

**Efficiency of Screw Threads – SD-1.52**

Three screw thread forms are supplied (‘Vee’ x 2 and square) each with an integral turntable mounted on the top side. Wrapped around the periphery of the turntable is a cord which allows the turntable to be rotated when loaded.

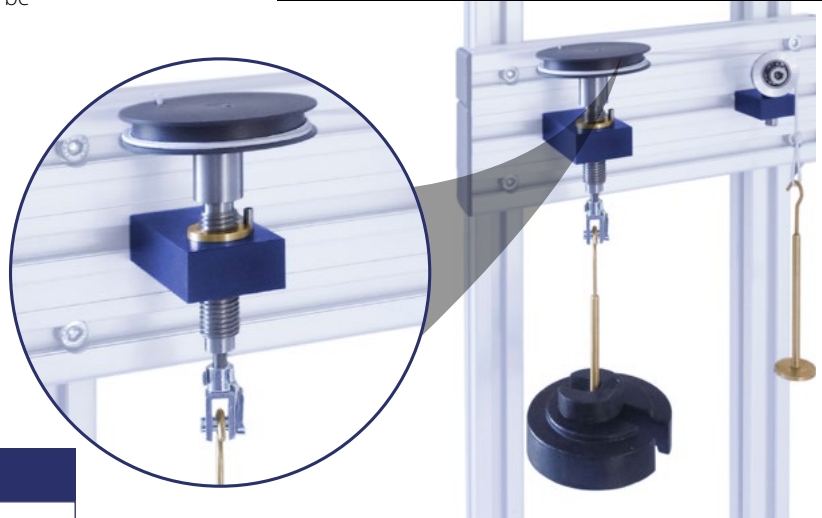
Each thread has a mating nut with a profiled groove in its side. This groove locates onto a pin within the wall bracket assembly and stops the nut from rotating when the turntable and screw thread are rotated.

Each nut and thread pairing are quickly and easily interchanged. The cord is run over the pulley and terminates to a load hanger. This hanger is described as the ‘EFFORT’ hanger. Another hanger is attached to the underside of the shaft of the screw thread and is described as the ‘LOAD’ hanger.

Students vary the LOAD using the calibrated weights and obtain the respective EFFORT required to raise or lower the screw thread.

From this the efficiencies can be obtained.

**COMPACT WALL MOUNTED APPARATUS TO CONDUCT EXPERIMENTS ON THE EFFICIENCIES OF CARRYING SCREW THREAD FORMS**



**Experimental content**

- ▶ Experimental determination of velocity ratio and comparison with calculated value
- ▶ Comparison of relative efficiency of Vee and Square thread forms
- ▶ Determination of variation with load of effort, friction and efficiency
- ▶ Limiting efficiency of the machine

**Related laws**

- ▶ Ratio between the ideal effort to the actual effort
- ▶ Lead Distance
- ▶ Efficiency dependence upon the lead angle of the screw thread
- ▶ Lead Angle
- ▶ Friction
- ▶ Torque

**Features / benefits**

- ▶ Wall mounted apparatus
- ▶ Introduction to simple machines
- ▶ Determination of velocity ratio mechanical advantage and efficiency
- ▶ Comparative efficiency of square and Vee form threads
- ▶ Three thread forms provided with integral turntables and cords
- ▶ Calibrated weights set and hangers supplied

**Overall dimensions**

Length	0.32m
Width	0.23m
Height	0.24m

**Packed and crated shipping specifications**

Volume	0.02m <sup>3</sup>
Gross weight	12kg

**Requirements**

**Scale**



**Technical specification**

- ▶ 1 x SD-1.52 main assembly
- ▶ 1 x M16 x 3mm Pitch thread with brass nut and cord
- ▶ 1 x M16 x 3mm Pitch, vee thread with brass nut and cord
- ▶ M16 x 2mm, Vee thread with brass nut
- ▶ 1 x 100g Hanger
- ▶ 1 x 10g Hanger
- ▶ 1 x 5N Hanger
- ▶ 1 x Primary weight set:  
8 x 0.1N, 2 x 0.2N, 1 x 1N, 2 x 2N, 2 x 5N, 1 x 10N
- ▶ 1 x Secondary weight set:  
1 x 20N, 4 x 50N
- ▶ 1 x Hanger link
- ▶ 1 x 5m Cord

**Ordering specification**

- ▶ Wall mounted apparatus to compare the efficiencies of square and ‘Vee’ form screw threads
- ▶ Torque applied to threads using turntable and cord
- ▶ The effort can be applied to raise or lower the load
- ▶ Load applied to screw thread and effort hanger can be changed

**Ordering codes**

- ▶ **SD-1.52** Efficiency of Screw Threads