Heat insulation / Heat conduction 3.6.03-00

What you can learn about ...

- ➔ Heat transition
- ➔ Heat transfer
- ➔ Heat conductivity
- ➔ Thermal radiation
- ➔ Hothouse effect
- ➔ Thermal capacity
- ➔ Temperature amplitude attenuation

Principle:

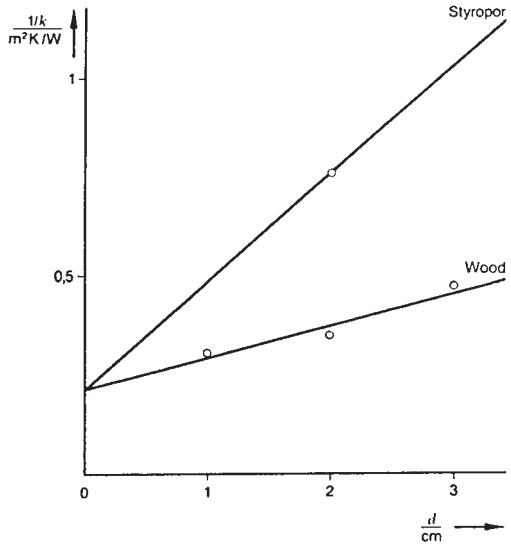
A model house with replaceable side walls is used for determining the heat transition coefficients (k values) of various walls and windows and for establishing the heat conductivities of different materials. For this purpose the temperatures on the inside and outside of the walls are measured at a constant interior and outer air temperature (in the steady state).

With a multilayer wall structure the temperature difference over a layer is proportional to the particular thermal transmission resistance. The thermal capacity of the wall material affects the wall temperatures during heating up and temporary exposure to solar radiation.

What you need:

High insulation house	04507.93	1
Thermal regulation for high insulation house	04506.93	1
Partitions, plastic foam, 5 off	44536.02	1
Ceramic lamp socket E27 with reflector, switch, safety plug	06751.01	1
Filament lamp with reflector, 230 V/120 W	06759.93	1
Hand held instrument 2 x NiCr-Ni, RS 232	07140.00	2
Thermocouple NiCr-Ni, max. 500°C, simple	13615.02	4
Tripod base -PASS-	02002.55	1
Stopwatch, digital, 1/100 s	03071.01	1
Right angle clamp -PASS-	02040.55	1
Support rod -PASS-, square, l = 250 mm	02025.55	1

Complete Equipment Set, Manual on CD-ROM included
Heat insulation / Heat conduction P2360300



Heat transition resistance $1/k$ as a function of the wall thickness d.

Tasks:

1. Measurement and interpretation of water temperatures during the heating up and during temporary external illumination of the walls.
2. Determination of the heat conductivities of wood and Styropor.
3. Determination of the k values of ordinary glass and insulating glass windows and of wooden walls of different thicknesses, and of walls with wood, Styropor or cavity layers.