

**RATIFICACIÓN DE  
DOCUMENTOS EUROPEOS  
JUNIO 2015**HOJA DE ANUNCIO

En cumplimiento del punto 11.2.6.4 de las Reglas Internas de CEN/CENELEC Parte 2, se ha otorgado el rango de norma española al Documento Europeo siguiente:

| <b>Documento<br/>Europeo</b> | <b>Título</b>   | <b>Fecha de<br/>Disponibilidad</b> |
|------------------------------|---|------------------------------------|
| CLC/TS 50594:2015            | Secadoras para uso comercial. Métodos para medir la aptitud para la función. (Ratificada por AENOR en junio de 2015.) | 2015-04-24                         |

Este anuncio causará efecto a partir del primer día del mes siguiente al de su publicación en la revista UNE. La correspondiente versión oficial de este documento se encuentra disponible en la sede de AENOR, Calle Génova 6, 28004 MADRID.

-----  
©..2015.. Derechos de reproducción reservados a los Miembros de .

TECHNICAL SPECIFICATION  
SPÉCIFICATION TECHNIQUE  
TECHNISCHE SPEZIFIKATION

**CLC/TS 50594**

April 2015

ICS 97.060

English Version

**Tumble dryers for commercial use - Methods for measuring the performance**

Elektrische Waschgeräte für den kommerziellen Einsatz -  
Prüfverfahren zur Bestimmung der  
Gebrauchseigenschaften

This Technical Specification was approved by CENELEC on 2015-01-26.

CENELEC members are required to announce the existence of this TS in the same way as for an EN and to make the TS available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.



European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

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

## Contents

|  | Page      |
|--|-----------|
| <b>Foreword .....</b>  | <b>5</b>  |
| <b>1 Scope .....</b>   | <b>6</b>  |
| <b>2 Normative references .....</b>                                      | <b>6</b>  |
| <b>3 Terms, definitions and symbols.....</b>                             | <b>6</b>  |
| <b>3.1 Terms and definitions .....</b>                                   | <b>6</b>  |
| <b>3.2 List of symbols .....</b>   | <b>9</b>  |
| <b>4 Requirements.....</b>   | <b>10</b> |
| <b>4.1 General .....</b>   | <b>10</b> |
| <b>4.2 Rated capacity .....</b>  | <b>11</b> |
| <b>4.3 Dimensions .....</b>  | <b>11</b> |
| <b>5 Test conditions, materials, equipment and instrumentation .....</b> | <b>12</b> |
| <b>5.1 General .....</b>   | <b>12</b> |
| <b>5.2 Ambient conditions .....</b>                                      | <b>12</b> |
| <b>5.2.1 Electricity supply.....</b>                                     | <b>12</b> |
| <b>5.2.2 Water supply .....</b>  | <b>12</b> |
| <b>5.2.3 Ambient temperature and humidity .....</b>                      | <b>13</b> |
| <b>5.3 Test materials .....</b>  | <b>13</b> |
| <b>5.3.1 General.....</b>  | <b>13</b> |
| <b>5.3.2 Test load .....</b>   | <b>14</b> |
| <b>5.3.3 Detergent .....</b>   | <b>14</b> |
| <b>5.4 Equipment.....</b>  | <b>14</b> |
| <b>5.4.1 Equipment for normalization.....</b>                            | <b>14</b> |
| <b>5.4.2 Equipment for conditioning the test load.....</b>               | <b>14</b> |
| <b>5.4.3 Equipment for wetting the test load prior to a test .....</b>   | <b>14</b> |
| <b>5.4.4 Equipment for measurement .....</b>                             | <b>14</b> |
| <b>5.5 Instrumentation and accuracy .....</b>                            | <b>15</b> |
| <b>6 Preparation for testing .....</b>                                   | <b>16</b> |
| <b>6.1 General .....</b>   | <b>16</b> |
| <b>6.2 Test specifications from manufacturers .....</b>                  | <b>16</b> |
| <b>6.3 Installation of the tumble dryer .....</b>                        | <b>16</b> |
| <b>6.4 Preparation of the tumble dryer for a test series.....</b>        | <b>17</b> |
| <b>6.5 Preparation of the tumble dryer for a test run .....</b>          | <b>17</b> |
| <b>6.6 Preparation of test loads.....</b>                                | <b>17</b> |
| <b>6.6.1 General.....</b>  | <b>17</b> |
| <b>6.6.2 Pre-treatment of new test load items prior to use.....</b>      | <b>18</b> |
| <b>6.6.3 Requirements regarding the age of test load items .....</b>     | <b>18</b> |
| <b>6.6.4 Normalization of test load items .....</b>                      | <b>18</b> |
| <b>6.6.5 Conditioning of test load items.....</b>                        | <b>18</b> |
| <b>6.6.6 Test load composition .....</b>                                 | <b>19</b> |
| <b>6.6.7 Wetting .....</b>   | <b>21</b> |
| <b>7 Performance measurements – General requirements.....</b>            | <b>22</b> |
| <b>8 Tests for performance .....</b>                                     | <b>23</b> |
| <b>8.1 General .....</b>   | <b>23</b> |

|  |  |           |
|--|--|-----------|
| <b>8.2</b>   | <b>Test procedure for performance tests .....</b>                                      | <b>23</b> |
| 8.2.1  | Test conditions, materials and preparation for testing .....                           | 23        |
| 8.2.2  | Programme .....  | 23        |
| 8.2.3  | Test load .....  | 24        |
| 8.2.4  | Test procedure .....   | 24        |
| 8.2.5  | Validity of a test run .....   | 24        |
| 8.2.6  | Validity of a test series .....  | 24        |
| <b>8.3</b>   | <b>Measurements to determine water and energy consumption and programme time .....</b> | <b>25</b> |
| 8.3.1  | General .....  | 25        |
| 8.3.2  | Procedure .....  | 25        |
| <b>8.4</b>   | <b>Measurements to determine condensation efficiency .....</b>                         | <b>25</b> |
| 8.4.1  | General .....  | 25        |
| 8.4.2  | Procedure .....  | 25        |
| <b>8.5</b>   | <b>Measurements to determine exhaust air volume .....</b>                              | <b>26</b> |
| <b>8.6</b>   | <b>Performance measurement at maximum exhaust duct pressure .....</b>                  | <b>26</b> |
| <b>8.7</b>   | <b>Measurement of the textile drying temperature .....</b>                             | <b>26</b> |
| <b>9</b>   | <b>Assessment of performance .....</b>   | <b>26</b> |
| 9.1  | General .....  | 26        |
| 9.2  | Final moisture content of the load .....   | 26        |
| 9.3  | Total energy .....   | 27        |
| 9.4  | Corrected energy .....   | 27        |
| 9.5  | Corrected water consumption .....  | 28        |
| 9.6  | Corrected programme time .....   | 28        |
| 9.7  | Condensation efficiency .....  | 29        |
| 9.8  | Evaporation capacity .....   | 30        |
| 9.9  | Exhaust air volume .....   | 30        |
| <b>10</b>  | <b>Data to be reported .....</b>   | <b>30</b> |
| <b>Annex A (normative) Reference list .....</b>  |  | <b>31</b> |
| <b>Annex B (normative) Exhaust ducts for tumble dryer testing .....</b>  |  | <b>32</b> |
| <b>Annex C (informative) Flow diagrams .....</b>   |  | <b>37</b> |
| <b>Annex D (normative) Test report – Data to be reported .....</b>   |  | <b>39</b> |
| <b>Annex E (normative) Procedure to determine test load size where rated capacity is not declared .....</b>                  |  | <b>43</b> |
| <b>Annex F (normative) Flexible initial moisture content method .....</b>  |  | <b>44</b> |
| <b>Annex G (normative) Performance testing of steam heated tumble dryers .....</b>   |  | <b>46</b> |
| <b>Annex H (informative) Performance testing of gas heated tumble dryers .....</b>   |  | <b>54</b> |
| <b>Annex I (informative) Measurement of exhaust air volume .....</b>   |  | <b>55</b> |
| <b>Annex J (normative) Measurement of the textile drying temperature .....</b>   |  | <b>56</b> |
| <b>Bibliography .....</b>  |  | <b>58</b> |
| <b>Figure B.1 — Exhaust duct bend .....</b>  |  | <b>32</b> |
| <b>Figure B.2 — Exhaust duct Type 2 .....</b>  |  | <b>34</b> |
| <b>Figure C.1 .....</b>  |  | <b>37</b> |
| <b>Figure C.2 .....</b>  |  | <b>38</b> |
| <b>Figure G.1 — Schematic installation of the measurement equipment for steam heated tumble dryers (Alternative 1) .....</b> |  | <b>48</b> |

This is a preview. Click here to purchase the full publication.

|  |           |
|--|-----------|
| <b>Figure G.2 — Schematic installation of the measurement equipment for steam heated tumble dryers (Alternative 2).....</b>  | <b>50</b> |
| <b>Table 1 — List of symbols .....</b>   | <b>9</b>  |
| <b>Table 2 — Specification of instruments.....</b>   | <b>16</b> |
| <b>Table 3 — Number of items in the test load for various test load masses.....</b>  | <b>19</b> |
| <b>Table 4 – Specifications for initial moisture content in the test load.....</b>   | <b>22</b> |
| <b>Table 5 — Specification for final moisture content of the test load after drying in a cotton dry programme.....</b>       | <b>23</b> |
| <b>Table B.1 — Equivalent tube length of a 90° bend .....</b>  | <b>33</b> |
| <b>Table B.2 — Pressure drop values for different diameters and flows for a 15 m long duct.....</b>                          | <b>35</b> |
| <b>Table D.1 — Identification data .....</b>   | <b>39</b> |
| <b>Table D.2 — Test measurements.....</b>  | <b>40</b> |
| <b>Table D.3 — Test conditions and materials .....</b>   | <b>42</b> |
| <b>Table J.1 — Specification of temperature logger suitable for temperature measurement for both washing and drying.....</b> | <b>56</b> |
| <b>Table J.2 — Number of temperature loggers to be used during a textile drying temperature measurement .....</b>            | <b>57</b> |

Foreword

This document (CLC/TS 50594:2015) has been prepared by CLC/TC 59X "Performance of household and similar electrical appliances".

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

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

This document is a new Technical Specification, but it is based on portions from EN 61121:2013.

This Technical Specification is the main body of a forthcoming European Standard for measuring the performance of non-household tumble dryers. The content of this Technical Specification will be added with the Annex ZZ when the details regarding Ecodesign regulations are defined.

The procedures described in this Technical Specification are modified substantially compared to the procedures described in EN 61121. Therefore, results of tests according to this Technical Specification cannot and are bound not to be compared to results of similar procedures of EN 61121.

Significant technical differences from EN 61121 are:

- a) test procedures for tumble dryers of any size on the market;
  - b) a test procedure for measuring power consumption also for steam heated and gas heated tumble dryers;
  - c) the introduction of a new type of base load;
  - d) the introduction of a new initial moisture level.

NOTE CLC/TS 50640:2015 is planned to be a European Standard for the energy measurement of gas heated laundry equipment.

A bilingual version of this publication may be issued at a later date.