

# DBT - Disk Brakes Tester

Vibration Technology

## THE PRODUCT

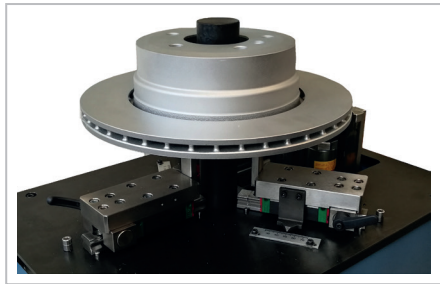
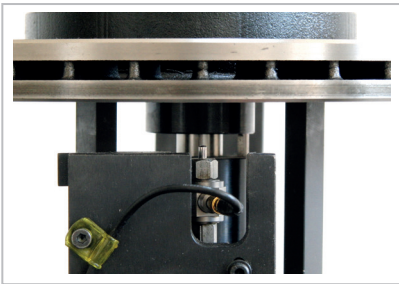
The DBT Disk Brake Tester is a free-standing Testing Bench designed to provide a quick and cost-effective NDT analysis of brake rotors.

Every part, product or component has its unique acoustic resonant signature that reflects its composition, dimensions and stiffness. The resonant frequencies (eigen-frequencies) are almost exactly the same from good part to part, but they will change when internal or external changes occur. With such basis, any deviation from the expected signature indicates a variation of part characteristics and/or manufacturing process.

The heart of DBT is the MG-ST-100 technology, working on the principle of acoustic signature, which provides the right solution for quality inspection (flaw detection) and for dynamic measurements of parts (Squealing and noise control).

The DBT can be configured in manual or full automatic mode when loading and unloading can be done with automatic pick-and-place or Robots. External communication is available via Ethernet, USB-3 ports and digital I/O to easily interface the testing bench with auxiliary factory automation and production line.

The entire test cycle takes less than 1 second for each rotor, allowing cost-effective and efficient quality control.



## FEATURES

### ROTOR TYPES

- Disks and Drums
- Cast Iron
- Pin Disk
- Blechtopf
- Co-fused (Steel+Cast iron)
- Interfuse (Steel+Al)
- Carboceramics

### ANALYSIS & FILTERING

- Full FRF (Frequency Response Function)
- Q-Factor
- Neural Network (upon request)
- Temperature compensation
- Aging compensation
- Weight compensation
- Voids, cracks and debonding detection
- Manufacturing process deviation

### INDUSTRIES

- Automotive
- Trucks & Buses
- Racing
- Rail
- Others: ceramics, sintering, medicals (with customization)

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## SYSTEM SPECIFICATIONS

### SOFTWARE

#### User friendly Human-Machine Interface (HMI)

The HMI gives the operator a simple interface to monitor machine status and test results.

#### Learning tools

Wizard software interface guides the user through the definition of the testing criteria that will be used for each product code. The learning process starts with a batch of products with known quality level and ends with the definition of the correct "testing rule".

Testing rule can be managed with different versions or characteristics according to process variations.

#### Manual Mode

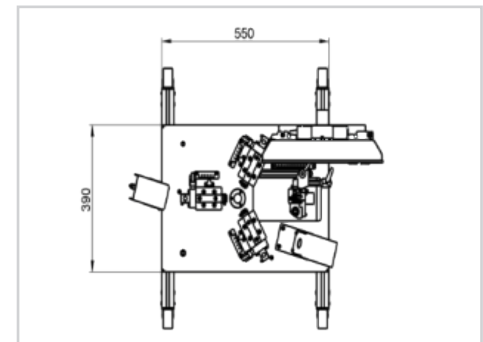
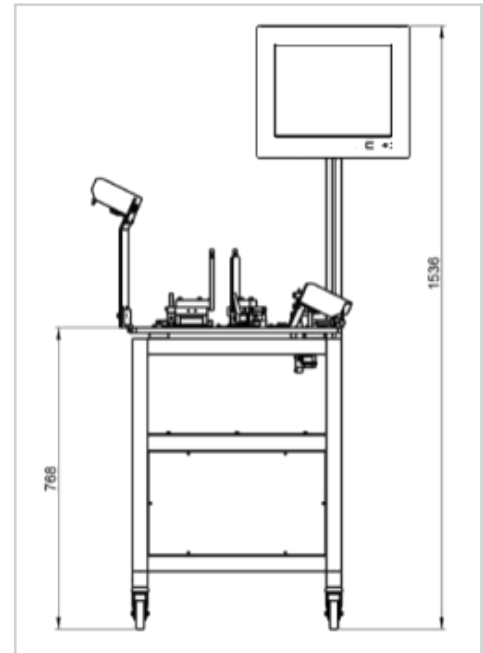
The manual configuration is designed for both Laboratory usage and out-of-line products monitoring. Movement of parts under control is done by an operator, but DBT performance is guaranteed due to software compensation of any potential misalignment.

#### Automatic Mode

The automatic mode configuration activates the dialogue between the DBT and the factory automation. Product loading and unloading is guided by the DBT testing results, and are communicated to the automation (robot or pick-and-place system) via standard digital I/O, Ethernet, serial ports (RS232-485) or Actice-X. Testing result is always available on the screen too.

#### Database and Log Archive

The DBT stores in a database the following data: product type and code, acquired signals, testing results and used set of limits. A log of machine events and operations is also available for post-processing analysis and management activity. User accesses the machine via multi-level management tools with personal password.



- Testing Time: 1 sec
- Rotors Size: from 230mm to 450mm
- Power Supply: 230 Vac - 50 Hz
- Touch Screen Panel Interface
- Global Mass: 70 kg

## MECHANICAL SPECIFICATIONS

- Compact and self-containing aluminum/steel structure
- MG-ST-100 Hardware and software technology
- High quality Cardioid Microphone
  - Standard range: 20Hz - 20kHz
  - Extended range: 4Hz - 100kHz
- Load Cell (type and resolution depend on application)
- Instrumented Hammer from 3 to 20N
- Touch Screen Monitor

