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## **Anslutningsdon för elektronikutrustningar för frekvenser under 3 MHz – Del 9: Runda anslutningsdon för radio- och ljudutrustningar**

*Connectors for frequencies below 3 MHz –*

*Part 9: Circular connectors for radio and associated sound equipment*

Som svensk standard gäller europastandarden EN 60130-9:2011. Den svenska standarden innehåller den officiella engelska språkversionen av EN 60130-9:2011.

### **Nationellt förord**

Europastandarden EN 60130-9:2011

består av:

- **europastandardens ikraftsättningsdokument**, utarbetat inom CENELEC
- **IEC 60130-9, Fourth edition, 2011 - Connectors for frequencies below 3 MHz - Part 9: Circular connectors for radio and associated sound equipment**

utarbetad inom International Electrotechnical Commission, IEC.

Tidigare fastställd svensk standard SS-EN 60130-9, utgåva 2, 2001, gäller ej fr o m 2014-03-30.

### *Standarder underlättar utvecklingen och höjer elsäkerheten*

Det finns många fördelar med att ha gemensamma tekniska regler för bl a säkerhet, prestanda, dokumentation, utförande och skötsel av elprodukter, elanläggningar och metoder. Genom att utforma sådana standarder blir säkerhetskraven tydliga och utvecklingskostnaderna rimliga samtidigt som marknadens acceptans för produkten eller tjänsten ökar.

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### **SEK Svensk Elstandard**

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**Connectors for frequencies below 3 MHz -  
Part 9: Circular connectors for radio and associated sound equipment  
(IEC 60130-9:2011)**

Connecteurs utilisés aux fréquences  
jusqu'à 3 MHz -  
Partie 9: Connecteurs circulaires pour  
appareils de radiodiffusion et équipements  
électroacoustiques associés  
(CEI 60130-9:2011)

Steckverbinder für Frequenzen unter  
3 MHz -  
Teil 9: Rundsteckverbinder für Rundfunk-  
und verwandte elektroakustische Geräte  
(IEC 60130-9:2011)

This European Standard was approved by CENELEC on 2011-03-30. CENELEC 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.

Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

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 CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

CENELEC members are the national electrotechnical committees of Austria, Belgium, Bulgaria, Croatia, Cyprus, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

**CENELEC**

European Committee for Electrotechnical Standardization  
Comité Européen de Normalisation Electrotechnique  
Europäisches Komitee für Elektrotechnische Normung

**Management Centre: Avenue Marnix 17, B - 1000 Brussels**

## Foreword

The text of document 48B/2180/CDV, future edition 4 of IEC 60130-9, prepared by SC 48B, Connectors, of IEC TC 48, Electromechanical components and mechanical structures for electronic equipment, was submitted to the IEC-CENELEC parallel vote and was approved by CENELEC as EN 60130-9 on 2011-03-30.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN and CENELEC shall not be held responsible for identifying any or all such patent rights.

This European Standard supersedes EN 60130-9:2000.

EN 60130-9:2011 includes the following significant technical changes with respect to EN 60130-9:2000:

- the scope has been amended to clarify its separation through its field of application, from EN 61076-2-106;
- 8-pole connector styles 60130-9 IEC-22 through 60130-9 IEC-25 with screw locking have been deleted as obsolete and overlapping with some styles of EN 61076-2-106;
- application and connections in Table 1 have been deleted because of referencing obsolete sound equipment. Titles of the dimension sheets and the clause headlines of Annex A have been amended accordingly;
- the reference to safety requirements according to EN 60065 has been deleted.

The following dates were fixed:

- |                                                                                                                                          |       |            |
|------------------------------------------------------------------------------------------------------------------------------------------|-------|------------|
| — latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement | (dop) | 2011-12-30 |
| — latest date by which the national standards conflicting with the EN have to be withdrawn                                               | (dow) | 2014-03-30 |

Annex ZA has been added by CENELEC.

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## Endorsement notice

The text of the International Standard IEC 60130-9:2011 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following note has to be added for the standard indicated:

|           |      |                         |
|-----------|------|-------------------------|
| IEC 60065 | NOTE | Harmonized as EN 60065. |
|-----------|------|-------------------------|

## Annex ZA (normative)

### Normative references to international publications with their corresponding European publications

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.

NOTE When an international publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

| <u>Publication</u>  | <u>Year</u>     | <u>Title</u>                                                                                                                                                                                   | <u>EN/HD</u> | <u>Year</u>     |
|---------------------|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------------|
| IEC 60068-1<br>+ A1 | 1988<br>1992    | Environmental testing -<br>Part 1: General and guidance                                                                                                                                        | EN 60068-1   | 1994            |
| IEC 60512           | Series          | Connectors for electronic equipment - Tests<br>and measurements                                                                                                                                | EN 60512     | Series          |
| IEC 60512-1-1       | -               | Connectors for electronic equipment - Tests<br>and measurements -<br>Part 1-1: General examination - Test 1a:<br>Visual examination                                                            | EN 60512-1-1 | -               |
| IEC 60512-1-2       | -               | Connectors for electronic equipment - Tests<br>and measurements -<br>Part 1-2: General examination - Test 1b:<br>Examination of dimension and mass                                             | EN 60512-1-2 | -               |
| IEC 60512-2-1       | -               | Connectors for electronic equipment - Tests<br>and measurements -<br>Part 2-1: Electrical continuity and contact<br>resistance tests - Test 2a: Contact resistance<br>- Millivolt level method | EN 60512-2-1 | -               |
| IEC 60512-3-1       | -               | Connectors for electronic equipment - Tests<br>and measurements -<br>Part 3-1: Insulation tests - Test 3a: Insulation<br>resistance                                                            | EN 60512-3-1 | -               |
| IEC 60512-4-1       | -               | Connectors for electronic equipment - Tests<br>and measurements -<br>Part 4-1: Voltage stress tests - Test 4a:<br>Voltage proof                                                                | EN 60512-4-1 | -               |
| IEC 60512-7-1       | -               | Connectors for electronic equipment - Tests<br>and measurements -<br>Part 7-1: Impact tests (free connectors) - Test<br>7a: Free fall (repeated)                                               | EN 60512-7-1 | -               |
| IEC 60512-7-2       | - <sup>1)</sup> | Connectors for electronic equipment - Tests<br>and measurements -<br>Part 7-2: Impact tests (free connectors) - Test<br>7b: Mechanical strength impact                                         | EN 60512-7-2 | - <sup>1)</sup> |
| IEC 60512-9-1       | -               | Connectors for electronic equipment - Tests<br>and measurements -<br>Part 9-1: Endurance tests - Test 9a:<br>Mechanical operation                                                              | EN 60512-9-1 | -               |

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<sup>1)</sup> To be published.

| <u>Publication</u> | <u>Year</u>     | <u>Title</u>                                                                                                                                                                                                  | <u>EN/HD</u>   | <u>Year</u>     |
|--------------------|-----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------|
| IEC 60512-11-1     | -               | Electromechanical components for electronic equipment - Basic testing procedures and measuring methods -<br>Part 11: Climatic tests - Section 1: Test 11a - Climatic sequence                                 | EN 60512-11-1  | -               |
| IEC 60512-11-3     | -               | Connectors for electronic equipment - Tests and measurements -<br>Part 11-3: Climatic tests - Test 11c: Damp heat, steady state                                                                               | EN 60512-11-3  | -               |
| IEC 60512-11-9     | -               | Connectors for electronic equipment - Tests and measurements -<br>Part 11-9: Climatic tests - Test 11i: Dry heat                                                                                              | EN 60512-11-9  | -               |
| IEC 60512-11-10    | -               | Connectors for electronic equipment - Tests and measurements -<br>Part 11-10: Climatic tests - Test 11j: Cold                                                                                                 | EN 60512-11-10 | -               |
| IEC 60512-11-12    | -               | Connectors for electronic equipment - Tests and measurements -<br>Part 11-12: Climatic tests - Test 11m: Damp heat, cyclic                                                                                    | EN 60512-11-12 | -               |
| IEC 60512-13-2     | -               | Connectors for electronic equipment - Tests and measurements -<br>Part 13-2: Mechanical operating tests - Test 13b: Insertion and withdrawal forces                                                           | EN 60512-13-2  | -               |
| IEC 60512-16-5     | -               | Connectors for electronic equipment - Tests and measurements -<br>Part 16-5: Mechanical tests on contacts and terminations - Test 16e: Gauge retention force (resilient contacts)                             | EN 60512-16-5  | -               |
| IEC 60512-17-1     | -               | Connectors for electronic equipment - Tests and measurements -<br>Part 17-1: Cable clamping tests - Test 17a: Cable clamp robustness                                                                          | EN 60512-17-1  | -               |
| IEC 60512-17-2     | - <sup>1)</sup> | Connectors for electronic equipment - Tests and measurements -<br>Part 17-2: Cable clamping tests - Test 17b: Cable clamp resistance to cable rotation                                                        | EN 60512-17-2  | - <sup>1)</sup> |
| IEC 60512-17-3     | -               | Connectors for electronic equipment - Tests and measurements -<br>Part 17-3: Cable clamping tests - Test 17c: Cable clamp resistance to cable pull (tensile)                                                  | EN 60512-17-3  | -               |
| IEC 60512-17-4     | -               | Connectors for electronic equipment - Tests and measurements -<br>Part 17-4: Cable clamping tests - Test 17d: Cable clamp resistance to cable torsion                                                         | EN 60512-17-4  | -               |
| IEC 61076-2-106    | - <sup>1)</sup> | Connectors for electronic equipment - Product requirements -<br>Part 2-106: Circular connectors - Detail specification for connectors m 16 x 0,75 with screw-locking and degree of protection ip40 or ip65/67 | EN 61076-2-106 | - <sup>1)</sup> |
| ISO 1302           | -               | Geometrical Product Specifications (GPS) - Indication of surface texture in technical product documentation                                                                                                   | EN ISO 1302    | -               |

## CONTENTS

|     |                                                                                               |    |
|-----|-----------------------------------------------------------------------------------------------|----|
| 1   | Scope .....                                                                                   | 7  |
| 2   | Normative references .....                                                                    | 7  |
| 3   | Technical information .....                                                                   | 8  |
| 3.1 | IEC type designation .....                                                                    | 8  |
| 3.2 | Contact arrangements and connections .....                                                    | 10 |
| 4   | Dimensional information .....                                                                 | 10 |
| 5   | Gauges .....                                                                                  | 40 |
| 5.1 | Gauges for checking dimensions .....                                                          | 40 |
| 5.2 | Gauges for measuring contact resistance .....                                                 | 41 |
| 5.3 | Gauges for measuring retention force .....                                                    | 41 |
| 5.4 | Gauge for voltage proof and insulation resistance tests of connectors<br>60130-9 IEC-08 ..... | 42 |
| 5.5 | Gauge for voltage proof and contact resistance tests of connectors<br>60130-9 IEC-08 .....    | 43 |
| 6   | Characteristics .....                                                                         | 44 |
| 6.1 | Rated values .....                                                                            | 44 |
| 6.2 | Climatic category .....                                                                       | 44 |
| 7   | Schedule for type tests .....                                                                 | 44 |
|     | Annex A (normative) Description of the connectors .....                                       | 48 |
|     | Annex B (normative) Measurement of individual contacts (resilient contacts only) .....        | 51 |
|     | Annex C (informative) Examples of circuitry of connector with switch .....                    | 52 |
|     | Bibliography .....                                                                            | 53 |
|     | Figure 1 – Free connector 60130-9 IEC-01 .....                                                | 12 |
|     | Figure 2 – Fixed connector 60130-9 IEC-02 .....                                               | 13 |
|     | Figure 3 – Free connector 60130-9 IEC-03 .....                                                | 14 |
|     | Figure 4 – Fixed connector 60130-9 IEC-04 .....                                               | 15 |
|     | Figure 5 – Free connector 60130-9 IEC-05 .....                                                | 16 |
|     | Figure 6 – Fixed connector 60130-9 IEC-06 .....                                               | 17 |
|     | Figure 7 – Fixed connector 60130-9 IEC-07 .....                                               | 18 |
|     | Figure 8 – Fixed connector 60130-9 IEC-08 .....                                               | 19 |
|     | Figure 9 – Free connector 60130-9 IEC-09 .....                                                | 20 |
|     | Figure 10 – Free connector 60130-9 IEC-10 .....                                               | 21 |
|     | Figure 11 – Fixed connector 60130-9 IEC-11 .....                                              | 22 |
|     | Figure 12 – Free connector 60130-9 IEC-12 .....                                               | 23 |
|     | Figure 13 – Fixed connector 60130-9 IEC-13 .....                                              | 24 |
|     | Figure 14 – Free connector 60130-9 IEC-14 .....                                               | 25 |
|     | Figure 15 – Fixed connector 60130-9 IEC-15 .....                                              | 26 |
|     | Figure 16 – Fixed connector 60130-9 IEC-15a .....                                             | 27 |
|     | Figure 17 – Free connector 60130-9 IEC-16 .....                                               | 28 |
|     | Figure 18 – Fixed connector 60130-9 IEC-17 .....                                              | 29 |
|     | Figure 19 – Free connector 60130-9 IEC-18 .....                                               | 30 |

|                                                                                                           |    |
|-----------------------------------------------------------------------------------------------------------|----|
| Figure 20 – Fixed connector 60130-9 IEC-19 .....                                                          | 31 |
| Figure 21 – Free connector 60130-9 IEC-20 .....                                                           | 32 |
| Figure 22 – Fixed connector 60130-9 IEC-21 .....                                                          | 33 |
| Figure 23 – Fixed connector 60130-9 IEC-26 .....                                                          | 34 |
| Figure 24 – Free connector 60130-9 IEC-27 .....                                                           | 35 |
| Figure 25 – Free connector 60130-9 IEC-28 .....                                                           | 36 |
| Figure 26 – Fixed connector 60130-9 IEC-29 .....                                                          | 37 |
| Figure 27 – Fixed connector 60130-9 IEC-30 .....                                                          | 38 |
| Figure 28 – Free connector 60130-9 IEC-31 .....                                                           | 39 |
| Figure 29 – Gauge for connector types 60130-9 IEC-02, 04, 07, 08, 09, 11, 13, 15, 17,<br>18, 21 .....     | 40 |
| Figure 30 – Gauge for connector types 60130-9 IEC-07, 08 and 09 .....                                     | 40 |
| Figure 31 – Gauge for connector types 60130-9 IEC-02, 04, 07, 08, 09, 11, 13, 15, 17,<br>18, 21 .....     | 41 |
| Figure 32 – Gauge for connector types 60130-9 IEC-07, 08 and 09 .....                                     | 41 |
| Figure 33 – Gauge for voltage proof and insulation resistance tests of connectors<br>60130-9 IEC-08 ..... | 42 |
| Figure 34 – Gauge for voltage proof and contact resistance tests of connectors<br>60130-9 IEC-08 .....    | 43 |
| Figure C.1 – Free connector 60130-9 IEC-05 inserted in position A .....                                   | 52 |
| Figure C.2 – Free connector 60130-9 IEC-05 inserted in position B .....                                   | 52 |
| Table 1 – Type designation .....                                                                          | 9  |
| Table 2 – Free connector 60130-9 IEC-01 .....                                                             | 12 |
| Table 3 – Fixed connector 60130-9 IEC-02 .....                                                            | 13 |
| Table 4 – Free connector 60130-9 IEC-03 .....                                                             | 14 |
| Table 5 – Fixed connector 60130-9 IEC-04 .....                                                            | 15 |
| Table 6 – Free connector 60130-9 IEC-05 .....                                                             | 16 |
| Table 7 – Fixed connector 60130-9 IEC-06 .....                                                            | 17 |
| Table 8 – Fixed connector 60130-9 IEC-07 .....                                                            | 18 |
| Table 9 – Fixed connector 60130-9 IEC-08 .....                                                            | 19 |
| Table 10 – Free connector 60130-9 IEC-09 .....                                                            | 20 |
| Table 11 – Free connector 60130-9 IEC-10 .....                                                            | 21 |
| Table 12 – Fixed connector 60130-9 IEC-11 .....                                                           | 22 |
| Table 13 – Free connector 60130-9 IEC-12 .....                                                            | 23 |
| Table 14 – Fixed connector 60130-9 IEC-13 .....                                                           | 24 |
| Table 15 – Free connector 60130-9 IEC-14 .....                                                            | 25 |
| Table 16 – Fixed connector 60130-9 IEC-15 .....                                                           | 26 |
| Table 17 – Fixed connector 60130-9 IEC-15a .....                                                          | 27 |
| Table 18 – Free connector 60130-9 IEC-16 .....                                                            | 28 |
| Table 19 – Fixed connector 60130-9 IEC-17 .....                                                           | 29 |
| Table 20 – Free connector 60130-9 IEC-18 .....                                                            | 30 |
| Table 21 – Fixed connector 60130-9 IEC-19 .....                                                           | 31 |
| Table 22 – Free connector 60130-9 IEC-20 .....                                                            | 32 |

|                                                                                                                        |    |
|------------------------------------------------------------------------------------------------------------------------|----|
| Table 23 – Fixed connector 60130-9 IEC-21 .....                                                                        | 33 |
| Table 24 – Fixed connector 60130-9 IEC-26 .....                                                                        | 34 |
| Table 25 – Free connector 60130-9 IEC-27.....                                                                          | 35 |
| Table 26 – Free connector 60130-9 IEC-28.....                                                                          | 36 |
| Table 27 – Fixed connector 60130-9 IEC-29 .....                                                                        | 37 |
| Table 28 – Fixed connector 60130-9 IEC-30 .....                                                                        | 38 |
| Table 29 – Free connector 60130-9 IEC-31.....                                                                          | 39 |
| Table 30 – Dimensions of gauges for checking dimensions.....                                                           | 40 |
| Table 31 – Dimensions of gauges for measuring retention force .....                                                    | 41 |
| Table 32 – Dimensions of gauge for voltage proof and insulation resistance tests of<br>connectors 60130-9 IEC-08 ..... | 42 |
| Table 33 – Dimensions of gauge for voltage proof and contact resistance tests of<br>connectors 60130-9 IEC-08 .....    | 43 |
| Table 34 – Climatic category.....                                                                                      | 44 |
| Table 35 – Test group for all specimens .....                                                                          | 44 |
| Table 36 – Test group for the first lot .....                                                                          | 45 |
| Table 37 – Test group for the second and third lot .....                                                               | 46 |
| Table 38 – Test group for the fourth lot .....                                                                         | 47 |
| Table 39 – Test group for switches in 60130-9 IEC-08 .....                                                             | 47 |

## CONNECTORS FOR FREQUENCIES BELOW 3 MHz –

### Part 9: Circular connectors for radio and associated sound equipment

#### 1 Scope

This part of IEC 60130 relates to circular connectors for radio and associated sound equipment.

NOTE IEC 61076-2-106 specifies connectors with a similar mating interface for connectors M16x0,75 with screw-locking and degree of protection IP40 or IP65/IP67 and with M16x0,75 screw-locking accessory. As the IEC 60130-9 connector styles mating with the corresponding ones of IEC 61076-2-106 do not have a locking mechanism specified they are therefore not appropriate for industrial process measurement and control equipment. Users of this IEC 60130-9 standard should be aware that some of the IEC 61076-2-106 styles could be mated but not locked to some connector styles of this IEC 60130-9 standard.

#### 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.

IEC 60068-1: 1988, *Environmental testing – Part 1: General and guidance*  
Amendment 1 (1992)

IEC 60512 (all parts), *Connectors for electronic equipment – Basic testing procedures and measuring methods*

IEC 60512-1-1, *Connectors for electronic equipment – Tests and measurements – Part 1-1: General examination – Test 1a: Visual examination*

IEC 60512-1-2, *Connectors for electronic equipment – Tests and measurements – Part 1-2: General examination – Test 1b: Examination of dimension and mass*

IEC 60512-2-1, *Connectors for electronic equipment – Tests and measurements – Part 2-1: Electronic continuity and contact resistance tests – Test 2a: Contact resistance – Millivolt level method*

IEC 60512-3-1, *Connectors for electronic equipment – Tests and measurements – Part 3-1: Insulation tests – Test 3a: Insulation resistance*

IEC 60512-4-1, *Connectors for electronic equipment – Tests and measurements – Part 4-1: Voltage stress tests – Test 4a: Voltage proof*

IEC 60512-7-1, *Connectors for electronic equipment – Tests and measurements – Part 7-1: Impact tests (free connectors) – Test 7a: Free fall (repeated)*

IEC 60512-7-2, *Connectors for electronic equipment – Tests and measurements – Part 7-2: Impact tests (free components) – Test 7b: Mechanical strength impacts and measurements*<sup>1</sup>

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<sup>1</sup> To be published.

IEC 60512-9-1, *Connectors for electronic equipment – Tests and measurements – Part 9-1: Endurance tests – Test 9a: Mechanical operation*

IEC 60512-11-1, *Electromechanical components for electronic equipment – Basic testing procedures and measuring methods – Part 11 – Section 1: Test 11a – Climatic sequence*

IEC 60512-11-3, *Connectors for electronic equipment – Tests and measurements – Part 11-3: Climatic tests – Test 11c: Damp heat, steady state*

IEC 60512-11-9, *Connectors for electronic equipment – Tests and measurements – Part 11-9: Climatic tests – Test 11i: Dry heat*

IEC 60512-11-10, *Connectors for electronic equipment – Tests and measurements – Part 11-10: Climatic tests – Test 11j: Cold*

IEC 60512-11-12, *Connectors for electronic equipment – Tests and measurements – Part 11-12: Climatic tests – Test 11m: Damp heat, cyclic*

IEC 60512-13-2, *Connectors for electronic equipment – Tests and measurements – Part 13-2: Mechanical operation tests – Test 13b: Insertion and withdrawal forces*

IEC 60512-16-5, *Connectors for electronic equipment – Tests and measurements – Part 16-5: Mechanical tests on contacts and terminations – Test 16e: Gauge retention force (resilient contacts)*

IEC 60512-17-1, *Connectors for electronic equipment – Tests and measurements – Part 17-1: Cable clamping tests – Test 17a: Cable clamp robustness*

IEC 60512-17-2, *Connectors for electronic equipment – Tests and measurements – Part 17-2: Cable clamping tests – Test 17b: Cable clamp resistance to cable rotation<sup>2</sup>*

IEC 60512-17-3, *Connectors for electronic equipment – Tests and measurements – Part 17-3: Cable clamping tests – Test 17c: Cable clamp resistance to cable pull (tensile)*

IEC 60512-17-4, *Connectors for electronic equipment – Tests and measurements – Part 17-4: Cable clamping tests – Test 17d: Cable clamp resistance to cable Torsion*

IEC 61076-2-106, *Connectors for electronic equipment – Product requirements – Part 2-106: Circular connectors – Detail specification for connectors M 16 x 0,75 with screw-locking and degree of protection IP40 or IP65/67<sup>3</sup>*

ISO 1302, *Geometrical Product Specifications (GPS) – Indication of surface texture in technical product documentation*

<sup>2</sup> Under consideration.

<sup>3</sup> To be published.