



SLOVENSKI STANDARD

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Dimovodne naprave - Oprema - 3. del: Regulatorji vleka, lopute z motornim pogonom in kombinirane lopute za sekundarni zrak - Zahteve in preskusne metode

Chimneys - Accessories - Part 3: Draught regulators, standstill opening devices and combined secondary air devices - Requirements and test methods

Abgasanlagen - Zubehörteile - Teil 3: Selbsttätig arbeitende, zwangsgesteuerte und kombinierte Nebenluftvorrichtungen - Anforderungen und Prüfmethoden

Conduits de fumée - Accessoires - Partie 3: Régulateurs de tirage, dispositifs d'ouverture pour période d'arrêt et dispositifs combinés d'air secondaire - Exigences et méthodes d'essai

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Chimneys - Accessories - Part 3: Draught regulators, standstill opening devices and combined secondary air devices - Requirements and test methods

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This European Standard was approved by CEN on 27 November 2015.

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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 16475-3:2016) has been prepared by Technical Committee CEN/TC 166 “Chimneys”, the secretariat of which is held by ASI.

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of an identical text or by endorsement, at the latest by October 2016, and conflicting national standards shall be withdrawn at the latest by January 2018.

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, and supports essential requirements of EU Directive(s).

For relationship with EU Regulation, see informative Annex ZA, which is an integral part of this document.

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.

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Introduction

This standard forms a part of the series of standards for chimney accessories:

- *Part 1: Silencers*
- *Part 2: Chimney fans*
- *Part 3: Draught regulators, standstill opening devices and combined secondary air devices (this part)*
- *Part 4: Flue dampers*
- *Part 5: Explosion/implosion relief devices*
- *Part 6: Access components*
- *Part 7: Rain caps*

Independent draught regulators are for the purpose of reducing negative pressure that is too large in the chimney, which can result through the use of commercially available cross-section dimensions, despite being designed e.g. according to EN 13384-1:2015, *Calculation method for chimneys serving single appliance*. They serve to increase the flue gas speed and the ventilation of the chimney, for the purpose of drying out (see explanations).

Standstill opening devices interlocked with the combustion system are exclusively for the purpose of ventilating the chimney during standby.

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1 Scope

This European Standard specifies the requirements and test methods for draught regulators, standstill opening devices and combined secondary air devices that are used as components, carrying flue gases, in order to limit the draught in chimneys and provide secondary air to the chimney.

Draught regulators, standstill opening devices and combined secondary air devices for positive pressure chimneys are not covered by this standard.

It also specifies the requirements for marking, manufacturers' instruction, product information and attestation and verification of constancy of performance (AVCP).

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1443, *Chimneys — General requirements*

EN 10088-1, *Stainless steels — Part 1: List of stainless steels*

EN 10346, *Continuously hot-dip coated steel flat products for cold forming — Technical delivery conditions*

EN 13216-1, *Chimneys — Test methods for system chimneys — Part 1: General test methods*

EN 60730-2-14, *Automatic electrical controls for household and similar use — Part 2-14: Particular requirements for electric actuators (IEC 60730-2-14)*

EN 61058-1, *Switches for appliances — Part 1: General requirements (IEC 61058-1)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1443, and the following apply.

3.1

draught regulator

device with a hinged flap in a flue opening to allow entry of secondary air into the flue to regulate the draught

3.2

standstill opening device

device which is opened motorised to allow air to enter the flue during the standstill period of the heating appliance

3.3

combined secondary air device

combination of a draught regulator and standstill opening device

EN 16475-3:2016 (E)**3.4****sootfire safe accessory (As)**

accessory that may not perform its intended function during and after a sootfire but does not prevent the safe operation or change the designation "G" of the chimney or connecting flue pipe

Note 1 to entry: "As" can only be used for accessories and not for chimneys, flue liners and connecting flue pipes.

Note 2 to entry: Measures to be taken after the event of a sootfire are to be found in the relevant product standard.

4 Product characteristics**4.1 General**

The draught regulator, and if appropriate the standstill opening device, housing and flap in contact with combustion products shall have a material with 0,6 mm minimum thickness, and a specification for steel according to EN 10088-1 of 1.4301, and 1.4404, and 1.0306 according to EN 10346 for any corrosion class for dry applications, and for wet applications, only for corrosion class 1 and 2, a steel according to EN 10088-1 of 1.4404 or higher.

The draught regulator and standstill opening devices shall fulfil the following requirements, if appropriate. The combined secondary air devices shall fulfil the requirements of both, if appropriate.

4.2 Dimensions and tolerances

The manufacturer is free to choose dimensions and tolerances for the manufacture of draught regulators and if appropriate standstill opening devices.

4.3 Mechanical resistance and stability

The draught regulator, and standstill opening device, shall be able to move freely before and after the thermal tests except for a product designated As after a soot fire test.

4.4 Thermal performance**4.4.1 Reaction to fire**

As the fire reaction is not relevant for draught regulators and/or standstill opening devices, no declaration is necessary.

4.4.2 Fire resistance (internal to external)**4.4.2.1 General**

The manufacturer shall declare the minimum distance of the draught regulator, and if appropriate standstill opening device, to combustible material and the requirement of 4.4.2.2 and if appropriate 4.4.2.3 shall be met at the distance declared by the manufacturer.

For a temperature designation up to T450, a declaration of at least 400 mm for the distance to combustible material is deemed to satisfy this requirement without testing.

4.4.2.2 Heat stress

The draught regulator, and if appropriate standstill opening device, shall be tested in accordance with 5.1.3.2 and the requirements of 4.3 and 4.5.1 shall be met, and one of the flow rates of the group determination of 4.6.1, at the lowest declared setting, is within 10 % of the original value determined before thermal exposure.

4.4.2.3 Sootfire

The draught regulator, and if appropriate the standstill opening device, designated sootfire resistant shall be tested in accordance with 5.1.3.3 and the requirements of 4.3 and 4.5.1 shall be met, and one of the flow rates of the group determination of 4.6.1, at the lowest declared setting, is within 10 % of the original value determined before thermal exposure.

If the product satisfies all criteria it may be designated G. If it only satisfies the criteria of 4.5.1 it may be designated As. Otherwise it may only be designated O.

4.5 Hygiene, health and environment

4.5.1 Gas tightness

When a draught regulator, and if appropriate standstill opening device, is tested according to the test methods described in 5.1, the individual values of leakage rate shall not vary by more than 10 % of the average of the three samples tested for each size of draught regulator, and the average leakage rate shall not be greater than 0,06 m³/h per cm² of free opening area, based on a pressure differential of (10 ± 1) Pa.

The draught regulator and/or the standstill opening device tested for thermal performance shall meet this requirement both before and after the thermal performance tests (heat stress test and if appropriate soot fire test).

The draught regulator and/or the standstill opening device designated As, shall have a leakage rate not greater than 0,18 m³/h/cm² of free opening area, based on a pressure differential of (10 ± 1) Pa after the sootfire test.

4.5.2 Condensate resistance

When tested in accordance with the condensate test of EN 13216-1 no condensate shall appear on the outer surface of the draught regulator/standstill opening device.

The draught regulator shall be installed in accordance with the manufacturer's instructions in the thermal test assembly of Figure 2, attaching the spray assembly to the top of the test chimney, and providing a drain for the condensate at the bottom.

4.5.3 Corrosion resistance

Draught regulators shall be designated a corrosion class as defined in EN 1443 in accordance with 4.1.

4.5.4 Dangerous substances

National regulations on dangerous substances may require verification and declaration on release, and sometimes content, when construction products covered by this standard are placed on those markets. In the absence of European harmonized test methods, verification and declaration on release/content should be done taking into account national provisions in the place of use.

NOTE An informative database covering European and national provisions on dangerous substances is available at the Construction website on EUROPA accessed through: <http://ec.europa.eu/enterprise/construction/cpd-ds/>.

4.6 Additional criteria for chimney operation

4.6.1 Determination of the draught regulator group

When tested in accordance with 5.3.2 the draught regulator shall be assigned a group according to Figure 1.

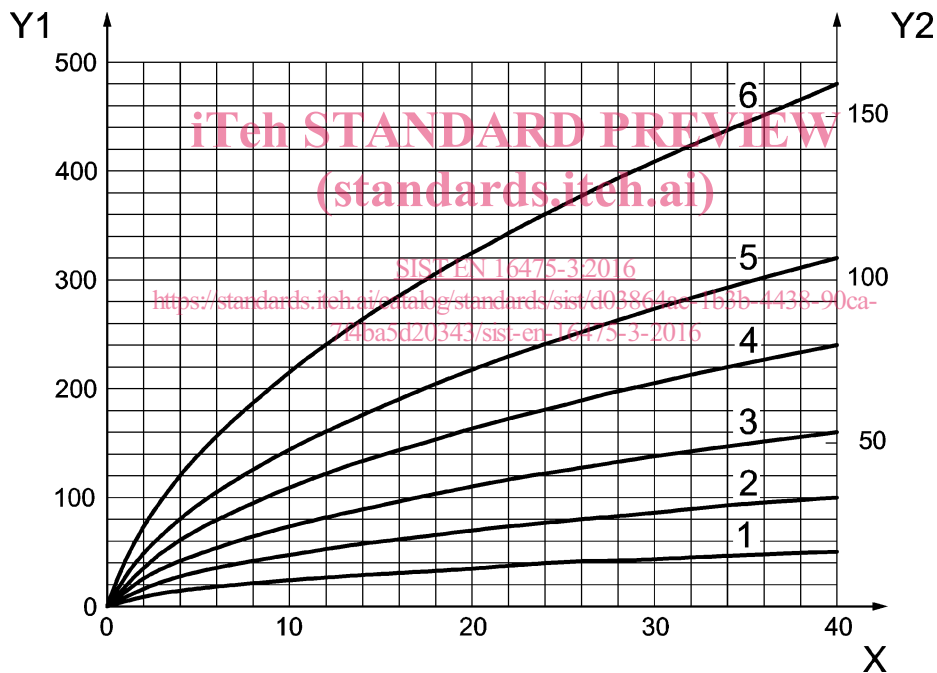
The curves are determined from the following formula.

$$X = a_1 \cdot \frac{Y2}{1000} + a_2 \cdot \left(\frac{Y2}{1000} \right)^2 \text{ in Pa} \quad (1)$$

where a_1 and a_2 are factors obtained from Table 1.

Table 1 — Characteristic values for draught regulators

draught regulator group	a_1 Pa·s/kg	a_2 Pa·(s/kg) ²
1	400	120 000
2	200	30 000
3	140	11 400
4	97	5 000
5	74	2 800
6	48	1 260



Key

- Numbers 1 to 6 group number assigned to draught regulators
 X deviation from the setting point in Pa
 Y1 secondary air volume flow in m³/h
 Y2 secondary air mass flow in g/s

Figure 1 — Limit curves of the determination for draught regulator group

4.6.2 Adjustability and function of the draught regulator

When tested in accordance with 5.3.1 the adjustability of the settings shall be in maximum 5 Pa steps.

When tested in accordance with 5.3.1 the second value of the volume flow may be a maximum of 80 % above the first value.

4.6.3 Durability of the standstill opening device

When tested in accordance with 5.1.4 the standstill opening devices shall continue to open and close after at least 50 000 switching operations.

4.7 Electrical requirements

4.7.1 Motor

The motor of the standstill opening device shall be in accordance with EN 60730-2-14.

4.7.2 Limit switches

Limit switches shall be in accordance with EN 61058-1.

5 Testing, assessment and sampling methods

5.1 Thermal performance

5.1.1 General

For thermally testing the draught regulator for integrity under sootfire conditions assemble the draught regulator according to Figure 2.

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