

FLEXIBLE SUSPENSION

In every situation where diesel engines are used, noise and vibration will be generated! As well through the engine foundation, engine disturbance will travel along the exhaust system to be transmitted into the vessel wherever the system is in contact with the ship's structure. Novetec BV has the experience and solutions to control the vibration and noise emissions from the exhaust system.

By flexibly mounting not only the engine but also the exhaust-system, we can control most of these unwanted noise emissions. A significant reduction in the radiated noise and vibration can be achieved by introducing rubber-metal elements between the exhaust system and ship's structure.

For an explanation of how the noise reduction is achieved, the transmission speed of sound through steel and rubber needs to be understood. The transmission speed through steel is approximately 5000 m/sec. while through rubber, the transmission speed is approximately 45 to 90 m/sec.

By careful design and positioning of the rubber-metal elements it is possible to obtain a reduction of 8 to 10 dB (A) across the majority of the frequency range of 63 to 4000 Hz.

To give the optimum isolation, the number of mountings are kept to a minimum and positioned at strengthened locations in the ship's structure, for example deck levels, frame webs or specially constructed supports. Every installation takes into account the weight of the appropriate section of the system, the forces produced by ship movements and thermal expansion effects.

It is equally important to ensure the frequencies, produced by any part of the exhaust system, are not the same as the frequencies caused by the engine ignition, the first order frequencies of the engine or the propeller blade frequency.

