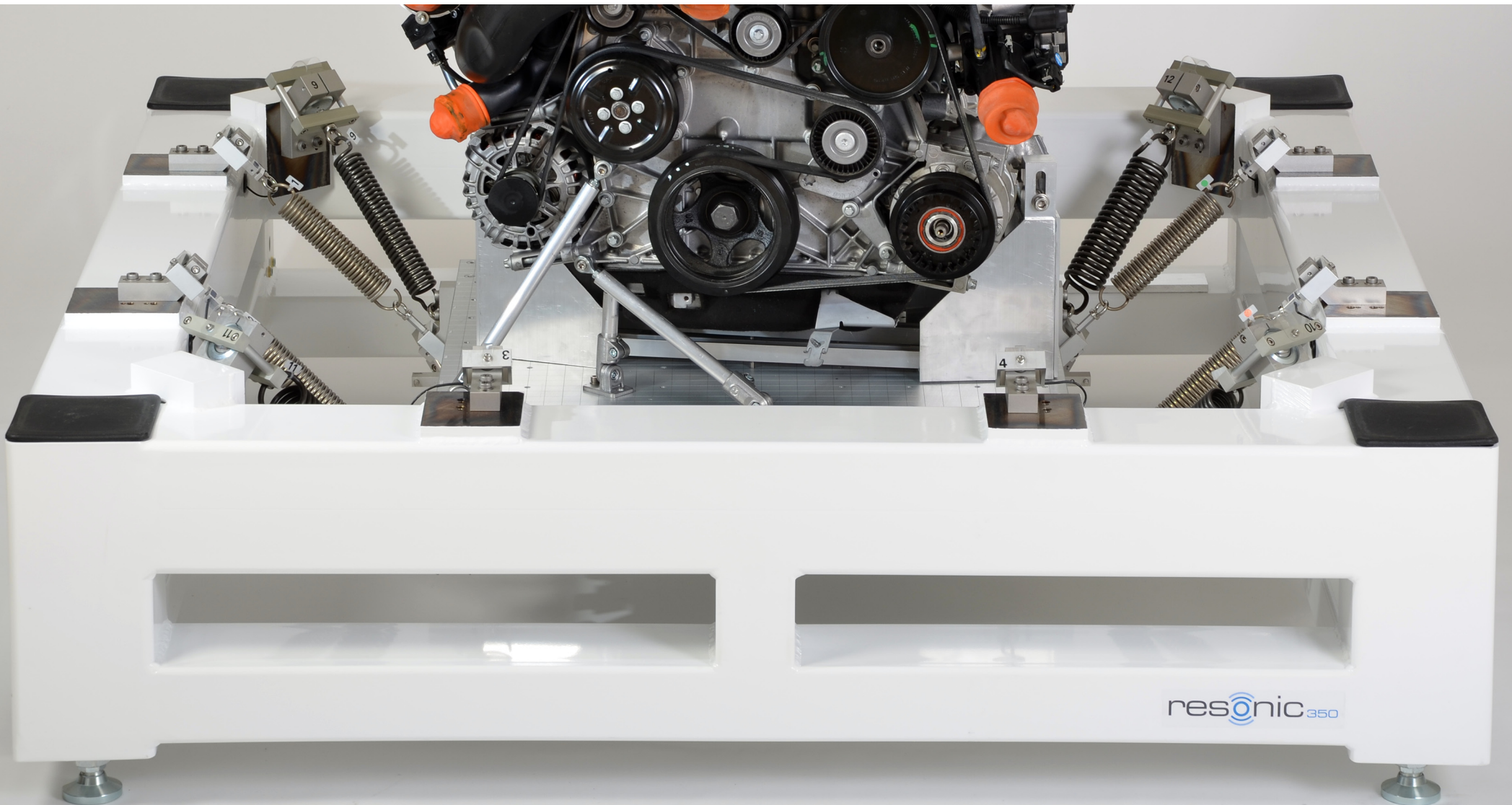
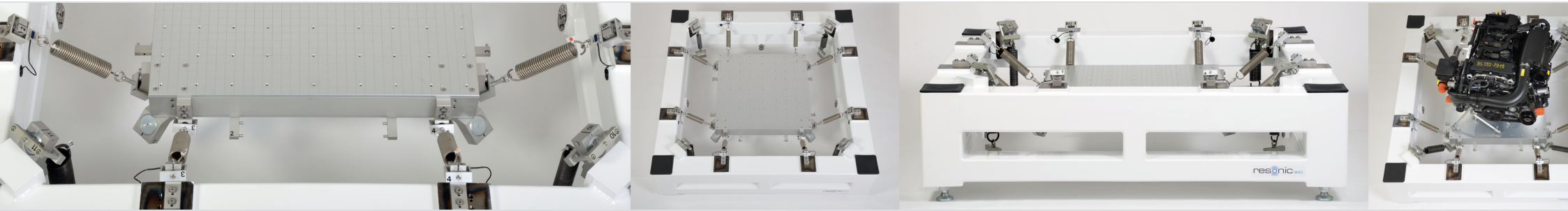




resonic₃₅₀

MEASURING COMPLETE INERTIA PROPERTIES RELIABLY AND FAST





RESONIC 350

Mass, position of center of gravity and inertia tensor can be measured comfortably and fast with the Resonic 350. The system is suitable for objects of up to 350 kg in weight and horizontal dimensions of up to 1200 × 1200 mm.

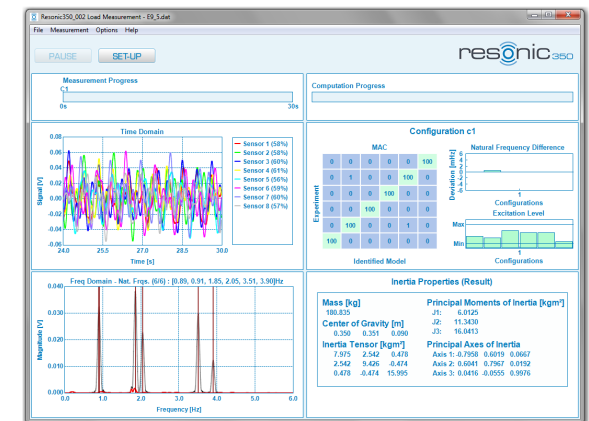
Test objects typically include all common types of car engines, but also truck wheels and vehicle doors. The measuring process only takes a few minutes and is carried out with the test object in a horizontal position. Resonic 350 is supplied as a complete turn-key solution, or measuring services can be provided at Resonic GmbH Berlin or on site at customers' premises.

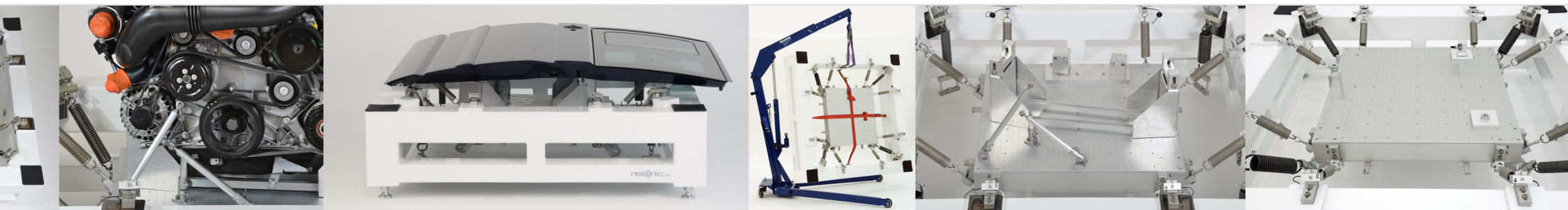
The Resonic 350 measuring system determines the complete inertia properties of objects based on the patented Resonic process.

The object is placed on a horizontal platform and can be supported by any type of fixture as required. The platform's suspension consisting of eight to twelve tension springs allows movement in all six degrees of freedom.

Once the object is set into motion by a random manual push, force sensors in eight of the springs read the object's movement signals and transmit them to the Resonic software via a USB interface.

The software records the signals over a period of approximately 20 seconds and uses the values to compute the complete set of inertia properties.





FLEXIBLE OBJECT SIZES AND INTERFACES

The Resonic 350 is suitable for almost all types of objects. The measuring platform is equipped with an array of threads that can take fixtures for supporting all shapes of measuring objects. The test object does not need to be mounted. Usually the object can be sufficiently stabilized by a simple three-point support using angle shims. A platform size of 700 × 700 mm also allows for larger objects to be measured:

- Objects of up to 1200 × 1200 mm, if they extend over the sides of the platform and do not touch the springs.
- Distance pieces of approximately 250 mm in height make it possible to measure bigger objects by positioning them above the system frame.

ORIENTATION CAN BE CHOSEN FREELY

The object can be positioned on the measuring platform of the Resonic 350 pointing in any direction. The exact position of the object's coordinate system in relation to the platform will first be determined by a 3D measuring arm. Based on the measured coordinates, the Resonic software automatically transforms all measuring results into the object's coordinate system.

CONVENIENT LOADING PROCESS

The measuring platform can easily be detached from the Resonic 350. This feature makes it possible to load the platform anywhere. Test object and platform are then re-inserted into the measuring device using a small crane. After inertia measurement the object is lifted out of the fixtures, so that the fixtures' inertia can be determined during a second measuring process and subsequently taken out of the calculation for the object's inertia.

VARIABLE MEASURING RANGE

Because the four diagonally positioned load-carrying springs can easily be detached and re-attached, the measuring range of the Resonic 350 can be adapted to the weight of individual test objects in stages:

- Objects of up to 350 kg can be measured using all four load-carrying springs.
- Two of the four load-carrying springs are sufficient for objects between 80 and 200 kg.
- For objects of less than 80 kg, and for measuring fixture inertia, all four load-carrying springs are removed.



TECHNICAL DATA

Measured variables

Complete inertia properties:

- Mass
- Center of gravity coordinates (x, y and z)
- Moments and products of inertia

$$\{I_{xx}, I_{yy}, I_{zz}, I_{xy}, I_{xz}, I_{yz}\}$$

Operating range

Mass: 40–350 kg

Principal moments of inertia: from 1,5 kgm²

Operating area

Up to 1200 × 1200 mm

(unlimited if the test object is positioned above the system frame)

Measuring time

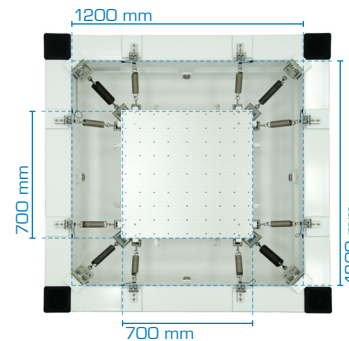
From 20 seconds

Test object interface

- Object can be positioned freely
- Object does not need to be fixed to platform
- Horizontal platform with an array of threads for modular fixtures

OVERVIEW OF BENEFITS

- Complete inertia properties in a single measuring process lasting only minutes.
- Very accurate across a wide measuring range.
- Easy loading process.
- Object can be freely positioned on the measuring platform, no laborious alignment necessary.
- Very user-friendly operation. The software indicates the few steps that are necessary to carry out the measuring process.
- Very reliable and little maintenance thanks to simple mechanic design.
- Mobile and easy to transport.



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