









## FIXTURES AND TOOLS FOR PERFORATION/PUNCTURE TESTS



**Models DE-60 (ASTM D5748) - DE65 (ASTM F1306) - DE68 (ISO 12236) - DE70 (UNE EN 14477) - DE75 (ASTM D4833) - DE78 (EN 388) - DE80 (ISO 3377.2) - DE82 (ISO 3379)**

Fixtures and tools designed to perform **puncture resistance tests** on sheet materials, such as **geo-synthetics, geo-textiles, flexible packaging and packaging films, stretchable plastic films, leather, safety gloves,...**, incorporated in a Machine Universal of Essays

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## **Puncture Test Fixture model DE-60**

This device is designed to perform tests of resistance to **puncture** of **flexible packaging materials, stretch plastic films** ..., incorporated in a Universal Testing Machine

### **APPLICABLE STANDARDS**

ASTM D 5748

### **GENERAL INFORMATION**

It consists of:

- Puncture head with rounded tip. The rounded tip of the puncture rod with coupling to a jaw-holding device.
- Lower sample-holder device, closing with 2 fast-acting clamps to house and hold the circular samples of the plastic films to be tested.

### **Operational process:**

Open the two side clamps and place the sample with the upper plate with the elastomer-coated side in contact with the film sample, and center it well, aligned, then close the upper plate by means of the two quick-release clamps. Select the force scale on the Universal Testing Machine so that the puncture resistance of the sample is within the range between 20 and 80% of the load cell capacity. Preset a speed of the mobile crossbar at 250 mm / minute, bring the probe as close as possible to the sample to be tested without coming into contact.

Activate the machine and perform the test.



## **Puncture Test Fixture model DE-65**

The fixture is designed to perform tests and measure the **resistance to puncture** at low speed of **films and flexible barrier laminates** used in the Food, Pharmaceutical, Cosmetic ... sectors, being incorporated in a Universal Testing Machine.



### **APPLICABLE STANDARDS**

**ASTM F 1306**

### **GENERAL INFORMATION**

It consists of:

- Puncture head with tip. The tip of the puncture head with coupling to a jaw-holder device.
- Lower sample-holder closing device with rotating closing head with 4 operating handles to house and hold the circular samples of the plastic films to be tested.

Resistance to penetration is a very important part of the quality of thin and flexible materials in which any sharp element directed downwards will not break the barrier of a film or laminate. ASTM F1306 is a specification regarding slow speed puncture resistance properties of laminated and flexible barrier films. Thin, flexible specimens should have a uniform thickness of 0.0025 mm or 0.0001 in.

To perform this test you need a universal testing machine with a puncture probe. Finally, the force, energy and elongation at piercing of the material are observed.



## **Puncture Test Fixture model DE-68**

This fixture is designed to perform tests of **resistance to puncture of Geo-textile materials**, being incorporated in a Universal Testing Machine with a capacity up to 50 kN



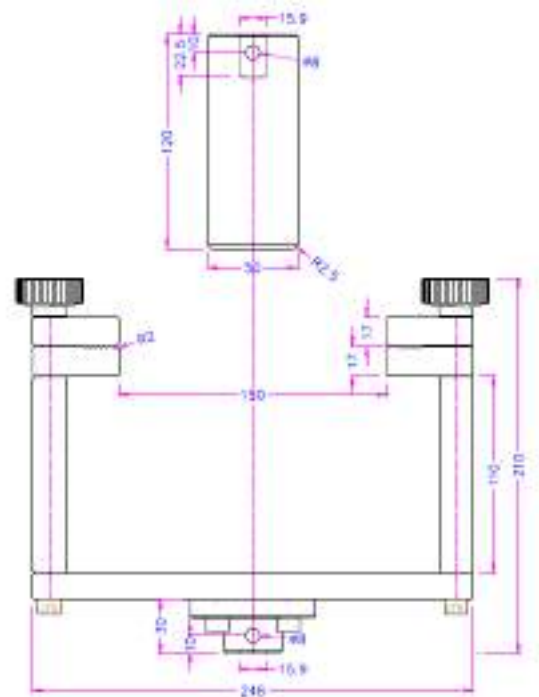
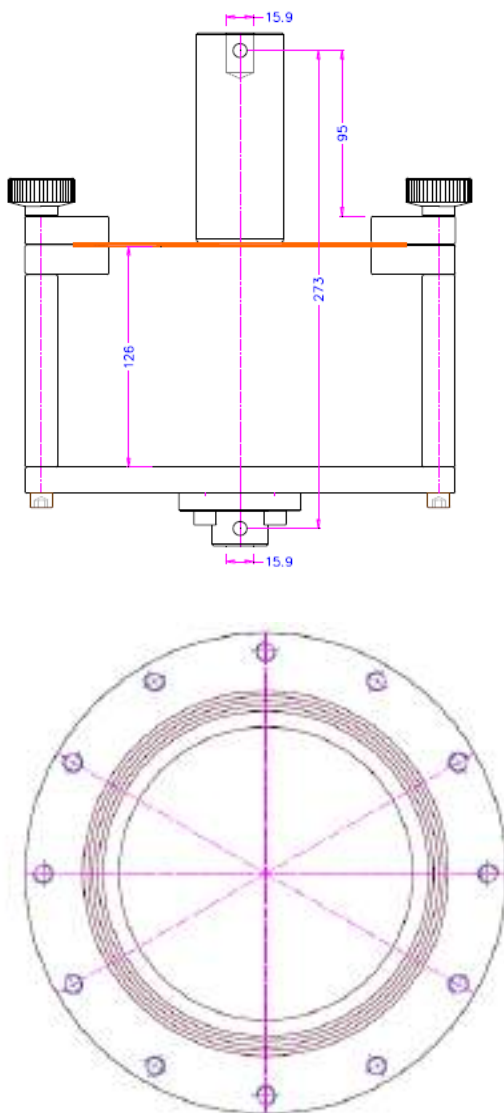
### **APPLICABLE STANDARDS**

ASTM D 6241 – DIN EN ISO 12236

### **GENERAL INFORMATION**

It consists of:

- **Puncture head** with tip. The tip of the puncture head with coupling to a jaw-holder device.
- **Lower sample-holder device**, closing with a closing head by screws to house and hold the circular samples of the Geotextiles and Geomembranes to be tested



Positioning of the sample in the sample holder of the DE-68 Puncture Fixture:



## **Puncture Test Fixture model DE-70**

This fixture is designed to perform tests of **resistance to puncture** of flexible packaging materials, **plastic films**, being incorporated in a Universal Testing Machine



### **APPLICABLE STANDARDS**

**UNE EN 14477**

### **GENERAL INFORMATION**

It consists of:

- Puncture head with tip. The tip of the puncture head with coupling to a jaw-holder device.
- Lower sample-holder closing device with rotating closing head with 4 operating handles to house and hold the circular samples of the plastic films to be tested.



## Puncture Test Fixture model DE-75

This fixture is designed to perform tests of **resistance to puncture** of **Geo-membranes** and **Geo-textiles** materials, being incorporated in a Universal Testing Machine



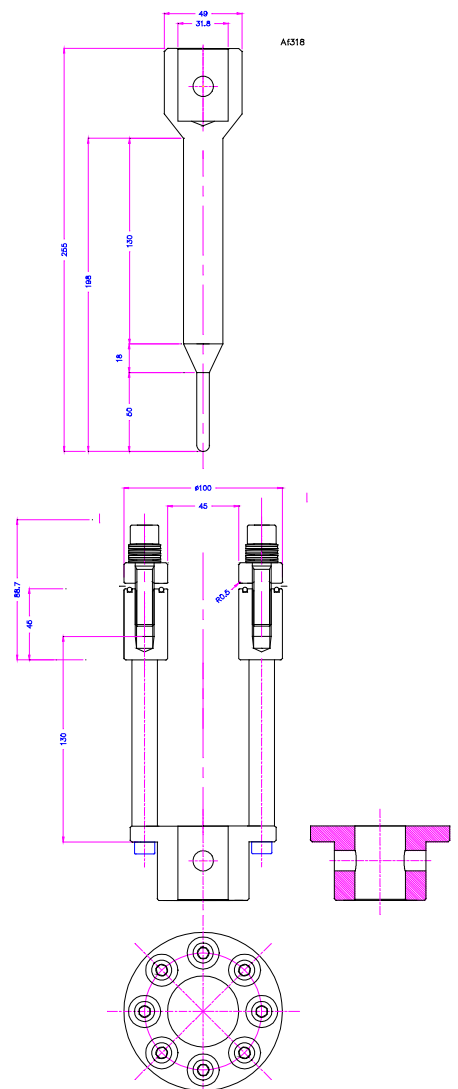
### APPLICABLE STANDARDS

ASTM D 4833

### GENERAL INFORMATION

It consists of:

- Puncture head with tip. The tip of the puncture head with coupling to a jaw-holder device.
- Lower sample-holder device, closing with a closing head by screws to house and hold the circular samples of the Geotextiles and Geomembranes to be tested.





## **Puncture Test Fixture model DE-78**

Test fixture designed for the determination of the tear resistance by means of a **Punching Test** for the classification of a **protective glove** against the mechanical risks of perforation by measuring the force in NEWTON necessary to tear a sample of a glove, this device being incorporated in a Universal Testing Machine.



### **APPLICABLE STANDARDS**

**DIN UNE EN 388**

### **GENERAL INFORMATION**

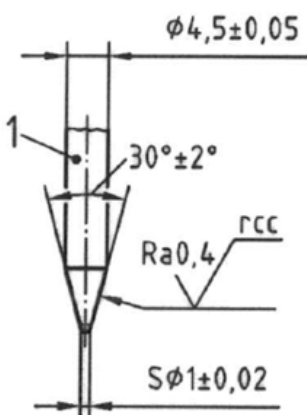
It consists of:

- Puncture head with standard tip. The tip of the puncture head with coupling to a jaw-holder device.
- Lower sample-holder device, closing with quick-action clamps to house and hold the circular samples of the safety gloves to be tested.

### **Operational process:**

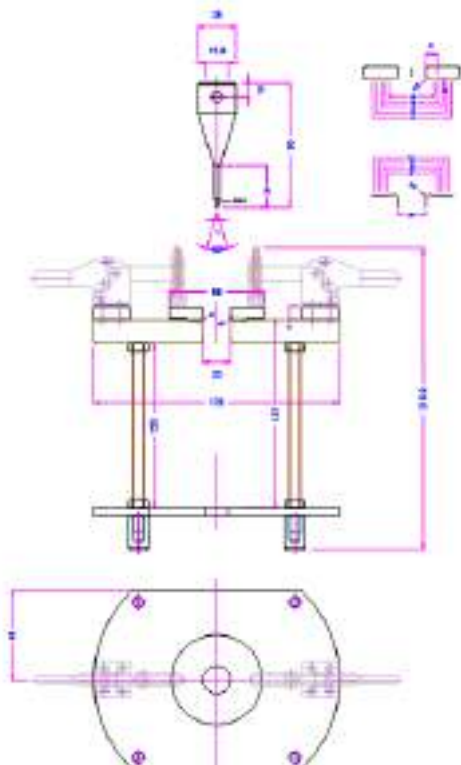
Open the two lateral clamps and place the sample with the upper plate with the elastomer-coated side in contact with the glove sample, and center it well, aligned, then close the upper plate by means of the two quick-release clamps. Select the force scale on the Universal Testing Machine so that the puncture resistance of the sample is within the range between 20 and 80% of the load cell capacity. Preset the speed of the mobile crossbar at the speed indicated in the standard to be complied with, bring the probe as close as possible to the sample to be tested without coming into contact.

Activate the machine and carry out the test

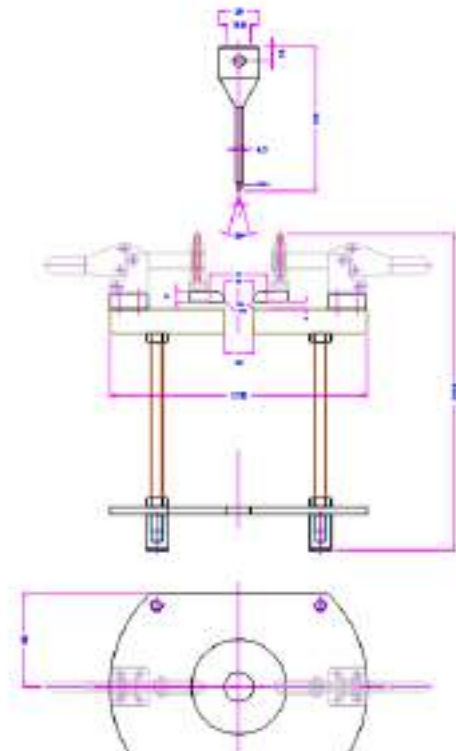


The puncture bit is made of Rockwell C60 hardness steel in a cone shape with a 60 degree angle terminated in a 1mm diameter ball





Version for corrugated samples



Version for completely flat samples

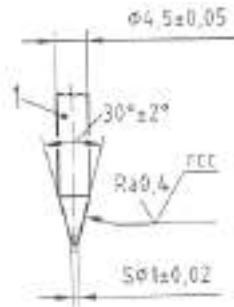
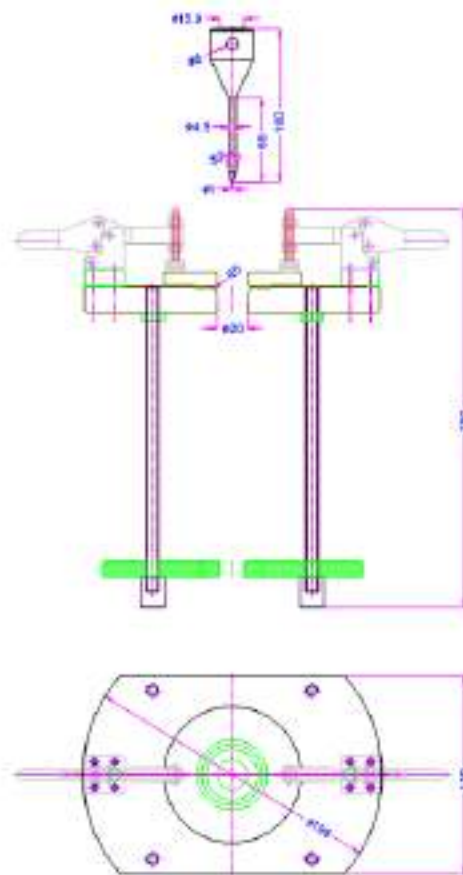
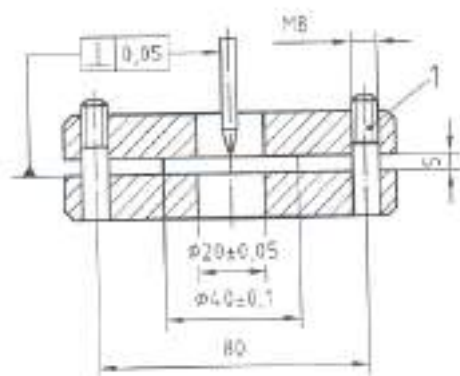


Figure 7 — Pointe



## Fixture for tear tests model DE-80

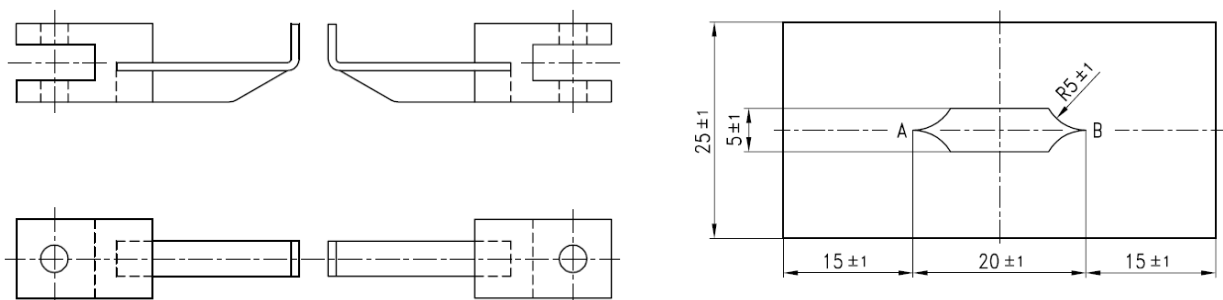
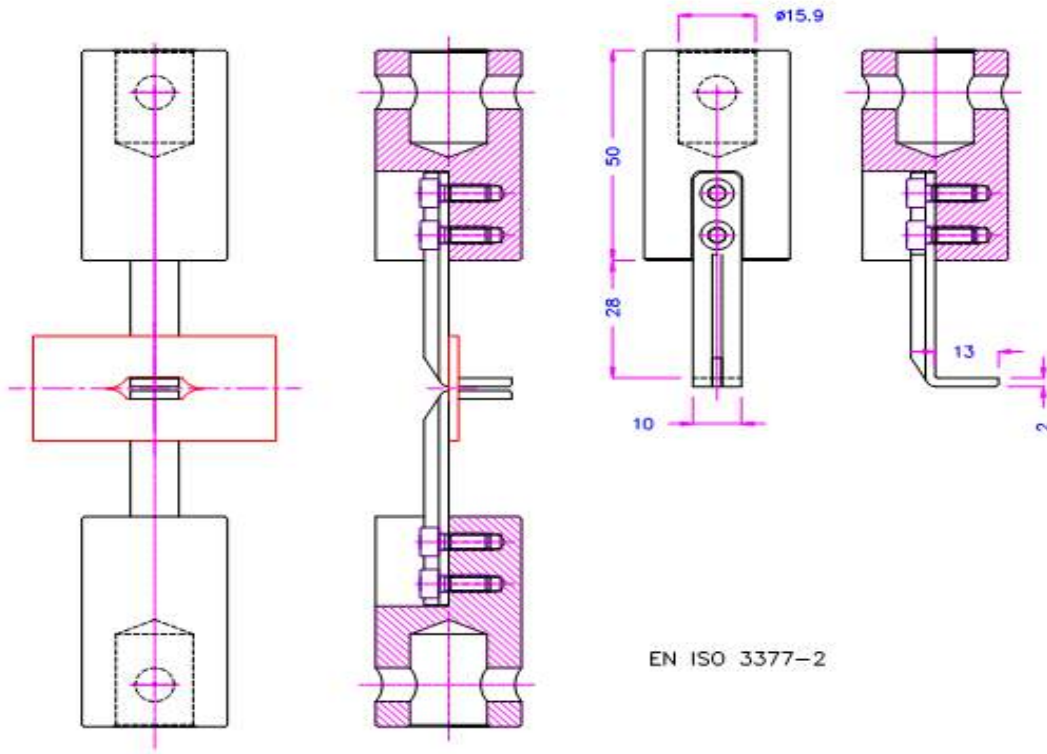
This fixture is designed to perform tests and determine the **resistance to double tear** in **leather** samples, being incorporated in a Universal Testing Machine.



### APPLICABLE STANDARDS DIN EN ISO UNE 3377

### GENERAL INFORMATION

The standards specify a method for determining the tear resistance of leather using a double-edged tear. The method is sometimes described as the Baumann tear. It is applicable to all types of leather



## Ball Burst Test Fixture DE-82

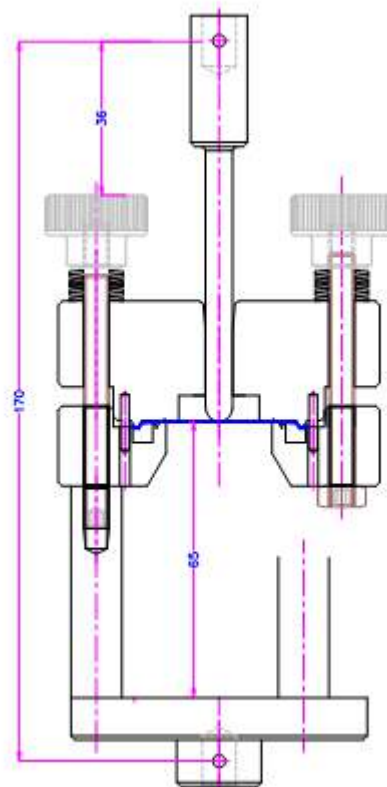
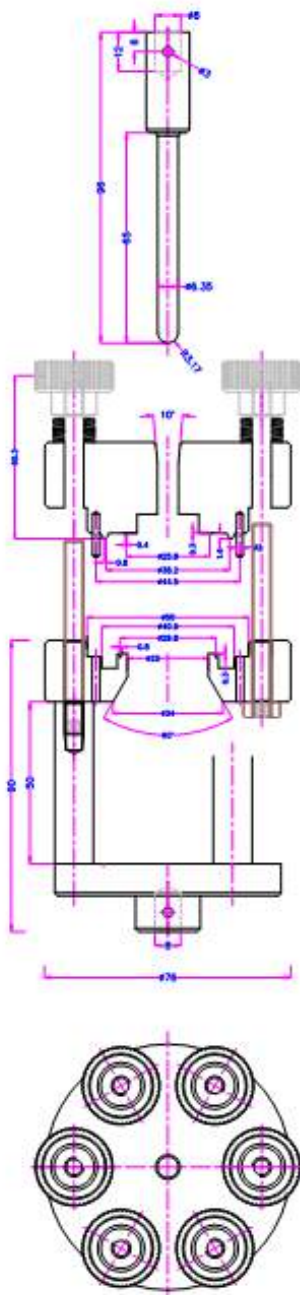
Test fixture designed for the determination of the **extension and the tensile strength** of the surface (ball method) in **Leather** samples by means of a test device that is adapted to a Universal Testing Machine

### APPLICABLE STANDARDS

DIN EN ISO UNE 3379

### GENERAL INFORMATION

These international standards specify a test method for the determination of the extent and strength of the grain or finished surface of leather. This method applies to all flexible leathers and is particularly suitable for determining the mountability of leather for shoe upper.



Recommended Testing Machine:



MTE-5 (to 5 kN)



MTE-25 (to 25 kN)



MTE-50 (to 50 kN)