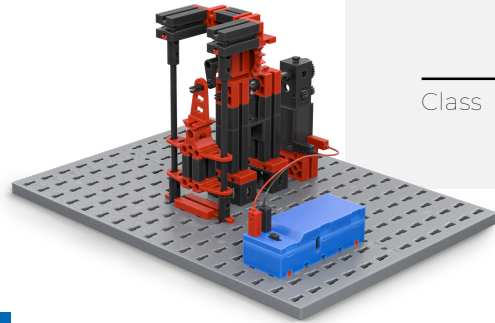


## Model 17

### Eccentric press

The students receive the assembly instructions for constructing the eccentric press.



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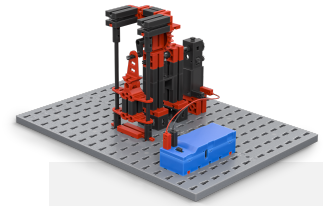
## THEMATIC TASK

The gear mechanism serves to convert a faster rotation of the crank into a slower but more powerful rotation of the eccentric.

## EXPERIMENTAL TASK

1.
  - The greatest pressing force is generated when the eccentric is at the bottom dead center position.
  - In this position, the entire lever force acts vertically on the workpiece.
  - The leverage effect is at its maximum because the force is transmitted almost directly.
2.
  - At bottom dead center, the movement of the eccentric is almost completely converted into compressive force.
  - The lever arm is shortest there, so less force is required for the same effect.
  - The mechanics of the eccentric press cause the pressure to be concentrated at the end point of the movement.
  - This means that the press exerts the greatest force at its bottom dead center because the movement of the crank causes hardly any change in height, but instead transfers almost exclusively compressive force to the workpiece. This principle is also used in many other mechanical systems to generate high forces with minimal movement.

## EXPERIMENTAL TASK



The eccentric crank and the joint in the press head convert the rotary motion into a linear up and down motion. Workpieces of different heights can be placed in the press.

Place objects of different thicknesses under the press, such as paper, modeling clay, or thin pieces of wood.

1. In which position does the press have the greatest pressing force?

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2. Why is this the case?

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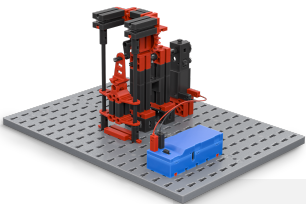
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# APPENDICES

Building instructions and templates for the models:  
Model 17: Construction manual for eccentric press.

Further information

[1] Wikipedia: [Eccentric press](#)

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