Buzzes, squeaks and rattles (S&Rs) in vehicles are a major source of customer dissatisfaction, complaints in J.D. Power surveys, and warranty claims and costs. MB Dynamics delivers affordable turnkey systems to help OEMs & their suppliers develop and produce vehicles free of squeaks & rattles, with measurable quality. VPR+4D can be used for product validation during design/development as well as for production verification, launch support, and in-plant quality audits.
**FACILITY REQUIREMENTS**

- **Equipment Footprint:** 2.5m wide x 2.4m deep, min.  
  - Quiet Room inside dimensions are user selected to provide access around equipment as needed
- **Recommended Inside Height of Quiet Room:** 3m
- **Quiet Room Ambient Noise:** Preferably < 30dBA
- **Power:** 220-240VAC, 1 phase, 50/60 Hz, 50 Amp for System; 380-440VAC, 3 phase, 50/60 Hz, 32 Amp for system
- **Shop Air:** 30 liter/min @ 2 bar (1 CFM @ 30 psi)
- **Flooring:** Smooth concrete surface; no additional reinforcing is required

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**REFERENCE TERMINOLOGY**

- **VPR:** Vertical Pitch Roll multi-axis vibration test system; 5 degrees of freedom in 1 or 2 test cycles
- **4D:** sequential 4 axis excitation (4 Degrees of Freedom), vertical, roll, pitch and lateral – one axis at a time
- **VPR+4D:** 1 test system that can perform both VPR & 4D test functions with changeover from one to the other in < 1 hour; roll excitation in vertical mode yields 4th DOF
- **MISO:** Multi-Input, Single-Output vibration control, using 4 accelerometer inputs and one output signal to drive both EnergizerS, either in-phase or out-of-phase
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**PERFORMANCE CURVES**

<table>
<thead>
<tr>
<th>Payload, kg</th>
<th>Squeak &amp; Rattle, g RMS BLACKs Uncooled</th>
<th>Durability Squeak &amp; Rattle, g RMS BLACKs Forced-Air Cooled</th>
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<td>Bare Table</td>
<td>0.7</td>
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<th>Durability Squeak &amp; Rattle, g RMS SILVERs Forced-Air Cooled</th>
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**VPR+4D, continued**

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