



A high-precision inertia measurement system for small objects

MEASUREMENT SYSTEM

Resonic K is composed of a rotatory air bearing with a vertical axis and a carrier for the test object. The bearing is constrained by soft springs and has three v-grooves on its top. The carrier has twelve ball studs on its surface which lock into the v-grooves in different combinations of three. This allows 24 well-defined positions of the carrier.

The measurement works as follows: The Resonic software defines three ball studs which will be used to position the carrier into the grooves. Once a free oscillation is initiated by the user, the software measures the frequency for about 15s. This process will be repeated for 12 to 24 different ball-stud combinations. After that, the software determines the complete inertia properties of the test object.

BENEFITS

- very high accuracy
- fast and easy measurement process
- low error potential because of foolproof positioning
- suitable for large and wide objects
- complete inertia properties, including center of gravity and products of inertia

center of gravity

$[x, y, z]$

inertia tensor

$$\begin{bmatrix} I_{xx} & \text{sym.} \\ I_{xy} & I_{yy} \\ I_{xz} & I_{yz} & I_{zz} \end{bmatrix}$$

MEASURABLE OBJECTS

Resonic K is suitable for objects below 20kg, including

- flywheels
- crankshafts
- rotary compressors
- vehicle doors
- small satellites and drones
- ship models
- hand tools
- sports equipment (golf clubs etc.)



Please contact us for further information about our technology and measurement services (at our facilities or directly at your site).

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