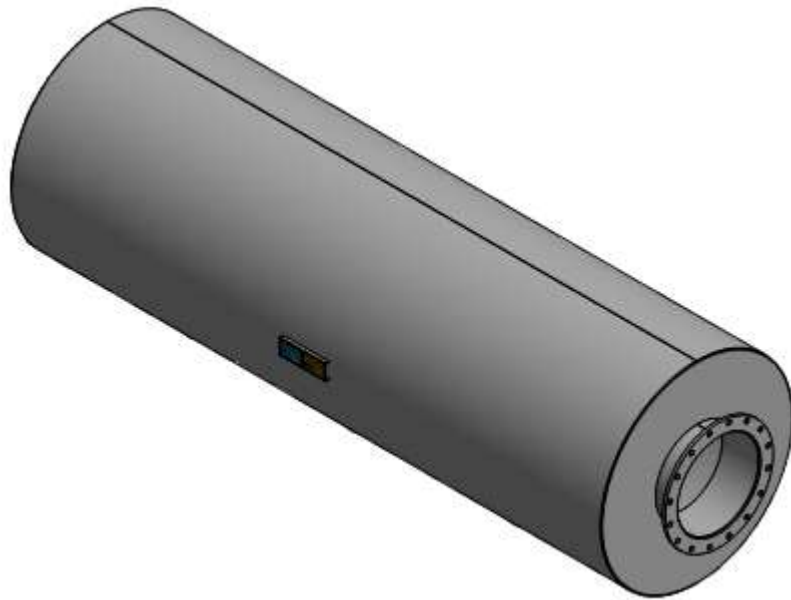


# Installation, operation and maintenance manual

## Discom silencers



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## 1 Silencer Description

The exhaust gas silencer is designed to reduce the exhaust noise of an engine. The working principle depends on the type of silencer and can be:

- **Reactive silencer:** Reflection of the exhaust noise and expansion/contraction of the gas which reduces the energy
- **Absorption silencer:** Absorption of the exhaust noise in an absorption material
- **Combination silencer:** A combination of the reactive and absorption material

The silencer can be equipped with an integrated certified spark-arrestor.

### *Information "CE-marking"*

The machine guideline came into force on 1 January 1995. Machines sold on the European market must be provided with a statement in accordance with this guideline.

On the basis of this guideline, the exhaust silencer(s) Discom bv supplies can be classed as a "machine without a CE-stamp, working non-independently and intended for incorporation". As in: 89/392/EEC, 91/368/EEC, 93/44/EEC page L183/2F paragraph B.

## 2 Identification

On the silencer body the type plate can be found with the unique serial number of the silencer.

## 3 Warning/danger

- Exhaust gases are always toxic, even after the installation of a catalyst and/or soot trap.
- Exhaust gas systems (including the silencer) contain extremely hot parts when operational which remain hot for a long time after use.
- Never remove drain plugs, other cleaning plugs or inspection hatches during operation.
- Use common sense while using exhausts and always make sure that the safety of all involved during installation and operation is assured first.

## 4 Spare parts

Spare parts are not required. We recommend that gaskets are replaced if dismantling silencer (often gaskets will break apart during dismantling).

## **5 Transport and storage information**

The silencers are delivered on wooden supports, pallets or frames. All loose components are delivered on a wooden pallet or in a wooden crate. The silencers are secured on wooden supports by means of straps. At dispatch all components are carefully sealed and packed.

At receipt of the goods:

- Visual inspect the silencers and components for any damage before unloading.
- Identified damage needs to be properly and readably marked on the CMR.
- The CMR needs to be signed and stamped by the receiver and completed with the date of discharge.
- Unloading is to be done either with a crane which is able to hoist the silencers or, when the silencers are delivered on a pallet, with a forklift.
- In order to avoid damage on the silencers unloading with a forklift is not allowed when the silencers are delivered on wooden supports (not pallets).
- Pay respect to the local safety regulations.
- Remove all packing material in an environmentally friendly way.
- Check the product for damage. If there are any abnormalities, these must be reported as quickly as possible to the Discom Nord +45 86 64 17 44

\* Claims are only accepted if they have been submitted in writing within 10 working days after delivery, in accordance with the agreed Terms and conditions of delivery.

To remove the silencer from the wooden supports, pallets or frames, the straps should be removed first.

The silencer can be lifted into its final position using the appropriate hoisting equipment as mentioned above.

The Discom-packaging (wooden supports, pallet or frame, with inlets and outlets blinded off) is suitable to store the silencer under normal dust free and dry conditions and for a longer period of time.

When packaging is already removed from the silencer and storage is still required it should be repacked in its original packaging. All inlet- and outlet openings should be blinded off. The silencer should be stored under normal dust free and dry conditions.

## **6 Instructions for mounting of the silencer**

For mounting the silencer no special tools are needed. Also no special training other than this manual is needed to mount the silencer.

Use common sense while using exhausts and always make sure that the safety of all involved during installation and operation is assured first.

### 6.1 Silencer location/position

1. The silencer can be installed either vertically or horizontally, depending on the given flow direction.
2. If silencers with integrated Sparkarrester, are mounted horizontally, special attention on placing the sootbox correctly is important.  
Sootbox shall be placed under an angle of +/- 45° from lowest position.
3. The silencer may be installed anywhere between engine outlet and the exhaust gas boiler, preferably as close as possible to the engine outlet.
4. The silencer can be lifted into its final position using the appropriate hoisting equipment.

### 6.2 Mounting the silencer

1. For horizontally installed silencers the weld seam should preferably be on the top.
2. After mounting the silencer into its final position the exhaust gas piping can be connected to the inlet of the silencer. The inlet should be mounted in-line with the exhaust gas piping, to avoid possible leakages and stresses in the material.
3. When the silencer is equipped with flanges the flange connection should be mounted using a heat resistant gasket.
4. When the silencer is equipped with flanges the in- and outlet of the silencer can be connected to the piping using bolts and nuts with the appropriate length. Tighten the bolt connection using the torques mentioned in the table below.
5. Sufficient attention must be paid to the use of (a) compensator(s) for coping with thermal expansions and excessive vibrations of the exhaust gas system.
6. It is advised to place a compensator at the inlet side of the silencer.
7. Compensators should be mounted stress free and in-line with the exhaust gas piping. Compensators should not be used to compensate for mounting tolerances.
8. Always provide a smooth flow through the exhaust gas piping and avoid right angled bends and/or other abrupt flow changes to prevent unnecessary pressure loss.
9. If the silencer is installed on and/or via flexible (rubber) supports and/or suspension, provide sufficient ventilation to prevent overheating of the rubber. The suspension points must therefore not be shortened too far. Also look carefully at the installation of the "thermo plaque" insulators below and above the supports.
10. If an exhaust gas pipe has to be fed through a wall, preferably a partition duct should be used.
11. If an exhaust gas pipe has to be fed through a deck, preferably a deck duct should be used.
12. If the extraction section is installed vertically, preferably a hood or rain cap should be used.
13. For safety reasons and to extend the lifetime of the silencer it is advised to insulate the silencer externally.

<b>Stainless steel A2</b>	
<i>Bolt</i>	<i>Torque [N.m]</i>
M12	56
M16	136
M20	274
M24	264
M27	371

Steel class 8.8	
<i>Bolt</i>	<i>Torque [N.m]</i>
M12	79
M16	195
M20	430
M24	670
M27	1100

### 6.3 Dismounting the silencer

For safety reasons the silencer may only be dismantled several hours after the engine has been shut down, to allow the silencer to cool down. In case of doubt, wear protecting gloves and check the outside temperature of the silencer with a thermometer.

Use common sense while dismantling exhausts and always make sure that the safety of all involved during installation and operation is assured first.

Before lifting the silencer out of its installation, disconnect the connecting exhaust gas piping. Make sure the silencer cannot fall down. Disconnect all brackets/supports. Lift the silencer gently out of its installation using appropriate hoisting equipment. Please observe the storage instructions and store all loose components together with the silencer. We recommend to get new gaskets ready before dismantling if remounting again immediately after.

### 6.4 After first installation

After installation of the silencer it should be checked if the silencer does not touch the container structure or other adjacent components

There should be free space around the silencer to allow for thermal expansion of the silencer and for movements caused by vibrations.

Check if all connections are gas-tight.

### 6.5 First start-up of the engine

During the first start-up of the engine the steel parts of the silencer will settle.

It is possible that during first start-up of the engine solvents from the coating will evaporate. This is a normal situation that will only occur at first start-up. After first start-up the coating of the silencer has its final hardness.

Beware that when the engine is running the silencer will become hot, especially at the parts near the silencer inlet and outlet.

Please be careful with touching the silencer.

Recheck all connections to see if they are still gas-tight.

## **6.6 After first start-up of the engine**

The silencer can still be hot even several hours after the engine has been shut down. After the first start-up all the maintenance checks according to chapter 7.3 have to be performed.

## **7 Maintenance and troubleshooting**

For maintenance and/or troubleshooting on the silencer no special tools are needed. Also no special training other than this manual is needed to carry out maintenance on the silencer.

The exhaust silencer-assembly does not need regular maintenance, as there is limited wear of the components possible during normal operation.

When components are damaged, best solution is always to replace them.

In case of problems or doubts, use common sense and always make sure that the safety of all involved is assured.

Discom should always be consulted immediately in case of problems or doubts at:

Discom B.V.  
Staalindustrieweg 5  
2952 AT Alblasterdam  
The Netherlands  
T +31 (0)78 68 10 960  
F +31 (0)78 68 10 970  
E info@discom.eu

### **7.1 External Cleaning**

#### External insulated silencers:

If silencers are external insulated, the surface temperature is low. Therefore cleaning is not needed, unless for visual reasons.

#### Silencers not external insulated:

If silencers are not external insulated, the surface temperature can be high. This might cause a risk of fire, if silencers are covered with dust. Therefore Discom advises to clean the silencer assembly externally every 6 months but at least once every year. Cleaning the internal parts of the silencer is not recommended.

For safety reasons the silencer should only be cleaned several hours after the engine has been shut down to allow the silencer to cool down. In case of doubt wear protecting gloves and check the outside temperature of the silencer with a thermometer.

To clean the external of silencer Discom advises to blow off dust and other dry particles using compressed air (working air 6 bar). When necessary a damp cloth can be used to remove stains.

## 7.2 Spark Arrester cleaning

In case the silencer is equipped with a spark arrester, soot cleaning is compulsory and must be performed every two months. One has to follow the below instructions.

The following precautions must be respected.

- For safety reasons the silencer should only be cleaned several hours after the engine has been shut down to allow the silencer to cool down. In case of doubt wear protecting gloves and check the outside temperature of the silencer with a thermometer.
- Exhaust gasses are poisonous. Do not inhale.

Procedure:

- Remove the plug from the soot box.
- Connect a socket extended with a flexible hose. The hose must end outdoors or at least in a properly ventilated space.
- Use a container to collect the soot.
- Start the engine and (when possible) partly cover the tail pipe to increase pressure in the exhaust system. The soot will flow along with exhaust gasses through the hose. When it is not possible to (partly) cover the tailpipe it is sufficient just to run the engine, preferably with a certain engine load. As soon as exhaust gas can freely pass through the hose and no soot particle are coming out any more, the engine can be stopped and the box is sufficiently cleaned.
- Disconnect the flexible hose.
- Remount the plug of the soot box.

**It can happen that no soot is found inside the box. The reason is that the soot gathered during stages with low engine loads (and low exhaust gas temperatures) is burned during stages with high engine loads.**

It is advisable to clean the spark arrester collection box with compressed air (6 bar) every 6 months.



### **7.3 Maintenance checklist**

Discom advises to check the silencer assembly after first engine start-up, after 6 months and every 6 months after that. Every check should be done at least every year. Directly after any extraordinary mechanical load and in case of incidents the silencer assembly should also be checked.

For safety reasons the silencer check should only be performed several hours after the engine has been shut down to allow the silencer to cool down. In case of doubt wear protecting gloves and check the outside temperature of the silencer with a thermometer.

The following points have to be checked:

1. Check all bolted connections and re-tighten when necessary.
2. Check the visible parts of the silencer for cracks. Extra attention should be paid to the silencer's in
3. let and outlet. When cracks are found in the silencer body, Discom should be consulted immediately to check if the crack can be repaired or if the silencer has to be replaced. Repairs may only be performed by authorized Discom personnel.
4. Check for mechanical deformations of the silencer. When excessive mechanical deformations are found in the silencer body, Discom should be consulted immediately to check if these deformations should and can be repaired or that the silencer has to be replaced. Repairs may only be performed by authorized Discom personnel.
5. In case the silencer is coated, check the coating for scratches, mechanical damages and signs of corrosion. When scratches or mechanical damages in the coating are found, these spots should be cleaned, decreased and repainted immediately using a paintbrush and Pyropaint D5024.