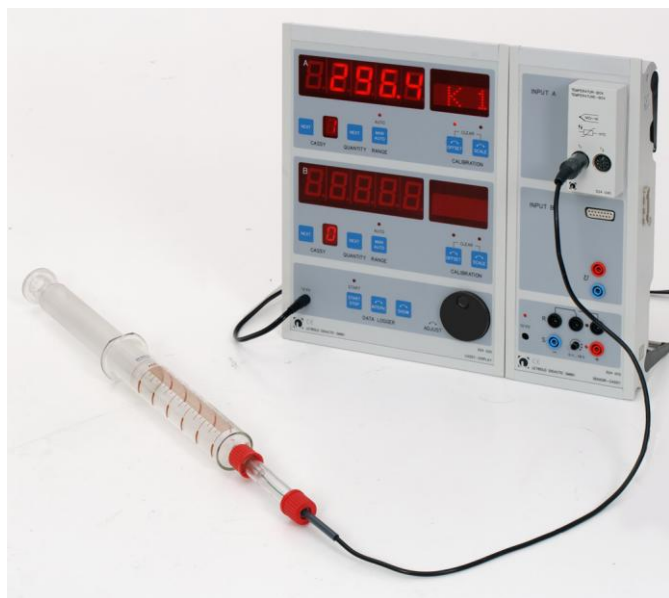


Transformation of energy***Transformation of mechanical energy into thermal energy***

Conservation of energy during the compression of air -
Measurement with Sensor-CASSY and CASSY-Display

Object of the experiment

1. Measuring the increase in temperature in a gas syringe when the enclosed air is compressed quickly

Setup**Measuring example**

| Temperature T_0 in K | Temperature T_1 in K | Temperature difference ΔT in K |
|------------------------|------------------------|--|
| 296.4 | 305 | 8.6 K |

Evaluation

When the air enclosed in a gas syringe is compressed quickly, its temperature increases.

The mechanical energy transferred via muscle power is transformed into thermal energy of the air.

Preparing the gas syringe:

- Attach the GL screw joints to the gas syringe and to the thermocouple.
- Fasten the glass connector firmly to the gas syringe.
- Draw the piston out until it reaches the 100 ml mark.
- Screw the thermocouple onto the glass connector.

Preparing the temperature measurement:

- Put the CASSY-Display into operation with the Sensor-CASSY being connected.
- Connect the temperature box to Input A, and plug in the thermocouple.
- Switch the display of Input B off with the key NEXT (CASSY) at the display.

Apparatus

| | |
|---|------------|
| 1 Gas syringe, 100 ml | 665 912 |
| 1 Glass connector, 2 x GL 18..... | 667 312 |
| 1 Silicone gaskets, GL 18/6, set of 10..... | 667 306 |
| 1 Sensor-CASSY 2 | 524 013 |
| 1 CASSY-Display USB | 524 020USB |
| 1 Temperature box, NiCr-Ni/NTC..... | 524 045 |
| 1 Temperature probe, NiCr-Ni, fast..... | 666 216 |

Carrying out the experiment

- Read the temperature T_0 from the CASSY-Display.
- Push the piston into the gas syringe quickly, and read the temperature T_1 .