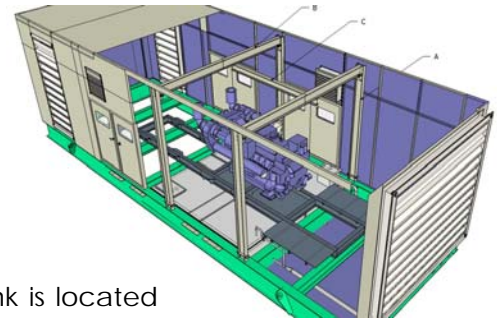


Acoustic Canopy

In designing a canopy to reduce noise for generator sets, a balance between noise reduction, pressure drop and heat rejection need to be calculated cautiously. Without proper design calculation, the generator set will end up with shorter life span. By using internally developed software, ISTIQ Noise Control can help to make the right choice quickly and most importantly, accurately.

ISTIQC Acoustic Canopy has been designed to meet not DOE standard but also to a stringent oil & gas specification.



Fuel tank is located at the base frame. The designed therefore will serve dual purposes - acting as a supporting base and fuel tank. The body and the base can be separated for maintenance (genset overhaul) in the future. Windows, exhaust penetrations, radiators and electrical cables, fitting and fixtures are all standard.

Introduction

Canopy application for housing a generator set has gaining its popularity over the years. This is due to a portability of the set to be from one place to another and furthermore the cost for housing a generator set is cheaper as compare to a normal concrete house.

Construction

The internal construction of the canopy panel uses only rockwool and protected with perforated G.I. This construction has proven to be the most cost effective in the long run.



ISTIQC Noise Control has developed the modular system panel which provides great flexibility at low cost. The panel are standard 65mm thickness, formed from 2.3mm mild steel, inert

acoustic infill and galvanised perforated inner sheet steel. The finest quality materials and workmanship ensure that a final solution gives the best in noise control without affecting airflow, operation, maintenance or inspection.

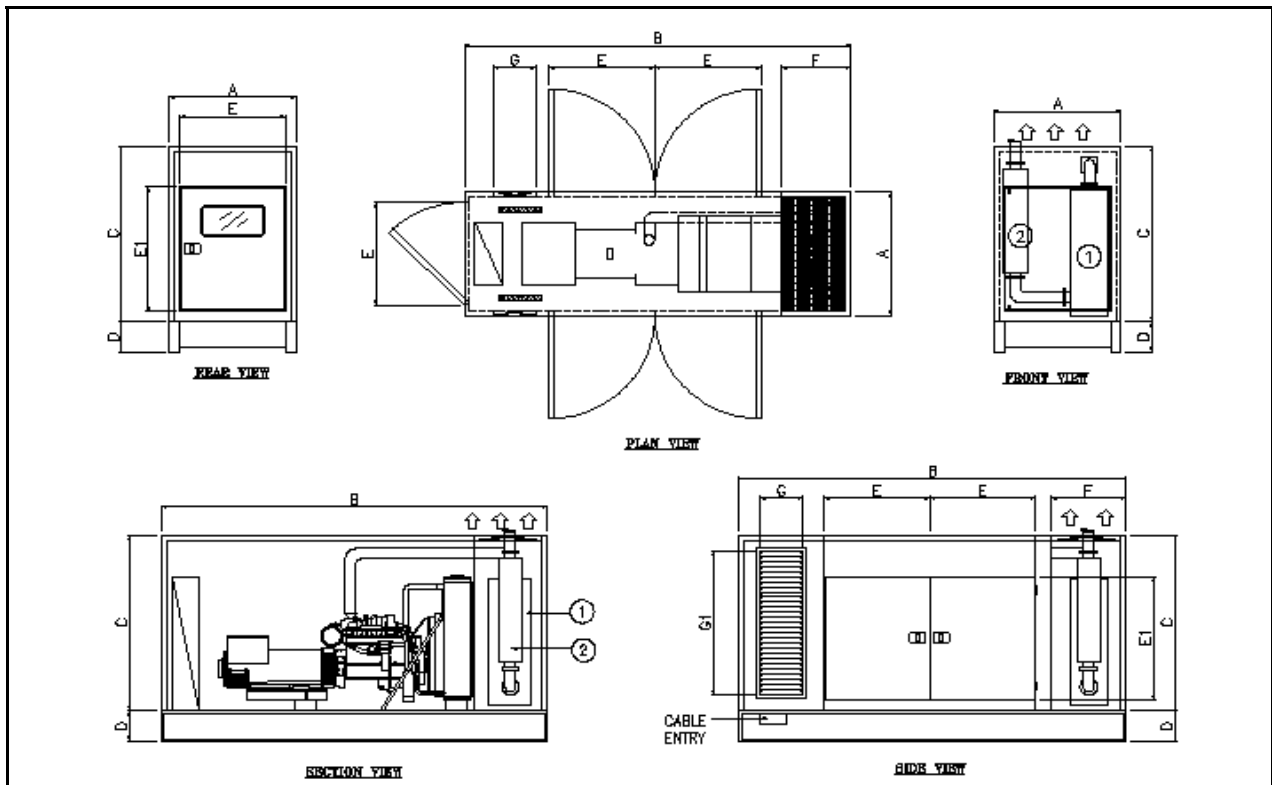
Exhaust pipe which is inside the canopy must be insulated to avoid overheating problem. The exhaust lagging is done by using rockwool as thermal insulation wrapped with aluminium jacketing.

Standard Material Specification

a)	Outer casing	2.3mm thk. M.S Plate
b)	Inner casing	0.4 mm thk. Perf G.I
c)	Percentage of perforation	30% to 40%
d)	Panel thickness	65 mm thk.
e)	Frame and support	2.3 - 3.2 mm M.S Hollow Section
f)	Acoustic Infill	40kg/m ³ density Rockwool
g)	Rockwool Thermal Conductivity	0.034 W/mK at 20 deg C
h)	Observation Panel	5 mm thk transparent plexi glass
i)	Glass panel rubber	14' L Normal type
j)	Lock set	Slam Paddle with Lock
k)	Door hinges	Lift-Off Flag Hinge
l)	Acoustic Seal	Rubber c/w magnetic seal
m)	Painting	One coat primer and two coats finishing

Standard Canopy Dimensions

Rating kVA	A	B	C	D	E	E1	F	G	G1
40	1000	2500	1350	150	700	800	450	200	1000
56	1000	2500	1350	150	700	800	450	200	1000
66	1000	2500	1350	150	700	800	450	200	1000
90	1300	3800	1700	150	900	1000	550	250	1200
110	1300	3800	1700	150	900	1000	550	250	1200
147	1300	3800	1700	150	900	1000	550	250	1200
212	1500	4300	2000	200	900	1200	600	300	1500
253	1500	4300	2000	200	900	1200	600	300	1500
281	1500	4300	2000	200	900	1200	600	300	1500
313	1500	4300	2000	200	900	1200	600	300	1500
330	1500	4300	2300	250	1000	1200	600	300	1800
345	1500	4300	2300	250	1000	1200	600	300	1800
390	1500	4300	2300	250	1000	1200	600	300	1800
416	1800	5100	2300	250	1000	1200	900	450	1800
500	1800	5100	2300	250	1000	1200	900	450	1800
562	1800	5100	2300	250	1000	1200	900	450	1800



ISTIQ NOISE CONTROL SDN BHD

28-2, Jalan Sri Permaisuri 9, Bandar Sri Permaisuri, Cheras, 56000 Kuala Lumpur, Malaysia.

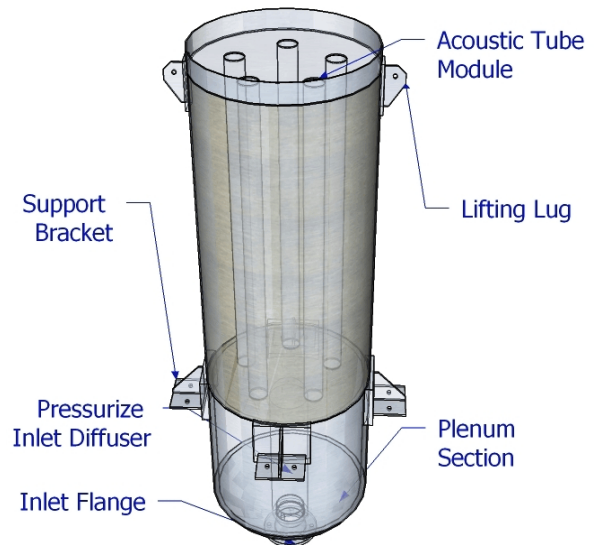
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www.istiq.com

Vent Silencers

Vent Silencers reduce the noise produced by the expansion of gas or steam from elevated pressures to atmospheric pressure. These absorptive silencers are used to suppress noise generated by high velocity gas streams such as steam vents, safety relief valve outlets, system blow downs and purge outlets. Each vent silencer is designed to attenuate the noise level to the required sound pressure level criteria at a given distance from the silencer.

Model IVS - Acoustic Diffuser & Expansion Attenuation - 30 dB



SELECTION GUIDELINES

Use the following design information from the valve data sheet for system analysis and silencer selection:

1. Type of gas
2. Molecular weight or specific gravity
3. Ratio of specific heats
4. Flow rate (lb/hr, ACFM or SCFM)
5. Pressure and temperature upstream of valve and silencer
6. Maximum allowable pressure drop (PSI) for valve and silencer
7. Manufacturer's name, and valve type and size
8. Unsilenced noise levels from valve (if available)
9. Silenced noise level (required at desired distance from source)
10. Silencer inlet size and pressure rating
11. Inlet orientation, axial or side
12. Silencer orientation, vertical or horizontal
13. Piping arrangement, including schematic if available
14. Other required options

APPLICATIONS

Vent silencers effectively silence high-velocity air, steam, and gas vents and blowdowns to atmosphere where sonic or critical conditions exist in the valve or pipes. Typical applications include:

- steam boiler relief valves
- superheater header relief valves
- boiler startup and purge
- high-pressure air vents
- natural gas blowdowns
- switch valves
- compressor blowoffs
- autoclaves
- steam ejectors

CONSTRUCTION

Typical vent silencers are welded heavy-duty units. The inlet nozzle and diffuser are constructed of steel and are welded. The diffuser provides controlled pressure expansion to atmosphere and uniform flow distribution through the acoustic section of the silencer. The lined inlet plenum (expansion chamber) of the silencer is designed with a double shell separated by a layer of acoustic insulation and sound-deadening material. The inner shell is solid to prevent shell radiated noise and migration of the acoustic fill. The transmission loss across the plenum and bottom head is comparable to the silencer attenuation.



Model IVS-30

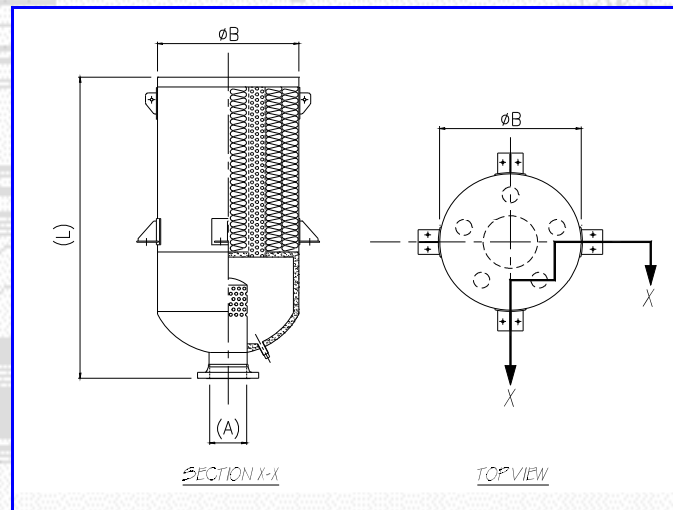
Acoustic Diffuser & Expansion

DESCRIPTION

Vent Silencers reduce the noise by shifting the low frequency band to a higher frequency band where the acoustic pack material functions most efficiently. After the gas or steam is diffuse, it accumulates in the expansion chamber. Where performance dictates, double wall construction will be constructed. These silencers have internal erosion resistant acoustic material for high performance broad band attenuation, protected by heavy duty perforated sheet.

APPLICATIONS

As already stated, these units can be used for noise control of gas or steam flows to atmosphere. In the event that you are tasked with the responsibility and designing and selecting an exhaust silencer and piping arrangement, ISTIQ can provide direct assistance. If all of the details are supplied, ISTIQ will input this information and provide you with our own computer print-out detailing specific recommendations for the exhaust system.



DIMENSION IN MM							
PIPE DIAMETER (A)	OVERALL DIAMETER (B)	OVERALL LENGTH (L)	WEIGHT (Kg)	PIPE DIAMETER (A)	OVERALL DIAMETER (B)	OVERALL LENGTH (L)	WEIGHT (Kg)
100	250	1500	70	450	915	3350	1200
125	300	1850	95	610	1220	4320	1500
150	350	2000	120	750	1500	4500	1800
200	450	2100	180	800	1670	4700	2000
250	510	2230	250	900	1760	4800	2200
300	610	2410	300	1000	1850	4800	2500
350	760	2720	410	1200	2500	5000	2800

ATTENUATION								
FREQUENCY (Hz)	63	125	250	500	1k	2k	4k	8k
dB	13	17	24	36	44	46	43	40