

# WP 300.11

## Device for cupping tests



### Learning objectives/experiments

- determine the quality of thin sheet metal made of various materials

### Specification

- [1] cupping test based on DIN 50101 T1 for quality assessment of thin sheet metal
- [2] 20 specimens of steel, aluminium, copper, brass
- [3] spherical drawing punch
- [4] mirror for analysing the underside of the specimen
- [5] accessory for WP 300

### Technical data

5 specimens each of aluminium, copper, brass, steel

- specimen dimensions
  - ▶ 60x60x1 mm

Drawing punch: sphere 20mm  
Die diameter: Ø 27mm

LxWxH: 110x60x250mm  
Weight: approx. 3kg

### Scope of delivery

- 1 device for cupping tests
- 1 set of specimens (20 pieces)
- 1 set of accessories

### Description

- investigation of the material properties of thin sheet metal
- cupping test based on DIN 50101 T1

This accessory for WP 300 makes it possible to investigate the material properties of thin sheet metal. To do this, the specimens are deformed in practice-oriented cupping experiments and then examined.

The accessory contains a punch, a hold-down clamp, a die and a mirrored cylinder for analysing the specimen. The assembled test device is installed in the compression area of the WP 300 experimental unit, between bottom crossbar and crosshead.

A thin sheet metal specimen is clamped between the die and the hold-down device.

The specimen is then deformed until it cracks by means of a spherical drawing punch. The mirror allows you to observe the specimen from below and to see exactly when the crack starts. Thin sheet metal with a thickness up to 2mm can be studied with the device.

The depth achieved in mm is defined as a standard of comparison for cold formability. In addition, the type of the rupture and the surface structure of the sagging area are analysed.

A set of specimens is included to carry out experiments. The set contains five specimens each of aluminium, copper, brass and steel.

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### Required accessories

WP 300                    Materials testing, 20kN

### Optional accessories

WP 300.41                Set of 5 cupping specimens, Al  
WP 300.42                Set of 5 cupping specimens, Cu  
WP 300.43                Set of 5 cupping specimens, St  
WP 300.44                Set of 5 cupping specimens, CuZn