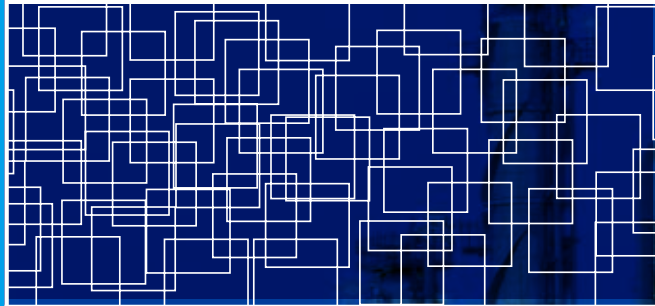




# Burgess-Aarding

A CECO Environmental Brand



## SILENCER TECHNOLOGY & ACOUSTICAL SOLUTIONS



**CECO**  
ENVIRONMENTAL





# DELIVERING CONFIDENCE IN HIGH PERFORMANCE ACOUSTICAL SOLUTIONS

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**Burgess-Aarding is part of CECO Environmental, a multi-division company focused on the design and manufacturing of component equipment used in environmental and flue gas handling applications.**

Burgess-Aarding has supplied a wide variety of silencer products for industrial applications since the early 1920's and was the very first company to offer a commercially produced acoustic reduction component to the market.

Our customers are gas turbine manufacturers (OEM), boiler suppliers, power producers, EPC contractors or end users. Whether a problem can be solved from our standard products line or needs a tailor made solution, Burgess-Aarding takes control from design to installation. Even for complex turn-key retrofit projects.

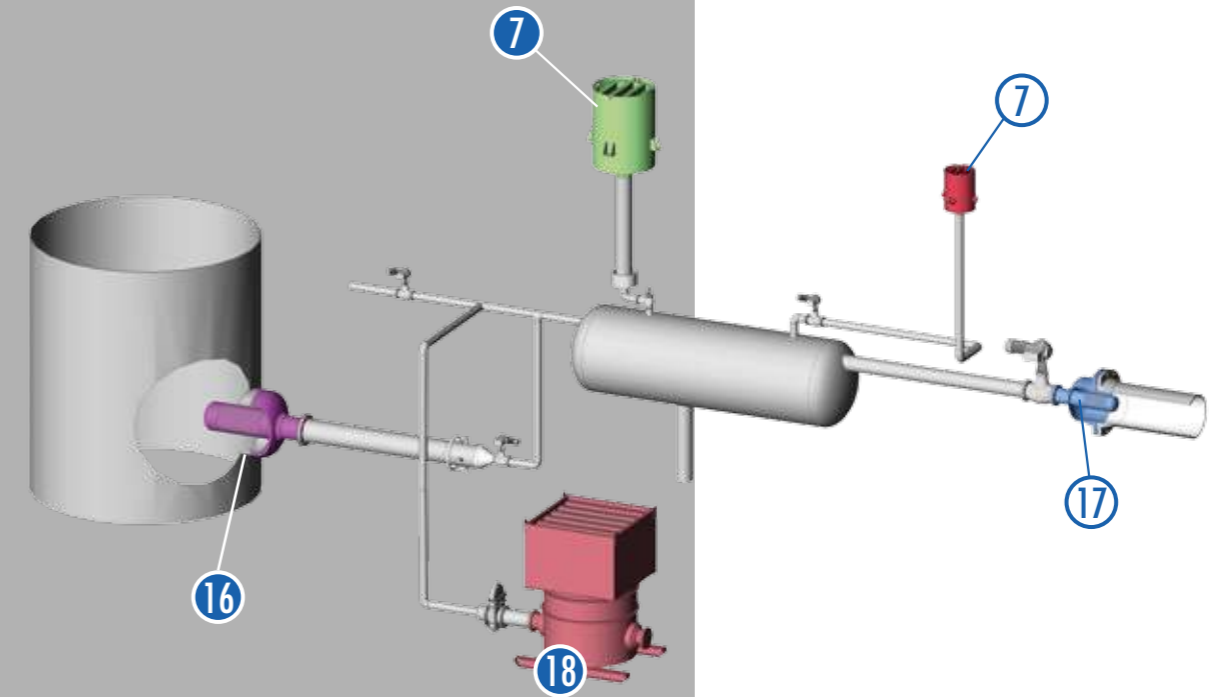
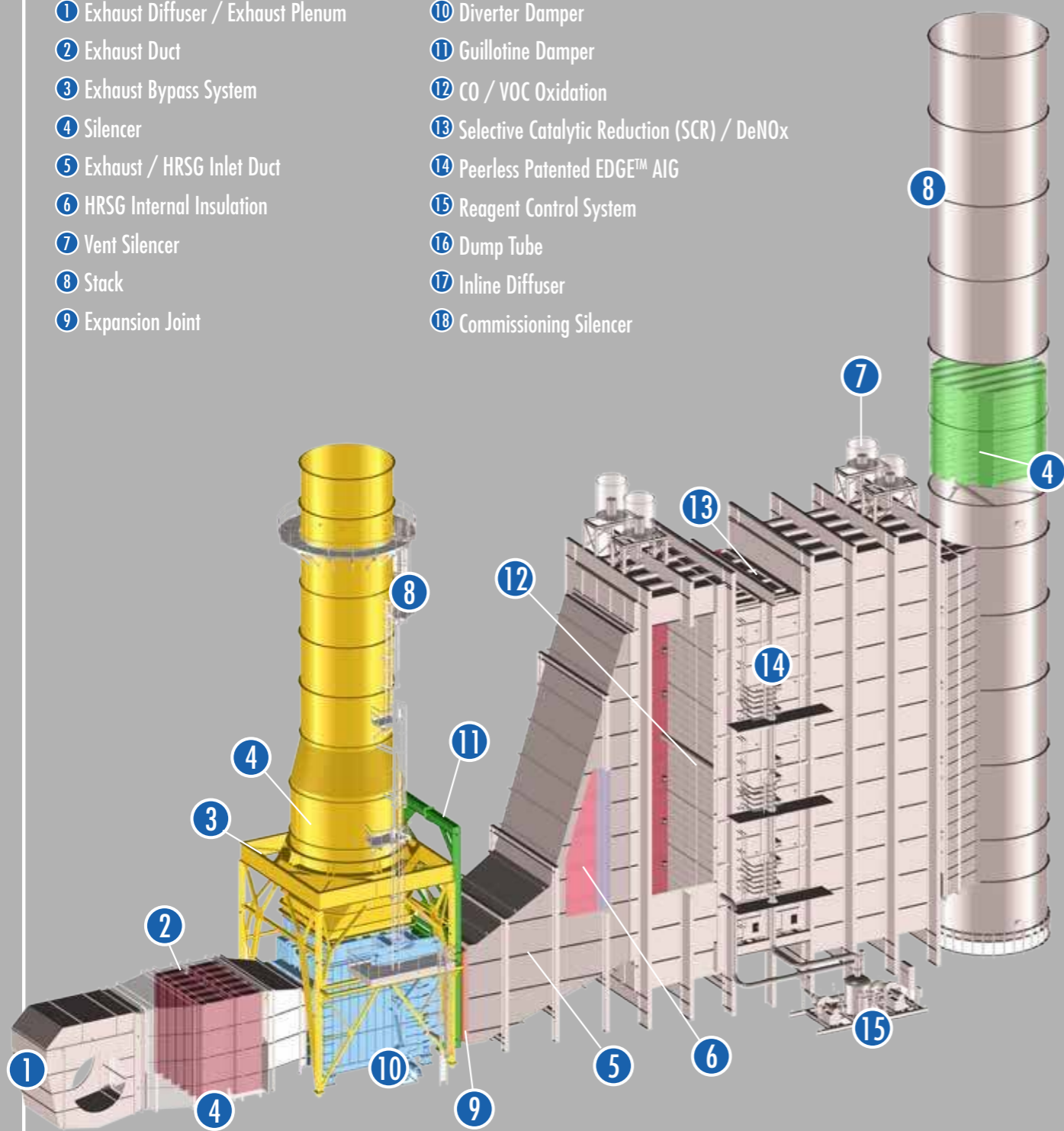
We have an expert staff of engineers and highly skilled welder assemblers in numerous locations in Americas, Europe and Asia.

Today, with approx. 50,000 acoustical solutions designed and installed at facilities worldwide, factories on every major continent and with more acoustical experts on staff than any other competitor, we are recognized in the industry as the #1 silencer company in the world. With this experience along with our continued research and product development efforts, we offer the widest selection of acoustical solutions to meet any noise problem that you may encounter.



# CAPABILITIES

- ① Exhaust Diffuser / Exhaust Plenum
- ② Exhaust Duct
- ③ Exhaust Bypass System
- ④ Silencer
- ⑤ Exhaust / HRSG Inlet Duct
- ⑥ HRSG Internal Insulation
- ⑦ Vent Silencer
- ⑧ Stack
- ⑨ Expansion Joint
- ⑩ Diverter Damper
- ⑪ Guillotine Damper
- ⑫ CO / VOC Oxidation
- ⑬ Selective Catalytic Reduction (SCR) / DeNO<sub>x</sub>
- ⑭ Peerless Patented EDGE™ AIG
- ⑮ Reagent Control System
- ⑯ Dump Tube
- ⑰ Inline Diffuser
- ⑱ Commissioning Silencer



The current market environment is pushing the operational conditions of Industrial Gas Turbine systems to its limits. High cycling (high numbers of starts and stops) as well as high local flue gas velocities and temperatures are putting large stresses on the exhaust gas systems. Environmental regulations require stringent and lower noise levels on gas & steam turbine driven systems as well as on petrochemical applications.

## ACOUSTICAL SOLUTIONS BURGESS-AARDING SILENCER TECHNOLOGY GROUP

- + Commissioning Silencers
- + Inline Diffusers and Spargers
- + Reactive Silencers
- + Absorptive Silencers
- + Vacuum Pump Separator / Silencers
- + Flue Gas Silencers
- + Vent / Blowdown Silencers
- + Engine Silencers
- + Compressor Silencers
- + Blower Silencers
- + Acoustical Shrouds
- + Filter Silencers
- + Filter Elements



# INNOVATIVE SILENCER SOLUTIONS

## OUR ATMOSPHERIC VENT SILENCERS VENT VIRTUALLY ANY GAS.

Burgess-Aarding vent silencers are typically used in conjunction with a relief/safety or start up type valve. Applications are in heat recovery systems, steam boilers, and at oil/gas/chemical processing plants. The Burgess-Aarding vent silencer effectively eliminates unwanted noise at the source and provides for low sound level discharge to the atmosphere.

Burgess-Aarding vent silencers are custom sized and designed for each and every application ensuring the best acoustical performance and can be designed for as low as 500 kg/hr (1,100 lbs/hr) to upwards and exceeding half a million kg/hr (1.1 million lbs/hr).

Applications: Safety and relief valves, gas vents, process gas blowdowns, boiler start up and purge, switch valves, drain and atmospheric blowdown tanks.

### Our silencers can be designed to vent virtually any gas for example:

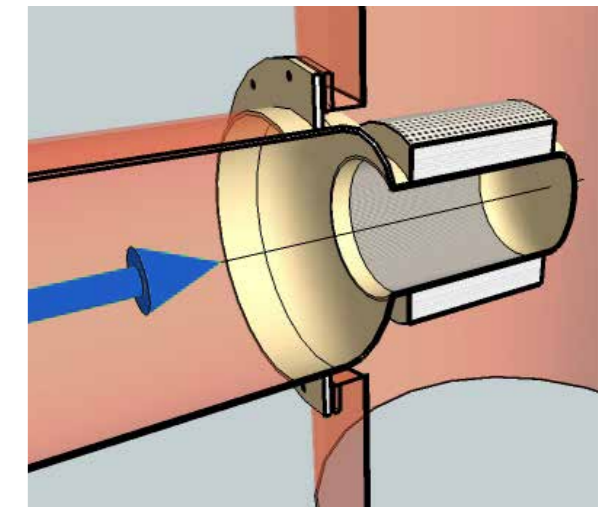
- + Steam
- + Natural Gas
- + Nitrogen
- + Air
- + Hydrogen mixed gases
- + Oxygen
- + etc

### Commissioning Silencers

Burgess-Aarding commissioning silencers are designed for temporary usage to vent down high velocity steam or air and to collect and remove possible debris (tools, weld slag, etc.,) present during new pipeline construction that could cause damage to downstream equipment once the pipeline is commissioned and the equipment (turbine, fans, compressors, etc.,) is installed. Our standard model is designed to vent over half a million kg/hr (1.1 million lbs/hr) of steam and provides 35-40 decibels of noise reduction. Additional noise reduction in total noise is achievable by way of an acoustical splitter package installed at the outlet of the silencer. This design with splitter package can provide for over 50 decibels of noise reduction. The silencer is skidded for shipment and installation on a flat ground.

### In-line Diffusers / Spargers

The Burgess Aarding in-line diffuser/sparger assembly is a drilled pipe component and is designed to reduce the noise typically associated with pressure reducing valve applications. These designs are especially effective when used in combination with a valve to achieve and/or share the total pressure drop required by the system. It also is effective in dissipating high energy noise and reshaping the frequency spectrum, shifting the peak frequency to a higher octave band therefore reducing the total emitted noise.







## REACTIVE SILENCERS

### Applications

Low to medium frequency noise reduction for:

- + Intake and exhaust of reciprocating engines
- + Discharge of rotary blowers and vacuum pumps
- + Exhaust for reciprocating engines in marine use

### Design

Gas flows through an arrangement of ported tubes and chambers which attenuates the noise over a wide frequency.



Model BE0 – Engine Exhaust Silencer

## ABSORPTIVE SILENCERS

### Applications

Medium to high frequency noise reduction at low pressure drop for:

- + Suction and discharge for centrifugal compressors and blowers
- + Intakes and exhaust for gas turbines
- + Upstream and downstream of pressure reduction valves

### Design

Gas flows through an annular passage lined with perforated tubes backed by multiple layers of sound absorbing materials.



ACA Silecner

## WATER SEPARATOR / SILENCERS

### Applications

- + Separator / Silencers for water sealed-vacuum blowers
- + 99% of the free liquids are removed centrifugally in the separation section.

### Design

The Burgess-Aarding design removes liquids and prevents noise. Gas flow passes through a separation section, a ported tube and snubbing chamber which attenuates the noise over a wide frequency range.



WSDA- Water Separator Silencer

## FLUE GAS SILENCERS

### Applications

Medium to high frequency noise reduction

at low pressure drop for:

- + Hot or cold exhaust stacks, single cycle or bypass (from 1,5m (60 inches) up to 10m (390 inches) diameter)
- + Ducts (Square or round)

### Design

Gas flows through a Patented rectangular splitter section lined with perforated metal and backed by multiple layers of sound absorbing materials.



## ACOUSTICAL SHROUDS

With increasing noise restriction requirements and the installation of large power plants close to cities and neighborhoods, acoustical panels provide an effective and economical acoustical treatment for large surface areas. These panels and lagging are particularly well suited for large surface areas like HRSG's and their inlet ducts.

Our "sandwich" design of panel is 50 to 150mm (2 to 6 inches) thick (depending on acoustical requirements) and consists of a steel galvanized in- and outside skin, acoustical filler and a perforated steel. The acoustical panels are supplied cut to size and marked, and installed with an easy interlock system with all adjacent panels. The panels are approx. 1,2m x 6m (4ft x 20ft) and will be horizontal mounted. Due to the complexity of these large projects we support you with 1-2 days in office support by our best engineers, to make sure our product meets your system requirements. Support includes engineering design review meetings and CAD-modeling of our shroud to the customers structure if required.



## BLOWDOWN SEPERATOR SILENCER

The Burgess-Aarding Blowdown Silencer / Separators are installed at Natural Gas Compressor Stations, storage facilities, and Midstream Processing Plants to provide a means of reducing the noise generated by the rapid venting of compressed gas to atmosphere either during a scheduled maintenance blowdown or an emergency blowdown scenario while also removing suspended liquids from the gas stream prior to being expelled to the atmosphere.

Burgess-Aarding engineers can properly size and incorporate a restriction orifice to be installed upstream of the silencer to control the blowdown time period and/or control the rate of initial blowdown if required to protect the compressor unit from damage caused by a rapid decompression.

Available options with the Burgess-Aarding Blowdown Silencer / Separators include the restriction orifice, a double domed weatherhood to minimize the potential from rain collecting in the silencer while also allowing for the gas to escape unencumbered to atmosphere, a liquid collection sump with liquid level gauge and/or liquid level switch, and a drain valve to drain the collected liquids.

The silencer / separator can be sized to a specified height and/or exit diameter to optimize the exit velocity to ensure a safe dispersion of the gas into the atmosphere.



## FILTER SILENCER, SERIES A AND B AIR INTAKE CLEANING FOR ENGINES, COMPRESSORS, BLOWERS AND TURBINES

### Applications

Burgess-Aarding standard Filter/Silencers (BMF) are designed for use on the air intakes compressors, blowers, engines and gas turbines.

### Description

Burgess-Aarding standard models in the A and B Series offers sizes ranging from 2.500 to 81.500m<sup>3</sup>/hr (1,500 to 48,000 CFM) with either single or dual stage filtration. Efficiencies range from 72% to 99% AC fine.

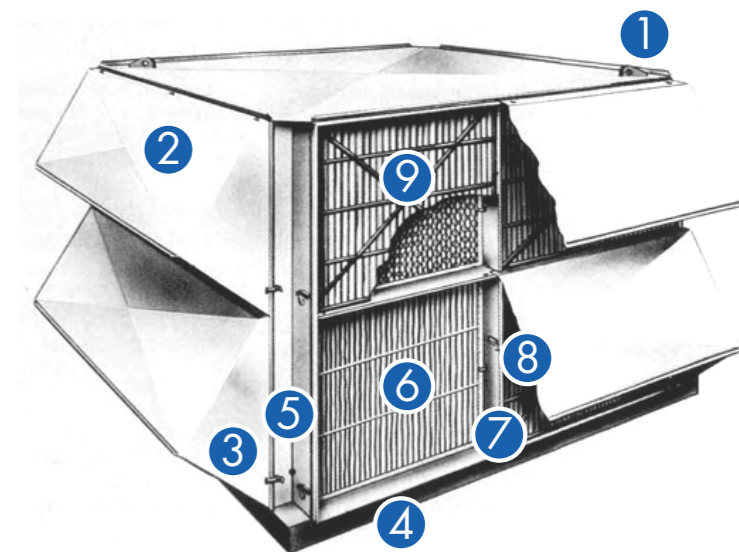
The assemblies can reduce intake noise from the source by up to 14 decibels and if additional acoustic reduction is required, other Burgess-Aarding filter silencer elements can be added to the installation.

The Series A housing is designed to accept a conventional 50mm (2 inches) deep single filter element or for critical services, two 50mm (2 inches) deep filter elements in series.

The B Series B housing is designed to accept a 300mm (12 inches) deep, high efficiency single filter element. An additional 50mm (2 inches) deep pre-filter element can be used in series if required.

When it is time to change out a filter element, unique spring loading catches simplify the removal and replacement of these elements with the most common filter elements stocked by Burgess-Aarding for quick assembly and shipment directly to the jobsite.

- 1 Lifting lug
- 2 Removable weatherhood
- 3 Weatherhood locking catch
- 4 Filter base
- 5 Drain NPT tap
- 6 Single-stage, primary filter
- 7 Galvanized steel filter frame
- 8 Positive, spring-loaded locking catches
- 9 Dual-stage, pre-filter & final filter





# MARKETS

Burgess-Aarding provides products and services to the following markets:

- + Power Energy Market
- + Petro Chemical Market
- + Aero Engine Market
- + Gas Transmission Market

## POWER ENERGY MARKET

Within the Power Energy Market, the Burgess-Aarding products can be placed within:

- + Coal Fired Power Plants
- + Gas and Oil Fired Power Plants

Burgess-Aarding supplies worldwide the products to end-users, EPC's, turbine suppliers, boiler suppliers and engineering-contracting companies for eventual balance of plants solutions.

## PETRO CHEMICAL MARKET

Where over pressure of several gasses is applicable, the Burgess-Aarding products can be delivered.

## AERO ENGINE MARKET

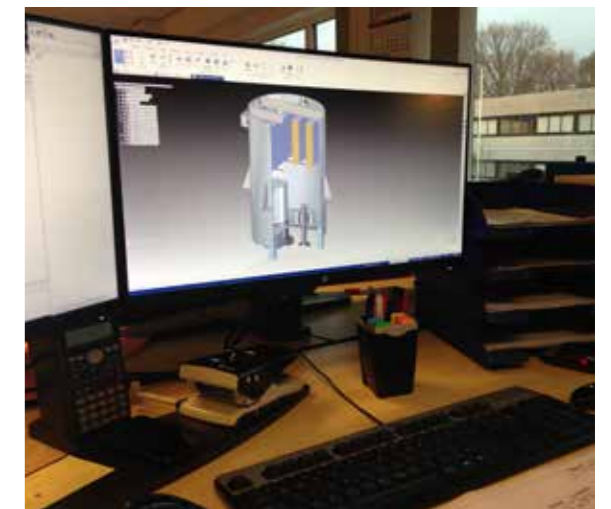
Burgess-Aarding provides new as well as retrofit silencer and exhaust systems for Aero Engine test cells and hush houses.

## GAS TRANSMISSION MARKET

Blowdown separator silencers for the natural gas transmission market ensure the safe discharge of hazardous gases in both emergency and routine scenarios.

## QUALITY

At Burgess-Aarding our skilled team of engineers and skilled fabrications workers ensure the best quality of our products.





- A** Burgess-Aarding office
- Projects

# BURGESS-AARDING PROJECTS

“Our strength comes from our extensive know-how on a wide variety of acoustical products.”

## NORTH AMERICA

- + Wayne County, North Carolina  
Supply Of Vent Silencers
- + Lackawana, Jessup Pennsylvania  
Supply Of Vent Silencers, Flue Gas Silencers
- + Okeechobee, Florida  
Supply Of Vent Silencers, Flue Gas Silencers
- + Fort Myers, Florida  
Supply Of Inline Diffusers, Vent Silencers
- + Greenfield, Ottawa Canada  
Supply Of Vent Silencers
- + Temple & Sherman, Texas  
Supply Of Vent Silencers
- + Richmond Energy Centre, Philadelphia  
Supply Of Vent Silencers
- + Oxymer, Gregory Texas  
Supply Of Natural Gas Blow Down Silencers
- + Nicor Gas, Streator Illinois  
Supply Of Natural Gas Blow Down Silencers
- + Colerain Compressor Station, Dillonvale Ohio  
Supply Of Natural Gas Blow Down Silencers
- + Salineville - Tx Eastern Transmission, Ohio  
Supply Of Natural Gas Blow Down Silencers
- + Algonquin Gas Transmission, Weymouth Massachusetts  
Supply Of Natural Gas Blow Down Silencers
- + Texas Eastern Transmission Lp, Summer Shade Kentucky  
Supply Of Natural Gas Blow Down Silencers

- + Bedford/Tx Eastern Transmission, Bedford Pennsylvania  
Supply Of Natural Gas Blow Down Silencers
- + Cpg Grayson Metering Station, Grayson Kentucky  
Supply Of Natural Gas Blow Down Silencers
- + Carrol County, Ohio  
Supply Of Spargers
- + Moxie Energy, Lucerne County Philadelphia  
Supply Of Spargers

## LATIN & SOUTH AMERICA

- + Belgrano & San Martin, Argentina  
Supply Of Vent Silencers
- + Pilar, Buenos Aires Argentina  
Supply Of Vent Silencers, Flue Gas Silencers
- + Parnaiba, Brazil  
Supply Of Vent Silencers
- + Termoflorres, Bogota Colombia  
Supply Of Vent Silencers
- + Manzanillo, Mexico  
Supply Of Vent Silencers, Flue Gas Silencers
- + Tuxpan, Mexico  
Supply Of Vent Silencers
- + Empalme I & II, Empalme Mexico  
Supply Of Vent Silencers
- + Termozilia, Venezuela  
Supply Of Vent Silencers, Flue Gas Silencers
- + Altamira, Mexico  
Supply Of Vent Silencers

- + Red Dragon, Antofagasta Chili  
Supply Of Vent Silencers
- + Shell Offshore, Mexico  
Supply Of Inline Diffusers

## EUROPE

- + Schiphol Airport, The Netherlands  
Supply Of Aircraft Engine Test Cell
- + Te-to Zagreb, Croatia  
Supply Of Flue Gas Silencers
- + Mittelbrunn, Germany  
Supply Of Vent Silencers
- + Stolberg, Germany  
Supply Of Vent Silencers
- + Mongstad, Norway  
Supply Of Vent Silencers
- + Zabzip, Tobolsk, Russia  
Supply Of Vent Silencers
- + Tuapse, Russia  
Supply Of Flue Gas Silencers
- + Derby, UK  
Supply Of Vent Silencers
- + Volta, Istanbul Turkey  
Supply Of Vent Silencers, Flue Gas Silencers
- + Megalopolis, Greece  
Supply Of Vent Silencers
- + Oresundsverket, Sweden  
Supply Of Flue Gas Silencers

## AFRICA

- + Ain Beni Mathar, Morocco  
Supply Of Vent Silencers
- + Arzew, Algeria  
Supply Of Flue Gas Silencers
- + Kureimat, Egypt  
Supply Of Flue Gas Silencers
- + Cairo North, Egypt  
Supply Of Vent Silencers
- + Takoradi, Ghana  
Supply Of Flue Gas Silencers
- + Talkha, Egypt  
Supply Of Flue Gas Silencers

## MIDDLE EAST & INDIA

- + PP13/PP14, Riyadh Saudi Arabia  
Supply Of Vent Silencers, Flue Gas Silencers
- + Hail, Saudi Arabia  
Supply Of Vent Silencers, Flue Gas Silencers
- + PP12, Riyadh Saudi Arabia  
Supply Of Vent Silencers
- + Fujairah, United Arab Emirates  
Supply Of Vent Silencers
- + Rabigh 6, Saudi Arabia  
Supply Of Vent Silencers
- + Shuqaiq, Jazan Saudi Arabia  
Supply Of Vent Silencers
- + Sohar, Oman  
Supply Of Vent Silencers

- + Mundra, India  
Supply Of Vent Silencers
- + Umm Lulu, Abu Dhabi  
United Arab Emirates  
Supply Of Flue Gas Silencers
- + Sipat, India  
Supply Of Vent Silencers
- + Raipur, India  
Supply Of Vent Silencers
- + Jazan, Saudi Arabia  
Supply Of Vent Silencers
- + Samalkot, India  
Supply Of Vent Silencers
- + Yanbu, Saudi Arabia  
Supply Of Vent Silencers

## ASIA

- + Gulf A + B, Thailand  
Supply Of Vent Silencers
- + Vinh Tan, Vietnam  
Supply Of Vent Silencers
- + Mongduong 1 & 2, Vietnam  
Supply Of Vent Silencers
- + Seng Kang, Indonesia  
Supply Of Vent Silencers
- + Karabatan, Kazakhstan  
Supply Of Vent Silencers
- + Navoi, Uzbekistan  
Supply Of Vent Silencers

- + Jimah East, Jimah Power Plant Malaysia  
Supply Of Vent Silencers
- + Amata Bang Pakong, Thailand  
Supply Of Vent Silencers
- + Jeju, South Korea  
Supply Of Commissioning Silencers & Vent Silencers
- + Keppel, Singapore  
Supply Of Vent Silencers
- + Bang Pa, Bangkok Thailand  
Supply Of Vent Silencers
- + Tanjung Bin, Malaysia  
Supply Of Vent Silencers
- + Mae Moh, Vietnam  
Supply Of Vent Silencer
- + Rapid, Kuala Lumpur Malaysia  
Supply Of Vent Silencer

## AUSTRALIA & NEW ZEALAND

- + Pinjarra I & II, Australia  
Supply Of Flue Gas Silencers
- + Rio Tinto, Australia  
Supply Of Spargers
- + Yarwun, Australia  
Supply Of Vent Silencers
- + Huntly, New Zealand  
Supply Of Flue Gas Silencers



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