

3.3.02-00 Mechanical equivalent of heat



- What you can learn about ...**
- Mechanical equivalent of heat
  - Mechanical work
  - Thermal energy
  - Thermal capacity
  - First law of thermodynamics
  - Specific thermal capacity

**Principle:**

In this experiment, a metal test body is rotated and heated by the friction due to a tensed band of synthetic material. The mechanical equivalent of heat for problem 1 is determined from the defined mechanical work and from the thermal energy increase deduced from the increase of temperature. Assuming the equivalence of mechanical work and heat, the specific thermal capacity of aluminum and brass is determined.

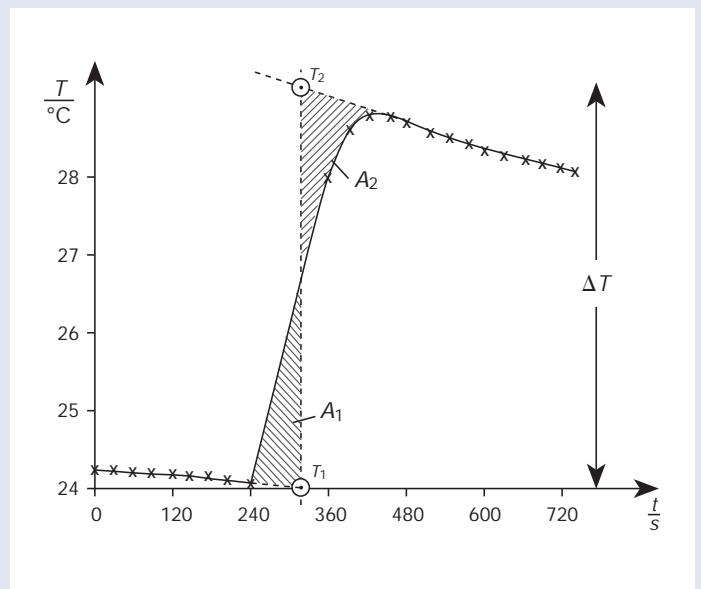
**Tasks:**

1. Determination of the mechanical equivalent of heat.
2. Determination of the specific thermal capacity of aluminum and brass.

**What you need:**

Mechanical equivalence of heat apparatus	04440.00	1
Friction cylinder CuZn, 1.28 kg	04441.02	1
Friction cylinder Al, 0.39 kg	04441.03	1
Support rod -PASS-, square, $l = 250$ mm	02025.55	1
Right angle clamp -PASS-	02040.55	1
Precision spring balances, 10.0 N	03060.03	1
Precision spring balances, 100.0 N	03060.04	1
Stopwatch, digital, 1/100 s	03071.01	1
Bench clamp -PASS-	02010.00	1
Universal clamp with joint	37716.00	1
Commercial weight, 1000 g	44096.70	1
Commercial weight, 5000 g	44096.81	1

**Complete Equipment Set, Manual on CD-ROM included**  
**Mechanical equivalent of heat P2330200**



Temperature-time diagram for a measurement example.