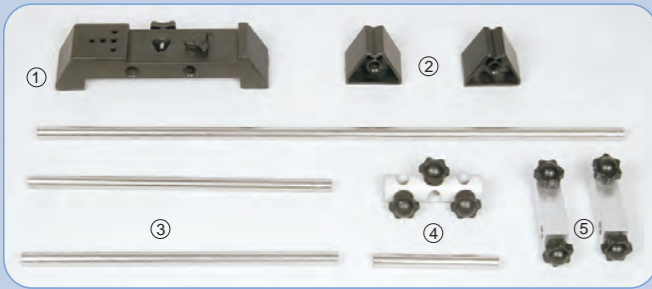
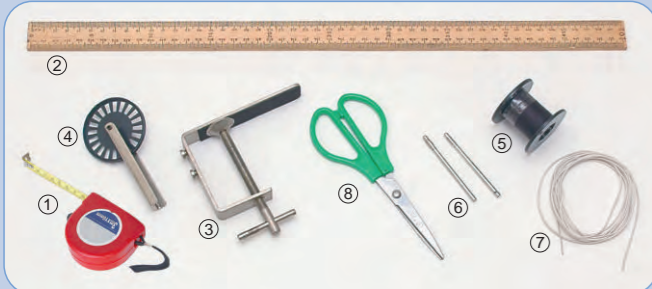


## Component Detail



### STAND BASE SYSTEM

1. Stand base. Dimension 185 × 36 × 35mm, plastics (ABS).
2. Stand foot. Dimension 50 × 40mm, with angle of 60°, plastic (ABS).
3. Stand rod. Stainless steel. Ø 10mm. Length 100mm, 250mm, and 500mm.
4. Bosshead, round. Die-cast aluminum, suitable for joining two stand rod.
5. Bosshead, universal. Made of aluminum for general purpose usage.



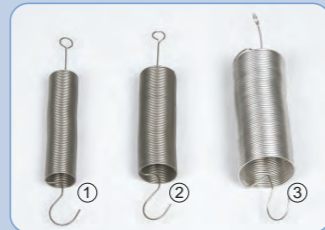
### MEASUREMENT AND GENERAL EQUIPMENT

1. Measuring tape. 3m, Length: 3m, in plastic housing.
2. Ruler. 500mm. Material: wood, Length: 50cm. Scale in cm and mm.
3. Table clamp.
4. Pulley for table clamp. Material: steel, plastic pulley. Pulley Diameter: 50mm.
5. Cord on reel. Diameter: 1mm, Length: 10m, Material: Nylon twisted thread. Maximum Weight: 2.5kg.
6. Bearing pin. Material: brass, nickel plated.
7. Rubber string. Material: cotton and rubber, Length: 3m.
8. Pair of scissor. Material: stainless steel.



### FLAT SPRING AND ACCESSORIES

1. Flat spring with clamp. Material: steel, Length: 300mm, Complete with aluminum clamp.
2. Threaded rod with butterfly nut. Material: steel, Length: 60mm, Diameter: 4mm.
3. Holder for pencil.
4. Slotted mass and hanger, 250g. Material: brass, nickel plated.



### HELICAL SPRING

Spring steel with hook and ring. The spring is used for experiments on Hook's law and oscillation.

1. Helical Spring, 25 N/m.
2. Helical Spring, 10 N/m.
3. Helical Spring, 4.5 N/m.



### BALL FOR PENDULUM

Comprising a solid brass sphere with a small ring for suspension. Available in two masses: 35g and 70g.



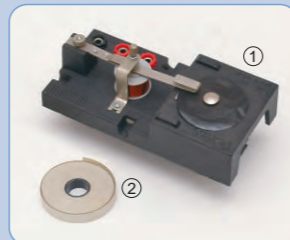
### VIBRATION GENERATOR

For generating vibration in oscillation and wave experiments. A frequency response encompasses the whole of the audio spectrum. Electrical input is made via 4mm sockets. Needs audio generator to operate.



### EQUIPMENT FOR MOMENTUM EXPERIMENT

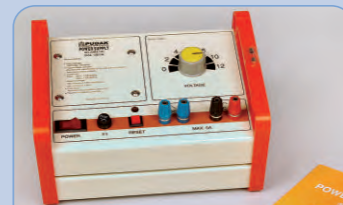
1. Spring buffer. Material: steel.
2. Flat spring for explosion experiment. Material: steel.



### TICKER TIMER AND PAPER TAPE

1. Ticker timer. For recording one dimensional motions (type motion, speed, acceleration) of a trolley or falling weight by analyzing ticks on 9.5mm ticker tape which are produce at fixed frequency together with motion of the objects on clamp rider to fit the precision rail.
2. Paper tape. Tape wide: 9.5mm. Roll diameter: approx. 49mm.

## Optional Equipment (Not included on kit)



Power Supply | KAL 60/5A



Audio frequency generator | FAL 25



Stopwatch | KKW 71



Balance | KNE 23

Specifications are subject to change without prior notice

# Mechanics Kit

## PMS 500

- Comprehensive set of equipments for Mechanics experiments
- 21 experiments with fully illustrated manual
- Well designed systems consisting of precise and robust components for easy setup and successful result



This versatile kit is design to assist high school student to acquire better understanding on concept in Mechanics: Velocity, Acceleration, Forces, Newton's Laws, Conservation of Momentum and Conservation of Energy. The set is also designed to help students discover a deeper understanding on concepts of Vibration, Simple Harmonics Motion (SHM), Resonance, and Mechanical Wave

## List of Component in Mechanics Kit

No.	Cat. No.	Description	Qty
1	FME 51.01/01	Stand base	1 pc
2	GSN 185	Table clamp	1 pc
3	FPT 16.17/87	Clamp rider	2 pcs
4	FPT 16.03/67	Rail connector	1 pc
5	FPT 16.04/68	Foot for rail	2 pcs
6	KST 30/250	Stand rod, 500mm	3 pcs
7	KST 30/500	Stand rod, 250mm	1 pc
8	GSN 162	Bosshead, universal	2 pcs
9	GSN 161	Bosshead, round	1 pc
10	PMK 201	Bearing pin	2 pcs
11	FME 51.02/02	Stand foot	2 pcs
12	KST 30/010	Rod, 100mm	1 pc
13	FME 51.08	Cord on reel	1 pc
14	GLA 011	Pair of scissors	1 pc
15	FPT 16.02/66	Precision rail	2 pcs
16	PMK 200	Spring buffer	2 pcs
17	FME 51.37/72	Stepped block	1 pc
18	PWV 160	Flat spring with clamp	1 set
19	PWV 160 03	Threaded rod with butterfly nut	1 pc

No.	Cat. No.	Description	Qty
20	PME 100	Helical spring, 4.5 N/m	1 pc
21	FME 51.26/39	Helical spring, 10 N/m	1 pc
22	FME 51.27/40	Helical spring, 25 N/m	1 pc
23	FME 27.01	Slotted mass and hanger	1 set
24	FAL 29	Vibration generator	1 pc
25	PWV 160 02	Holder for pencil	1 pc
26	GMM 221	Measuring tape, 3m	1 pc
27	PME 010	Rubber string, 3m	1 pc
28	FME 69	Ticker tape	1 pc
29	FME 51.40	Ticker timer	1 pc
30	PMK 202	Flat spring for explosion experiment	1 pc
31	GSN 186	Pulley for table clamp	1 pc
32	PMK 225	Trolley with motor	1 pc
33	FME 51.34/69	Trolley	2 pcs
34	KMS 15/105	Ruler, 500mm	1 pc
35	PMG 160 01	Ball for pendulum, 35g	1 pc
36	PMG 160 02	Ball for pendulum, 70g	1 pc
37	LPM 123E	Experiment manual *)	1 pc

\*) Available in English and Indonesian Version

**All components are stored in a wooden box**  
Dimension: 68 × 44 × 18 cm, Weight: 7 Kg

## Experiment Topics

### KINEMATICS AND DYNAMICS

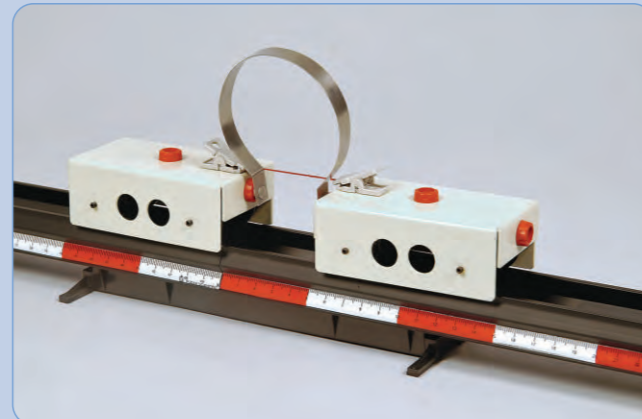
- P 13 01 The Ticker Timer
- P 13 02 Motion of a Trolley on a Horizontal Plane (Rail)
- P 13 03 Uniform Motion
- P 13 04 Average and Instantaneous Velocity
- P 13 06 Motion of a Trolley on an Inclined Rail
- P 13 07 Free Fall
- P 13 08 1 Newton's Law
- P 13 11 1 Collision, Linear Momentum
- P 13 11 2 Explosion
- P 13 12 Conservation of Mechanical Energy



Experiment P 13 11 1 | Collision, Linear Momentum



Experiment P 13 03 | Uniform Motion



Experiment P 13 11 2 | Explosion

## Experiment Topics

### VIBRATIONS

- P 14 03 Simple Pendulum
- P 14 04 Oscillation of a Mass Suspended by a Spring
- P 14 05 Oscillation of a Flat Spring Loaded with Mass at its End
- P 14 06 Oscillation Chart
- P 14 03 1 Acceleration Due to Gravity
- P 14 07 1 Resonance of a Simple Pendulum
- P 14 07 2 Resonance of a Spring with Mass Suspended
- P 14 01 Hook's Law

### MECHANICAL WAVES

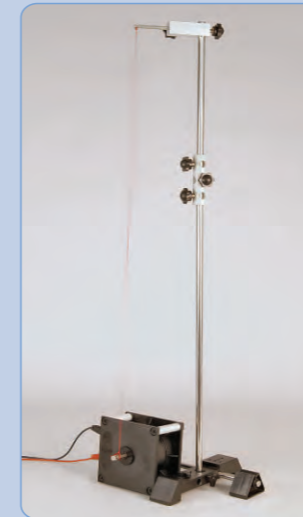
- P 14 08 Propagation and Reflection of Transversal Wave
- P 14 09 Transversal Standing Wave in a String (Cord)
- P 14 10 Longitudinal Standing Wave in Helical Spring



Experiment P 14 03  
Simple Pendulum



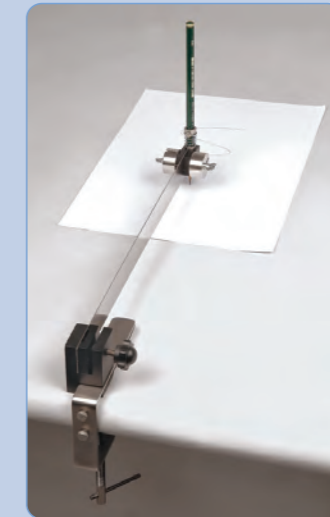
Experiment P 14 01  
Hook's Law



Experiment P 14 09  
Transversal Standing Wave in  
a String (Cord)



Experiment P 14 10  
Longitudinal Standing Wave  
in Helical Spring



Experiment P 14 06  
Oscillation Chart



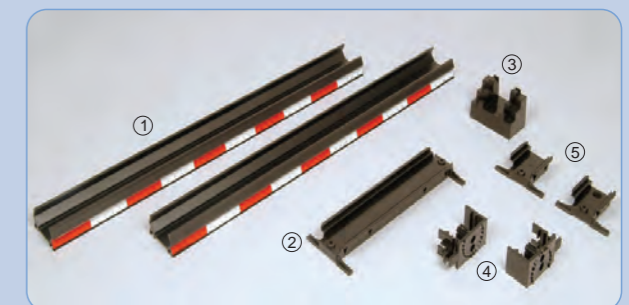
Experiment P 13 07  
Free Fall

## Component Detail



### TROLLEY

- Trolley without motor. For experiment on kinematics and dynamics. Low wheel friction and small moment of inertia. Holding clip for paper tape and socket for attached the spring on buffer. With bearing pin, socket on top trolley for attached additional weight.
- Trolley with motor. For experiment in uniform motion on the precision rail. A switch for choosing two different speed. Battery driven 3V DC.



### PRECISION RAILS AND CONNECTORS

- Precision rail. Made from anodized extruded aluminum. With scales on both sides of the rail. Length 50cm, scale in cm and mm.
- Rail connectors. For rigid straight coupling of two precision rails, length 20cm.
- Stepped block. For raising one end of precision rail to achieve accelerated motion and compensating for friction between the trolley and the rail.
- Foot for rail. For adjusting the height of rail ends when linking precision rail. Length 5 cm each.
- Clamp rider. For attaching mechanic devices to the precision rail.