SLOVENSKI STANDARD
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Equipment for crop protection - Spraying equipment - Part 1: Test methods for sprayer nozzles (ISO 5682-1:2017)

Matériel de protection des cultures - Équipement de pulvérisation - Partie 1: Méthodes d'essai des buses de pulvérisation (ISO 5682-1:2017)

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INTERNATIONAL STANDARD

ISO 5682-1

Third edition
2017-05

Equipment for crop protection — Spraying equipment —

Part 1: Test methods for sprayer nozzles

Matériel de protection des cultures — Équipement de pulvérisation —

Partie 1: Méthodes d'essai des buses de pulvérisation

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ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 23, *Tractors and machinery for agriculture and forestry*, Subcommittee SC 6, *Equipment for crop protection.*

This third edition cancels and replaces the second edition (ISO 5682-1:1996), which has been technically revised as follows:

— clarity for the construction of the patternator;

— addition of a multiple nozzle setup to nozzle test methods;

— broadening of the scope of nozzle types covered;

— removal of drop size measurement using a Petri dish;

— clarification on the methods;

— clarification on sampling;

— update of instrumentation;

— several new informative annexes.

A list of all the parts in the ISO 5682 series can be found on the ISO website.

Equipment for crop protection — Spraying equipment —

Part 1: Test methods for sprayer nozzles

1 Scope

This document specifies test methods to assess the performance of sprayer nozzles with the exception of droplet characteristics. Applicable tests by nozzle type are described in an informative annex as a guide, but this is not required for use of this document.

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.

ISO 5681, *Equipment for crop protection — Vocabulary*

ISO 8486-2:2007, *Bonded abrasives — Determination and designation of grain size distribution — Part 2: Microgrits F230 to F2000*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 5681 apply.

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

— ISO Online browsing platform: available at http://www.iso.org/obp

— IEC Electropedia: available at http://www.electropedia.org/

4 Measuring equipment

4.1 General

The working range of the measuring equipment shall be within the intended range of the measurements to be taken. The equipment used shall be recorded in the test report.

4.2 Horizontal patternator

4.2.1 General

The details for a horizontal patternator are described in 4.2. Annex B includes informative construction details, but is not required for equipment construction. For non-laboratory conditions, exceptions shall be noted on the report.

4.2.2 Groove characteristics

a) The distance between two consecutive groove walls (*E* in Figure 4) when measuring single nozzles shall be either 25 mm or 50 mm.

b) If the horizontal patternator is intended for the measurement of distribution evenness across multiple nozzles or complete spray booms, the distance between two consecutive groove walls (*E* in Figure 4) can be a distance of 25 mm, 50 mm, or 100 mm.

c) The deviation of the leading edges of the groove walls from horizontal shall not exceed a slope of ± 1 % (10 mm/m) across the width (*A* in Figure 1).

d) The variation in height of the grooves shall not exceed 2 mm as measured with a straight edge of at least 1 m length (*B* in Figure 2).

e) The inclination of the leading edge of the grooves shall not exceed a slope of 10 % from horizontal (*C* in Figure 3).

f) Grooves shall allow liquid to properly drain into the collection areas.

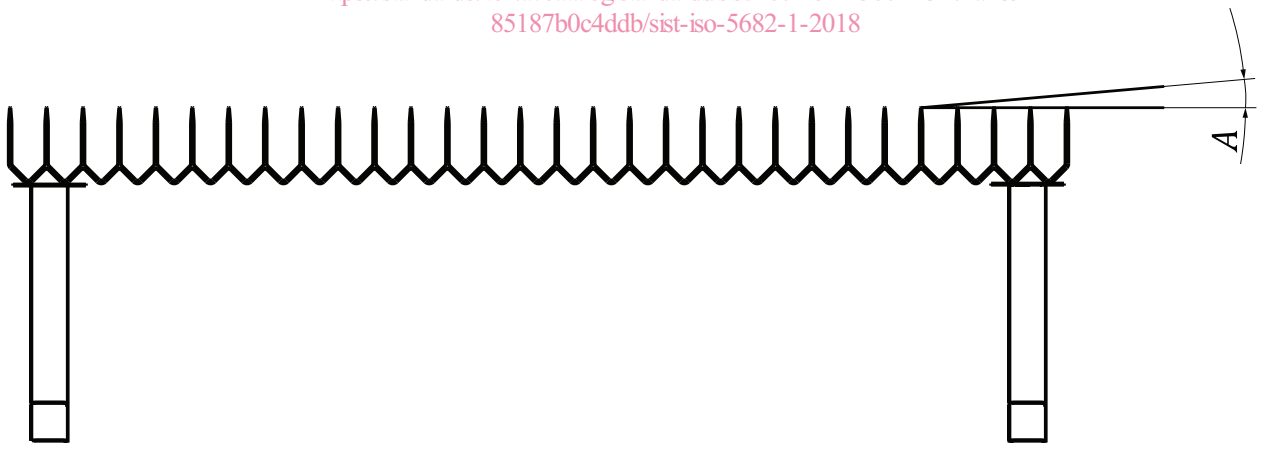
g) Groove depth (*F* in Figure 4) and groove width (*E* in Figure 4) shall be as specified in Table 1; this is to minimize the potential redistribution due to splashing. The depth and slope of the grooves may need to be adjusted in case of higher flows.

Table 1 — Groove depth

Groove width (*E*)	25 mm	50 mm/100 mm
Groove depth (*F*)	≥ 50 mm	≥ 75 mm

h) The straightness of each groove wall at the leading edge (*J* in Figure 5) shall be within ± 1,5 mm/m of the intended location (*H* in Figure 5) for horizontal patternators where the groove width (*E* in Figure 4) is 25 mm or 50 mm; the straightness of each groove wall at the leading edge shall be within ± 2,0 mm/m where the groove width is 100 mm.

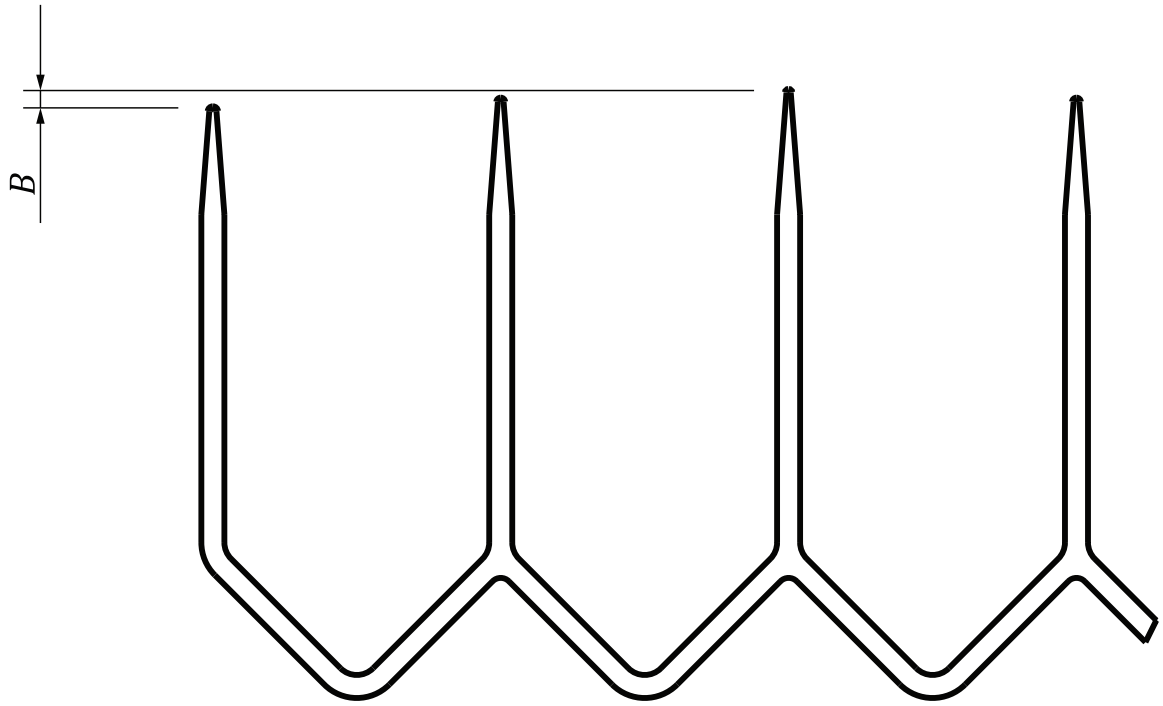
i) The deviation of the distance between the leading edges of two consecutive groove walls (*E* in Figure 4) shall be within ± 1,5 mm for 25 mm and 50 mm grooves and ± 2 mm for 100 mm grooves.



Key

A slope deviation from horizontal

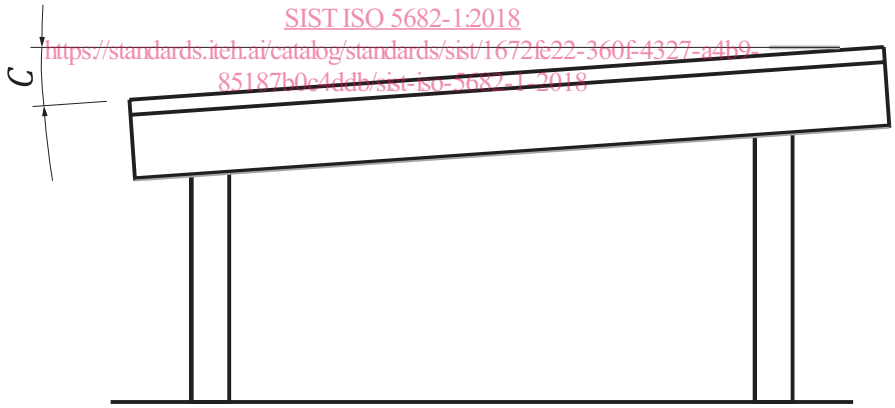
Figure 1 — Transverse angle of leading edges of grooves



Key

B deviation of groove leading edges height

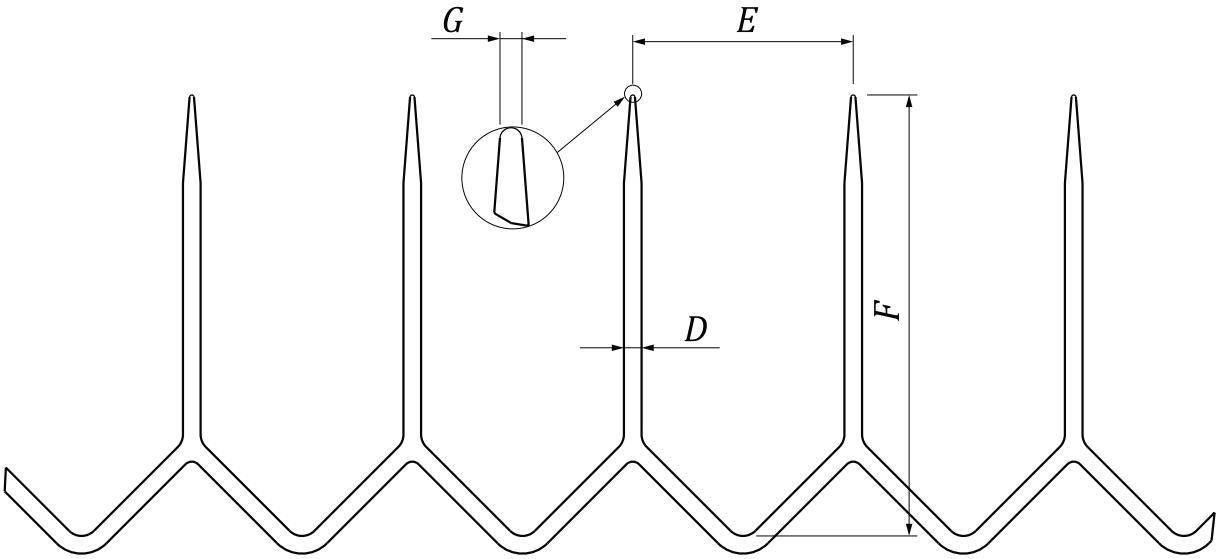
Figure 2 — Variation of groove leading edges heights



Key

C inclination of the leading edge of the grooves from horizontal

Figure 3 — Inclination of leading edges



Key

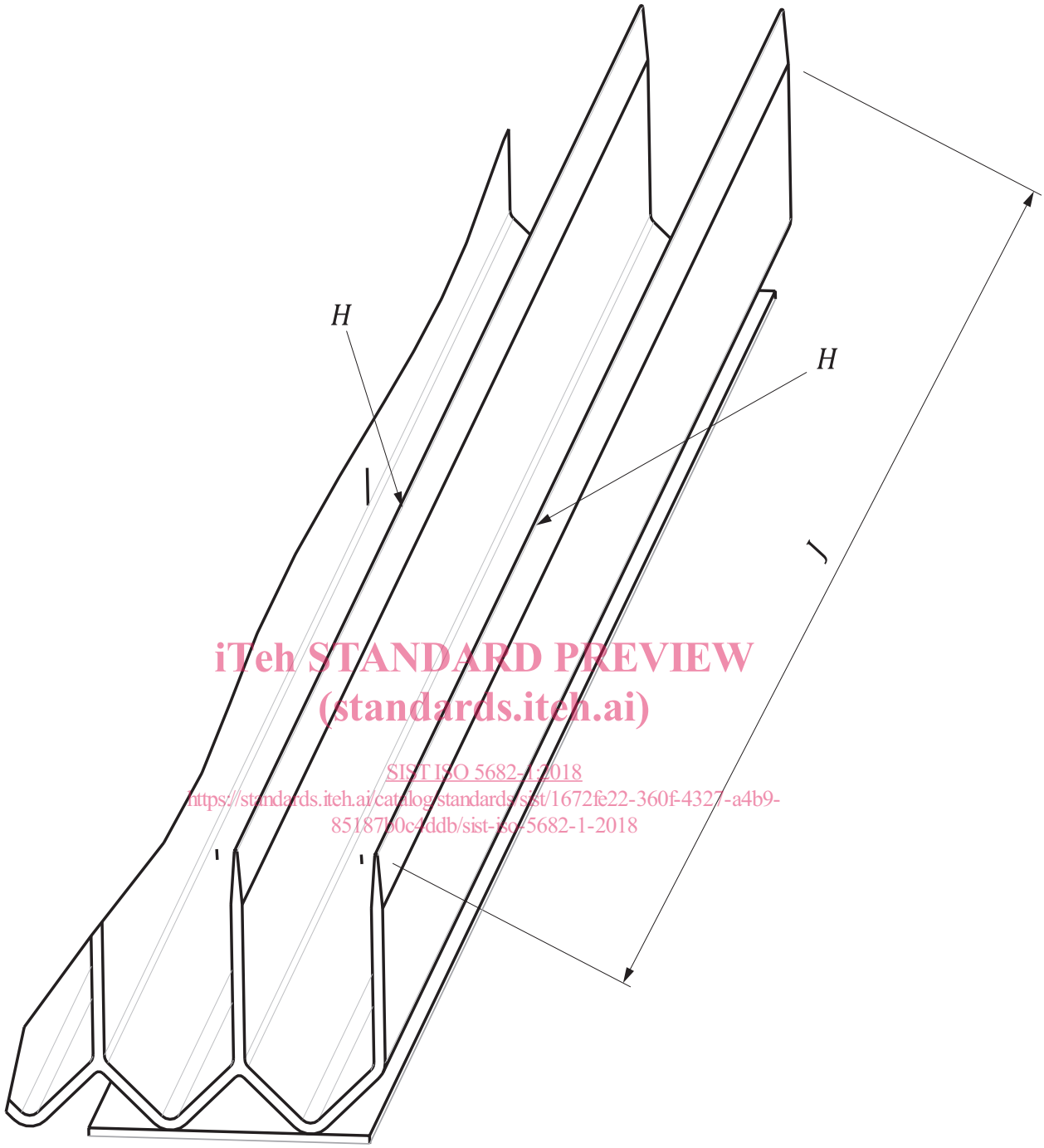
D lower groove wall thickness

E distance between two consecutive groove walls (groove width)

F groove depth

G upper groove wall thickness

Figure 4 — Groove section



Key

H intended location of wall leading edge

J full length of wall

Figure 5 — Straightness of groove walls

4.2.3 Upper part of the groove walls

a) The upper part of the groove walls (*G* in Figure 4) shall be less than 1,6 mm in width.

b) The lower part of the groove walls (*D* in Figure 4) may vary in thickness.