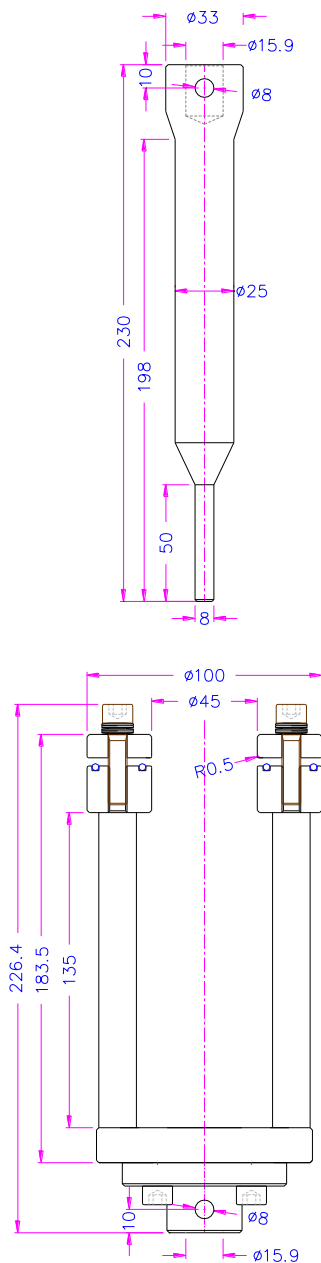


PUNCTURE TEST FIXTURES

Item no.: THS145-45-ASTM-D4833

To **ASTM D4833**: Standard Test Method for Index Puncture Resistance of Geomembranes and Related Products.

- Load capacity: 20 kN (with Af159 and Af20); 50 kN (with Af318)
- Ring clamp attachment: *Internal Ø: 45 ± 0.025 mm [1.772 ± 0.001 in.]. External Ø: 100 mm [3.937 in.]*
- Probe: Ø 8 ± 0.1 mm [0.315 ± 0.004 in.]
- Coupling: Af159, Af20, or Af318. Further couplings on request.
- Material: Steel, nickel-plated. The probe is hardened.
- Temperature range: 0 ... +70°C. Further temperature ranges on request.
- Weight: 3.3 kg ring clamp attachment incl. adapter; 0.68 kg probe
- Scope of supply: 1 fixture incl. probe.



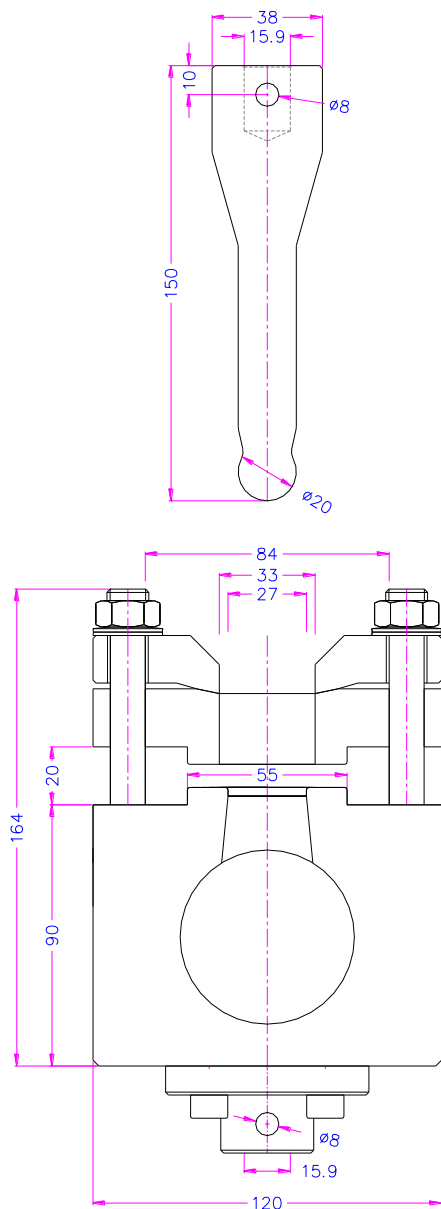
Item no.: THS145-20-27-33

According to **DIN EN ISO 20482**: Metallic materials - Sheet and strip - Erichsen cupping test;

DIN 50101-1: Testing of metals; Erichsen cupping test on sheet and strip metal having a width of ≥ 90 mm; Thickness range: 0.2 mm to 2 mm;

GOST 10510-80-Fig.1.1: Metallic materials - Sheet and strip - Erichsen cupping test.

- Load capacity: 20 kN
- Specimen size: 0.1-2 mm thick and ≥ 90 mm wide
- Probe: $\varnothing 20$ mm
- Coupling: Af159 or Af20. Further couplings on request.
- Material: Steel, nickel-plated. The probe is hardened.
- Temperature range: 0 ... +70°C. Further temperature ranges on request.
- Weight: 8.8 kg ring clamp attachment incl. adapter; 0.57 kg probe
- Scope of supply: 1 fixture incl. probe

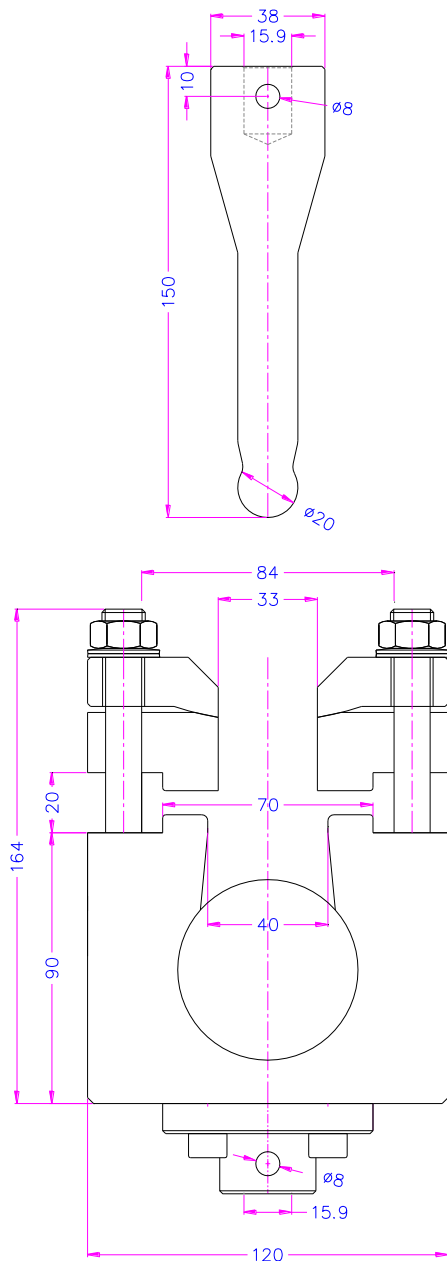


Item no.: THS145-20-40-33

According to **DIN EN ISO 20482**: Metallic materials - Sheet and strip - Erichsen cupping test;

DIN 50101-2: Testing of metals; Erichsen cupping test on sheet and strip metal having a width of ≥ 90 mm;
Thickness range: over 2 mm up to 3 mm

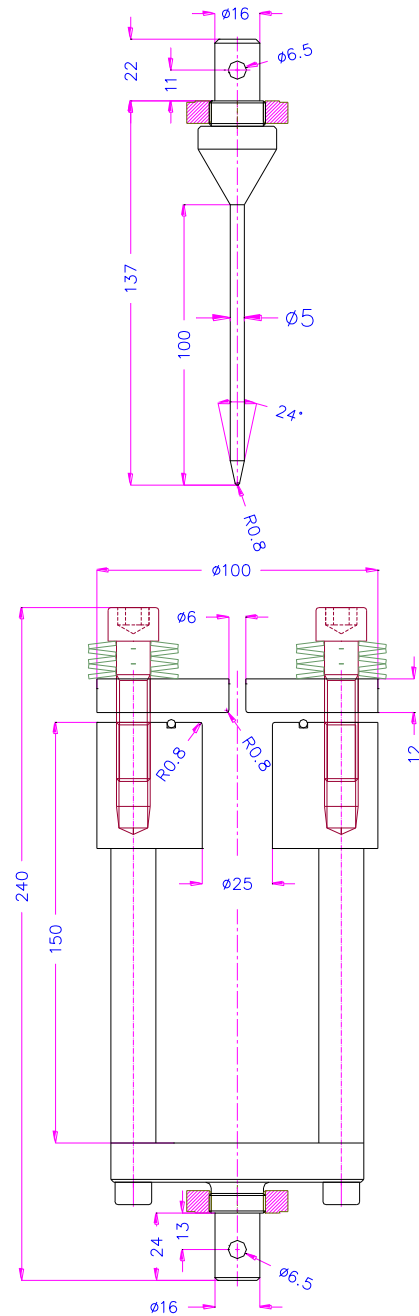
- Load capacity: 20 kN
- Specimen size: 2-3 mm thick and ≥ 90 mm wide
- Probe: $\varnothing 20$ mm
- Coupling: Af159 or Af20. Further couplings on request.
- Material: Steel, nickel-plated. The probe is hardened.
- Temperature range: 0 ... +70°C. Further temperature ranges on request.
- Weight: 8.8 kg ring clamp attachment incl. adapter; 0.57 kg probe
- Scope of supply: 1 fixture incl. probe



Examples for further modifications:

THS145-5-25-2s

according to **IEC 60903-Fig.5**: Live working - Gloves of insulating material. Resistance to mechanical puncture.



ASTM E643: Standard Test Method for Ball Punch Deformation of Metallic Sheet Material.

THS145-22.2-25.4-25.4
for samples with thickness less than 1.5 mm

THS145-22.2-28.6-25.4
for samples with thickness 1.5-2 mm

UNI 8279-11:1985 Nonwovens - Test Methods - Determination of Perforation Resistance By Ball Method

Nontessuti Determinazione della resistenza alla perforazione con il metodo della sfera (Italian standard)



For more puncture test fixtures please check www.grip.de/G23/