



**SLOVENSKI STANDARD**  
**SIST EN 12752-2:1999**  
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Gas-fired type B tumble dryers of nominal heat input not exceeding 20 kW - Part 2:  
Rational use of energy

Gasbefeuerte Trommeltrockner Typ B mit Nennwärmebelastungen bis 20 kW - Teil 2:  
Rationelle Energieverwendung

**ITeh STANDARD PREVIEW**

(standard available)  
Séche-linge de type B a tambour utilisant les combustibles gazeux, de débit calorifique  
nominal ne dépassant pas 20 kW - Partie 2: Utilisation rationnelle de l'énergie

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**Ta slovenski standard je istoveten z: EN 12752-2:1999**

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**ICS:**

97.060

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ICS 97.060

English version

## Gas-fired type B tumble dryers of nominal heat input not exceeding 20 kW - Part 2: Rational use of energy

Sèche-linge de type B à tambour utilisant les combustibles gazeux, de débit calorifique nominal ne dépassant pas 20 kW - Partie 2: Utilisation rationnelle de l'énergie

Gasbefeuerte Trommeltrockner Typ B mit Nennwärmebelastungen bis 20 kW - Teil 2: Rationelle Energieverwendung

This European Standard was approved by CEN on 3 July 1999.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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

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## FOREWORD

This European Standard has been prepared by Technical Committee CEN/TC 299 "Gas-fired sorption appliances and domestic gas-fired washing and drying appliances", the secretariat of which is held by AENOR.

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 February 2000, and conflicting national standards shall be withdrawn at the latest by February 2000.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this standard.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

The Directive makes no specification in respect of the maximum rating of appliances falling within its scope. However, the scope of this standard has been limited to appliances having heat inputs not greater than 20 kW.

For domestic tumble dryers of types B<sub>22D</sub> and B<sub>23D</sub> of nominal heat input not exceeding 6 kW see EN 1458-1 and EN 1458-2.

The test gases, test pressures and appliance categories given in this European Standard are in accordance with those specified in EN 437: "Test gases, test pressures and appliance categories".

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Electrical consumption is not taken into account in this standard because it represents only a small proportion of the total energy consumption of the appliance.

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## 1 Scope

This European Standard specifies the requirements and test methods for rational use of energy of gas-fired type B tumble dryers not exceeding a nominal heat input of 20 kW and with drum volume not exceeding 350 l, hereafter referred to as "Appliances".

This European Standard applies to types B<sub>22</sub> and B<sub>23</sub> direct gas-fired appliances and to types B<sub>11</sub> and B<sub>11BS</sub> indirect gas-fired appliances.

This Standard does not apply to:

- a) catalytic combustion appliances;
- b) appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere;
- c) appliances of the condensing type wherein the heated air and products of combustion used for the drying process are dehumidified by cooling with water or air;
- d) appliances intended to be used in vehicles or on board ships or aircraft;
- e) appliances of types B<sub>22D</sub> and B<sub>23D</sub>.

This standard covers type testing only.

## 2 Normative references

This Standard incorporates, by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate place in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For the undated references, incorporated in it by amendment or revision. For undated references, the latest edition of the publication referred to applies.

EN 12752-1	Gas-fired type B tumble dryers of nominal heat input not exceeding 20 kW - Part 1: Safety <a href="https://standards.iteh.ai/catalog/standards/sist/en-12752-2-1999">SIST EN 12752-2:1999</a>
EN 20139	Textiles - Standard atmospheres for conditioning and testing (ISO 139:1973)
EN 60456	Electric clothes washing machines for household use - Methods for measuring the performance (IEC 60456:1994)
EN 60734: 1993	Hard water to be used for testing the performance of some household electrical appliances (IEC 60734: 1993)

### 3 Definitions

For the purposes of this standard, the definitions of EN 12752-1 and the following definitions apply:

#### 3.1 automatic tumble dryer

Appliance which switches off the drying process at a preselected moisture content of the load.

#### 3.2 non automatic tumble dryer

Appliance which does not switch off the drying process at a preselected moisture content of the load.

#### 3.3 rated capacity

Maximum conditioned (method specified in EN 20139) mass of textile material, in kilograms, which is either declared by the manufacturer as suitable to be treated in a single operation or cycle of operations or determined from the capacity/drum volume ratio declared by the manufacturer.

### 4 Energy consumption

#### 4.1 Requirements

The appliance shall have a gas consumption (based on gross calorific value) not exceeding 3,5 MJ/kg of standard load.

#### 4.2 Tests

##### 4.2.1 General test conditions

##### 4.2.1.1 Test appliance

The test is carried out on the same appliance as used for the tests specified in part 1.

The appliance is loaded with the standard load specified in part 1 and operated on the standard programme (see 4.2.1.7).

##### 4.2.1.2 Test gases

The tests are carried out with the reference gas with the highest Wobbe index according to the category of the appliance (see EN 12752-1).

#### **4.2.1.3 Supply voltage and frequency**

The supply voltage and frequency is maintained at the rated values  $\pm 2\%$ .

#### **4.2.1.4 Ambient temperature**

The ambient temperature of the room is maintained at  $(20 \pm 2)^\circ\text{C}$  throughout the measurements.

#### **4.2.1.5 Ambient humidity**

The ambient humidity of the room is maintained at  $(65 \pm 5)\%$  throughout the measurements.

#### **4.2.1.6 Water condition**

For the washing machine used for wetting the test load by rinsing and centrifuging as specified in 4.2.1.8, the water temperature is kept at  $(15 \pm 2)^\circ\text{C}$  and the hardness of the water not in excess of 0,50 mmol/l (Ca + Mg) (see 3.2 of EN 60734: 1993).

#### **4.2.1.7 Standard programme**

The programme for dry cotton loads (dried down to conditioned mass) as specified in the manufacturer's instructions, is used with either the standard load I or the standard load II specified in part 1.

#### **4.2.1.8 Preparation and conditioning of the load**

Before the drying tests are carried out, the textile is normalized to avoid a rapid change in the initial conditioned mass during the test series.

The normalizing is three cycles of the following process: the textile is washed with a programme designed for white cotton, without pre-wash but including rinsing and spinning, using 15 g/kg of the standard detergent specified in EN 60456 in soft water with properties as specified in 4.2.1.6 followed by one tumble drying cycle.

The conditioned mass of the load is determined immediately after a conditioning process as described in EN 20139.

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After each series of 10 drying cycles, the load is subjected to one washing, rinsing, and spinning cycle in soft water as previously described, and the conditioned mass is re-measured.

After a total of 100 drying cycles, new textiles are used.

Fabric conditioners are not used during any part of the test procedures (during drying and preparation of the load).



The evenly distributed initial moisture retention for each test is obtained by using the rinse cycle of a washing machine followed by some spin drying. The initial moisture retention of each load is determined before each drying test and shall be  $(70 \pm 5) \%$  according to 4.2.3.

After this preparation (including accurate weighing) start the test within 30 min.

## 4.2.2 Measurements and calculations

### 4.2.2.1 Mass of the standard load

The mass of the standard load at the beginning of the drying cycle ( $M_i$ ) and the mass of the standard load at the end of the drying cycle ( $M_f$ ) are measured in each drying test.

### 4.2.2.2 Determination of the initial and final moisture retention

The initial moisture retention,  $h_i$ , is determined for the standard load in each drying test.  $h_i$  is calculated using the following formula:

$$h_i = \frac{M_i - M_c}{M_c} \times 100 \%$$

where:

$h_i$  is the initial moisture retention: water content of the standard load at the beginning of the drying cycle, expressed as a percentage;

$M_i$  is the mass of the standard load at the beginning of the drying cycle, expressed in kilograms;

$M_c$  is the mass of the standard load when conditioned in free air in accordance with the method specified in EN 20139, expressed in kilograms.

The final moisture retention,  $h_f$ , is determined after the cool down period for the standard load in each drying test.  $h_f$  is calculated using the following formula:

$$h_f = \frac{M_f - M_c}{M_c} \times 100 \%$$

where:

$h_f$  is the final moisture retention: water content of the standard load at the end of the drying cycle, expressed as a percentage;

$M_f$  is the mass of the standard load at the end of the drying cycle, expressed in kilograms.