

Precision Springs & Weights Set



【Product Description】

Set of high-precision springs and weights for advanced learners suitable for verifying Hooke's law and studying the topic of spring pendulum with high accuracy.

【Overall Advantages to Users】

Each spring in the set is designed to have almost no initial tension and to stretch proportionately to the load applied by the weight(s) according to Hooke's law.

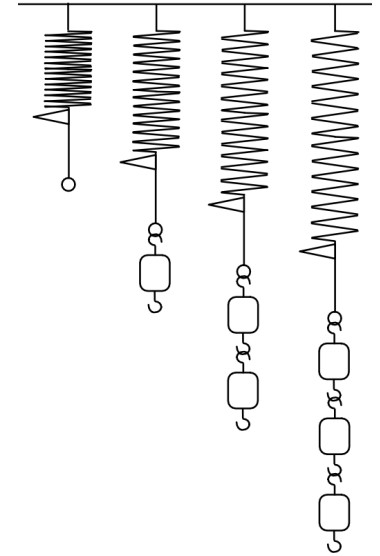
【Specifications】

- Spring (Type-A): Stainless, Wire diameter: 0.6mm, Spring outer diameter: 16mm, Spring constant: 5.0 N/m, Elastic limit: ca. 240mm (Equivalent to the mass of 120g)
- Spring (Type-B): Stainless, Wire diameter: 0.7mm, Spring outer diameter: 40mm, Spring constant: 12.0 N/m, Elastic limit: ca. 240mm (Equivalent to the mass of 240g)
- Weights: 20g x 5 pcs (Brass, $20\text{g} \pm 0.5\%$, with hooks on top/bottom)

Verifying Hooke's law by measuring spring constant:

What to prepare: Support stand(s), Ruler (x1 pc), Spring (Type-A or Type-B), Graph paper (x1 pc), Pointer (optional)

1. Hook the spring (either type) without a weight to a support stand and put a pointer (make by yourself, for example by tape, post-it or piece of paper) at the lower end of the spring.
2. Set up a ruler vertically behind the spring. Adjust the position of the ruler so that the pointer is aligned with the zero point of the ruler.
3. Hook one weight to the spring.
4. Read the scale pointed by the pointer to record the number of the weight and the indicated scale.
5. Hook more weights one after another and repeat above step 4.
6. Plot the data obtained on a graph.
7. Calculate the spring constant using the gradient of the graph.



Measurement of period of spring pendulum:

What to prepare: Support stand(s), Spring (Type-A or Type-B), Stopwatch

1. Hook the Spring type-A or type-B to a support stand. Hook a weight to the spring.
2. Pull the spring downward and release it to generate a simple harmonic motion.
3. Measure the duration needed for ten cycles (swings) using a stopwatch and calculate a period of the simple harmonic motion.
4. Hook more weights one after another and repeat above steps 2-3.
5. Discuss with your students about the relationship between mass and period to describe the properties of spring pendulum.

