

## Heat capacity of metals with Cobra3 3.3.01-11



## What you can learn about ...

- Mixture temperature
- Boiling point
- Dulong Petit's law
- Lattice vibration
- Internal energy
- Debye temperature

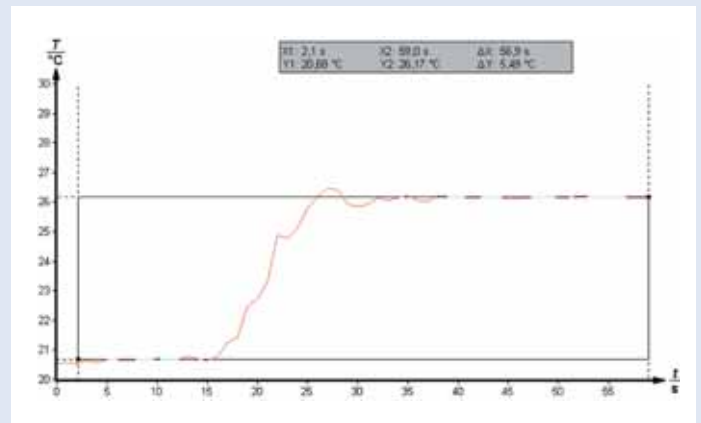
## Principle:

Heated specimens are placed in a calorimeter filled with water at low temperature. The heat capacity of the specimen is determined from the rise in the temperature of the water.

## What you need:

Cobra3 BASIC-UNIT	12150.00	1
Power supply 12V/2A	12151.99	1
Data cable 2 x SUB-D, plug/socket, 9 pole	14602.00	1
Software Cobra3 Temperature	14503.61	1
Measuring module temperature NiCr-Ni, 330°C	12104.00	1
Immersion probe NiCr-Ni, -50/1000°C	13615.03	1
H-base -PASS-	02009.55	1
Support rod, stainless steel 18/8, $l = 600$ mm	02037.00	2
Bosshead	02043.00	2
Universal clamp	37718.00	2
Ring with Bosshead, i.d. = 10 cm	37701.01	1
Wire nets, 160 x 160 mm	33287.01	1
Metal bodies, set of 3	04406.00	3
Butane burner Labogaz 206	32178.00	1
Butane cartridge C 206 without valve	47535.00	1
Stopwatch, digital, 1/100 s	03071.01	1
Portable Balance, OHAUS JR300	48891.00	1
Fishing line on spool, $d = 0,5$ mm, $l = 100$ mm	02090.00	1
Calorimeter vessel, 500 ml	04401.10	1
Beaker, DURAN®, short form, 400 ml	36014.00	1
Beaker, DURAN®, short form, 600 ml	36015.00	1
Stirring rod	04404.10	1
Pipette, with rubber bulb	64701.00	1
Beads, 200 g	36937.20	1
PC, Windows® 95 or higher		
Paper tissues		

Complete Equipment Set, Manual on CD-ROM included  
Heat capacity of metals with Cobra3 P2330111



Course of temperature in the calorimeter.  
For 180 g Iron (100 °C) and 200 g water (room-temperature).

## Tasks:

1. To determine the specific heat capacity of aluminium, iron and brass.
2. To verify Dulong Petit's law with the results of these experiments.