BS EN 1902:2015

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Adhesives — Test method for adhesives for floor and wall coverings — Shear creep test

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National foreword

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The UK participation in its preparation was entrusted to Technical Committee PRI/52, Adhesives.

A list of organizations represented on this committee can be obtained on request to its secretary.

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English Version

Adhesives - Test method for adhesives for floor and wall coverings - Shear creep test

Adhésifs - Méthodes d'essai des adhésifs pour revêtements muraux et de sol - Essai de fluage sous contrainte de cisaillement

Klebstoffe - Prüfverfahren für Klebstoffe für Boden- und Wandbeläge - Zeitstand-Scherversuch

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EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 1902:2015) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by AENOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2015 and conflicting national standards shall be withdrawn at the latest by October 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1902:1999.

The main changes in respect to EN 1902:1999 are the following:

— the change of the roller dimensions;

— the change of temperature of conditioning of a substrate.

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1 Scope

This European Standard specifies a test method that gives an assessment of adhesion under long-term shear stress after bonding floor or wall coverings to a given substrate. The term “wall covering” does not include any type of wallpaper.

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.

EN 923:2005+A1:2008, *Adhesives - Terms and definitions*

EN 1067, *Adhesives - Examination and preparation of samples for testing*

EN ISO 15605, *Adhesives - Sampling (ISO 15605)*

EN ISO 10365, *Adhesives - Designation of main failure patterns (ISO 10365)*

ISO 554, *Standard atmospheres for conditioning and/or testing - Specifications*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 923:2005+A1:2008 and the following apply.

3.1
covering
flexible resilient or textile floor covering or wall covering

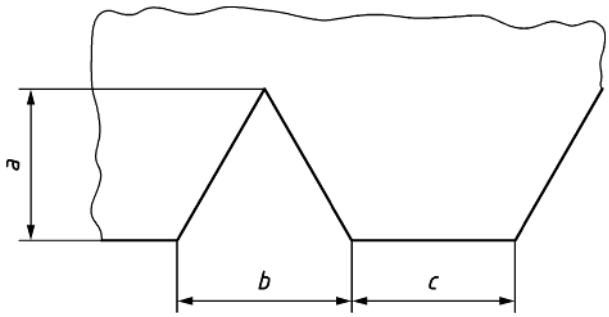
3.2
adhesive for coverings
adhesive which is intended to produce firm and durable bonds between coverings and various substrates

4 Principle

The bonding performance of a floor or wall covering/adhesive combination is assessed under exposure to a static shear force by monitoring the time until failure of the test pieces.

5 Apparatus and materials

5.1 Notched trowel, (for the shape of the notch, see Figure 1) with dimensions *a*, *b* and *c* specified by the adhesive manufacturer.



Key

a notch depth

b notch width

c notch distance

Figure 1 — Shape of notches of notched trowel

5.2 Roller, of width (60 ± 5) mm, diameter (90 ± 5) mm and total mass (3,50 ± 0,05) kg with handle at 90° to the axis (as an example, see Figure 2).

Dimensions in millimetres

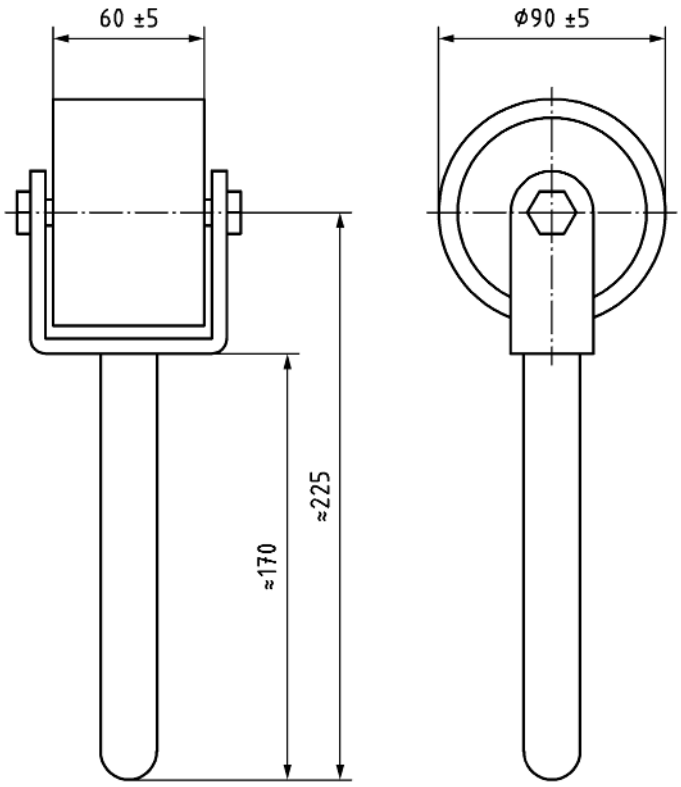
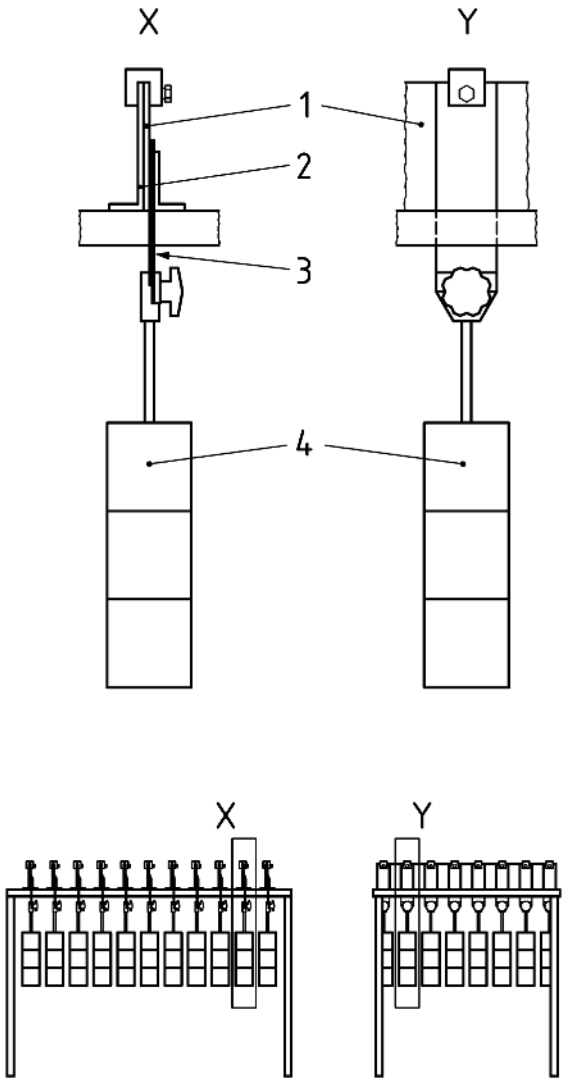


Figure 2 — Roller

5.3 Arrangement, in which five panels with a test piece of floor or wall covering adhered to each, can be mounted vertically (as an example see Figure 3).

5.4 Clamping device, to be attached to each of the test pieces to enable a load, in the form of weights, to be applied. The clamping device with weight holder shall have a mass of (2,00 ± 0,01) kg and be designed in such a way that additional 2,0 kg weights are able to be added vertically (see Figure 3, for an example of a test arrangement and Figure 4 for an example of a clamp in combination with a weight holder).



Key

1 fibre cement panel
2 bracket
3 test piece
4 weight

Figure 3 — Test arrangement

Dimensions in millimetres

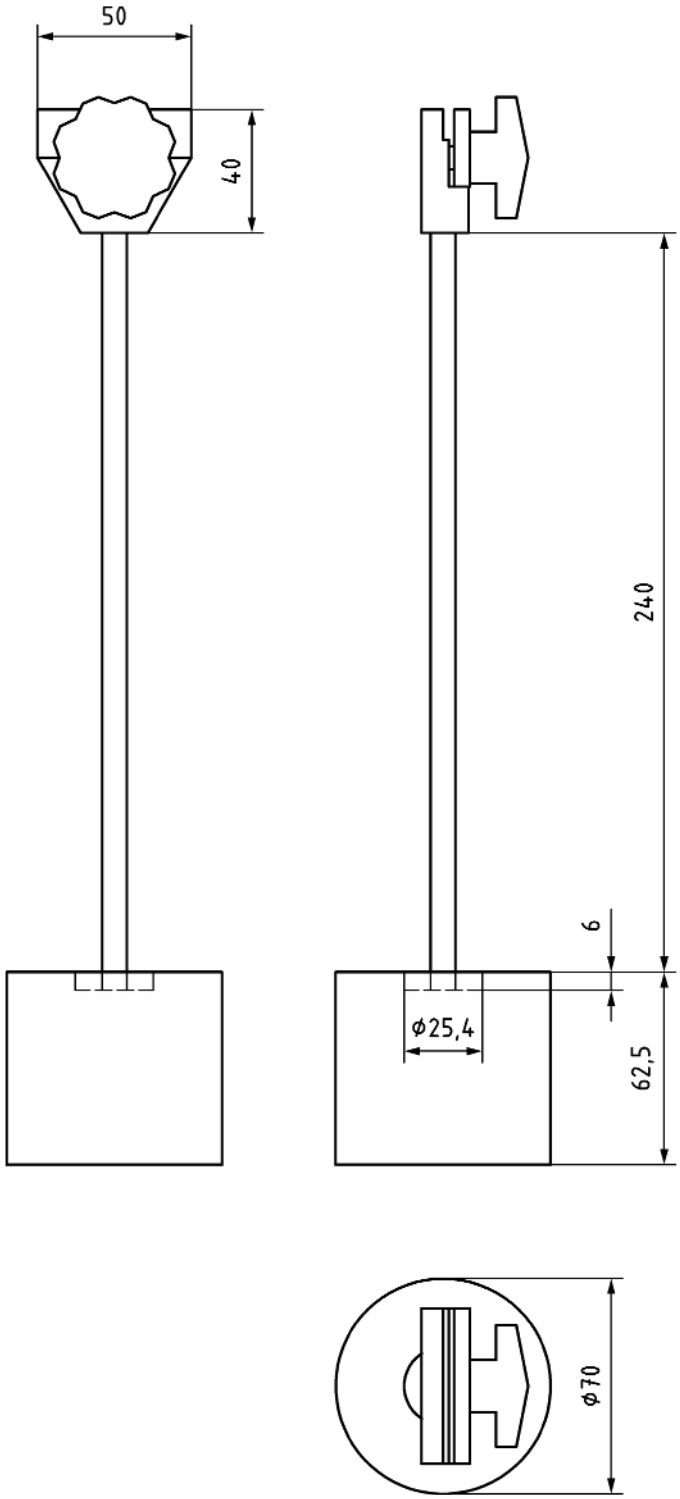


Figure 4 — Clamp in combination with a weight holder, mass (2,00 ± 0,01) kg

5.5 Device for automatic monitoring, recommended when adhesive joint failure occurs.

5.6 Primer, if applicable.

5.7 Test covering, five test pieces for each conditioning sequence of dimensions 120 mm × 50 mm, the long side, running in the machine direction where this can be identified, and shall be taken at least 10 mm from the edge.

5.8 Substrate, one uncoated fibre cement panel, fully compressed and autoclaved, for each test piece. Five fibre cement panels for each conditioning sequence with a length of approximately 100 mm and a thickness of approximately 8,0 mm. The width is (50,0 ± 0,5) mm.

NOTE Depending on the source of the fibre cement panels the surfaces sometimes differ with respect to gloss, absorbency and strength. In this case, it is important to do some preliminary assessment (i.e. peel tests) of the panels to identify the preferred side for testing. The preferred side will be called the upper side of the substrate in this standard.

If failure of the substrate is the main finding of the preliminary assessment, a suitable primer may be used for testing.

5.9 Heating chamber.

6 Preparation of test specimens

6.1 Cleaning

Ensure that all test coverings and fibre cement panels are clean and free from dust, loose particles or other contamination.

6.2 Sampling of adhesive

Take a sample in accordance with EN ISO 15605 of the adhesive to be tested and examine and prepare it in accordance with EN 1067.

6.3 Conditioning of materials

6.3.1 Adhesive and floor and wall coverings

Condition the materials at a standard atmosphere of (23 ± 2) °C and (50 ± 5) % relative humidity in accordance with ISO 554 for at least 24 h prior to use.

6.3.2 Fibre cement substrate

Place the test panels (5.8) in a heating chamber (5.9) for 6 h at (80 ± 2) °C. Ensure that the test panels are spaced in such a way as to enable a free passage of air over them. At the end of this period, remove the test panels from the heating oven and store for 48 h in a standard atmosphere of (23 ± 2) °C and (50 ± 5) % relative humidity prior to use.

6.4 Application of adhesive

Place masking tape across one end of the upper side of each fibre cement panel, (60 ± 0,5) mm from one end, to create an area of (50 ± 5) mm × (60 ± 5) mm to be coated with adhesive.

Apply the adhesive under test across the full width of the fibre cement panel using a notched trowel (5.1), held at an angle of approximately 60° and draw the notched drowel (5.1) steadily down the length of the panel to provide a uniform adhesive application.

Remove the masking tape when the adhesive has been applied.

When applying the adhesive, it is essential that the serrated blade is kept clean and free of adhesive build-up. Clean the blade regularly (no more than five fibre cement panels to be prepared without cleaning). In addition, regularly check the notch size and depth, especially where non-hardened steel blades are in use.

6.5 Bonding of the test covering

After a time recommended by the adhesive manufacturer (i.e. minimum open time in accordance with EN 923), place the test covering (5.7) onto the coated fibre cement panel (5.8) to provide an overlap of 60 mm such that the unbonded length protrudes from the edge of the panel coated with adhesive.

Immediately after positioning the test covering, roll the test specimen with a roller (see 5.2) by passing forward and backward once along the test specimen without any additional pressure being applied.

As the adhesive has not yet set it should be ensured that the overlapping area remains 60 mm × 50 mm without any shift during the subsequent treatments of the test coverings. Before applying the roller it is advisable to support the unbonded area of the test covering by an additional 8 mm thick fibre cement panel in order to avoid tilting.

For coverings which show a tendency to curl after rolling, a dead load of (2,0 ± 0,1) kg mass can be applied for (3 ± 0,5) h. The load is spread evenly over the whole surface thus ensuring a contact over the total bonded area of each test specimen. The procedure applied should be recorded in the test report [see 8 j)].

Carefully remove with a clean tissue, from the edges of the test specimen, any excess adhesive that has been pressed out. No more than five test specimens shall be stacked.

6.6 Conditioning of test specimens

Immediately after preparation, precondition the test specimens for seven days in a standard atmosphere of (23 ± 2) °C and (50 ± 5) % relative humidity, in accordance with ISO 554.

7 Test procedure and evaluation of test results

Carry out the shear creep test in a standard atmosphere of (23 ± 2) °C and (50 ± 5) % relative humidity, in accordance with ISO 554.

Mount the test specimens and secure them in such a way that they suspend vertically. Secure the clamping devices, each weighing a total of 2 kg, to the free end of the floor or wall covering.

Allow the test specimens to remain under these conditions for four days.

Increase the load by adding a 2,0 kg weight and leave the test specimens for another four days. Then increase the load by adding another 2,0 kg weight to obtain the ultimate total load of 6,0 kg. Allow the test specimens to remain under this load for 52 d or until the joint fails.

Inspect the failure mode then to determine whether the type of failure is adhesive or cohesive in accordance with EN ISO 10365.

The time to obtain failure in each of the five floor or wall covering/adhesive joints on the baseplate can be monitored automatically (5.5).

After the test period has elapsed, measure to the nearest millimetre any displacement of remaining floor or wall covering.

8 Test report

The test report shall include at least the following:

a) reference to this European Standard, i.e. EN 1902;

b) designation of the adhesive together with the batch number;

c) designations of test covering and primer if optional used for substrate preparation;

d) notched trowel used;

e) open time allowed;

f) conditioning sequences used;

g) individual failure time of the five test specimens rounded down to the nearest day and the mode of failure;

h) measurement of any displacement of remaining floor covering or wall covering;

i) any deviations from the requirements of this standard;

j) factors that may have affected the result;

k) date of the test.

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BSI Group Headquarters

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