Specifications for industrial laundry machines - Definitions and testing of capacity and consumption characteristics - Part 4: Washer-extractors

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NATIONAL FOREWORD

See Eesti standard EVS-EN 17116-4:2019 sisaldab Euroopa standardi EN 17116-4:2019 ingliskeelset teksti.	This Estonian standard EVS-EN 17116-4:2019 consists of the English text of the European standard EN 17116-4:2019.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 03.07.2019.	Date of Availability of the European standard is 03.07.2019.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

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Festlegungen für Wäschereimaschinen - Definition und Prüfung der Beladung und Verbrauchsmerkmale - Teil 4: Waschschleudermaschinen

This European Standard was approved by CEN on 17 September 2018.

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CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

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European foreword

This document (EN 17116-4:2019) has been prepared by Technical Committee CEN/TC 214 “Textile machinery and accessories”, the secretariat of which is held by SNV.

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of an identical text or by endorsement, at the latest by January 2020, and conflicting national standards shall be withdrawn at the latest by January 2020.

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

This document is based on ISO 9398-4 extended by the application of the state of the art methodology to measure performance and has been prepared by CEN/TC 214/WG 05.

The standard testing procedure for washer-extractors is based on ISO 9398-4. It includes among others the references EN ISO 10472-1 and EN ISO 10472-2.

EN 17116-4:2019 enhances the second edition of ISO 9398-4, i.e. ISO 9398-4:2003, to comply with European Standard requirements.

ISO 9398-4:2003 is extended by state of the art methodology to measure performance. Significant technical differences from ISO 9398-4:2003 are:

a) more detailed description of testing procedure;

b) changed test conditions under practical *in situ* laundry conditions;

c) introduction of a new type of test load;

d) implementation of energy consumption of various heat sources;

e) implementation of air compressor energy consumption;

f) implementation of detergent consumption;

g) implementation of washing performance, as stain removal, secondary wash performance and rinse performance;

h) comparison of wash performance with reference washing machine;

i) preparation for testing measuring hygienic requirements.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association.

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

1 Scope

This document defines the characteristics of washer-extractors and gives the usual test methods for these characteristics with regard to machine capacity, power consumption and productivity. It is applicable for use as a reference in the drafting of purchasing orders for washer-extractors whose net usable cage volume is 400 dm^3 (litres) respectively 40 kg and above. In addition, it is recommended for determination of energy consumption and productivity according to Directive 2009/125 EC. Furthermore, the document describes standard methods for measuring principal performance characteristics of washer-extractors. It does not cover safety requirements (see EN ISO 10472-2).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 676, *Automatic forced draught burners for gaseous fuels*

EN 1049-2, *Textiles — Woven fabrics — Construction — Methods of analysis — Part 2: Determination of number of threads per unit length (ISO 7211-2:1984 modified)*

EN 1773, *Textiles — Fabrics — Determination of width and length*

EN 12127, *Textiles — Fabrics — Determination of mass per unit area using small samples*

EN ISO 139, *Textiles — Standard atmospheres for conditioning and testing (ISO 139)*

EN ISO 2060, *Textiles — Yarn from packages — Determination of linear density (mass per unit length) by the skein method (ISO 2060)*

EN ISO 2061, *Textiles — Determination of twist in yarns — Direct counting method (ISO 2061)*

EN ISO 3759, *Textiles — Preparation, marking and measuring of fabric specimens and garments in tests for determination of dimensional change (ISO 3759)*

EN ISO 15797:2018, *Textiles — Industrial washing and finishing procedures for testing of workwear (ISO 15797:2017)*

ISO 2267, *Surface active agents — Evaluation of certain effects of laundering — Methods of preparation and use of unsoiled cotton control cloth*

ISO 4312, *Surface active agents — Evaluation of certain effects of laundering — Methods of analysis and test for unsoiled cotton control cloth*

ISO 9398-1, *Specifications for industrial laundry machines — Definitions and testing of capacity and consumption characteristics — Part 1: Flatwork ironing machines*

ISO 9398-3, *Specifications for industrial laundry machines — Definitions and testing of capacity and consumption characteristics — Part 3: Washing tunnels*

DIN 4754 (all parts), *Heat transfer installations working with organic heat transfer fluids*

DIN 38409-23, *German standard methods for the examination of water, waste water and sludge — Parameters characterizing effects and substances (group H) — Part 23: Determination of bismut active substances (H 23)*

DIN 61101-1, *Weaves; general terms, basic weaves*

RAL-GZ 992/1, RAL-Gütezeichen 992 für sachgemäße Wäschepflege „Objekt- und Haushaltswäsche“

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 9398-1 and the following apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

• IEC Electropedia: available at http://www.electropedia.org/

• ISO Online browsing platform: available at http://www.iso.org/obp

3.1.1
washer-extractor
machine for cleaning and rinsing of textiles by means of water and having an extraction process for de-watering the textiles at the end of the programme or by intermediate

3.1.2
test washer-extractor
washer-extractor that is subject to part or all of the requirements in this document in order to determine its performance

3.1.3
reference washing machine
specially constructed washing machine of known washing performance level with high repeatability and reproducibility of results which is used to compare the primary washing performance (stain/soil removal of supplied test fabrics)-on tested washer-extractor as defined in this standard

Note 1 to entry: Refer to 5.2.

3.1.4
top loaded machine
washer-extractor where the load is placed into the cage from the top (vertical position)

3.1.5
front loaded machine
washer-extractor where the load is placed into the cage in direction of the axis

3.1.6
side loaded machine
washer-extractor where the load is placed into the cage perpendicular to the direction of the cage axis