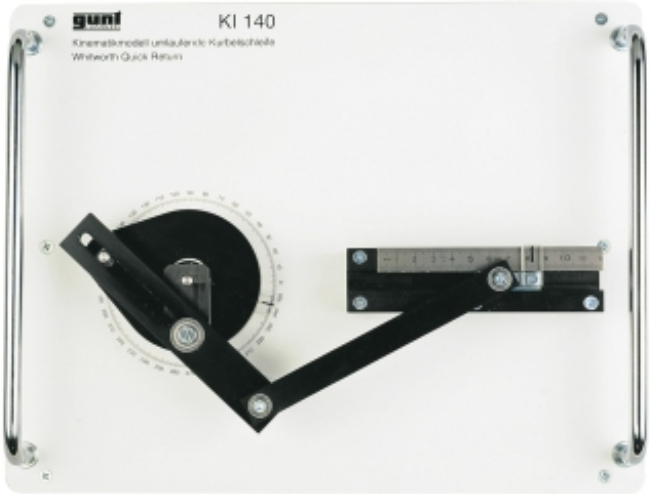
# KI 140

## Kinematic model: Whitworth quick return mechanism




### Learning objectives/experiments

- investigation of a revolving crank slider
- influence of crank length and input angle on the output stroke
- recording the transmission function of a revolving crank slider

### Specification

[1] investigation of a revolving crank slider
[2] generation and investigation of non-uniform stroke movements
[3] adjustment of the crank radius at three positions of the connecting rod on the crank disk
[4] adjustment of the angle by turning the crank disk
[5] measuring the stroke on the cylinder

### Technical data

Drive disk
- anodised aluminium
- ball-bearing mounted

Crank radius
- 46mm

Slider radius
- 55mm

Driving rod
- anodised aluminium
- length: 145mm

Cylinder/driving rod/frame
- stroke 0...100mm

LxWxH: 360x280x70mm
Weight: approx. 2kg

### Scope of delivery

1 kinematic model
1 set of instructional material

### Description

- **representation of a non-uniform reciprocating motion**

The Whitworth mechanism is also known as the quick-return mechanism. It represents a revolving crank slider and produces non-uniform stroke movement with slow forward movement and fast backward movement. This mechanism is used in tools, packaging and transport machinery.

The KI 140 unit generates non-uniform stroke movement by means of a Whitworth mechanism. The experimental unit comprises the drive disk with crank and coupling, the driving rod and the cylinder.

The angle is adjusted using the crank disk, and an angle scale is integrated into the base plate. A millimetre-precise steel ruler is attached to the cylinder to measure the stroke.

The elements are mounted on a base plate. Two handles make it easy to carry and stack the unit.

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Optional accessories

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|---|---|
| WP 300.09 | Laboratory trolley |