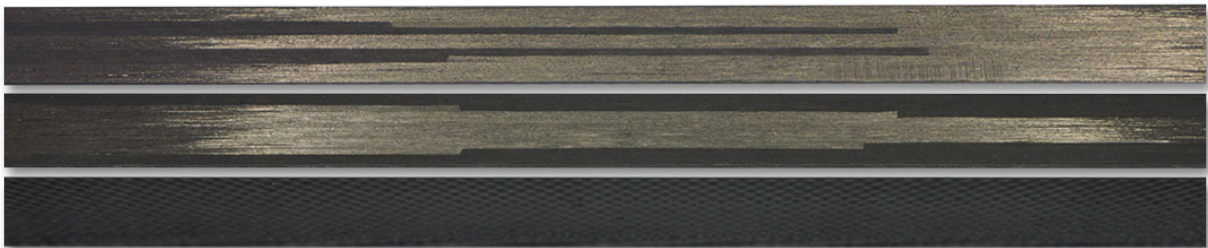




## ≡ VARIABLE STIFFNESS COMPOSITE BEAM / STRUT SET

SM1004D3 AND SM1005B3

A set of carbon composite beams / struts with a varied construction along their lengths. The different composition of each beam exhibiting differing bending/stiffness characteristics along its length.



### KEY FEATURES

- Forms an introduction to variable stiffness beams
- Fits in the Beam Apparatus (SM1004) or the Euler Buckling Apparatus (SM1005) to extend their experimental range
- Includes three beams / struts in a storage wallet



# ≡ VARIABLE STIFFNESS COMPOSITE BEAM / STRUT SET

SM1004D3 AND SM1005B3

## DESCRIPTION

Composite materials with specific properties are common in many industries such as aerospace, automotive, sports and civil engineering. Variable stiffness composite materials are lightweight, stiff and strong. They have good fatigue and impact resistance. Their properties can be tailored to match the specific needs of end users by changing constituent material types and manufacturing parameters such as tow, weave type, resin or manufacturing method.

For variable stiffness composite materials, a variety of carbon fibre architectures can be obtained by interleaving tapes of fabrics in different orientations or grades.

The combination of materials used results in a specific configuration of mechanical and performance properties of the resulting composites and determines the end use possibilities.

Composite beams / struts can easily be tailored to specific needs increasing or decreasing certain mechanical properties in areas as required. This helps reduce costs and component weight. The Variable Stiffness Composite Beams / Struts Set introduces the student to this concept by providing a range of beams / struts whose mechanical properties vary along their length. The beams / struts all maintain the same cross-sectional area.

The beam types included in the kit are:

- Stiff/weak
- Stiff/weak/stiff
- Weak/stiff/weak

All beams / struts are bonded with epoxy resin.

All beams / struts are split into equal stiffness sections.

## STANDARD FEATURES

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

## LEARNING OUTCOMES

- Introduction to composites
- Benefits of composites
- Bending properties of different variable stiffness beams / struts

## ESSENTIAL BASE UNIT

- Beam Apparatus (SM1004) for SM1004D3

OR

- Euler Buckling Apparatus (SM1005) for SM1005B3

## OPERATING CONDITIONS

### OPERATING ENVIRONMENT:

Laboratory environment

### 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

## 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.

### DIMENSIONS

Each beam / strut 5 x 19 x 750 mm (nominal)

### APPROXIMATE NETT WEIGHT:

0.6 kg

### APPROXIMATE PACKED VOLUME:

0.02 m<sup>3</sup>