DRAFT INTERNATIONAL STANDARD

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# Rubber- or plastics-coated fabrics — Determination of resistance to penetration by water

*Supports textiles revêtus de caoutchouc ou de plastique — Détermination de la résistance à la pénétration de l'eau*

ICS: 59.080.40





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# Foreword

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The committee responsible for this document is ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 4, *Products (other than hoses)*.

This fourth edition cancels and replaces the third edition (ISO 1420:2001), which has been technically revised.

# Introduction

The resistance to penetration by water is often used as a measure of the water-proofing of rubber or plastics-coated fabrics when a product made from the coated fabric is exposed to various service conditions in the field. There are some environmental factors which affect the resistance to water penetration such as temperature, pressure or chemicals in water, however, the methods in this International Standard only measure the property at a low to high hydrostatic pressure level at ambient temperature.

# Rubber- or plastics-coated fabrics — Determination of resistance to penetration by water

**WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This standard does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to ensure compliance with any national regulatory conditions.**

## 1 Scope

This International Standard specifies two methods for the determination of the resistance of rubber or plastics-coated fabrics to water penetration (hydrostatic resistance) when subjected to a specific hydrostatic pressure over a fixed period of time. Method A specifies the procedure for a low and high hydrostatic pressure and Method B is for a low hydrostatic pressure.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 2231, *Rubber- or plastics-coated fabrics — Standard atmospheres for conditioning and testing*

ISO 2286-1, *Rubber- or plastics-coated fabrics — Determination of roll characteristics — Part 1: Methods for determination of length, width and net mass*



## 3 Principle

A test piece of coated fabric is subjected to an increasing pressure of water on one face, under standard conditions, until a predetermined pressure specified in the coated-fabric specification is obtained. The required pressure is maintained for a specified time or until penetration occurs, whichever is the sooner.

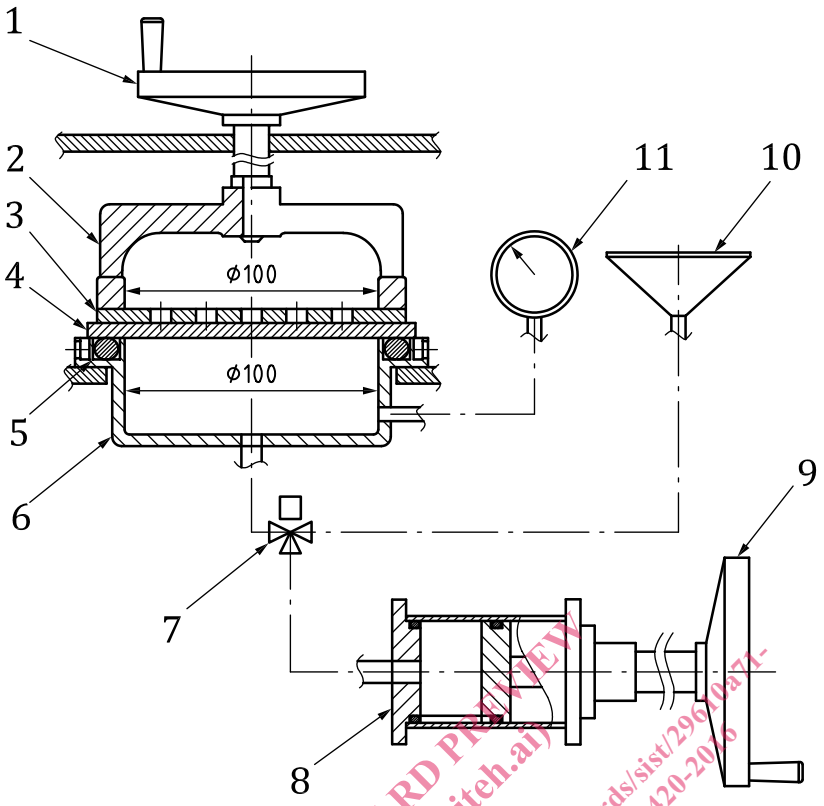
## 4 Apparatus

### 4.1 Apparatus for Method A

#### 4.1.1 General.

An example of the apparatus[1)] is given in Figure 1, 2 and 3, and shall consist of a test piece supporting plate (see Figure 1 and 2) fitted with a clamp tightening ring to fasten the test piece over the mouth by use of an upper screw handle. The lower part of the vessel shall have a pressure gauge and a nozzle connected with a cylinder which has a mechanical system delivering high pressure water. The other side of the cylinder shall be connected with a water inlet pipe through a three-way valve. The whole system shall have a capability of holding a hydrostatic pressure of 500 kPa at an ambient temperature for a certain period of time.

1) Following is the information of the manufacturers of the apparatus provided for the convenience of the users of this standard and does not constitute an endorsement by ISO of the apparatus:TOYO SEIKI SEISAKU-SHO, Ltd.5-15-4, Takinogawa, Kita-ku, Tokyo 114-8557, JAPAN Tel: (+81) 3-3916-8181 Fax: (+81) 3-3916-8173 E-mail: tsuchizawa@toyoseiki.co.jp;YASUDA SEIKI SEISAKUSHO, Ltd.121-1, himoyamaguchi, Yamaguchi-cho, Nishinomiya-city, Hyogo 651-1412, JAPAN Tel: (+81) 78-907-1511 Fax: (+81) 78-907-1522 E-mail:y-yasuda@yasuda-seiki.co.jp;




**Key**

| | | | |
|---|---|---|---|
| 1 | upper screw handle | 7 | three-way-valve |
| 2 | clamp tightening ring | 8 | cylinder |
| 3 | test piece supporting plate (see Figure 2) | 9 | piston handle |
| 4 | test piece | 10 | water inlet |
| 5 | seal ring | 11 | pressure gauge |
| 6 | vessel | | |



**Figure 1 — An example of the apparatus for Method A**

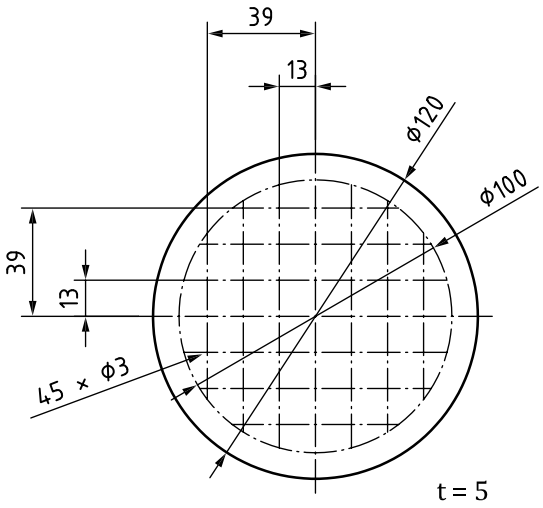
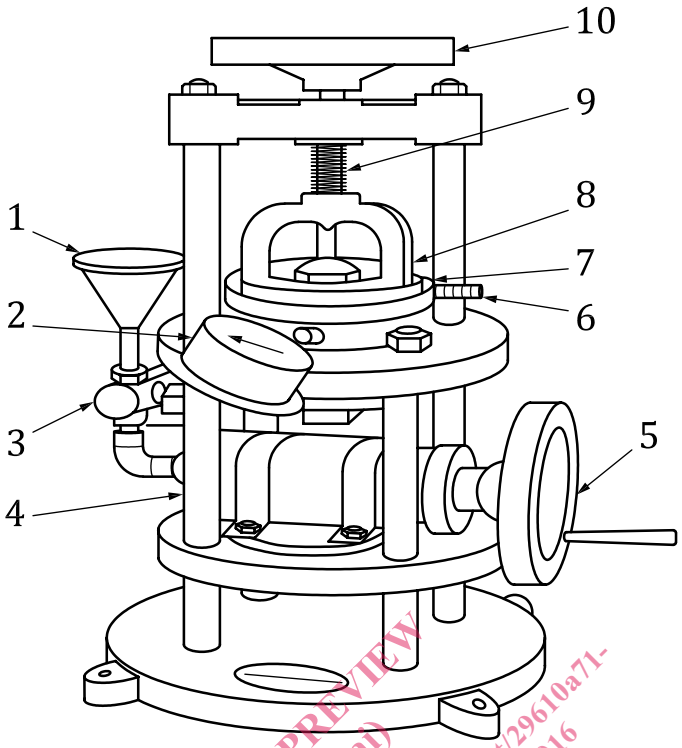



**Figure 2 — Test piece supporting plate**




**Key**

| | | | |
|---|---|---|---|
| 1 | water inlet | 6 | water exit |
| 2 | pressure gauge | 7 | vessel |
| 3 | three-way-valve | 8 | clamp tightening ring |
| 4 | cylinder | 9 | screw |
| 5 | piston handle | 10 | upper screw handle |



**Figure 3 — An example of the apparatus for Method A**

**4.1.2 Pressure gauge,** capable of 600 kPa with direct connection with the vessel in order to measure the hydrostatic pressure inside the vessel.

**4.1.3 Test area,** an open circle of diameter 100 mm in the mouth of the vessel. The surface of the mouth end and the clamp tightening ring, which contact the test piece on each side shall be covered with a rubber seal such as an o-ring or an equivalent to prevent the test piece rupturing when a high hydrostatic pressure is applied.

**4.1.4** Test piece supporting plate, a metallic plate equidistantly perforated with 45 small holes of 3 mm diameter which directly pushes the test piece over it using the clamp tightening ring.

## 4.2 Apparatus for Method B

### 4.2.1 General.

The apparatus shall consist of an open-mouthed vessel fitted with a clamp to fasten the test piece over the mouth. The lower part of the vessel shall have a nozzle allowing it to be connected to a water inlet pipe to fill it with water at room temperature. A retaining mesh is fitted over the test piece. This mesh shall comprise wires of 1 mm to 1,2 mm diameter forming squares of side not greater than 30 mm.

**4.2.2 Means of measuring water pressure**, either a manometer, connected to the test head, allowing water pressures up to 19,6 kPa (200 $cmH_2O$) to be read to an accuracy of ± 1 %, or a pressure gauge,