SLOVENSKI STANDARD
SIST EN 61009-1:2005

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Nadomešča:
SIST EN 61009-1:1996
SIST EN 61009-1:1996/A1:1998
SIST EN 61009-1:1996/A11:1997
SIST EN 61009-1:1996/A13:1999
SIST EN 61009-1:1996/A15:1999
SIST EN 61009-1:1996/A17:2001
SIST EN 61009-1:1996/A2:1999

Odklopniki na preostali (residualni) tok z vgrajeno nadtokovno zaščito za gospodinjsko in podobno rabo (RCBO's) -- 1. del: Splošna pravila (IEC 61009-1:1996 + Corr. 2003 + A1:2002, spremenjen) (vsebuje popravek AC:2006)

Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBO's) -- Part 1: General rules

Fehlerstrom-/Differenzstrom-Schutzschalter mit eingebautem Überstromschutz (RCBOs) für Hausinstallationen und für ähnliche Anwendungen -- Teil 1: Allgemeine Anforderungen

Interrupteurs automatiques à courant différentiel résiduel avec protection contre les surintensités incorporée pour installations domestiques et analogues (DD) -- Partie 1: Règles générales

Ta slovenski standard je istoveten z: **EN 61009-1:2004**

ICS:

29.120.50	Varovalke in druga medtokovna zaščita	Fuses and other overcurrent protection devices

SIST EN 61009-1:2005 **en**

EUROPEAN STANDARD

NORME EUROPÉENNE

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EN 61009-1

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ICS 29.120.50

Supersedes EN 61009-1:1994 + A1:1995 + A11:1995 + A2:1998 + A13:1998 + A14:1998 + A15:1998 + A17:1998 + A19:2000
Incorporates Corrigendum July 2006

English version

Residual current operated circuit-breakers with integral overcurrent protection for household and similar uses (RCBO's) Part 1: General rules

(IEC 61009-1:1996 + corr. 2003 + A1:2002, modified)

Interrupteurs automatiques à courant différentiel résiduel avec protection contre les surintensités incorporée pour installations domestiques et analogues (DD) Partie 1: Règles générales (CEI 61009-1:1996 + corr. 2003 + A1:2002, modifiée)

Fehlerstrom-/Differenzstrom-Schutzschalter mit eingebautem Überstromschutz (RCBOs) für Hausinstallationen und für ähnliche Anwendungen Teil 1: Allgemeine Anforderungen (IEC 61009-1:1996 + Corr. 2003 + A1:2002, modifiziert)

This European Standard was approved by CENELEC on 2004-03-16. 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, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

CENELEC

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

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Ref. No. EN 61009-1:2004 E

Foreword

The text of the International Standard IEC 61009-1:1996 and its amendment 1:2002, prepared by SC 23E, Circuit-breakers and similar equipment for household use, of IEC TC 23, Electrical accessories, together with common modifications prepared by the Technical Committee CENELEC TC 23E, Circuit breakers and similar devices for household and similar applications, was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 61009-1 on 2004-03-16.

This European Standard supersedes EN 61009-1:1994 + corrigendum Dec. 1997 + A1:1995 + A1:1995/corrigendum Dec. 1997 + A11:1995 + A11:1995/corrigendum Dec. 1997 + A2:1998 + A13:1998 + A13:1998/corrigendum Apr. 1998 + A14:1998 + A15:1998 + A17:1998 + A19:2000.

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)	2005-04-01
– latest date by which the national standards conflicting with the EN have to be withdrawn	(dow)	2009-04-01

This European Standard was prepared under a mandate given to CENELEC by the European Commission and the European Free Trade Association and covers essential requirements of EC Directives. See Annex ZZ..

Annexes, clauses, subclauses, figures and tables that are additional to those in IEC 61009-1 are prefixed with the letter Z.

The contents of the corrigendum of July 2006 have been included in this copy.

Endorsement notice

The text of the International Standard IEC 61000-9-1:1996 + corrigendum May 2003 + A1:2002 *) was approved by CENELEC as a European Standard with agreed common modifications as given below.

Clause	Common modifications
Contents	Add: 3.Z1 Definitions related to insulation co-ordination Annex ZA (normative) Normative references to international publications with their corresponding European publications Annex ZB (normative) Special national conditions Annex ZC (informative) A-deviations Annex ZD (normative) Classification of RCBOs into energy limiting classes Annex ZZ (informative) Coverage of Essential Requirements of EC Directives Table ZD.1 – Permissible I²t (let-through) values for RCBOs with rated current up to and including 16 A Table ZD.2 – Permissible I²t (let-through) values for RCBOs with rated current exceeding 16 A up to and including 32 A
1	Replace the whole Clause 1 by: **1 Scope and object** This International Standard applies to residual current operated circuit-breakers with integral overcurrent protection functionally independent of, or functionally dependent on, line voltage for household and similar uses (hereafter referred to as RCBOs), for rated voltages not exceeding 440 V a.c., rated currents not exceeding 125 A for fixed installation and rated short-circuit capacities not exceeding 25 000 A for operation at 50 Hz or 60 Hz. These devices are intended to protect people against indirect contact, the exposed conductive parts of the installation being connected to an appropriate earth electrode and to protect against overcurrents the wiring installations of buildings and similar applications. They may be used to provide protection against fire hazards due to a persistent earth fault current, without the operation of the overcurrent protective device. RCBOs having a rated residual operating current not exceeding 30 mA are also used as a means for additional protection in the case of failure of the protective means against electric shock. This standard applies to devices performing simultaneously the function of detection of the residual current, of comparison of the value of this current with the residual operating value and of opening of the protected circuit when the residual current exceeds this value, and also of performing the function of making, carrying and breaking overcurrents under specified conditions. These devices are intended for use in an environment with pollution degree 2. NOTE 1 For environment with higher pollution degree, enclosures giving the appropriate degree of protection should be used.

*) In view of some inconsistencies between the English and French versions of IEC 61009-1:1996, it is advisable to use the consolidated IEC text published in February 2003 for compiling the text of this European Standard.

Clause	Common modifications
	RCBOs within the scope of the present standard are suitable for isolation. Devices to this standard, are suitable for use in IT systems provided that the requirements of HD 384.4.473 are complied with. NOTE 2 The content of the present standard related to the operation under residual current conditions is based on EN 61008. The content of the present standard related to protection against overcurrents is based on EN 60898. NOTE 3 RCBOs are essentially intended to be operated by uninstructed persons and designed not to require maintenance. They may be submitted for certification purposes. NOTE 4 Installation and application rules of RCBOs are given in HD 384. NOTE 5 Recommendations for the dimensional coordination between enclosures and RCBOs for mounting on rail according to EN 60715 or equivalent means are given in CENELEC Report R023-001. RCBOs of the general type are resistant to unwanted tripping, including the case where surge voltages (as a result of switching transients or induced by lightning) cause loading currents in the installation without occurrence of flashover. RCBOs of the S type are considered to be sufficiently proof against unwanted tripping even if the surge voltage causes a flashover and a follow-on current occurs. NOTE 6 For more severe overvoltage conditions, RCBOs complying with other standards (e.g. EN 60947-2) should be used. Special precautions (e.g. lightning arresters) may be necessary when excessive overvoltages are likely to occur on the supply side (for example in the case of supply through overhead lines) (see HD 384.4.443). NOTE 7 For RCBOs having a degree of protection higher than IP20 special constructions may be required. This standard also applies to RCBOs obtained by the assembly of an adaptable residual current device with a circuit-breaker. The mechanical assembly shall be effected in the factory by the manufacturer, or on site, in which case the requirements of Annex G shall apply. Supplementary requirements may be necessary for RCBOs of the plug-in type. Particular requirements are necessary for RCBOs integrated in one unit with a socket-outlet or designed exclusively for being associated locally with a socket-outlet in the same mounting box. NOTE 8 Until a specific EN for SRCDs is prepared and approved, for RCBOs integrated in one unit with a socket-outlet or designed exclusively for being associated locally with a socket-outlet in the same mounting box the requirements of this standard in conjunction with those of IEC 60884-1 may be used as far as applicable. This standard does not apply to: – RCBOs intended to protect motors, – RCBOs the current setting of which is adjustable by means accessible to the user in normal service, – RCBOs having more than one rated current. The requirements of this standard apply for normal environmental conditions (see 7.1). Additional requirements may be necessary for RCBOs used in locations having severe environmental conditions. RCBOs including batteries are not covered by this standard. A guide for the co-ordination under short-circuit conditions between a RCBO and another short-circuit protective device (SCPDs) is given in Annex F.

Clause	Common modifications
	This standard contains all requirements necessary to ensure compliance with the operational characteristics required for these devices by type tests. It also contains the details relative to test requirements and methods of testing necessary to ensure reproducibility of test results. This standard states: a) the characteristics of RCBOs; b) the conditions with which RCBOs shall comply, with reference to: 1) their operation and behaviour in normal service, 2) their operation and behaviour in case of overload, 3) their operation and behaviour in case of short-circuits up to their rated short-circuit capacity, 4) their operation under residual current conditions, 5) EMC, 6) their dielectric properties; c) the tests intended for confirming that these conditions have been met and the methods to be adopted for the tests; d) the data to be marked on the devices; e) the test sequences to be carried out and the number of samples to be submitted for certification purposes (see Annex A); f) the co-ordination under short-circuit conditions with another short-circuit protective device (SCPD) associated in the same circuit (see Annex F); g) the routine tests to be carried out on each RCBO to reveal unacceptable variations in material or manufacture, likely to affect safety (see Annex D).
2	Replace the text of Clause 2 by: NOTE Normative references to international publications are listed in Annex ZA (normative).
3.3.16	Delete.
3.3.17	Replace "current paths" by "poles".
3.3.Z1	Add the following new definition: **3.3.Z1** **plug-in RCBO** RCBO having one or more plug-in terminals (see 3.6.Z1) and designed for use with appropriate means for the plug-in connection
3.4.9.1	Delete the reference to IEV.
3.4.15	Replace this subclause by: **3.4.15 Co-ordination between overcurrent protective devices in series** **3.4.15.1** **overcurrent protective co-ordination of overcurrent protective devices** co-ordination of two or more overcurrent protective devices in series to ensure overcurrent discrimination (selectivity) and/or back-up protection (2.5.22 of EN 60947-1) **3.4.15.2** **overcurrent discrimination** co-ordination of the operating characteristics of two or more overcurrent protective devices in series such that, on the incidence of overcurrents within stated limits, the device intended to operate within these limits does so, while the other(s) does (do) not (IEV 441-17-15)

Clause	Common modifications
	3.4.15.3 **back-up protection** overcurrent co-ordination of two overcurrent protective devices in series, where the protective device, generally but not necessarily on the supply side, effects the overcurrent protection with or without the assistance of the other protective device and prevents excessive stress on the latter (2.5.24 of EN 60947-1) **3.4.15.4** **total discrimination (total selectivity)** overcurrent discrimination where, in the presence of two overcurrent protective devices in series, the protective device on the load side effects the protection without causing the other protective device to operate (2.17.2 of EN 60947-2) **3.4.15.5** **partial discrimination (partial selectivity)** overcurrent discrimination where, in the presence of two overcurrent protective devices in series, the protective device on the load side effects the protection up to a given level of overcurrent, without causing the other protective device to operate (2.17.3 of EN 60947-2) **3.4.15.6** **selectivity limit current (I_s)** the current co-ordinate of the intersection between the total time-current characteristic of the protective device on the load side and the pre-arcing (for fuses), or tripping (for RCBOs) time-current characteristic of the other protective device The selectivity limit current (see Figure D.1 of EN 60898-1) is a limiting value of current - below which, in the presence of two overcurrent protective devices in series, the protective device on the load side completes its breaking operation in time to prevent the other protective device from starting its operation (i.e. selectivity is ensured); - above which, in the presence of two overcurrent protective devices in series, the protective device on the load side may not complete its breaking operation in time to prevent the other protective device from starting its operation (i.e. selectivity is not ensured) (2.17.4 of EN 60947-2) **3.4.15.7** **take-over current (I_B)** current co-ordinate of the intersection between the time-current characteristics of two overcurrent protective devices NOTE The take-over current is the current co-ordinate of the intersection between the maximum break-time / current characteristics of two overcurrent protective devices in series. (2.5.25 of EN 60947-1 and 2.17.6 of EN 60947-2) **3.4.15.8** **conditional short-circuit current** (of a circuit or a switching device**)** prospective current that a circuit or a switching device, protected by a specified short-circuit protective device, can satisfactorily withstand for the total operating time of that device under specified conditions of use and behaviour NOTE 1 For the purpose of this standard, the short-circuit protective device is generally a RCBO or a fuse. NOTE 2 This definition differs from IEV 441-17-20 by broadening the concept of current limiting device into a short-circuit protective device, the function of which is not only to limit the current. (2.5.29 of EN 60947-1) **3.4.15.9** **rated conditional short-circuit current I_{nc}** value of prospective current, stated by the manufacturer, which the equipment, protected by a short-circuit protective device specified by the manufacturer, can withstand satisfactorily for the operating time of this device under the test conditions in the relevant product standard (4.3.6.4 of EN 60947-1).

Clause	Common modifications
3.Z1	Add a new subclause: **3.Z1 Definitions related to insulation co-ordination** **3.Z1.1** **insulation co-ordination** the mutual correlation of insulation characteristics of electrical equipment taking into account the expected micro-environment and the influencing stresses (1.3.1 of IEC 60664-1) **3.Z1.2** **working voltage** the highest r.m.s. value of the a.c. or d.c. voltage across any particular insulation which can occur when the equipment is supplied at rated voltage (1.3.5 of IEC 60664-1) NOTE 1 Transients are disregarded. NOTE 2 Both open circuit conditions and normal operating conditions are taken into account. **3.Z1.3** **overvoltage** any voltage having a peak value exceeding the corresponding peak value of maximum steady-state voltage at normal operating conditions (1.3.7 of IEC 60664-1) **3.Z1.4** **impulse withstand voltage** the highest peak value of impulse voltage of prescribed form and polarity, which does not cause breakdown of the insulation under specific conditions (1.3.8.1 of IEC 60664-1) **3.Z1.5** **overvoltage category** a numeral defining a transient overvoltage condition (1.3.10 of IEC 60664-1) **3.Z1.6** **macro-environment** the environment of the room or other location, in which the equipment is installed or used **3.Z1.7** **micro-environment** the immediate environment of the insulation which particularly influences the dimensioning of the creepage distances (1.3.12.2 of IEC 60664-1) **3.Z1.8** **pollution** any addition of foreign matter, solid, liquid or gaseous that can result in a reduction of electric strength or surface resistivity of the insulation (1.3.11 of IEC 60664-1) **3.Z1.9** **pollution degree** a numeral characterising the expected pollution of the micro-environment (1.3.13 of IEC 60664-1) NOTE The pollution degree to which equipment is exposed may be different from that of the macro-environment where the equipment is located because of protection offered by means such as an enclosure or internal heating to prevent absorption or condensation of moisture.

Clause	Common modifications
	3.Z1.10 **isolation (isolating function)** function intended to cut off the supply from the whole installation or a discrete section of it by separating it from every source of electrical energy for reasons of safety (3.6.10 of EN 60898-1) **3.Z1.11** **isolating distance** the clearance between open contacts, meeting the safety requirements specified for isolation purposes (3.6.11 of EN 60898-1) **3.Z1.12** **clearance** (see Annex B) shortest distance in air between two conductive parts along a string stretched the shortest way between these conductive parts (IEV 441-17-31) NOTE For the purpose of determining a clearance to accessible parts, the accessible surface of an insulating enclosure shall be considered conductive as if it was covered by a metal foil wherever it can be touched by a hand or a standard test finger according to Figure 9. **3.Z1.13** **creepage distance** (see Annex B) shortest distance along the surface of an insulating material between two conductive parts. NOTE For the purpose of determining a creepage distance to accessible parts, the accessible surface of an insulating enclosure shall be considered conductive as if it was covered by a metal foil wherever it can be touched by a hand or a standard test finger according to Figure 9.
3.4.19	Delete
3.4.20	Delete
3.6.Z1	Add the following new definition: **3.6.Z1** **plug-in terminal** terminal the electrical connection and disconnection of which can be effected without displacing the conductors of the corresponding circuit. The connection is effected without the use of a tool and is provided by the resilience of the fixed and/or moving parts and/or by springs
4.1	Replace the note by the following specification: The selection of the various types is made according to HD 384 and non-conflicting national wiring rules. Table Z1 lists the types of RCBOs according to the various applications but does not exclude the use of RCBOs of any classification for protection over and above that required by the relevant wiring rules.
	Add the following table:

Table Z1 – Survey of the types of RCBOs according to their method of operation

Classification	4.1.1	4.1.2.2a)	4.1.2.1 b)	4.1.2.2b)
Marking of use	Without	E1	E2	E3
Protection	Indirect contact and additional protection [a]	Indirect contact and additional protection [a]	Additional protection [a]	Additional protection [a b]
Service continuity [c]	Yes	Yes	No	Yes

[a] Additional protection, provided only for RCBOs with $I_{\Delta n} \leq 0{,}03$ A .

[b] Only devices integrated in one unit with a socket-outlet or designed exclusively for being associated locally with a socket outlet in a same mounting box.

[c] This information is given for guidance only.

Clause	Common modifications
4.1.2.1	Replace item a) by: "Deleted". Add after b): RCBOs of type 4.1.2.1b) shall comply with the relevant requirements of 8.12.
4.1.2.2a)	Replace the final sentence in brackets by "(additional requirements are under consideration)".
4.1.2.2b)	Delete the note.
4.2	Replace the text by "Deleted".
4.3	Delete: – single-pole RCBO with one overcurrent protected pole and uninterrupted neutral (see 3.3.16) (two current paths) – three-pole RCBO with three overcurrent protected poles and uninterrupted neutral (four current paths).
4.4	Replace the text by 'Deleted'
4.12	Replace the text by: RCBOs of B-type and C-type, having rated current up to and including 40 A and having short-circuit breaking capacity of 3 000 A, 4 500 A, 6 000 A and 10 000 A, may be classified according to the limits within which their I^2t characteristics lie, measured according to 9.12.6 (see Annex ZD).
4.Z1	Add the following new subclause: **4.Z1 According to the range of ambient air temperature** – RCBOs for use at ambient air temperatures between -5 °C and +40 °C; – RCBOs for use at ambient air temperatures between -25 °C and +40 °C.
5.1	Delete the first dashed item.
	Add the following item to the list of common characteristics: – ranges of ambient air temperature (see 5.3.Z1)
5.2.1.Z1	Add: **5.2.1.Z1 Rated impulse withstand voltage (U_{imp})** The rated impulse withstand voltage of an RCBO shall be equal to or higher than the standard values of rated impulse withstand voltage given in 5.3.Z2.
5.2.3	Delete the note.
5.2.7	Replace the last line by: The conditions are those specified in 9.12.11.4d)
5.2.9.3	Delete.
5.3.1	Replace "preferred" by "standard" (twice).
	Replace the Table by:

RCBOs	Circuit supplying the RCBO	Rated voltage of RCBOs for use in systems 230 V, 230 V/400 V, 400 V
Two-pole	Single phase (phase to neutral or phase to phase)	230 V
	Single phase (phase to phase)	400 V
	Three phase (4-wire)	230 V
Three-pole	Three phase (3-wire)	400 V
Four-pole	Three phase (4-wire)	400 V

Clause	Common modifications
5.3.2	Delete in the second line the value 8 A.
5.3.3	Delete the value “0,006”.
5.3.5	Replace the title by "Values of rated frequency". Replace the text by: The preferred value of rated frequency is 50 Hz.
5.3.6	Replace the subclause title by: **5.3.6 Values of rated short-circuit capacity (I_{cn}) and of rated residual making and breaking capacity ($I_{\Delta m}$)** NOTE 1 For test voltages to check the insulation, see 9.20. NOTE 2 For test voltages to check the isolation distance across open contacts, see Table Z2.
5.3.6.1	Replace the first sentence by: Standard values of rated short-circuit capacity and of rated residual making and breaking capacity are given in Table 1. The values of I_{cn} and $I_{\Delta m}$ may be different on the same product.
	Replace Table 1 and the subsequent footnote by:

Table 1 - Standard values of rated short-circuit capacity and of the rated residual making and breaking capacity

1 500 A (*)
3 000 A
4 500 A
6 000 A
10 000 A

(*) Only for RCBOs integrated in one unit with a socket outlet or designed exclusively for being associated locally with a socket outlet in the same mounting box.

5.3.7	Delete.
5.3.9	Table 3: Replace “50 I_n” by “20 I_n”.
5.3.Z1	Add the following new subclause: **5.3.Z1 Standard ranges of ambient air temperature** The standard ranges of ambient air temperature are: – -5 °C to +40 °C – -25 °C to +40 °C
5.3.Z2	Add the following new subclause: **5.3.Z2 Standard values of rated impulse withstand voltage (U_{imp})** Standard value of the rated impulse voltage (U_{imp}) is 4 kV. NOTE For test voltages to check the isolation distance across open contacts, see Table Z2.
6	The text of Clause 6 become 6.Z1 with the following modifications: **6.Z1 Standard marking** c) Add "with the symbol ~" f) Add "($I_{\Delta n}$) in A or mA" g) Replace the text by "Deleted"

Clause	Common modifications
	Replace item h) by: h) rated short-circuit capacity, in amperes in a rectangle without symbol "A"; m) Add "($I_{\Delta m}$)" between "capacity" and ", if different from..." and add "(I_{cn})" at the end Replace item o) by: o) symbol of the method of operation according to Table Z1 of 4.1 if the RCBO is functionally dependent on the line voltage; r) Add "unless the correct mode of connection is evident" Add the following items: t) Energy limiting class in a square in accordance with Annex ZD, if applied. I_{cn} and the energy limiting class, when applicable, shall both be on the device and combined together; u) RCBO according to 4.Z1 shall be marked with the symbol  (the value -25 included in the snow flake symbol according to Figure 0027 of ISO 7000) if relevant
	In the second paragraph after u): Replace "under d), f), and n)" by "under d), f), n), q) and s) (for type A only)". Replace "under a), b), c) and h)" by "under a), b), c), h), l), o), r), s) (for type AC only), t) and u)". Replace "The information under r)" by: "Alternatively, information under o) and r)".
	Add between the second and third paragraph after u): If a degree of protection higher than IP20 is marked on the device, it shall comply with it, whichever the method of installation. If the higher degree of protection is obtained only by a specific method of installation and/or with the use of specific accessories (e.g. terminal covers, enclosures, etc.), this shall be specified in the manufacturer's literature.
	Add at the end: The suitability for isolation, which is provided by all RCBOs of this standard, may be indicated by the symbol  on the device. When affixed, this marking may be included in a wiring diagram, where it may be combined with symbols of other functions, (e.g. overload protection, or other symbols of IEC TC 3). When the symbol is used on its own (i.e. not in a wiring diagram), combination with symbols of other functions is not allowed. Specifications on appropriate recommendations to the user to regularly operate the test device are under consideration.
6.Z2	Add the following new subclause: **6.Z2 Additional marking** Additional marking to other standards (EN or IEC or other) is allowed under the following conditions: – the RCBO shall comply with all the requirements of the additional standard. – the relevant standard to which the additional marking refers shall be indicated adjacent to this marking and shall be clearly differentiated or separated from the standard marking according to 6.Z1. *Compliance is checked by inspection and by carrying out all the test sequences required by the relevant standard. Equivalent or less severe test sequences need not be repeated.*
6.Z3	Add the following new subclause:

6.Z3 Guidance table for marking

	Marking and other product information	Marking shall be on the RCBO itself			Product information in the catalogue
	Each RCBO shall be marked in a durable manner with all or, for small apparatus, part of the following data: The minimum requirements are indicated by the symbol "X"	*If, for small devices the space available does not allow all the above data to be marked, at least this information shall be marked and **visible** when the device is installed.*	*This information may be marked on the **side** or on the back of the device and be visible only before the device is installed.*	*Alternatively the information may be on the inside of any **cover** which has to be removed in order to connect the supply wires.*	*Any remaining information not marked shall be given in the manufacturer's **catalogues.***
a)	the manufacturer's name or trademark;		X		
b)	type designation, catalogue number or serial number;		X		
c)	rated voltage(s) with the symbol ~;		X		
d)	rated current without symbol "A", preceded by the symbol of overcurrent instantaneous tripping (B, C or D),for example B16	X			
e)	rated frequency, if the RCBO is designed only for one frequency (see 5.3.5)				X
f)	rated residual operating current ($I_{\Delta n}$)in A or in mA	X			
h)	rated short circuit capacity, in amperes in a rectangle without symbol "A"		X(*)		
j)	reference calibration temperature, if different from 30 °C				X
k)	the degree of protection (only if different from IP20);				X
l)	the position of use (symbol according to IEC 60051), if necessary;		X		
m)	rated residual making and breaking capacity ($I_{\Delta m}$), if different from rated short-circuit capacity (I_{cn})				X
n)	the symbol S (S in a square) for type S devices;	X			
o)	indication that the RCBO is functionally dependent on line voltage, if applicable		X	X	
q)	operating means of the test device, by the letter T;	X			
r)	wiring diagram unless the correct mode of operation is evident,		X	X	
s)	operating characteristic in presence of residual currents with d.c. components - RCBOs of type AC with the symbol  - RCBOs of type A with the symbol 	X (type A)	X		
t)	Energy limiting class (e.g. 3) in a square in accordance with Annex ZD if applied		X(*)		
u)	RCBOs according to 4.Z1 shall be marked with the symbol (snowflake enclosing -25) if relevant		X		
	Indication of the terminal for the neutral with "N"		X		
	Additional marking of performance to other standards		X		

(*) Icn and the energy limiting class shall be on the device and combined together

NOTE Specifications on appropriate recommendations to the user to regularly operate the test device are under consideration.

Clause	Common modifications
7.1	In Table 4, second column, add to "-5° C to +40 °C [2)]" in the same box, the range "-25 °C to +40 °C [2)]". Modify footnote 7) to read: 7) Extreme limits of -20 °C and 60°'C, for RCBOs for use in the range of –5 °C to +40 °C and of –35 °C and 60 °C, for RCBOs for use in the range of –25 °C to +40 °C, are admissible during storage and transportation. These conditions should be taken into account in the design of the device.
	In Table 4, second column, after "2 000 m", add a footnote reference "[8)]" Add footnote 8) as follows: 8) For installations at higher altitudes, it is necessary to take into account the reduction of the dielectric strength and of the cooling effect of the air. RCBOs intended to be so used shall be designed specially or used according to an agreement between manufacturer and user. Information given in the manufacturer's catalogue may take the place of such an agreement.
7.Z1	Add the following new subclause: **7.Z1 Pollution degree** RCBOs to this standard are intended for environment with pollution degree 2, i.e.: normally, only non-conductive pollution occurs; occasionally, however, a temporary conductivity caused by condensation may be expected.
8.1.2	Replace the first and the second paragraph by: The moving contacts of all poles of multipole RCBOs shall be so mechanically coupled that all poles, except the switched neutral, if any, make and break substantially together, whether operated manually or automatically, even if an overload occurs on one protected pole only. The switched neutral pole (see 3.3.15.3) of four-pole RCBOs shall not close after and shall not open before the protected poles. *Compliance is checked by inspection and by manual test, using any appropriate means (e.g. indicator lights, oscilloscope, etc.).*
	Add after the sixth paragraph: RCBOs shall provide in the open position (see 3.3.14) an isolation distance in accordance with the requirements necessary to satisfy the isolating function (see 8.3). Indication of the open and closed position of the main contacts shall be provided by one or both of the following means: – the position of the actuator (this being preferred), or – a separate mechanical indicator. If a separate mechanical indicator is used to indicate the position of the main contacts, this shall show the colour red for the closed position (ON) and the colour green for the open - position (OFF). The means of indication of the contact position shall be reliable. *Compliance is checked by inspection and by the tests of 9.9.2.2 a)* RCBOs shall be designed so that the actuator, front plate or cover can only be correctly fitted in a manner which ensures correct indication of the contact position. *Compliance is checked by inspection and by the tests of 9.12.12.1 and 9.12.12.2* When means are provided or specified by the manufacturer to lock the operating means in the open position, locking in that position shall only be possible when the main contacts are in the open position. NOTE Locking of the operating means in the ON position is permitted for particular applications. *Compliance is checked by inspection, taking into account the instructions of the manufacturer.*
	Delete the ninth paragraph and the relevant note.
	Delete the last note.