The GIAN T Evo Universal is a very flexible inertia brake dynamometer for both performance tests and for fundamental NVH investigations of brake systems. It is used to test a variety of vehicle brakes and assemblies. This includes disc and drum brakes from small to medium cars as well as brake systems for larger limousines to medium-sized SUVs.

Test brakes can be mounted to the testing station as traditional brake disc and caliper assemblies as well as reusable assemblies with a standardized HORIBA wheel bearing. In addition, structures with original parts such as wheel bearing and steering knuckle are mountable to the tallstock. Especially for NVH studies, suspension strut assemblies and complete x axle structures can be utilized.

Due to the precise inertia simulation and state of the art test brake control, investigations are conducted under realistic operating conditions. Depending on the installed options, climatic tests from -20°C up to +50°C can be performed. Depending on the customers’ requirements, the GIAN T Evo Universal can be configured with a double wing door or a sliding test chamber.

Properties of the GIAN T Evo UNIVERSAL

Compact plug & play design:

- Including HORIBA tailstock for accurate brake torque measurement
- Dynamometer already pre-wired
- First commissioning already completed prior to shipping
- One single transport unit including electronic cabinets
- Installation directly on factory floor, no seismic foundation block required
- Mechanical inertia simulation with base inertia and two attachable flywheels
- Powerful electric motor for accurate electrical inertia simulation

Maximum precision with HORIBA brake actuator HBA 2200:

- High-precision actuator for braking pressure and torque
- Actuation by linear electric motor
- Installation close to the test brake
- Reduction of mechanical hysteresis
- Low maintenance costs due to reduced wear
- Fast adaptation close to the test brake

Extremely high measurement repeatability:

- High-precision measuring systems for speed, brake pressure, brake torque and temperature
- Fast data capture up to 1 kHz with HORIBA’s measurement and automation system STARS Brake
- Digital filters adjustable for each channel
- High reproducibility of the measurements through accurate control of the test bench functions with SPARC brake controller
- STARS Brake includes the commonly used brake test procedures to enable easy starting of test runs
- Direct analysis and result visualization with National Instruments DIAdem® Software
- Signal conditioning with EtherCAT modules to minimize electrical noise
- Easy to expand with optional components (see options)
- Reproducible air flow for precise cooling of the brake systems

Optional Features:

- Torque range
- Dynamic ventilation system for basic cooling air supply
- Environmental simulation system for dynamic temperature and humidity control
- Water and dust spray systems for advanced environmental simulation
- Auxiliary drive for static brake testing
- HORIBA Brake Actuator – HBA 2100 for actuating parking brakes with wire cable
- Acoustic panel for test chamber
- Advanced and integrated NVH measuring system, including squeal detecting algorithms
- HORIBA residual drag torque tailstock for highly accurate drag torque measurements
- Brake fluid displacement measurement used to investigate the volume consumption of the brake caliper
- Different pressure ranges and additional pressure sensors
- Disk Thickness Variation (DTV) measurement with up to six channels
- Telemetry system to measure up to eight rotating temperature channels
- Siemens mobile panel with touch screen for manual dynamometer control integrated in HORIBA’s human machine interface
- Video camera installed in the testing station for monitoring and recording of braking events
- HORIBA support for the installation of the inertia brake dynamometer

<table>
<thead>
<tr>
<th>Technical Data:</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Drive</td>
<td>DC Drive</td>
</tr>
<tr>
<td>Power (without overload)</td>
<td>220 kW</td>
</tr>
<tr>
<td>Speed Range</td>
<td>+/- 0 ... 2,200 rpm</td>
</tr>
<tr>
<td>Max. Drag Torque</td>
<td>+/- 0 ... 2,500 Nm</td>
</tr>
<tr>
<td>Max. Braking Torque</td>
<td>+/- 0 ... 5,500 Nm</td>
</tr>
<tr>
<td>Flywheels Set</td>
<td>20 / 45 / 75 / 100 kgm²</td>
</tr>
<tr>
<td>Flywheel Combinations</td>
<td>20 / 45 / 75 / 100 kgm²</td>
</tr>
<tr>
<td>Inertia Simulation Range (incl. Electrical Inertia Simulation)</td>
<td>5 ... 250 kgm² (valid for max. Rdyn 316mm within Velocity Range 0-100 Kph and 0...100°C)</td>
</tr>
<tr>
<td>Max. Hydraulic Pressure</td>
<td>200 bar</td>
</tr>
<tr>
<td>Max. Pressure Gradient (depends on the test brake)</td>
<td>1,000 bar/s</td>
</tr>
<tr>
<td>Max. Volume Displacement</td>
<td>18 cm³</td>
</tr>
<tr>
<td>Climatic Simulation Range</td>
<td>-30 ... 50°C (optional -40 to 50°C)</td>
</tr>
<tr>
<td>Ambient Air Temperature Range</td>
<td>5 ... 40°C</td>
</tr>
<tr>
<td>Dimensions (LxWxH)</td>
<td>approx. 6,950 x 2,100 x 3,000 mm</td>
</tr>
</tbody>
</table>

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HORIBA continues contributing to the preservation of the global environment through analysis and measuring technology.

Please read the operation manual before using this product to assure the product is used in a proper manner.

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