SLOVENSKI STANDARD
oSIST prEN 17125:2017

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Hišne toplice in vroče kopeli - Varnostne zahteve in preskusne metode

Domestic spas and hot tubs - Safety requirements and test methods

Warmsprudelbecken und Whirlpools für private Nutzung - Sicherheitstechnische Anforderungen und Prüfverfahren

Bain à remous et spas à usage domestique - Exigences de sécurité et méthodes d'essai

Ta slovenski standard je istoveten z: **prEN 17125**

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91.140.70	Sanitarne naprave	Sanitary installations

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EUROPEAN STANDARD

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Domestic spas and hot tubs - Safety requirements and test methods

Bain à remous et spas à usage domestique - Exigences de sécurité et méthodes d'essai

Warmsprudelbecken und Whirlpools für private Nutzung - Sicherheitstechnische Anforderungen und Prüfverfahren

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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European foreword

This document (prEN 17125:2017) has been prepared by Technical Committee CEN/TC 402 “Domestic Pools and Spas”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

Introduction

This standard outlines the technical items of associated equipment necessary for a properly equipped spa or hot tub to ensure it is clean, healthy and safe to use.

This standard is a recommendation that supports a variety of legal Regulations and Codes of Practice in each country. This standard is designed to complement the required rules and regulations contained in European Regulations such as:

— Building Regulations;

— Certificate of Conformity (CE);

— Health and Safety/Health Protection Authorities;

— Regulation (EC) No 1907/2006 (REACH);

— Restriction on the Use of Certain Hazardous Substances in Electrical and Electronic Equipment, see Directive 2011/65/EU;

— Water Supply Regulation(s) (e.g. Commission Directive (EU) 2015/1787);

— Waste Electrical and Electronic Equipment Regulations (WEEE), see Directive 2012/19/EU;

— or in European Standards, such as EN 60335-2-60.

It is recommended that the design of all domestic spas is based on the parameters indicated in this standard, to ensure they are installed and manufactured correctly and the end user is aware of the correct operation and maintenance to ensure they are safe and healthy to use.

It is recommended that manufacturers, distributors, importers and retailers have a clear working knowledge of the requirements contained within this standard.

During the production of this standard, it was found that in certain areas and for certain formulae, several quite valid variations were possible. Therefore the standard does not preclude the use of alternative formulae or procedures, where a specialist design may require such. It should also be acknowledged that with advances in technology, new products and design innovations will of necessity be introduced and procedures are in place to provide for consideration of these within future amendments to this standard.

Irrespective of anything contained in this standard, responsibility for specific Health and Safety issues and compliance with relevant National legislation shall be taken into consideration in relation to any contract during design, construction and operation and will remain the responsibility of the parties involved. The importance of defining the requirement, the specification and the responsibilities (for the spa) rests with the purchaser.

1 Scope

This European Standard specifies safety requirements and test methods for domestic spas/hot tubs for indoor and/or outdoor use, covering the following:

— portable spas including inflatable spas;

— exercise spas (factory-built or field-engineered);

— Scandinavian hot tubs;

— field-engineered spas;

— any associated equipment.

This European Standard is not applicable to:

— any type of swimming pool (domestic or public);

— mini-pools according to EN 16927;

— public spas (public use according to EN 15288);

— paddling pools according to EN 71-8;

— spas specialized for physical/medical therapy;

— spas specialized for beauty therapy;

— flotation tanks and flotation pools;

— bath tubs (including whirlpool baths);

— natural spas;

— birthing pools.

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 335, *Durability of wood and wood-based products - Use classes: definitions, application to solid wood and wood-based products*

EN 16582-1:2015, *Domestic swimming pools - Part 1: General requirements including safety and test methods*

EN 16713-2:2016, *Domestic swimming pools - Water systems - Part 2: Circulation systems - Requirements and test methods*

EN 16713-3:2016, *Domestic swimming pools - Water systems - Part 3: Water treatment - Requirements*

EN 60335-1, *Household and similar electrical appliances — Safety — Part 1: General requirements (IEC 60335-1)*

EN 60335-2-60:2003, *Household and similar electrical appliances — Safety — Part 2-60: Particular requirements for whirlpool baths (IEC 60335-2-60:2002)*

EN ISO 4628-2, *Paints and varnishes - Evaluation of degradation of coatings - Designation of quantity and size of defects, and of intensity of uniform changes in appearance - Part 2: Assessment of degree of blistering (ISO 4628-2)*

EN ISO 9227, *Corrosion tests in artificial atmospheres - Salt spray tests (ISO 9227)*

EN ISO 13732-1, *Ergonomics of the thermal environment - Methods for the assessment of human responses to contact with surfaces - Part 1: Hot surfaces (ISO 13732-1)*

CEN/TS 16165:2016, *Determination of slip resistance of pedestrian surfaces - Methods of evaluation*

3 Terms and definitions

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

3.1
domestic use
use of a pool/spa/hot tub designated solely for the owner's/proprietor's/operator's family and guests including the use connected with renting dwellings for family use

Note 1 to entry: This definition is taken from the Business Plan of CEN/TC 402.

3.2
spa
hot tub, whirlpool
vessel containing temperature-controlled water in a closed system not integrated with a swimming pool, which is designated for sitting in or lying on a supported structure, and not for swimming, with a water treatment system

Note 1 to entry: In different parts of the World, the terms “spa”, “hot tub” and “whirlpool” can be used inter changeably or in combination to describe the wide range of products in the market place such as spas listed in the scope of this standard.

3.3
exercise spa
swim spa
fitness spa
variant of a spa in which the design and construction includes specific features and equipment to allow recreational physical activity in situ

Note 1 to entry: Exercise spas may include peripheral jetted seats intended for water therapy, heater, circulation and filtration system, or may be a separate distinct portion of a combination spa/exercise spa and may have separate controls.

Note 2 to entry: Recreational physical activities can be rowing, running, swimming, walking, cycling or any other exercise *in situ*.

3.4
inflatable spa
portable (electric) spa that is free-standing and which contains an inflatable main structure that forms the vessel for the heated water and which is capable of being deflated for storage

Note 1 to entry: Inflatable spas are not designed or intended to be permanently installed in the ground and are supplied with cord-connected equipment packages that integrate pumps, heaters, and blowers and or jets for heating, circulation, filtration, and maintenance.

3.5
portable spa
transportable spa
spa (either self-contained or non-self-contained) not intended for permanent and fixed installation, which can be easily relocated for indoor or outdoor use

Note 1 to entry: The transportability is unconnected to the weight of the appliance, with or without water.

Note 2 to entry: The synonym transportable spa is currently being discussed with CLC/TC 61 to confirm, which type of electric spas are included within its definition.

3.6
permanent installed spa
factory-built or field-engineered non-self-contained spa designed to remain in its intended location

3.7
Scandinavian hot tub
portable spa for single use of water, where the water temperature is increased from an external heat source and which is sited outdoors

3.8
flotation tank
enclosed bathing area, usually for one-person, containing water saturated with magnesium sulphate (Epsom salt), or natural salts

3.9
natural spa
bathing spa, which is filled with untreated natural warm water

3.10
self-contained spa
factory-built spa in which all controls and equipment are an integral part of the product, which may be permanently wired or cord connected

3.11
non-self-contained spa
factory-built or field assembled spa in which some or all of the equipment is not an integral part of the product

Note 1 to entry: Non-self-contained spas may employ separate components such as an individual filter, pump, heater and controls, or they may employ assembled combinations of various components.

3.12
heater
device to heat the spa water

EXAMPLE Including, but not limited, to electric, combustion, solar, heat pump, etc.

3.13
thermal syphon circulation
water circulation through thermal convection only, with no pump

3.14
cover
device that is placed over the spa shell or floats on the water surface to reduce heat loss and/or dirt and debris getting into the water when not in use

3.15
safety cover
variant of a cover with features/designs that prevent unauthorised access to the spa

3.16
safety protection device
product to prevent people gaining unauthorised access to the spa

EXAMPLE Including, but not limited to safety cover, fence, barrier, lockable shelter.

3.17
pump
mechanical device, usually powered by an electric motor, that provides hydraulic flow and pressure for the purpose of filtration, heating, circulation of spa water and/or hydro massage

3.18
water treatment
way to ensure water quality through physical and chemical actions

[SOURCE: EN 16713-3:2016, 3.1]

3.19
means of access
design feature to facilitate entry to and/or exit from the spa

[SOURCE: EN 16582-1:2015, 3.22, modified term spa]

3.19.1
ingress
means of entering the spa

3.19.2
egress
means of exiting the spa

3.20
shelter
enclosure
structure placed over the spa to aid privacy and/or protect the bathers from inclement weather

Note 1 to entry: Some shelters are safety devices, when lockable or secured by other means.

3.21
hydro-massage jets
directional fitting installed in the shell of the spa which returns pressurised (and usually aerated) water into the spa, to provide a type of massage based on the therapeutic use of heated water

3.22
grip
holding of the hand around the entire circumference of a support

Note 1 to entry: See Figure 1.

Note 2 to entry: See Table 4.

[SOURCE: EN 1176-1:2008, 3.15, modified — Note 2 to entry added.]

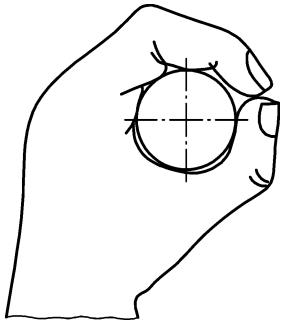

Figure 1 — Grip

3.23
grasp
holding of the hand around part of the circumference of a support

Note 1 to entry: See Figure 2.

Note 2 to entry: See Table 4.

[SOURCE: EN 1176-1:2008, 3.16, modified — Note 2 to entry added.]

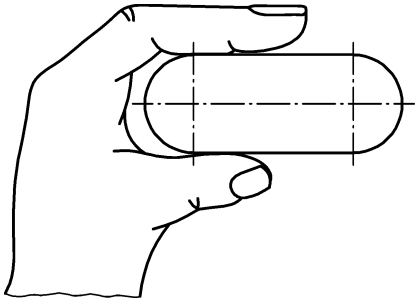

Figure 2 — Grasp

4 Requirements and test methods

4.1 Water leakage

Spas manufactured with an electrical supply shall be designed not to leak water.

Spas constructed from materials such as concrete shall comply with EN 16582-1:2015, Table 1.

Spas that do not rely on circulation and filtration (e.g. Scandinavian hot tubs) and have single-use water that are not connected to an electrical component may be designed to lose some water from the shell.

The manufacturer/retailer shall provide suitable information about water leakage in the point of purchase information (see Clause 5) and user's manual (see Clause 6). However, care shall be taken in construction/manufacture/design to ensure water losses are minimized and do not create a hazard.

Water loss caused by evaporation and bathers are not included.

4.2 Minimum performance requirements for structural materials

4.2.1 General

The structural design and materials shall be in accordance with accepted structural engineering practices. Selection of materials for the construction of the spa shall be conducted under consideration of external influences, including but not limited to, temperature, UV, chemicals, when appropriate, that may influence the structural integrity of the material.

Any combination of different materials in direct contact with each other shall be compatible and not negatively affect each other's properties or structural integrity.

The requirements of this section do not apply to non-structural elements of the spa, including, but not limited to, elements with solely decorative function. When the spa water affects the resistance of the structural material, the requirements for water quality shall be stated and accompany the affected materials.

The parameters according to 4.12 (water treatment and chemicals standards) shall be met. In addition, there shall be no influence on the water quality according to 4.12, if the material comes into contact with the spa water.

Typical examples of materials used, but not limited to, for the spa construction and lining are given in Table 1.

Table 1 — Materials typically used for spa construction and spa lining/finishes

Material	Spa construction	Spa lining/finishes
Acrylic	×	×
PVC	×	×
PVC reinforced membrane	×	×
Concrete	×	×
Polystyrene (PS) foam formstone	×	—
Glass reinforced plastic (GRP)	×	×
Composite construction	×	—
Polypropylene panels	×	—
Polyolefin coating (e.g. PE)	—	×
Polyurethane (composite material)	×	—
Framework construction	×	—
Aluminium	—	×
Stainless steel	×	×
Steel panels/support frames	×	—
Aluminium panels/support frames	×	—
Self-supporting spas (inflatable)	×	—
Glass	Complete or min. one side/wall	×
Wood	×	×
Brick wall construction (expanded polystyrene, etc.)	×	—
Natural stone	—	×
Coating (including mineral coat and paint)	—	×
Tiles	—	×
Polymer liner	—	×

4.2.2 Specific requirements and testing for corrosion resistance

Any material that may be affected by corrosion (including but not limited to, steel, stainless steel, aluminium and other metallic materials) and utilized for the construction of the spa shall be treated for corrosion resistance, if applicable and shall meet any of the following minimum requirements, as applicable.

The tested metal parts shall be assembled according to the installation instructions (see Clause 6).

Metal assemblies, which are not made of the same material, shall be put together according to the installation instructions, before testing (see Clause 6).

The tests are conducted according to EN ISO 9227 on all individual metal parts, coated or not (organic or inorganic coating), contributing to the resistance of the structure's constitutive elements.

The following are excluded:

— elements having only decorative functions;

— elements embedded and/or fixed in concrete provided that they are commercial products commonly used in masonry constructions;

— all non-structural elements;

— painted or encapsulated structural metal components within the weather-protected product enclosure, which are not intended to get wet routinely;

— hot-galvanised parts with a surface treatment thickness of ≥ 50 µm or prescriptions given in EN ISO 1461 (which correspond more or less to 375 g/m^2);

— Stainless steel (316 L).

In accordance with EN ISO 9227, subject to the applicable structure samples to be tested with salt spray for (see EN ISO 9227:2012, Annex A):

— 192 h for aboveground and recessed spas for the parts not in contact with the ground;

— 192 h for inground and/or recessed spas for the parts in contact with the ground and whose parts to be tested are ≥ 3 mm;

— 400 h for inground and/or recessed spas for the parts in contact with the ground and whose parts to be tested are < 3 mm.

On completion of these corrosion tests, all of the products shall meet the visual requirements described below:

— red oxidation: assess the results obtained on steel parts, coated or not, referring to the recommendations of EN ISO 4628-3. The number of red rust pits on the surface shall conform to grade RI 3 or lower;

— white oxidation is accepted on zinc-galvanised, electrogalvanised or bichromated parts;

— green oxidation is accepted on material including copper;

— brown oxidation is accepted on stainless steel;

— the degree of blistering of organic coatings shall not exceed density 2, and the size of any blister shall not exceed size 3 as defined in EN ISO 4628-2.

4.2.3 Osmosis resistance of composites and polymers

Dip a 150 mm × 100 mm test sample, immersed to half its height, in distilled water at a constant temperature of 60 °C for 15 days.

Protect the sample on its edges and its rear face, to avoid contact with water.

On completion of this test, no blister (i.e. density 0), porosity, cracking or fibre prominence, shall be detected on the surface after testing, compared to a control specimen as defined in EN ISO 4628-2.

Only the manufacturer is concerned by this test method which shall be applied for each new manufacturing process.

A longer test period may validate a higher integrity of the polymer.

For polyester shells see EN 16582-1:2015, Annex D for additional requirements, but note that the water temperature specified in this annex may be different to temperatures in this spa standard and also that some operational parameters may not be relevant for spas.