



**SV
SERIES**

Strength of Materials

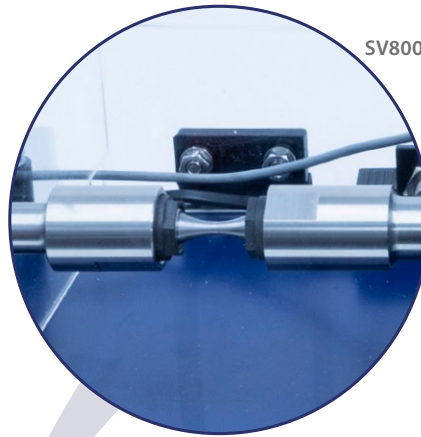
Rotating Fatigue Machine – SV800

The SV800 rotating fatigue machine has been designed to introduce students to the effects of material fatigue using a sinusoidal variation of bending stress.

A 2800rpm motor rotates a specimen through a gear and pulley arrangement between 5600 or 1400 rpm.

The specimens are held within 'keyless' chucks and loaded using a cantilever arrangement, with the load being applied through a screw jack mechanism with integral cantilever load cell.

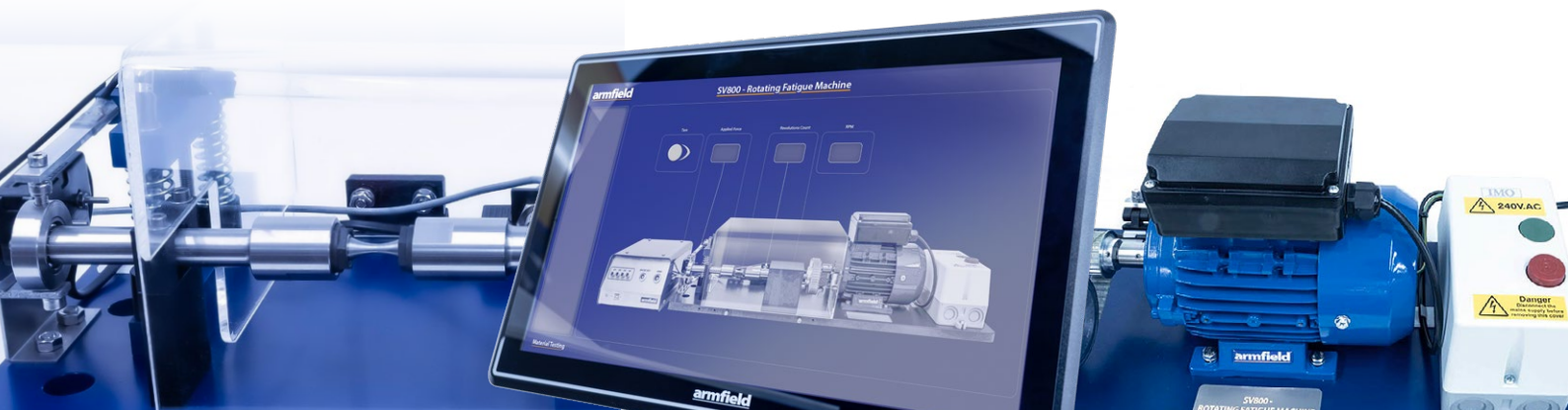
INTRODUCE STUDENTS TO THE EFFECTS OF MATERIAL FATIGUE USING A SINUSOIDAL VARIATION OF BENDING STRESS



SV800 Keyless chuck



SV800 Rotating Fatigue Machine



Experimental content

- ▶ To make an introductory study of fatigue using a Wohler rotating fatigue apparatus, including the time to failure caused by various stress levels and materials
- ▶ Introducing students to S-N curves
- ▶ Material specification on fatigue limits
- ▶ Specimen geometry on fatigue limit

Description

The SV800 rotating fatigue machine has been designed to introduce students to the effects of material fatigue using a sinusoidal variation of bending stress.

A 2800rpm motor rotates a specimen through a gear and pulley arrangement between 5600 or 1400 rpm. The specimens are held within 'keyless' chucks and loaded using a cantilever arrangement, with the load being applied through a screw jack mechanism with integral cantilever load cell.

A digital interface displays the applied force and revolution count of the specimen. Both values can be reset and zeroed (tared) prior to the testing commencing. When specimen failure occurs, a micro switch stops the motor and the cycles to failure are registered on the digital display. The count remains when the motor is not running. A safety guard shields all rotating parts.

The AIU Armfield interface unit allows a host computer (not supplied) to be connected to the SV800. The software supplied allows the capture and reviewing of data.

Specially machined necked test specimens are provided in steel. These have a 4mm nominal neck diameter. All tooling is provided to allow the removal and fitting of these specimens. A full technical Instruction manual is supplied, which details full unit operation, experimental technique, example results and relevant theory.

Features / benefits

- ▶ Fatigue testing based on Wohler
- ▶ Fully guarded system
- ▶ Variable speed
- ▶ Automatic motor cut-off following specimen fracture
- ▶ Digital force sensor
- ▶ Digital interface and software
- ▶ Keyless chucks
- ▶ Set of specimens supplied with spares optionally available

Ordering specification

- ▶ 1 x SV800 Rotating Fatigue Machine
- ▶ 2 x Spanner
- ▶ 10 x Specimen
- ▶ 1 x Hex wrench set
- ▶ 1 x Spare belt
- ▶ 5 x Spare fuse
- ▶ Instruction manual
- ▶ Packing list
- ▶ Test sheet

Overall dimensions

Length	0.715m
Width	0.260m
Height	0.280m

Packed and crated shipping specifications

Volume	0.05m ³
Gross weight	35kg

Related laws

- ▶ Fatigue
- ▶ Maximum Stress
- ▶ Proof, Yield Stress
- ▶ Fracture
- ▶ Tensile stress
- ▶ Endurance Limit Stress
- ▶ Stress Variation
- ▶ Localised
- ▶ Wohler Fatigue
- ▶ Sinusoidal Stress

Requirements

Scale



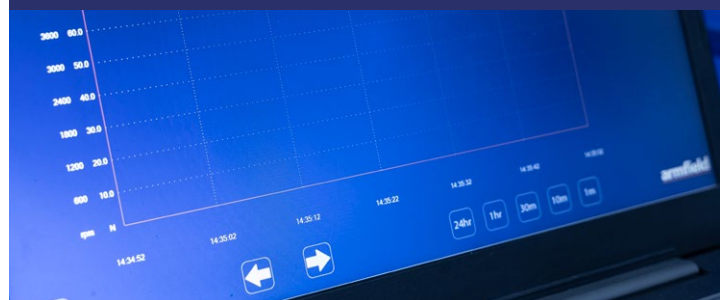
Electrical supply: 110/120V, 60Hz or 220/240V, 50Hz

- ▶ PC with a USB port, running Windows 7 or above

Technical specification

- ▶ Motor speeds: 5600 or 1400rpm
- ▶ Motor speed: 2800rpm nominal
- ▶ On-board starter box
- ▶ Timing pulley and belt drive system: 20t and 40t
- ▶ 10 x Standard specimens: Ø4mm neck diameter x 65(L) mm, steel
- ▶ Cantilever loading arrangement
- ▶ Clear safety guard
- ▶ Safety: Motor will remain inactive with safety guard removed

Graphing detail



Recommended Accessories / equipment

- ▶ **SV800-1:** Additional 10 Mild Steel Specimens
- ▶ **SV800-2:** Additional 10 Brass Specimen
- ▶ **SV800-3:** Additional 10 Aluminium Specimen

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

- ▶ **SV800-A:** Rotating Fatigue Machine 230v - 1Ph - 50Hz
- ▶ **SV800-B:** Rotating Fatigue Machine 115v - 1Ph - 60Hz
- ▶ **SV800-1:** Additional 10 Mild Steel Specimens
- ▶ **SV800-2:** Additional 10 Brass Specimens
- ▶ **SV800-3:** Additional 10 Aluminium Specimens
- ▶ **AIU:** Armfield Interface Unit (Supplied with the unit)

Armfield standard warranty applies with this product

Knowledge base

- > 28 years expertise in research & development technology
- > 50 years providing engaging engineering teaching equipment

Benefit from our experience, just call or email to discuss your laboratory needs, latest project or application.

An ISO 9001:2015 Company



armfield.co.uk

Aftercare

Installation
Commissioning
Training
Service and maintenance
Support: armfieldassist.com