

# INTERNATIONAL STANDARD

IEC  
60297-5-101

First edition  
2001-01

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## **Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series –**

### **Part 5-101: Subracks and associated plug-in units – Injector/extractor handle**

*Structures mécaniques pour équipement électronique –  
Dimensions des structures mécaniques de la série  
de 482,6 mm (19 in) –*

*Partie 5-101:  
Bacs et blocs enfichables associés –  
Poignée d'injecteur/d'extracteur*



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International Electrotechnical Commission  
Telefax: +41 22 919 0300

3, rue de Varembé Geneva, Switzerland  
e-mail: [inmail@iec.ch](mailto:inmail@iec.ch) IEC web site <http://www.iec.ch>



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## INTERNATIONAL ELECTROTECHNICAL COMMISSION

# MECHANICAL STRUCTURES FOR ELECTRONIC EQUIPMENT – DIMENSIONS OF MECHANICAL STRUCTURES OF THE 482,6 mm (19 in) SERIES –

## Part 5-101: Subracks and associated plug-in units – Injector/extractor handle

## FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
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International Standard IEC 60297-5-101 has been prepared by subcommittee 48D: Mechanical structures for electronic equipment, of IEC technical committee 48: Electromechanical components and mechanical structures for electronic equipment.

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

| FDIS         | Report on voting |
|--------------|------------------|
| 48D/239/FDIS | 48D/248/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 3.

IEC 60297-5 consists of the following parts under the general title: Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series:

Part 5-100, Subracks and associated plug-in units – Design overview

Part 5-101, Subracks and associated plug-in units – Injector/extractor handle

Part 5-102, Subracks and associated plug-in units – Electromagnetic shielding provision

Part 5-103, Subracks and associated plug-in units – Electrostatic discharge protection

Part 5-104, Subracks and associated plug-in units – Keying

Part 5-105, Subracks and associated plug-in units – Alignment and/or earth pin

Part 5-107, Subracks and associated plug-in units – Rear mounted plug-in units

The committee has decided that the contents of this publication will remain unchanged until 2004. At this date, the publication will be

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

A bilingual version of this publication may be issued at a later date.

Withdrawn  
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## INTRODUCTION

This part of IEC 60297 is based on IEC 60297-3 (1984), its Amendment 1 (1992), and IEC 60297-4 (1995). It contains detail dimensions which ensure dimensional interchangeability of subracks and plug-in units requiring plug-in unit injector/extractors.

This standard applies only to the mechanical structures for electronic equipment practices according to the IEC 60297 series.

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# MECHANICAL STRUCTURES FOR ELECTRONIC EQUIPMENT – DIMENSIONS OF MECHANICAL STRUCTURES OF THE 482,6 mm (19 in) SERIES –

## Part 5-101: Subracks and associated plug-in units – Injector/extractor handle

### 1 Scope and object

This part of IEC 60297 covers the extended features of a plug-in unit injector/extractor handle added to subracks and plug-in units with front panels according to IEC 60297-3, IEC 60297-4 and IEC 60297-5-107. By implementing this extended feature to the subrack and plug-in units, a new subrack and plug-in unit type (incompatible with IEC 60297-3 and IEC 60297-4) is created.

The purpose of this standard is to specify dimensions which will ensure dimensional interchangeability of subracks and associated plug-in units using the extended features of a plug-in unit injector/extractor handle added to IEC 60297-3, IEC 60297-4 and IEC 60297-5-107. For mechanical and climatic tests refer to IEC 61587-1.

### 2 Normative references

The following normative documents contain provisions which, through reference in this text, constitute provisions of this part of IEC 60297. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this part of IEC 60297 are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 60297-3, *Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 3: Subracks and associated plug-in units*

IEC 60297-4, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 4: Subracks and associated plug-in units – Additional dimensions*<sup>1</sup>

IEC 60297-5-100, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 5-100: Subracks and associated plug-in units – Design overview*

IEC 60297-5-107, *Mechanical structures for electronic equipment – Dimensions of mechanical structures of the 482,6 mm (19 in) series – Part 5-107: Subracks and associated plug-in units – Rear mounted plug-in units*

IEC 60917-1, *Modular order for the development of mechanical structures for electronic equipment practices – Part 1: Generic standard*

IEC 61587-1, *Mechanical structures for electronic equipment – Tests for IEC 60917 and IEC 60297 – Part 1: Climatic, mechanical tests and safety aspects for cabinets, racks, subracks and chassis*

<sup>1</sup> There is a consolidated edition 1.1 (1999) that includes IEC 60297-4 (1995) and its amendment 1 (1999).



### 3 Definitions

For the purpose of this part of IEC 60297, the definitions of IEC 60917-1 apply.

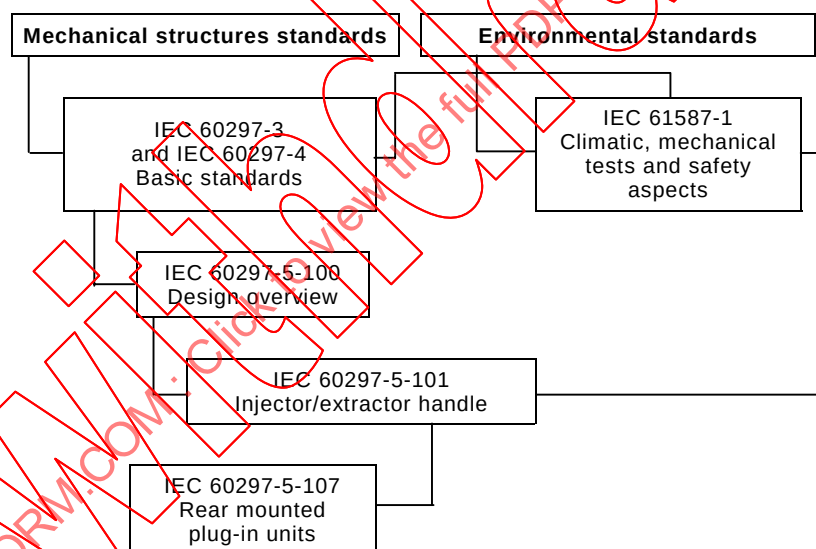
### 4 Extended features added to IEC 60297-3 and IEC 60297-4

This standard gives dimensions only where they differ from or supplement those to be found in IEC 60297-3 and 60297-4. The dimensions used in this standard shall take precedence over those of IEC publications 60297-3 and 60297-4 when conformance to this standard is claimed. Dimensions shown in brackets are for reference only and are found in the stated standards.

The drawings in this standard are not intended to indicate product design.

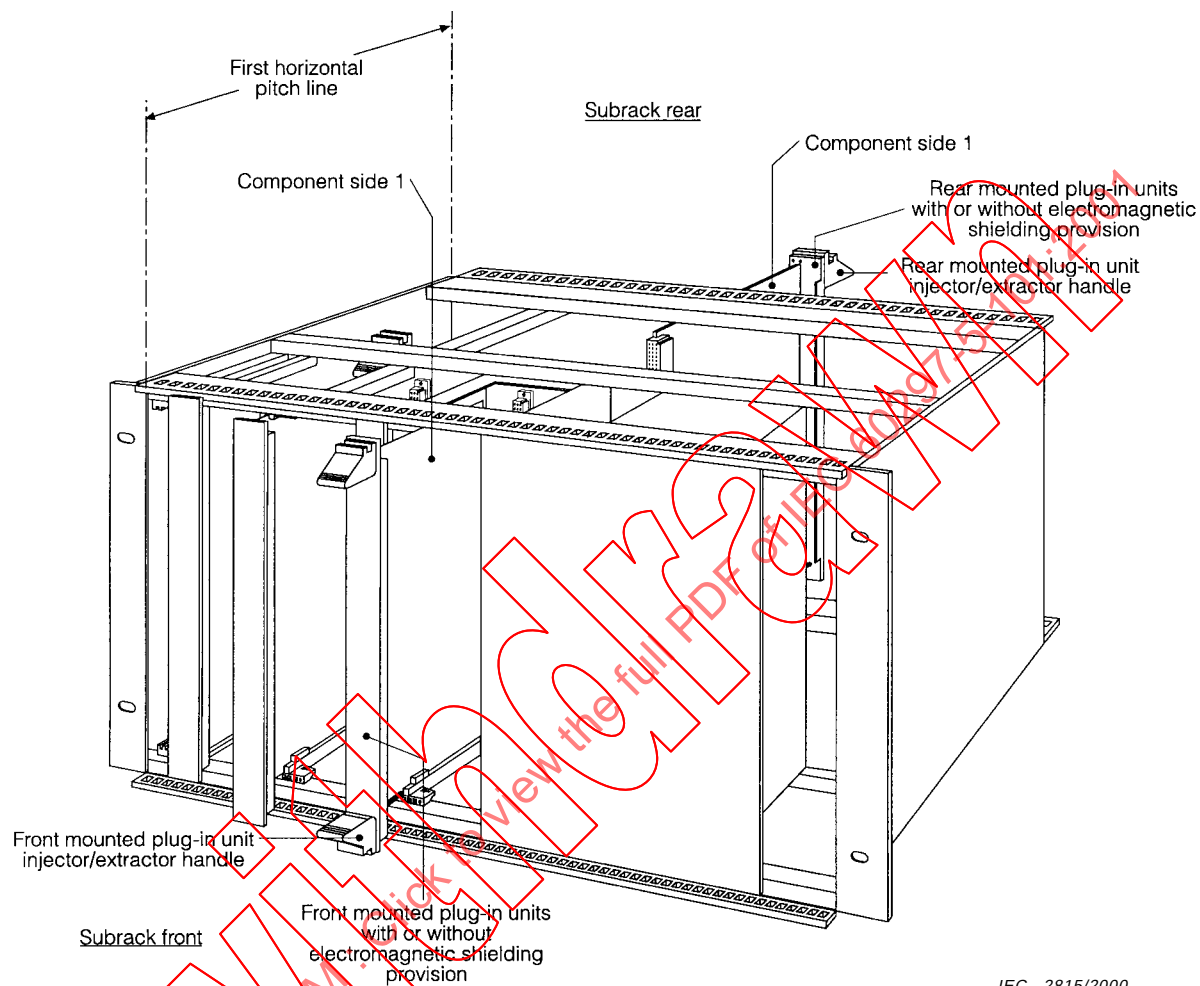
| Extended feature          | Basic standards            | Extended standards                        | Environmental standard |
|---------------------------|----------------------------|-------------------------------------------|------------------------|
| Injector/extractor handle | IEC 60297-3<br>IEC 60297-4 | <b>IEC 60297-5-101</b><br>IEC 60297-5-107 | IEC 61587-1            |

#### Injector/extractor handle for IEC 60297-3 and IEC 60297-4



## 5 General equipment arrangement

Generally these are subracks featuring front and/or rear subrack mounted plug-in units with injector/extractor handles.



IEC 2815/2000

**Figure 1 – General equipment arrangement –  
Typical 6U subrack front and/or rear mounted plug-in units  
featured with injector/extractor handles**

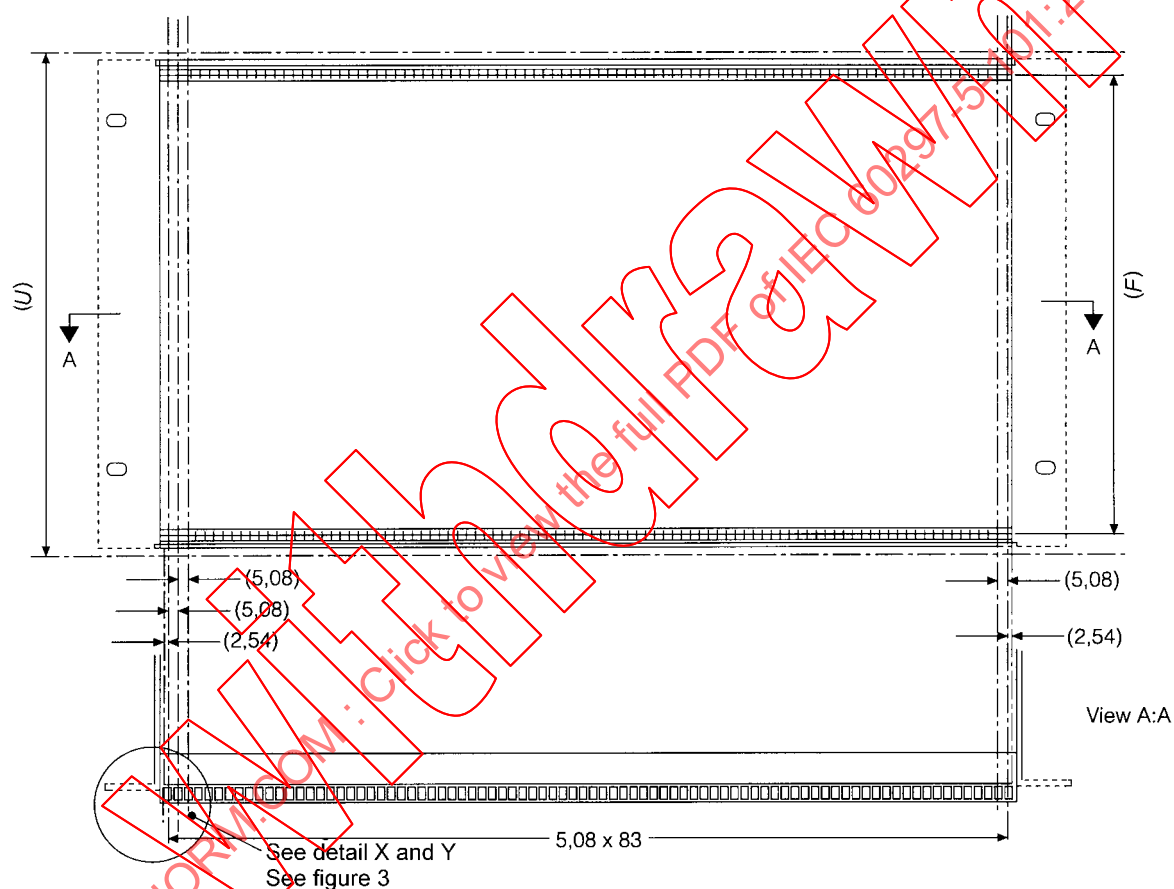
## 6 Subrack and printed board type plug-in unit dimensions for an injector/extractor handle

The basic dimensions of the subrack and printed board type plug-in unit are in accordance with IEC 60297-3 for subrack front mounted plug-in units and IEC 60297-5-107 for subrack rear mounted plug-in units. Only the extended dimensions of the subrack and printed board type plug-in units with injector/extractor handles are specified in this clause.

### 6.1 Plug-in unit injector/extractor handle subrack dimensions

() See IEC 60297-3.

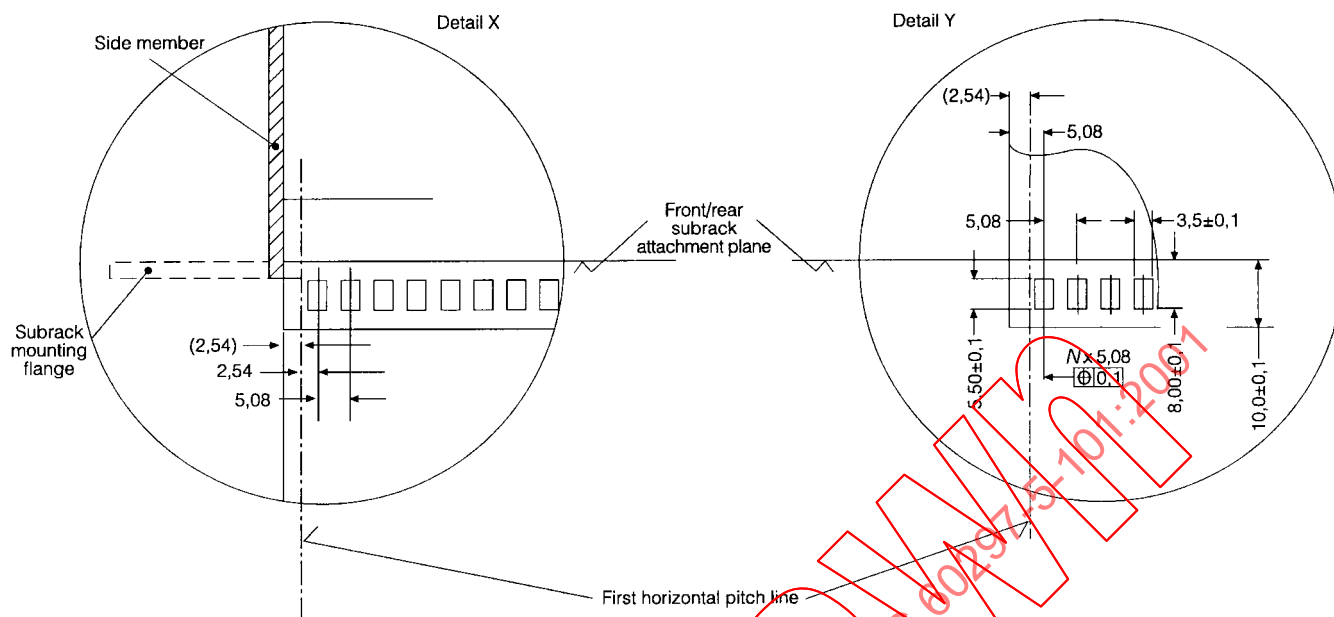
NOTE The front section only is shown. The rear section is of mirror image. See IEC 60297-5-107.



IEC 2816/2000

Dimensions in millimetres

Figure 2 – Subrack front and/or rear mounted plug-in unit injector / extractor subrack detail



IEC 2817/2000

NOTE The front/rear subrack attachment plane is used to attach front/rear subrack mounted plug-in unit front panels.

Figure 3 – Detail X and detail Y of figure 2

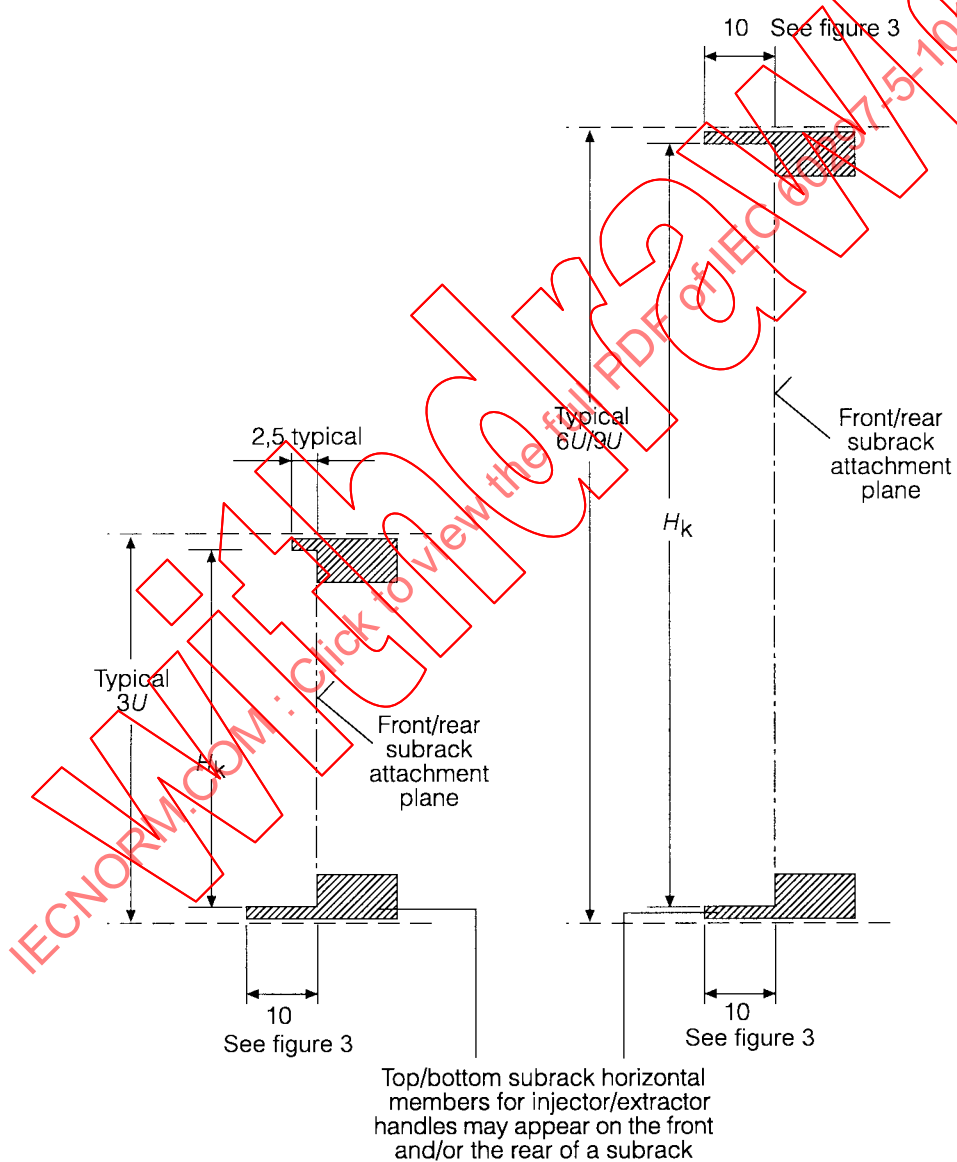
## 6.2 Plug-in unit injector/extractor handle subrack inspection dimensions

**Table 1 – Plug-in unit injector/extractor handle subrack inspection dimensions**

*Dimensions in millimetres*

| (U)                                                                                                                                                                  | 3      | 6      | 9      |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|
| $H_k \pm 0,30$                                                                                                                                                       | 129,20 | 262,55 | 395,90 |
| $H_k$ Inspection dimension for the distance between the front horizontal members required for the proper functioning of the plug-in unit injector/extractor handles. |        |        |        |

() See IEC 60297-1.



IEC 2818/2000

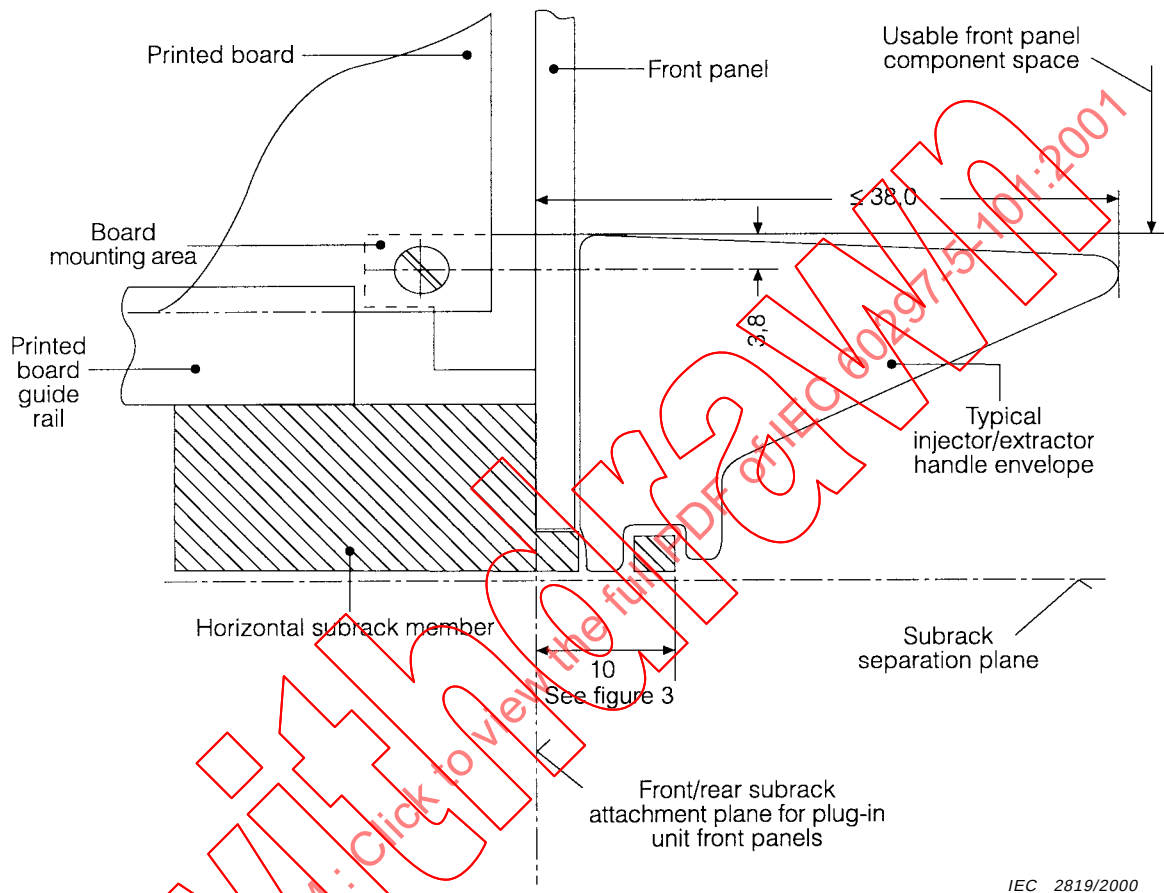
*Dimensions in millimetres*

**Figure 4 – Plug-in unit injector/extractor handle subrack inspection dimensions**

### 6.3 Plug-in unit injector/extractor handle board type plug-in unit dimensions

The width of the injector/extractor handle can be in any horizontal pitch ( $> 1\text{HP}$ ). The injector/extractor handle shall not exceed the horizontal pitch lines as defined in IEC 60297-3 nor protrude into the usable front panel component space. The shape or function shall not protrude over the subrack separation plane.

() See IEC 60297-3 and IEC 60297-4.



IEC 2819/2000

Dimensions in millimetres

Figure 5 – Plug-in unit injector/extractor handle