# Advanced Diesel Engineering Ltd. **Modular Enclosures and Bespoke Acoustic Solutions**

For nearly 20 years Advanced Diesel Engineering Ltd. have supplied diesel generators for stand-by and prime power operation. We specialise in the design and manufacture of modular acoustic enclosures and low noise solutions for generators, pump stations and rotary converters.

From design and manufacture to installation and commissioning, ADE Ltd provide acoustic enclosures, generators and plant rooms for a wide range of applications including prison security, hospital emergency power and data centre stand-by systems. Operating from our factory near Wakefield, we employ a large team of highly skilled 2D and 3D design engineers who utilise a combination of traditional CAD methods and the latest 3D CAD technology, with the aid of DSS Solidworks™

## **Acoustic Engineering**

## **Diesel Generators**

**Open & Silenced Systems Always In Stock** 



From 6 to 3300kVA - Open Generators - Silenced Generators Super Silencing - Control Systems - Large Gen-Set Stock



#### Past projects include the design and manufacture of enclosures for:

- Diesel & Gas Generators
- Plant Rooms

UPS Systems

- CHP Systems
- Gas Pumps
  - Water Pumps

If you require an acoustic solution for noisy machinery, ADE can design, manufacture, install and maintain a weather proof and secure enclosure. ADE's enclosures are designed to provide noise attenuation adhering to relevant noise pollution regulations at the site of installation.

#### Large Stock of Diesel Generators

In addition to our manufacturing facilities, ADE are stockists of UK and EU manufactured gen-sets from 11 to 3500kVA. Please visit our website and browse our full range of products, services and up to date generator stock lists.

#### Static & Rotary UPS

Where necessary, to ensure critical power supplies remain safe and reliable, ADE also install and maintain high quality Dynamic Rotary and Digital Static UPS systems, manufactured by KST and GE.



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**Diesel Generators Static & Rotary UPS** www.adeltd.com



#### **Generator Noise Control**

The table(below) and graph(opposite) illustrate typical sound pressure levels in various familiar locations (plots 1-5). Also shown on the graph are two darker plots (6 & 7), these lines are indicating the sound pressure levels of a 250kVA diesel generator before and after silencing at ADE.

		Hz	31.25	62.5	125	250	500	1000	2000	4000	8000
E	1	Library	55	60	63	66	67	64	58	50	40
E	2	Loud Stereo Music Player	60	65	71	82	83	83	79	75	62
	3	Moderate Ocean Waves	68	71	73	71	71	67	64	58	54
4	4	Train Horn	82	88	95	111	110	107	101	92	77
	5	Rock Concert	115	115	116	118	117	119	116	111	105
6	6 250	kVA Open Diesel Generator	90	92	102	95	93	94	93	92	92
Ŀ	7 250kVA	Enclosed Diesel Generator	73	75	75	59	48	43	42	37	29

Comparing the unsilenced values with the silenced generator values it is clear that the higher to mid range frequencies have been attenuated effectively. This drop in sound pressure level is made more clear by comparing the silenced generator plot line to the 'familiar location' plot lines. Above 200Hz the silenced generator levels are below those of a typical loud stereo player, moderate ocean waves and even a typical library.



The peak sound level of the open generator (plot 6) is around 103dB at 125Hz, this obvious peak is indicative of the engine firing and is typical of all combustion engines. Frequencies below 200Hz are more difficult to attenuate, but it is still clear that the sub 200Hz frequencies of the silenced generator are much lower than those of the open generator.



### Container Size vs Max. Power Output & Noise Level - from 700 to 2250kVA

TABLE 1 Container Size	<b>kVA</b> stand by	<b>dB(A)</b> at 1 metre
	700	85
	825	85
- 6.1m (20')	1100	85
	1400	
	1675	_
		<del>.</del>
	700	75
B	825	75
- 9.2m	1100	75
(30')	1400	
	1675	-
	700	65
- 12.2m (40)	825	65
	1100	65
	1400	80
	1675	85

All values for both tables are based on Cummins manufactured engines utilising Stamford alternators. Roof mounted exhaust silencers are assumed present. Noise levels listed in both tables assume an end inlet/outlet type, for the cooling air and noise attenuation.

TABLE 1: All system features are installed within the length and width dimensions of the relevant ISO high cube container. The footprint of the container remains unchanged.

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TABLE 2: All system features, except for the extended attenuation, are installed within the length and width dimensions of the ISO high cube container. The ISO footprint (lifting/locking blocks) of the container remains unchanged, however, if the extra attenuation extruding from the container end is above 700mm, extra support legs may be required. The length of the extra attenuation varies and can be dependant upon any ancillary generator features installed within the container.



**Diesel Generators** Static & Rotary UPS