

GLAUNACH

THE SILENCER HANDBOOK

INSTALLATION



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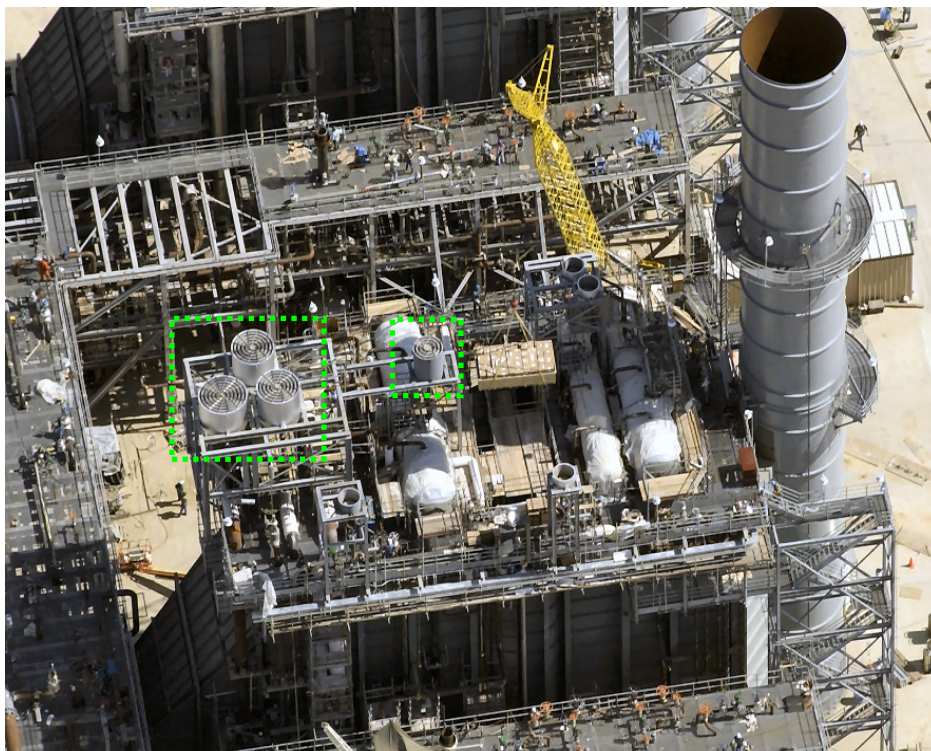
1. CHOOSING THE INSTALLATION LOCATION

When selecting a suitable site for the installation of a vent silencer, the following ground rules apply:

- ❑ To ensure a best possible reduction of noise exposure and warrant continued operational safety, vent silencers should be installed at a **possibly high location well away from standard workspace**.
- ❑ To minimise noise reflections and avoid damage, the vent silencer should not be installed close to façades.

NOTE: Especially vented hot steam may seriously damage nearby structures, and sound reflections off walls can intensify sound pressure levels by about 10 dB. In case the specific conditions of the application nevertheless require such an installation, the use of a suitably aligned goose neck accessory directing the flow away from the wall(s) is strongly recommended.

Typically, an excellent location for vent silencers is atop a roof:



Showcase installation of various vent silencers on a factory roof



CAUTION: Depending on the medium vented, the effluent and the vent silencer may be extremely hot, and/or the effluent may contain hazardous substances. Where applicable, please arrange for appropriate safety measures!



DANGER: Operation of a vent silencer inside a building may pose a serious threat to life and safety and is therefore prohibited.

Further design recommendations for the optimal deployment of a Glaunach silencer include:

- ❑ The blow-off pipe leading to the vent silencer should have a wide diameter to keep the gas velocity below Mach 0.2 and thus minimise flow noise. Also, the piping should be possibly straight and uniform in diameter to prevent noise generated by turbulent flow conditions.

NOTE: In cases where this is not fully feasible, all exposed parts of the blow-off pipe should be acoustically insulated. Otherwise, the noise dissipated by sections of the pipe or valves may significantly exceed the residual noise generated in the vent silencer, reducing the overall effectiveness of the silencer installation.

- ❑ The design of the installation upstream of the vent silencer, for instance a safety valve, should take the back pressure of a vent silencer into account.
- ❑ Overall, high-pressure designs are usually preferable:

RULE OF THUMB

higher inlet pressure = smaller and cheaper installation

2. VENT SILENCER SUPPORTS

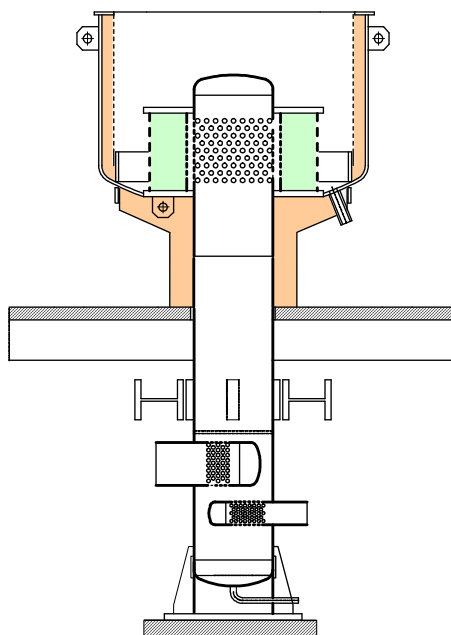
GLAUNACH Vent Silencers are of such light and compact design that in many cases the silencer can be carried by the blow-off pipe itself, without additional support. In all other cases, a wide selection of mounting brackets is available to facilitate a flexible and secure installation of the silencer.

Given below are a few typical case scenarios of vent silencer installations on a roof. In case of deviating requirements, GLAUNACH will be happy to advise you as to the best installation of a vent silencer under your specific requirements.

2.1 ROOF-INDEPENDENT SUPPORT

The silencer is mounted to the blow-off pipe, which is supported independently from the roof structure. Thus, no additional load is added to the roof structure, and modification to the roof is limited to the installation of a suitable pass seal. The wall thickness of the blow-off pipe has to be sufficient strong to take wind forces acting on the exposed sections.

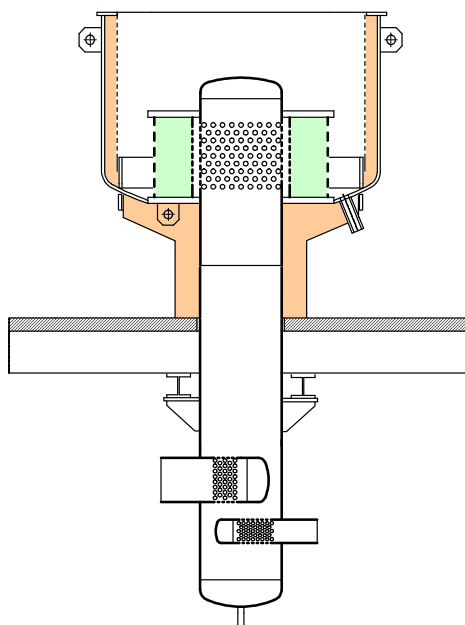
In case of thermal expansion movements, the silencer can freely move relatively to the roof surface; where this is an issue, a suitable slide seal should be fitted at the roof passage.



Roof-independent installation of a vent silencer mounted to a floor-supported collecting pipe

2.2 IN-ROOF SUPPORT

In this embodiment, the roof-top silencer is mounted to the blow-off pipe, which is fixed to the underside of the roof structure by brackets bolted to the girders. This reduces the moment arm of wind forces acting on the silencer and the effective thermal expansion to be taken by a (slide) ring seal in the roof.

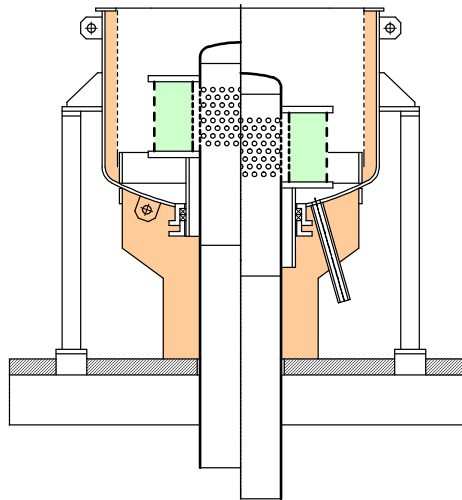


Installation of a vent silencer mounted to a collecting pipe suspended from the roof structure

2.3 ON-ROOF SUPPORT

On-roof supported silencers are mounted on the roof via mounting brackets, either directly (*in-roof installation*) or through stays of suitable length (*roof-top installation*). This option is especially relevant for large and heavy silencers and installations in high-wind areas.

To allow for thermal expansion effects, the blow-off piping can alternatively be flexibly suspended, allowing it to move relatively to the fixed vent silencer, or a length compensator can be integrated in the silencer. Available standard compensator options include metallic pipe expansion joints or GLAUNACH's special "Sliding Diffuser Silencer" layout:



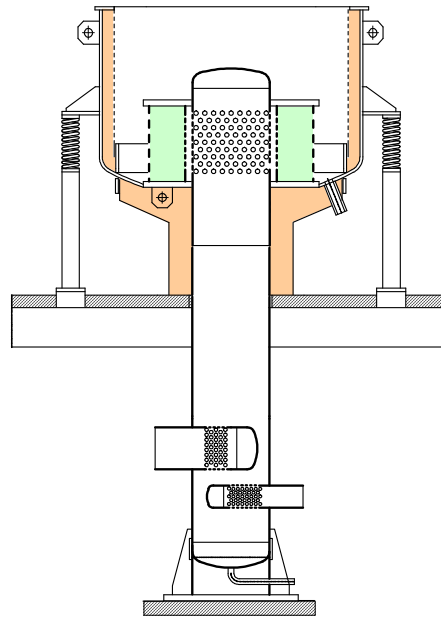
*On-roof installation of a sliding diffuser vent silencer;
left: thermally expanded state, right: contracted state*

GLAUNACH sliding diffuser vent silencers are also eminently suitable for installations requiring noise decoupling between the vent silencer and solid-borne sound in the upstream installation.

2.4 FLEXIBLE SUPPORT

The flexible support is a special on-roof support, in which the silencer is mounted on balancing bearings. This design allows for axial movement, in particular caused by thermal expansion, while still providing full structural support of the vent silencer.

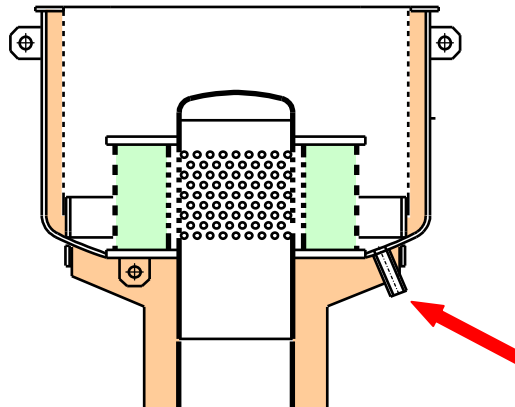
NOTE: In this design, residual powers may be perpetually exerted on the pipe.



Flexible support on-roof installation of a vent silencer connected to a floor-supported collecting pipe

3. DEWATERING

For draining rain water and condensation, each GLAUNACH silencer is equipped with a non-pressurised dewatering pipe at the bottom of the silencer shell.



Diffuser silencer with open dewatering pipe for draining rain water and condensation

The dewatering pipe may be left open, or connected to a drain system.

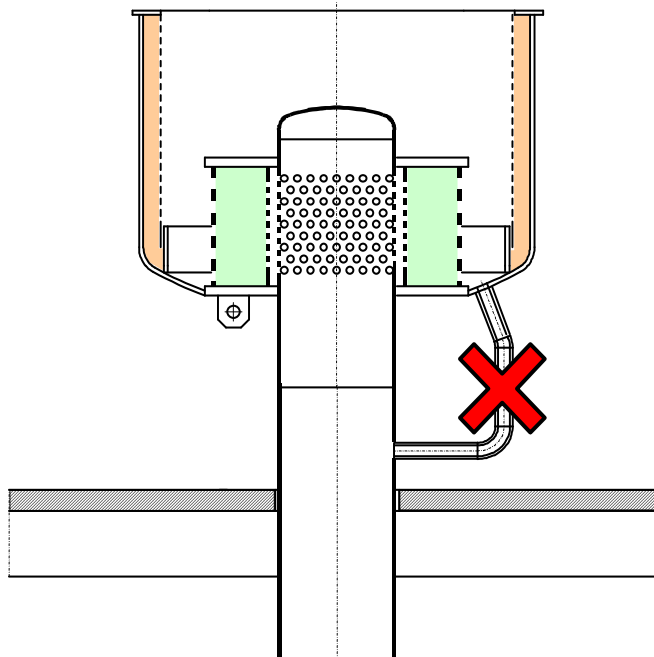


CAUTION: Drained condensate may be hot. Where this may be the case, we recommend collecting the liquid into a drain system, or provide a drip plate or cup under the dewatering pipe to prevent long-term damage to the roof.



WARNING: The drain must not be fed back into the blow-off line:

- ❑ solid substances (soil, sand and dust, bird droppings, etc.) could penetrate into the pipes, contaminating and/or obstructing parts of the installation
- ❑ during blow-off, vented medium would bypass the silencer through the drain, considerably impairing the effectiveness of the silencer installation



Example of an incorrect, potentially fault inducing installation of a dewatering pipe



ADVICE: In installations where sub-zero temperatures (0 °C / 32 °F) may occur, we recommend keeping the drain line possibly short and close to the insulation to prevent the drain from freezing. Optionally, heating elements for heating the bottom section of the vent silencer are available as accessories.

4. STORAGE

When storing vent silencers, the provided plastic covers should always be put over the gas inlet and the dewatering pipe.

Short-term outdoor storage is permissible. When stored outside, the (covered!) inlet pipe and dewatering pipe must be directed upwards, to prevent rain, snow and dirt from entering the silencer.

For long-term storage, the silencers must be placed under roof.

5. START OF OPERATION

5.1 FRIST-USE PREPARATIONS

Blow-off pipes should first be cleaned and blown through without the silencer installed. Else, particulate contaminations (e.g. iron oxides, organic materials, etc.) contained in the pressurised system could obstruct the silencer.

Before the first blow-off process, please remove all covers and shipping brackets from the vent silencer.

5.2 START-UP PROCEDURE OF SLIDING DIFFUSERS

On delivery, the sliding diffuser is fixed with 3 bolts in its transport position. To enable proper operation, **these bolts must be removed after installation.**

After the first blow-off event, we recommend adjusting the tension of the stuffing box to guarantee tightness.

NOTE: In particular if your sliding diffuser is equipped with an additional acoustic insulation covering the stuffing box, lock washers should be installed to secure the tension setting.

6. SPARE PARTS

With exception of silencers specially equipped with exchangeable diffuser cartridges or heating elements, GLAUNACH silencers do not require spare parts for reliable long-term operation.



IMPORTANT ADVICE

This documentation has been compiled for information and planning purposes, and does not claim comprehensive coverage of all questions related to the installation of a vent silencer.

When installing a GLAUNACH vent silencer, please **always refer to the detailed installation manual**, which is part of your project documentation.