

INTERNATIONAL STANDARD**3603**

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Fittings for unplasticized polyvinyl chloride (PVC) pressure pipes with elastic sealing ring type joints — Pressure test for leakproofness

Raccords à bagues d'étanchéité élastiques pour canalisations avec pression en polychlorure de vinyle (PVC) non plastifié — Essai d'étanchéité

First edition — 1977-04-01

ISO 3603-1977 (E)

UDC 621.643.4.06 : 678.743.22 : 620.162.4**Ref. No. ISO 3603-1977 (E)**

Descriptors : piping, pressure pipes, plastic pipes, unplasticized polyvinyl chloride, pipe fittings, sealing rings, water-tightness tests, test equipment.

Price based on 2 pages

FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3603 was developed by Technical Committee ISO/TC 138, *Plastics pipes, fittings and valves for the transport of fluids*, and was circulated to the member bodies in December 1974.

It has been approved by the member bodies of the following countries :

Austria	Israel	South Africa, Rep. of
Belgium	Italy	Spain
Canada	Japan	Sweden
Finland	Mexico	Switzerland
France	New Zealand	Turkey
Germany	Norway	U.S.A.
India	Poland	U.S.S.R.
Ireland	Romania	

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Denmark
Netherlands
United Kingdom

Fittings for unplasticized polyvinyl chloride (PVC) pressure pipes with elastic sealing ring type joints — Pressure test for leakproofness

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies the method for proof testing fittings with elastic sealing ring type joints for unplasticized polyvinyl chloride (PVC) pressure pipes, under internal hydrostatic pressure.

It specifies the minimum requirements of the tested joint, with a specified internal pressure higher than the nominal pressure for which the pipes are designed.

2 PRINCIPLE

Exposure of a specimen consisting of a pipe and fitting assembly having at least one joint of this type to a specified internal hydrostatic load at a specified temperature. Checking of the joint tightness during the test period, when the pressure is higher than the nominal pressure for which the pipe is designed.

3 SPECIFICATIONS

Testing shall be performed under an internal pressure of at least $2 + \frac{0,2}{0}$ times the nominal pressure (PN) of the

polyvinyl chloride (PVC) pipe for which the joint is designed.

The test temperature shall be 20 ± 2 °C.

The duration of the test shall be not less than 1 h, during which time the joint shall be free from leaks.

The joint shall satisfy the test requirements when the spigot and socket conform to the extreme limits of the respective tolerances (see clause 5).

4 APPARATUS

4.1 Suitable device, connected to the test specimen, capable of applying a constant internal water pressure of at least $2 + \frac{0,2}{0}$ times the nominal pressure of the polyvinyl chloride (PVC) pipe for which the fitting is designed, for not less than 1 h.

4.2 Suitable device, to compensate for the axial stresses imposed by the application of internal hydrostatic pressure.

4.3 Pressure gauge, having an accuracy of ± 2 %.

5 TEST SPECIMENS

The test specimens shall consist of a pipe-section(s) and fitting(s) assembly including at least one type of the joint to be tested.

The spigot and socket shall conform to the extreme limits of their relevant tolerances, i.e. pipe of minimum diameter, socket at maximum diameter in the zone of the groove housing of the sealing ring, and a sealing ring of minimum cross-section.

The length(s) of the section(s) of pipe to be connected shall be such that the free length of pipe between the socket face and the test equipment (or terminal seal) shall be equal to the outside diameter of the pipe, with a minimum length of 250 mm (see figure).

The assembly of the joints shall be carried out in accordance with the individual national practices or standards.

6 PROCEDURE

Set up the test specimen in the test equipment.

Fill the test specimen with water at 20 ± 2 °C.

Wait for 20 min to ensure equalization of temperature.

Remove any moisture from the outside surface of the test specimen.

Apply hydrostatic pressure in such a way that the specified pressure is attained within 30 s.

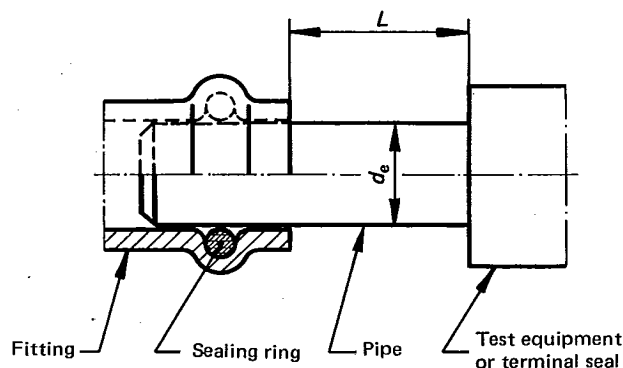
Maintain the pressure for at least 1 h, checking on the pressure gauge that the permitted level is within the tolerance limits, and observing if leakage occurs at any part of the specimen.

7 TEST REPORT

The test report shall make reference to this International Standard and shall indicate whether or not leakage occurred during the test and if so under which conditions.

It shall indicate any procedural details not specified in this International Standard as well as any external conditions likely to have affected the results.

The test shall be declared satisfactory if no leakage has been observed during the specified period.



$L = \text{free length} = d_e \text{ or a minimum of } 250 \text{ mm}$

FIGURE