



**SLOVENSKI STANDARD**  
**oSIST prEN 257:2020**  
**01-maj-2020**

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**Mehanski termostati za plinske aparate**

Mechanical thermostats for gas-burning appliances

Mechanische Temperaturregler für Gasgeräte

Thermostats mécaniques pour appareils à gaz

**Ta slovenski standard je istoveten z: prEN 257**

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## Mechanical thermostats for gas-burning appliances

Thermostats mécaniques pour appareils à gaz

Mechanische Temperaturregler für Gasgeräte

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 58.

If this draft becomes a European Standard, 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.

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## European foreword

This document (prEN 257:2020) has been prepared by Technical Committee CEN/TC 58 “Safety and control devices for burners and appliances burning gaseous or liquid fuels”, the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 257:2010.

This document has been prepared under a standardization request 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 document.

prEN 257:2020 includes the following significant technical changes with respect to EN 257:2010:

- a) scope is enlarged to maximum inlet pressures up to and including 50 kPa (500 mbar);
- b) alignment with EN 13611:2019;
- c) updating of Clause 2, normative references;
- d) units of measurement and test conditions are updated according to EN 13611:2019;
- e) requirements and tests concerning durability of elastomers in contact with gas (7.8 of this document) are now totally aligned with EN 13611:2019, 7.8;
- f) marking, installation and operating instructions (Clause 9 of this document) are extended to cover additional information.

## **Introduction**

This document is intended to be used in conjunction with EN 13611:2019. This document refers to clauses of EN 13611:2019 or adapts clauses by stating “with the following modification”, “with the following addition”, “is replaced by the following” or “is not applicable” in the corresponding clause. This document adds clauses or sub clauses to the structure of EN 13611:2019 which are particular to this document. It should be noted that these clauses and subclauses are not indicated as an addition. Subclauses which are additional to those in EN 13611:2019 are numbered starting from 101. Additional Annexes are designated as Annex AA, BB, CC, etc.

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## 1 Scope

This document specifies the safety, construction and performance requirements for mechanical thermostats intended for use with gas appliances and similar use, hereafter referred to as 'thermostats'.

This document applies to thermostats with declared maximum inlet pressures up to and including 50 kPa (500 mbar) of nominal connection sizes up to and including DN 50 for use with one or more fuel gases in accordance with EN 437.

This document applies to thermostats controlling the gas flow directly or indirectly through an integral gas valve.

This document only applies to thermostats used with gas appliances which are not installed in the open air.

Thermostats dealt with in this document are intended for control functions.

This document is not applicable to:

- a) the thermocouple;
- b) controls which use auxiliary energy (e.g. electrical energy supplied externally);
- c) an assessment of the control regarding Performance Level (PL) and Safety Integrity Level (SIL).

## 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 13611:2019, *Safety and control devices for burners and appliances burning gaseous and/or liquid fuels — General requirements*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 13611:2019 and the following apply.

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

- IEC Electropedia: available at <http://www.electropedia.org/>
- ISO Online browsing platform: available at <http://www.iso.org/obp>

### 3.101

#### **mechanical thermostat**

thermostat which controls the temperature by adjusting the flow rate accordingly to the temperature of the sensor without any external energy, such that the temperature remains within defined limits

### 3.102

#### **adjustable thermostat**

mechanical thermostat in which the temperature set-point can be adjusted by the user to anywhere between minimum and maximum values

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**3.103****fixed setting thermostat**

mechanical thermostat that has a preset fixed operating temperature which cannot be adjusted by the user

**3.104****snap-acting thermostat**

mechanical thermostat with only two positions for the flow rate, i.e. 'full on-off', 'full on-reduced rate' or 'reduced rate-off'

**3.105****modulating thermostat**

mechanical thermostat which controls the flow rate in accordance with a predetermined and continuous function of the temperature of the temperature sensor

**3.106****modulating thermostat with additional on-off action**

mechanical thermostat which acts as a snap-acting thermostat between the closed and reduced positions and as a modulating thermostat between the reduced and full-on positions

**3.107****thermostat closure member**

movable part of the thermostat which opens and closes the gas way and/or varies the flow rate

**3.108****presetting device**

device for adjusting an operating condition only by an authorized person

Note to entry: It may be fixed or variable, e.g. when it is the gas flow that is adjustable; either an orifice or an adjusting screw may be used.

**3.109****fixed bypass**

non-adjustable presetting device for fixing the minimum gas flow through a thermostat

**3.110****bypass adjusting device**

screw adjustment or an exchangeable orifice, that fixes the minimum gas flow rate through the thermostat, and which is accessible only by the use of tools

**3.111****temperature sensor**

device which senses the temperature of the medium to be controlled or to be supervised

**3.112****operating curve**

graphical representation of the flow rate as a function of the sensor temperature at a given temperature set-point and at a constant inlet pressure

**3.113****backlash**

difference of position of the adjusting knob when it is moved in both directions to obtain the same flow rate at a constant sensor temperature

**3.114****adjusting knob****adjustable spindle**

part of the thermostat which is used to select the temperature set-point

**3.115****temperature set-point**

any value selected within the temperature range at which the controlled temperature should be maintained

**3.116****temperature set-point range**

range between the minimum and maximum adjustable temperature set-points

Note 1 to entry: The temperature can be adjusted between the set-points by means of the adjusting knob.

**3.117****calibration flow rate**

flow rate declared by the manufacturer for calibration

**3.118****calibration temperature set-point**

temperature at which the calibration flow rate should be obtained with the adjustment set to the position and in the direction declared by the manufacturer

**3.119****temperature differential for snap-acting thermostats**

difference in temperature necessary to obtain a change in the flow rate, at a given set-point

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**3.120****deviation**

maximum deviation from the temperature set-point which is declared by the manufacturer

**3.121****drift**

permanent change in the operating curve of the thermostat

**4 Classification****4.1 Classes of control**

EN 13611:2019, 4.1 is not applicable.

**4.2 Groups of control**

Shall be according to EN 13611:2019, 4.2.

**4.3 Classes of control functions**

EN 13611:2019, 4.3 is not applicable.

**4.4 Types of DC supplied controls**

EN 13611:2019, 4.4 is not applicable.

NOTE See Scope.

**prEN 257:2020 (E)****5 Test conditions and uncertainty of measurements**

Shall be according to EN 13611:2019, Clause 5.

**6 Design and construction****6.1 General**

Shall be according to EN 13611:2019, 6.1.

**6.2 Mechanical parts of the control****6.2.1 Appearance**

Shall be according to EN 13611:2019, 6.2.1.

**6.2.2 Holes**

Shall be according to EN 13611:2019, 6.2.2.

**6.2.3 Breather holes**

Shall be according to EN 13611:2019, 6.2.3.

**6.2.4 Screwed fastenings**

Shall be according to EN 13611:2019, 6.2.4.

**6.2.5 Jointing**

Shall be according to EN 13611:2019, 6.2.5.

**6.2.6 Moving parts**

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Shall be according to EN 13611:2019, 6.2.6.

**6.2.7 Sealing caps**

Shall be according to EN 13611:2019, 6.2.7.

**6.2.8 Dismantling and reassembly**

Shall be according to EN 13611:2019, 6.2.8 with the following addition:

If, in accordance with the manufacturers instructions the thermostat can be dismantled for servicing, such action shall not result in a change in temperature calibration exceeding the declared maximum set point deviation (see 7.101.1).

**6.2.9 Auxiliary canals and orifices**

Shall be according to EN 13611:2019, 6.2.9.

**6.2.10 Presetting device**

Shall be according to EN 13611:2019, 6.2.10.

**6.3 Materials**

Shall be according to EN 13611:2019, 6.3.

## 6.4 Gas connections

Shall be according to EN 13611:2019, 6.4.

## 6.5 Electrical parts of the control

EN 13611:2019, 6.5 is not applicable.

NOTE See Scope.

## 6.6 Protection against internal faults for the purpose of functional safety

EN 13611:2019, 6.6 is not applicable.

NOTE See Scope.

### 6.101 Flow characteristics

An adjustable bypass shall be set by means of a variable presetting device or shall be adjusted by means of a fixed presetting device.

It shall be possible to gain access to any fixed bypass or bypass adjusting device for cleaning without changing the calibration temperature set-point.

The opening and closing of the thermostat closure member with a total shut-off function shall happen by snap-action between the off position and the reduced flow position.

Figure 2 shows typical operating curves of a modulating, snap-acting and modulating on-off thermostat.

The flow rate at the moment of snap-action shall not be less than the value as stated in the operating instructions.

### 6.102 Temperature adjustment oSIST prEN 257:2020

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#### 6.102.1 Range adjustment

The allowed temperature setting range shall be limited by stops. Where applicable the operating instructions shall state the limits in which the temperature setting range may be adjusted using appropriate tools. The temperature setting range stops shall not change on their own accord.

#### 6.102.2 Set point adjustment

If the adjusting knob is supplied as part of the thermostat, the marking of its positions shall be easily recognizable. It shall indicate the direction in which the temperature is raised or lowered. If numbers are used, higher numbers shall indicate higher temperatures, except for thermostats for refrigerators where higher numbers shall indicate lower temperatures.

It shall be possible to select any temperature set-point over the whole temperature range by setting the adjusting knob or spindle between the stops within the maximum and minimum ambient temperatures as stated in the operating instructions.

The temperature setting means shall not change on its own accord.

#### 6.102.3 Fixed setting thermostat

If provided, the adjuster of a fixed setting thermostat shall be sealed (e.g. lacquer).