INTERNATIONAL STANDARD

ISO 1420

Fourth edition
2016-07-01

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

Reference number
ISO 1420:2016(E)

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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 that 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 International 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 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 2231:1989, *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

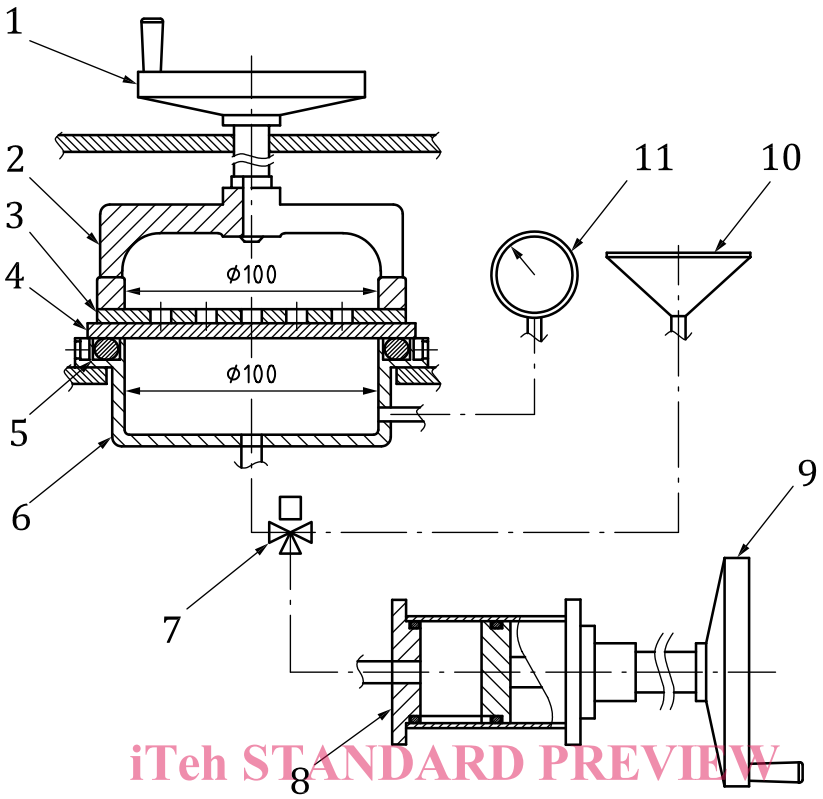
A test piece of coated fabric is subjected to an increasing pressure of water on one face, under standard conditions, until a predetermined pressure specified in the coated-fabric specification is obtained. The required pressure is maintained for a specified time or until penetration occurs, whichever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

4 Apparatus

4.1 Method A

4.1.1 The apparatus shall consist of a test piece supporting plate 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 that 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. Illustrative examples of the parts of apparatus are given in Figures 1, 2 and 3.

Dimensions in millimetres



Key

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

Figure 1 — An example of the apparatus for Method A

Dimensions in millimetres

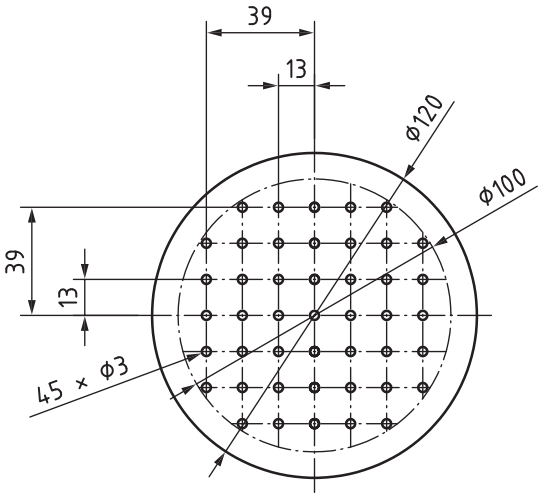
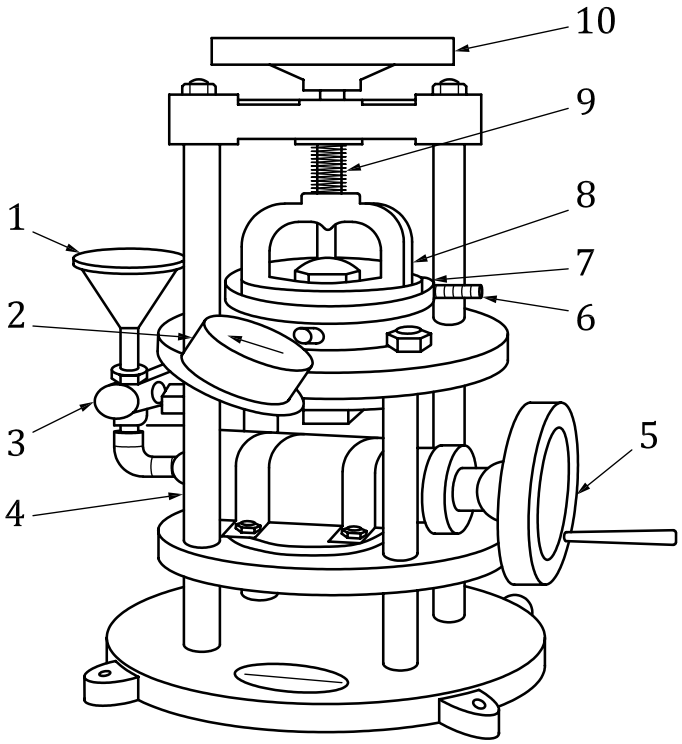


Figure 2 — Test piece supporting plate



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 of 5 mm thickness equidistantly perforated with 45 small holes of 3 mm diameter, which directly pushes the test piece over the plate using the clamp tightening ring. See Figure 2.

4.2 Method B

4.2.1 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,