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Live working - Voltage detectors - Part 3: Two-pole low-voltage type

Táto norma obsahuje anglickú verziu európskej normy.
This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 05/15

Text opravy iba v dokumente IEC

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English Version

**Live working - Voltage detectors - Part 3: Two-pole low-voltage
type
(IEC 61243-3:2014)**

Travaux sous tension - Détecteurs de tension - Partie 3:
Type bipolaire basse tension
(CEI 61243-3:2014)

Arbeiten unter Spannung - Spannungsprüfer - Teil 3:
Zweipoliger Spannungsprüfer für Niederspannungsnetze
(IEC 61243-3:2014)

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Foreword

The text of document 78/1054/FDIS, future edition 3 of IEC 61243-3, prepared by IEC/TC 78 "Live working" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN 61243-3:2014.

The following dates are fixed:

- latest date by which the document has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 2015-08-13
- latest date by which the national standards conflicting with the document have to be withdrawn (dow) 2017-11-13

This document supersedes EN 61243-3:2010.

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This standard covers the Principle Elements of the Safety Objectives for Electrical Equipment Designed for Use within Certain Voltage Limits (LVD - 2006/95/EC).

Endorsement notice

The text of the International Standard IEC 61243-3:2014 was approved by CENELEC as a European Standard without any modification.

In the official version, for Bibliography, the following notes have to be added for the standards indicated:

IEC 60721-2-1:1982 & IEC 60721-2-1:1982/A1:1987	NOTE	Harmonized as HD 478.2.1 S1:1989 (not modified).
IEC 60743:2013	NOTE	Harmonized as EN 60743:2013 (not modified).
ISO 9000:2005	NOTE	Harmonized as EN ISO 9000:2005 (not modified).

Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 When an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cenelec.eu.

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60068-2-6	-	Environmental testing - Part 2-6: Tests - Test Fc: Vibration (sinusoidal)	EN 60068-2-6	-
IEC 60068-2-31	-	Environmental testing - Part 2-31: Tests - Test Ec: Rough handling shocks, primarily for equipment- type specimens	EN 60068-2-31	-
IEC 60068-2-75	1997	Environmental testing - Part 2-75: Tests - Test Eh: Hammer tests	EN 60068-2-75	1997
IEC 60112	-	Method for the determination of the proof and the comparative tracking indices of solid insulating materials	EN 60112	-
IEC 60304	-	Standard colours for insulation for low- frequency cables and wires	HD 402 S2	-
IEC 60417	-	Graphical symbols for use on equipment	-	-
IEC/TS 60479-1	2005	Effects of current on human beings and livestock - Part 1: General aspects	-	-
IEC 60529	1989	Degrees of protection provided by enclosures (IP Code)	EN 60529	1991
-	-		+ corrigendum May	1993
+ A1	1999		+ A1	2000
+ A2	2013		+ A2	2013
IEC 60664-1	2007	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests	EN 60664-1	2007
IEC 60664-3	-	Insulation coordination for equipment within low-voltage systems - Part 3: Use of coating, potting or moulding for protection against pollution	EN 60664-3	-

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60695-10-2	2003	Fire hazard testing - Part 10-2: Abnormal heat - Ball pressure test	EN 60695-10-2	2003
IEC 60942	-	Electroacoustics - Sound calibrators	EN 60942	-
IEC 61010-1	2001 ¹⁾	Safety requirements for electrical equipment for measurement, control, and laboratory use - Part 1: General requirements	EN 61010-1 + corrigendum Jun.	2001 ²⁾
-	-			2002
IEC 61010-031 + A1	2002 2008	Safety requirements for electrical equipment for measurement, control and laboratory use - Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test	EN 61010-031 + A1	2002 2008
IEC 61140 + A1 (mod)	2001 2004	Protection against electric shock - Common aspects for installation and equipment	EN 61140 + A1	2002 2006
IEC 61180-1	-	High-voltage test techniques for low-voltage equipment - Part 1: Definitions, test and procedure requirements	EN 61180-1	-
IEC 61180-2	-	High-voltage test techniques for low-voltage equipment - Part 2: Test equipment	EN 61180-2	-
IEC 61260	-	Electroacoustics - Octave-band and fractional-octave-band filters	EN 61260	-
IEC 61318	-	Live working - Conformity assessment applicable to tools, devices and equipment	EN 61318	-
IEC 61326-1	2005	Electrical equipment for measurement, control and laboratory use - EMC requirements - Part 1: General requirements	EN 61326-1	2006
IEC 61477	-	Live working - Minimum requirements for the utilization of tools, devices and equipment	EN 61477	-
IEC 61557-7	2007	Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. - Equipment for testing, measuring or monitoring of protective measures - Part 7: Phase sequence	EN 61557-7	2007
IEC 61672-1	-	Electroacoustics - Sound level meters - Part 1: Specifications	EN 61672-1	-

1) Superseded by IEC 61010-1:2010.

2) Superseded by EN 61010-1:2010 (IEC 61010-1:2010).

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
ISO 286-1	-	Geometrical product specifications (GPS) - ISO code system for tolerances on linear sizes - Part 1: Basis of tolerances, deviations and fits	EN ISO 286-1	-
ISO 286-2	-	Geometrical product specifications (GPS) - ISO code system for tolerances on linear sizes - Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts	EN ISO 286-2	-
ISO 354	-	Acoustics - Measurement of sound absorption in a reverberation room	EN ISO 354	-
ISO 3744	1994 ³⁾	Acoustics - Determination of sound power levels of noise sources using sound pressure - Engineering method in an essentially free field over a reflecting plane	EN ISO 3744	2009 ⁴⁾
ISO 3745	-	Acoustics - Determination of sound power levels and sound energy levels of noise sources using sound pressure - Precision methods for anechoic rooms and hemi-anechoic rooms	EN ISO 3745	-
ISO 7000	-	Graphical symbols for use on equipment - Registered symbols	-	-

3) Superseded by ISO 3744:2010.

4) Superseded by EN ISO 3744:2010 (ISO 3744:2010).



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INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Live working – Voltage detectors –
Part 3: Two-pole low-voltage type**

**Travaux sous tension – Détecteurs de tension –
Partie 3: Type bipolaire basse tension**





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IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

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Edition 3.0 2014-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE



**Live working – Voltage detectors –
Part 3: Two-pole low-voltage type**

**Travaux sous tension – Détecteurs de tension –
Partie 3: Type bipolaire basse tension**

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ELECTROTECHNICAL
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CONTENTS

FOREWORD.....	6
INTRODUCTION.....	8
1 Scope.....	9
2 Normative references	9
3 Terms and definitions	11
4 Requirements	14
4.1 General requirements	14
4.1.1 Safety.....	14
4.1.2 Indication.....	15
4.1.3 Electromagnetic compatibility (EMC)	15
4.2 Functional requirements.....	15
4.2.1 Clear indication	15
4.2.2 Clear perceptibility.....	16
4.2.3 Temperature and humidity dependence of the indication.....	17
4.2.4 Frequency dependency for a.c. voltage detector	17
4.2.5 Ripple dependency for d.c. voltage detector	17
4.2.6 Response time.....	17
4.2.7 Power source dependability	17
4.2.8 Testing element.....	18
4.2.9 Time rating	18
4.3 Electrical requirements	18
4.3.1 Insulating material	18
4.3.2 Protection against electric shocks.....	18
4.3.3 Current limiting elements	19
4.3.4 Minimum clearance and creepage distances	19
4.3.5 Protection against electrical stresses.....	21
4.3.6 Lead(s).....	21
4.3.7 Probes.....	22
4.3.8 Connector(s) (if any).....	22
4.3.9 Accessible switches in the detecting circuit for temporary loading (if any)	22
4.4 Mechanical requirements	22
4.4.1 Design.....	22
4.4.2 Dimensions, construction.....	24
4.4.3 Degree of protection provided by enclosures	24
4.4.4 Resistance to vibration	24
4.4.5 Drop resistance	24
4.4.6 Shock resistance	24
4.4.7 Possible disassembling	24
4.4.8 Surface temperature	25
4.4.9 Resistance to heat.....	25
4.4.10 Probes.....	25
4.4.11 Lead(s).....	25
4.5 Marking.....	25
4.5.1 General	25
4.5.2 Marking on the indicator	25

4.5.3	Marking on the probe and/or the lead	26
4.6	Instructions for use	26
4.7	Requirements in case of reasonably foreseeable misuse during live working	27
4.7.1	AC/DC voltage misuse	27
4.7.2	Maximum current to earth in case of misuse	27
4.7.3	Misuse in case of mistaking of the voltage of the low voltage network	28
5	Tests	28
5.1	General.....	28
5.2	Tests for general requirements	29
5.2.1	Indication.....	29
5.2.2	Electromagnetic compatibility (EMC)	29
5.3	Tests for functional requirements	30
5.3.1	Clear indication	30
5.3.2	Clear perceptibility of visual indication	33
5.3.3	Clear perceptibility of audible indication (when available)	35
5.3.4	Temperature and humidity dependence of the indication.....	37
5.3.5	Frequency dependency for a.c. voltage detector	38
5.3.6	Ripple dependency for d.c. voltage detector	39
5.3.7	Response time.....	39
5.3.8	Power source dependability	40
5.3.9	Testing element	40
5.3.10	Time rating	40
5.4	Tests for electrical requirements	41
5.4.1	Tests on the insulation.....	41
5.4.2	Protection against electric shocks.....	42
5.4.3	Current limiting elements	43
5.4.4	Minimum clearance and creepage distances	43
5.4.5	Protection against electrical stresses	43
5.4.6	Lead(s)	44
5.4.7	Probe(s)	44
5.4.8	Connector(s).....	44
5.4.9	Switches for temporary loading (if any)	44
5.5	Tests for mechanical requirements	45
5.5.1	Design	45
5.5.2	Dimensions, construction	45
5.5.3	Degree of protection provided by enclosures	45
5.5.4	Vibration resistance	45
5.5.5	Drop resistance	46
5.5.6	Shock resistance	47
5.5.7	Possible disassembling	47
5.5.8	Surface temperature	47
5.5.9	Heat resistance	48
5.5.10	Probes	48
5.5.11	Lead(s).....	50
5.6	Marking.....	51
5.6.1	Visual inspection and measurement.....	51
5.6.2	Durability of marking.....	51
5.7	Instructions for use	52
5.7.1	Type test	52

5.7.2	Alternative test in case of voltage detectors having completed the production phase	52
5.8	Tests for reasonably foreseeable misuse during live working	52
5.8.1	AC/DC voltage misuse	52
5.8.2	Maximum current to earth in case of misuse	52
5.8.3	Misuse in case of mistaking of the voltage of the low voltage network	53
6	Conformity testing	53
7	Modifications	53
Annex A (informative) Differences with IEC 61010 series		54
A.1	Existing requirements and tests but with different sanctions or pass test criteria	54
A.2	List of requirements of IEC 61010 series not included in this standard, with rationale	56
A.3	Additional requirements of this standard, related to safety and functional safety of voltage detectors, with rationale	57
Annex B (normative) Supplementary functions: Phase indication – Rotating field indication – Continuity check		59
B.1	Terms and definitions	59
B.2	General requirements for the supplementary functions	59
B.2.1	Safety and performance of the voltage detector	59
B.2.2	Indication	59
B.2.3	Indication only in contact with bare part	59
B.2.4	Temperature rise	59
B.2.5	Instructions for use	59
B.3	General tests for the supplementary functions	60
B.3.1	Safety and performance of the voltage detector	60
B.3.2	Indication	60
B.3.3	Indication only in contact with bare part	60
B.3.4	Temperature rise test	60
B.3.5	Instructions for use	60
B.4	Phase indication with or without the use of accessible electrode	61
B.4.1	General	61
B.4.2	Additional requirements	61
B.4.3	Additional tests	61
B.5	Rotating field indication	62
B.5.1	Additional requirements	62
B.5.2	Additional tests	62
B.6	Continuity check	63
B.6.1	Additional requirements	63
B.6.2	Additional tests	63
B.7	Classification of defects and associated requirements and tests	64
Annex C (normative) Instructions for use		65
C.1	General	65
C.2	Safety advices	66
Annex D (normative) General type test procedure		67
Annex E (normative) Classification of defects and associated requirements and tests		69
Annex F (informative) In-service care and use		71
F.1	Use and storage	71
F.2	Inspection before use	71

F.3	Maintenance	71
F.3.1	Regular maintenance	71
F.3.2	Periodic maintenance	72
F.3.3	Periodic testing	72
Annex G (informative)	Voltage detectors and the presence of interference voltages	73
G.1	General	73
G.2	Voltage detectors with the capability of suppressing or reducing significantly the level of interference voltages – relatively low internal impedance (< 100 kΩ)	73
G.3	Voltage detectors with the capability of discriminating an operating voltage from an interference voltage	73
G.4	Voltage detectors with no capability of suppressing or reducing significantly the level of interference voltages – relatively high internal impedance (> 100 kΩ)	74
Bibliography	75
Figure 1	– Illustration of the electrical insulation features applicable to components of a voltage detector	20
Figure 2	– Voltage detector	23
Figure 3	– Maximum rms a.c. current to earth in case of misuse	27
Figure 4	– Maximum d.c. current to earth in case of misuse	28
Figure 5	– Test set-up for the performance of a voltage detector claiming to be able to distinguish an operating voltage from an interference voltage	32
Figure 6	– Test set-up for measurement of clear perceptibility of visual indication	34
Figure 7	– Test set-up for measurement of clear perceptibility of audible indication	36
Figure 8	– Test set-up for close adhesion of insulation of the insulated part of the contact electrode	49
Table 1	– Climatic categories of voltage detectors	17
Table 2	– Minimum clearance distances for basic insulation and for supplementary insulation	20
Table 3	– Minimum clearance distances for reinforced insulation	21
Table 4	– Parameters to be observed to check the climatic dependence	37
Table 5	– AC voltage values for test on the complete equipment	42
Table 6	– Maximum permissible surface temperatures	48
Table B.1	– Classification of defects and associated requirements and tests	64
Table D.1	– Sequential order for performing type tests	67
Table D.2	– Type tests out of sequence	68
Table E.1	– Classification of defects and associated requirements and tests	69
Table F.1	– Periodic testing	72

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**LIVE WORKING –
VOLTAGE DETECTORS –****Part 3: Two-pole low-voltage type**

FOREWORD

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International Standard IEC 61243-3 has been prepared by IEC technical committee 78: Live working.

This third edition cancels and replaces the second edition published in 2009. It is a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- requirement and test to manage *interference voltages* at power frequencies;
- informative annex on *voltage detectors* and the presence of *interference voltages*.

The text of this standard is based on the following documents:

FDIS	Report on voting
78/1054/FDIS	78/1090/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

Terms defined in Clause 3 are given in italic print throughout this standard.

A list of all parts of the IEC 61243 series can be found, under the general title *Live working – Voltage detectors*, on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

The contents of the corrigendum of January 2015 have been included in this copy.

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INTRODUCTION

The devices covered by this standard are designed to be used in a live working environment to determine the status (presence or absence of operating voltage) of low-voltage installations.

The live working environment comes with its specific hazards and working conditions, which are generally more severe than the ones encountered by workers in other fields than live working.

This International Standard is a product standard giving essential requirements and tests to verify that the devices perform well and will contribute to the safety of the users, provided they are used by skilled persons, and according to safe working procedures and to local or national regulations.

Voltage detectors are not considered as measuring or testing devices, separately covered by IEC 61010 series. However, in case of misuse by general electrical workers, the requirements and tests included in this document are intended to achieve an equivalent level of safety.

To take into consideration the specific needs of a live working environment, the following differences exist with IEC 61010 series:

- some requirements and tests exist in both standards but with different sanctions or pass test criteria (see A.1);
- some requirements of IEC 61010 are not included in this standard (see A.2, with rationale);
- some additional requirements of this standard are not specified in IEC 61010 with the rationale (see A.3).

This International Standard has been prepared according to the requirements of IEC 61477, where applicable.

The product covered by this standard may have an impact on the environment during some or all stages of its life cycle. These impacts can range from slight to significant, be of short-term or long-term effect, and occur at the global, regional or local level.

This standard does not include requirements and test provisions for the manufacturers of the product, or recommendations to the users of the product for environmental improvement. However, all parties intervening in its design, manufacture, packaging, distribution, use, maintenance, repair, reuse, recovery and disposal are invited to take account of environmental considerations.

LIVE WORKING – VOLTAGE DETECTORS –

Part 3: Two-pole low-voltage type

1 Scope

This part of IEC 61243 is applicable to hand-held *two-pole voltage detectors* with their accessories (crocodile clips and detachable *leads*) to be used in contact with parts of electrical systems:

- for a.c. voltages not exceeding 1 000 V at nominal frequencies between $16\frac{2}{3}$ Hz and up to 500 Hz,

and/or

- for d.c. voltages not exceeding 1 500 V.

NOTE The a.c. voltages defined in this standard refer either to phase-to-phase voltages or phase to neutral voltages.

Contact electrode extensions are not covered by this standard.

Voltage detectors covered by this standard are intended to be used under dry and humid conditions, both indoor and outdoor. They are not intended to be used under rain conditions.

Voltage detectors covered by this standard are not intended to be used for continuous operation.

Voltage detectors covered by this standard are intended to be used up to 2 000 m above sea level.

This standard also includes provisions for the following supplementary functions when available (see Annex B):

- phase indication,
- rotating field indication, and
- continuity check.

Other supplementary functions are not covered by this standard.

Voltage detectors covered by this standard are not considered as measuring devices. Relevant safety requirements for measuring devices are included in IEC 61010 series.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60068-2-6, *Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)*

IEC 60068-2-31, *Environmental testing – Part 2-31: Tests – Test Ec: Rough handling shocks, primarily for equipment-type specimens*

IEC 60068-2-75:1997, *Environmental testing – Part 2-75: Tests – Test Eh: Hammer tests*

IEC 60112, *Method for the determination of the proof and the comparative tracking indices of solid insulating materials*

IEC 60304, *Standard colours for insulation for low-frequency cables and wires*

IEC 60417, *Graphical symbols for use on equipment*. Available from: <http://www.graphical-symbols.info/equipment>

IEC TS 60479-1:2005, *Effects of current on human beings and livestock – Part 1: General aspects*

IEC 60529:1989, *Degrees of protection provided by enclosures (IP Code)*

IEC 60529:1989/AMD1:1999

IEC 60529:1989/AMD2:2013¹

IEC 60664-1:2007, *Insulation coordination for equipment within low-voltage systems – Part 1: Principles, requirements and tests*

IEC 60664-3, *Insulation coordination for equipment within low-voltage systems – Part 3: Use of coating, potting or moulding for protection against pollution*

IEC 60695-10-2:2003, *Fire hazard testing – Part 10-2: Abnormal heat – Ball pressure test method*

IEC 60942, *Electroacoustics – Sound calibrators*

IEC 61010-031:2002, *Safety requirements for electrical equipment for measurement, control and laboratory use – Part 031: Safety requirements for hand-held probe assemblies for electrical measurement and test*

IEC 61010-031:2002/AMD1:2008²

IEC 61010-1:2001³, *Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements*

IEC 61140:2001, *Protection against electric shock – Common aspects for installation and equipment*

Amendment 1:2004

IEC 61180-1, *High-voltage test techniques for low-voltage equipment – Part 1: Definitions, test and procedure requirements*

IEC 61180-2, *High-voltage test techniques for low-voltage equipment – Part 2: Test equipment*

IEC 61260, *Electroacoustics – Octave-band and fractional-octave-band filters*

¹ There exists a consolidated edition 2.2 (2013) that includes IEC 60529:1989 and its Amendments 1 and 2.

² There exists a consolidated edition 1.1 (2008) that includes IEC 61010-031:2002 and its Amendment 1.

³ Second edition, replaced by a third edition in 2010.

IEC 61318, *Live working – Conformity assessment applicable to tools, devices and equipment*

IEC 61326-1:2005, *Electrical equipment for measurement, control and laboratory use – EMC requirements – Part 1: General requirements*

IEC 61477, *Live working – Minimum requirements for the utilization of tools, devices and equipment*

IEC 61557-7:2007, *Electrical safety in low voltage distribution systems up to 1 000 V a.c. and 1 500 V d.c. – Equipment for testing, measuring or monitoring of protective measures – Part 7: Phase sequence*

IEC 61672-1, *Electroacoustics – Sound level meters – Part 1: Specifications*

ISO 286-1, *Geometrical product specifications (GPS) – ISO code system for tolerances on linear sizes – Part 1: Bases of tolerances, deviations and fits*

ISO 286-2, *Geometrical product specifications (GPS) – ISO code system for tolerances on linear sizes – Part 2: Tables of standard tolerance classes and limit deviations for holes and shafts*

ISO 354, *Acoustics – Measurement of sound absorption in a reverberation room*

ISO 3744:1994⁴, *Acoustics – Determination of sound power levels of noise sources using sound pressure – Engineering method in an essentially free field over a reflecting plane*

ISO 3745, *Acoustics – Determination of sound power levels and sound energy levels of noise sources using sound pressure – Precision methods for anechoic rooms and hemi-anechoic rooms*

ISO 7000, *Graphical symbols for use on equipment – Registered symbols. Available at: <http://www.graphical-symbols.info/equipment>*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN

⁴ Second edition, replaced by a third edition in 2010.