

WP 410

Impact test, 300Nm



Learning objectives/experiments

- determine the notched-bar impact work
- determine the notched-bar impact strength
- analyse the fracture surface characteristics
- plot a notched-bar impact work-temperature diagram
- influence of notch shape, material and specimen temperature on the notched-bar impact work

Description

- **Charpy notched-bar impact test with increased work capacity up to 300Nm**
- **pendulum impact tester based on industrial standards / DIN EN ISO 148-1**
- **safe experiments thanks to two-handed release of the hammer and optional protective cage WP 410.50**

In the field of industrial quality control, the impact test is a widely used test method with which to quickly and easily determine characteristics for a material or component analysis.

The WP 410 trainer is a solid-pendulum impact tester based on DIN EN ISO 148-1, designed for the Charpy notched-bar impact test.

The clean layout and simple operation mean the experimental sequence can be observed in all details and phases. The power of the trainer allows tests to be performed on an industrial scale.

In the experiment, the hammer attached to a pendulum arm describes an arc. At the lowest point of the hammer path, the hammer transfers part of its kinetic energy to the notched specimen. The specimen is either destroyed or bent by the impact and pushed between the supports.

The notched-bar impact work required to deform the specimen is read directly off a large scale. By using the WP 410.20 system for data acquisition, the measured values can be transferred to a PC where they can be analysed with the software.

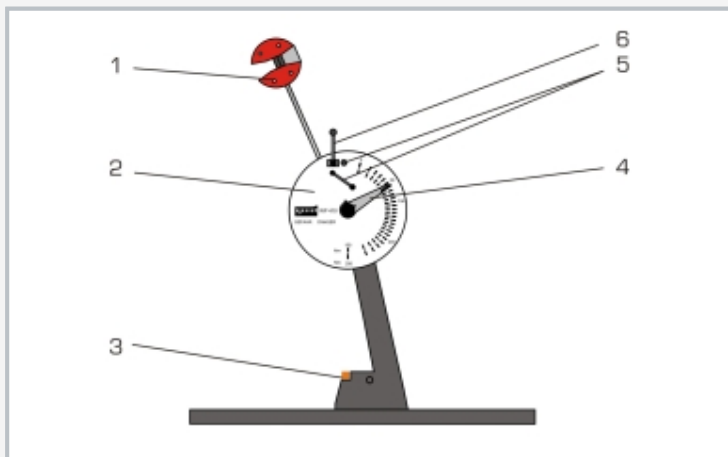
In order to vary the output energy, the mass of the hammer can be changed by adding or removing weights. A brake reduces the residual energy of the hammer.

The required protective cover for the operating area allows the experiments to be conducted safely and is available as accessory WP 410.50. The hammer is triggered with two hands for safer operation.

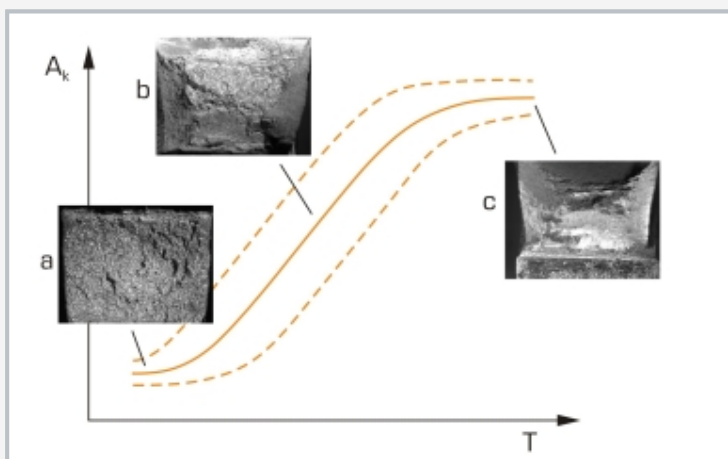
The experimental results allow quality control and an analysis of the fracture behaviour of different metallic materials. Non-metallic specimens can also be used. The scope of delivery includes stainless steel ISO-V notched-bar impact specimens. Specimens made of other materials are available as accessories.

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1 hammer with removable extra weights, 2 scale, 3 notched bar impact specimen, 4 drag pointer, 5 two-hand release, 6 brake



Notched bar impact work-temperature diagram with typical fracture surfaces: average-value curve with distribution area, A_k notched bar impact work, T temperature; a depth position with low-deformation fractures, b transition region (steep front) with mixed fractures, c height position with ductile fractures



Protective cover for pendulum impact tester WP 410.50 available as an accessory

Specification

- [1] Charpy notched-bar impact test with increased work capacity
- [2] pendulum impact tester based on industrial standards / DIN EN ISO 148-1
- [3] hammer mass can be varied by adding or removing weights
- [4] brake to reduce the residual energy
- [5] safe operation thanks to two-handed release of the hammer
- [6] required protective cover for pendulum impact tester available as accessory WP 410.50
- [7] scale for displaying the notched-bar impact work
- [8] ISO-V notched specimens made of stainless steel, specimens of copper, brass and steel available as accessories
- [9] system for data acquisition (WP 410.20) available as an option

Technical data

Pendulum impact tester

- work capacity
 - ▶ 150Nm
 - ▶ 300Nm (with extra weights)
- hammer
 - ▶ weight: 9,9kg and 19,8kg (with extra weights)
 - ▶ extra weights: 4x 2,475kg
 - ▶ impact velocity: 5,5m/s
 - ▶ pendulum length: 840mm
 - ▶ angle of fall: 150°

Supports for specimens

- gap: 40mm

Notched bar impact specimens, ISO V

- LxW: 10x10mm

Specimen material

- stainless steel

230V, 50Hz, 1 phase

230V, 60Hz, 1 phase; 120V, 60Hz, 1 phase

UL/CSA optional

LxWxH: 800x600x1460mm

Weight: approx. 360kg

Required for operation

protective cover / WP 410.50

Scope of delivery

- 1 trainer
- 1 set of weights
- 1 set of specimens (10 pieces)
- 1 set of instructional material

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Required accessories

WP 410.50 Safety cage for pendulum impact tester

Optional accessories

WP 410.01 Set of 10 ISO-V specimens 10x10, stainless steel

WP 410.02 Set of 10 ISO-V specimens 10x10, Cu

WP 410.03 Set of 10 ISO-V specimens 10x10, CuZn

WP 410.20 System for data acquisition