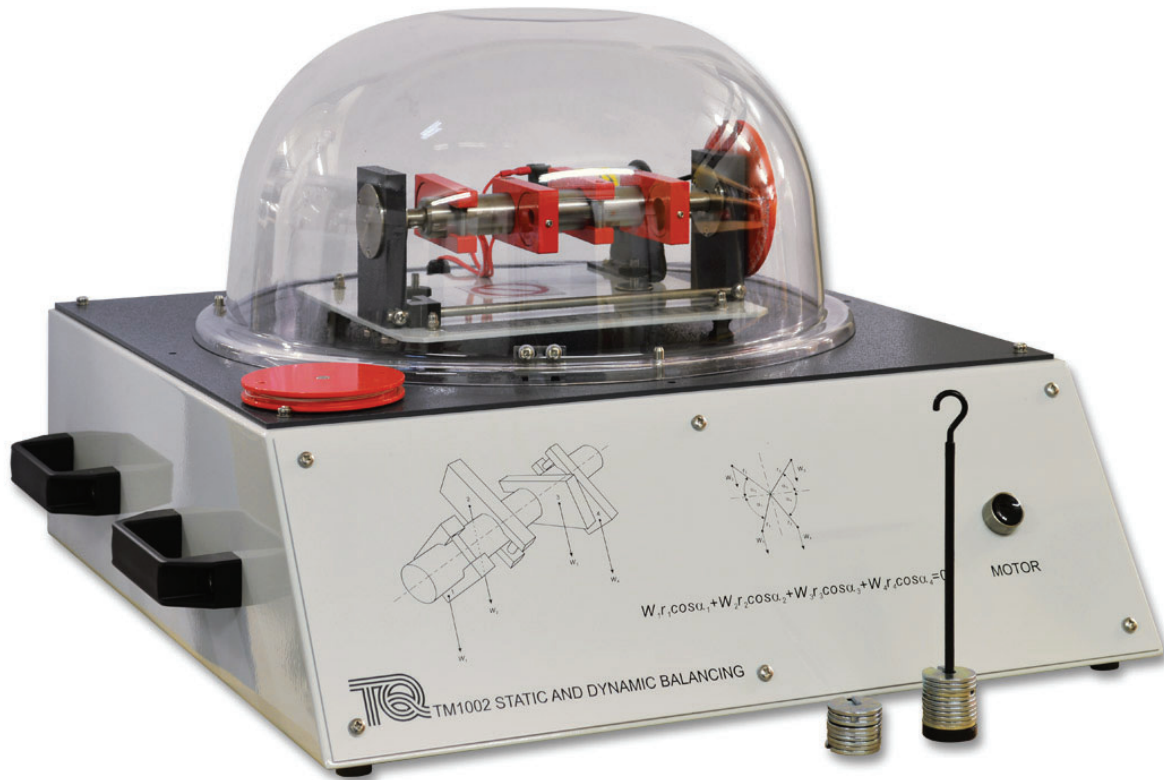




## STATIC AND DYNAMIC BALANCING

TM1002

Benchtop apparatus for experiments in balancing a rotating mass system, statically and dynamically.



### KEY FEATURES

- Self-contained bench or desktop unit, suitable for student use and for classroom demonstrations
- Demonstrates balancing a horizontal shaft with two, three or four rotating masses
- Independent analysis of static and dynamic balancing
- Includes four removeable rotating masses (balance blocks) with different inserts for a range of moments
- Protractor, horizontal scale and sliding indicator to help accurately position the rotating masses
- Flexible mountings allow test shaft assembly to vibrate in dynamic balancing tests
- Interlocked transparent dome allows students to observe the masses rotating



# ≡ STATIC AND DYNAMIC BALANCING

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## DESCRIPTION

This product allows students to do experiments in balancing a rotating mass system and check their results against accepted theory.

A sturdy base unit holds a test assembly on four flexible mounts. The test assembly includes a balanced steel shaft mounted horizontally on low friction bearings. The equipment includes a set of four rotating masses (balance blocks). The balance blocks fix in any horizontal position and relative angle on the shaft. Each block contains a different (and removable) circular insert, allowing students to create four blocks of different mass and moment. Without the inserts, the blocks become four identical masses for simple balancing tests.

Students fit an extension shaft and pulley (supplied) to the end of the balance shaft. They then add weights (supplied) to a cord wound round the pulley to measure accurately the moment of each balance block.

The test assembly includes a protractor at the end of the shaft and a linear scale with slider under the shaft. These allow accurate measurement of balance block angles and horizontal positions.

An electric motor and belt turns the shaft to test for dynamic balancing. The flexible mounts allow the assembly to vibrate, showing imbalance during dynamic balancing tests. Students remove the belt to check for static balance (the shaft should remain static at any angular position).

A transparent safety dome covers the whole rotating assembly. An interlock shuts off power to the motor when the dome is not fitted.

## STANDARD FEATURES

- Supplied with comprehensive user guide
- Five-year warranty
- Manufactured in accordance with the latest European Union directives
- ISO9001 certified manufacturer

## LEARNING OUTCOMES

- Demonstration of simple static and dynamic balancing of two, three and four rotating masses
- Dynamic balancing of rotating mass systems by calculation and vector diagrams (triangle and polygon)

## ESSENTIAL SERVICES

### BENCH SPACE NEEDED:

A solid bench or desktop of around 600 mm front to back

### ELECTRICAL SUPPLY:

Single phase, 90 - 250 VAC, 50 / 60 Hz, 1A

## OPERATING CONDITIONS

### OPERATING ENVIRONMENT:

Laboratory

### STORAGE TEMPERATURE RANGE:

-25°C to +55°C (when packed for transport)

### OPERATING TEMPERATURE RANGE:

+5°C to +40°C

### OPERATING RELATIVE HUMIDITY RANGE:

80% at temperatures < 31°C decreasing linearly to 50% at 40°C

## SOUND LEVELS

Less than 70 dB(A)

## SPECIFICATIONS

TecEquipment is committed to a programme of continuous improvement; hence we reserve the right to alter the design and product specification without prior notice.

### NETT DIMENSIONS AND WEIGHT:

600 mm wide x 600 mm front to back x 360 mm high and 18 kg

### APPROXIMATE PACKED DIMENSIONS AND WEIGHT:

0.25 m<sup>3</sup> and 24 kg