BS EN 15719:2015

BSI Standards Publication

Sanitary appliances — Baths made from impact modified coextruded ABS/acrylic sheets — Requirements and test methods

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National foreword

This British Standard is the UK implementation of EN 15719:2015. It supersedes BS EN 15719:2009 which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee B/503, Sanitary appliances.

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

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Sanitärausstattungsgegenstände - Badewannen, hergestellt aus schlagzäh-modifizierten coextrudierten ABS/Acrylplatten - Anforderungen und Prüfverfahren

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European foreword

This document (EN 15719:2015) 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of an identical text or by endorsement, at the latest by May 2016, and conflicting national standards shall be withdrawn at the latest by May 2016.

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 15719:2009.

The only change from the previous edition is in A.7.3 where “50 %” has been changed to “25 %”.

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

1 Scope

This European Standard specifies requirements for baths for domestic purposes made from impact modified coextruded ABS/acrylic sheets conforming to EN 13559 with the aim of ensuring that the product, when installed in accordance with the manufacturer's instructions, will provide satisfactory performance in use.

This European Standard is applicable to all sizes and shapes of baths.

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 232, *Baths — Connecting dimensions*

EN 13559:2003, *Specifications for impact modified coextruded ABS/Acrylic sheets for baths and shower trays for domestic purposes*

ISO 4586-2:2004, *High-pressure decorative laminates — Sheets made from thermosetting resins — Part 2: Determination of properties*

3 Terms and definitions

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

3.1
domestic purposes
use in homes, hotels, accommodation for students, hospitals and similar buildings, except when special medical provisions are required

4 Requirements

4.1 General

The manufacturer shall provide instructions for installation and care with each bath.

The bath shall be free from sharp edges that would be exposed after the installation of the bath in accordance with the manufacturer’s instructions.

4.2 Material

The bath shall be manufactured from impact modified coextruded ABS/acrylic sheet material complying with EN 13559.

4.3 Surface appearance

When the bath is visually inspected under strong and oblique illumination there shall be no evidence of cracks, chips, or other surface defects, such as unexpected changes in colours, etc. that will impair the appearance or performance of the bath.

4.4 Waste outlet hole

The bath shall have at least one outlet hole. The dimensions of the waste outlet hole and the clearance around the waste outlet hole shall either be in accordance with the requirements of EN 232 or the manufacturer shall supply or recommend a suitable waste outlet fitting.

4.5 Overflow hole

When the bath is provided with an overflow hole the dimensions of the overflow hole and the clearance around the overflow hole shall either be in accordance with the requirements of EN 232 or the manufacturer shall supply or recommend a suitable overflow fitting.

4.6 Hole edges

The edges of any holes in the bath shall not show evidence of chips, cracks, or any other defects that may impair the appearance or performance of the bath.

4.7 Bath-mounted tapware

When the bath is intended to accommodate bath-mounted tapware the space and area provided shall either comply with the requirements of EN 232 or the manufacturer shall supply or recommend a suitable tapware.

4.8 Handgrips

When a handgrip(s) is fitted it shall be tested in accordance with A.6 and the bath and the handgrip shall be free from any permanent deformation or other defects that will impair the functioning and/or the appearance of the bath.

If not pre-fitted by the manufacturer, the manufacturer's instructions shall indicate how and where the handgrips are fitted.

4.9 Dimensional deviations

The dimensions of baths shall not deviate from the size quoted by the manufacturer by greater than ± 5 mm.

If the manufacturer states two sizes (e.g. both a work size and a nominal size) he shall state to which size the permitted deviations apply.

For round baths, length and width correspond to the diameter.

4.10 Geometric deviations

4.10.1 General

The straight sides or edges of the bath that might abut independent surroundings or supporting structures shall comply with the requirements of 4.10.2 to 4.10.4 and all baths shall comply with 4.10.5. These requirements are not applicable to sides or edges that are purposely designed as curves or slopes.

4.10.2 Squaring

When tested in accordance with A.2.2 the deviation from square, Δq, shall be less than or equal to 5 mm.

4.10.3 Straightness of the rim sides

When tested in accordance with A.2.3 the deviation from straightness of the rim sides, Δs, shall be less than or equal to 5 mm.

4.10.4 Straightness of the bottom edge of the rim

When tested in accordance with A.2.4 the deviation from straightness of the bottom edge of the rim, Δr, shall be less than or equal to 5 mm.

4.10.5 Flatness of the top surface of the rim

When tested in accordance with A.2.5 the deviation from flatness of the top surface of the rim, *c*, shall be less than or equal to 5 mm.

4.11 Bottom of the bath

When the bath is installed in accordance with the manufacturer's instructions and the waste outlet hole is open, all water shall empty from the bath unless prevented by surface tension.

4.12 Resistance to temperature changes

When tested in accordance with A.3 baths shall show no evidence of distortion or other defects that impair the appearance or functioning of the bath and any deflection shall be less than or equal to 4 mm.

4.13 Resistance to impact

When tested in accordance with A.4 the bottom and the rim of the bath shall show no evidence of distortion or other defects that impair the appearance or functioning of the bath.

4.14 Permitted deflections

When tested in accordance with A.5 the deflections shall be less than or equal to the values given in Table 1.

Table 1 — Permitted deflections

Test method	**Maximum deflections [a] under load and permitted residual deflections for installation methods [b]** mm				
	a)	**b)**	**c)**	**d)**	**e)**
A.5.5	≤ 1 on the four free rims ≤ 2 on the bottom	≤ 1 on the three free rims ≤ 0,5 on the fixed rim ≤ 2 on the bottom	≤ 1 on the two free rims ≤ 0,5 on the two fixed rims ≤ 2 on the bottom	≤ 1 on the free rim ≤ 0,5 on the three fixed rims ≤ 2 on the bottom	≤ 0,5 on all rims ≤ 2 on the bottom
A.5.6	≤ 2 on the four free rims ≤ 3 on the bottom	≤ 2 on the three free rims ≤ 0,5 on the fixed rim ≤ 3 on the bottom	≤ 2 on the two free rims ≤ 0,5 on the two fixed rims ≤ 3 on the bottom	≤ 2 on the free rim ≤ 0,5 on the three fixed rims ≤ 3 on the bottom	≤ 0,5 on all rims ≤ 3 on the bottom
A.5.7	≤ 4 on the rim ≤ 0,3 residual	≤ 4 on the rim ≤ 0,3 residual	≤ 4 on the rim ≤ 0,3 residual	≤ 4 on the rim ≤ 0,3 residual	Not applicable
A.5.8	≤ 4 on the rim ≤ 0,3 residual	≤ 4 on the rim ≤ 0,3 residual	≤ 4 on the rim ≤ 0,3 residual	Not applicable	Not applicable

[a] Values in addition to any deflection of the test rig (see A.5.2).

[b] See A.5.3.

4.15 Bath rims

When a bath incorporating a nominally flat top surface of the rim is installed in accordance with the manufacturer’s instructions, the rim shall not encourage water to drain away from the inside of the

bath. Roll top rims and rims incorporating special features, e.g. headrests, are not subject to this requirement.

4.16 Surface mechanical resistance

When tested in accordance with A.7, any scratch shall not exceeded 0,1 mm or the total thickness of the top layer whichever is the least.

4.17 Chemical and stain resistance

When tested in accordance with EN 13559:2003, 5.4, baths shall show no permanent staining or deterioration.

5 Marking

Baths shall be legibly marked with the following information:

a) reference to this European Standard (EN 15719);

b) the name or trademark of the manufacturer or supplier.

Annex A
(normative)

Bath test methods

A.1 Sequence of tests

The tests shall be carried out on one bath of each type in the sequence A.2, A.3, A.5, A.4, A.6, A.7.

A.2 Geometric deviations

A.2.1 Test apparatus

a) length measuring device with an accuracy of 0,5 mm;

b) reference plane surface with flatness tolerance of 0,5 mm;

c) fixed square: fixed to the reference plane surface, at least 25 mm deeper than the depth of the rim side to be measured, one arm at least 300 mm longer than the length to be measured and the other arm at least as long as the width to be measured;

d) movable square: at least 25 mm deeper than the depth of the rim side to be measured, one side at least 300 mm long and the other side at least as long as the width to be measured;

e) thickness comparator or gauge with an accuracy of ± 0,1 mm;

f) spacing rollers made of metallic materials: at least 25 mm deeper than the depth of the rim side to be measured and with a diameter D_{sr} with a tolerance of ± 0,25 mm;

g) thickness wedge with a thickness of $5\,^{0}_{-0,1}$ mm.

A.2.2 Squaring

Place the bath upside down on the reference plane surface as shown in Figure A.4, compensating for any design features, e.g. headrests.

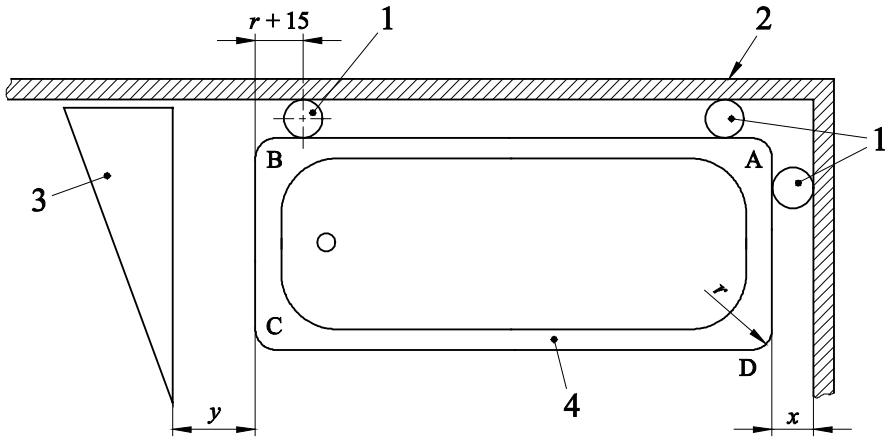
Position sides AB and AD adjacent to the fixed square and place three spacing rollers with diameter D_{sr} each in at a distance of r + 15 mm from the corners A and B, as shown in Figure A.1, where r is the radius of the corners. Measure the distance x between the corner D and the fixed square and calculate Δq as the difference $D_{sr} - x$.

Position the movable square along the side BC and place a fourth spacing roller at a distance of r + 15 mm from the corner B. Measure the distance y between the corner C and the movable square and calculate Δq as the difference $D_{sr} - y$.

Turn the bath through 180° and check the distances x and y at corners A and B respectively.

Record the deviation.

Dimensions in millimetres



Key

1 rollers

2 fixed square

3 movable square

4 bath

r radius of the corner

x distance between corner and the fixed square

y distance between corner and the moveable square

Figure A.1 — Squaring

A.2.3 Straightness of the rim side

Place the bath upside down on the reference plane surface as shown in Figure A.4, compensating for any design features, e.g. headrests.

Position two spacing rollers with diameter D_{sr} between the rim side of the bath and one side of the fixed square, each at a distance of r + 15 mm from the corners, as shown in Figure A.2, where r is the radius of the corners.

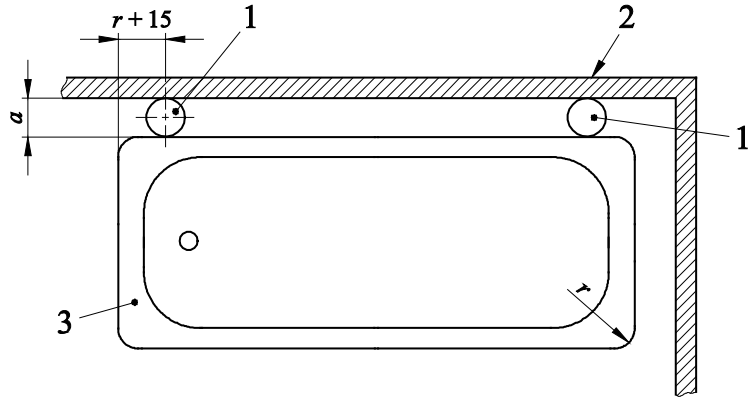
Measure the maximum and minimum distances a_{max} and a_{min} between the rim side and the fixed square using the thickness comparator or gauge.

Calculate the deviation Δs as the difference $a_{max} - a_{min}$.

Record the deviation.

Repeat the procedure for each rim of the bath.

Dimensions in millimetres



Key

1 rollers

2 fixed square

3 bath

r radius of the corner

a distance between the rim side and the fixed square

Figure A.2 — Straightness of the rim side

A.2.4 Straightness of the bottom edge of the rim

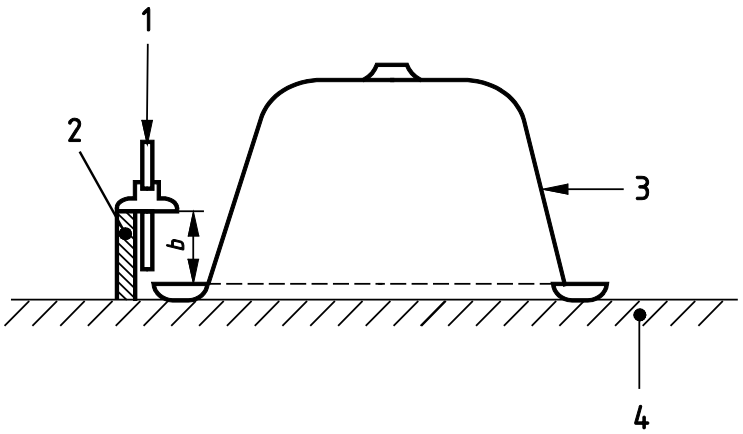
Place the bath upside down on the reference plane surface as shown in Figure A.4, compensating for any design features, e.g. headrests.

Position the bath against the fixed square as shown in Figure A.3.

Measure the maximum and minimum distances b_{max} and b_{min} between the bottom edge of the rim and the top surface of the fixed square using the thickness comparator or gauge.

Calculate the deviation Δr as the difference $b_{max} - b_{min}$.

Record the total deviation.



Key

1 thickness gauge

2 fixed square

3 bath

4 reference plane

b distance between the bottom edge of the rim and top surface of the fixed square.

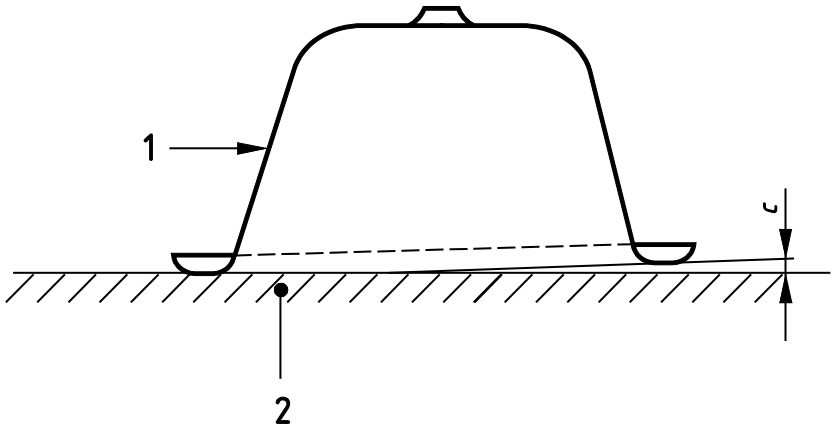
Figure A.3 — Straightness of the bottom edge of the rim

A.2.5 Flatness of the top surface of the rim

Place the bath upside down on the reference plane surface as shown in Figure A.4, compensating for any design features, e.g. headrests.

Check, using the thickness wedge, the deviation *c* by inserting the thickness wedge between the reference plane and the top surface of the rim.

Record the deviation.



Key

1 bath

2 reference plane

c deviation

Figure A.4 — Flatness of the top surface of the rim

A.3 Resistance to temperature change

A.3.1 Test apparatus

a) water supply capable of discharging cold and hot water with temperatures, flow rates and volumes as defined in A.3.2;

b) pipe with nominal diameter of 22 mm;

c) thermometer with an accuracy of ± 1 °C at the measured values;

d) flow meter for measuring a flow rate of water at (0,32 ± 0,032) l/s;

e) dial gauge with an accuracy of 0,1 mm.

A.3.2 Procedure

The bath is submitted successively to tests A and B.

a) Test A

With the waste outlet open, discharge (50 ± 1) l of water through the 22 mm pipe positioned not more than 125 mm above the spillover level of the bath so that the water impinges on the side wall nearest to the waste outlet hole in a position where a supply fitting is likely to discharge. The water temperature at the outlet of the pipe shall be (90 ± 2) °C and the rate of flow into the bath shall be (0,32 ± 0,032) l/s.

Immediately afterwards, discharge (100 ± 2) l of water at (12 ± 3) °C at the same flow rate through the same pipe at the same position but with the waste outlet closed.

Leave the water in the bath for 10^{+1}_{0} min after which the waste outlet is opened and the water allowed to drain away.

b) Test B

Position the dial gauge on the underside of the bath 60 mm from the axis of the waste outlet hole on one or other side of the waste outlet hole on a line at 90° to the axis of the internal bathing area of the bath (see Figure A.5).

With the waste outlet closed, discharge water through the 22 mm pipe positioned not more than 125 mm above the spillover level of the bath so that the water impinges on the side wall nearest to the waste outlet hole in a position where a supply fitting is likely to discharge. The water shall fill the bath to a height not less than 250 mm above the waste outlet level. The water temperature at the outlet of the pipe shall be (75 ± 2) °C and the rate of flow into the bath shall be (0,32 ± 0,032) l/s.

Leave the water in the bath for 10^{+1}_{0} min after which the waste outlet is opened and the water allowed to drain away.

Immediately afterwards, with the waste outlet closed, add the same volume of cold water with a temperature of (12 ± 3) °C at the same flow rate through the same pipe in the same position.

Leave the water in the bath for 10^{+1}_{0} min after which the waste outlet is opened and the water allowed to drain away.

Repeat this procedure 100 times without interruption.

Check any deflection shown by the dial gauge until constant values are reached and at least over the first
ten cycles. Record the maximum value.

After the last cycle apply to the surface of the bath, using a sponge or paint brush, a solution of eosine in water of concentration 100 g/l to which has been added 1 cm^3/l of liquid detergent. Leave for 5^{+1}_{0} min then remove the solution from the surface of the bath by cleaning with a damp cloth.

Visually examine the bath and record any adverse changes in appearance or presence of traces of the eosine solution.

Dimensions in millimetres

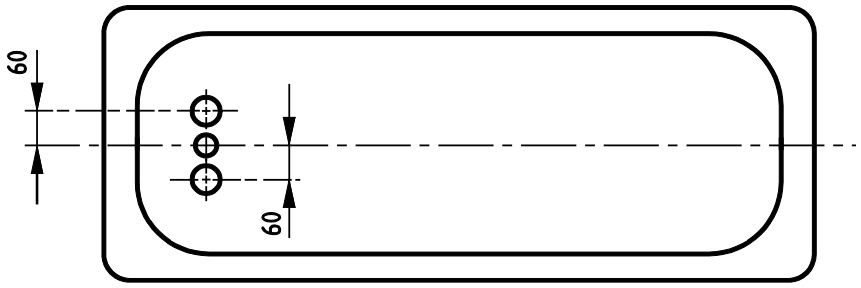


Figure A.5 — Position of the gauge

A.4 Resistance to impact

A.4.1 Test apparatus

a) tubes with lengths of (750 ± 10) mm and (1 000 ± 10) mm and an inner diameter of (55 ± 5) mm;

b) ball made of stainless steel with a mass of (200 ± 5) g and a diameter of approximately 37 mm.

A.4.2 Test procedure

The bath is submitted successively to tests A and B.

a) Test A

Perform the test at the centre and at each end of the flat surface of the bottom of the bath.

Clamp the tube of 1 000 mm length vertically so that it is maintained 1 mm above the flat surface of the bottom of the bath.

Drop the ball through the tube onto the bottom of the bath.

Visually examine both the surface of the bottom of the bath and the underside of the bath.

Record any distortion or other defects that impair the appearance or functioning of the bath.

b) Test B

Clamp the tube of 750 mm length vertically so that it is maintained 1 mm above the flat surface of the rim of the bath.

Drop the ball through the tube onto the rim of the bath.

Repeat this test at two other points on the rim of the bath.

Visually examine both the surface and the underside of the rim of bath.

Record any distortion or other defects that impair the appearance or functioning of the bath.

A.5 Determination of deflections

A.5.1 General

These tests are intended to simulate the effect of loads on different parts of the bath whilst the bath is in use.

Baths can be installed either free-standing or against one, two or three walls. They can be supported on dwarf walls or against one or more walls with the other sides supported by dwarf walls.

The test arrangements a) to e) (see A.5.3) decrease in severity.

Baths conforming with the requirements of Table 1 when tested under more onerous conditions need not be tested again under less onerous conditions, e.g. a bath complying with the requirements in Table 1 when tested free-standing (installation method a)) does not need to be subjected to the less onerous tests described in installation methods b) to e) .

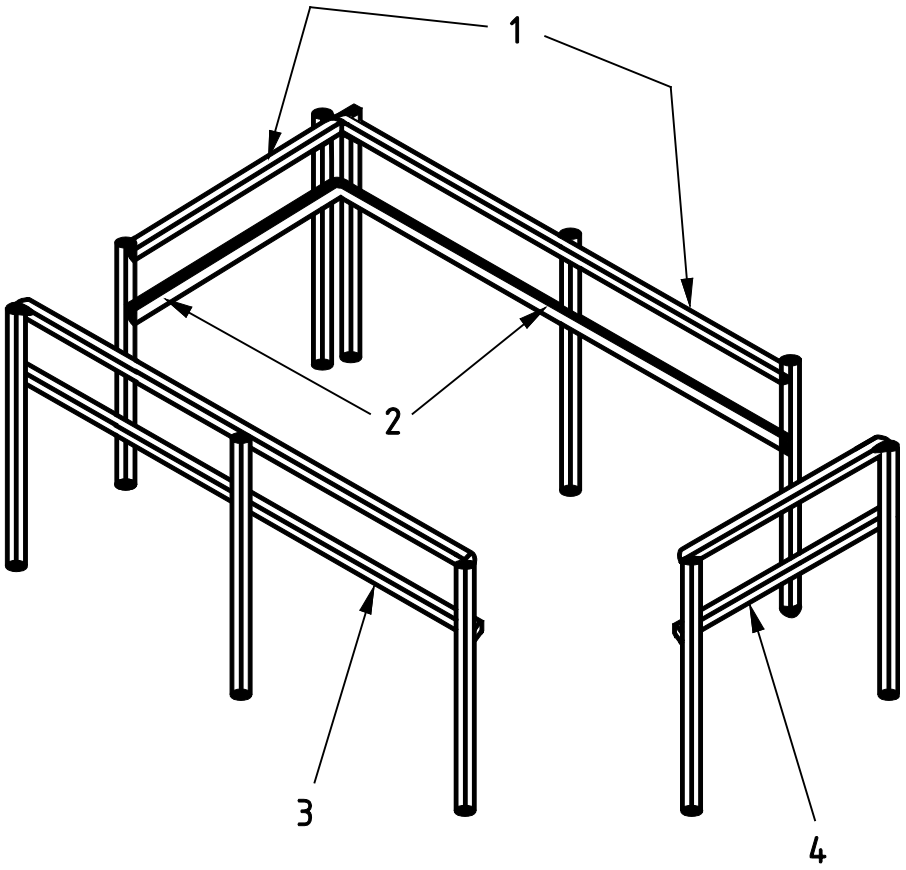
The tests are based on rectangular styled baths. Baths of other shapes shall be tested with the loads and dial gauges positioned at the nearest equivalent points.

A.5.2 Test apparatus

a) test rig. An example of a suitable rig is shown in Figure A.6. The rig should be designed to minimize inherent deflection. The rig and the bath to be tested shall be mounted on a firm, flat horizontal surface. If preferred, solid vertical walls may be used;

b) either six reinforced cloth bags with approximate dimensions 500 mm × 200 mm, filled with lead shot, iron shot or sand, of mass $25\,^{+0,5}_{0}$ kg each or twelve bags of the same dimensions of $12{,}5\,^{+0,25}_{0}$ kg each;

c) five dial gauges capable of reading to an accuracy of 0,1 mm.



Key

1 fixed rigid frame

2 groove in bar for fixing clips

3 mobile rigid frame

4 mobile rigid frame

Figure A.6 — Example of test rig for deflection tests

A.5.3 Installation methods

Install the bath, in accordance with the manufacturer's instructions, as described in a) to e):

a) free standing: Do not use any frames of the test rig or any solid walls (see Figure A.7);

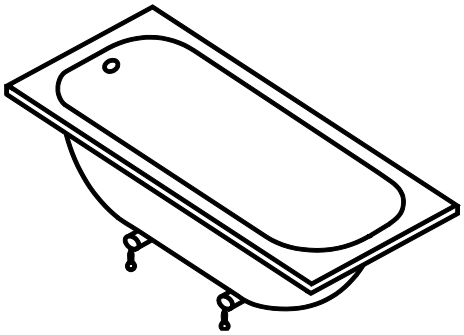


Figure A.7 — Installation method a)

b) fixed to one wall: Use only one frame of the test rig or one solid wall, all free sides shall have no support other than that provided by the manufacturer (see Figure A.8);

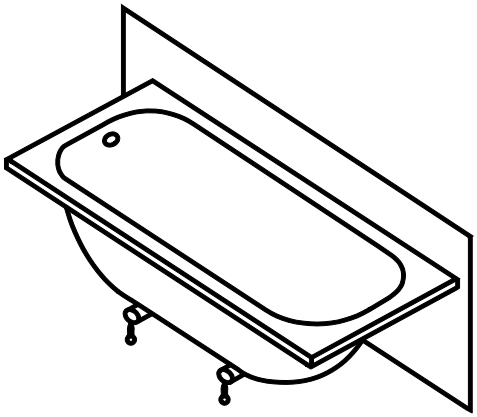


Figure A.8 — Installation method b)

c) fixed to two walls: Use only two frames of the test rig or two solid walls, all free sides shall have no support other than that provided by the manufacturer (see Figure A.9);

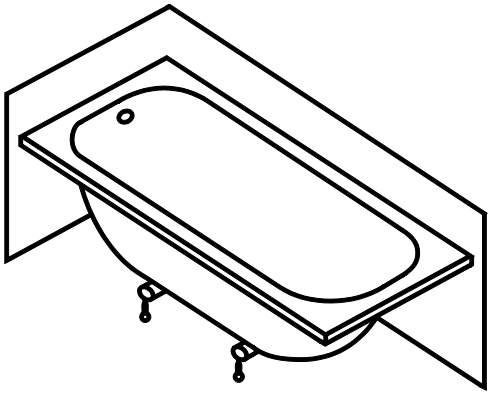


Figure A.9 — Installation method c)

d) fixed to three walls: Use only three frames of the test rig or three solid walls, the free side shall have no support other than that provided by the manufacturer (see Figure A.10);

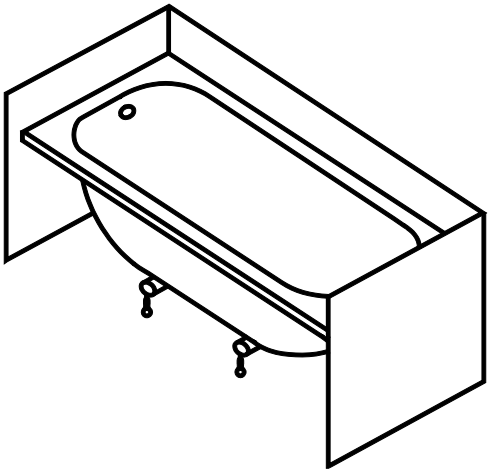


Figure A.10 — Installation method d)

e) fixed on four dwarf walls or against one or more walls with the other sides supported by dwarf walls: Use all frames of the test rig or four solid walls (see Figure A.11);

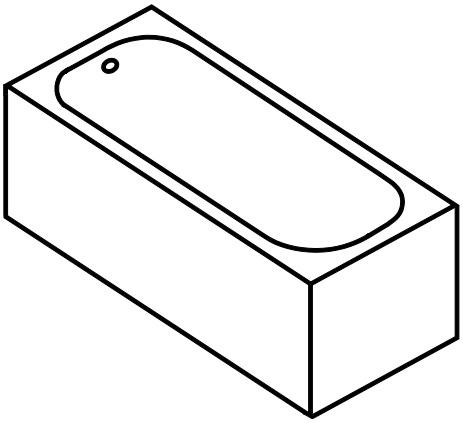


Figure A.11 — Installation method e)

A.5.4 Preloading

Before carrying out the deflection tests, load the bath as described in A.5.5. Leave for 30^{+1}_{0} min, remove the bags, wait 15^{+1}_{0} min, then carry out the tests specified in A.5.5 to A.5.8, allowing not less than 10 min between tests.

A.5.5 Deflection test 1 – Deflection of the rim and the bottom due to a load on the bottom

Install the bath in accordance with the manufacturer's instructions and set up dial gauges under the bath and on or under any unsupported side, at the necessary measuring points marked in Figure A.12.

Record the initial readings of the dial gauges.

Place the bags carefully along the bottom of the bath as shown in Figure A.12. If twelve bags are used they shall occupy the same surface area as the six bags.

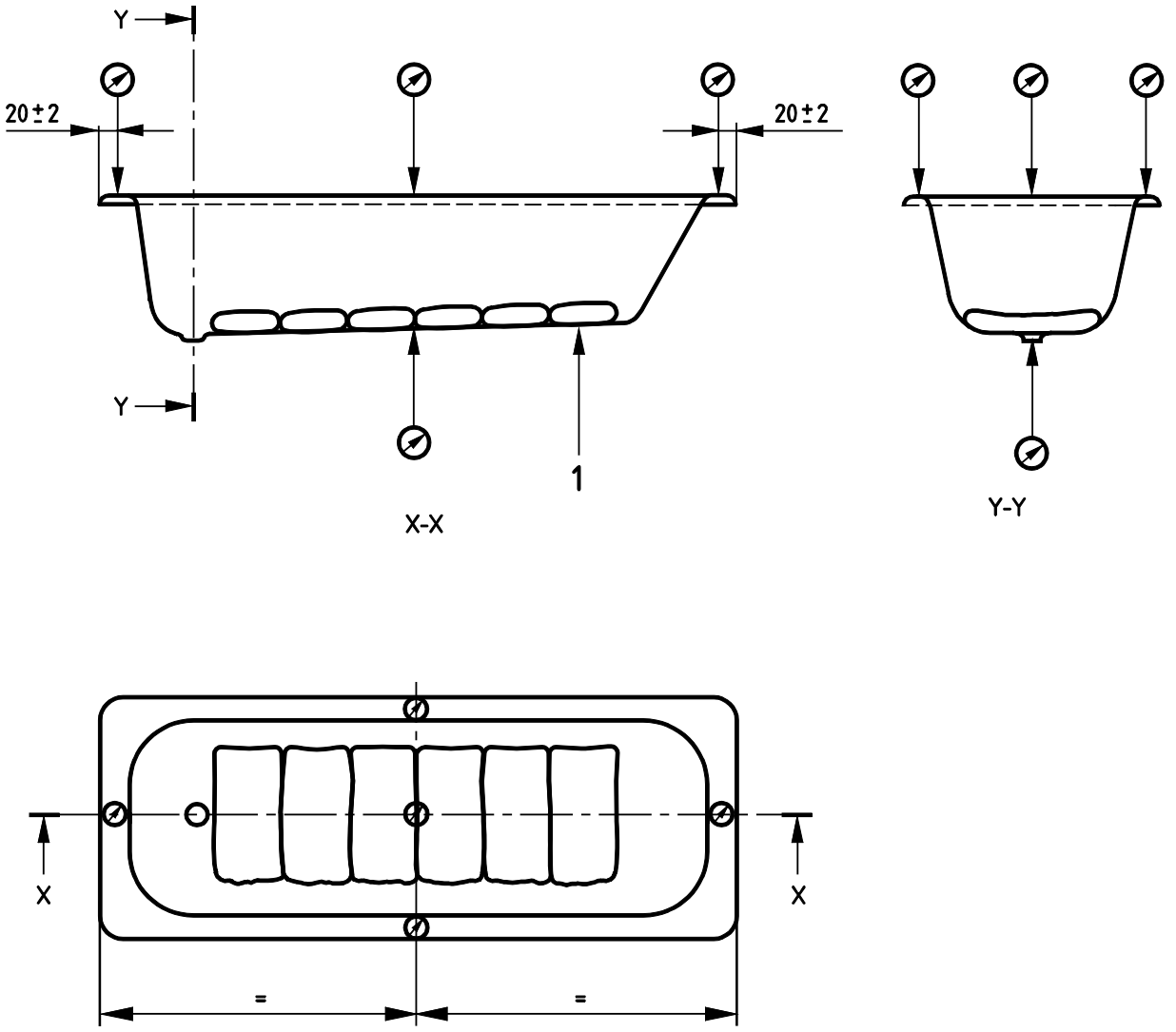
After $5^{+0,5}_{0}$ min note the final readings of the dial gauges.

Calculate the deflections of the rim and bottom of the bath as the differences between the final and initial readings of the dial gauges.

Record the deflections.

For baths where the design of the sides and/or support arrangements are not symmetrical and the bath can be installed the other way around, repeat the procedure with the opposing side adjacent to any wall.

Dimensions in millimetres



Key

1 bags

Figure A.12 — Deflection test 1 with dial gauges positioned for installation method a)

A.5.6 Deflection test 2 – Deflection of the bottom and rim due to a load on the bottom

Install the bath in accordance with the manufacturer's instructions and set up dial gauges under the bath and on or under any unsupported side, at the necessary measuring points marked in Figure A.13.

Record the initial readings of the dial gauges.

Place the bags carefully in a pile in the centre of the bottom of the bath so that the major axis of the bags coincides with the minor axis of the bottom as shown in Figure A.13. If twelve bags are used they shall occupy the same surface area as the six bags.

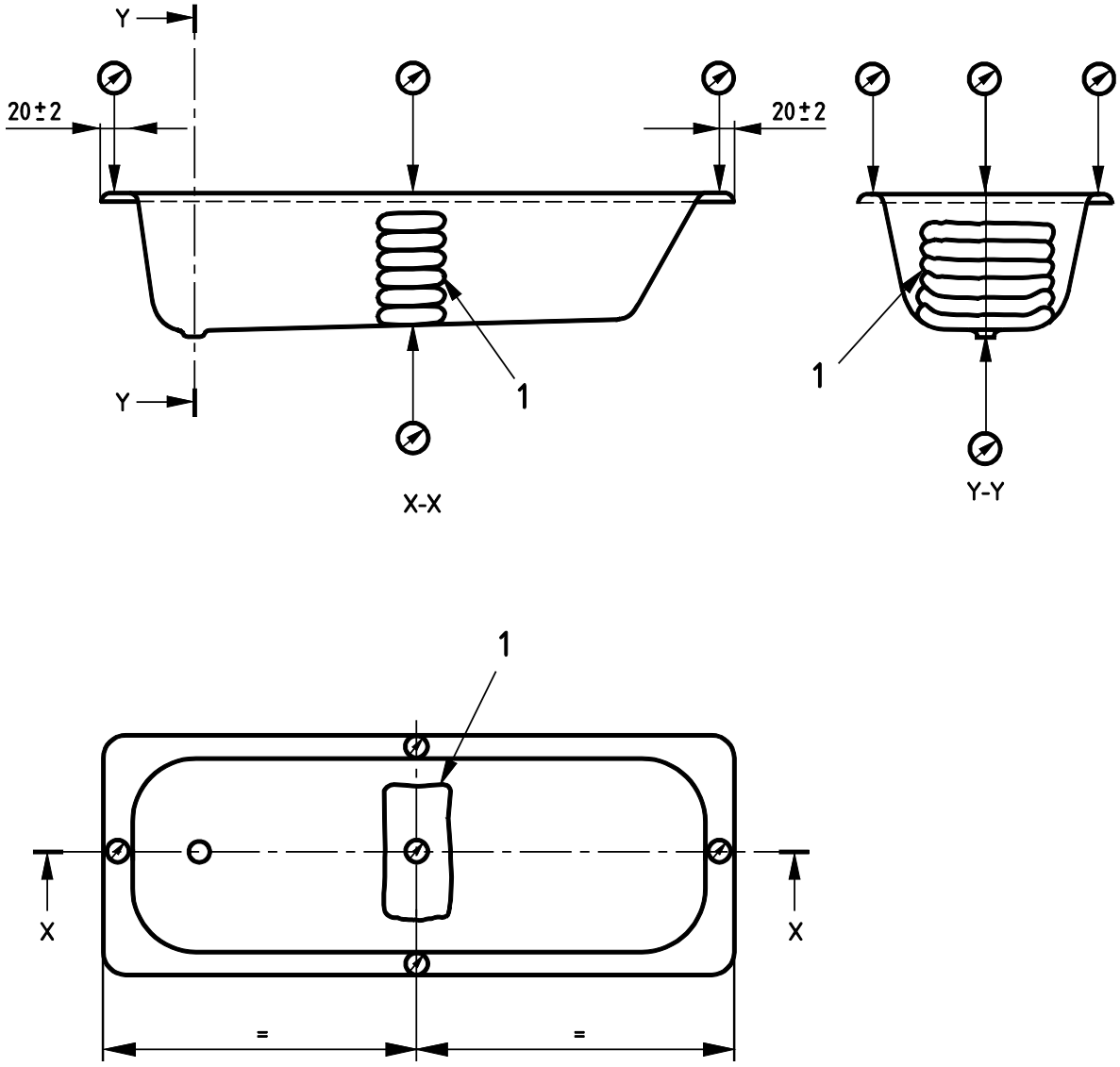
After $5^{+0,5}_{0}$ min note the final readings of the dial gauges.

Calculate the deflections of the rim and bottom of the bath as the differences between the final and initial readings of the dial gauges.

Record the deflections.

For baths where the design of the sides and/or support arrangements are not symmetrical and the bath can be installed the other way around, repeat the procedure with the opposing side adjacent to any wall.

Dimensions in millimetres



Key

1 bags

Figure A.13 — Deflection test 2 with dial gauges positioned for installation method a)

A.5.7 Deflection test 3 – Deflection of the rim due to a load on the long side of the rim

Install the bath in accordance with the manufacturer's instructions and set up a dial gauge under the rim at the measuring point marked in Figure A.14.

Record the initial reading of the dial gauge.

Place four bags carefully one on top of the other in the configuration shown in Figure A.14 on the unsupported side of the bath so that the major axis of each bag coincides with the longitudinal axis of the rim. If eight bags are used they shall occupy the same surface area as the four bags.

After $5^{+0,5}_{0}$ min note the intermediate reading of the dial gauge.

Remove the bags, wait 10^{+1}_{0} min and note the final reading of the dial gauge.

Calculate the deflections of the rim as the differences between the intermediate and initial readings of the dial gauges and the residual deflection as the difference between the final and initial readings of the dial gauge.

Record the deflection.

For baths where the design of the sides and/or support arrangements are not symmetrical and the bath can be installed the other way around, repeat the procedure with the opposing side adjacent to any wall.

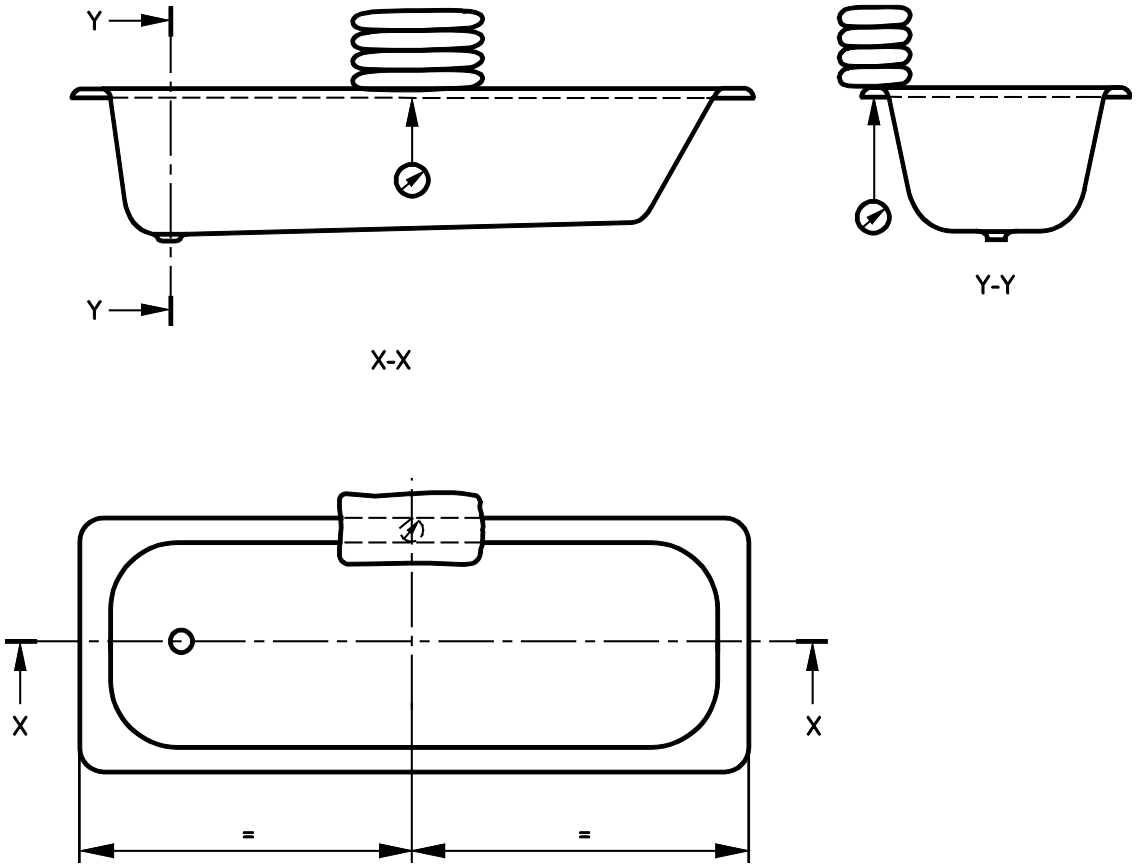


Figure A.14 — Deflection test 3 with dial gauge positioned for installation method a)

A.5.8 Deflection test 4 – Deflection of the rim due to a load on the end of the bath

Install the bath in accordance with the manufacturer's instructions and set up dial gauges under the rim at the measuring point marked in Figure A.15.

Record the initial reading of the dial gauge.

Place four bags carefully one on top of the other in the configuration shown in Figure A.15 so that the major axis of each bag coincides with the longitudinal axis of the rim. If eight bags are used they shall occupy the same surface area as the four bags.

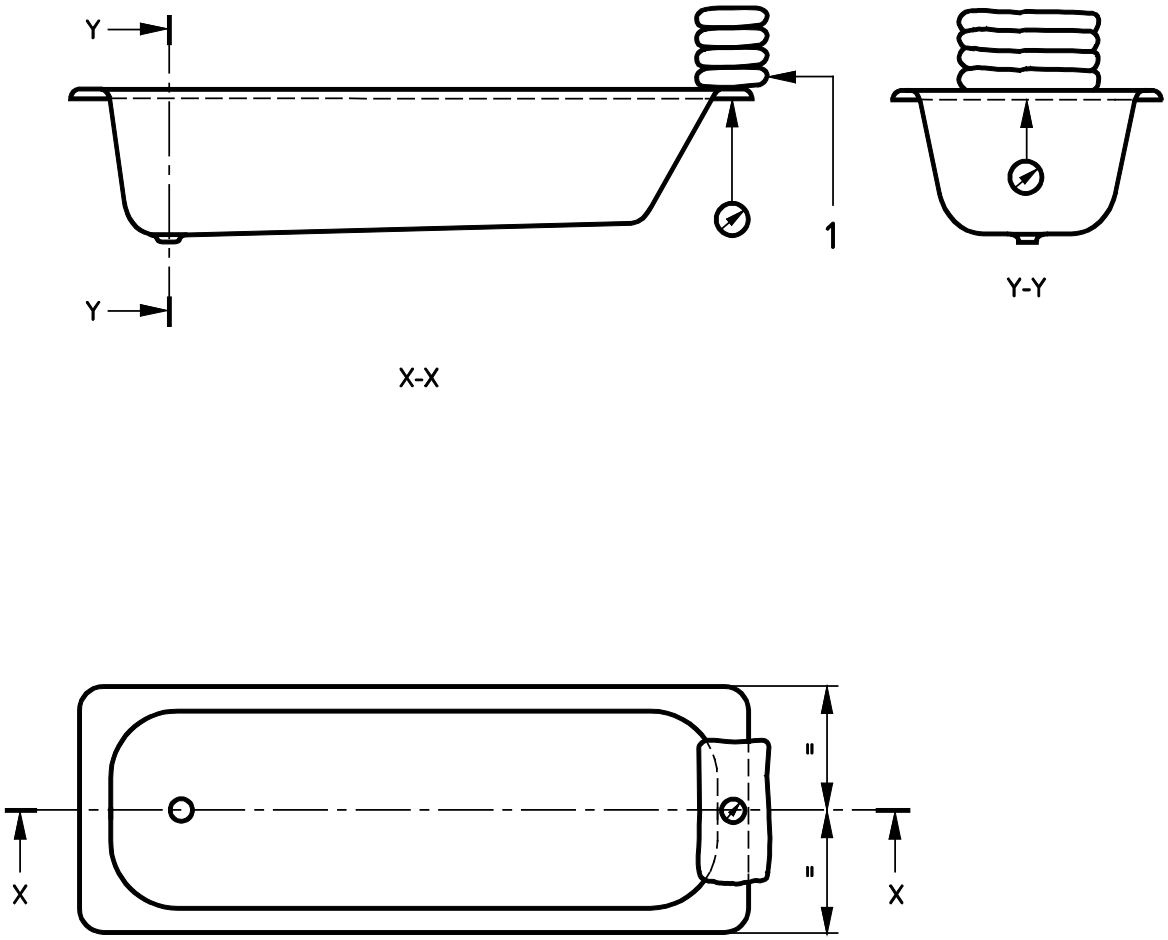
After $5^{+0,5}_{0}$ min note the intermediate reading of the dial gauge.

Remove the bags, wait 10^{+1}_{0} min and note the final reading of the dial gauge.

Calculate the deflections of the rim as the difference between the intermediate and initial reading of the dial gauges and the residual deflection as the difference between the final and initial reading of the dial gauge.

Record the deflection.

For baths where the design of the sides and/or support arrangements are not symmetrical and the bath can be installed the other way around, repeat the procedure with the opposing side adjacent to any wall.



Key

1 bags

Figure A.15 — Deflection test 4 with dial gauge positioned for installation method a)

A.6 Handgrip tests

A.6.1 General

If not pre-fitted, install the handgrip(s) in accordance with the manufacturer's instructions. The bath shall be installed in accordance with the manufacturer's instructions (see A.5.3).

A.6.2 Test apparatus

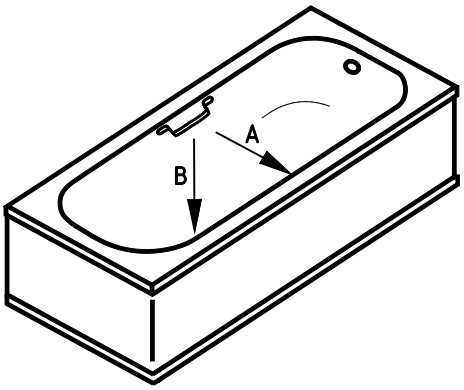
Suitable means to apply the test force of (500 ± 5) N.

A.6.3 Procedure

a) Apply the test force in the centre of the handgrip in direction A for (5 ± 1) min (see Figure A.16).

b) Apply the test force in the centre of the handgrip in direction B for (5 ± 1) min (see Figure A.16).

After each application of the force, visually check the bath and handgrip and record any distortion or other defects that impair the appearance or functioning of the bath or handgrip.



Key

A force applied horizontally

B force applied vertically downwards

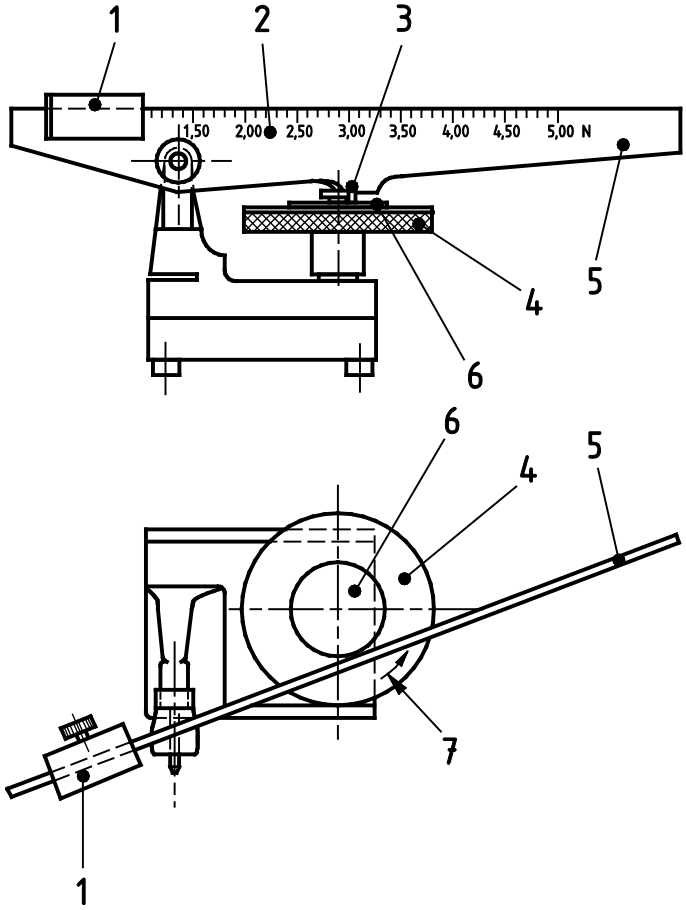
Figure A.16 — Direction of forces for handgrip test

A.7 Resistance to scratching

A.7.1 Test apparatus

a) scratch testing apparatus as described in ISO 4586-2:2004, 14.2.1 (see Figure A.17);

b) microscope or similar measuring device capable of measuring to an accuracy of ± 5 μm.



Key

1 moveable weight
2 scale
3 diamond point
4 turntable
5 arm
6 locking disc
7 direction of rotation

Figure A.17 — Scratch-testing apparatus

A.7.2 Test specimen

The test specimen shall be taken from the lowest part of the most vertical side wall of the bath and shall be as flat as possible, with geometry and dimension as defined in ISO 4586-2:2004, 15.5.

The test specimen shall be preconditioned at temperature of (23 ± 2) °C and relative humidity of (50 ± 5) % for 24 h.

A.7.3 Procedure

Adjust the height of the arm (5) so that it is horizontal when the diamond point rests on the test specimen.

Place the arm (5) in a vertical position.

Fix the test specimen with the locking disc (6) and secure it correctly to avoid any slipping.

Lower the arm (5) and place the diamond point in contact with the test specimen taking care to avoid any impact.

Apply a force of (10 ± 0,1) N.

Start rotating the turntable (4) in order to produce a scratch of 3 cm to 4 cm long.

Measure the width of the scratch and calculate and record its depth as 25 % of the width of the scratch. Measure and record the thickness of the top layer of the test specimen in the middle of the four sides and calculate the average.

Bibliography

[1] EN 14516, *Baths for domestic purposes*

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