

Static & Dynamic Balancing Apparatus – SD-1.60



A bench mounted enclosure contains all the electronics and safety guard for this apparatus.

On top is a shaft running in bearings. The shaft can carry up to four balance masses (non-coplanar). Each mass can be easily adjusted for imbalance by its radius, linear and angular position. Linear and angular scales ensure accurate positioning of each mass. A set of 12 balance masses are provided of varying mass, and each one has a thin alignment slot produced.

During dynamic balancing the shaft is run from a speed controlled motor through a pulley and belt arrangement. The speed of the motor is accurately controlled from the front panel.

When static balancing is required the shaft is disengaged from the motor by simply sliding off the belt.

To statically balance the shaft and each individual balance mass, the balance moment is measured using precision weights, bearing balls, pulley and cords.

PROVIDES EXPERIMENTS IN THE DYNAMIC BALANCING OF ROTATING AND RECIPROCATING SYSTEMS



Experimental content

- ▶ Static balancing of non-coplanar masses
- ▶ Dynamic balancing of non-coplanar masses
- ▶ Comparison between theoretical and actual results
- ▶ Use of vector diagrams, vector resolution, resultant forces, moment polygons and turning moments

Requirements

Scale



Electrical supply: 110/120V, 60Hz or 220/240V, 50Hz

Technical specification

- ▶ **Speed controlled motor shaft:** 0-1400rpm
- ▶ **Balance mass radius:** 30-70mm
- ▶ **Balance masses:** 50, 75, 100g
- ▶ **Linear adjustment:** scale in millimetres
- ▶ **Angular adjustment:** 360°, 1° resolution

Ordering specification

- | | |
|-----------------------------------|---------------------------|
| ▶ 1 x SD-1.60 | ▶ 2 x Load hanger |
| ▶ 1 x Protective dome | ▶ 1 x Combination spanner |
| ▶ 1 x Static balancing attachment | ▶ 1 x Power supply |
| ▶ 4 x 50g Balance mass | ▶ Locking handle |
| ▶ 4 x 75g Balance mass | ▶ Instruction manual |
| ▶ 4 x 100g Balance mass | ▶ Packing list |
| ▶ 100 x Ball weights | ▶ Test sheet |

Overall dimensions

Length	0.500m
Width	0.500m
Height	0.460m

Packed and crated shipping specifications

Volume	0.24m ³
Gross weight	31kg

Related laws

- ▶ Static Balancing
- ▶ Dynamic Balancing
- ▶ Non-Coplanar Masses
- ▶ Vector Diagrams
- ▶ Vector Resolution
- ▶ Resultant Forces
- ▶ Moment Polygons
- ▶ Moments
- ▶ Imbalance
- ▶ Vibration

Features / benefits

- ▶ Self-contained bench top apparatus
- ▶ All rotating parts fully guarded
- ▶ Three mass sets of different mass
- ▶ Masses can be adjusted for radius
- ▶ Many experimental adjustments can be made
- ▶ Speed controlled and limited
- ▶ Power 'cut-out' with guard removed

Operational conditions

- ▶ **Storage temperature:** -10°C to +70°C
- ▶ **Operating temperature range:** +10°C to +50°C
- ▶ **Operating relative humidity range:** 0 to 95%, non-condensing

Ordering codes

- ▶ **SD-1.60-A** Static & Dynamic Balancing Apparatus

UK office - email: sales@armfield.co.uk tel: +44 (0) 1425 478781 (for ROW)
 USA office - email: info@armfield.inc tel: +1 (609) 208-2800 (USA only)

Issue: 1

URL: <http://www.armfield.co.uk/structures>

Applications

ME CE IP

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