

Integral Centering Spring-Squeeze Film Dampers



Squeeze film dampers are used to shift critical speeds or to increase the dynamic stability of the rotor-bearing system. KMC's patented, integral centering spring-squeeze film dampers provide an accurate and simple approach to new and retrofit installations requiring a squeeze film damper. KMC's design, optimized with finite element methods and manufactured with wire EDM process, offers many advantages over other designs such as squirrel-cage or "O" ring squeeze film dampers.

KMC's integral centering spring squeeze film damper is the only commercially available damper design to provide:

- ➔ Precise stiffness and damping to match rotordynamic requirements
- ➔ Minimal space requirement
- ➔ Shaft centering ability
- ➔ Split configuration for compliance with API specifications dictating split bearings configuration

Unlike "O" ring dampers, our design takes thrust loading and offers linear stiffness unaffected by temperature or age. And unlike squirrel cage dampers, our dampers maintain parallelism between the damper journal and housing.

ISO9001 Certified



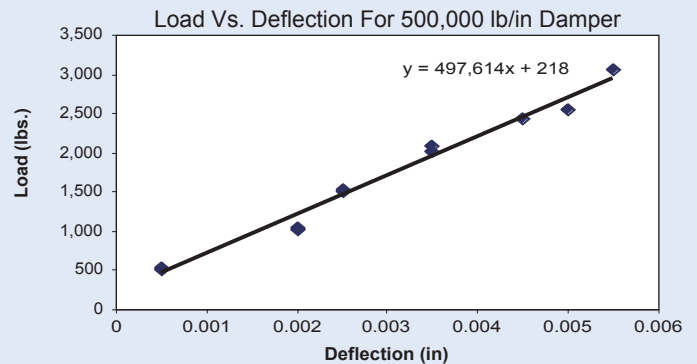
Superior Bearing Technology

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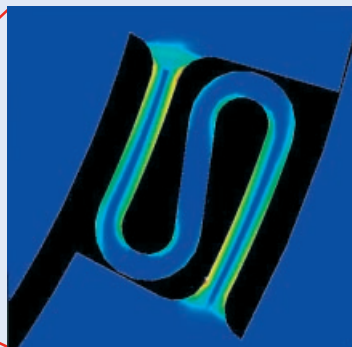
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Experimentally Verified Analytical Designs

KMC uses finite element analysis methods to optimize damper geometry in order to design damper to the exact stiffness required. Wire EDM machining, accurate to 0.000,1" ensures that the part is made as designed. The load deflection graph of measurements shows that the damper stiffness is linear, and is virtually identical to the designed 500,000 lb/in stiffness.



Integral Centering Spring Squeeze Film Damper with 500,000 lb./in. Stiffness Designed Using Finite Element Analysis

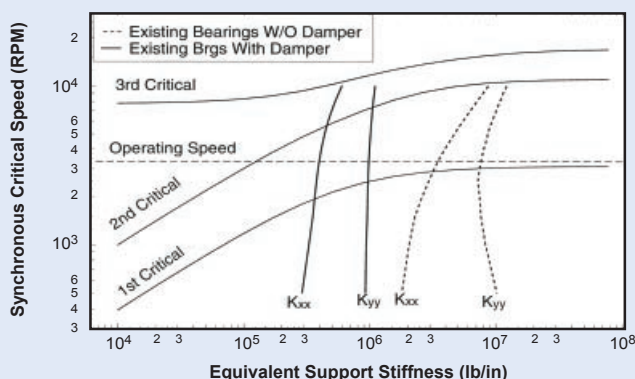
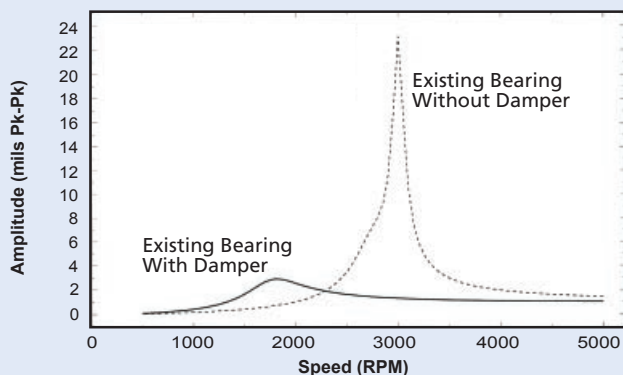


Experimental Setup To Measure Damper Stiffness



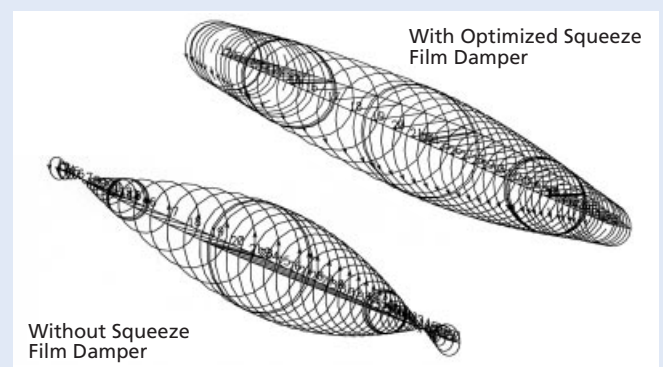
Control of Critical Speeds

Our squeeze film damper helps reduce the sensitivity to unbalance. Its softer support can be designed to shift critical speed down, often removing it from operating speed range.



Improved Stability

The flexibility introduced by the integral squeeze film damper improved the stability of rotor-bearing system. Prior to that, the bearings were at a node and ineffective in suppressing the sub-synchronous vibrations.



For more information about this and other KMC products, please contact:



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