IEC 61010-2-051

Edition 4.0 2018-10

INTERNATIONAL STANDARD

NORME INTERNATIONALE

GROUP SAFETY PUBLICATION
PUBLICATION GROUPÉE DE SÉCURITÉ

Safety requirements for electrical equipment for measurement, control, and laboratory use –
Part 2-051: Particular requirements for laboratory equipment for mixing and stirring

Exigences de sécurité pour appareils électriques de mesurage, de régulation, et de laboratoire –
Partie 2-051: Exigences particulières pour appareils de laboratoire utilisés pour mélanger et agiter

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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

Part 2-051: Particular requirements for laboratory equipment for mixing and stirring

FOREWORD

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International Standard IEC 61010-2-051 has been prepared by IEC technical committee 66: Safety of measuring, control and laboratory equipment.

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

This fourth edition cancels and replaces the third edition published in 2015. This edition constitutes a technical revision.

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

a) adaptation of changes introduced by Amendment 1 of IEC 61010-1;
b) added tolerance for stability of AC voltage test equipment to Clause 6;

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c) added required RISK assessment for equipment intended to be used with flammable, hazardous, or toxic fluids to Clause 17.

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

CDV	Report on voting
66/642/CDV	66/667/RVC

Full information on the voting for the approval of this International Standard can be found in the report on voting indicated in the above table.

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

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.

This Part 2-051 is intended to be used in conjunction with IEC 61010-1. It was established on the basis of the third edition (2010) and its Amendment 1 (2016).

This Part 2-051 supplements or modifies the corresponding clauses in IEC 61010-1 so as to convert that publication into the IEC standard: *Particular requirements for laboratory equipment for mixing and stirring*.

Where a particular subclause of Part 1 is not mentioned in this Part 2, that subclause applies as far as is reasonable. Where the part states “addition”, “modification”, “replacement” or “deletion”, 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 test: in italic type;*
   - terms used throughout this standard which have been defined in Clause 3: SMALL ROMAN CAPITALS;
2) subclauses, figures, tables and notes which are additional to those in Part 1 are numbered starting from 101. Additional annexes are lettered starting from AA and additional list items are lettered from aa).

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

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

Part 2-051: Particular requirements for laboratory equipment for mixing and stirring

1 Scope and object

This clause of Part 1 is applicable except as follows:

1.1.1 Equipment included in scope

Replacement:

Replace the text, except the first paragraph, with the following new text:

This part of IEC 61010 is applicable to electrically operated laboratory equipment and its accessories for mechanical mixing and stirring, where mechanical energy influences the shape or size or homogeneity of materials and their accessories. Such devices can contain heating elements.

NOTE If all or part of the equipment falls within the scope of one or more other Part 2 standards of the IEC 61010 series as well as within the scope of this document, consideration is given to those other Part 2 standards. The standard for equipment which contains heating devices is IEC 61010-2-010.

2 Normative references

This clause of Part 1 is applicable.

3 Terms and definitions

This clause of Part 1 is applicable.

4 Tests

This clause of Part 1 is applicable.

5 Marking and documentation

This clause of Part 1 is applicable except as follows:

5.4.1 General

Addition:

Add, after item h), the following new item:

aa) if a HAZARD could be caused by operating a mixer or stirrer intended for use as HAND-HELD EQUIPMENT, there shall be a warning statement to that effect.

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5.4.4 Equipment operation

Addition:

Add after item j), the following new item:

aa) instructions for fixing the stirring vessel if specified and sold as part of a mixing system, or if otherwise applicable.

Add a new paragraph after the list of items as follows:

The instructions shall warn against use of the equipment in hazardous atmospheres or with hazardous materials for which the equipment is not designed.

Replacement:

Replace the paragraph before the compliance statement with the following new text:

The user shall be made aware that the protection provided by the equipment can be impaired if the equipment is used with accessories not provided or recommended by the manufacturer, or used in a manner not specified by the manufacturer.

6 Protection against electric shock

This clause of Part 1 is applicable except as follows:

6.8.3.1 The AC voltage test

Replacement:

Replace the first sentence with the following new sentence:

The voltage tester shall be capable of maintaining the test voltage throughout the test within ± 5 % of the specified value.

7 Protection against mechanical HAZARDS

This clause of Part 1 is applicable except as follows:

7.3.2 Exceptions

Replacement:

Replace, in item a), the words "for example drilling and mixing equipment" *with the following:*

for example stirrer shafts and impellers extending downwards into material being stirred

Addition:

Add the following new subclauses:

7.3.101 Speed controls

If a SINGLE FAULT of an electronic speed control could cause a HAZARD, the equipment shall incorporate means to interrupt power or otherwise prevent the HAZARD.

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