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Pooler för hemmiljö – Vattensystem – Del 1: Filtrering – Krav och provningsmetoder

Domestic swimming pools – Water systems – Part 1: Filtration systems – Requirements and test methods

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EUROPEAN STANDARD

EN 16713-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

February 2016

ICS 97.220.10

English Version

Domestic swimming pools - Water systems - Part 1: Filtration systems - Requirements and test methods

Piscines privées à usage familial - Systèmes de
distribution d'eau - Partie 1: Systèmes de filtration -
Exigences et méthodes d'essai

Schwimmbäder für private Nutzung - Wassersysteme -
Teil 1: Filtrationssysteme - Anforderungen und
Prüfverfahren

This European Standard was approved by CEN on 5 December 2015.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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

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

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European foreword

This document (EN 16713-1:2016) has been prepared by Technical Committee CEN/TC 402 “Domestic Pools and Spas”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by August 2016, and conflicting national standards shall be withdrawn at the latest by August 2016.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.

EN 16713, *Domestic swimming pools — Water systems*, currently comprises:

- *Part 1: Filtration systems— Requirements and test methods;*
- *Part 2: Circulation systems— Requirements and test methods;*
- *Part 3: Water treatment— Requirements.*

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.

Introduction

The filtration system in any swimming pool is there to remove the suspended matter from the pool water. Filtration is achieved by passing the water through a suitable medium contained in a filter body.

It is generally accepted that there are four types of filters associated with swimming pools:

- a) pre-coat filtration/diatomaceous earth (DE);
- b) disposable cartridge or filter bag;
- c) graded aggregate (single/multi-layer-filter);
- d) other filters (e.g. membrane systems).

1 Scope

This European Standard specifies filtration requirements and test methods of filter elements or media, filtration units or systems designed to be used in domestic swimming pools.

This standard applies to swimming pools as defined in EN 16582-1 and will be read in conjunction with it.

This standard does not apply to:

- pools for public use covered by EN 15288-1;
- spas for domestic or public use;
- paddling pools according to EN 71-8;
- pre filtration;
- natural and nature like pools.

NOTE For circulation systems see EN 16713-2 and for treatment systems EN 16713-3.

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 837-1, *Pressure gauges — Part 1: Bourdon tube pressure gauges — Dimensions, metrology, requirements and testing*

EN 872, *Water quality — Determination of suspended solids — Method by filtration through glass fibre filters*

EN 12902, *Products used for treatment of water intended for human consumption — Inorganic supporting and filtering materials — Methods of test*

EN ISO 7010:2012, *Graphical symbols — Safety colours and safety signs — Registered safety signs (ISO 7010:2011)*

HD 60364-7-702, *Low-voltage electrical installations — Part 7-702: Requirements for special installations or locations — Swimming pools and fountains (IEC 60364-7-702)*

ISO 3864-2, *Graphical symbols — Safety colours and safety signs — Part 2: Design principles for product safety labels*

ISO 12103-1, *Road vehicles — Test dust for filter evaluation — Part 1: Arizona test dust*

ISO 21501-3, *Determination of particle size distribution — Single particle light interaction methods — Part 3: Light extinction liquid-borne particle counter*

3 Terms and definitions

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

3.1

backwash

method of cleaning consisting of a flow of water through filter element(s) or media in a reverse direction to dislodge accumulated dirt and/or filter aid and remove them from the filter body

3.2

bulk density

ρ_B

mass of many particles of a material divided by the total volume they occupy; the total volume includes particle volume, inter-particle void volume and particle internal pore volume

Note 1 to entry: Bulk density in kg/m³:

$$\rho_B = \frac{\text{mass}}{V_{\text{solid}} + V_{\text{pores}} + V_{\text{void}}} \quad (1)$$

3.3

cleaning

physical removal of soiling materials

3.4

cleaning differential pressure

maximum differential pressure allowed at the terminals of the filter element or the filter to guarantee its efficiency and from which the filter media should be cleaned or replaced

Note 1 to entry: It often corresponds to the differential pressure that defines the retention capacity of the filter element or filter.

3.5

filtrate

treated water after the filtration process

3.6

differential pressure

difference between the upstream and the downstream pressure of the filter

3.7

effective size d_x

size of the sieve in mm through which approximately x % of the total grains by weight are smaller

Note 1 to entry: d_{10} for the smaller size and d_{90} for the bigger size are generally used in the pool business.

Note 2 to entry: Effective size at x % (d_x).

3.8

filter

element made up of the filter body and the filter medium/media or filter element(s)