
Odklopniki na preostali (residualni) tok brez vgrajene nadtokovne zaščite za gospodinjsko in podobno rabo (RCCB's) – 1. del: Splošna pravila (IEC 61008-1:1996 + A1:2002, spremenjen)

Residual current operated circuit-breakers without integral overcurrent protection for household and similar uses (RCCB's) - Part 1: General rules (IEC 61008-1:1996 + A1:2002, modified)

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EUROPEAN STANDARD

EN 61008-1

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 2004

ICS 29.120.50

Supersedes EN 61008-1:1994 + A2:1995 + A11:1995 + A12:1998
+ A13:1998 + A14:1998 + A17:2000

English version

**Residual current operated circuit-breakers
without integral overcurrent protection
for household and similar uses (RCCB's)
Part 1: General rules
(IEC 61008-1:1996 + A1:2002, modified)**

Interrupteurs automatiques
à courant différentiel résiduel
pour usages domestiques et analogues
sans dispositif de protection contre les
surintensités incorporées (ID)
Partie 1: Règles générales
(CEI 61008-1:1996 + A1:2002, modifiée)

Fehlerstrom-/Differenzstrom-
Schutzschalter ohne eingebauten
Überstromschutz (RCCBs)
für Hausinstallationen und
für ähnliche Anwendungen
Teil 1: Allgemeine Anforderungen
(IEC 61008-1:1996 + A1:2002, modifiziert)

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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

Foreword

The text of the International Standard IEC 61008-1:1996 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 61008-1 on 2004-03-16.

This European Standard supersedes EN 61008-1:1994 + corrigendum Dec. 1997 + A2:1995 + A2:1995/corrigendum Dec. 1997 + A11:1995 + A11:1995/corrigendum Dec. 1997 + A12:1998 + A12:1998/corrigendum Apr. 1998 + A13:1998 + A14:1998 + A17:2000.

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 61008-1 are prefixed with the letter Z.

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Endorsement notice

The text of the International Standard IEC 61000-8-1:1996 + A1:2002 was approved by CENELEC as a European Standard with agreed common modifications as given below.

Clause	Common modification
Contents	Add: 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 ZZ (informative) Coverage of Essential Requirements of EC Directives Table Z1 – Survey of the types of RCCBs according to their method of operation Table Z2 – Test voltage across the open contacts for verifying the suitability for isolation, referred to the altitude where the test is carried out
1	In the first paragraph in the last but one line add, after "not exceeding 125 A", the words "for fixed installations".
	Replace note 3 by: RCCB's within the scope of this standard are intended for used in an environment pollution degree 2. They are suitable for isolation. Devices to this standard are suitable for use in IT systems if the requirements of the installation rules are met.
	Renumber the existing notes 4 through 6 to become notes 3 through 5.
	Replace the second dashed indent after (the new) note 4 by: – RCCBs integrated in one unit with a socket-outlet or designed exclusively for being associated locally with a socket-outlet in the same mounting box.
	Replace note 5 by: NOTE 5 Until a specific EN for SRCDs is prepared and approved, for RCCBs 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.
	Add at the end of the clause: 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 RCCBs, b) the conditions with which RCCBs shall comply, with reference to 1) their operation and behaviour in normal service, 2) their operation and behaviour in case of short-circuits, 3) their operation under residual current conditions, 4) their dielectric properties, 5) EMC,

Clause	Common modification
	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 routine tests to be carried out on each RCCB 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	Replace "current paths" by "poles".
3.3.Z1	Add the following new definition: 3.3.Z1 plug-in RCCB a RCCB having one or more plug-in terminals (see 3.6.Z1) and designed for use with appropriate means for the plug-in connection
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
3.7	Delete 3.7.6 and 3.7.7.
3.Z1	After 3.8, add the following new definitions: 3.Z1 Definitions related to insulation coordination 3.Z1.1 insulation coordination 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)

Clause	Common modification
	<p>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)</p> <p>3.Z1.5 overvoltage category a numeral defining a transient overvoltage condition (1.3.10 of IEC 60664-1)</p> <p>3.Z1.6 macro-environment the environment of the room or other location, in which the equipment is installed or used (1.3.12.1 of IEC 60664-1)</p> <p>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)</p> <p>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)</p> <p>3.Z1.9 pollution degree a numeral characterising the expected pollution of the micro-environment (1.3.13 of IEC 60664-1)</p> <p>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.</p> <p>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 IEC 60898-1)</p> <p>3.Z1.11 isolating distance the clearance between open contacts, meeting the safety requirements specified for isolation purposes (3.6.11 of IEC 60898-1)</p> <p>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</p> <p>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 3.</p> <p>3.Z1.13 creepage distance (see Annex B) shortest distance along the surface of an insulating material between two conductive parts</p> <p>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 3.</p>

Clause	Common modification
4.1	<p>Replace the note by the following specification:</p> <p>The selection of the various types is made according to HD 384 and non conflicting national wiring rules. Table Z1 lists the types of RCCBs according to the various applications but does not exclude the use of RCCBs of any classification for protection over and above that required by the relevant wiring rules.</p>
	Add:

Table Z1 – Survey of the types of RCCBs 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 RCCBs 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.

4.1.2.1	<p>Replace item a) by "deleted".</p> <p>Add, after b):</p> <p>RCCBs of type 4.1.2.1b) shall comply with the relevant requirements of 8.12.</p>
4.1.2.2	Delete the note.
4.1.2.2a)	Replace the text in brackets by "(additional requirements are under consideration)".
4.2	Replace the text by "Deleted".
4.3	Delete "single-pole RCCB with two current paths;" and "three-pole RCCB with four current paths;".
4.4	Replace the text by "Deleted".
4.Z1	<p>Add the following new subclause:</p> <p>4.Z1 According to the range of ambient air temperature</p> <ul style="list-style-type: none"> – RCCBs for use at ambient air temperatures between -5 °C and +40 °C; – RCCBs for use at ambient air temperatures between -25 °C and +40 °C.
5.1	Delete the first dashed item.
	<p>Add the following item to the list:</p> <ul style="list-style-type: none"> – ranges of ambient air temperature (see 5.3.Z1)
5.2.1.Z1	<p>Add:</p> <p>5.2.1.Z1 Rated impulse withstand voltage (U_{imp})</p> <p>The rated impulse withstand voltage of an RCCB shall be equal to or higher than the standard values of rated impulse withstand voltage given in 5.3.Z2.</p>
5.2.3	Delete the note.
5.3.1	Replace "preferred" by "standard" (twice).




Clause	Common modification
	Replace the Table by:

RCCBs	Circuit supplying the RCCB	Rated voltage
Two-pole with two current path	Single phase, phase to neutral or phase to phase	230 V
	Single phase, phase to phase	400 V
Three-pole with three current path	Three phase (3-wire)	400 V
Four-pole	Three phase (4-wire)	400 V

5.3.3	Delete the value "0,006 A".
5.3.7	Replace the first line by: The preferred value of rated frequency is 50 Hz.
5.3.12	Replace, in the last but one line "9.22.1.1" by "9.21.1".
5.3.12	Table 1: replace "500 A" by " 500 A**" Add the following note: ** The verification of the break times at these values is only made for the test of 9.9.2.3.
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 value of rated impulse withstand voltage (U_{imp}) Standard value of the rated impulse voltage (U_{imp}) is 4 kV. 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.
6	The text of Clause 6 becomes 6.Z1 with the following modifications: 6.Z1 Standard marking c) Add "with the symbol ~" d) Delete "and/or 60 Hz" f) Add "($I_{\Delta n}$) in A or mA" g) Replace the text by "Deleted" h) Add "(I_m)" l) Add "($I_{\Delta m}$)" between "capacity" and ", if different from..." and add "(I_m)" at the end

Clause	Common modification
	<p>Replace item n) by:</p> <p>n) symbol of the method of operation according to Table Z1 of 4.1 if the RCCB is functionally dependent on the line voltage;</p> <p>p) Add "unless the correct mode of connection is evident"</p> <p>Add the following item:</p> <p>s) RCCBs according to 4.Z1 shall be marked with the symbol  (the value -25 included in the snowflake symbol according to Figure 0027 of ISO 7000), if relevant;</p>
	<p>In the second paragraph after s):</p> <p>Replace "under e), f), and o)" by "under e), f), m), o) and r) (for A type only)".</p> <p>Replace "under a), b), c), k), l) and p)" by "under a), b), c), k), p), r) (for AC type only) and s)".</p> <p>Add before the last sentence:</p> <p>Information under h) (I_m) and l) ($I_{\Delta m}$) may be put on the side or on the back or in the documentation, but both shall be indicated together.</p>
	<p>Add between the second and third paragraph after s):</p> <p>If a degree of protection higher than IP20 according to EN 60529 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.</p>
	<p>Add at the end:</p> <p>The suitability for isolation, which is provided by all RCCBs 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. other symbols of IEC TC3). When the symbol is used on its own (i.e. not in a wiring diagram), combination with symbols of other functions is not allowed.</p> <p>Specifications on appropriate recommendations to the user to regularly operate the test device are under consideration.</p>
6.Z2	<p>Add the following new subclause:</p> <p>6.Z2 Additional marking</p> <p>Additional marking to other standards (EN or IEC or other) is allowed under the following conditions:</p> <ul style="list-style-type: none"> – the RCCB 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. <p><i>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.</i></p>
6.Z3	<p>Add the following new subclause:</p>

6.Z3 Guidance table for marking

Marking and other product information		Marking may be on the RCCB itself			Product information in the catalogue
	Each RCCB 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"	<i>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 <u>visible</u> when the device is installed.</i>	<i>This information may be marked on the <u>side</u> or on the back of the device and be visible only before the device is installed.</i>	<i>Alternatively the information may be on the inside of any <u>cover</u> which has to be removed in order to connect the supply wires.</i>	<i>Any remaining information not marked shall be given in the manufacturer's <u>catalogues</u>.</i>
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 frequency, if the RCCB is designed frequencies other than 50Hz (see 5.3.7)				X
e)	rated current	X			
f)	rated residual operating current ($I_{\Delta n}$) in A or in mA	X			
h)	rated making and breaking capacity (I_m)				X(*)
j)	the degree of protection (only if different from IP20);				X
k)	the position of use (symbol according to IEC 60051), if necessary;		X		
l)	rated residual making and breaking capacity ($I_{\Delta m}$), if different from rated short-circuit capacity (I_m)				X(*)
m)	the symbol S (S in a square) for type S devices;	X			
n)	indication that the RCCB is functionally dependent on line voltage, if applicable		X	X	
o)	operating means of the test device, by the letter T;	X			
p)	wiring diagram unless the correct mode of operation is evident,		X	X	
r)	operating characteristic in presence of residual currents with d.c. components - RCCBs of type AC with the symbol  - RCCBs of type A with the symbol 	X	X		
s)	RCCBs 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		
	Symbol of rated conditional breaking capacity with a fuse **	X(**)			

(*) $I_{\Delta m}$ and I_m (if different of $I_{\Delta m}$) may be anywhere on the device or in the catalogue but shall be together.
(**) Under consideration

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

Clause	Common modification
7.1	<p>In Table 2, second column, add to "-5 °C to +40 °C²⁾" in the same box, the range "-25 °C to +40 °C²⁾".</p> <p>Modify footnote 7) to read:</p> <p>7) Extreme limits of -20 °C and 60 °C, for RCCBs for use in the range of -5 °C to +40 °C and of -35 °C and 60 °C, for RCCBs 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.</p>
	<p>In Table 2, second column, after "2 000 m", add a footnote reference "⁸⁾".</p> <p>Add footnote 8) as follows:</p> <p>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. RCCBs 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.</p>
7.Z1	<p>Add the following new subclause:</p> <p>7.Z1 Pollution degree</p> <p>RCCBs 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.</p>
8.1.1	<p>Replace the second paragraph by:</p> <p>It shall not be possible to alter the operating characteristics of the RCCB by means of external interventions.</p> <p>Delete the third paragraph.</p>
8.1.2	<p>Replace the second paragraph by:</p> <p>The switched neutral pole (see 3.3.15) of four-pole RCCBs shall not close after and shall not open before the other poles. SIST EN 61008-1:2005 https://standards.iteh.ai/catalog/standards/sist/477e6d54-2309-4523-8187-8160-240611/sist-en-61008-1-2005 <i>Compliance is checked by inspection and by manual test, using any appropriate means (e.g. indicator lights, oscilloscope, etc.).</i></p>
	<p>Add after the sixth paragraph:</p> <p>RCCBs shall provide in the open position (see 3.3.13) an isolation distance in accordance with the requirements necessary to satisfy the isolating function (see 8.3).</p> <p>Indication of the open and closed position of the main contacts shall be provided by one or both of the following means:</p> <ul style="list-style-type: none"> – the position of the actuator (this being preferred); or – a separate mechanical indicator. <p>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).</p> <p>The means of indication of the contact position shall be reliable.</p> <p>RCCBs shall be designed so that the actuator, front plate or cover can only be correctly fitted in a manner which ensures correct contact position indication (see Clause 6).</p> <p><i>Compliance is checked by inspection and by the tests of 9.9 and 9.11.2.</i></p> <p>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.</p> <p>NOTE Locking of the operating means in the ON position is permitted for particular applications.</p> <p><i>Compliance is checked by inspection, taking into account the instructions of the manufacturer.</i></p>

Clause	Common modification
8.1.2	Delete the eighth paragraph and the relevant note.
	Delete the note before the last paragraph.
8.1.3	<p>Replace 8.1.3 by:</p> <p>8.1.3 Clearances and creepage distances</p> <p>The minimum required clearances and creepage distances are given in Table 3 which is based on the RCCB being designed for operating in an environment with pollution degree 2. However, the clearances of item 2, 4 and 5 may be reduced provided that the tests at rated impulse voltage are withstood.</p> <p>The insulating materials are classified into Material Groups on the basis of their comparative tracking index (CTI) according to 2.7.1.1 and 2.7.1.3 of IEC 60664-1 and measured according to IEC 60112.</p>
	Replace Table 3 by the following table:

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Table 3 – Minimum clearances and creepage distances

	Minimum clearances mm	Minimum creepage distances ^{e, f}											
		Group IIIa ^h (175V ≤ CTI < 400V) ^d				Group II (400V ≤ CTI < 600V) ^d				Group I (600V ≤ CTI) ^d			
	Rated voltage V	Working voltage ^e V											
Description	230 V/400 V 230 V 400 V	> 25 ≤ 50 ⁱ	120	250	400	> 25 ≤ 50 ⁱ	120	250	400	> 25 ≤ 50	120	250	400
1. between live parts which are separated when the main contacts are in the open position ^a	4,0	1,2	2,0	4,0	4,0	0,9	2,0	4,0	4,0	0,6	2,0	4,0	4,0
2. between live parts of different polarity ^a	3,0	1,2	1,5	3,0	4,0	0,9	1,5	3,0	3,0	0,6	1,5	3,0	3,0
3. between circuits supplied from different sources, one of which being PELV or SELV ^g	8,0		3,0	6,0	8,0		3,0	6,0	8,0		3,0	6,0	8,0
		Rated voltage V											
		230 - 400				230 - 400				230 - 400			
4. between live parts and - accessible surfaces of operating means - screws or other means for fixing covers which have to be removed when mounting the RCCB - surface on which the RCCB is mounted ^b - screws or other means for fixing the RCCB ^b - metal covers or boxes ^b - other accessible metal parts ^c - metal frames supporting flush-type RCCBs	3,0		4,0				3,0				3,0		
5. between metal parts of the mechanism and: - accessible metal parts ^c - screws or other means for fixing the RCCB - metal frames supporting flush-type RCCBs													
^a For auxiliary and control contacts the values are given in the relevant standard. ^b The values are doubled if clearances and creepage distances between live parts of the device and the metallic screen or the surface on which the RCCB is mounted are not dependent on the design of the RCCB only, so that they can be reduced when the RCCB is mounted in the most unfavourable condition. ^c Including a metal foil in contact with the surfaces of insulating material which are accessible after installation for normal use. The foil is pushed into corners, grooves, etc., by means of a straight unjointed test finger according to 9.6 (see Figure 3) ^d See IEC 60112. ^e Interpolation is allowed in determining creepage distances corresponding to voltage values intermediate to those listed as working voltage. For determination of creepage distances see Annex B. ^f Creepage distances cannot be less than the associated clearances. ^g To cover all different voltages including ELV in an auxiliary contact. ^h For material group IIIb (100 V ≤ CTI < 175 V) the values for material group IIIa multiplied by 1,6 apply. ⁱ For working voltages up to and including 25 V reference may be made to IEC 60664-1.													
NOTE 1 The values given for 400 V are also valid for 440 V.													
NOTE 2 The parts of the neutral path, if any, are considered to be live parts.													
NOTE 3 Care should be taken to provide adequate clearances and creepage distances between live parts of different polarity of RCCBs e.g. of the plug-in type mounted close to one another.													

Clause	Common modifications
8.1.5.2	Delete the note after Table 4.
8.1.Z1	<p>Add the following new subclause:</p> <p>8.1.Z1 Non-interchangeability</p> <p>For RCCBs intended to be mounted on bases forming a unit therewith (plug-in type or screw-in type) it shall not be possible, without the aid of a tool, to replace a RCCB when mounted and wired as for normal use by another of the same make having a higher rated current.</p> <p><i>Compliance is checked by inspection.</i></p> <p>NOTE The expression "as for normal use" implies that the RCCB is installed according to the manufacturer's instructions.</p>
8.1.Z2	<p>Add the following new subclause:</p> <p>8.1.Z2 Mechanical mounting of plug-in type RCCBs</p> <p>The mechanical mounting of plug-in type RCCBs shall be reliable and have adequate stability.</p> <p>8.1.Z2.1 Plug-in type RCCBs, the holding in position of which does not depend solely on their plug-in connection(s)</p> <p><i>Compliance of the mechanical mounting is checked by the relevant tests of 9.12.</i></p> <p>8.1.Z2.2 Plug-in type RCCBs, the holding in position of which depends solely on their plug-in connection(s)</p> <p><i>Compliance of the mechanical mounting is checked by the relevant tests of 9.12.</i></p>
8.3	<p>Replace 8.3 by:</p> <p>8.3 Dielectric properties and isolating capability</p> <p>RCCBs shall have adequate dielectric properties and shall ensure isolation.</p> <p><i>Compliance is checked by the requirements referred to in 8.3.Z1 to 8.3.Z3.</i></p> <p>Control circuits connected to the main circuit shall not be damaged by high d.c. voltage due to insulating measurements which are carried out after RCCBs are installed.</p> <p><i>Compliance is checked by the test of 9.7.6.</i></p> <p>8.3.Z1 Dielectric strength at power frequency</p> <p>RCCBs shall have adequate dielectric properties at power frequency.</p> <p><i>Compliance is checked by the tests of 9.7.1, 9.7.2, 9.7.3 and 9.7.4 (if applicable).</i></p> <p><i>After the endurance tests of 9.10 and after the short-circuit tests of 9.11, the RCCBs shall withstand the test of 9.7.3 but at the reduced test voltage specified in 9.10.3 and 9.11.2.1 i) respectively and without the previous humidity treatment of 9.7.1.</i></p> <p>8.3.Z2 Isolating capability</p> <p>RCCBs shall be suitable for isolation.</p> <p><i>Compliance is checked by the verification of compliance with the minimum clearances and creepage distances of item 1 of Table 3 of 8.1.3 and by the tests of 9.7.Z1.1 and 9.7.Z1.2.</i></p> <p>8.3.Z3 Dielectric strength at rated impulse withstand voltage (U_{imp})</p> <p>RCCBs shall adequately withstand impulse voltages.</p> <p><i>Compliance is checked by the test of 9.20.</i></p>