Operating Manual for Silencers and Dump Tubes

FOREWORD

This manual provides essential safety, installation, and operational instructions for Glaunach Silencers and Dump Tubes.

Users are responsible for ensuring that only the latest version of this manual is used. The current version can be downloaded from www.glaunach.com. Glaunach GmbH assumes no liability for damages, malfunctions, or safety risks resulting from outdated documentation or improper use.

Although this manual has been prepared with great care, errors cannot be entirely excluded. Glaunach GmbH accepts no legal responsibility for any consequences—direct or indirect—arising from its use.

For binding instructions and the most current version, please refer to the official documentation provided by Glaunach or visit www.glaunach.com

1. GENERAL

1.1 Preface

Silencers and Dump Tubes (also known as vent silencers, discharge silencers, blow-off silencers, micro-diffuser, steam vent silencers, gas vent silencers, pressure relief silencers, expansion silencers, relief valve silencers, atmospheric vent silencers, inline-silencers, purge silencers, or other – all operating on the same basic principles) - hereinafter collectively referred to as SILENCERS - are used to reduce noise generated by the expansion of gases or steam and to safely relieve system pressure.

The diffuser (inlet pipe to the silencer) is a pressure-retaining component and must comply with the requirements of the Pressure Equipment Directive (PED) 2014/68/EU, ASME Section VIII, or other applicable national regulations. According to the PED, it is considered part of the piping system (Annex II, Diagrams 6 and 7).
The silencer body itself, if open to the atmosphere, is not classified as a pressure vessel under the PED or ASME.

The silencer body, if open to atmosphere, is not considered a pressure vessel under PED, ASME, or UKAS guidelines.

1.2 Scope of Application

This manual applies exclusively to Glaunach silencers identified by their nameplate. As silencers are part of a larger system, this manual must be used in conjunction with the general documentation for the plant or facility.

2. FUNDAMENTAL SAFETY REGULATIONS

2.1 General

This manual contains essential safety instructions for the correct and secure operation of silencers. All personnel in proximity to the silencer during blow-off must adhere to the safety information provided. Additionally, all relevant national and local safety regulations must be followed.

2.2 Responsibilities of the Plant Owner

The plant owner is responsible for ensuring that personnel working near the silencer:

- are informed about applicable safety regulations,
- have continuous access to this safety information,

- and have read and fully understood this manual.

Personnel assigned to installation and operation tasks must be clearly designated and authorized. All relevant documentation must be kept in legible condition and readily accessible.

2.3 Responsibilities of Installation Personnel

All personnel involved in the installation or maintenance of the silencer must:

- be authorized,
- be familiar with national and international installation standards,
- be aware of the safety regulations of the plant operator,
- and have read and fully understood this manual.

2.4 General Warnings

Although Glaunach silencers are built using advanced technology and quality standards, improper use may lead to severe injury or property damage.
Silencers must only be used within the specified operating parameters defined in the design documentation.
Any deviation from the intended use must be avoided. Any irregularities that could impact safety must be addressed immediately.

2.5 Intended Use

Silencers are exclusively designed for noise reduction resulting from the expansion of gases. Relevant data such as medium type, temperature, and pressure are indicated on the unit's nameplate.

Silencers and Dump Tubes are designed exclusively for the gaseous phase of a fluid.
The introduction of liquids into the system is strictly prohibited. It must be ensured that the process temperature remains sufficiently high at all times to prevent condensation or phase transition from gas to liquid. If any form of liquid injection (e.g., water for cooling purposes) is planned upstream of the silencer, it is the sole responsibility of the operator to ensure that no liquid enters the silencer or dump tube under any operating condition. Such applications are only permitted after prior consultation and with written approval from the manufacturer.
Intended use" means using the product in accordance with this manual, performing regular maintenance, and observing the nameplate information, technical specifications, and safety warnings
Any alternative use, such as using the silencer for flushing or purging the piping system, is not permitted.

2.6 Guarantee

Unless otherwise agreed, the standard guarantee period is 24 months from the date of delivery.

The guarantee becomes void in the following cases:

- Use outside the permissible conditions,
- Improper installation, handling, or maintenance,
- Violation of transport, storage, operation, or maintenance instructions,
- Unauthorized modifications to the silencer,
- Operation outside the specified design parameters,
- Force majeure, including natural disasters, war, or other uncontrollable events.

Silencers operating under corrosive conditions are subject to accelerated wear and are not covered under guarantee unless explicitly stated.

2.7 Safety Precautions

Before operation, conduct a visual inspection of the surrounding area to ensure there are no safety hazards to people or property. The customer is responsible for preparing a documented safety and hazard analysis for the operation of the silencer.

2.8 Hazards from Pressurized Gases

All pressure-bearing components must be fully depressurized before any maintenance or repair work is performed.

2.9 Hazards from Medium and Heat

Personnel must vacate the hazard zone during blow-off due to the danger posed by the high temperature and pressure of the vented medium.
External surfaces of the silencer may become extremely hot. External insulation may be required, but it is not included in the standard scope of supply.

Important: Gas or steam may also exit through the silencer's drainage pipes. The same safety measures apply to these outlets.

Refer to " Safety Guideline for Gases and Fluids in Silencers and Dump Tubes" available at www.glaunach.com.

2.10 Noise Exposure

During operation, significant noise may be emitted at the silencer outlet or through connected piping. Personnel in the vicinity must wear suitable hearing protection.

3. TECHNICAL SPECIFICATION

3.1 Drawings, Specifications, and Part Lists

All technical details relevant to the silencer are documented in the corresponding engineering drawings, specification sheets, and part lists. These documents define the following parameters:

- Maximum allowable design pressure
- Maximum allowable design temperature
- Maximum flow capacity
- Medium (gas or steam)
- Materials of construction
- Dimensional data

3.2 Name Plate

Each silencer is equipped with a nameplate that displays the following operational data (unless specified otherwise by the customer):

- Manufacturer
- Fabrication Number
- Design Pressure (PS)
- Operation Pressure
- Design Temperature (TS)
- Operation Temperature
- Year of construction
- Flow Capacity
- Medium
- if applicable, CE or ASME stamp marking

The information is essential for identification, documentation, and safe operation of the silencer; it must remain permanently visible and must not be removed.

4. TRANSPORT AND STORAGE

All silencer surfaces and sealing components must be adequately protected during transport and storage to prevent damage or contamination. If the silencer is not delivered in a box or container, appropriate protective materials must be applied.

Sealing surfaces, such as those on flange connections, must be securely covered and protected from mechanical damage until installation.

4.1 Lifting Instructions

If provided, only the designated lifting lugs may be used to lift the silencer. Attaching lifting equipment to other components is not permitted unless explicitly specified otherwise. The supplied lifting instructions must be strictly followed. In addition, all applicable national safety regulations must be observed. Personnel involved must be appropriately qualified.

Lifting lugs are intended for one-time use during initial installation. Before any subsequent use, e.g. for disassembly, they must be inspected by qualified personnel and replaced if necessary.

4.2 Storage Guidelines

Silencers must be stored on a level and stable surface or on the original shipping pallets. Point loading or uneven support may lead to deformation or structural damage.

All openings (e.g. pipe sockets, flanges) must remain tightly sealed during storage and transport. Removal of these closures is only permitted immediately before installation and must be carried out by qualified and authorized personnel.

4.3 Paint Protection

Any damage to the protective coating caused during transport, storage, or installation must be repaired in accordance with the specified painting and corrosion protection standards.

5. INSTALLATION

5.1 Installation Requirements

The silencer must be handled and installed in a way that eliminates risks to personnel. All national safety distances and regulations in the country of installation must be observed.
The silencer must be installed exclusively on the designated supporting structure as specified in the technical drawings. It must be protected from mechanical forces that may arise during operation, such as vibrations or impacts.
On request, silencers can be equipped with grounding lugs for the dissipation of electrostatic charge. If grounding lugs are present, they must be properly connected to a grounding cable in accordance with applicable electrical safety standards.

5.2 Connecting the Silencer to Pressure Systems

The silencer must be mounted on a stable and suitable foundation. Transmission of external forces, moments, or vibrations from connected piping must be avoided. This includes allowances for thermal expansion in the pipe system during operation.
All welding activities must comply with relevant standards and regulations.
Drainage (dewatering) pipes must be designed and installed to prevent freezing, particularly in cold environments. Where necessary, the installer shall provide or specify appropriate freeze protection measures.

5.3. External Insulation of the Silencer

Depending on operating conditions (e.g., high temperatures, vibration, or acoustic requirements), external insulation may be recommended by GLAUNACH. This insulation is not included in the scope of supply and must be applied by the customer after installation.

6. FIRST START-UP

The silencer may only be commissioned after the following conditions have been fulfilled:

- The silencer has been correctly installed in accordance with the design and installation instructions.
- All relevant installation steps have been performed in compliance with this manual.
- The installation has been inspected and approved by qualified personnel, particularly with regard to proper mounting and secure connections.
- The upstream blow-off system is completely free from debris, dirt, or foreign objects that may impair performance or safety.

Final Commissioning Approval:
The final approval for first start-up must be issued by the plant operator, based on national safety regulations and standards applicable in the country of installation.

7. OPERATION

7.1 General

The silencer must be operated exclusively by trained and authorized personnel. The plant operator is responsible for ensuring that no individuals are exposed to potential hazards during operation.
A safety zone around the silencer must be clearly defined, visibly marked, and permanently maintained.The operator must provide appropriate operational instructions and ensure personnel are informed about all relevant safety procedures.
All applicable national regulations regarding the operation of silencers must be strictly observed.

7.2 Improper Use

If the silencer has been subjected to an overload — whether due to abnormal operating conditions or an unexpected event — or if there is any visible or suspected damage before, during, or after operation, the silencer must be immediately taken out of service and thoroughly inspected by qualified personnel.

7.3 Unauthorized Modifications

Structural modifications to the silencer require the express written approval of the manufacturer. This applies in particular to the addition or removal of non-approved components. Any violation will void all warranty claims.

7.4 Fault Prevention

To minimize operational risks:

- Install the silencer at an elevated location, away from occupied areas and building facades—ideally on a rooftop.
- Never install silencers inside buildings or in close proximity to regularly occupied workspaces.
- Identify and acoustically isolate all other noise sources unrelated to the silencer if necessary.
- Do not route drainage (dewatering) pipes back into the upstream blow-off system.
- Drain pipes must be protected from freezing at all times.

8. Maintenance

the plant operator is responsible for ensuring that the silencer remains in a clean and operational condition at all times. In particular, the silencer outlet must be kept free of:

- Water
- Ice
- Dust
- Debris
- Any other obstructions that could impair function or safety

Regular visual inspections and functional checks are recommended to detect early signs of wear, corrosion, or contamination. Maintenance must only be carried out by qualified personnel, and in compliance with all applicable national safety standards and plant regulations.

9. RECURRING EXAMINATIONS BY CERTIFIED SUPERVISORS

An annual inspection of the silencer is mandatory. The plant operator is responsible for ensuring that these recurring inspections are carried out and properly documented by certified and authorized personnel, in accordance with the applicable national regulations of the respective installation country.

Inspection requirements include:

- Inspection of all safety-relevant components in accordance with the operator’s guidelines
- Visual testing (VT) as well as dye penetrant testing (PT) or magnetic particle testing (MT) of lifting lugs and mounting brackets before disassembly/reassembly
- Repair of coating damage in accordance with applicable corrosion protection and coating guidelines

These examinations help ensure safe, reliable long-term operation of the silencer system.

10. ASSOCIATED DOCUMENTS

The following documents and references are applicable in conjunction with this manual and must be observed:

- Pressure Equipment Directive (PED) 2014/68/EU *
- Harmonized Standards relevant to pressure equipment and noise control *
- National laws and safety regulations of the country where the silencer is installed *
- Glaunach Installation Guidelines
- Glaunach Insulation Guidelines
- Glaunach Fault Prevention Instructions
- Project-specific safety and hazard analysis *

*Not part of the supplied documentation**

These documents provide additional technical and legal information necessary for the safe and correct use of Glaunach silencers.