IEC 60335-2-51

Edition 4.0 2019-04
REDLINE VERSION

INTERNATIONAL STANDARD

colour inside

Household and similar electrical appliances – Safety – Part 2-51: Particular requirements for stationary circulation pumps for heating and service water installations

IEC 60335-2-51:2019-04 RLV(en)

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FDIS	Report on voting
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NOTE 1 When “Part 1” is mentioned in this standard, it refers to IEC 60335-1.

This part 2 supplements or modifies the corresponding clauses in IEC 60335-1, so as to convert that publication into the IEC standard: Safety requirements for electric stationary circulation pumps for heating and service water installations.

When a particular subclause of Part 1 is not mentioned in this part 2, that subclause applies as far as is reasonable. When this standard states “addition”, “modification” or “replacement”, the relevant text in Part 1 is to be adapted accordingly.

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– subclauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;
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– requirements: in roman type;
– *test specifications: in italic type;*
– notes: in small roman type.

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NOTE 4 The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

IMPORTANT – The "colour inside" logo on the cover page of this publication indicates that it contains colours which are considered to be useful for the correct understanding of its contents. Users should therefore print this publication using a colour printer.

INTRODUCTION

It has been assumed in the drafting of this International Standard that the execution of its provisions is entrusted to appropriately qualified and experienced persons.

This standard recognizes the internationally accepted level of protection against hazards such as electrical, mechanical, thermal, fire and radiation of appliances when operated as in normal use taking into account the manufacturer's instructions. It also covers abnormal situations that can be expected in practice and takes into account the way in which electromagnetic phenomena can affect the safe operation of appliances.

This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

If an appliance within the scope of this standard also incorporates functions that are covered by another part 2 of IEC 60335, the relevant part 2 is applied to each function separately, as far as is reasonable. If applicable, the influence of one function on the other is taken into account.

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

An appliance that complies with the text of this standard will not necessarily be considered to comply with the safety principles of the standard if, when examined and tested, it is found to have other features that impair the level of safety covered by these requirements.

An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-51: Particular requirements for stationary circulation pumps for heating and service water installations

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **stationary circulation pumps** for household and similar purposes intended for use in heating systems or in service water systems, ~~having a **rated power input** not exceeding 300 W,~~ their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

NOTE 101 The hydraulic and electrical parts of the pump ~~may~~ can be in the same enclosure, so that the water flows through the motor and serves as a coolant, or they ~~may~~ can be separated.

Appliances not intended for normal household use, but that nevertheless may be a source of danger to the public, such as appliances intended to be used by laymen in shops, in light industry and on farms, are within the scope of this standard.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

~~– the use of appliances by young children or infirm persons without supervision;~~

~~– playing with the appliance by young children.~~

– persons (including children) whose
  - physical, sensory or mental capabilities; or
  - lack of experience and knowledge

  prevents them from using the appliance safely without supervision or instruction;
– children playing with the appliance.

NOTE 102 Attention is drawn to the fact that

– for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements ~~may~~ can be necessary;
– in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

NOTE 103 This standard does not apply to

– pumps for circulating liquids other than water;
– pumps, other than circulation pumps (IEC 60335-2-41);
– circulation pumps intended exclusively for industrial purposes;
– circulation pumps intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour, or gas).

2 Normative references

This clause of Part 1 is applicable.

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1 Definitions relating to physical characteristics

Replacement:

3.1.9
normal operation
operation of the circulation pump with the water pressure and flow rate adjusted within their specified limits, so that the highest power input is attained

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.7 *Addition:*

The water temperature at the inlet is maintained between 0 °C and –5 °C of the value corresponding to the TF class of the pump.

For circulation pumps intended to be located within the enclosure of a boiler, the tests of Clauses 10, 11 and 13 are carried out at an ambient temperature of 55 °C or at the temperature specified in the instructions, whichever is higher.

5.101 *Circulation pumps having a three-phase motor that does not incorporate a **protective device** are installed with an appropriate device, in accordance with the instructions.*

6 Classification

This clause of Part 1 is applicable except as follows.

6.1 *Modification:*

Circulation pumps shall be **class I**, **class II** or **class III**.

6.2 *Addition:*

Circulation pumps shall be at least IPX2.

6.101 Circulation pumps shall be of one of the classes shown in Table 101.

Table 101 – Temperature classification of circulation pumps

Class	Maximum temperature of the circulating water °C
TF 60	60
TF 95	95
TF 110	110

Compliance is checked by inspection.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 *Addition:*

Circulation pumps shall be marked with

– the TF class;
– the direction of the water flow;
– the direction of rotation (for pumps having three-phase motors);
– the rated current (for pumps having three-phase motors if a **protective device** has to be installed in the fixed wiring).

7.12 *Modification:*

The instruction concerning persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge is not applicable.

The instruction regarding supervision of children is not applicable.

7.12.1 *Addition:*

The installation instructions shall state the substance of the following:

– the maximum flow rate or total head;
– the maximum ambient temperature at which the pump is to be used;
– the maximum system pressure, which shall not be less than:

~~NOTE 101 The maximum system pressure is to be not less than~~

- 0,6 MPa for pumps for heating systems;
- 1,0 MPa for pumps for service water systems;

– the intended orientation of the pump;
– a protective device is to be installed in the fixed wiring and its characteristics are to be specified (for pumps having a three-phase motor not incorporating a **protective device**).
– for the thermal insulation of circulation pumps in heating systems, only the supplied kit or a kit made available by the manufacturer shall be used. It shall be ensured that the drain openings of the motor are not sealed after installation of the thermal insulation.

8 Protection against access to live parts

This clause of Part 1 is applicable.

9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

10 Power input and current

This clause of Part 1 is applicable.

11 Heating

This clause of Part 1 is applicable except as follows.

11.2 *Addition:*

Circulation pumps that are only fixed by the water pipes are positioned against ~~a vertical support~~ one wall of the test corner and away from the other.

11.3 *Addition:*

~~NOTE 101~~ *The temperatures t_1 and t_2~~, referred to in note 4,~~ are the ambient temperatures of the environment in which the pump is installed, for instance inside the enclosure of a boiler.*

11.7 *Replacement:*

Circulation pumps are operated until steady conditions are established.

11.8 *Addition*:

The temperature rise limits of pumps located within the enclosure of a boiler are reduced by the difference between the ambient temperature at which the test is carried out and 25 °C.

The temperature rise of the external enclosure is not measured.

For circulation pumps in which water flows through the motor, the temperature rise limits for windings are increased by 5 K. The temperature rise limits are increased further by

- *5 K, if the winding insulation is class 130 (B);*
- *10 K, if the winding insulation is class 155 (F) or 180 (H).*

~~NOTE 101~~ *For circulation pumps in which water flows through the motor, the increase of 5 K allowed by footnote [a] to Table 3 does not apply.*

12 Void

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable.

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

This clause of Part 1 is applicable.

16 Leakage current and electric strength

This clause of Part 1 is applicable.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.1 *Addition:*

Circulation pumps are also subjected to the test of 19.101.

19.7 *Addition:*

The test is carried out with the water flow stopped or reduced to 5 l/min, whichever is more unfavourable.

19.101 *Circulation pumps are supplied at* ***rated voltage*** *and operated at approximately half the maximum system pressure for 5 min, after which the water is drained off and the operation continued for 7 h. The system is replenished with water and the pump operated again for 5 min at approximately half the maximum system pressure.*

If the pump becomes inoperable during the test, it is disconnected from the supply and the system filled with water.

20 Stability and mechanical hazards

This clause of Part 1 is applicable.

21 Mechanical strength

This clause of Part 1 is applicable.

22 Construction

This clause of Part 1 is applicable except as follows.

22.101 Circulation pumps shall withstand the water pressure occurring in normal use.

Compliance is checked by subjecting the pump to a water pressure equal to 1,2 times the maximum system pressure for 1 min.

The pump shall not leak.

23 Internal wiring

This clause of Part 1 is applicable.

24 Components

This clause of Part 1 is applicable except as follows.

24.1.3 *Modification:*

Switches that are only intended to be operated during installation of the pump are subjected to 100 cycles of operation.

25 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows.

25.5 *Addition:*

Type Z attachment is allowed.

26 Terminals for external conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is applicable.

28 Screws and connections

This clause of Part 1 is applicable.

29 Clearances, creepage distances and solid insulation

This clause of Part 1 is applicable.

30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

30.2.2 Not applicable.

31 Resistance to rusting

This clause of Part 1 is applicable.

32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

Annexes

The annexes of Part 1 are applicable except as follows.

Annex A
(informative)

Routine tests

A.2 Electric strength test

Modification:

For appliances with a high leakage current, the value of 30 mA is increased to 70 mA.

Bibliography

The bibliography of Part 1 is applicable except as follows.

Addition:

IEC 60335-2-41, *Household and similar electrical appliances – Safety – Part 2-41: Particular requirements for pumps*

IEC 60335-2-51

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INTERNATIONAL STANDARD

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Household and similar electrical appliances – Safety –
Part 2-51: Particular requirements for stationary circulation pumps for heating and service water installations

Appareils électrodomestiques et analogues – Sécurité –
Partie 2-51: Exigences particulières pour les pompes de circulation fixes pour installations de chauffage et de distribution d'eau

IEC 60335-2-51:2019-04(en-fr)

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-51: Particular requirements for stationary circulation pumps for heating and service water installations

FOREWORD

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This standard takes into account the requirements of IEC 60364 as far as possible so that there is compatibility with the wiring rules when the appliance is connected to the supply mains. However, national wiring rules may differ.

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An appliance employing materials or having forms of construction differing from those detailed in the requirements of this standard may be examined and tested according to the intent of the requirements and, if found to be substantially equivalent, may be considered to comply with the standard.

HOUSEHOLD AND SIMILAR ELECTRICAL APPLIANCES – SAFETY –

Part 2-51: Particular requirements for stationary circulation pumps for heating and service water installations

1 Scope

This clause of Part 1 is replaced by the following.

This International Standard deals with the safety of electric **stationary circulation pumps** for household and similar purposes intended for use in heating systems or in service water systems, their **rated voltage** being not more than 250 V for single-phase appliances and 480 V for other appliances.

NOTE 101 The hydraulic and electrical parts of the pump can be in the same enclosure, so that the water flows through the motor and serves as a coolant, or they can be separated.

Appliances not intended for normal household use, but that nevertheless may be a source of danger to the public, such as appliances intended to be used by laymen in shops, in light industry and on farms, are within the scope of this standard.

As far as is practicable, this standard deals with the common hazards presented by appliances that are encountered by all persons in and around the home. However, in general, it does not take into account

– persons (including children) whose
  - physical, sensory or mental capabilities; or
  - lack of experience and knowledge

  prevents them from using the appliance safely without supervision or instruction;
– children playing with the appliance.

NOTE 102 Attention is drawn to the fact that

– for appliances intended to be used in vehicles or on board ships or aircraft, additional requirements can be necessary;
– in many countries additional requirements are specified by the national health authorities, the national authorities responsible for the protection of labour and similar authorities.

NOTE 103 This standard does not apply to

– pumps for circulating liquids other than water;
– pumps, other than circulation pumps (IEC 60335-2-41);
– circulation pumps intended exclusively for industrial purposes;
– circulation pumps intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour, or gas).

2 Normative references

This clause of Part 1 is applicable.

3 Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1 Definitions relating to physical characteristics

Replacement:

3.1.9
normal operation
operation of the circulation pump with the water pressure and flow rate adjusted within their specified limits, so that the highest power input is attained

4 General requirement

This clause of Part 1 is applicable.

5 General conditions for the tests

This clause of Part 1 is applicable except as follows.

5.7 *Addition:*

The water temperature at the inlet is maintained between 0 °C and –5 °C of the value corresponding to the TF class of the pump.

For circulation pumps intended to be located within the enclosure of a boiler, the tests of Clauses 10, 11 and 13 are carried out at an ambient temperature of 55 °C or at the temperature specified in the instructions, whichever is higher.

5.101 *Circulation pumps having a three-phase motor that does not incorporate a **protective device** are installed with an appropriate device, in accordance with the instructions.*

6 Classification

This clause of Part 1 is applicable except as follows.

6.1 *Modification:*

Circulation pumps shall be **class I**, **class II** or **class III**.

6.2 *Addition:*

Circulation pumps shall be at least IPX2.

6.101 Circulation pumps shall be of one of the classes shown in Table 101.

Table 101 – Temperature classification of circulation pumps

Class	Maximum temperature of the circulating water °C
TF 60	60
TF 95	95
TF 110	110

Compliance is checked by inspection.

7 Marking and instructions

This clause of Part 1 is applicable except as follows.

7.1 *Addition:*

Circulation pumps shall be marked with

– the TF class;
– the direction of the water flow;
– the direction of rotation (for pumps having three-phase motors);
– the rated current (for pumps having three-phase motors if a **protective device** has to be installed in the fixed wiring).

7.12 *Modification:*

The instruction concerning persons (including children) with reduced physical, sensory or mental capabilities, or lack of experience and knowledge is not applicable.

The instruction regarding supervision of children is not applicable.

7.12.1 *Addition:*

The installation instructions shall state the substance of the following:

– the maximum flow rate or total head;
– the maximum ambient temperature at which the pump is to be used;
– the maximum system pressure, which shall not be less than:
  - 0,6 MPa for pumps for heating systems;
  - 1,0 MPa for pumps for service water systems;
– the intended orientation of the pump;
– a protective device is to be installed in the fixed wiring and its characteristics are to be specified (for pumps having a three-phase motor not incorporating a **protective device**).
– for the thermal insulation of circulation pumps in heating systems, only the supplied kit or a kit made available by the manufacturer shall be used. It shall be ensured that the drain openings of the motor are not sealed after installation of the thermal insulation.

8 Protection against access to live parts

This clause of Part 1 is applicable.

9 Starting of motor-operated appliances

This clause of Part 1 is not applicable.

10 Power input and current

This clause of Part 1 is applicable.

11 Heating

This clause of Part 1 is applicable except as follows.

11.2 *Addition:*

Circulation pumps that are only fixed by the water pipes are positioned against one wall of the test corner and away from the other.

11.3 *Addition:*

The temperatures t_1 and t_2 are the ambient temperatures of the environment in which the pump is installed, for instance inside the enclosure of a boiler.

11.7 *Replacement:*

Circulation pumps are operated until steady conditions are established.

11.8 *Addition*:

The temperature rise limits of pumps located within the enclosure of a boiler are reduced by the difference between the ambient temperature at which the test is carried out and 25 °C.

The temperature rise of the external enclosure is not measured.

For circulation pumps in which water flows through the motor, the temperature rise limits for windings are increased by 5 K. The temperature rise limits are increased further by

- *5 K, if the winding insulation is class 130 (B);*
- *10 K, if the winding insulation is class 155 (F) or 180 (H).*

For circulation pumps in which water flows through the motor, the increase of 5 K allowed by footnote [a] to Table 3 does not apply.

12 Void

13 Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable.

14 Transient overvoltages

This clause of Part 1 is applicable.

15 Moisture resistance

This clause of Part 1 is applicable.

16 Leakage current and electric strength

This clause of Part 1 is applicable.

17 Overload protection of transformers and associated circuits

This clause of Part 1 is applicable.

18 Endurance

This clause of Part 1 is not applicable.

19 Abnormal operation

This clause of Part 1 is applicable except as follows.

19.1 *Addition:*

Circulation pumps are also subjected to the test of 19.101.

19.7 *Addition:*

The test is carried out with the water flow stopped or reduced to 5 l/min, whichever is more unfavourable.

19.101 *Circulation pumps are supplied at* ***rated voltage*** *and operated at approximately half the maximum system pressure for 5 min, after which the water is drained off and the operation continued for 7 h. The system is replenished with water and the pump operated again for 5 min at approximately half the maximum system pressure.*

If the pump becomes inoperable during the test, it is disconnected from the supply and the system filled with water.

20 Stability and mechanical hazards

This clause of Part 1 is applicable.

21 Mechanical strength

This clause of Part 1 is applicable.

22 Construction

This clause of Part 1 is applicable except as follows.

22.101 Circulation pumps shall withstand the water pressure occurring in normal use.

Compliance is checked by subjecting the pump to a water pressure equal to 1,2 times the maximum system pressure for 1 min.

The pump shall not leak.

23 Internal wiring

This clause of Part 1 is applicable.

24 Components

This clause of Part 1 is applicable except as follows.

24.1.3 *Modification:*

Switches that are only intended to be operated during installation of the pump are subjected to 100 cycles of operation.

25 Supply connection and external flexible cords

This clause of Part 1 is applicable except as follows.

25.5 *Addition:*

Type Z attachment is allowed.

26 Terminals for external conductors

This clause of Part 1 is applicable.

27 Provision for earthing

This clause of Part 1 is applicable.

28 Screws and connections

This clause of Part 1 is applicable.

29 Clearances, creepage distances and solid insulation

This clause of Part 1 is applicable.

30 Resistance to heat and fire

This clause of Part 1 is applicable except as follows.

30.2.2 Not applicable.

31 Resistance to rusting

This clause of Part 1 is applicable.

32 Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

Annexes

The annexes of Part 1 are applicable except as follows.

Annex A
(informative)

Routine tests

A.2 Electric strength test

Modification:

For appliances with a high leakage current, the value of 30 mA is increased to 70 mA.

Bibliography

The bibliography of Part 1 is applicable except as follows.

Addition:

IEC 60335-2-41, *Household and similar electrical appliances – Safety – Part 2-41: Particular requirements for pumps*

SOMMAIRE

COMMISSION ÉLECTROTECHNIQUE INTERNATIONALE

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APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – SÉCURITÉ –

Partie 2-51: Exigences particulières pour les pompes de circulation fixes pour installations de chauffage et de distribution d'eau

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La Norme internationale IEC 60335-2-51 a été établie par le comité d'études 61 de l'IEC: Sécurité des appareils électrodomestiques et analogues.

Cette quatrième édition annule et remplace la troisième édition parue en 2002, l'Amendement 1:2008 et l'Amendement 2:2011. Cette édition constitue une révision technique.

Cette édition inclut les modifications techniques majeures suivantes par rapport à l'édition précédente:

– certaines instructions ne sont plus exigées (7.12);
– certaines notes ont été converties en texte normatif (7.12.1, 11.3, 11.8);
– nouvelles instructions d'installation de l'isolant thermique (7.12.1);

– la valeur du courant de fuite a été modifiée (Article A.2).

Le texte de cette Norme internationale est issu des documents suivants:

FDIS	Rapport de vote
61/5785/FDIS	61/5802/RVD

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

Ce document a été rédigé selon les Directives ISO/IEC, Partie 2.

Une liste de toutes les parties de la série IEC 60335, publiées sous le titre général *Appareils électrodomestiques et analogues – Sécurité*, peut être consultée sur le site web de l'IEC.

La présente partie 2 doit être utilisée conjointement avec la dernière édition de l'IEC 60335-1 et ses amendements. Elle a été établie sur la base de la cinquième édition (2010) de cette norme.

NOTE 1 L'expression "Partie 1" utilisée dans la présente norme fait référence à l'IEC 60335-1.

La présente partie 2 complète ou modifie les articles correspondants de l'IEC 60335-1, de façon à transformer cette publication en norme IEC: Exigences de sécurité pour les pompes de circulation électriques fixes pour installations de chauffage et de distribution d'eau.

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 la présente norme mentionne "addition", "modification" ou "remplacement", le texte correspondant de la Partie 1 doit être adapté en conséquence.

NOTE 2 Le système de numérotation suivant est utilisé:

– paragraphes, tableaux et figures: ceux qui sont numérotés à partir de 101 sont complémentaires à ceux de la Partie 1;

– notes: à l'exception de celles qui sont dans un nouveau paragraphe ou de celles qui concernent des notes de la Partie 1, les notes sont numérotées à partir de 101, y compris celles des articles ou paragraphes qui sont remplacés;

– les annexes supplémentaires sont appelées AA, BB, etc.

NOTE 3 Les caractères d'imprimerie suivants sont utilisés:

– exigences: caractères romains;

– *modalités d'essais: caractères italiques;*

– notes: petits caractères romains.

Les termes en **gras** dans le texte sont définis à l'Article 3. Lorsqu'une définition concerne un adjectif, l'adjectif et le nom associé figurent également en gras.

Le comité a décidé que le contenu de ce document 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 au document recherché. A cette date, le document sera

- reconduit,
- supprimé,
- remplacé par une édition révisée, ou
- amendé.

NOTE 4 L'attention des Comités Nationaux est attirée sur le fait que les fabricants d'appareils et les organismes d'essai peuvent avoir besoin d'une période transitoire après la publication d'une nouvelle publication IEC, ou d'une publication amendée ou révisée, pour fabriquer des produits conformes aux nouvelles exigences et pour adapter leurs équipements aux nouveaux essais ou aux essais révisés.

Le comité recommande que le contenu de cette publication soit entériné au niveau national au plus tôt 12 mois ou au plus tard 36 mois après la date de publication.

INTRODUCTION

Il a été considéré en établissant la présente Norme internationale que l'exécution de ses dispositions était confiée à des personnes expérimentées et ayant une qualification appropriée.

La présente norme reconnaît le niveau de protection internationalement accepté contre les dangers électriques, mécaniques, thermiques, liés au feu et au rayonnement des appareils, lorsqu'ils fonctionnent comme en usage normal en tenant compte des instructions du fabricant. Elle couvre également les situations anormales auxquelles on peut s'attendre dans la pratique et elle tient compte de la façon dont les phénomènes électromagnétiques peuvent affecter le fonctionnement sûr des appareils.

Cette norme tient compte autant que possible des exigences de l'IEC 60364, de façon à rester compatible avec les règles d'installation quand l'appareil est raccordé au réseau d'alimentation. Cependant, des règles nationales d'installation peuvent être différentes.

Si un appareil compris dans le domaine d'application de cette norme comporte également des fonctions qui sont couvertes par une autre partie 2 de l'IEC 60335, la partie 2 correspondante est appliquée à chaque fonction séparément, dans la limite du raisonnable. Si cela est applicable, on tient compte de l'influence d'une fonction sur les autres fonctions.

Lorsqu'une partie 2 ne comporte pas d'exigences complémentaires pour couvrir les dangers traités dans la Partie 1, la Partie 1 s'applique.

NOTE 1 Cela signifie que les comités d'études responsables pour les parties 2 ont déterminé qu'il n'était pas nécessaire de spécifier des exigences particulières pour l'appareil en question en plus des exigences générales.

Cette norme est une norme de famille de produits traitant de la sécurité d'appareils et a préséance sur les normes horizontales et génériques couvrant le même sujet.

NOTE 2 Les normes horizontales et génériques couvrant un danger ne sont pas applicables parce qu'elles ont été prises en considération lorsque les exigences générales et particulières ont été étudiées pour la série de normes IEC 60335. Par exemple, dans le cas des exigences de température de surface pour de nombreux appareils, des normes génériques, comme l'ISO 13732-1 pour les surfaces chaudes, ne sont pas applicables en plus de la Partie 1 ou des parties 2.

Un appareil conforme au texte de la présente norme ne sera pas nécessairement jugé conforme aux principes de sécurité de la norme si, lorsqu'il est examiné et soumis aux essais, il apparaît qu'il présente d'autres caractéristiques qui compromettent le niveau de sécurité visé par ces exigences.

Un appareil utilisant des matériaux ou présentant des modes de construction différents de ceux décrits dans les exigences de cette norme peut être examiné et essayé en fonction de l'objectif poursuivi par ces exigences et, s'il est jugé pratiquement équivalent, il peut être estimé conforme aux principes de sécurité de la norme.

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APPAREILS ÉLECTRODOMESTIQUES ET ANALOGUES – SÉCURITÉ –

Partie 2-51: Exigences particulières pour les pompes de circulation fixes pour installations de chauffage et de distribution d'eau

1 Domaine d'application

L'article de la Partie 1 est remplacé par l'article ci-après.

La présente Norme internationale traite de la sécurité des **pompes de circulation fixes** électriques pour usages domestiques et analogues, destinées à être utilisées dans des installations de chauffage ou de distribution d'eau, dont la **tension assignée** n'est pas supérieure à 250 V pour les appareils monophasés et à 480 V pour les autres appareils.

NOTE 101 Les parties hydrauliques et électriques de la pompe peuvent être dans la même enveloppe, de sorte que l'eau s'écoule à travers le moteur et serve de liquide de refroidissement, ou elles peuvent être séparées.

Les appareils non destinés à un usage domestique normal, mais qui peuvent néanmoins constituer une source de danger pour le public, tels que les appareils destinés à être utilisés par des usagers non avertis dans des magasins, chez des artisans et dans des fermes, sont compris dans le domaine d'application de la présente norme.

Dans la mesure du possible, la présente norme traite des risques ordinaires présentés par les appareils, encourus par tous les individus à l'intérieur et autour de l'habitation. Cependant, cette norme ne tient pas compte en général:

– des personnes (y compris des enfants) dont
  - les capacités physiques, sensorielles ou mentales; ou
  - le manque d'expérience et de connaissance

les empêchent d'utiliser l'appareil en toute sécurité sans surveillance ou instruction;

– de l'utilisation de l'appareil comme jouet par des enfants.

NOTE 102 L'attention est attirée sur le fait que:

– pour les appareils destinés à être utilisés dans des véhicules ou à bord de navires ou d'avions, des exigences supplémentaires peuvent être nécessaires;

– dans de nombreux pays, des exigences supplémentaires sont spécifiées par les organismes nationaux de la santé, par les organismes nationaux responsables de la protection des travailleurs et par des organismes similaires.

NOTE 103 La présente norme ne s'applique pas:

– aux pompes destinées à la circulation de liquides autres que l'eau;

– aux pompes autres que les pompes de circulation (IEC 60335-2-41);

– aux pompes de circulation destinées exclusivement aux usages industriels;

– aux pompes de circulation destinées à être utilisées dans des locaux présentant des conditions particulières telles que la présence d'une atmosphère corrosive ou explosive (poussières, vapeur ou gaz).

2 Références normatives

L'article de la Partie 1 est applicable.

3 Termes et définitions

L'article de la Partie 1 est applicable avec l'exception suivante.

3.1 Définitions relatives aux caractéristiques physiques

Remplacement:

3.1.9
conditions de fonctionnement normal
fonctionnement de la pompe de circulation dont le réglage de la pression de l'eau et le réglage de débit sont dans les limites spécifiées, de sorte que la puissance absorbée maximale soit atteinte

4 Exigences générales

L'article de la Partie 1 est applicable.

5 Conditions générales d'essais

L'article de la Partie 1 est applicable avec les exceptions suivantes.

5.7 *Addition*:

La température de l'eau à l'entrée est maintenue entre 0 °C et –5 °C de la valeur correspondant à la classe TF de la pompe.

Pour les pompes de circulation destinées à être installées dans l'enveloppe d'une chaudière, les essais des Articles 10, 11 et 13 sont effectués à une température ambiante de 55 °C ou à la température spécifiée dans les instructions, suivant la valeur la plus élevée.

5.101 *Les pompes de circulation comportant un moteur triphasé ne possédant pas de* ***dispositif de protection*** *sont installées avec un dispositif approprié, conformément aux instructions.*

6 Classification

L'article de la Partie 1 est applicable avec les exceptions suivantes.

6.1 *Modification:*

Les pompes de circulation doivent être de la **classe I**, de la **classe II** ou de la **classe III**.

6.2 *Addition*:

Les pompes de circulation doivent être au moins IPX2.

6.101 Les pompes de circulation doivent être de l'une des classes mentionnées au Tableau 101.