



VENT SILENCERS

A vent silencer is a device used to reduce unwanted noise created by gas or steam flow in a pipeline discharging directly into the atmosphere.

Acoustics India Private Limited is an ISO 9001 certified full service solution driven engineering company with a manufacturing capability of noise control equipment since 1988. With a vast experience and a clientele across disciplines, our range of products encompass Steam Vent Silencers, Acoustic enclosures and other noise control products.



Description

A vent silencer is a device used to reduce unwanted noise created by gas or steam flow in a pipeline discharging directly into the atmosphere. This noise can be generated due to the high velocity flow through the valve and turbulence created around any obstacle in the line that suddenly restricts or changes the direction of flow such as a valve or an orifice.

Vent silencers find wide applications in high pressure vents, steam vents, safety relief valve outlets, system blow downs and purge outlets etc. Vent and blow down noise is a function of upstream pressure and temperature, type of gas

being vented, the valve size and type plus the effect of down stream piping. Each vent silencer is designed to attenuate the noise level to the required sound pressure level criteria at a given distance from the silencer. The overall envelope size of a vent silencer is directly proportional to the flow rate of the particular as and desired noise reduction. Noise reduction is a characteristic function of the silencer length whereas the width or diameter is related to the gas flow rate. The size of any vent silencer is determined by the maximum flow velocity through the silencer. A maximum velocity is set to ensure structural integrity and minimize the sub-sonic jet noise at the silencer discharge. The most important design aspect of the vent silencer is the inlet diffuser. The diffuser is effective in distributing the flow evenly through all of the panels in the silencer. It can also be designed to restrict a back pressure upon any valve you may have upstream of the silencer.

DATA REQUIRED TO SELECT VENT SILENCERS

- Application (Vent, Blow down, Relief Valve etc.)
- Fluid Composition (Steam, Gas, Air)
- Molecular Weight
- Process conditions upstream of valve (i.e.) Flow rate, Temperature & Pressure
- Downstream pressure and temperature of valve, if known.
- Line size between valve & silencer and connection type.
- Line size from silencer discharge
- Unsilenced octave band noise levels, if known
- Attenuation required [silencer performance]
- Allowable pressure drop



CONSTRUCTION OF VENT SILENCERS

1) The inlet nozzle and diffuser are designed to withstand the thermal and impact stresses encountered in high pressure (and high temperature) blowdowns to atmosphere. Flange is optional.

2) The diffuser provides controlled pressure expansion to atmosphere insuring optimum flow distribution within the silencer splitter and is constructed of quality carbon steel with continuous full penetration welding for long life trouble-free service.

3) The splitter is provided with an ample depth of dense

acoustical fill and is faced with a sparsely perforated or solid impingement liner to prevent or reduce shell radiated noise. The splitter total length is compatible with the silencer dynamic insertion loss.

4) The standard acoustic fill is either fiberglass or mineral wool both of which are inert, moisture-resistant and non-combustible. The acoustic fill is protected with additional wrap of wiremesh screen. All perforated face sheets are 30% open with holes on staggered centers. The open area may range anywhere from 11-40% depending upon the required frequency range of performance.

5) The splitters are supported by a cylindrical cross member ring assembly positioned at the bottom of each of the shell modules. The ring-type support assembly is designed to transfer the panel weight to the shell and to minimize flow turbulence and vibration under maximum flow conditions.

6) The shell is designed to support the splitter assemblies without the need for external reinforcement. The shell is acoustically lined, consistent with the splitter construction to prevent or reduce shell radiated noise. The shell total length is compatible with the silencer Dynamic Insertion Loss.

Design

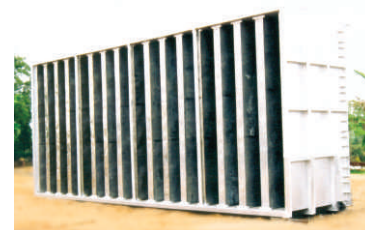
The silencers are normally designed to meet OSHA/ISO Standards. However, silencers can be designed to meet the requirement of the customer.

Achievements

- * We have over 1500 installations in India and abroad to our credit.
- * We have supplied the largest steam vent silencers in the world having a capacity of 1800TPH of steam.
- * We have supplied our products to high profile customers in all the major sectors in the country such as Steel, Power, Engineering, Chemical & Fertilizer and Oil & Gas.

All Ranges of Vent Silencers

- * Steam Vent Silencer
- * Air Vent Silencer
- * Oxygen, Nitrogen, CO2 and other Process Gas Vent Silencer
- * Steam Vent Silencer with Condensate Separators
- * Compressor Blow-off Silencer



World's largest Steam Vent Silencer handling 1800,000 kg/hr of steam



Silencer for Egyptian propylene and polypropylene Company

Case Studies

World's Largest Steam Vent Silencers

We have supplied the complete steam silencing package which also includes two numbers of the World's Largest Steam Vent Silencers each handling 1800TPH of steam and weighing 22,000 kgs each for 2 x 550MW thermal power project to Taichung Power Station, Taiwan through Mitsui Babcock Energy Limited, U.K.

Steam Vent Silencers with Condensate Separator

We have designed and supplied vent silencers to handle a mixture of steam and condensate with 1000TPH flow capacity. The silencer comprised of an expansion chamber including a centrifugal condensate separator with condensate draining system and an absorptive section comprising of multi-airpath annular concentric acoustic elements for sound absorption. These silencers were delivered to IOCL Panipat Refinery expansion project / EIL through L&T.

Hydrogen Rich Gas Vent Silencer For Ammonia plant

The purpose of this vent silencer for MFL was to handle highly inflammable process waste gases with 47% hydrogen by volume at the rate of 2,22,000 cum/hr discharged from a pressure of 32.5kg / sq.cm at 155°C. Apart from silencing the noise, we had to provide a flame arrestor. We designed the silencer incorporating a flame arrestor and a molecular seal to dispose the flammable gases safely by ensuring the combustion of these gases at the exit of the silencer as it is undesirable to have the stack filled with a mixture of the flammable gas and air within flammable limits because of the danger of flash back or explosion.

Quality

Quality bench marks are to the highest level playing field. Stringent processes that doubly ensure quality is maintained right from raw material sourcing to the finished product inspection prior to dispatch. On customer preferences, silencers are inspected by LRIS, DNV, BVIS, EIL, etc and are certified for quality. All our products perform par excellence. Our products are ensured to comply with the requirements of OSHA/ ISO Standards.

Clientele

Steel & Power	Engineering	Chemical & Fertilizers	Oil / Petro Chemical
Tata Steel	EIL	FEDO	GAIL
IISCO	RIL BECHTEL	HFCL	KRL
SAIL	Andrew Yule & Co	CFCL	HPCL
Visag/Bokaro/Bhilai Steel	Linde/BOC India	SPIC	BPCL
Jindal/Durgapur Steel	L&T/L&T MHI	RCFL	BRPL
JSPL	UHDE/UHDE GMBH	MFL	MRPL
BHEL HYD/HWR/BPL	Technimont ICB	EID Parry	ONGC
NTPC	BHPV	GNFC	RIL
MSEB/KSEB/TNEB	SABIC	Indo-Gulf	IOCL
Korea Heavy Industries	KTI	IFFCO	ESSAR Oil
Alstom Projects	MECON	GFCL	Quippo Infrastructure
BSES	Indian Railways	GSFC	Adyard Abu Dhabi
Deutsche Babcock	Howden India	Ultra Tech Cements	PetroFac International
Thermax Babcock	Siemens	Heidelberg Cements	Southern Petrochemical
Mitsui Babcock	Atlas Copco	MCSC	Haldia Petrochemicals
IJT	Air Liquide	FLSmith	Heurtey Petrochemicals
Torrent Power	Thyssen Krupp Industries	Jubilant Organosys	Numaligarh Refinery
ESSAR Steel	Praxair India Pvt Ltd	Ranbaxy Laboratories	
Mono Steel	Copes-Vulcan	Sudha Agro	
METSO Power	Jubail Chemicals	Shree Cements	
Belleli Energy	Ansaldo Caldaie Boilers	Saurashtra Chemicals	
Deutz	Tata Motors Limited		
Mazagon Dock	SPX Process Equipment		
Stewards & Llyods	Downer Energy Systems		
GIPCL	GALFAR Engineering/PDO		
Hindalco	TOPS Technologies / CTCI		
INOX AIR Products	ABB		
BGR Energy	Bateman Engineering		
Caterpillar	DRDL		
DF Power Systems	Punj Llyod		
TD Power Systems	Spirax Marshall		
	Samsung Engineering		

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