

## Cooling by evacuation with SMARTsense

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### Principle

When the air pressure above a watersurface is reduced, the water begins to boil at a certain temperature. The temperature of the water is hereby reduced and further evacuation can finally bring it to 0 °C and even lower.

### Benefits

- For both demonstration and student experiments
- Data logging via tablet with measureAPP

### Tasks

Determine the temperature curve of water during pumping.

### Learning objectives

- Air pressure
- Kinetic gas theory
- Supercooling

## Scope of delivery

Cobra SMARTsense Temperature - Sensor for measuring temperature -40 ... 120 °C (Bluetooth)	12903-00	1
Rubber hose for vacuum	39288-00	2
Hose clamp for 12-22 mm diameter	41002-00	2
Rotary valve vacuum pump, two stages, 115 V / 230 V	02741-95	1
Pump plate, complete	02668-88	1
Support base DEMO	02007-55	1
Bell jar, with knob and sealing ring	02668-10	1
Beaker, Boro, high-form	46030-00	1
Boiling beads, 200 g	36937-20	1
measureAPP - the free measurement software for all devices and operating systems	14581-61	1
Felt sheet, 100 x 100 mm	04404-20	2