SLOVENSKI STANDARD
SIST EN 4855-04:2020

01-april-2020

Aeronavtika - Ekoučinkovitost naprav za gostinstvo - 4. del: Naprave za pripravo pijač

Aerospace series - ECO efficiency of catering equipment - Part 04: Beverage makers

Luft- und Raumfahrt - ECO Effizienz von Cateringgeräten - Teil 04: Heißgetränkeautomaten

Série aérospatiale - Indice d'écoefficacité - Partie 04 : Appareils de préparation de boissons

Ta slovenski standard je istoveten z: **EN 4855-04:2020**

ICS:

49.095	Oprema za potnike in oprema kabin	Passenger and cabin equipment

SIST EN 4855-04:2020 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 4855-04

February 2020

ICS 49.020; 67.250

English Version

Aerospace series - ECO efficiency of catering equipment - Part 04: Beverage makers

Série aérospatiale - Écoefficacité du matériel de restauration - Partie 04 : Appareils de préparation de boissons

Luft- und Raumfahrt - ECO-Effizienz von Cateringgeräten - Teil 04: Heißgetränkeautomaten

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

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European foreword

This document (EN 4855-04:2020) has been prepared by the Aerospace and Defence Industries Association of Europe - Standardization (ASD-STAN).

After enquiries and votes carried out in accordance with the rules of this Association, this Standard has received the approval of the National Associations and the Official Services of the member countries of ASD, prior to its presentation to CEN.

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of an identical text or by endorsement, at the latest by August 2020, and conflicting national standards shall be withdrawn at the latest by August 2020.

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Introduction

During aircraft operations the preparation of drinks in the cabin is mandatory to maintain the catering on board during flight. There exist different equipment types to prepare different kinds of drinks. While beverage makers are used as equipment to prepare coffee and tea, water heaters are used to tap hot water for other use. To meet the target to determine an energy consumption index for aircraft beverage maker products the purpose of this document is to standardize the test procedure and efficiency calculations for this equipment type.

1 Scope

This European standard describes a test procedure to identify performance characteristics and a weight rating of beverage maker products used on aircraft. Furthermore it describes the calculation procedure to determine an energy consumption index and a performance index. The effect of the beverage makers on beverage quality is not addressed in this standard.

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 4855-01, *Aerospace series — ECO efficiency of catering equipment — Part 1: General conditions*[1]

3 Terms and definitions

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

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

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

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

3.1
catering equipment
equipment installed in an aircraft to provide or support food or beverage service

Note 1 to entry: Includes ovens, beverage makers, water heaters and chilling equipment.

3.2
beverage maker products
overall designation for coffee and tea makers (beverage makers) and water boilers (water heaters)

3.2.1
beverage maker
equipment used in commercial aircraft to prepare coffee and tea

Note 1 to entry: Some beverage makers are equipped with an extra function of tapping hot water.

3.2.2
water heater
equipment used to boil and tap hot water

3.3
electrical energy consumption
measured apparent power integrated over a period of time

1 Published as ASD-STAN Prestandard at the date of publication of this standard by AeroSpace and Defence Industries Association of Europe – Standardization (ASD-STAN) (www.asd-stan.org).

3.4
energy consumption index
ECI
aspect of sustainability of catering equipment regarding the energy consumption and performance during aircraft operation

Note 1 to entry: ECO efficiency in this context does not consider the whole life cycle assessment of catering equipment.

3.5
performance index
PI
index (dimensionless) describing cycle time of EUT related to the cycle time of a reference

3.6
steady state
power-on condition with stable water temperature inside of the equipment without a start-up nor brew cycle nor tapping

3.7
stand-by
power-on condition with no heating of water inside of the equipment without a start-up nor brew cycle nor tapping

3.8
cycle time
duration of tapping at least 4,5 l of water/coffee

4 Symbols and abbreviations

ECI	Energy consumption index
EUT	Equipment under test
N/A	Not applicable
PI	Performance index
PN	Part number
SN	Serial number

5 General test conditions

5.1 Measurement and calculation

The measurements and calculations shall be done as follows:

a) measurement of electrical power;

b) measurement of steady state power/stand-by power;

c) measurement of the cycle time;

d) weight measurement;

e) calculation of ECI and PI.

5.2 Environmental conditions

Environmental conditions shall be according to EN 4855-01.

5.3 Power supply and voltage

Power supply and voltage shall be according to EN 4855-01.

5.4 Measurement equipment

Measurement equipment shall be according to EN 4855-01.

5.5 Test set up

Test set up shall be according to EN 4855-01.

5.6 Test medium

The test medium for all tests is potable water. The following conditions shall be applied to the test medium:

— water shall have a temperature of (10 ± 1) °C;

— the water pressure shall be (25 ± 2) psi (1,72 ± 0,14) bar.

5.7 General conditions for weight measurement

General conditions for weight measurement shall be according to EN 4855-01.

6 Test procedures

6.1 General

The purpose of this test is to measure the power demand of beverage maker products and the cycle time.

The test is split into two parts:

a) power measurement during one cycle of brewing (beverage maker) or tapping hot water (water heaters);

b) steady state/stand-by power measurement.

6.2 Energy consumption test

Two tests have to be performed consecutively described as follows:

a) All environmental conditions have to be ensured during the whole test procedures.

b) A warming plate, if available, shall be turned off.

c) Before start of each test the EUT has to be installed as instructed in the manual and tanks, if available, shall be filled with water.

d) The measurement equipment has to be installed. The logging has to be started before start of the test.