



Wood Group – Vibration, Dynamics & Noise



DamperX™ damper clamp: field testing has proven a 40 - 90% vibration reduction compared to conventional clamps.

Wood Group's Vibration, Dynamics & Noise (VDN), formerly BETA Machinery Analysis & SVT Engineering Consultants, service line provides engineering services for new projects and brownfield modifications, conducts inspections, and solves field vibration problems on compressor, pump and piping systems. To ensure a complete solution, VDN works as a trusted advisor to the owner's staff, its engineering consultant, original equipment manufacturers and equipment packagers.

Clamping down on vibration risk

Pipework near vibrating machinery can be particularly susceptible to problems, often exacerbated by the use of incorrect clamps. If not addressed, this can lead to long term asset integrity, reliability and safety concerns. Besides loss of production from downtime, there are even greater risks from effects on worker safety, the environment and corporate liability.

Standard pipe clamps are not recommended for pipework near vibrating machinery as they lack the

required stiffness to restrain vibration loads, and do not prevent vibratory loosening of bolts. With around 50 years' experience in solving vibration problems, the VDN service line has developed clamp designs specialised for vibration service.

Vibration clamps are superior to standard designs due to:

- Bolt stretch: insufficient bolt stretch is a well known issue causing vibration loosening, resulting in failures. Wood Group's vibration clamps have longer bolts and sleeves, increasing bolt stretch by three times over conventional clamps.
- Material: an extra rugged construction ensures reliability even in highly demanding environments. All material is primed for corrosion; additional plating and custom finishes are available.
- Damping: for additional vibration control, Wood Group developed the DamperX™ clamp. This optional feature is ideal for resonant or higher vibration applications because it absorbs vibration energy while reducing stress on the surrounding piping system.
- Thermal expansion: Wood Group developed vibration clamps for thermal expansion applications (e.g., where temperature cycling occurs). Specialty lined and slotted clamps are designed with vibration control in mind, while allowing for thermal growth (providing both stiffness and flexibility).

Wood Group's vibration clamps are field proven and have been successfully applied in demanding compressor and pumping applications. Additional application and engineering support includes:

- Piping vibration design services, including main line, auxiliary piping and small bore piping.
- Pipe stress analysis, transient analysis including water hammer, and other excitation sources (e.g., vibration-induced, acoustic-induced, and pulsation-induced vibration).
- Field inspections and troubleshooting support.
- Additional vibration control solutions (e.g., damping, absorbers).

Clamp loosening makes this equipment redundant in minimising vibration impact. Wood Group's vibration clamp is a more effective approach to avoid fatigue failures, reduce downtime and extend asset lifetime.

