

A Layman's Guide To Vibration Isolators

As fair weather spreads across of the continental US, construction professionals and boating enthusiasts both inspect their machinery for the season ahead. What to pleasure boats and earth movers have in common? According to professionals at AV Products, Inc. they have one issue in common with several other classes of vehicles, including cars, trucks and RVs: vibration. Vibration isolation mounts are an integral part of these machines. Large boats need marine engine mounts to keep in working order, and construction machinery needs engine vibration mounts to function safely.

How do they work? Anti-vibration mount technology is based on the principle of planned isolation: using systems to prevent a mechanical system's vibrations from spreading to the surrounding structures. Without planned isolation, the powerful engines used in forklifts, larger boats and industrial machinery would be impossible. Built up vibrations would eventually damage the surrounding structures and tear the engine apart. A static mount such as a metal frame is ineffective because it will either transmit the vibrations into other structures anyway, or bounce them back to the machine, tearing it apart.

That's why machines need mounts that will not only suspend the engine away from other structures, but provide a way to dissipate vibrations. The engine "floats" on its mounts, which absorb vibrations without significantly transmitting them to the rest of the structure. Vibration isolators do this by providing an opposed force; the net result of the two reduces the final vibration to a negligible level. The secret lies in using the exact materials, size and shape required so that when the mount is subjected to force from the engine, it contains and deflects it. Think of dropping a rubber ball. It bounces back because of the opposed force generated by its impact. If you were to tie the ball to your palm instead and slap the ground with the same force, you wouldn't feel the ground, but you would feel the ball pushing back, deflecting the force of the impact.

Rubber anti-vibration mounts are far more sophisticated than this, however, because they are calibrated for the specific amplitude or intensity of the attached machine. The physics of vibration are well understood, so vibration isolators can be built for specific engines and other machines with a high degree of precision. Vibration isolation mounts are made of materials that match the necessary specifications. For example, rubber is a common material because of its elastic strength, but a mount will actually be made of a type of rubber designed to meet a specific vibration capacity. If the rubber is too soft, it won't provide opposing force. If it's too hard, too much of that force will deflect back, damaging the engine.

Unfortunately all systems wear out in time, so whether your machines are used for business or recreation, checking your anti-vibration mounts for wear and tear, and paying attention to unusual noises and vibrations should be one of the fundamentals of spring maintenance. Your anti-vibration mounts are essential. If they don't work, the engine doesn't work. Order the right replacements as soon as possible.

About the Author

AV Products, Inc. is a leading supplier of [mobile and stationary machine mounts](#) for industrial and marine applications, including [marine mounts](#) for workboats and pleasure boats and [rubber vibration mounts](#) for power generation systems and construction vehicles. For inquiries, AV Products toll free at 866-496-5654 or email info@avproductsinc.com.

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