ROUSH®

DAMPER & VIBRATION ABSORBER ENGINEERING

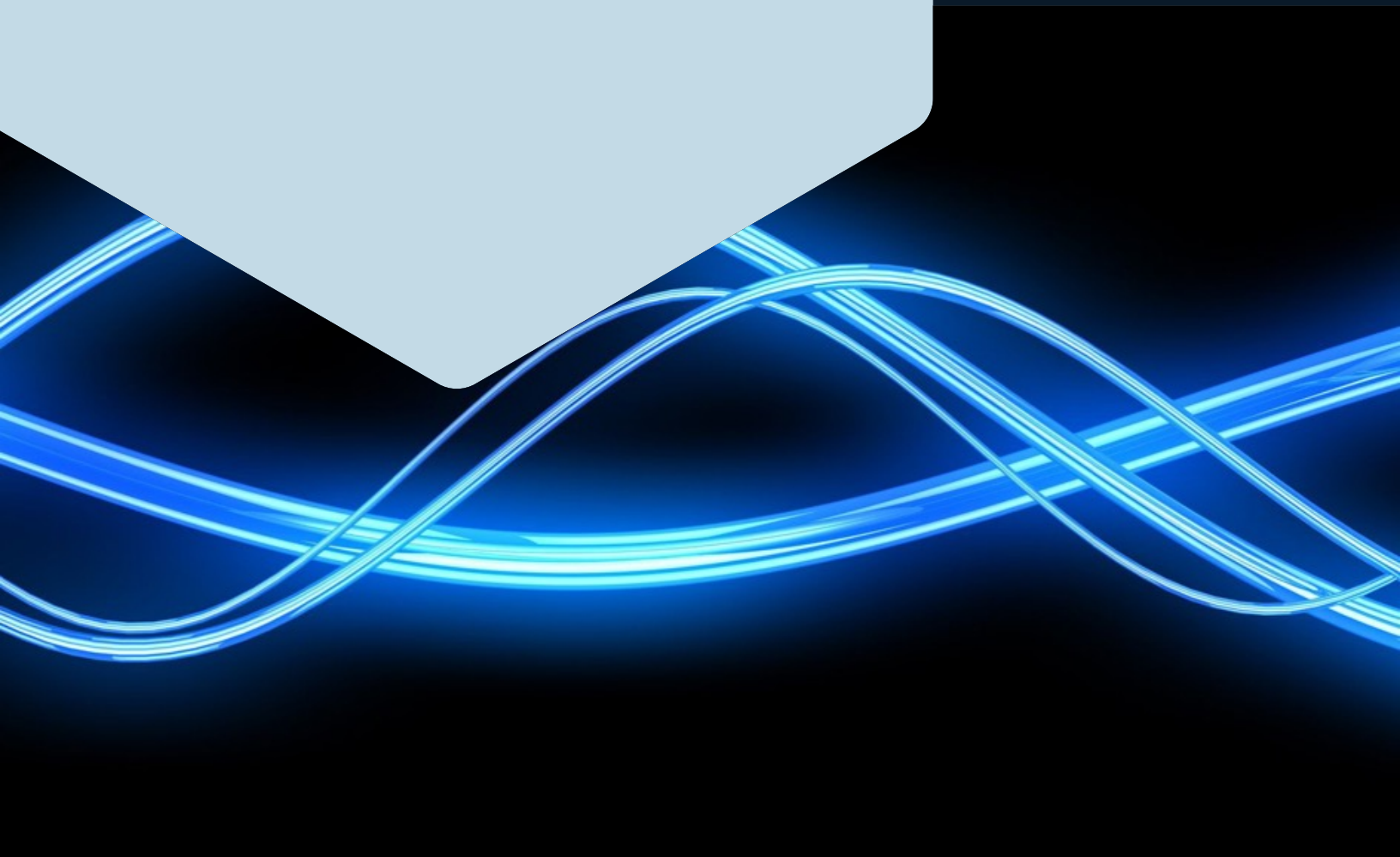
Roush has developed a proprietary tuned mass damper (TMD) and tuned vibration absorber (TVA) simulation package that utilizes a database of measured elastomeric material properties. This facilitates the designing of optimized damper systems for a wide variety of vehicle applications.

Because Roush has access to a variety of elastomeric products, we are uniquely capable of fabricating damper systems and testing effectiveness using bench, shaker and vehicle methodologies.

www.roush.com

We're focused, we're efficient, and we're at our best when we're challenged to think outside the box — critical traits when our customers' success depends on how quickly we can take their visions from the sketchpad to the marketplace.

For more information, please click here.



The Roush simulation software takes into account temperature and frequency effects on elastomer properties while designing dampers. The Roush approach has proven to accurately predict performance in vehicles prior to fabrication.

DAMPER TUNING PROCESS:

- Perform driving point measurements at proposed damper attachment locations
- Import FRF data into software
- Determine the optimal inertial mass, frequency, and damping
- Determine performance for various operating temperatures
- Determine how manufacturing tolerances will affect damping performance
- Determine trade-offs between cost, weight and performance
- Fabricate, bench tune and test the damper in a vehicle

TYPICAL DAMPING APPLICATIONS:

- Steering wheel shake
- Exhaust systems
- Propshaft and halfshaft bending
- Torsional vibration
- Powertrain bending
- Axle pinion pitch
- Subframe resonance
- Axle noise
- Transmission noise
- Body structure
- Aircraft
- Sports equipment
- Hand tools

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NVH SOLUTION DEVELOPMENT CAPABILITIES

- **Driveline issue resolution** – cars and trucks (2, 4, and AWD), commercial vehicles, RVs, off road, train, submarines
- **Powertrain** – gas, diesel, electric, hybrid, transmission, transient analysis
- **Sound package** – analytical and test-based design and development
- **Acoustic absorption and barriers** – design, testing, BEA/SEA analysis
- **Acoustic testing** – noise reduction, transmission loss, alpha cabin, impedance tube
- **Targeted Vibration Reduction** – tuned mass dampers, constrained layer dampers, particle dampers
- **Vehicle ride** – subjective evaluation, target setting, problem resolution
- **Road noise** – assessment, issue identification, solution development
- System identification – modal testing, operating deflection, transfer path analysis
- **Brake issues** – squeal, chatter, moans, judder
- **Sound quality and psychoacoustics** – metric development
- **Environmental noise** – unattended noise monitoring, environmental noise modeling
- **Test stand development** – design, build, test
- **Structural analysis** – strength, durability, strain gauge, wheel force transducers

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