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Part 2-020: Particular requirements for laboratory centrifuges

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IEC Secretariat
3, rue de Varembé
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

FOREWORD

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This redline version of the official IEC Standard allows the user to identify the changes made to the previous edition IEC 61010-2-020:2016. A vertical bar appears in the margin wherever a change has been made. Additions are in green text, deletions are in strikethrough red text.

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

This fourth edition cancels and replaces the third edition published in 2016. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

a) alignment with changes introduced by Amendment 1:2016 of IEC 61010-1:2010.

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

The text of this International Standard is based on the following documents:

Draft	Report on voting
66/820/CDV	66/868/RVC

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

This Part 2-020 is intended to be used in conjunction with the latest edition of IEC 61010-1. It was established on the basis of the third edition (2010) and its Amendment 1 (2016), hereinafter referred to as Part 1.

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

Where a particular subclause of IEC 61010-1 is not mentioned in this Part 2-020, that subclause applies as far as is reasonable. Where this Part 2-020 states "addition", "modification" or "replacement", the relevant requirement, test specification or note in IEC 61010-1 shall be adapted accordingly.

In this standard:

– 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.
– subclauses, tables or figures which are additional to those in IEC 61010-1 are numbered starting from 101. Additional annexes are lettered starting from AA.

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

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

– reconfirmed,
– withdrawn, or
– revised.

1 Scope and object

IEC 61010-1:2010, Clause 1 and IEC 61010-1:2010/AMD1:2016, Clause 1 apply except as follows:

1.1~~.1~~ Scope

1.1.1 Equipment included in scope

Replacement:

This part of IEC 61010 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~~ It is possible that 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 document~~, it will also need to meet the requirements of those other Part 2 standards~~. In that case, the requirements of those other Part 2 standards will also apply.

1.1.2 Equipment excluded from scope

Addition:

Add the following new item:

aa) IEC 60034 series (Rotating electrical ~~machinery~~ machines).

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~~4.101);

cc) high energy chemical reaction after ROTOR DISRUPTION (see 7.7.2.2 ~~l~~k));

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~~ are observed when centrifuging materials which are flammable or explosive (see 5.4.101);

bb) additional precautions which ~~may need to be~~ are 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) with the following:

c) temperature 2 °C to 40 °C;

1.4.2 Extended environmental conditions

Replacement:

Replace item c) with the following:

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

2 Normative references

IEC 61010-1:2010, Clause 2 and IEC 61010-1:2010/AMD1:2016, Clause 2 apply except as follows:

Addition:

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

3 Terms and definitions

IEC 61010-1:2010, Clause 3 applies except as follows:

3.1 Equipment and states of equipment

Addition:

Add the following new terms and definitions:

3.1.101
LABORATORY CENTRIFUGE
apparatus intended for laboratory use that applies a centrifuging effect to sample materials

3.1.102
CENTRIFUGE-ROTOR COMBINATION
LABORATORY CENTRIFUGE and ROTOR ASSEMBLY that are intended to operate together and which have to be evaluated together

3.1.103
DISRUPTION
event in which the ROTOR ASSEMBLY, or part of it, fails or becomes detached during rotation