



**SLOVENSKI STANDARD**  
**SIST-TP CLC/TR 50473:2007**

**01-september-2007**

**BUXca Yý U**  
**SIST CLC/R 023-001:1996**

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Recommendations for dimensional co-ordination between enclosures and built-in devices for rail fixing for household and similar installations

**iTeh STANDARD PREVIEW**  
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Recommandations pour la coordination dimensionnelle des enveloppes et des dispositifs incorporés a fixation sur rail pour usages domestiques et analogues

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**Ta slovenski standard je istoveten z: CLC/TR 50473:2007**

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**ICS:**

29.060.10      Žice      Wires

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English version

**Recommendations for dimensional co-ordination  
between enclosures and built-in devices  
for rail fixing for household and similar installations**

This Technical Report was approved by CENELEC on 2006-01-21.

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**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

Report R023-001:1995 was prepared by the Technical Committee CENELEC TC 23E, Circuit breakers and similar devices for household and similar applications. It has been drawn up on the basis of the decisions taken by TC 23E at their 9<sup>th</sup> meeting on 8<sup>th</sup> and 9<sup>th</sup> November 1994, where the document CLC/TC23E(Sec)38 and the relevant comments of the National Committees were examined.

This Report was approved by CENELEC on 1995-03-06.

Following BT decision D124/C048 and TC 23E advice, an updated version of R023-001:1995 was circulated for voting for conversion into a Technical Report in accordance with the Internal Regulations, Part 2, Subclause 11.4.3.3 and was approved by CENELEC as CLC/TR 50473 on 2006-01-21.

This Technical Report supersedes R023-001:1995.

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## 1 Scope

The purpose of this report is to give recommendations of the co-ordination of dimensions between enclosures and built-in devices for rail fixing for household or similar installations by listing the principal overall and related mounting dimensions, the rated current of a single device not exceeding 125 A. Examples of these devices are: MCBs, RCDs switches, fuse-systems, indicating lamps, relays, socket-outlets, timing switches, etc.

Compliance with this document does not preclude the need for compliance with other relevant specifications.

This document needs not apply to type tested and partially type tested assemblies which are covered by other specifications. The means of fixing envisaged in this document are mounting rails. Other possible means of fixing may be used but are not covered by these recommendations.

NOTE The only criterion chosen in this document for co-ordination of dimensions has been the geometry of the devices. When selecting the enclosure, other criteria should be taken into account, e.g. the rated current of the devices.

## 2 Normative references

EN 60715:2001, *Dimensions of low-voltage switchgear and controlgear - Standardized mounting on rails for mechanical support of electrical devices in switchgear and controlgear installations* (IEC 60715:1981 + A1:1995)

## 3 Definitions

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For the purpose of this Technical Report the following definitions apply:

### 3.1

#### module (m)

a basic single block

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### 3.2

#### device

a modular block that is not intended to be split into independent units

## 4 Mounting rails

The mounting rails used shall be of the 35 mm “Top hat” type according to EN 60715 or an equivalent mounting means, obtained e.g. by moulding or pressing.

NOTE Other types of mounting rails may be used but are not necessarily covered by these recommendations.

Recommendations for dimensional co-ordination of devices designed to be fixed on two mounting rails are under consideration. Examples are given in Annex A.

## 5 Dimensions of devices relevant to mounting

The principal dimensions necessary to co-ordinate the built-in devices with the enclosures are given in Figure 1.

### 5.1 Width “*l*”

The width of a device shall be

$$l = n \times (m \begin{smallmatrix} +0,5 \\ 0 \end{smallmatrix}) \text{ mm}$$

where

$$n = 0,5 \text{ or } 1 \text{ or } 1,5 \text{ or } 2 \text{ or } 2,5 \text{ or } 3 \text{ or } 3,5 \text{ or } 4 \dots$$

$$m = 12,5 \text{ or } 17,5 \text{ mm}$$

NOTE The preferred value for future designs is  $m = 17,5$  mm.

### 5.2 Height of a given device “*h*”

$h_1$  and  $h_2$  of a given device (see Figure 1a)) need not to be equal.

$h_{1\max}$  or  $h_{2\max}$ , whichever is the greater, shall be chosen from the series 45 – 55 – 75 – 100 – 125 mm.

NOTE 1 The maximum height ( $h_1 + h_2$ ) must not exceed twice the values chosen.

NOTE 2 The means for fixing or removing the device to and from the rail are not taken into account.

### 5.3 Height of front projection “*d*” (see Figure 1a))

Up to and including a value  $h_1$  or  $h_2$  – whichever is the greater – of 45 mm the height  $d$  of the front projections shall be  $45 \pm 0,5$  mm.

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For values of  $h_1$  or  $h_2$  greater than 45 mm the front projection “ $d$ ” shall have one of the following values: 45 mm and 80 mm, with a tolerance of  $\pm 0,5$  mm.

NOTE The preferred value for future designs is  $d = 45$  mm.

### 5.4 Depth dimensions $q_1$ , $q_2$ and $q_3$ (see Figure 1a))

The depth dimensions are given in Table 1.

Table 1 – Depth dimensions

$q_{1\max}$ mm	$q_{2\min}$ mm	$q_{3\max}^b$ mm
44 <sup>a</sup>	50 <sup>c</sup>	55
		60
		70
		92,5
55	57	70
		92,5
64	66	80
		100
76	84	100

<sup>a</sup> Preferred value.

<sup>b</sup> Where more than one value of  $q_{3\max}$  is shown for a value of  $q_{1\max}$  and  $q_{2\min}$ ; the appropriate value is a function of the design “family” of the device.

<sup>c</sup> Preferred value of  $q_{2\min} = 52$  mm.

## 6 Distance Y between parallel mounting rails (see Figure 1b))

The distance Y between centre lines of parallel rails shall be

$$Y = X \times 25 \text{ mm}$$

where

$$X = 4 \text{ or } 5 \text{ or } 6 \text{ or } \dots$$

The tolerance shall not exceed  $\pm 0,5$  mm for  $Y \leq 125$  mm ( $X \leq 5$ ) and  $\pm 1,0$  mm for  $Y > 125$  ( $X > 5$ ).

For boards or panels with 3 or more rows the cumulative tolerance shall not exceed  $\pm 2$  mm.

NOTE 1 Multiplier 4 is intended for boards or panels containing rows made up exclusively of accessories, indicator lights, fuses, etc. For rows containing switching devices the minimum value is 5.

NOTE 2 The distance from the highest and lowest rail to the top or bottom face respectively of the board is not considered.

NOTE 3 It is the responsibility of the manufacturer of the board to choose the appropriate Y-value(s).

NOTE 4 In a given board values of Y different from each other may be used.

## 7 Clearances and creepage distances

The clearances and creepage distances between live parts and accessible metal parts shall correspond to those given in the relevant product standards.

## 8 Relevant mounting dimensions (see Figure 1b))

### 8.1 General rules for mounting dimensions

8.1.1 The general rules for the co-ordination of overall dimensions  $q$  and related mounting dimensions  $p$  are

$$p_1 \leq q_1$$

where  $p_1 \leq 47,5$  mm for new designs of  $q_{1\max} = 44$  mm,

$$p_2 \leq q_2$$

where  $p_2 \leq 51$  mm for new designs of  $q_2 \leq 52$  mm,

$$p_3 \leq q_3$$

where

- $p_2$  applies only at the edges of the window, and
- $p_3$  includes the maximum projection of the operating means or the rim of a recess for the operating means, and is to apply to the window area only.

This requirement may be disregarded in the case of devices which can only be operated by hand and circuit-breakers with trip-free release, provided that the ON and OFF positions of the operating means, if any, lie within  $p_3$ .

8.1.2 To meet the requirements for reinforced insulation the following requirements shall apply to the devices (see Figure 1a)):

- $q_{1\max} - q_0$  3 mm for future designs (to take into account metal front barriers) and  $a > 3$  mm;

or

- if  $a$  is less than or equal to 3 mm and the distance  $B$  is less than 6 mm a shoulder is needed on the device for the front barrier at a distance of  $(q_{1\max} + 3^{+0,5}_0)$  mm.

The width of this shoulder shall be between 2,5 mm and 5 mm.

## 8.2 Window openings (see Figure 1b))

The height  $f$  of the opening for the window is obtained from the relationship:

$$(d + 1) < f < (d + 2)$$

where  $d$  is the nominal value of the height of the front projection (see 5.3).

In order to obtain the degree of protection prescribed by the wiring rules appropriate measures shall be taken, e.g. use of blanking pieces.

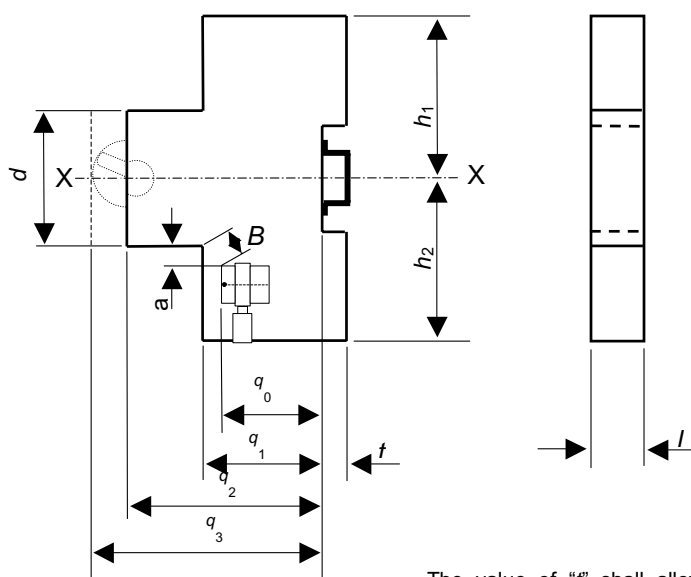
NOTE In EN 60439-3 a minimum degree of protection by the enclosure of IP 2XC is required for low voltage switchgear and controlgear assemblies intended to be installed in places where unskilled persons have access.

## 8.3 Strength of front barriers and/or doors

Yielding of front barriers and/or doors as a result of external pressure shall be limited either by the mechanical strength of the material or by suitable shoulder (see 8.1.2).

The requirements of the appropriate product standard, if any, shall apply.

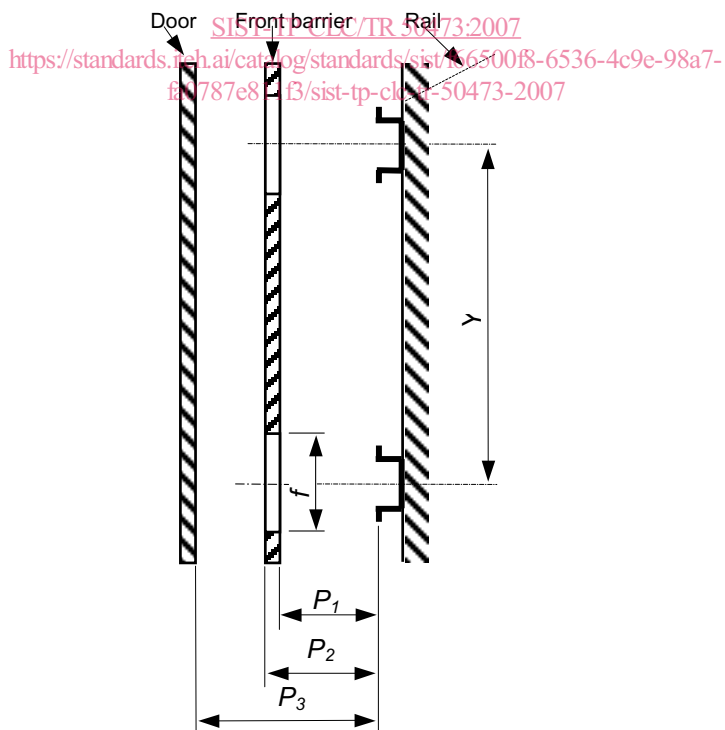




The value of "f" shall allow the mounting of the device on a rail 35 mm x 7,5 mm to EN 60715, being fixed on a flat surface.

X-----X is the centreline of the front projection and of the rail when the device is mounted.

**Figure 1a) – Overall dimensions of the device**  
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**Figure 1b) – Mounting dimensions relevant to the enclosure**

**Figure 1 – Principal overall and related mounting dimensions of built-in devices**