

noiseletter

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Problem-solvers in vibration isolation,
noise control and seismic restraint.

Quiet that Noisy Generator with Kinetics Noise Control Silencers, Mufflers and Enclosures



Retrofit project using Model VRS rectangular intake silencers and Model STL barrier discharge silencing tunnel. The packager originally used a shipping container as the enclosure, with acoustical louvers. Due to the close proximity of residential land, increased noise attenuation was required.

Constant power generators are typically very noisy (100-115+ dBA) at 3 feet from the noise source. Location and surroundings can amplify these noise levels even more.

Noise issues are generally classified according to the land classification: residential, commercial, industrial. The most common noise problems arise when two dissimilar land classifications fall close to one another. The most frequent complaints about generator noise are likely to occur at night when ambient noise is lower than at daytime hours. These complaints will typically come from a resident(s) who are close to the noise source in an area where a 45-55

dBA sound ordinance can be enforced at the premises land boundary.

What can an owner of the constant power generator do to control/avoid such an issue? A proper acoustic design will include the correct acoustical treatment to reduce the generator noise levels down to 75-85 dBA at 3 feet.

The first approach is to treat the noise at the source. Three major areas of focus are: radiator fan noise, generator exhaust system noise, and noise emitted from the generator engine itself. These noise sources can be treated using fan

discharge silencers/louvers intake silencers, exhaust air mufflers and acoustical enclosures. Kinetics model VRS (rectangular silencers), VAL (acoustical louvers), VTQ (mufflers), STL/HTL (panel enclosures), KNP (wall absorbers) and SM/SL FLS, FHS, FMS isolators are perfect products for this application.

Fan discharge silencers or acoustical louvers are normally installed downstream of the radiator fan. They should not be installed too close to the fan to avoid unnecessary system effect static pressure losses and regenerated noise by the fan blades. A flex connector is typically used between the radiator

and the silencer to avoid vibration transmission. The size of the silencer width x height x length will depend on the airflow of the fan and available static pressure needed to overcome the losses across the radiator, intake and discharge silencing units.

Fan intake silencers or acoustical louvers are needed to attenuate noise breakout through the openings used to supply cooling and combustion air used for proper operation of the generator set. It is important not to install intake silencers or acoustical louvers in close proximity to the discharge silencers to prevent re-circulation of contaminated air.

Mufflers are used on the exhaust system where they will attenuate one of the largest noise levels (110-115 dBA). When choosing a Kinetics muffler, the following items must be addressed: engine rating

(airflow), allowable engine back pressure, exhaust piping arrangement within the enclosure, single or dual intake and discharge ports, and the level of noise to be attenuated. A muffler will reduce noise levels (25-35 dBA) at 3 feet.

Many packagers of generator sets use 14 gage, single skin, solid steel enclosures with or without sound absorption insulation adhered to the inner walls. For quiet generators this can be a sufficient amount of noise control for the unit. However, with an ever increasing number of facilities utilizing constant power generators, and urban sprawl placing these facilities directly next to residential communities, high transmission loss systems like the Kinetics Noiseblock STL & HTL enclosures are required. Typically this type of system can be designed into a new system or retrofit into an existing system.

Model KNP absorption panels are

an excellent way to reduce the reverberant noise levels when applied to the inside of a concrete room or barrier wall system. The panels consist of an absorption media protected by a perforated steel casing. They can be flush or standoff mounted. Typical coverage of 50% - 70% of the wall surfaces can yield up to a 10-dBA-noise reduction within a reverberant room.

Structure borne noise is also of concern when solving generator noise issues. Because generators can cycle on/off, it is important to use restrained spring isolators. Models SM/SL with adjustable assembly are good selections for this application. For seismic applications, consider the FHS, FLSS or FMS.

Please use this information when solving your next generator noise issue. Refer to the pictures below of some projects using these Kinetics products.

