

Soft ice cream machines - Performance and evaluation
of energy consumption

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 16764:2016 sisaldab Euroopa standardi EN 16764:2016 ingliskeelset teksti.	This Estonian standard EVS-EN 16764:2016 consists of the English text of the European standard EN 16764:2016.
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 20.01.2016.	Date of Availability of the European standard is 20.01.2016.
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.

ICS 67.260

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:

Aru 10, 10317 Tallinn, Eesti; koduleht www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:

Aru 10, 10317 Tallinn, Estonia; homepage www.evs.ee; phone +372 605 5050; e-mail info@evs.ee

English Version

Soft ice cream machines - Performance and evaluation of energy consumption

Machines à glace à l'italienne - Performance et évaluation de la consommation d'énergie

Automaten für Eiskrem - Bestimmung von Leistungsmerkmalen und Energieverbrauch

This European Standard was approved by CEN on 21 November 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.

CEN members are the national standards bodies of 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 United Kingdom.



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

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

Contents	Page
European foreword.....	3
1 Scope.....	4
2 Normative references.....	4
3 Terms and definitions	4
4 Performance characteristics.....	6
4.1 General.....	6
4.2 Initial freeze down.....	6
4.3 Production capacity	6
4.4 Production energy consumption.....	6
4.5 Idle energy consumption.....	7
4.6 Stand-by energy consumption.....	7
4.7 Pasteurization phase energy consumption	7
4.8 Product temperature (extrusion temperature).....	7
4.9 Overrun.....	7
5 Energy consumption test.....	7
5.1 Test room	7
5.1.1 General design, walls, floor and radiant heat	7
5.1.2 Thermal characteristics.....	8
5.1.3 Ambient temperature and humidity.....	8
5.2 Apparatus.....	8
5.3 Installation	8
5.4 Test cycle.....	9
5.4.1 Initial freeze down phase.....	9
5.4.2 Production phase	9
5.4.3 Idle energy consumption.....	10
5.4.4 Stand-by energy consumption.....	11
5.4.5 Pasteurization phase energy consumption	11
5.4.6 Overrun determination.....	11
5.4.7 Test evaluation.....	12
6 Reference test mix	12
7 Test report.....	13

European foreword

This document (EN 16764:2016) has been prepared by Technical Committee CEN/TC 44 “Commercial and Professional Refrigerating Appliances and Systems, Performance and Energy Consumption”, 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 July 2016, and conflicting national standards shall be withdrawn at the latest by July 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 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 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 and test conditions of soft ice cream machines for processing ice cream and similar frozen desserts.

It defines machines performance characteristics and energy consumption, measured under specified conditions and test methods, using a reference test mix.

This European Standard applies to the following types of soft ice cream machines: commercial ice cream, soft serve and shake freezers, which freeze and dispense frozen product (e.g. dairy, yogurt), included are conventional operation and pasteurization phase. The equipment may include separate refrigeration systems for the frozen product and fresh mix and may be either air-cooled or water-cooled.

The soft ice cream machines are evaluated for the following performance:

- maximum energy input rate, or maximum current draw,
- production capacity,
- overrun,
- initial freeze-down energy consumption and duration,
- production energy consumption,
- idle energy consumption,
- stand-by energy consumption,
- pasteurization energy consumption (if applicable).

2 Normative references

Not applicable.

3 Terms and definitions

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

3.1

compression type machines

machines where the cooling is performed by means of a refrigerant liquid at low pressure in a heat exchanger (evaporator), the steam thus formed becomes a liquid by a mechanical compression higher pressure and cooling in another heat exchanger (condenser)

3.2

condenser

heat exchanger in which after compression, the vaporized refrigerant is liquefied, giving off heat to external cooling system

3.3

evaporator

heat exchanger in which, after the reduction of pressure, the refrigerant is vaporized by absorbing heat from the medium which is cooled