DAMPER DEVELOPMENT

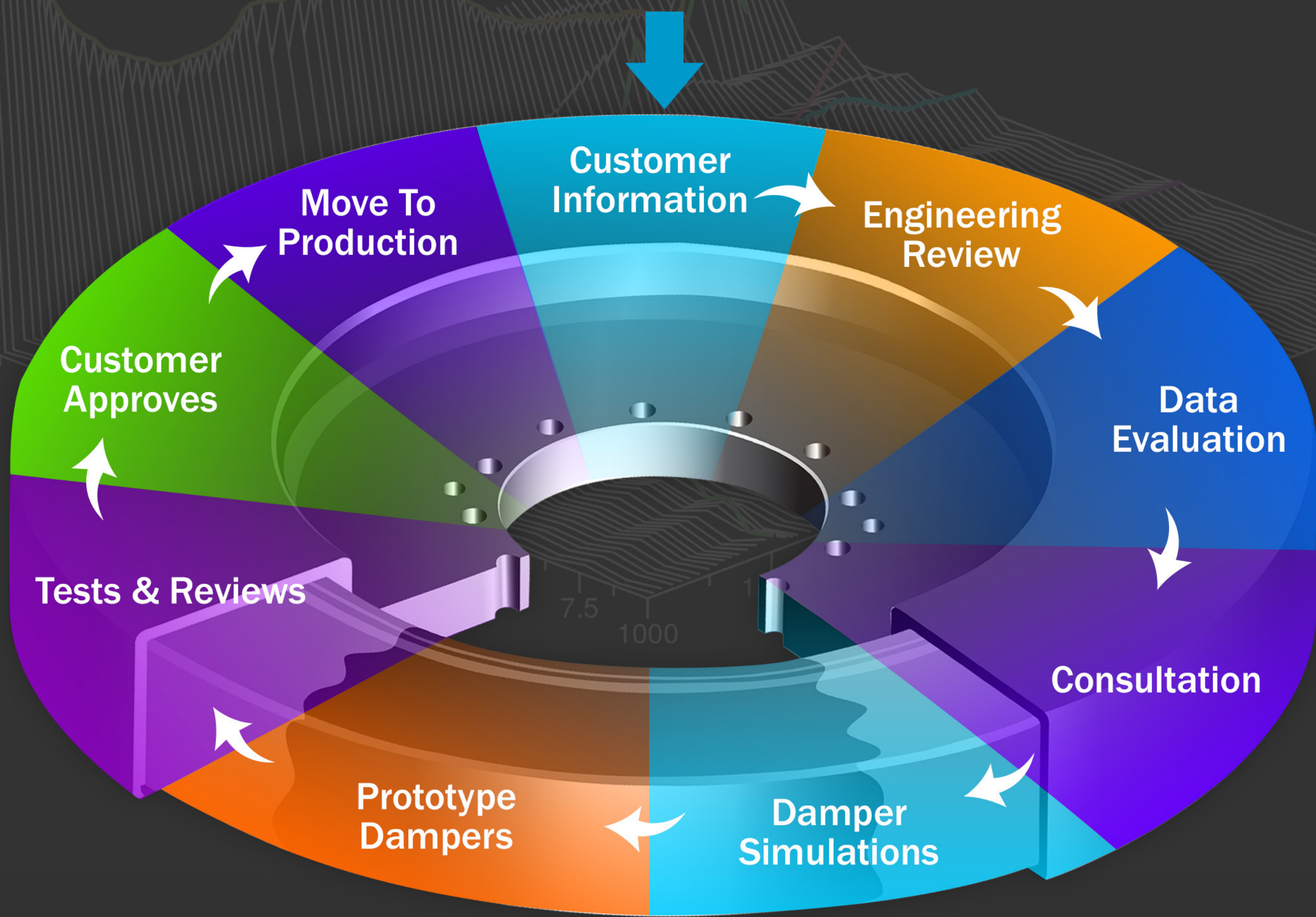
THINGS TO CONSIDER

VIBRATECH® TVD
HEAVY DUTY VISCOUS DAMPERS

MADE IN THE USA

SYSTEM CERTIFICATION ISO 9001:2008 SGS

VIBRATECH TVD **DESIGN PROCESS FLOW**



Collaborate Early

Early collaboration with Vibratech TVD during the design and development phase is essential to successfully integrating torsional vibration control. Building a relationship now with our engineering team leverages 70 years of torsional viscous damper development experience, saves time, provides flexibility and increases speed to market. Below are four helpful guidelines to consider when integrating a torsional damper in your design.

- **Establish Amplitude Limits**
  What reasonable vibration amplitude limit is acceptable to achieve durability goals?
- **Mass**
  Damping requires proper mass. Can overall weight goals be achieved with providing for optimum vibration control?
- **Adequate Envelope**
  How does a damper with proper mass integrate with the overall package? What other component's layouts are affected?
- **Avoid Resonance**
  Can damper mass establish resonance outside the operating range to further reduce torsional vibration?

Reference Equations

frequency = $\frac{\text{rpm} * \text{order}}{60}$

moment of inertia solid disk(I) = ½*mass*radius^2

torsion bar d.e.o.m. = $I\ddot{\theta}+c\dot{\theta}+k\theta = T_0 \sin wt$

natural frequency $(w_n) = \frac{1}{2\pi} * \sqrt{\frac{\text{spring rate}}{\text{inertia}}}$

solid pin spring rate(k) = $\frac{\frac{\pi}{2} * \text{radius}^4 * \text{shear modulus}}{\text{length}}$

order = events per revolution

Ready to Discuss Your Torsional Vibration Control Needs? Phone: **(716)592-1000** | Email: **sales@vibratechtvd.com**