

REDLINE VERSION



GROUP SAFETY PUBLICATION

**Safety requirements for electrical equipment for measurement, control, and laboratory use –
Part 2-020: Particular requirements for laboratory centrifuges**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE –

Part 2-020: Particular requirements for LABORATORY CENTRIFUGES

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of 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, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). 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. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
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This Redline version provides you with a quick and easy way to compare all the changes between this standard and its previous edition. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

International Standard IEC 61010-2-020 has been prepared by IEC technical committee 66: Safety of measuring, control and laboratory equipment.

This third edition cancels and replaces the second edition published in 2006. It constitutes a technical revision and includes the following significant changes from the second edition:

- a) This Part 2 is established on the basis of the third edition (2010) of IEC 61010-1. The changes listed in its foreword affect this Part 2, too.
- b) The language has been updated to reflect current terminology for LABORATORY CENTRIFUGES used in the industry today.

It has the status of a group safety publication in accordance with IEC Guide 104.

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

CDV	Report on voting
66/542/CDV	66/565A/RVC

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.

This Part 2-020 is intended to be used in conjunction with IEC 61010-1. It was established on the basis of the third edition (2010).

This Part 2-020 supplements or modifies the corresponding clauses in IEC 61010-1 so as to convert that publication into the IEC standard: *Safety requirements for LABORATORY CENTRIFUGES*.

Where a particular subclause of Part 1 is not mentioned in this Part 2, that subclause applies as far as is reasonable. Where this part states "addition", "modification" or "replacement", the relevant requirement, test specification or note in Part 1 should be adapted accordingly.

In this standard:

- 1) the following print types are used:
 - requirements: in roman type;
 - NOTES: in small roman type;
 - *conformity and tests: in italic type*;
 - terms used throughout this standard which have been defined in Clause 3: SMALL ROMAN CAPITALS.
- 2) subclauses, tables or figures which are additional to those in Part 1 are numbered starting from 101; additional annexes are lettered AA, BB, etc.

A list of all parts of the IEC 61010 series, under the general title: *Safety requirements for electrical equipment for measurement, control, and laboratory use*, may be found 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 website 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.

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SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE –

Part 2-020: Particular requirements for laboratory centrifuges

1 Scope and object

This clause of Part 1 is applicable except as follows:

1.1.1 Scope

Replacement:

This Part 2 is applicable to electrically powered LABORATORY CENTRIFUGES.

This group safety publication is primarily intended to be used as a product safety standard for the products mentioned in the scope, but shall also be used by technical committees in the preparation of its publications for products similar to those mentioned in the scope of this standard, in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51.

NOTE If all or part of the equipment falls within the scope of one or more other Part 2 standards of IEC 61010 as well as within the scope of this standard, it will also need to meet the requirements of those other Part 2 standards.

1.1.2 Equipment excluded from scope

Addition:

Add the following new item:

- aa) IEC 60034 (Rotating electrical machinery);

1.2 Object

1.2.1 Aspects included in scope

Addition:

Add the following ~~five~~ new items:

- aa) contact with moving parts (see 7.3);
- bb) LABORATORY CENTRIFUGE movement during any DISRUPTION (see 7.3.101);
- cc) high energy chemical reaction after ROTOR DISRUPTION (see 7.7.2.2 I));
- dd) ineffectiveness of BIOSEALS (see 13.101)

1.2.2 Aspects excluded from scope

Addition:

Add the following ~~two~~ new items:

- aa) additional precautions which may need to be observed when centrifuging materials which are flammable or explosive (see 5.4.101);

- bb) additional precautions which may need to be observed when centrifuging materials that could react chemically with sufficient vigour to cause a HAZARD (see 5.4.101).

1.4 Environmental conditions

1.4.1 Normal environmental conditions

~~Modification~~ *Replacement:*

~~Modify~~ *Replace* item c) by the following:

- c) temperature 2 °C to 40 °C;

1.4.2 Extended environmental conditions

~~Modification~~ *Replacement:*

~~Modify~~ *Replace* item c) by the following:

- c) ambient temperatures below 2 °C or above 40 °C;

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

ISO 3864 (all parts), *Graphical symbols – Safety colours and safety signs*

INTERNATIONAL STANDARD

NORME INTERNATIONALE

GROUP SAFETY PUBLICATION
PUBLICATION GROUPEE DE SÉCURITÉ

**Safety requirements for electrical equipment for measurement, control, and
laboratory use –
Part 2-020: Particular requirements for laboratory centrifuges**

**Exigences de sécurité pour appareils électriques de mesurage, de régulation et
de laboratoire –
Partie 2-020: Exigences particulières pour centrifugeuses de laboratoire**

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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MEASUREMENT, CONTROL, AND LABORATORY USE –****Part 2-020: Particular requirements for LABORATORY CENTRIFUGES**

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SAFETY REQUIREMENTS FOR ELECTRICAL EQUIPMENT FOR MEASUREMENT, CONTROL, AND LABORATORY USE –

Part 2-020: Particular requirements for laboratory centrifuges

1 Scope and object

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1.1.1 Scope

Replacement:

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This group safety publication is primarily intended to be used as a product safety standard for the products mentioned in the scope, but shall also be used by technical committees in the preparation of its publications for products similar to those mentioned in the scope of this standard, in accordance with the principles laid down in IEC Guide 104 and ISO/IEC Guide 51.

NOTE If all or part of the equipment falls within the scope of one or more other Part 2 standards of IEC 61010 as well as within the scope of this standard, it will also need to meet the requirements of those other Part 2 standards.

1.1.2 Equipment excluded from scope

Addition:

Add the following new item:

- aa) IEC 60034 (Rotating electrical machinery);

1.2 Object

1.2.1 Aspects included in scope

Addition:

Add the following new items:

- aa) contact with moving parts (see 7.3);
- bb) LABORATORY CENTRIFUGE movement during any DISRUPTION (see 7.3.101);
- cc) high energy chemical reaction after ROTOR DISRUPTION (see 7.7.2.2 I));
- dd) ineffectiveness of BIOSEALS (see 13.101)

1.2.2 Aspects excluded from scope

Addition:

Add the following new items:

- aa) additional precautions which may need to be observed when centrifuging materials which are flammable or explosive (see 5.4.101);

- bb) additional precautions which may need to be observed when centrifuging materials that could react chemically with sufficient vigour to cause a HAZARD (see 5.4.101).

1.4 Environmental conditions

1.4.1 Normal environmental conditions

Replacement:

Replace item c) by the following:

- c) temperature 2 °C to 40 °C;

1.4.2 Extended environmental conditions

Replacement:

Replace item c) by the following:

- c) ambient temperatures below 2 °C or above 40 °C;

2 Normative references

This clause of Part 1 is applicable except as follows:

Addition:

ISO 3864 (all parts), *Graphical symbols – Safety colours and safety signs*

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COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

EXIGENCES DE SÉCURITÉ POUR APPAREILS ÉLECTRIQUES DE MESURAGE, DE RÉGULATION ET DE LABORATOIRE –

Partie 2-020: Exigences particulières pour CENTRIFUGEUSES DE LABORATOIRE

AVANT-PROPOS

- 1) La Commission Electrotechnique Internationale (IEC) est une organisation mondiale de normalisation composée de l'ensemble des comités électrotechniques nationaux (Comités nationaux de l'IEC). L'IEC a pour objet de favoriser la coopération internationale pour toutes les questions de normalisation dans les domaines de l'électricité et de l'électronique. À cet effet, l'IEC – entre autres activités – publie des Normes internationales, des Spécifications techniques, des Rapports techniques, des Spécifications accessibles au public (PAS) et des Guides (ci-après dénommés "Publication(s) de l'IEC"). Leur élaboration est confiée à des comités d'études, aux travaux desquels tout Comité national intéressé par le sujet traité peut participer. Les organisations internationales, gouvernementales et non gouvernementales, en liaison avec l'IEC, participent également aux travaux. L'IEC collabore étroitement avec l'Organisation Internationale de Normalisation (ISO), selon des conditions fixées par accord entre les deux organisations.
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- 8) L'attention est attirée sur les références normatives citées dans cette publication. L'utilisation de publications référencées est obligatoire pour une application correcte de la présente publication.
- 9) L'attention est attirée sur le fait que certains des éléments de la présente Publication de l'IEC peuvent faire l'objet de droits de brevet. L'IEC ne saurait être tenue pour responsable de ne pas avoir identifié de tels droits de brevets et de ne pas avoir signalé leur existence.

La Norme internationale IEC 61010-2-020 a été établie par le comité d'études 66 de l'IEC: Sécurité des appareils de mesure, de commande et de laboratoire.

Cette troisième édition annule et remplace la deuxième édition parue en 2006. Cette édition constitue une révision technique et inclut les modifications majeures suivantes par rapport à la deuxième édition:

- a) La présente Partie 2 est établie sur la base de la troisième édition (2010) de l'IEC 61010-1. Les modifications énumérées dans son Avant-propos affectent également la présente Partie 2.
- b) Le langage a été mis à jour pour refléter la terminologie des CENTRIFUGEUSES DE LABORATOIRE utilisée actuellement dans l'industrie.

Elle a le statut d'une publication groupée de sécurité conformément au Guide IEC 104.

Le texte de cette norme est issu des documents suivants:

CDV	Rapport de vote
66/542/CDV	66/565A/RVC

Le rapport de vote indiqué dans le tableau ci-dessus donne toute information sur le vote ayant abouti à l'approbation de cette norme.

Cette publication a été rédigée selon les Directives ISO/IEC, Partie 2.

La présente Partie 2-020 doit être utilisée conjointement avec l'IEC 61010-1. Elle a été établie sur la base de la troisième édition (2010).

Cette Partie 2-020 complète ou modifie les articles correspondants de l'IEC 61010-1 de façon à la transformer en norme IEC: *Exigences de sécurité pour CENTRIFUGEUSES DE LABORATOIRE*.

Lorsqu'un paragraphe particulier de la Partie 1 n'est pas mentionné dans cette Partie 2, ce paragraphe s'applique pour autant que cela soit raisonnable. Lorsque cette partie spécifie "addition", "modification", ou "remplacement", il convient d'adapter en conséquence l'exigence correspondante, la spécification d'essai correspondante ou la note correspondante de la Partie 1.

Dans la présente Norme:

1) les caractères d'imprimerie suivants sont utilisés:

- exigences: caractères romains;
- NOTES: petits caractères romains,
- *conformité et essais: caractères italiques;*
- termes définis à l'Article 3 et utilisés dans toute la présente norme: PETITES MAJUSCULES EN CARACTERES ROMAINS.

2) les paragraphes, tableaux ou figures complémentaires à ceux de la Partie 1 sont numérotés à partir de 101; les annexes supplémentaires sont désignées AA, BB, etc.

Une liste de toutes les parties de la série IEC 61010, publiées sous le titre général: *Exigences de sécurité pour appareils électriques de mesurage, de régulation et de laboratoire*, peut être consultée sur le site web de l'IEC.

Le comité a décidé que le contenu de cette publication ne sera pas modifié avant la date de stabilité indiquée sur le site web de l'IEC sous "<http://webstore.iec.ch>" dans les données relatives à la publication recherchée. À cette date, la publication sera

- reconduite,
- supprimée,
- remplacée par une édition révisée, ou
- amendée.

EXIGENCES DE SÉCURITÉ POUR APPAREILS ÉLECTRIQUES DE MESURAGE, DE RÉGULATION ET DE LABORATOIRE –

Partie 2-020: Exigences particulières pour centrifugeuses de laboratoire

1 Domaine d'application et objet

L'article de la Partie 1 s'applique avec les exceptions suivantes:

1.1.1 Domaine d'application

Remplacement:

La présente Partie 2 s'applique aux CENTRIFUGEUSES DE LABORATOIRE alimentées en énergie électrique.

Cette publication groupée de sécurité est principalement destinée à être utilisée comme une norme de sécurité de produit pour les produits mentionnés dans le domaine d'application. Elle doit également être utilisée par les comités d'études pour l'élaboration de leurs publications relatives à des produits semblables à ceux mentionnés dans le domaine d'application de la présente norme, conformément aux principes établis dans le Guide IEC 104 et le Guide ISO/IEC 51.

NOTE Si une ou toutes les parties de l'appareil relèvent du domaine d'application d'une ou plusieurs autres Parties 2 de l'IEC 61010, ainsi que du domaine d'application de la présente Norme, il est également nécessaire que l'appareil satisfasse à l'ensemble des exigences de ces parties 2.

1.1.2 Appareils exclus du domaine d'application

Addition:

Ajouter le nouveau point suivant:

- aa) IEC 60034 (Machines électriques tournantes).

1.2 Objet

1.2.1 Aspects inclus dans le domaine d'application

Addition:

Ajouter les nouveaux points suivants:

- aa) contact avec des parties mobiles (voir 7.3);
- bb) déplacement de la CENTRIFUGEUSE DE LABORATOIRE pendant une PERTURBATION (voir 7.3.101);
- cc) réaction chimique à énergie élevée après une PERTURBATION DE ROTOR (voir 7.7.2.2 I);
- dd) inefficacité du JOINT BIOLOGIQUE (voir 13.101).

1.2.2 Aspects exclus du domaine d'application

Addition:

Ajouter les nouveaux points suivants:

- aa) les précautions additionnelles qu'il peut être nécessaire d'observer lors de la centrifugation des matériaux qui sont inflammables ou explosifs (voir 5.4.101);
- bb) les précautions additionnelles qu'il peut être nécessaire d'observer lors de la centrifugation des matériaux pouvant réagir chimiquement avec une force suffisante pour provoquer un DANGER (voir 5.4.101).

1.4 Conditions d'environnement

1.4.1 Conditions d'environnement normales

Remplacement:

Remplacer le point c) par le suivant:

- c) température de 2 °C à 40 °C;

1.4.2 Conditions d'environnement étendues

Remplacer:

Remplacer le point c) par le suivant:

- c) températures ambiantes inférieures à 2 °C ou supérieures à 40 °C;

2 Références normatives

L'article de la Partie 1 s'applique avec l'exception suivante:

Addition:

ISO 3864 (toutes les parties), *Symboles graphiques – Couleurs de sécurité et signaux de sécurité*