



SLOVENSKI STANDARD
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Portable equipment for projecting extinguishing agents supplied by fire fighting pumps -
Portable monitors - Part 2: Water nozzles

Tragbare Geräte zum Ausbringen von Löschmitteln, welche mit Feuerlöschpumpen
gefördert werden - Tragbare Werfer - Teil 2: Wasserdüsen

Equipement portable de projection d'agents d'extinction alimenté par des pompes à
usage incendie - Lances-canon portables - Partie 2 : Diffuseurs à eau

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Ta slovenski standard je istoveten z: EN 15767-2:2009

ICS:

13.220.10 Gašenje požara Fire-fighting

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 15767-2

June 2009

ICS 13.220.10

English Version

**Portable equipment for projecting extinguishing agents supplied
by fire fighting pumps - Portable monitors - Part 2: Water
nozzles**

Équipement portable de projection d'agents d'extinction
alimenté par des pompes à usage incendie - Lances-canon
portables - Partie 2 : Diffuseurs à eau

Tragbare Geräte zum Ausbringen von Löschmitteln, welche
mit Feuerlöschpumpen gefördert werden - Tragbare Werfer
- Teil 2: Wasserdüsen

This European Standard was approved by CEN on 23 April 2009.

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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 CEN Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
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Foreword

This document (EN 15767-2:2009) has been prepared by Technical Committee CEN/TC 192 “Fire service equipment”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by December 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

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.

EN 15767 consists of the following parts, under the general title *Portable equipment for projecting extinguishing agents supplied by fire fighting pumps — Portable monitors*:

- Part 1: General requirements for portable monitor assemblies;
- Part 2: Water nozzles;
- Part 3: Foam devices¹⁾.

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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

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1) Under preparation.

EN 15767-2:2009 (E)**1 Scope**

1.1 In addition to the requirements given in EN 15767-1, this European Standard is applicable to water nozzles, including water with fire extinguishing additives. It specifies requirements for safety, performance, classification and designation, as well as test methods, instructions for use and maintenance and marking.

1.2 This European Standard is not applicable to water nozzles that are manufactured before its date of publication.

2 Normative references

The following referenced documents are indispensable for the application 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 15767-1:2009, *Portable equipment for projecting extinguishing agents supplied by fire fighting pumps — Portable monitors — Part 1: General requirements for portable monitor assemblies*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions of EN 15767-1:2009 and the following apply.

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3.1 water nozzle

component, without shut-off function, connected to the outlet of the monitor that controls the water stream (shape and quantity)

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NOTE Several types of water nozzles are described in 3.1.1, 3.1.2 and 3.1.3.

3.1.1 smooth bore water nozzle

nozzle providing a solid water stream

3.1.2 flat spray water nozzle

nozzle providing a flat spray water stream

3.1.3 combination water nozzle

nozzle with a adjustable pattern, corresponding to the following definitions

3.1.3.1 combination water nozzle – type 1

nozzle with adjustable pattern at variable flow

NOTE Changing the pattern changes the flow.

3.1.3.2 combination water nozzle – type 2

nozzle with adjustable pattern at constant flow

NOTE Changing the pattern does not change the flow.

3.1.3.3**combination water nozzle – type 3**

nozzle with adjustable pattern at selectable, constant flow

NOTE Changing the pattern does not change the flow.

3.1.3.4**combination water nozzle – type 4 (automatic water nozzle)**

nozzle with integrated pressure control device

NOTE Changing the pattern does not change the flow.

3.1.3.4.1**combination water nozzle – type 4.1**

nozzle with adjustable pattern at constant pressure

3.1.3.4.2**combination water nozzle – type 4.2**

nozzle with adjustable pattern and selectable flow at constant pressure

3.2**median pressure**

p_m

for automatic water nozzle, average pressure of the pressure control range

3.3**jet**

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3.3.1**straight jet**

jet having the maximum throw and mechanical effect

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3.3.2**spray jet**

any jet different to the straight jet

[EN 15182-1:2007]

3.4**flush**

position allowing the water nozzle to clear debris

3.5**manufacturer's stated maximum flow**

Q_{max}

flow under which the water nozzle can be operated safely and efficiently

4 Requirements**4.1 Mechanical characteristics****4.1.1 Mass**

The water nozzle shall have a maximum mass as defined in Table 1.

Table 1 — Maximum mass

Q_{\max} l/min	Maximum mass of the water nozzle kg
< 2 000	4
2 000 - 4 000	8
4 000 – 8 000	12
> 8 000	20
NOTE The maximum mass does not apply to seawater-resistant nozzles.	

4.1.2 Operating and handling elements

The torques needed to move the operating elements shall not exceed the values given in Table 2 at pressures up to the nominal pressure.

Table 2 — Maximum torques

Type of operating element	Torque N·m
Lever	20
Valve handle	15
Rotating operating elements	15

4.1.3 Flow adjustment positions

The settings of the water nozzle equipped with selectable flowrate shall be easily identifiable by visual means.

4.1.4 Jet adjustment positions

The different jet positions of a nozzle equipped with adjustable jet positions shall be clearly marked.

4.2 Materials

The materials used shall be selected in such a way that all the requirements in Clause 4 are met, subject to the tests defined in Clause 5.

The water nozzle shall pass the heat and frost tests defined in 5.3.

4.3 Flush

4.3.1 The combination nozzle with Q_{\max} less than 2 000 l/min, when tested in accordance with 5.4, shall be able to clear or flush a steel ball of 6,35 mm diameter without shutting off the nozzle.

NOTE This should be accomplished either through the full open nozzle position or through a flush feature of the nozzle. In nozzles with flowrate over 2 000 l, blockage due to debris is not likely because of the larger opening of the nozzle.

4.3.2 Water nozzles equipped with a flush feature shall have a mechanical and/or visual device to indicate to the user when the flush feature is being engaged.

4.4 Hydraulic characteristics

4.4.1 Pressures

The following pressures, measured at the nozzle inlet, shall be used for the determination of the hydraulic characteristics:

- reference pressure: $p_R = 6 \text{ bar} \pm 0,1 \text{ bar}$;
- median pressure for automatic water nozzle: p_m ;
- nominal pressure: $p_N = 16 \text{ bar}$;
- test pressure: $p_t = 25,5 \text{ bar}$.

4.4.2 Flowrates

All flowrates indicated on the nozzle shall be measured at straight jet and at the maximum spray angle position at the reference pressure p_R .

The flowrates measured at the reference pressure p_R shall not deviate by more than - 0/+ 10 % of the flowrate setting of the nozzle.

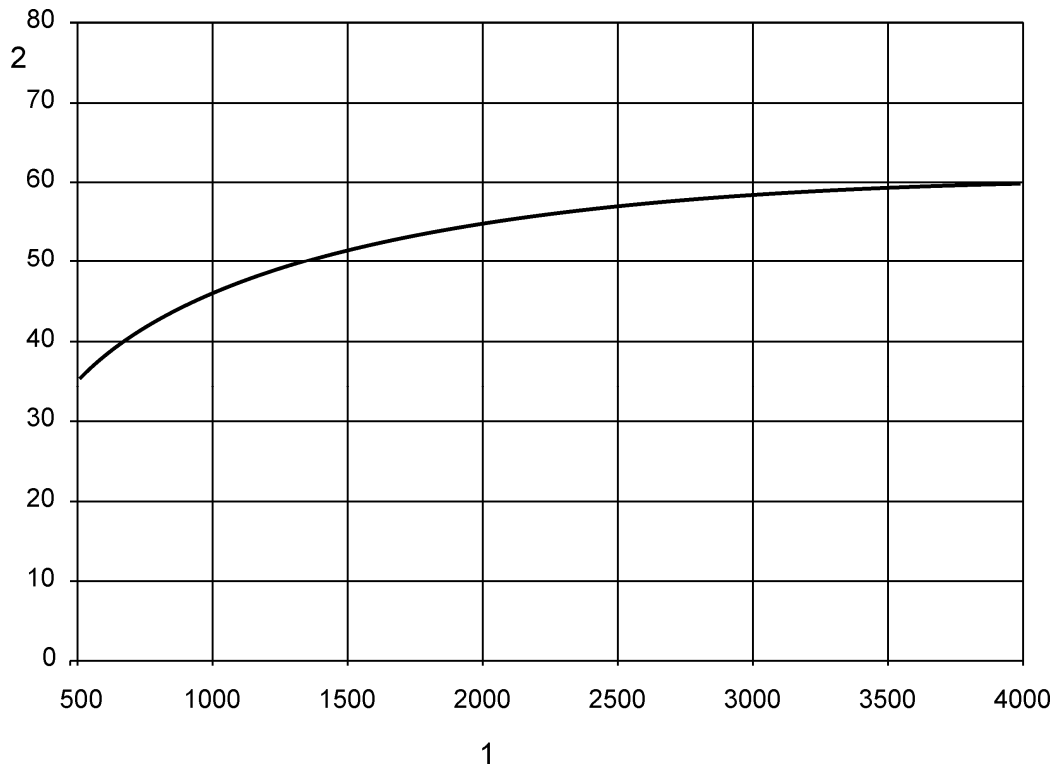
NOTE The deviation should also apply when the shape of the stream is altered.

4.4.3 Effective throw

The water nozzle shall achieve, for each flowrate position above 500 l/min, a minimum effective throw d_{eff} as shown in Figure 1, when set to a straight jet at the reference pressure.

For water nozzles above 4 000 l/min, the minimum effective throw shall be at least 60 metres.

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**Key**

- 1 Flowrate Q in litres per minute
- 2 Effective throw d_{eff} in metres

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Figure 1 — Effective throw
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4.4.4 Spray jet

The spray jet shall have a spray angle of at least 100°.

4.4.5 Automatic water nozzles

For automatic water nozzles, the regulation range (pressure at the beginning of the range and pressure at the end of the range) shall be stated in the documentation accompanying the product, from which the median pressure is calculated.

The flow should be set at both the minimum and maximum flow and the pressure for each shall be read.

This pressure shall not deviate from the median pressure by more than 30 %.

4.5 Leak-tightness

The nozzle shall show no leakage during 1 min at the reference pressure $p_R = 6$ bar.

NOTE No leakage means no visible weeping or drop formation from the body of the nozzle.

5 Testing and verification

5.1 General

All tests shall be done with water only.

Unless otherwise specified, tests shall be carried out at the reference pressure p_R , in the following order.

NOTE Guidance for acceptance tests on delivery is given in Annex A.

5.2 Jet spray angle measurement

Arrange the water nozzle on a fixed support in a horizontal position 1,5 m above the ground, in a zone where the wind speed is lower than 2 m/s.

Arrange a rule perpendicular to the flow at a distance of 1 m. This rule shall be marked in order to determine the spray angle.

5.3 Heat and frost test

5.3.1 Sensitivity to heat

It shall be possible to use the water nozzle without restricting its function after it has been stored for 24 h at $(55 \pm 2)^\circ\text{C}$.

NOTE Hand protection should be used when carrying out this test.

5.3.2 Sensitivity to frost

The water nozzle shall be disconnected following operation for 1 min at the reference pressure p_R . It shall then be drained for 1 min and stored at a temperature of $(-15 \pm 2)^\circ\text{C}$ for 30 min. Following this, it shall still be possible to move the operating elements manually.

NOTE Hand protection is recommended.

5.4 Flushing

The combination nozzle shall be held in the vertical position, discharge end down.

The steel ball shall pass through the nozzle.

5.5 Flow and throw test

The effective throw shall be measured under the following conditions, in accordance with Figure 2:

- effective throw (in metre): furthest droplets - 10 % = $d_{\text{eff}} = 0,9 d_{\text{max}}$;
- pressure at the inlet of the nozzle: $p_R = 6$ bar;
- inclination: $(30 \pm 0,5)^\circ$;
- height: the outlet of the nozzle shall be no more than 1 m from the ground;
- maximum wind speed: 2 m/s (Beaufort scale 3).