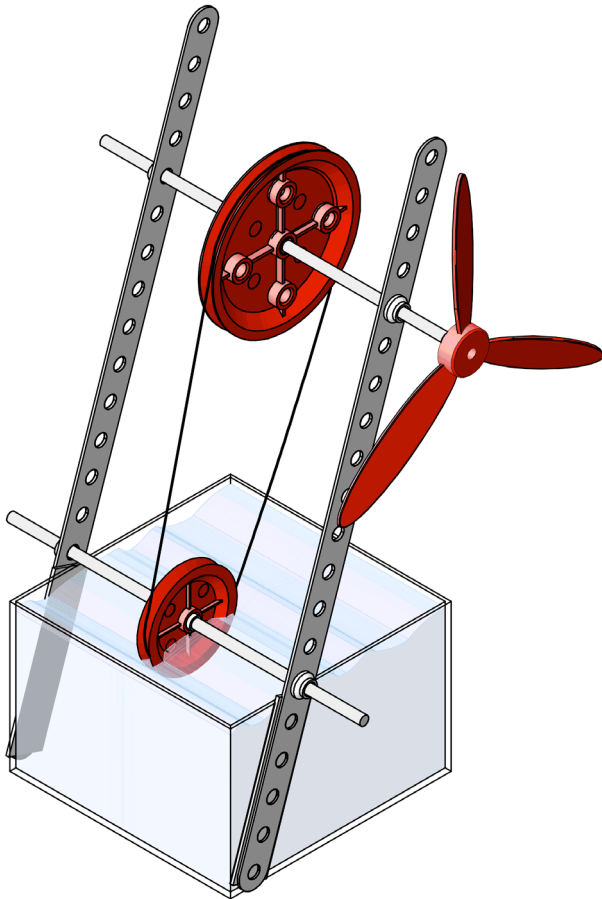
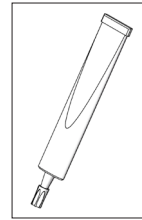


117.879

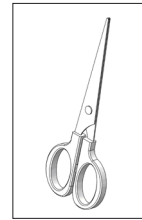
Functional Model Muscle Wire - Motor



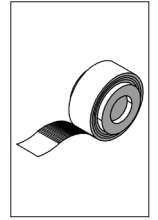
Tools Required:



Superglue



Scissors



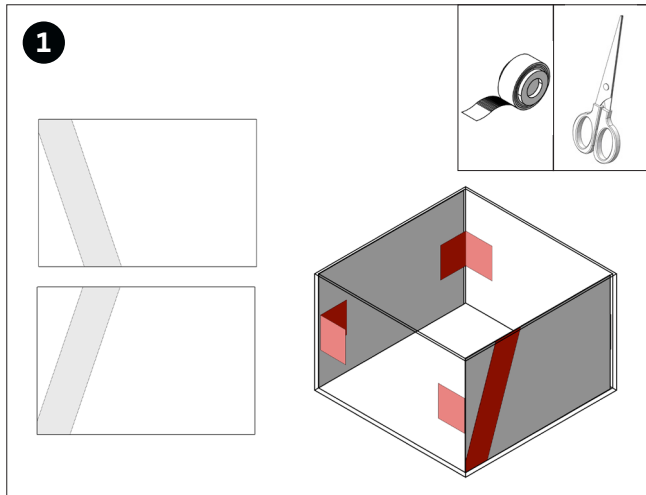
Adhesive Tape

Please Note!

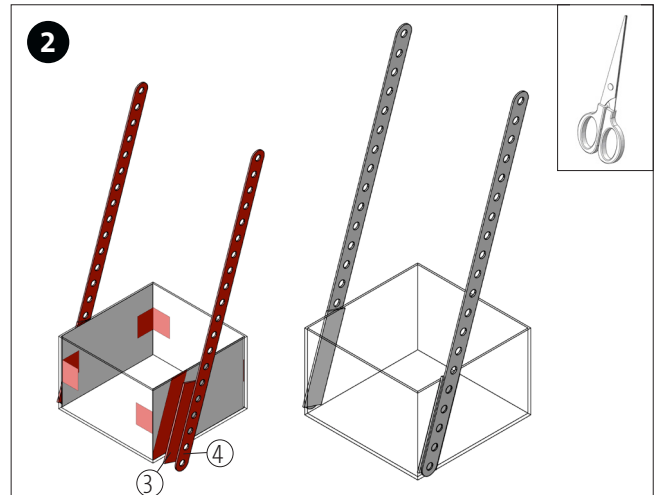
The Opitec Range of projects is not intended as play toys for young children. They are teaching aids for young people learning the skills of craft, design and technology. These projects should only be undertaken and operated with the guidance of a fully qualified adult. The finished projects are not suitable to give to children under 3 years old. Some parts can be swallowed. Danger of suffocation!

Parts List	Quantity	Size (mm)	Designation	Part No.
Plastic Box	1	75 x 75 x 50	Water Container	1
Nitinol Wire Loop	1	ø10x0,3	Drive	2
Adhesive Tape	1	12x1x2	Mounting Holder	3
Flat Bar, 20 Holes	2		Mounting	4
Plastic Pulley	1	ø50	Pulley	5
Plastic Pulley	1	ø30	Pulley	6
Metal Axle	2	120x3	Uptake Pulley	7
Spacers, white	5		Fixing/ Propeller	8
Reducer	2	4/3	Reduction Hole Pulley	9
Propeller	1	ø115	Propeller	10

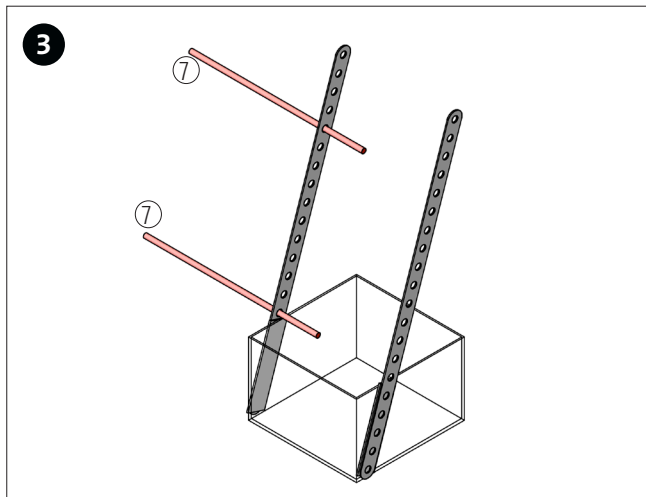
Instructions 117.879
Functional Model Nitinol-Motor



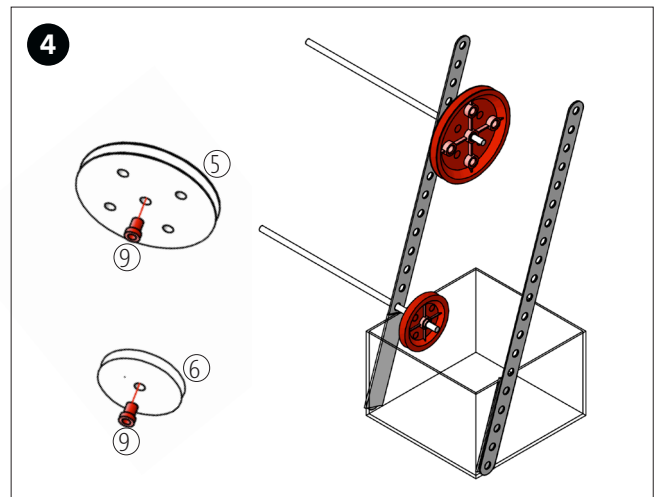
Cut out the templates (page 3) and glue it with adhesive tape into the plastic box (1) as shown.



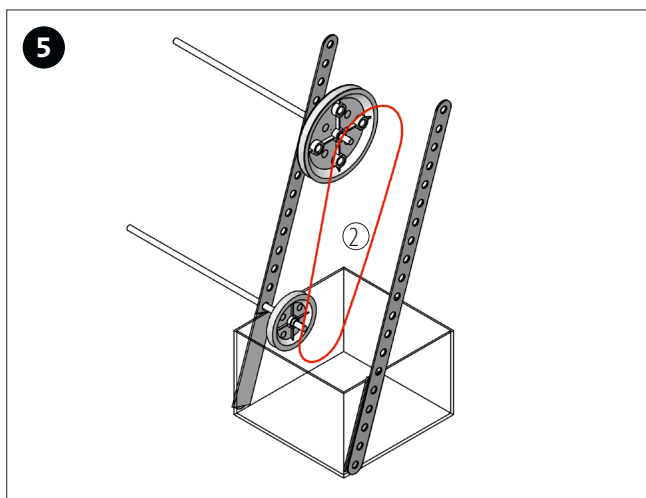
Cut two 50 mm long parts off the adhesive tape (3). Glue them to the marking from the outside as shown. Remove protective foil and stick on the flat bars (4). Repeat on the other side.



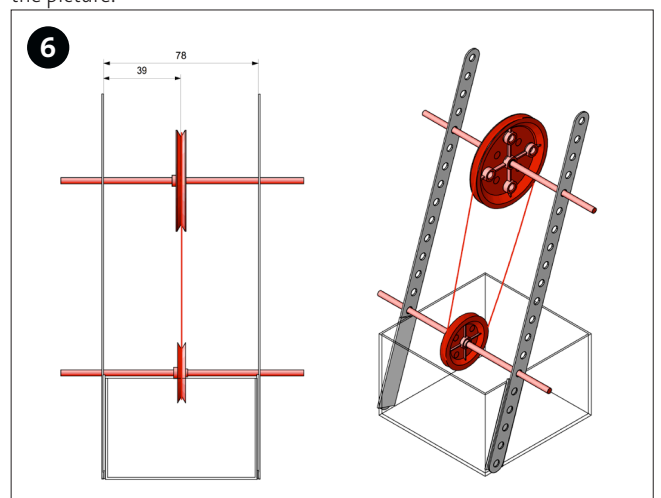
Insert a metal axle (7) in the flat bar in the sixth hole from below. Also insert a metal axle through the fifth hole from the top. See picture!



Insert the two reducers (9) into the holes of the pulleys (5 + 6) as shown. Then attach both pulleys to the metal axes (7) according to the picture.

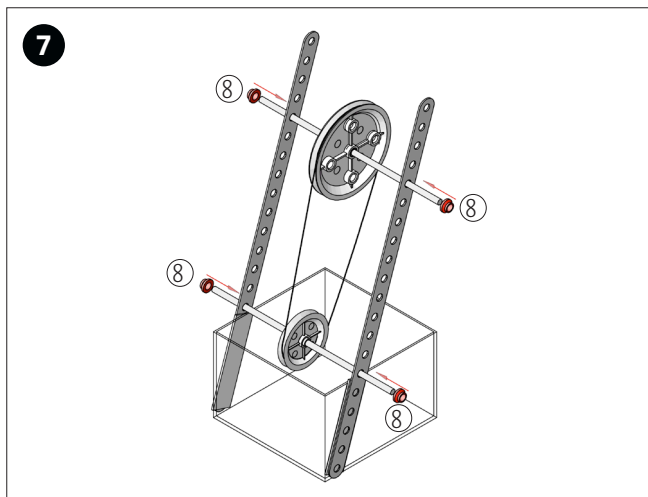


Place the nitinol wire loop (2) on the two pulleys.

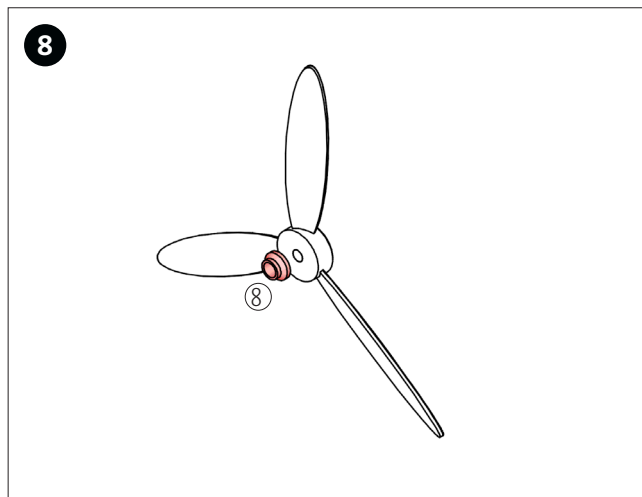


Place the pulleys centrally on the axes and insert the axes in the opposite holes in the flat bar.

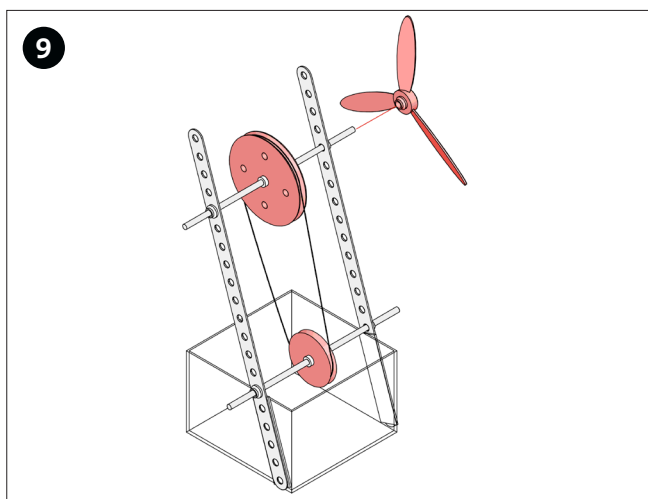
Instructions 117.879
Functional Model Nitinol-Motor



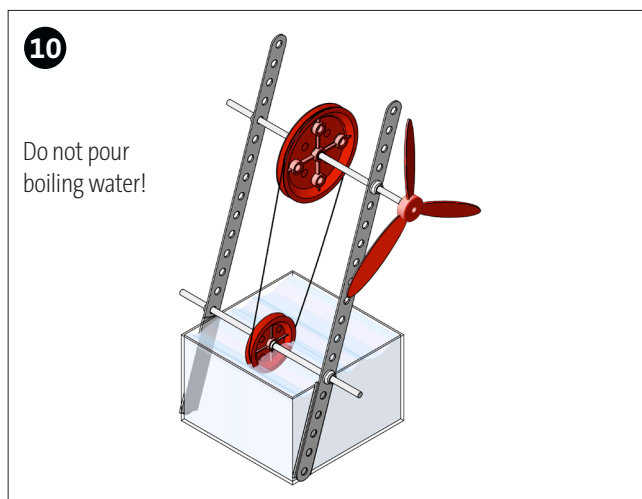
Place a spacer disc (8) on each axle end, push it towards the flat bar to fix the axes in their position. Take care that they still rotate easily.



Glue the remaining spacer (8) centrally to the back of the propeller hub by using superglue.



Attach the propeller to the upper axle as shown. Done!



Do not pour boiling water!

Fill the plastic can with approx. 60°C warm water, so that the lower pulley lies in the water!

Please Note: When dealing with hot water, there is a risk of burns! Only use the kit on a water resistant surface.

Functional Description:

The wheels, the wire and the propeller turn quickly. But where is the engine?

Solution: The wire made of nickel and titanium (Ni-Ti-nol) is the motor itself. He tightens when he dives into warm water and relaxes when he cools in the air. The energy that is produced will start evrything moving. Therefore, the nitinol wire is also called "muscle wire".

The functional model is very easy to build because of the prefabricated materials. It is also suitable for primary school.

Template Position Flat Bars

S1:1

