NOTICE

The instructions herein must be expressly carried out in order to preserve WARRANTY COVERAGE. Ensure that all periodic checks and maintenance schedules are adhered to as directed.

IMPORTANT SAFETY WARNINGS

IF THERE IS ANY CONCERN ABOUT THE SAFETY OF THIS OR ANY SYSTEM, CLEAR THE AREA IMMEDIATELY OF ALL PERSONNEL AND CONTACT THE APPROPRIATE PERSON FOR FURTHER INSTRUCTIONS.

WARNING: ANYONE WORKING AROUND OR NEAR THE INSTALLATION SHOULD BE TRAINED IN THE PROPER SAFETY PRECAUTIONS AND PROCEDURES INCLUDING EMERGENCY SHUTDOWN. THESE PRECAUTIONS AND PROCEDURES MUST BE FOLLOWED.

WARNING: WORK ON THE INSTALLATION IS TO BE DONE ONLY BY TRAINED, QUALIFIED INDIVIDUALS. THIS INCLUDES ALL ELECTRICAL AND MECHANICAL WORK. ALL WORKERS MUST BE TRAINED IN THE PROPER SAFETY PRECAUTIONS AND PROPER ATTIRE MUST BE WORN AT ALL TIMES INCLUDING HARD HATS, SAFETY GLASSES, PROTECTIVE OUTERWEAR, EAR PROTECTION AND STEEL-TOED BOOTS.
Introduction
Congratulations on your decision to partner with GT Exhaust through your recent purchase of the GT Exhaust ATEX Series Spark Arresting Silencers. Whether your purchase will be installed within an enclosure for backup power generation or in the harsh environments of off-shore, you can be sure that your purchase is manufactured to the highest quality and will perform as specified. The ATEX Series Spark Arresting Silencers have been rigorously tested and type-certified to meet European Directive 94/9/EC for use in potentially explosive environments. The ATEX Series have been thoroughly reviewed by ABS and is ABS Type Approved. This guide will walk you through the necessary steps to successfully install and maintain the ATEX Series Silencers and provide all other relevant information to ensure optimal effectiveness of your exhaust system’s operation.

Affected Models:

ATEX-A202 Series
- ATEX-A202-2100, 12-20 dB(A) Attenuation Cylindrical Silencer (Commercial Grade)
- ATEX-A202-4100, 18-25 dB(A) Attenuation Cylindrical Silencer (Residential Grade)
- ATEX-A202-5100, 25-35 dB(A) Attenuation Cylindrical Silencer (Critical Grade)
- ATEX-A202-6100, 32-42 dB(A) Attenuation Cylindrical Silencer (Super Critical Grade)

ATEX-H9 Series
- ATEX-H9-4, 19-25 dB(A) Attenuation Disk Silencer (Residential Grade)
- ATEX-H9-5, 22-28 dB(A) Attenuation Disk Silencer (Critical Grade)

READ THROUGH THE ENTIRE MANUAL BEFORE PROCEEDING WITH ACTUAL INSTALLATION.
Selection and Description
A full list of specification and application sheets for the full line of GT Exhaust ATEX Series Silencers can be found at www.gtexhaust.com.

Harmony™ ATEX-H9 Spark Arresting Disk Silencer
The Harmony™ ATEX-H9 series of diesel engine spark arrestors are constructed of heavy duty 316L Stainless Steel and are designed for use on the exhaust of internal combustion engines where the potential for explosive environments exist. Centrifugal force separates solids from the exhaust gas stream where solids are then deposited in an easily accessible cleanout. The low profile design is ideal for engine enclosures, trailers, marine, or any application in which overall height and/or low radiated heat is critical and harsh environments exist. The Harmony™ ATEX-H9 is ABS Type Approved.

IMAGE 1: Picture of Harmony™ ATEX-H9 Spark Arresting Disk Silencer

ATEX-A202 Spark Arresting Cylindrical Silencer
The ATEX-A202 series of diesel engine spark arrestors are constructed of heavy duty 316L Stainless Steel that are excellent for use on stationary, marine, and mobile power units in harsh environments. They are designed for use on the exhaust of internal combustion engines where the potential for fire hazards exists. Centrifugal force separates solids from the exhaust gas stream where solids are then deposited in an easily accessible cleanout. With four models, numerous sizes, and Style 1 or Style 2 inlets/outlets available, the ATEX-A202 series can meet a variety of sound attenuation and installation requirements. The ATEX-A202 is ABS Type Approved.

IMAGE 2: Picture of ATEX-A202 Spark Arresting Cylindrical Silencer
Sound Attenuation

Sound attenuation refers to the ability to reduce the noise of the exhaust before it is released to the atmosphere. Unlike emissions, sound is regulated at the local level through state and municipalities setting the limits for acceptable noise levels. As such, the required degree of silencing depends on the location and customer preference; such as the noise of an engine is objectionable in a hospital area but is generally not as objectionable in an isolated pumping station. Engine noise and exhaust sound levels are best attenuated by a quality silencer. Attenuation curves are provided, as the effect of the silencer varies with the speed and frequencies of the engine. The ATEX Series are available in a variety of grades, from Commercial to Super Critical. Representative examples of ATEX sound attenuation curves are found below. For a complete list and more information on sound attenuation, please visit www.gtexhaust.com.

IMAGE 3: Picture of ATEX-A202-2100 Commercial Grade Sound Attenuation Curve

![Typical Attenuation Curve ATEX-A202-2100](image3.png)

IMAGE 4: Picture of ATEX-A202-6100 Super Critical Grade Sound Attenuation Curve

![Typical Attenuation Curve ATEX-A202-6100](image4.png)
Approvals
ATEX
Spark arrestor type ATEX-A202 and ATEX-H9 products have been type tested and meet the spark arresting performance specified for diesel engine exhaust spark arrestors for use in Group 1 (Mining Applications) and Group 2 (All other Applications), Zone 2 hazardous areas where the explosive environment is caused by gases, vapors, mists, and dusts, as defined by the ATEX Directive. Types ATEX-A202 and ATEX-H9 products are marked:

EN 1834-1,2 & 3
GAS GROUP: I/IIC
0518 M2 II2 GD
SIRA 11ATEX9159U

WARNING: Removal or tampering with the ATEX nameplate will void the ATEX certification of this product.

IMPORTANT NOTE: In order to fully comply with the requirements of the ATEX Directive the installer/user shall satisfy themselves that the installed spark arrestor is suitable for its intended purpose (undertake a spark test if necessary) and shall be included in the temperature assessment of the completed engine prior to commissioning, in accordance with the following standards appropriate to the particular application:
EN 1834 - 1 : 2000 clause 5.3
EN 1834 - 2 : 2000 clause 5.2
EN 1834 - 3 : 2000 clause 5.1

ABS Type Approved

ABS Type Approval Certification Documentation
The GT Exhaust Type Approval is contained within this manual on page 15.
Receiving Inspection
- Upon receipt of the system, check the nameplate against the packing list to verify the correct part numbers are received. Verify all items on the packing list are present.
- Keep the shipping container to protect the unit until installation has been completed.
- Prior to unpacking, check all components for shipping damage.
- Advise care@gtexhaust.com of shipping damage within three days of receipt of the product.

Storage
- Leave any cardboard boxing, plywood covering, crating, and/or plastic covering intact until ready to install.
- Be sure that all openings are closed so that no debris, vermin, rain, snow and/or ice can get into the unit.
- Store the silencer on blocks, a minimum of 4” high, so that air can freely circulate around the unit.
- Do not store the silencer in contact with the ground or in a wet, humid or flooded area.
- Inspect the Silencer’s body and mounting surfaces prior to installation. If there are any areas of significant damage, i.e. large dents, deep scratches, contact the factory before proceeding with installation.
Installation
Installation of GT Exhaust ATEX Series Spark Arresting Silencers requires that the user ensure the entire exhaust system is properly designed before installing parts. Exhaust components such as expansion joints, rain caps, elbows, supports, etc. are critical installation pieces which, if they fail, may compromise the spark arresting ability of the system as well as damage other components and, possibly, possibly the engine and surrounding area.

Mounting, Alignment, and General Guidelines for Installation:
- Ensure that the necessary equipment to install the unit, including support brackets, gaskets, flange bolts, outlet elbows and expansion joints, are available before beginning.
- **Important:** The unit is not designed to serve as a support for any piping, additional mounting pads or additional loads on the inlet or outlet. Ensure the unit is mounted evenly and securely and must be mounted on structural supports. For the final installation, do not support the unit by the flanges.
- Observe all OSHA mandated regulations for the safe rigging of exhaust equipment.
- **Note:** No part of the exhaust system should be in the vicinity of flammable materials. Exhaust system components inside the building should be covered with suitable insulation wrap to protect personnel and reduce room temperature. Standard and custom insulation wraps are available through GT Exhaust.
- In order to minimize turbulence and backpressure, it is recommended that at least 5 diameters of straight pipe upstream of the Silencer and 2.5 diameters downstream of the Silencer be maintained.
- Ensure runs of exhaust piping are sloped away from the engine to prevent condensation and outside moisture from entering the engine. Drain traps should be installed at the lowest point in the line.
- Review Image 5, 6, and 7 showing Typical Silencer Installation Illustrations.
- Be sure to orient the unit in the proper manner for the indicated flow direction.
- If supplied, use all lifting lugs when hoisting the Silencer into place.
- If supplied, use all mounting feet when securing the Silencer into its operating position. Ensure the unit’s weight is distributed evenly across the support.
- Make sure all ports, openings, and connections are clear from obstruction.
- Align the unit with the engine and/or piping connections. Follow any associated installation guidelines for GT Exhaust accessories.
- Install a suitable expansion joint (Bellows or Wye) between the silencer and the engine to reduce the likelihood of vibration or thermal growth damage to the unit.
- Ensure exhaust system piping is in alignment prior to tightening flange connections.
  - **Caution:** Pre-loading flange connections due to misalignment will result in premature failure and will void the Warranty.
- Use gaskets on all flanged connections contained in the GT Exhaust Nut-Bolt-Gasket (NBG) kit (Purchased Separately). If you replace bolts, gaskets, or clamps, use the same size and material as the originals. Contact GT Exhaust at care@gtexhaust.com for approved replacement parts.
- **Note:** If insulation wrap is used, do not wrap connections in order to facilitate post-installation checklist.
- Mount the product securely to the application.
Flanged Connections
- Apply high temperature anti-seize to bolts – use Loctite® 34517 or equivalent.
- To ensure uniform flange pressure, tighten bolts in a star-shaped pattern until all are snug. Following the same star-shaped pattern, torque the bolts to the specified torque. Never torque bolts directly to the left or right of the previously torqued bolt.
- When tightening fittings, torque to specifications listed below in Table 1. Re-check torque prior to and subsequent to initial engine start and system commissioning.

Cuffed Connections
- Note: Ensure the clamp is loosely attached to either the cuff or the exhaust piping prior to fitting the exhaust piping to the cuff.
- Insert the exhaust piping securely into the cuffed portion of the connection, ensuring that the exhaust piping is uniformly bottomed out.
- Position the clamp towards the edge of the cuff, allowing a min. of 0.5” from the edge of the clamp to the edge of the pipe.
- Torque the clamp bolts until tight. Re-check tightness prior to and subsequent to initial engine start and system commissioning.
- Complete the post-installation check list to verify the connection does not leak exhaust gas.

**TABLE 1: Table showing Bolt Torque Specifications**

<table>
<thead>
<tr>
<th>Nominal Bolt Diameter (in.)</th>
<th>Dry Torque (Ft-Lbs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.375</td>
<td>20</td>
</tr>
<tr>
<td>0.50</td>
<td>47</td>
</tr>
<tr>
<td>0.625</td>
<td>96</td>
</tr>
<tr>
<td>0.75</td>
<td>155</td>
</tr>
<tr>
<td>0.875</td>
<td>206</td>
</tr>
<tr>
<td>1.00</td>
<td>310</td>
</tr>
<tr>
<td>1.125</td>
<td>480</td>
</tr>
<tr>
<td>1.25</td>
<td>375</td>
</tr>
<tr>
<td>1.5</td>
<td>1100</td>
</tr>
</tbody>
</table>
IMAGE 5: Picture showing a Typical Silencer Installation

IMAGE 6: Picture showing Silencer Installation Mounting Options

Base Mount  Overhead Mount  Saddle Mount
IMAGE 7: Picture showing Typical Silencer Installation

IMAGE 8: Picture showing a Nut-Bolt-Gasket Kit with Fiber Gasket
Post Installation Checklist
Subsequent to following the above procedure, review the following check list to ensure that all components of your exhaust system are properly installed and ready for operation:

- If your exhaust system has an insulation wrap installed over any fittings or connections from the factory, pull the insulation back, and check the tightness of the bolted connections and torque to the specifications provided in Table 1. Ensure there is no debris in the joint that would prevent a secure and tight fit. Re-install the insulation.
- After the initial engine run and cool down, re-check all bolts for tightness and torque as required in Table 1.
- Exhaust backpressure must not exceed the allowable backpressure specified by the engine manufacturer. Excessive exhaust backpressure reduces engine power and engine life and may lead to high exhaust temperatures and smoke. Engine exhaust backpressure should be estimated before the layout of the exhaust system is finalized, and is recommended to be measured at the exhaust outlet under full-load operation, as needed. Consult GT Exhaust Technical Support if actual backpressure exceeds engine manufacturer’s limits.

Maintenance

**Note:** Ensure exhaust components are cool prior to inspection and maintenance activities.

The maintenance schedule for a typical ATEX Series Silencer installation will consist of:

1. **Weekly:** Physically examine the spark arrestor and exhaust system for any sign of gas leakage, cracks, or significant areas of damage.

2. **Quarterly:** Clean the spark box by removing the plugs and vacuuming or blowing the spark box clean. Examine connecting flanges and support bolting – retighten any loose bolts as required.

3. **Bi-Annually (or 1500 hours operation, whichever is sooner):** Examine the exhaust discharge in darkness while repeatedly loading and accelerating the engine. If any sparks are observed, the spark arrestor is not suitable for use. **Note:** Ensure adequate ventilation if this check is carried out in an enclosed area.

**Note:** The engine must not be put back into service until any problems identified by the above checks are rectified.
Product Registration / Warranty
To register your GT Exhaust product and claim your warranty, please visit www.gtexhaust.com.

Sourcing of Spare or Replacement Parts
For spare or replacement parts, a full-line of accessories, warranty details, and other questions about the GT Exhaust ATEX Series Silencers, contact:

4121 NW 37th
Lincoln, NE 68524

Tel: 402-323-7272
Toll Free: 1-888-894-3726
Fax: 402-323-7271
www.gtexhaust.com

Customer Care
Tel: 402-323-7273
Email: care@gtexhaust.com

Technical Support
Tel: 402-470-4750
Email: help@gtexhaust.com
CONFORMITY TO TYPE NOTIFICATION

Equipment and protective systems intended for use in potentially explosive atmospheres Directive 94/9/EC

Notification No. SIRA 11 ATEX C517

Notification valid for EC Type-Examination Certificate(s): Sira 11ATEX9159U

Applicant: GT Exhaust Inc
Address: 4121 N.W. 37th
Lincoln
Nebraska 68524
USA

Sira Certification Service, being a Notified Body No. 0518 for Annex VI in accordance with Article 9 of Directive 94/9/EC of the European Parliament and the Council of 23 March 1994, notifies the applicant that the requirements of Annex VI, under the responsibility of Sira, have been satisfied.

This notification is based upon Quality Plan ref GTQP001 Issue 3 dated 15 November 2011. This notification is based upon Sira Report No. 55A/25055 dated 15 November 2011. This notification can be withdrawn if the manufacturer no longer satisfies the requirements of Annex VI.

Results of periodical re-assessment of the manufacturing process form part of this notification.

This notification is valid until 15 November 2012 and is valid only for inspections and tests carried out by the named applicant above.

The CE marking shall be followed by the Sira notified body identification number 0518. Any changes to the certified product(s), site of inspection, or Quality Plan shall be notified to Sira for approval prior to implementation.

Date of Initial Issue: 27 February 2012

Certification Manager

Sira Certification Service
Reke Lane • Eccleston • Chester CH4 9JN • UK
DECLARATION OF CONFORMANCE / CERTIFICATE OF CONFORMANCE

We, GT Exhaust
4121 N.W. 37th Street
Lincoln, Nebraska 68524
402-323-7272
Fax: 402-323-7271

We hereby certify that the ATEX-A202-2100, ATEX-A202-4100, ATEX-A202-5100, ATEX-A202-6100, ATEX-H9-4 and/or ATEX-H9-5 spark arresting silencer(s) provided have been manufactured and processed in conformance with all applicable drawings, instructions. The silencers listed described above are in conformity with the requirements of the following specification:

ATEX Directive 94/9/EC

EN 1834-1, 2 & 3
GAS GROUP: I/IIIC

0518 EX

1 M2 II2 GD
SIRA 11ATEX9159U

GT Exhaust

By: Kirk Havick, Director of Operations

Date: 12/22/2011
Confirmation of Product Type Approval 11/SEP/2012

Please refer to the "Service Restrictions" shown below to determine if Unit Certification is required for this product.

This is to certify, pursuant to the Rules of the American Bureau of Shipping (ABS), the manufacturer of the below listed product hold a valid Manufacturing Assessment (MA) with expiration date of 12/JUN/2017. The continued validity of the Manufacturing Assessment is dependent on completion of satisfactory audits as required by the ABS Rules.

And, a Product Design Assessment (PDA) valid until 21/MAY/2017 subject to continued compliance with the Rules or standards used in the evaluation of the product.

The above entitle the product to be called Product Type Approved.

The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the Product.

ABS makes no representations regarding Type Approval of the Product for use on vessels, MODUs or facilities built after the date of the ABS Rules used for this evaluation.

Due to wide variety of specifications used in the products ABS has evaluated for Type Approval, it is part of our contract that; whether the standard is an ABS Rule or a non-ABS Rule, the Client has full responsibility for continued compliance with the standard.

GT EXHAUST, INC.

Model Name(s): ATEX-A202, ATEX-H9, A202 & Harmony H9

Presented to:
GT EXHAUST, INC.
4121 N. 37TH ST.
LINCOLN
United States

Intended Service: Marine and Offshore Applications - Diesel Engine Exhaust

Description: ATEX-A202, Harmony ATEX-H9, A202 & Harmony H9 Spark Arresting Silencers constructed with Stainless steel Grade 316L, 316, 304, 321 and carbon steel, Horizontal or Vertical Mounting and inner with acoustic/thermal insulation (Harmony-H9 only).

Ratings:
ATEX-A202: (2100, 4100, 5100 & 5100) Sizes range: 1" to 24" (202-2100); 1.5" to 24" (202-4100); 4" to 24" (202-5100) & 2" to 24" (202-6100) Attenuation range: 12-20 dBA (Commercial Grade), 18-25 dBA (Residential Grade), 25-35 dBA (Critical Grade) Flow rates range: 2.83/184.06 to 184.09/707.92 m³/s Pressure Drop range: 5.1 - 6.6 mbar (0.074 - 0.096) psi ATEX-H9: (4 & 5) Sizes range: 4" to 8" (H9-4) to 1" (H9-5) Attenuation range: 19-25 dBA (Residential Grade), 22-28 dBA (Critical Grade) Flow rates range: 16.99/184.06 to 184.09/707.92 m³/s Pressure Drop range: 14.5 - 20.1 mbar (0.210 - 0.292) psi A202: (2100, 4100, 5100 & 6100) Sizes range: 4" to 24" (202-2100); 1.5" to 24" (202-4100); 4" to 24" (202-5100) & 2" to 24" (202-6100) Attenuation Range: 12-20 dBA (Commercial Grade), 18-25 dBA (Residential Grade), 25-35 dBA (Critical Grade), 32-42 dBA (Super Critical Grade) Flow Rates range: 2.83/184.06 to 184.09/707.92 m³/s Pressure Drop range: 5.1 - 6.6 mbar (0.074 - 0.096) psi; Harmony H9-4 & H-5: Sizes range: 4" to 16" (H9-4) & 4" to 18" (H9-5) Attenuation range: 19-25 dBA (Residential Grade), 22-28 dBA (Critical Grade) Flow Rate Range: 16.99/184.06 to 184.09/707.92 m³/s Pressure Drop Range: 14.5 - 20.1 mbar (0.210 - 0.292) psi; Maximum Temperature: 1000 °F (537.77 °C) See attached "pdf" Manufacturer's Data Specification Sheets for Details.
Service Restrictions:

Unit Certification is not required for this product. If the manufacturer or purchaser request an ABS Certificate for compliance with a specification or standard, the specification or standard, including inspection standards and tolerances, must be clearly defined. i) This Silencer is not suitable for Hazardous Area Zone 0 & 1.

Comments:

i) The Manufacturer has provided a declaration about the control of, or the lack of Asbestos in this product ii) Material certification and testing is to be the satisfaction of the attending Surveyor, in accordance with the Data given from the Engine Manufacturer who determine the required Acoustic and Pressure iii) The subject Silencer has not been reviewed as Pressure Vessel, since they do not fall within the scope of SVR 4-4/1/Table 1 iv) The Silencer is for Reciprocating Diesel Engine v) Welding Procedure Specification, Procedure Qualification Records and Welder Qualification Records are to be the satisfaction of the attending Surveyor.

Notes / Documentation:


Term of Validity:

This Product Design Assessment (PDA) Certificate 12-HS870175-1-PDA, dated 13/Aug/2012 remains valid until 21/May/2017 or until the Rules or specifications used in the assessment are revised (whichever occurs first). This PDA is intended for a product to be installed on an ABS classed vessel, MODU or facility which is in existence or under contract for construction on the date of the ABS Rules or specifications used to evaluate the Product. Use of the Product on an ABS classed vessel, MODU or facility which is contracted after the validity date of the ABS Rules and specifications used to evaluate the Product, will require re-evaluation of the PDA. Use of the Product for non ABS classed vessels, MODUs or facilities is to be in agreement between the manufacturer and intended client.

ABS Rules:

2012 Steel Vessels Rules 1-1-4/7.7, 1-1-Appendix 3; 2011 MODU Rules ?????

National Standards:


Government Authority:

EUMED:

Others:

None

<table>
<thead>
<tr>
<th>Model Certificate</th>
<th>Model Certificate No</th>
<th>Issue Date</th>
<th>Expiry Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>PDA</td>
<td>12-HS870175-1-PDA</td>
<td>15/AUG/2012</td>
<td>21/MAY/2017</td>
</tr>
</tbody>
</table>

[Signature]

4121 NW 37th · Lincoln, NE · 1.888.894.3726 · www.GTExhaust.com