



**SLOVENSKI STANDARD**  
**oSIST prEN 12489:2021**  
**01-januar-2021**

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**Vrata v industrijske in javne prostore ter garažna vrata - Odpornost proti vdoru vode - Preskusna metoda**

Industrial, commercial and garage doors and gates - Resistance to water penetration - Test method

Tore - Widerstand gegen eindringendes Wasser - Prüfverfahren

Portes et portails industriels, commerciaux et de garage - Résistance à la pénétration de l'eau - Méthode d'essai

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**Ta slovenski standard je istoveten z: prEN 12489**

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**ICS:**

91.060.50	Vrata in okna	Doors and windows
91.090	Konstrukcije zunaj stavb	External structures

**oSIST prEN 12489:2021**

**en,fr,de**

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EUROPEAN STANDARD  
NORME EUROPÉENNE  
EUROPÄISCHE NORM

**DRAFT**  
**prEN 12489**

November 2020

ICS 91.060.50

Will supersede EN 12489:2000

English Version

## Industrial, commercial and garage doors and gates - Resistance to water penetration - Test method

Portes et portails industriels, commerciaux et de  
garage - Résistance à la pénétration de l'eau - Méthode  
d'essai

Tore - Widerstand gegen eindringendes Wasser -  
Prüfverfahren

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 33.

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.

This draft European Standard was established by CEN 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 CEN-CENELEC Management Centre has the same status as the official versions.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

**CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels**

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## European foreword

This document (prEN 12489:2020) has been prepared by Technical Committee CEN/TC 33 “Doors, windows, shutters, building hardware and curtain walling”, the secretariat of which is held by AFNOR.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 12489:2000.

Compared with EN 12489:2000, the following changes have been made:

- normative references were updated;
- references to the classification standard EN 12425:2000 were deleted as the classification of the characteristic water tightness has been transferred to prEN 13241:2020, and references to prEN 13241:2020 have been added accordingly.

This document is one of a series of test standards identified within the product standard prEN 13421:2020.

European standards as well as relevant national regulations and standards will enable the actual exposure levels to be determined for the individual locations of the products.

As during the revision of this document the test procedures haven't been changed, existing test results remain valid (historical data).

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**prEN 12489:2020 (E)****1 Scope**

This document specifies the test method for determining the resistance to water penetration for industrial, commercial and garage doors and gates according prEN 13241:2020 in a closed position.

For the purposes of this document the term 'door' is used as a general term for 'industrial, commercial and garage doors and gates' unless clearly stated.

**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 12433-1, *Industrial, commercial and garage doors and gates — Terminology — Part 1: Types of doors*

EN 12433-2, *Industrial, commercial and garage doors and gates — Terminology — Part 2: Parts of doors*

prEN 13241:2020, *Industrial, commercial and garage doors and gates — Product standard, performance characteristics*

**3 Terms and definitions**

For the purposes of this document, the terms and definitions given in EN 12433-1 and EN 12433-2 and the following apply.

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

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

**3.1 resistance to water penetration**  
ability of the test specimen, when in closed position, to resist water penetration under specified test conditions

**3.2 water penetration**  
continuous or repeated wetting of the internal surface of the test specimen or parts which are not designed to be wetted

**4 Principle of test**

Constant spraying of a specified quantity of water onto the external surface of the test specimen while increments of positive test pressure are applied at regular intervals. Details shall be recorded for test pressure and location of water penetration.

**5 Apparatus**

The basic test apparatus shall include:

- a) an opening to which the test specimen can be fitted, to simulate the structure of the product on site;
- b) device(s) to provide controlled air pressure, above atmospheric air pressure, to the exposed surface of the specimen, enabling rapid changes of air pressure, controlled between defined limits;

- c) device(s) to measure the amount of supplied water to an accuracy of  $\pm 10\%$ . If several rows of nozzles with different flows are set up, at least two are necessary;
- d) device(s) for measuring air pressure with an accuracy of  $\pm 5\%$ ;
- e) a spraying system capable of applying a continuous regularly dispersed film of water all over the surface likely to be wetted in real exposure conditions by means of full circular nozzles according to Figure 1 and with the following features:
- angle of spray:  $120^{\circ+0^{\circ}}_{-10^{\circ}}$ ;
  - air pressure working range: 2 bar to 3 bar according to manufacturer's specifications;
  - nozzle rate:
    - top row ( $2 \pm 0,2$ ) l/min / nozzle;
    - additional rows ( $1 \pm 0,1$ ) l/min / nozzle;
  - water characteristics:
    - its temperature shall be between 4 °C and 30 °C;
    - it shall be clean enough to enable the nozzles to spray properly;
  - any locally supplied water will be acceptable;
- f) a system able to drain the sprayed water away from the surround, without interfering with the self drainage of the door itself.

NOTE The test rig is designed to not increase the performance of the specimen.

The test rig shall be prepared so that it is able to withstand the pressures applied during the test, without deflecting to an extent likely to impair jointing or to impose bending stresses.

The test rig shall be prepared and installed so that any water leakage, including that through the frame joints shall be readily detectable.

## 6 Preparation of test specimen

- a) The test specimen shall be installed in accordance with the manufacturer's standard or published installation instructions.
- b) The test specimen shall consist of parts which in detail conform to the production level of quality. Whenever possible the test specimen should be newly made. Doors and parts in stock are to be regarded as newly made if they fully comply with the specification of the running production.
- c) The test specimen shall be clean and the surfaces dry.
- d) Any ventilation, drainage or "weep holes" shall be taped up or left open according to the purpose of test and this purpose and state shall be noted and recorded. In most cases, air can pass through both fixed or opening joints.

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- e) The application of the test specimen in its normal use as indicated in the manufacturer's standard or published installation instructions shall be taken into account when determining the position of the water spraying system.
- f) Minimum dimensions of specimen, see Table 1.

Table 1 — Minimum dimensions of specimen

Commercial and garage doors	Width: 2 000 mm Height: 2 000 mm
Industrial doors	Width: 3 500 mm Height: 3 000 mm

- g) The help of an adequate template is recommended to achieve the set-up of the spraying system according to Figure 1:

**for an overall door height up to 2 000 mm**

- a single row adjusted so that each nozzle sprays on average  $(2 \pm 0,2)$  l/min

**for an overall door height more than 2 000 mm**

- an upper row adjusted so that each nozzle sprays on average  $(2 \pm 0,2)$  l/min and
- one or more additional rows equally divided between the bottom of the specimen and the upper row of nozzles, with a tolerance of  $\pm 150$  mm. According to the Table 2 below the flow of each nozzle should be an average  $(1 \pm 0,1)$  l/min.

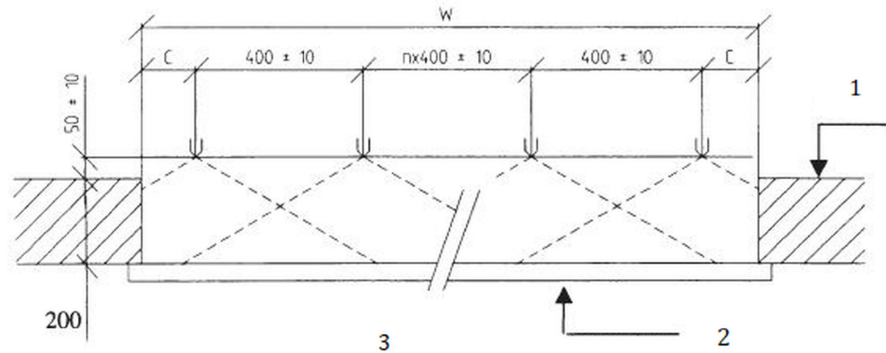
Table 2 — Number of nozzle rows

Overall door height (daylight height) mm	Number of nozzle rows (upper row included)	Distance between nozzle rows (equally divided) mm
< 2 000	1	
$\geq 2 000$ to < 3 000	2	1 000–1 500
$\geq 3 000$ to < 4 500	3	1 000–1 500
$\geq 4 500$ to < 6 000	4	1 120–1 500



Dimensions in millimetres

**Horizontal section A-A**



**Vertical section**

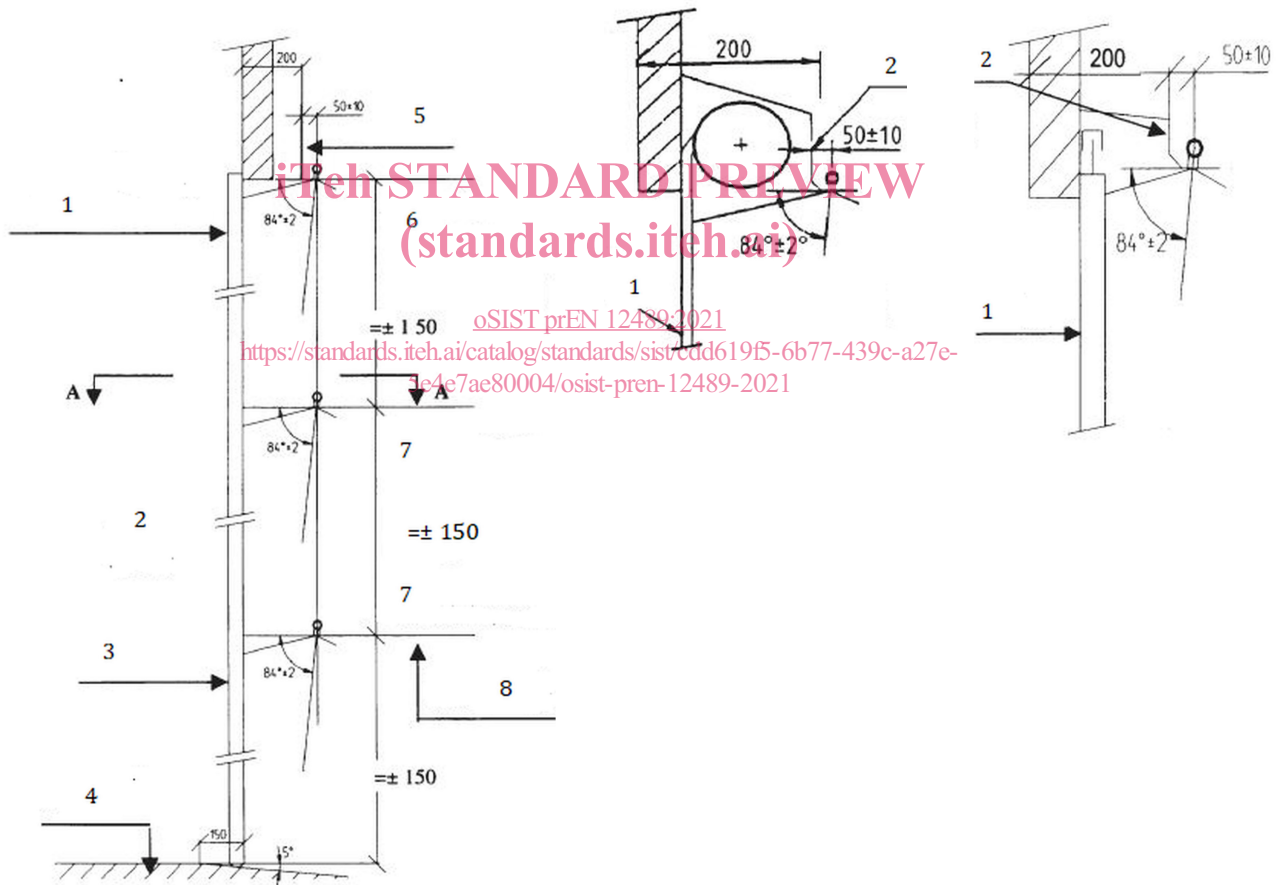
(Overhead door with shield)

**Detail A**

(Roller shutter with canopy)

**Detail B**

(Sliding door with canopy)



**Key**

	Horizontal section A-A		Vertical section (Overhead door with shield)		Detail A (Roller shutter with canopy)		Detail B (Sliding door with canopy)
1	shield or edge of canopy	1	water shall not come over the upper edge of the door	1	inside door leaf	1	inside door leaf
2	door leaf	2	inside = ± 150	2	canopy	2	canopy

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3	inside	3	door leaf				
		4	ground floor level				
		5	shield				
		6	(2±0,2) L/min per nozzle				
		7	(1±0,1) L/min per nozzle				
		8	on each row, nozzle tip shall not be set up below this level				

**Figure 1 — Set-up spraying system for different doortypes and details with canopys**

## 7 Test procedure

### 7.1 Preliminaries

The test specimen shall be conditioned for at least 4 hours within the range 10 °C to 30 °C and 25 % to 75 % relative humidity immediately before testing.

Temperature shall be measured to within ± 3 °C and humidity to within ± 5 %. Atmospheric pressure shall be measured to within ± 1 kPa.

The test specimen shall be opened and closed at least once before finally being secured in the closed positions.

If air permeability has not been performed during the previous 24 h, three air pressure pulses shall be applied, the duration of increase in air pressure shall not be less than one second. Each pulse shall be maintained for at least three seconds see Annex A, Figure 1. These pulses shall produce an air pressure 10 % greater than the required maximum air pressure.

### 7.2 Spraying phase

Constant spraying of a specified quantity of water to the outside surface of the test specimen whilst static air pressure, in a sequence of increasing amplitude steps, is applied.

Spraying is applied first 10 min without air pressure and then with constant air pressure increasing every 5 minutes. Overall duration is performance dependent. Hence the minimum test lasts at least 15 min.

Testing shall be carried out as follows:

- the flow of each row is adjusted according to the specifications of Clause 5 f) and Figure 1;
- air pressure application: each step lasts 5 min, they are given in Figure 2;
- the test operator shall continuously monitor the test air pressure within practical limits.