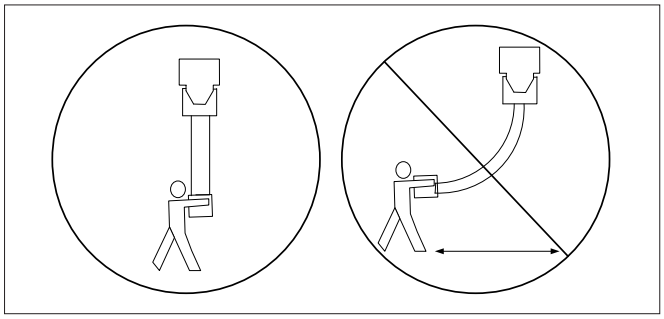
5.3 Control and test of the security system

Check whether the trolley can be operated satisfactorily. The hose is moved to the required working area and subsequently it is returned.

We also recommend checking if the fan is supplying the volume of air, for which the system has been dimensioned. If the pressure is not sufficient, then the risk of the hose melting is increased, and if the pressure is too high, then the trolley will be sluggish to move.

6.3 Efter installation

After the installation, the Channel Duct does not require any special instructions. However, the trolley is often moved by the operator. In order to secure a long working life of the system, the trolley must always be shifted/pulled below the Channel Duct, as shown on the drawing below. If this is not complied with, the life of the system will be substantially reduced.



The Channel Duct System will not work according to the intentions if …

- Unauthorised parts are mounted on the rail system, the Trolley, the hose or on the nozzle.
- The rail system is used for other purposes than for which it was originally intended.
- The fan is not switched on – the hose will melt!

7.0 Control, test and maintenance

7.1 Control

Before start use of the system, the entire system ost be checked for noise and vibrations. In case of squeaking sounds, locate the leakage and seal it with joint filler.

Check that the system delivers the amount of air which the system is proportioned for. Measure the amount of air and regulate e.g. by using a regulation valve.
In case of over capacity, the power usage can exceed the capacity of the fan motor, thereby causing the motor to burn out.
See the instruction manual of the fan.

7.2 Vedligehold

Periodic maintenance

- At regular intervals, the Trolley must be serviced in order to secure optimum operation.
- In continuation of the above, we also recommend treatment of the rubber lips with Rocol Teflon spray, for example, in order to reduce the friction.
- The hose is not be maintained, however, in order to secure a long working life overrunning the hose with any vehicles should be avoided.
- Check that the correct volume of air is extracted, and that the hose does not bend/evert too much right after the exhaust pipe.
- Measure the volume of air on the Channel Duct System at least once every year. If the volume of air is too small, the hose may melt.

At least once a year, the full system should be inspected by an authorised installer.

8.0 Cleaning

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

9.0 Troubleshooting

In case of problems with the Channel Duct, follow the instructions below:

Fixation of the neoprene rubber lips

- Follow the mounting instruction in chapter 5.2.

Problems with the operation of the Channel Duct.

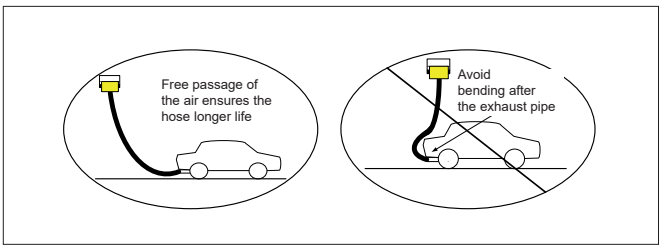
- The Trolley moves slowly – a pull of more than 10 kg to move the trolley is needed. Adjust the wheels, reduce the pressure, mount guide straps and check that the Channel Duct does not bend. The rubber lips may have turned brittle, if they have been exposed to oil/oil vapours. In this case exchange the rubber lips with nitrile lips.

Noise problems:

- The base on which the Channel Duct and/or the fan are/is placed is unstable.
- More air is extracted than the equipment has been dimensioned for. Use an adjusting damper.

Problems with the hose:

- The hose melts near the nozzle. This happens if there is not sufficient suction on the system or if the hose bends much right by the nozzle. May be rectified by increasing the volume of air or by exchanging the hose near the suction nozzle with 1-2 m of high-temperature hose.



- For vertical exhaust pipes we recommend using a 06-200 “gooseneck nozzle”.

10.0 Dismantling, disabling and scrapping

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

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

The inside of the product must be cleaned by means of a vacuum cleaner with a filter which suits the purpose.

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.

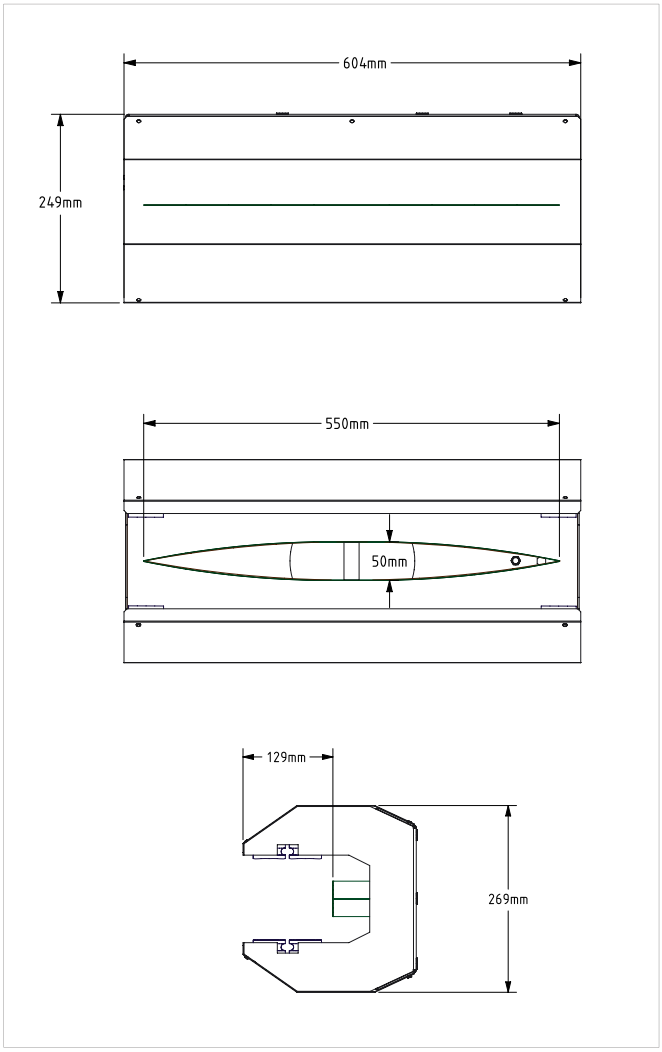
Dismantle plastic parts and dispose of it according to local regulations.

BEWARE of sharp edges of the metallic parts which could harm persons etc.

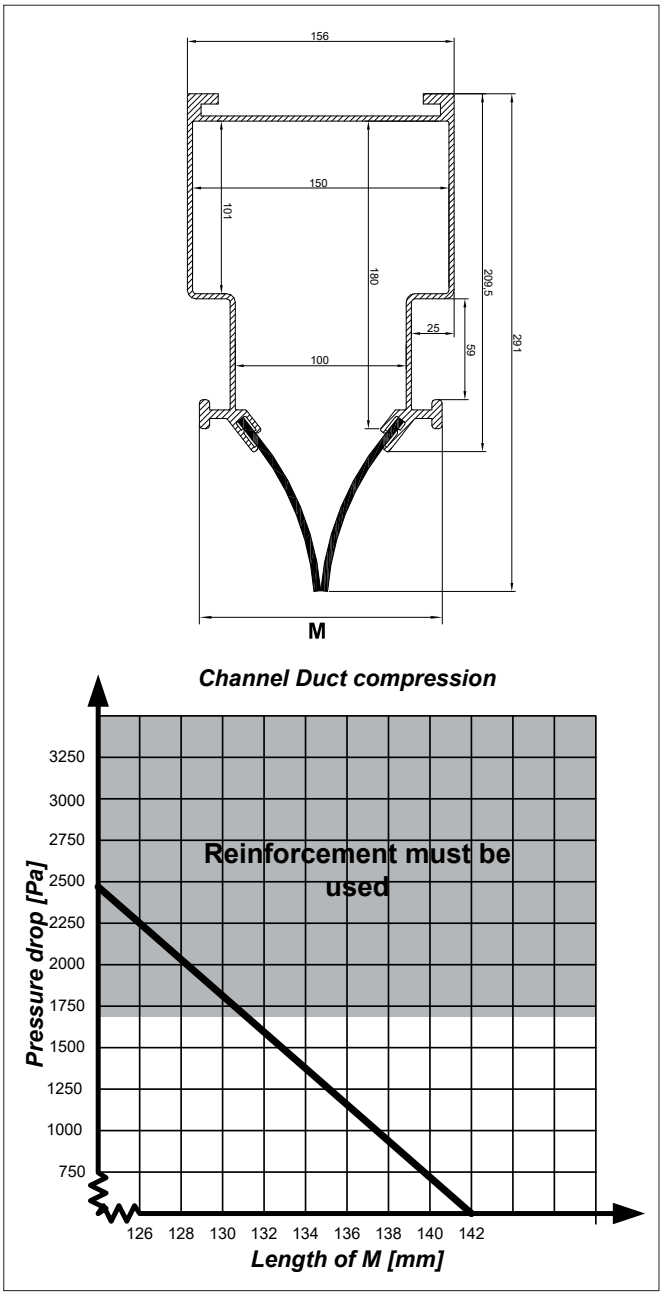
The packing material must be sorted according to local regulation in order to be able to reuse the material.

11.0 Dimensions

Hose trolley



Channal Duct



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

13.0 Declaration of conformity

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

Hereby declares that:

The product: Chanal Duct
Model: Type 25

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

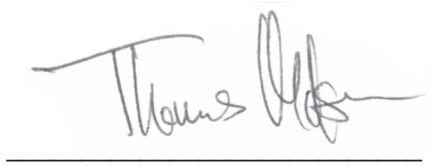
This declaration is no more valid if changes are made to the product by others than the manufacturer.

Authorized to collect the technical file:

Lise Cramer

Date: 25.03.2021

Position: Director
Name: Thomas Molsen

Signature: 

CE

14.0 Spare part list

Art. No.	Description
07-943	Low friction rubber lip
07-402B	Rubber Tool Type B

GEOVENT

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