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## Measurements with a Thermal Manikin

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### Objective:

The thermal manikin is used to measure thermal insulation of a ready-made clothing system. In combination with Skin Model measurements it is possible to calculate breathability of this clothing system, too. Furthermore it is possible to define the range of utility for it.

### The test is particularly well-suited for:

- Protective clothing against cold (certification according to EN 342 resp. EN 14 058)
- Workwear, professional clothing, sportswear, outdoor clothing, including those with vents

### Description:

The measurements are carried out using the thermal manikin according to EN ISO 15831. During testing, is dressed with a complete clothing system. To measure the thermal insulation of this system, the manikin is placed in a climatic chamber either in a standing position and/or is set to move. Temperatures can be set between -20°C and +40°C, humidity is freely selectable, and possible wind speeds are between 0.3 m/s and 10 m/s.

### Your advantages as a client:

- Measurement using apparatus rather than significantly more expensive wear trials with human probands
- Objective measurement and quantification of effective thermal insulation and "breathability"
- Calculation of the range of utility for the clothing system
- Analysis of influence of design features, e.g. vents, on thermal insulation and "breathability"
- Product safety for end consumer through testing done by an independent institute

### Labels and certificates:

If requirements of EN 342 resp. EN 14 058 have successfully been met cold protective clothing can be certified.

### Requirements for test samples

#### Amount of material:

- Finished ready-to-wear clothing in German men's size 52 (medium)

#### Duration of testing:

- Dependent on the amount and type of the material (10 working days as a rule following receipt of test sample)

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