

Shower enclosures — Functional requirements and test methods

The European Standard EN 14428:2004 has the status of a
British Standard

ICS 91.140.70

National foreword

This British Standard is the official English language version of EN 14428:2004. It supersedes BS 6340-3:1985 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/503, Sanitary appliances, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international/European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

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d'essai

Duschabtrennungen - Funktionsanforderungen und
Prüfverfahren

This European Standard was approved by CEN on 2 September 2004.

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Foreword

This document (EN 14428:2004) has been prepared by Technical Committee CEN/TC 163 “Sanitary appliances”, the secretariat of which is held by UNI.

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of an identical text or by endorsement, at the latest by May 2005, and conflicting national standards shall be withdrawn at the latest by May 2005.

This document is one of a series of harmonized standards for sanitary appliances which has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports Essential Characteristics of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

1 Scope

This document specifies requirements for shower enclosures for domestic purposes which ensure that the product, when installed in accordance with the manufacturer's installation instructions, gives satisfactory performance when used as intended.

This document does not apply to shower cabinets or curtains and does not specify aesthetic and dimensional requirements.

NOTE For the purposes of this document the term "domestic purposes" includes use in hotels, accommodation for students, hospitals and similar buildings, except when special medical provisions are required.

2 Normative references

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

EN 12150-1:2000, *Glass in building — Thermally toughened soda lime silicate safety glass — Part 1: Definition and description*.

EN ISO 2409, *Paints and varnishes — Cross-cut test (ISO 2409:1992)*.

ISO 7599, *Anodizing of aluminium and its alloys — General specifications for anodic oxide coatings on aluminium*.

ISO 7892:1988, *Vertical building elements — Impact resistance test — Impact bodies and general test procedures*.

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1

shower enclosure

arrangement of panel(s) and/or door(s) erected on or around a drained shower place, shower tray or bath in conjunction with one or more walls of the main building structure to provide a water retaining area for the purpose of showering

3.2

shower cabinet

prefabricated but not necessarily preassembled unit for the purpose of showering comprising a shower tray or bath and rigid water resistant enclosing wall(s), with or without a roof and with an entry capable of being closed to provide a fully enclosed compartment

4 Requirements

4.1 General

The manufacturer shall provide with each shower enclosure detailed instructions on installation and use, to include at least the following information:

- description of installation with special consideration of building construction and necessary tools and sealant;
- instructions for appropriate maintenance and care.

4.2 Cleanability

When tested visually, the surfaces of the components of the shower enclosures which are accessible during use and cleaning shall be free from sharp corners, edges and burrs.

When using recommended cleaning agents in accordance with the manufacturer's installation and care instructions, there shall be no reduction in safety or function of the shower enclosure.

4.3 Impact resistance/shatter properties

4.3.1 General

Shower enclosures may be glazed with various materials. Where glass is used, this shall meet the requirements of 4.3.2, and where plastics materials are used, they shall meet the requirements of 4.3.3.

4.3.2 Thermally toughened safety glass

Thermally toughened safety glass shall meet the requirements of EN 12150-1:2000, except in respect of Clause 8 which is replaced by 5.1 of this document.

When tested in accordance with 5.1, the minimum particle count shall be 40.

4.3.3 Plastics materials

When tested in accordance with 5.2, sheets shall not break or they shall break safely.

4.4 Durability

4.4.1 General

Products conforming with the requirements of 4.2 and 4.3 and the following are deemed to be durable.

4.4.2 Corrosion resistance

All components shall consist of corrosion-proof materials or shall be corrosion-protected.

All corrosion protection shall conform with the relevant requirements specified in European and International Standards. For example:

- the minimum paint adhesion performance for powder-coated or wet-painted surfaces shall comply with a cross-cut value ≤ 2 when tested in accordance with EN ISO 2409;
- the minimum average thickness of coating on aluminium shall be of grade AA 8 when tested in accordance with one of the methods given in ISO 7599. In no cases shall the minimum local thickness be less than 80 % of the minimum average thickness.

4.4.3 Resistance to chemicals and stains

When tested in accordance with 5.3 the glazing materials shall not show permanent staining or deterioration.

4.4.4 Resistance to wet and dry cycling

When tested in accordance with 5.4, the glazing materials shall not show any cracks, crazing or discoloration.

4.4.5 Endurance

When tested in accordance with 5.5, shower enclosures shall not show any functional deterioration after 20 000 closing-opening cycles.

4.4.6 Stability

When tested in accordance with 5.6, shower enclosures shall withstand an energy representing the impact of a human body on a large impact area (e.g. blow from shoulder, fall) without any functional deterioration which could result in injury to the user.

4.4.7 Water retention

When tested in accordance with 5.7, shower enclosures shall retain water. A few small drops of water on the outside of the water retaining area are acceptable.

4.5 Dangerous substances

NOTE See ZA.1 and ZA.3.

5 Test methods

5.1 Impact resistance/shatter properties

5.1.1 General

The fragmentation test determines whether the glass breaks in a safe manner for a thermally toughened soda lime silicate safety glass.

5.1.2 Test specimens

5.1.2.1 Flat glass

The test specimen shall have an area of $(1,7 \pm 0,17) \text{ m}^2$ with a minimum length to width ratio of 2:1 without holes, notches or cut-outs.

5.1.2.2 Curved glass

The test specimen shall be as designed for the product.

5.1.3 Procedure

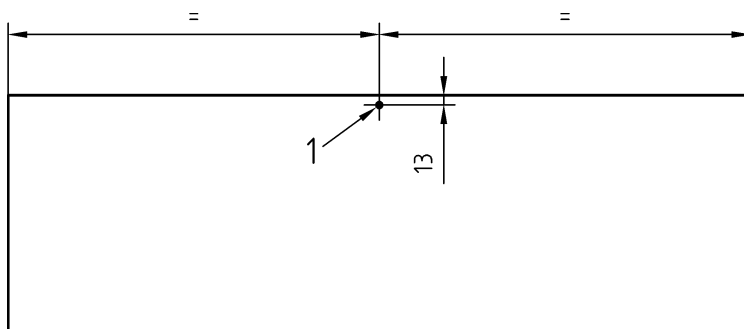
The test specimen shall be impacted, using a pointed steel tool, at a position 13 mm from the longest edge of the specimen at the mid-point of that edge, until breakage occurs (see Figure 1).

NOTE The fragmentation characteristics of glass are unaffected by temperatures between - 50 °C and + 100 °C.

Examples of steel tools are a hammer of approximately 75 g mass, a spring loaded centre punch, or other similar appliance with a hardened point. The radius of curvature of the point should be approximately 0,2 mm.

The test specimen shall be laid with the impact point flat on a table without any mechanical constraint. In order to prevent scattering of the fragments, the flat specimen shall be held at the edges, e. g. by a small frame, adhesive tape etc., the curved specimen shall be covered on its convex surface with an adhesive film so that the fragments remain interlocked after breakage yet extension of the specimen is not hindered.

Dimensions in millimetres

**Key**

1 Impact point

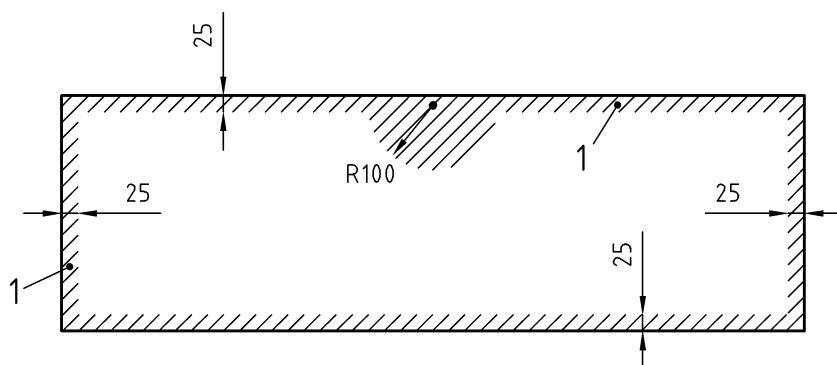
Figure 1 — Position of impact point

For thermally toughened soda lime silicate safety glass manufactured by vertical toughening, the impact point shall not be on the tong mark edge.

5.1.4 Assessment of fragmentation

The particle count and measuring of the dimensions of the largest particle shall be made between 4 min to 5 min after fracture. An area of radius 100 mm, centred on the impact point, and a border of 25 mm, round the edge of the test specimen (see Figure 2), shall be excluded from the assessment.

Dimensions in millimetres

**Key**

1 Excluded area

Figure 2 — Area to be excluded from the particle count determination and largest particle measurement

The particle count shall be made in the region of coarsest fracture (the aim being to obtain the minimum value). The particle count shall be made by placing a mask of (50 ± 1) mm x (50 ± 1) mm on the test piece (see Figures 3, 4 and 5). The number of crack-free particles within the mask shall be counted. A particle is 'crack-free', if it does not contain any cracks which run from one edge to another (see Figure 6).

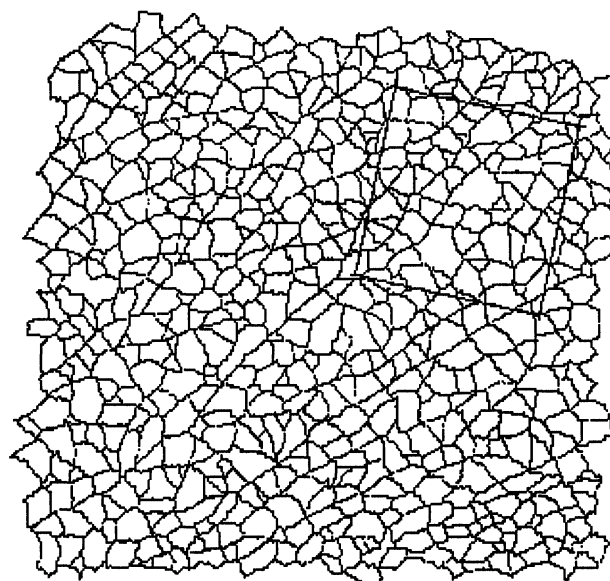
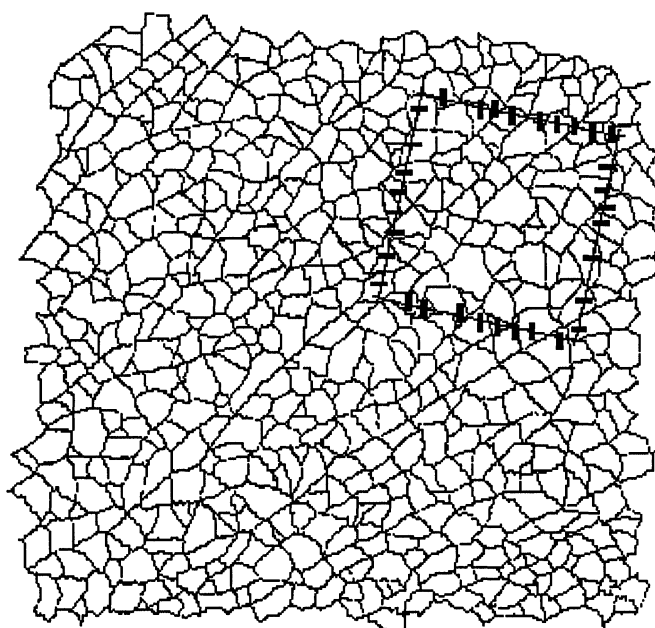
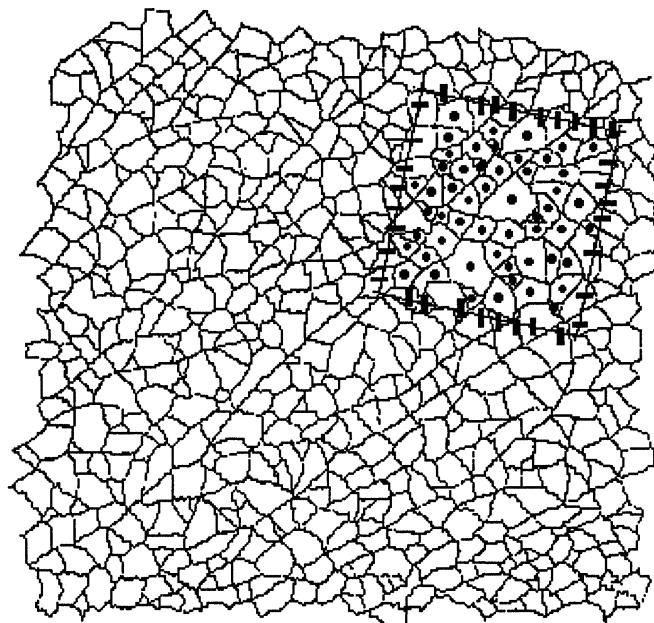


Figure 3 — Select the area of coarsest fracture, place the template on the test specimen and draw round the template



NOTE Number of perimeter particles = $32/2 = 16$

Figure 4 — Mark and count the perimeter fragments as 1/2 particle each



NOTE Number of central particles = 53
 Total number of particles = 16 + 53 = 69

Figure 5 — Mark and count the central fragments and add these to the perimeter count to obtain the particle count for the specimen

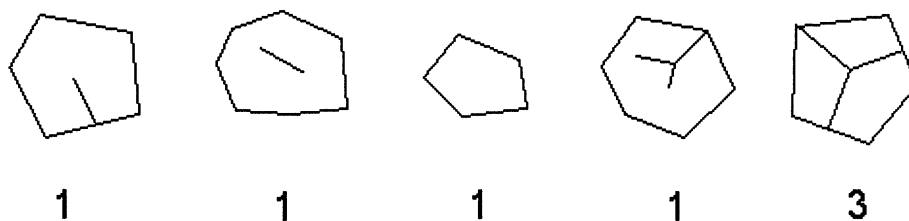


Figure 6 — Examples of crack-free particles and the assessment regarding their number

In the particle count, all particles wholly contained within the area of the mask shall be counted as one particle each and all the particles which are partially within the mask shall be counted as 1/2 particle each (see Figure 4).

5.2 Impact behaviour of plastic sheets

5.2.1 Apparatus

- test frame, constructed of securely welded or bolted sections, designed to present a flat face to the sub-frame. The test frame sections and bracing members shall be steel channel 102 mm x 51 mm, or equivalent material of equal or greater strength and rigidity. This frame shall be securely bolted to the floor and securely braced as shown in Figures 7, 8 and 9.
- sub-frame, constructed of wood or other suitable material designed to hold the test piece as shown in Figure 10 so that the test piece can make contact only with the strips of chloroprene or similar material. These strips shall be capable of being compressed by 10 % to 15 % of their original depth without a permanent set being introduced. The edge cover of the chloroprene on the test pieces shall be such that for the nominal 865 mm x 1 930 mm specimens the central area of (845 ± 3) mm x (1 910 ± 3) mm is unsupported.

NOTE In order to limit the compression of the chloroprene strips to within approximately 15 %, spacers of appropriate thickness and material are recommended (see Figure 10).

The components of the sub-frame shall be held together, and the sub-frame shall be held to the test frame, by bolts, toggle clamps or similar fixing devices as convenient, these being uniformly spaced no more than 450 mm apart and no fewer than two per side.

- c) impactor, consisting of a leather case of a punch bag type, modified with a central support rod and fitting system as shown in Figure 11, and filled with chilled lead shot.

The leather case shall be made from six panels, as shown in Figure 12, which shall be securely stitched together leaving a slit approximately 175 mm long to allow for filling with the lead shot. Lace holes shall be inserted on each side of the slit which is closed by a leather thong. The neck shall be taped separately to cover the worm-drive hose clamp.

The complete impactor shall weigh $(45 \pm 0,1)$ kg.

The impactor shall be supported as shown in Figures 7 and 8, and provision shall be made for raising the impactor to drop heights (see 5.2.2 and Figure 8) up to 1 219 mm. Prior to release it shall be supported so that the central metal rod is in line with the steel cable.

The impactor shall not wobble or oscillate after its release.

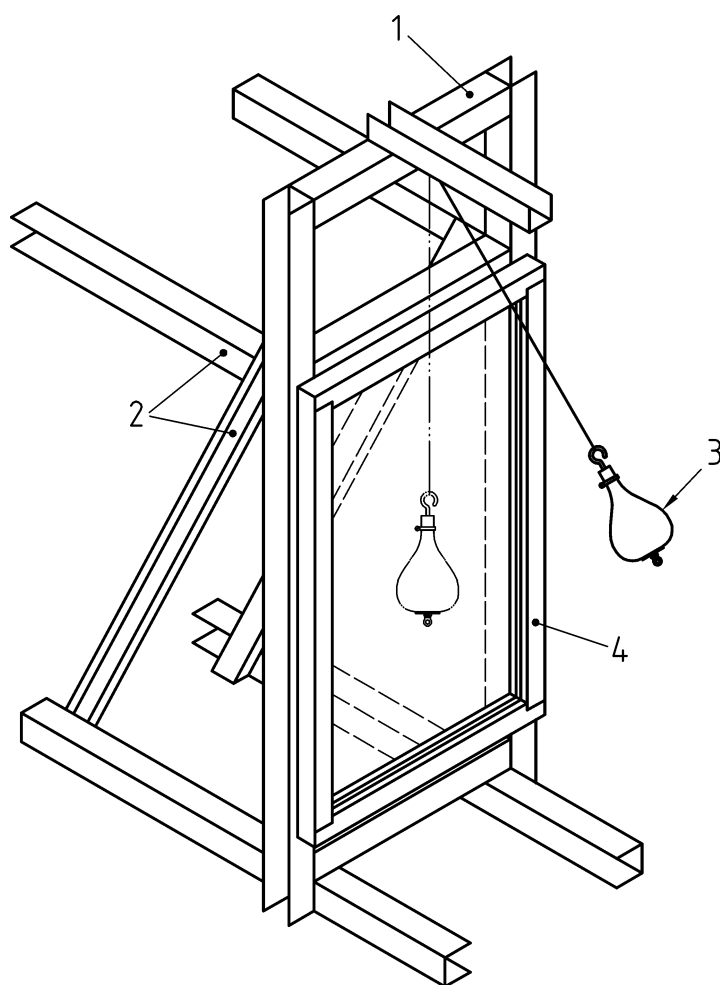
5.2.2 Procedure

- Carry out the test on four test pieces. For curved sheets a sample of an unformed flat sheet of the same material shall be used.
- Immediately preceding the test, condition the test pieces as follows:
 - temperature: (23 ± 5) °C
 - duration: 24 h

Place the test piece in the frame and clamp it so that the chloroprene strips are compressed by no more than 10 % to 15 % of their original thickness. When the impactor is hanging at rest, suspended from the overhead support, check that it is, at its greatest diameter, not more than 13 mm from the surface of the test piece and within 51 mm radially from the centre of the test piece (see Figure 8).

- Raise the impactor to a drop height of 305 mm and steady it.
- Release the impactor so that it swings in a pendulum arc and strikes the test piece.
- Inspect the test piece after impact and report whether it has remained unbroken or it has broken safely as follows:
 - 1) Numerous cracks or fissures appear in the test piece, but no opening develops through which a 76 mm diameter sphere can be passed freely.
 - 2) When breakage occurs which results in the production of separate fragments containing pointed protrusions, then such fragments shall be permitted provided that any pointed protrusion satisfies the following:

The length of the chord between the two points which are established when an arc of radius 25 mm, whose centre is the apex of the protrusion, crosses the perimeter on each side of the apex shall be not less than 25 mm (see Figure 13).

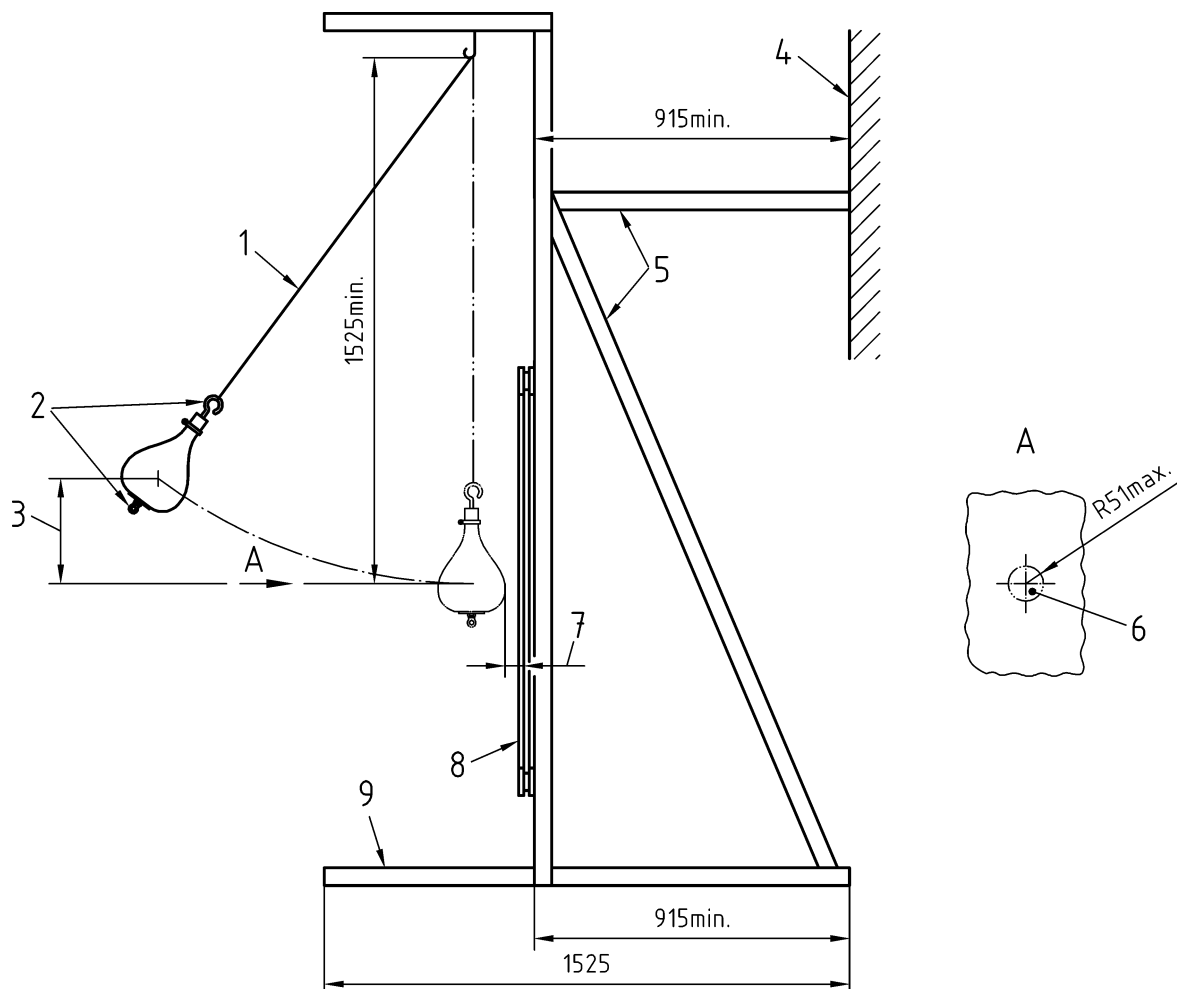


Key

- 1 Impact test frame
- 2 Alternative frame braces
- 3 Impactor
- 4 Sub-frame with test piece

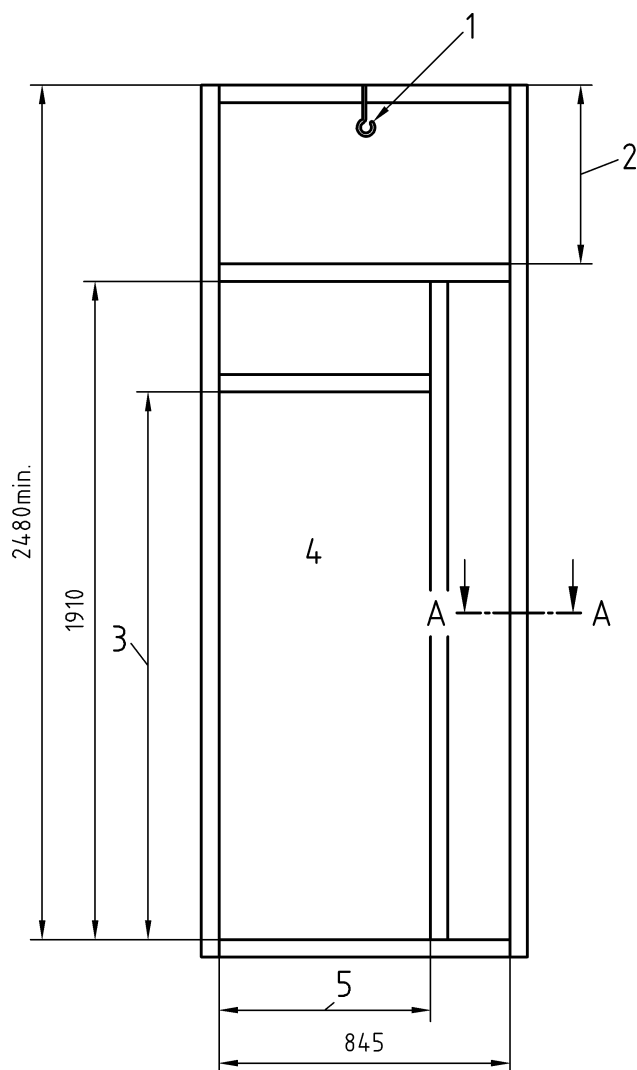
Figure 7 — General arrangement of apparatus

Dimensions in millimetres

**Key**

- 1 Stronded steel cable $\approx \varnothing 3$ mm
- 2 Bridle for lifting shot bag
- 3 Drop height 305 mm
- 4 Concrete wall, steel beam or other sturdy construction
- 5 Alternative means of bracing frame, use one brace at each vertical member
- 6 Centre lines of test piece to be within these limits
- 7 Max. 13 mm when bag is hanging free
- 8 Test piece
- 9 Bolt securely to floor

Figure 8 — Impact test structure (side elevation)

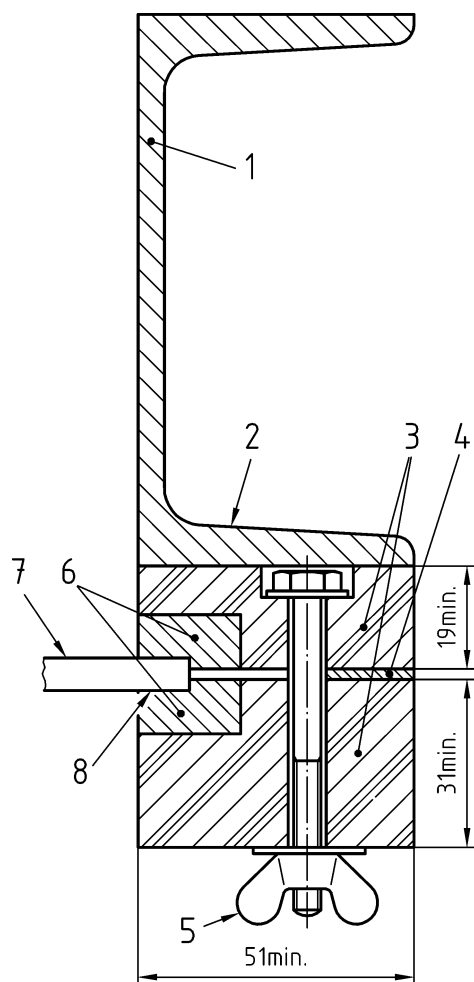
**Key**

- 1 Swivel attachment, locate at vertical centre line of test piece and a minimum of 1 525 mm above horizontal centre line of the impactor (see Figure 8)
- 2 This portion of frame is not required if swivel attachment is mounted on separate construction
- 3 Height of test piece minus 20 mm
- 4 Sub-frame members for test piece < 865 mm x 1 930 mm
- 5 Width of test piece minus 20 mm

NOTE Sub-frame for holding test piece not shown.

Figure 9 — Impact test structure (front elevation)

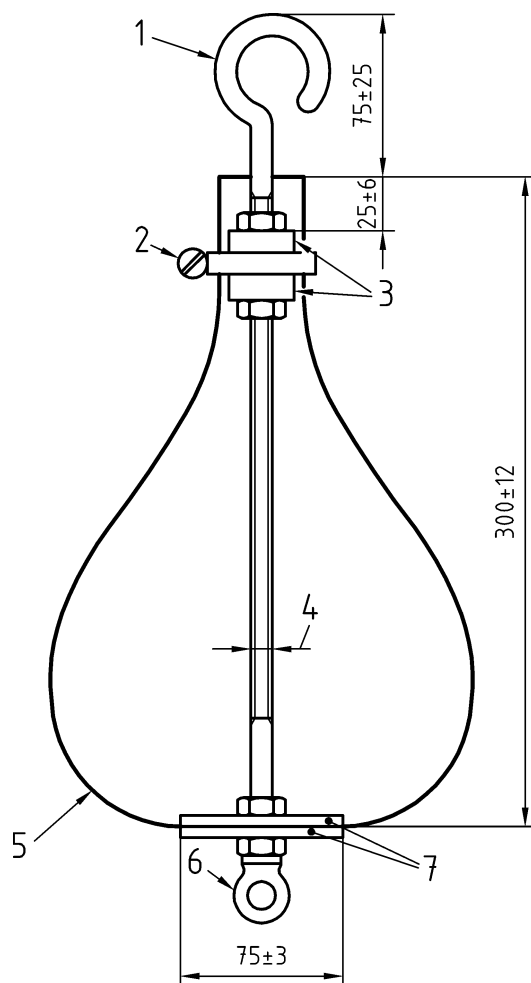
Dimensions in millimetres

**Key**

- 1 Test frame (102 mm x 51 mm steel channel or equivalent)
- 2 Fixing of sub-frame to test frame not shown
- 3 Sub-frame (wood or other suitable material)
- 4 Spacer to limit compression of chloroprene strips (see 5.2.1 b))
- 5 Bolts, toggle clamps or similar fixing devices to hold sub-frame together
- 6 10 mm x 19 mm chloroprene or similar strips
- 7 Test piece
- 8 Clamping depth (10 ± 3 mm)

Figure 10 — Clamping of test piece (section A - A of Figure 9)

Dimensions in millimetres

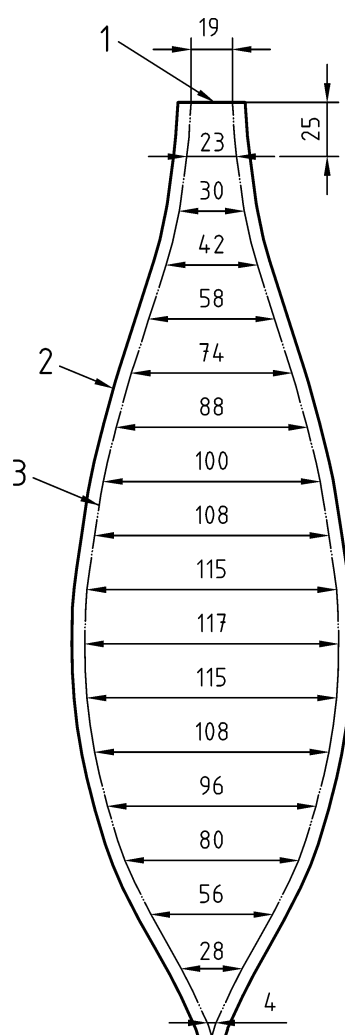


Key

- 1 Rod may be bent as shown or eye nut may be threaded onto rod
- 2 Worm-drive hose clamp
- 3 25 mm x Ø 30 mm metal sleeve (series of metal washers may be used)
- 4 M6 to M10 metal rod
- 5 Leather case (see Figure 12)
- 6 Eye nut for lifting bridle
- 7 Metal washers (5 ± 1) mm

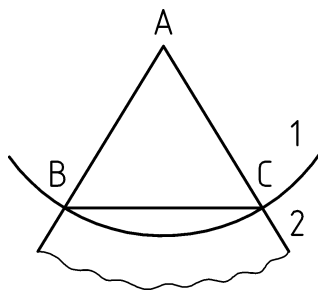
Figure 11 — Impactor

Dimensions in millimetres

**Key**

- 1 Width of panel at intervals of 25 mm
- 2 Surplus leather ≈ 6 mm
- 3 Stitch line

Figure 12 — One panel of six panelled impactor case

**Key**

- 1 Arc of circle with radius $AB = AC = 25 \text{ mm}$
- 2 Chord $BC \geq 25 \text{ mm}$

Figure 13 — Test result**5.3 Resistance to chemicals and stains****5.3.1 Reagents**

a) reagents

The list of reagents is given in Table 1. Each solution shall be prepared immediately before use with de-ionised water, and applied at a temperature of $(23 \pm 5) ^\circ\text{C}$.

Table 1 — Reagents

Family	Product	Concentration
Acids	Acetic acid (CH_3COOH)	10 % V/V
Alkalis	Sodium hydroxide (NaOH)	5 % m/m
Alcohols	Ethanol ($\text{C}_2\text{H}_5\text{OH}$)	70 % V/V
Bleaches	Sodium hypochlorite (NaOCl)	5 % active chlorine (Cl_2) ^a
Staining agents	Methylene Blue	1 % m/m

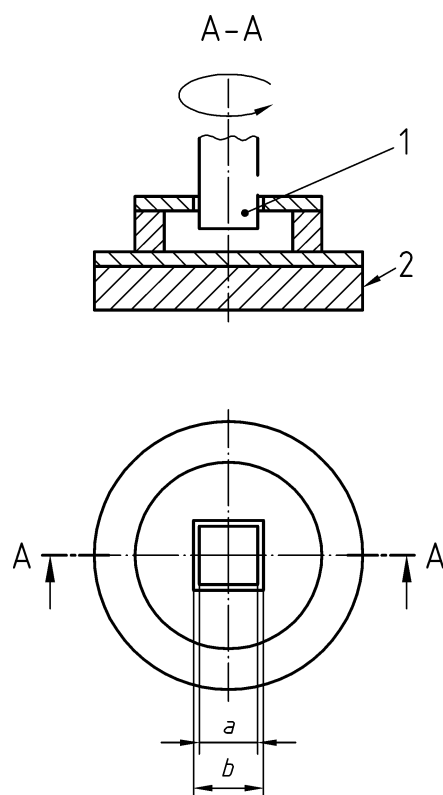
^a The specified bleach may be replaced by sodium percarbonate ($2 \text{ Na}_2\text{CO}_3 \cdot 3 \text{ H}_2\text{O}_2$) prepared as follows: Dissolve 1 g of a commercial available powdery bleach based on sodium percarbonate containing 15 % to 30 % of the active component in 100 ml deionised water at room temperature.

b) Abrasive comprising 12 h-alumina (suspension of aluminium oxide in water)¹⁾.**5.3.2 Apparatus**

- a) Borosilicate watch glasses, nominal diameter 40 mm;
- b) pipettes;
- c) cleaning device.

1) A suitable product is available from MERCK Eurolab-Prolabo, 54 rue Roger Salengro, 94126 Fontenay sous Bois CEDEX, France, as DURMAXTM under product description N° 20993. This information is given for the convenience of users of this standard and does not constitute an endorsement by CEN of this product.

This device is shown in Figure 14, consisting of synthetic flexible open cell foam disc of 75 mm diameter and 15 mm thickness. This appliance is driven by means of a square axle which loosely fits into the device. Use any rotating device having a mass of $(1\,000 \pm 50)$ g.



Key

- 1 Square axle
- 2 Foam
- a* inner dimension
- b* outer dimension
- $a = b - 1 \text{ mm}$

Figure 14 — Cleaning device

5.3.3 Test specimens

Any flat surface from the glazing shall be taken. Test specimens shall measure at minimum (100 ± 5) mm x (100 ± 5) mm. For curved sheets, a sample of an unformed flat sheet of the same material shall be used.

5.3.4 Procedure

- Use a separate test area or test specimen for each reagent test.
- Clean the test area thoroughly with hot soapy water, rinse and dry with a clean dry cloth.
- On each test specimen deposit a drop of the test solution. Cover the drop thus formed with a watch glass, concave face downwards. The drop shall be completely covered by the watch glass. Allow to act for a time of $(2 \pm 0,25)$ h, at a temperature of (23 ± 5) °C with the test areas protected from sunlight.
- Thoroughly rinse the test specimen with deionised water and check for adverse changes in appearance by visual examination. If deterioration exists, dip the foam disc of the cleaning device into deionised water and place it on the surface to be cleaned. Rotate the device at 60 min^{-1} . Clean for 30 revolutions.

- Rinse with de-ionised water and visually examine the test area. If deterioration persists repeat the cleaning with the 12 h-alumina and re-examine the test specimen.

5.3.5 Expression of results

Note whether or not the reagent causes a stain or deterioration, and whether or not such stain or deterioration is removed with water or abrasive agent.

5.4 Resistance to wet and dry cycling

5.4.1 Test specimens

Test specimens shall be (100 ± 2) mm square. Prior to commencing the test examine the show faces of the test specimens and mark any surface defects.

5.4.2 Procedure

- Place a minimum of three test specimens vertically in a suitable carrier and place the carrier in a suitable open container. The carrier shall be arranged to avoid contact of one test specimen with another.
- Pour 2 l of water with a temperature of (85 ± 1) °C into the container. The test specimens shall be completely immersed.
- Leave the test specimens in the water for $(8 \pm 0,25)$ h whilst allowing cooling to room temperature.
- Remove the test specimens from the water, wipe the surfaces with a soft damp cloth and place the test specimens for drying into an oven for $(16 \pm 0,5)$ h at temperature of (50 ± 2) °C. Ensure that specimens do not touch the oven walls or each other.
- Repeat this cycle 20 times using the same test specimens. In the event of an interruption of the test procedure, e.g. over the weekend, leave the test specimens in the oven at a temperature of (50 ± 2) °C.
- After 20 cycles brush over the show face of each test specimen with a solution of eosine (100 g/l in water) to which is added 1 cm³/l of liquid detergent using a soft sponge or a paint brush. Leave the solution for (5 ± 1) min, then remove from the surface by wiping with a clean soft dampened cloth.

5.4.3 Results

Verify and record any adverse changes in appearance (blisters, crazing, cracks etc.) by visual examination and by the presence of traces of eosine, ignoring the 3 mm width along each side to exclude any influence caused by the cut edge.

5.5 Endurance

- Install the shower enclosure in accordance with the manufacturer's installation instructions.
- Fix, at the opening edge of the door on a stable point, a means of automatically opening and closing the door. Ensure a steady velocity of (15 ± 5) cycles/min can be maintained with the door being opened/closed over a distance of (70 ± 10) % of the opening range of the door.
- Subject the door to 20 000 opening/closing cycles.
- On completion of test check that the door still functions correctly.

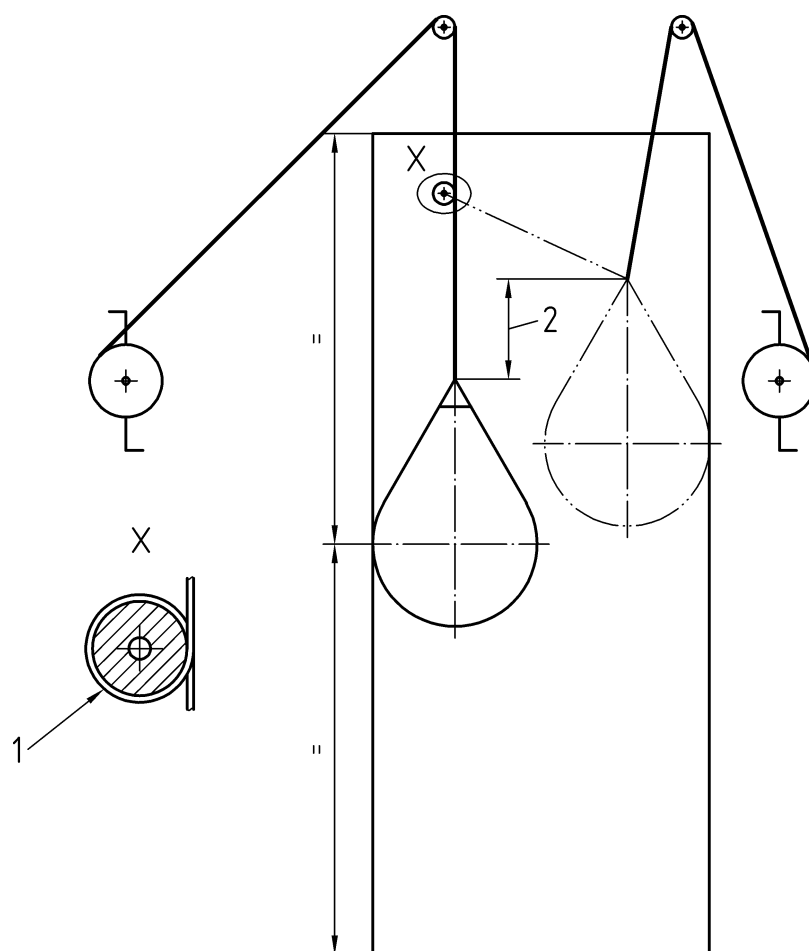
NOTE It is permissible to lubricate any guide or roll facilities in accordance with the manufacturer's maintenance instructions.

5.6 Stability

- Install the shower enclosure in accordance with the manufacturer's installation instructions.
- Carry out the test as described in ISO 7892:1988, 4.5 with the impact body falling inside the shower enclosure with an energy specified in Table 2. The impact body shall drop on each panel and/or door on its geometric centre (see Figure 15). If dimensions of shower enclosures do not allow the necessary drop height to reach the maximum energy given in Table 2, perform the test with the maximum drop height excursion angle of 65°.
- Check for any functional deterioration which could result in injury to the user.

Table 2 — Energy for stability test

Distance to the opposite wall/panel mm	Energy to be applied, J	Falling height of impact body h cm
≤ 600	63	13
≤ 700	94	19
≤ 800	125	25
> 800	135	28



Key

- 1 Wound cable
- 2 Falling height h according to Table 2

Figure 15 — Stability test arrangement

5.7 Water retention

- Install the shower enclosure in accordance with the manufacturer's installation instructions.
- Tests A and B shall be run consecutively using the test shower head in accordance with Figure 18 and water at a temperature not exceeding 38 °C.
- Adjust the flow rate to (11 ± 1) l/min.

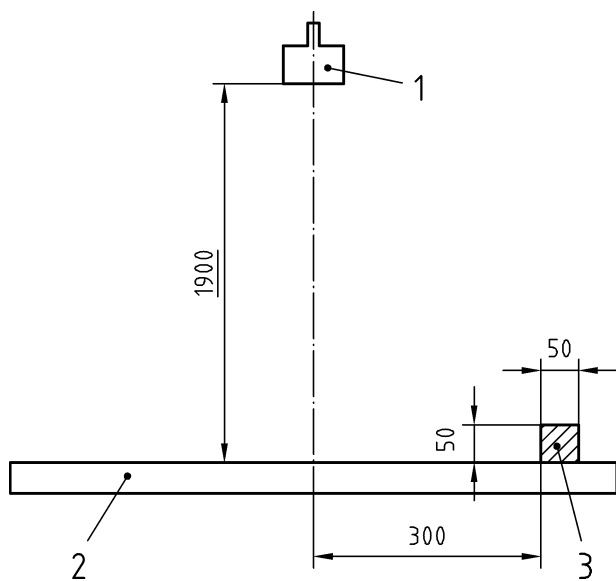
Test A:

- Spray for 1 min across the width and height of all door(s)/panel(s) of the shower enclosure at 90° to their surface from a distance of 30 cm using the test shower head. Restrict the spray to the area within 30 cm below the top of the door(s)/panel(s) and 30 cm above the bottom of the door(s)/panel(s).
- Note the appearance of any leaks from the water retaining area.

Test B:

- Install the shower enclosure in accordance with the manufacturer's installation instruction on a raised 50 mm x 50 mm wall or shower tray with a minimum bowl depth of 50 mm. If the shower enclosure is designed for a specific shower tray, that shower tray shall be used for test.
- Mount the test shower head at a height of 1900 mm and set back at a distance of 300 mm from the centre of the door opening (see Figures 16 and 17).
- Direct the shower head vertically downwards and with the door closed spray the shower place floor for a period of 3^{+1}_0 min.
- Note the appearance of any leaks from the water retaining area.

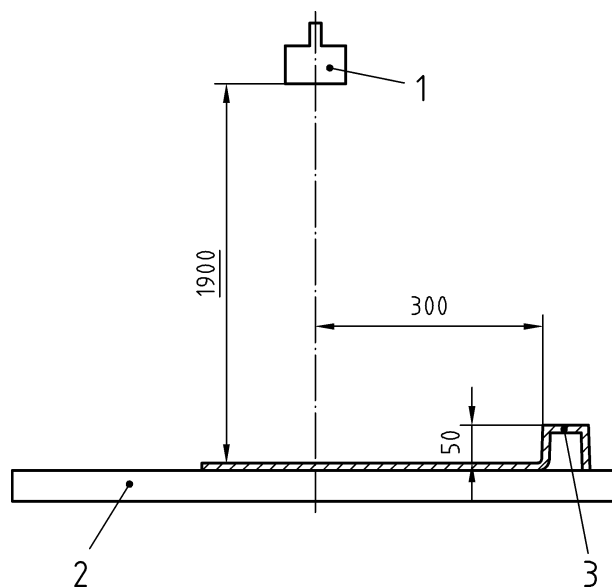
Dimensions in millimetres



Key

- 1 Test shower head
- 2 Shower place
- 3 Balk

Figure 16 — Test on shower place

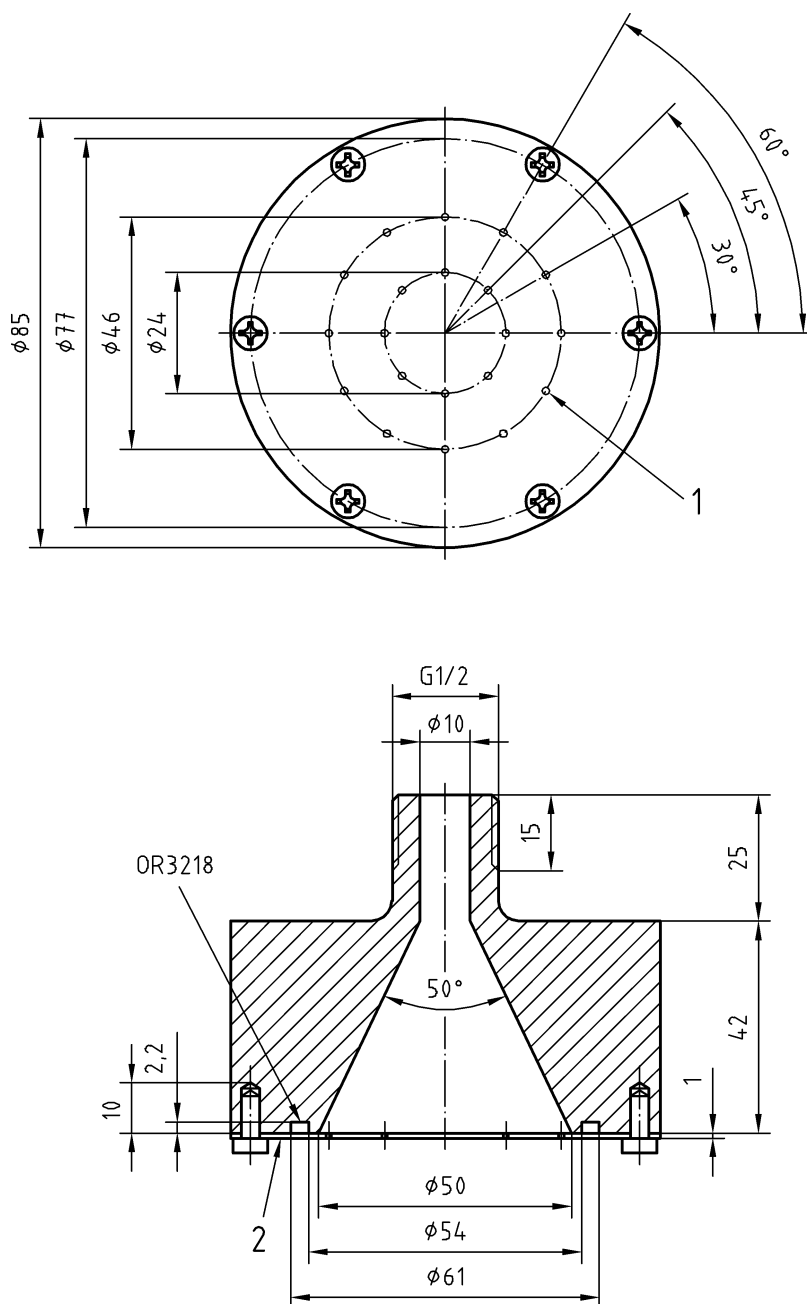


Key

- 1 Test shower head
- 2 Support for shower tray
- 3 Shower tray

Figure 17 — Test on shower tray

Dimensions in millimetres

**Key**

- 1 Twenty holes $\phi 1,5$ mm
- 2 Metal plate of thickness 1 mm fixed on the test shower head body

Figure 18 — Test shower head

6 Marking

NOTE For CE marking, see ZA.3.

7 Evaluation of conformity

7.1 General

The compliance of a shower enclosure with this standard shall be demonstrated by:

- initial type testing (see 7.2);
- factory production control by the manufacturer (FPC), including product assessment (see 7.3).

7.2 Initial type testing

7.2.1 General

Type testing shall be performed before the product is put on the market for the first time and each time when its characteristics are changed.

When characteristics are determined on the basis of conformity with other product standards, the manufacturer shall ensure that the products themselves have undergone appropriate type testing to ensure the adequacy of the stated performance.

NOTE All characteristics given in Annex ZA are subject to type testing, with the following exceptions: release of dangerous substances, which may be assessed indirectly by controlling the content of the substance concerned.

7.2.2 Samples, testing and compliance criteria

The shower enclosure shall be subjected to and pass the relevant tests in Table 3.

Table 3 — Type testing

Characteristic to be tested	Assessment method according to clauses of this document	Number of samples	Compliance criteria
Cleanability	4.2	1	4.2
Impact resistance/shatter properties	5.1, 5.2	1	4.3
Corrosion resistance	4.4.2	1	4.4.2
Resistance to chemicals and stains	5.3	1	4.4.3
Resistance to wet and dry cycling	5.4	1	4.4.4
Endurance	5.5	1	4.4.5
Stability	5.6	1	4.4.6
Water retention	5.7	1	4.4.7

7.3 Factory production control

7.3.1 General

The manufacturer shall establish, document and maintain a factory production control (FPC) system to ensure that the products placed on the market conform with the stated performance characteristics. The FPC system shall consist of procedures, regular inspections and tests and/or assessments and the use of the results to control raw and other incoming materials or components, equipment, the production process and the product.

A FPC system conforming with the requirements of the relevant part(s) of EN ISO 9000 series, and made specific to the requirements of this document, is considered to satisfy the above requirements.

The results of inspections, tests or assessments requiring action shall be recorded. The action to be taken when control values or criteria are not met shall be recorded.

7.3.2 Test equipment

All weighing, measuring and testing equipment shall be calibrated and regularly inspected according to documented procedures, frequencies and criteria.

7.3.3 Raw materials and components

The specifications of all incoming raw materials and components shall be documented, as shall the inspection scheme for ensuring their conformity.

7.3.4 Product testing and assessment

The manufacturer shall establish and document procedures to ensure that the stated values of all of the characteristics are maintained.

7.3.5 Non-conforming products

If during the factory production control non-conforming products are detected, there shall be immediately implemented measures for correction of failure(s) and handling defective products.

Annex ZA (informative)

Clauses of this European Standard addressing the provisions of EU Construction Products Directive

ZA.1 Scope and relevant characteristics

This European Standard has been prepared under Mandate M/110²⁾ given to CEN by the European Commission and the European Free Trade Association.

The clauses of this European Standard, shown in this annex, meet the requirements of the Mandate given under the EU Construction Products Directive (89/106/EEC).

Compliance with these clauses confers a presumption of fitness of the shower enclosure covered by this annex for the intended use; reference shall be made to the information accompanying the CE marking.

WARNING — Other requirements and other EU Directives, not affecting the fitness for intended use, can be applicable to the product falling within the scope of this European Standard.

NOTE 1 In addition to any specific clauses relating to dangerous substances contained in this Standard, there may be other requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provision of the EU Construction Products Directive, these requirements need also to be complied with, *when and where* they apply.

NOTE 2 *An informative database of European and national provisions on dangerous substances is available at the Construction web site on EUROPE (accessed through <http://europa.eu.int/comm/enterprise/construction/internal/dangsub/dangmain.htm>).*

The scope of this annex is the same scope as Clause 1 of this standard and is defined by Table ZA.1.

Table ZA.1 — Scope and relevant clauses

Construction Product: Shower enclosure, as covered by the scope of this standard			
Intended uses: Personal hygiene			
Essential Characteristics	Requirement/clauses in this European Standard	Mandated levels and/or classes	Notes
Cleanability	4.2	None	Pass/fail
Impact resistance/shatter properties	4.3	None	Pass/fail
Durability	4.4	None	Pass/fail

The requirement on a certain characteristic is not of application in those Member States where there are no regulatory requirements on that characteristic for the intended use of the product. In this case, manufacturers placing their products in the market of these Member States are not obliged to determine nor declare the performance of their products with regard to this characteristic and the option "No performance determined" (NPD) in the information accompanying the CE marking (see ZA.3) may be used. The NPD option may not be used, however, where the characteristic is subject to a threshold level.

²⁾ Mandate M/110 "Sanitary Appliances" as amended by M/139

ZA.2 Procedure for attestation of conformity of shower enclosures

ZA.2.1 System of attestation of conformity

The system of attestation of conformity of the shower enclosures indicated in Table ZA.1, in accordance with the Decision of the Commission 96/578/EEC of 1996-06-24 as amended by the Commission Decision 07/596/EC of 2001-01-08 and given in annex III of the Mandate for "Sanitary Appliances" is shown in Table ZA.2 for the indicated uses and relevant level(s) or class(es).

Table ZA.2 — System of attestation of conformity

Product	Intended uses	Level(s) or class(es)	Attestation of conformity system
Shower enclosure	Personal hygiene	-	4
System 4: See Directive 89/106/EEC, Annex III.2 (ii), third possibility			

The attestation of conformity of the shower enclosures in Table ZA.1 shall be used on the evaluation of conformity procedure indicated in Table ZA.3 resulting from application of the clauses of this European Standard indicated therein.

Table ZA.3 — Assignment of evaluation of conformity tasks

Tasks		Content of the task	Evaluation of conformity clauses to apply
Task for the manufacturer	Initial type testing	All characteristics of Table ZA.1	7.2
	Factory production control	Parameters related to all characteristics of Table ZA.1	7.3

ZA.2.2 Certificate and Declaration of conformity

When compliance with this annex is achieved, the manufacturer or his agent established in the EEA shall prepare and retain a declaration of conformity (EC Declaration of conformity) which entitles the manufacturer to affix the CE marking. This declaration shall include:

- name and address of the manufacturer, or his authorised representative established in the EEA, and place of production;
- description of the product (type, identification, use,...) and a copy of the information accompanying the CE marking;
- provisions to which the product conforms (e.g. annex ZA of this European Standard);
- particular conditions applicable to the use of the product, e.g. provision for use under certain conditions;
- name of, and position held by, the person empowered to sign the declaration on behalf of the manufacturer or his authorised representative.

The above mentioned declaration and certificate shall be presented in the official language or languages of the Member State in which the product is to be used.

ZA.3 CE marking and labelling

The manufacturer or his authorised representative established within the EEA is responsible for the affixing of the CE marking. The CE marking symbol shall be in accordance with Directive 93/68/EEC and shall be shown on the shower enclosure (or when not possible it may be on the accompanying label, packaging or on the accompanying commercial documents, e. g. delivery note).

If on the shower enclosure appears only "CE", then the information given below shall be given on the accompanying label, packaging or on the accompanying commercial documents, e. g. delivery note.

The following information shall accompany the CE marking symbol:

- name or identifying mark and registered address of the manufacturer;
- the last two digits of the year in which the marking is affixed;
- number of the EC Certificate of conformity or factory production control (if relevant);
- reference to this European Standard;
- description of the product: generic name, material, dimensions ... and intended use;
- information on those relevant characteristics listed in Table ZA.1 which are to be declared presented as:
 - declared values and, where relevant, level or class (including "pass" for pass/fail requirements, where necessary) to declare for each essential characteristic as indicated in "Notes" in Table ZA.1.
 - "No performance determined" for characteristic where this is relevant.
 - as an alternative, a standard designation which shows some or all of the relevant characteristics (where the designation covers only some characteristics, it will need to be supplemented with declared values for other characteristics as above).

The NPD option may not be used where the characteristic is subject to a threshold level. Otherwise, the NPD Option may be used when and where the characteristic for a given intended use, is not subject to regulatory requirements in the Member State of destination.

Figures ZA.1 gives an example of the information to be given on the packaging and/or commercial documents.

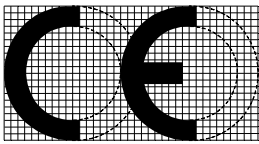
	CE marking, consisting of the "CE" symbol given in Directive 93/68/EEC
AnyCo Ltd, PO Box 21, B-1050 05	Name of identifying mark and registered address of the manufacturer Last two digits of the year in which the marking was affixed
<p style="text-align: center;">EN 14428</p> Shower enclosure, made of a certain glazing material Cleanability : Pass Impact resistance/shatter properties : Pass Durability : Pass	Number of European Standard Description of product and information on regulated characteristics

Figure ZA.1 — CE marking information

In addition to any specific information relating to dangerous substances shown above, the product should also be accompanied, when and where required and in the appropriate form, by documentation listing any other legislation on dangerous substances for which compliance is claimed, together with any information required by that legislation.

NOTE European legislation without national derogations does not need to be taken into account.

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