



DPC: 20/30387385 DC

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Date: 10 January 2020

Origin: European

Latest date for receipt of comments: 04 March 2020

Project No. 2018/03526

Responsible committee: EPL/66 Safety of measuring, control and laboratory equipment

Interested committees:

Title: Draft BS EN IEC 61010-2-020 Safety requirements for electrical equipment for measurement, control, and laboratory use.
Part 2-020: Particular requirements for laboratory centrifuges.

Please notify the secretary if you are aware of any keywords that might assist in classifying or identifying the standard or if the content of this standard

- i) has any issues related to 3rd party IPR, patent or copyright
- ii) affects other national standard(s)
- iii) requires additional national guidance or information

WARNING: THIS IS A DRAFT AND MUST NOT BE REGARDED OR USED AS A BRITISH STANDARD. THIS DRAFT IS NOT CURRENT BEYOND 04 March 2020

This draft is issued to allow comments from interested parties; all comments will be given consideration prior to publication. No acknowledgement will normally be sent. **See overleaf for information on the submission of comments.**

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Full document details: 20/30387385 DC

Introduction

This draft standard is based on national and international discussions. Your comments on this draft are invited and will assist in the preparation of the consequent standard.

For international standards, comments will be reviewed by the relevant UK national committee before sending the consensus UK vote and comments to the international committee, which will then decide appropriate action. If the international standard is approved, it is usual for the text to be published as a British Standard.

For national standards, comments will be reviewed by the relevant UK national committee and the resulting standards published as a British Standard.

UK Vote

Please indicate whether you consider the UK should submit a negative (with supporting technical reasons) or positive vote on this draft. Please indicate if you are aware of any reason why this draft standard should not be published as a British Standard.

Submission of Comments

- **Annotated drafts are not acceptable and will be rejected.**
- All comments should be submitted online at <https://standardsdevelopment.bsigroup.com/>. You will need to register in order to comment.

Template for comments and secretariat observations

Date: xx/xx/20xx	Document: ISO/DIS xxxx
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1	2	(3)	4	5	(6)	7
MB	Clause No./ Subclause No./Annex (e.g. 3.1)	Paragraph/Figure/ Table/Note	Type of comment	Commend (justification for change) by the MB	Proposed change by the MB	Secretariat observations on each comment submitted
	3.1	Definition 1	ed	Definition is ambiguous and needs clarifying.	Amend to read '...so that the mains connector to which no connection...'	
	6.4	Paragraph 2	te	The use of the UV photometer as an alternative cannot be supported as serious problems have been encountered in its use in the UK.	Delete reference to UV photometer.	

COMMITTEE DRAFT FOR VOTE (CDV)

PROJECT NUMBER: IEC 61010-2-020 ED4	
DATE OF CIRCULATION: 2020-01-10	CLOSING DATE FOR VOTING: 2020-04-03
SUPERSEDES DOCUMENTS: 66/682/RR	

IEC TC 66 : SAFETY OF MEASURING, CONTROL AND LABORATORY EQUIPMENT	
SECRETARIAT: United Kingdom	SECRETARY: Mr David Hyde
OF INTEREST TO THE FOLLOWING COMMITTEES:	PROPOSED HORIZONTAL STANDARD: ☐ Other TC/SCs are requested to indicate their interest, if any, in this CDV to the secretary.
FUNCTIONS CONCERNED: ☐ EMC ☐ ENVIRONMENT ☐ QUALITY ASSURANCE ☒ SAFETY	
☒ SUBMITTED FOR CENELEC PARALLEL VOTING Attention IEC-CENELEC parallel voting The attention of IEC National Committees, members of CENELEC, is drawn to the fact that this Committee Draft for Vote (CDV) is submitted for parallel voting. The CENELEC members are invited to vote through the CENELEC online voting system.	☐ NOT SUBMITTED FOR CENELEC PARALLEL VOTING

This document is still under study and subject to change. It should not be used for reference purposes.

Recipients of this document are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

TITLE:

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

PROPOSED STABILITY DATE: 2024

NOTE FROM TC/SC OFFICERS:

The revision is to align IEC 61010-2-020:2016 with IEC 61010-1:2010 and its amendment 1:2016. A revision this soon is justified by the large number of significant changes introduced by this amendment 1. With this revision IEC 61010-2-020 will be in line with the latest requirements of IEC 61010-1 + A1. Establishment of a new edition is for better readability instead of amending edition 3.

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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**

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

This fourth edition cancels and replaces the third edition published in 2016. It constitutes a technical revision and includes the following significant changes from the second edition:

- a) alignment with changes introduced by Amendment 1 of 61010-1 third edition.

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

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

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

84
85 Full information on the voting for the approval of this standard can be found in the report on
86 voting indicated in the above table.

87 This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

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

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

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

96 In this standard:

97 1) the following print types are used:

- 98 – requirements: in roman type;
99 – NOTES: in small roman type;
100 – *conformity and tests: in italic type*;
101 – terms used throughout this standard which have been defined in Clause 3: SMALL
102 ROMAN CAPITALS.

103 2) subclauses, tables or figures which are additional to those in Part 1 are numbered starting
104 from 101; additional annexes are lettered AA, BB, etc.

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

108 The committee has decided that the contents of this publication will remain unchanged until
109 the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data
110 related to the specific publication. At this date, the publication will be

- 111 • reconfirmed,
112 • withdrawn,
113 • replaced by a revised edition, or
114 • amended.

115

116

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.

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 standard. In that case, the requirements of those other Part 2 standards will also apply

This document is not applicable to electrically powered LABORATORY CENTRIFUGES. manufactured before the date of its publication.

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*

3 Terms and definitions

This clause of Part 1 is applicable 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

3.2 Parts and accessories

Addition:

Add the following new terms and definitions:

3.2.101

CHAMBER

enclosed space within a LABORATORY CENTRIFUGE in which the ROTOR ASSEMBLY rotates

3.2.102

ROTOR

primary component of a LABORATORY CENTRIFUGE which holds the material to be subjected to centrifugal force and which is rotated by the DRIVE SYSTEM

3.2.103

BUCKET

sub-assembly of a ROTOR designed to support one or more containers

3.2.104

PROTECTIVE CASING

casing which completely surrounds the ROTOR ASSEMBLY and which includes the LID and its securing devices

3.2.105

LID

access cover of the CHAMBER

3.2.106

ROTOR ASSEMBLY

ROTOR carrying a combination of ROTOR accessories specified by the manufacturer

Note 1 to entry: In the context of a ROTOR ASSEMBLY, ROTOR accessories include all components used with or in the CENTRIFUGE ROTOR for the purpose of holding samples, including adaptors, tubes and bottles.

3.2.107

DRIVE SYSTEM

all components of the CENTRIFUGE associated with the provision of torque to, or the rotational support of, the ROTOR ASSEMBLY

3.2.108

BIOSEAL

device or mechanism additional to, or integral with, a ROTOR or BUCKET and a closure assembly, and which is designed to prevent the escape of contents, for example micro-biological material, during centrifuging

3.5 Safety terms

Addition:

Add the following new terms and definitions:

3.5.101

CLEARANCE ENVELOPE

space around a LABORATORY CENTRIFUGE which is needed for safety

3.5.102**MCA****MAXIMUM CREDIBLE ACCIDENT**

planned event chosen to represent worst-case conditions for a test that will evaluate the inherent mechanical safety of a CENTRIFUGE-ROTOR COMBINATION (see 7.7 and Annex BB)

4 Tests

This clause of Part 1 is applicable.

5 Marking and documentation

This clause of Part 1 is applicable except as follows.

5.1.2 Identification

Replacement:

Replace item b) by the following:

b) serial number or other means to identify the production batch of the equipment.

Addition:

Add the following addition:

5.1.3 Mains Supply

Addition:

Add the following note

NOTE - The maximum power or input current considered is usually during the acceleration phase of the rotor, with any options such as cooling or heating energized.

Add the following new subclause:

5.1.101 ROTORS and accessories

All OPERATOR-replaceable ROTORS and ROTOR ASSEMBLIES, including ROTOR ACCESSORIES, shall be marked with the manufacturer's or supplier's name or registered trade mark, and identification code. (such as id code, serial number or batch number)

If components are too small, or are not suitable for such marking, the required information shall be marked on the original packaging, as well as being stated in the documentation.

NOTE Packaging can be the outer box, an insert, etc.

If the manufacturer specifies that an individual part, for example a BUCKET, is to be fitted only to a specific ROTOR or in specific ROTOR positions for balance or some other reason, each BUCKET and ROTOR position should be identified by marking with corresponding numbers or letters.

Conformity is checked by inspection.

5.4.2 Equipment ratings

Addition: