

Household and similar electrical appliances – Safety – Part 2-xx: Particular Requirements for Infrared Hobs



Government of Nepal

Ministry of Industry, Commerce and Supplies

Nepal Bureau of Standards and Metrology (NBSM)

Kathmandu, Nepal

www.nbsm.gov.np

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from NBSM at the address below.

Nepal Bureau of Standards and Metrology

Balaju, Kathmandu, Nepal

Phone: +977 1 4350445/4350818

Email: info@nbsm.gov.np
Website: www.nbsm.gov.np

Table of Contents

Fore	eword	6
1.	Scope	8
2.	Normative references	8
3.	Terms and definitions	9
4.	General requirements	10
5.	General conditions for the tests	10
6.	Classification	10
7.	Marking and instructions	11
8.	Protection against access to live parts	12
9.	Starting of motor-operated appliances	12
10.	Power input and current	12
11.	Heating	12
12.	Void	13
13.	Leakage current and electric strength at operating temperature	13
14.	Transient over voltages	
15.	Moisture resistance	14
16.	Leakage current and electric strength	14
17.	Overload protection of transformers and associated circuits	15
18.	Endurance	15
19.	Abnormal operation	15
20.	Stability and mechanical hazards	16
21.	Mechanical strength	16
22.	Construction	17
23.	Internal wiring	18
24.	Components	19
25.	Supply connection and external flexible cords	19
26.	Terminals for external conductors	19
27.	Provision for earthing	19
28.	Screws and connections	19
29.	Clearances, Creepage distances and solid insulation	19
30	Resistance to heat and fire	19

Annexes	
Bibliography	22
	<i>O</i> 1
	·. () `
. 0	
. 13	
~X.O.	

Figure 101 – Vessel for testing induction hob elements	Error! Bookmark not defined.
Figure 102 – Probe for measuring surface temperatures	21
Table 101 – Quantity of liquid in the vessel	9
	.·O
10	
(O)	
Signor Signor	

Foreword

NBSM (Nepal Bureau of Standards and Metrology) is the National Standard Body involved in the development of standards in the country. The standard development process involves committee consisting of multi-stakeholders both from public and private sectors.

This standard is developed by [Name of Technical Committee (TC XXX)] / [Name of sub Committee (SC YYY)] and approved by Nepal Standard Council as per Nepal Standard (Certification) Act, 1980. The procedures used to develop this document and those intended for its further maintenance are described in the NBSM Standard Development Procedure (see www.nbsm.gov.np/workprecedure).

This standard pertains to infrared cooktops and 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 radiation hazards for safe operation of appliances.

If an appliance within the scope of this standard also incorporates functions that are covered by another standard on Safety: Particular Requirements, the relevant standard 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.

If this standard does not include additional requirements to cover hazards dealt with in NS 564:2076 "Household and Similar Electrical Appliances-Safety- Part 1: General Requirement", the later applies.

NOTE— This means that in such a case, it has been decided that for this standard "Household and Similar Electric Appliances-Safety-Part 2: Particular Requirements for Infrared Hobs" it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

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 which 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, shall be considered to comply with the standard.

This standard is to be read in conjunction with the latest edition of NS 564:2076 "Household and Similar Electrical Appliances – Safety - Part 1: General Requirement" and its amendments.

NOTE — When "Part 1" is mentioned in this standard, it refers to NS 564:2076.

When a particular sub-clause of Part 1 is not mentioned in this Part 2, that sub-clause applies as far as is reasonable. Wherever this standard state addition, modification or replacement; the relevant text in Part 1 is to be adapted accordingly.

NOTE — The following numbering system is used:

Sub-clauses, tables and figures that are numbered starting from 101 are additional to those in Part 1;

Unless notes are in a new sub-clause or involve notes in Part 1, they are numbered starting from 101, including those in a replaced clause or sub-clause;

This standard is based on IEC 60335-2-6: 2018 (Ed. 6.1) Household and similar electrical appliances – Safety – Part 2-6: Particular requirements for stationary cooking ranges, hobs, ovens and similar appliances issued by International Electro-technical Commission.

Household and Similar Electrical Appliances—Safety Part 2.x: Particular requirements for portable Infrared Hobs

1. Scope

This Standard deals with the safety of portable electric infrared hobs for household use, their rated voltage being not more than 250 V single-phase, i.e. appliance being connected between one phase and neutral.

As far as is practicable, this standard deals with the common hazards presented by infrared hobs 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 101: Attention is drawn to the fact that

for appliances intended to be used in vehicles or on-board ships or aircraft, additional requirements may be necessary;

additional requirements may be specified by the national health authorities, the national authorities responsible for the protection of labour, the national water supply authorities and similar authorities.

Note 102: This standard does not apply to

- appliances intended for commercial catering;
- appliances intended to be used in locations where special conditions prevail, such as the presence of a corrosive or explosive atmosphere (dust, vapour or gas);
- grills, toasters and similar portable cooking appliances based on infra-red technology.

NOTE 103: All test specified in this standard are type test.

2. Normative references

This clause of Part 1 is applicable except as follows.

Addition:

NS 564:2076: Household and similar electrical appliances – Safety – Part 1: General requirements

NS 116: Electric Plugs

IEC 60584-1, Thermocouples - Part 1: EMF specifications and tolerances

IEC 60068-2-6:2007, Environmental testing – Part 2-6: Tests – Test Fc: Vibration (sinusoidal)

IEC 60068-2-27:2008, Environmental testing – Part 2-27: Tests – Test Ea and guidance: Shock

IEC 60068-2-52:1996, Environmental testing – Part 2-52: Tests – Test Kb: Salt mist, cyclic (sodium chloride solution)

3. Terms and definitions

This clause of Part 1 is applicable except as follows.

3.1.9 Replacement:

Normal operation

Operation of the appliance is as specified in 3.1.9.101.

3.1.9.101The cooktop is operated with vessels as specified in Figure 101 that contains cold water. Thermal controls are adjusted to their highest setting until the water boils and then adjusted so that the water boils gently. Water is added to maintain the level during boiling.

In case of doubt, vessels as specified in Figure 101 are used.

The diameter of the bottom of the vessel is approximately equal to the diameter of the cooking zone and the quantity of liquid is specified in Table 101. The vessel is positioned centrally on the cooking zone.

If several cooking zones are marked for one hob element, the most unfavourable cooking zone is used for the test.

For non-circular cooking zones, the smallest non-circular vessel is used which will cover the cooking zone as far as possible, taking into account the hob rim and the other vessels. The quantity of liquid is determined on the basis of the minor diameter of the cooking zone.

Table 101 – Quantity of liquid in the vessel

Diameter of cooking zone (mm)	Quantity of water (l)
≤ 110	0.6
$>110 \text{ and } \le 145$	1.0
$>145 \text{ and } \le 180$	1.5
$>180 \text{ and } \le 220$	2.0
>220 and <300	3.0

3.101 Infrared hob element

Heating unit attached to the hob surface or positioned below the cooking zone.

Note 1 to entry:

Tungsten, quartz or any appropriate heating elements placed in a corrosion protected metal dish to emit infrared radiation giving off bright glow and intense heat in the direction of hob surface. This radiant heat is absorbed directly by the cooking vessels.

3.102 Infrared hob

Appliance that incorporates a hob surface and one or more built in infrared hob elements.

3.103 Hob Surface

Horizontal part of the cooktop on which vessels can be placed.

3.104 Cooking zone

Area marked on a hob surface where the vessel is placed for heating food.

Note: When a hob element protrudes above the hob surface, its surface is the cooking zone.

3.106 Touch control

Control actuated by contact or proximity of a finger, with little or no movement of the contact surface.

3.107Automatic Control

Control in which at least one aspect is non-manual.

Note: A control may be for purposes such as thermostat, temperature limiter, thermal cut-out, energy regulator, timer, time switch, manual control, sensing control.

3.108 Manual Control

Control in which the initiation is by actuation and in which the transmission and the operation are both direct and without any intentional time delay.

4. General requirements

This clause of Part 1 is applicable.

5. General conditions for the tests

This clause of Part 1 is applicable.

6. Classification

This clause of Part 1 is applicable except as follows.

6.1 Modification:

Infrared hob shall be a class I appliance.

7. Marking and instructions

This clause of Part 1 is applicable except as follows.

7.6 Addition:



ON/OFF (push-push)



Caution, possibility of tilting



Anti-tip restraints

7.10 Addition:

The off position of touch controls for hobs shall be marked by the figure O and the on position by the figure I. If there is no touch control for the hob, this requirement applies to the touch controls for each hob element.

If the same touch control is used for switching on and off, symbol shown in 7.6 can be used.

7.12 Addition:

Audio/Visual Warning to avoid accidental touching of hot hob surface shall be provided.

If the hob surface is of glass-ceramic or similar material and protects live parts, the instructions shall include the substance of the following:

WARNING: If the surface is cracked, switch off the appliance to avoid the possibility of electric shock.

The instructions for infrared hobs shall state that a wet cleaner is not to be used.

The instructions for infrared hobs shall state the wet vessel is not to be put on hot surface.

The instructions for infrared hobs shall also include the substance of the following:

Metallic objects such as knives, forks, spoons and lids should not be placed on the hob surface since they can get hot.

The instructions for infrared hobs incorporating halogen lamps shall warn the user not to stare at the hob elements.

Danger of fire: Do not store items on the cooking surfaces.

CAUTION: The cooking process has to be supervised. A short-term cooking process has to be supervised continuously.

WARNING: Unattended cooking on a hob with fat or oil can be dangerous and may result in a fire.

Compliance is checked by inspection.

7.101 The cooking zone of hob surfaces shall be identified by appropriate marking unless it is obvious.

8. Protection against access to live parts

This clause of Part 1 is applicable except as follows:

8.1.2 Addition

Test probe 12 of IEC 61032 is applied without appreciable force to parts liable to be touched accidentally in normal use by a fork or similar pointed object. It shall not be possible to touch live parts.

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 except as follows.

10.1 Addition:

For infrared hobs, the heat up time until the water boils with the controls adjusted to their highest setting is a representative period.

10.2 Addition:

For infrared hobs, the heat up time until the water boils with the controls adjusted to their highest setting is a representative period.

In case infrared hob incorporates a connector or socket outlet for connection to external supply, socketoutlets are not loaded during the test, however the current is considered to be 1 kW divided by the rated voltage.

11.Heating

This clause of Part 1 is applicable except as follows.

11.3 Addition:

During the test of 11.101, if the front and side surfaces are flat, temperature rises are measured using the probe of Figure 102.

The probe is applied with a force of $4 N \pm 1 N$ to the surface in such a way that the best possible contact between the probe and the surface is ensured. The probe is applied for a period of at least 5 min before the final temperature reading is taken.

The probe can be held in place using a laboratory stand clamp or similar device.

For flat front and side surfaces, any measuring instrument giving the same results as the probe can be used.

11.7 Replacement:

Appliances are operated for the duration specified in 11.7.101 to 11.7.102.

NOTE 101 Steady conditions are considered to be established if the temperature does not rise by more than 1 K in 15 min.

11.7.101 Infrared hob elements are operated for 60 min.

11.7.102 If the appliance incorporates a socket-outlet, an appropriate plug conforming to NS 116 is engaged. The plug is connected to a 1 kW resistive by means of an ordinary polyvinyl chloride sheathed flexible cord having a cross-sectional area of 0,75 mm2. The temperature rise of the plug is determined during the last 30 min of the test.

11.101 All heating units that can be connected to the supply mains at the same time during normal use are switched on.

Hob elements are operated in accordance with 11.7.

12.Void

13.Leakage current and electric strength at operating temperature

This clause of Part 1 is applicable except as follows.

13.2 This sub-clause of Part 1 is applicable with modification.

13.2 Modification:

After the appliance has been operated for the duration specified in 11.7, the controls are adjusted to their highest setting and the leakage current is measured within 10 s of it attaining its highest value.

For stationary class I appliances, the leakage current shall not exceed the following values:

Hob elements that are detachable or can be switched off separately, 1 mA, or 1 mA per kW power input for each element with a limit of 10 mA, whichever is higher. If the appliance has more than three heating units, only 75 % of the measured leakage current is taken into account;

For other types, 1 mA, or 1 mA per kW rated power input with a limit of 10 mA, whichever is higher.

If there is earthed metal between live parts and the surface of glass-ceramic or similar material of hobs, the leakage current is measured between live parts and each vessel in turn connected to the earthed metal. If there is no earthed metal, the peak value of the leakage current, measured, using the circuit described in Figure 4 of IEC 60990, between live parts and each of the vessels in turn, shall not exceed 0.21 mA.

If the appliance incorporates capacitors and is provided with a single-pole switch, the measurements are repeated with the switch in the **off position**.

If the appliance incorporates a thermal control which operates during the test of Clause 11, the leakage current is measured immediately before the control opens the circuit.

NOTE 1 The test with the switch in the **off position** is carried out to verify that capacitors connected behind a single-pole switch do not cause an excessive leakage current.

NOTE 2 It is recommended that the appliance is supplied through an isolating transformer; otherwise it is to be insulated from earth.

13.3 Addition:

If there is earthed metal between live parts and the surface of glass-ceramic or similar material of hobs, a test voltage of 1000 V is applied between live parts and all the vessels connected to the earthed metal. If there is no earthed metal, a test voltage of 3000 V is applied between live parts and the vessels.

14. Transient over voltages

This clause of Part 1 is applicable.

15. Moisture resistance

This clause of Part 1 is applicable except as follows.

15.2 Addition:

Infrared hobs are positioned so that the hob surface is horizontal. A vessel having the largest diameter shown in Figure 101 that does not exceed the diameter of the cooking zone, is completely filled with the spillage solution and positioned centrally over the cooking zone. A further quantity of 0.5 l of the spillage solution is poured steadily into the vessel over a period of 15 s. The test is carried out on each cooking zone in turn, after removing any residual spillage solution from the appliance.

For hob elements incorporating a switch or a thermal control, 0.02 l of the spillage solution is poured over the hob element so that it flows over the switch or control. A vessel is then placed on the hob element to depress any movable part. If controls are mounted in the hob surface, 0.5 l of the spillage solution is poured over them in a period of 15 s.

16.Leakage current and electric strength

This clause of Part 1 is applicable except as follows.

16.1 Addition:

For hobs, the tests are carried out with a vessel filled as specified in 3.1.9.101 placed on each cooking zone.

16.2 Modification:

For stationary class I appliances, the leakage current shall not exceed the following values:

Hob elements that are detachable or can be switched off separately, 1 mA, or 1 mA per kW power input for each element with a limit of 10 mA, whichever is higher. If the appliance has more than three heating units, only 75 % of the measured leakage current is taken into account;

For other types, 1 mA, or 1 mA per kW rated power input with a maximum of 10 mA, whichever is higher.

If there is earthed metal between live parts and the surface of glass-ceramic or similar material of hobs, the leakage current is measured between live parts and each vessel in turn connected to the earthed metal. If there is no earthed metal, the leakage current, measured between live parts and each of the vessels in turn, shall not exceed 0.21 mA.

16.3 Addition:

If there is earthed metal between live parts and the surface of glass-ceramic or similar material of hobs, a test voltage of 1250 V is applied between live parts and all the vessels connected to the earthed metal. If there is no earthed metal, a test voltage of 3000 V is applied between live parts and the vessels.

17. Overload protection of transformers and associated circuits

VOID

18.Endurance

VOID

19. Abnormal operation

This clause of Part 1 is applicable except as follows.

19.1 Addition:

Compliance is also checked by the tests of 19.101, 19.102 and 19.103.

19.2 Addition:

Infrared hob elements are operated without a vessel.

Hobs incorporating more than one heating unit, the test is only carried out with the heating unit resulting in the most unfavourable conditions, its control being adjusted to the highest setting.

19.11.4 Addition:

During the test of the stand-by-mode, a suitable vessel is placed on the cooking zone.

19.13 Addition:

The electric strength test of infrared hob elements is carried out immediately after switching off the appliance.

19.101 Infrared hob elements are supplied at rated voltage and operated with a steel disc placed on the centre of the cooking zone. The disc has a thickness of 6 mm and the smallest diameter, rounded up to the nearest centimetre, that allows the hob element to operate.

19.102 Infrared hob elements are supplied at rated voltage and operated under normal operation but with thermal controls short-circuited.

19.103 Infrared hob elements are operated under the conditions of Clause 11 with empty vessels, the controls being adjusted to the highest setting.

20. Stability and mechanical hazards

21. Mechanical strength

This clause of Part 1 is applicable except as follows.

21.1 Addition:

For Infrared hob surfaces of glass-ceramic or similar material, three blows are applied to parts of the surfaces that are not exposed to impacts during the test of 21.102, the impact energy being increased to 0.70 J \pm 0.05 J. The blows are not applied to surfaces within 20 mm of knobs.

If the infrared hob surface comprises a single piece of material except for the outer frame, this test is not carried out.

21.101 Hob surfaces of glass-ceramic or similar material shall withstand the stresses liable to occur in normal use.

Compliance is checked by the following test.

Each hob element is operated at rated power input with its control adjusted to the maximum setting. When steady conditions are established, the hob element is switched off and a loaded vessel is dropped flat 10 times from a height of 150 mm onto the cooking zone.

For hob elements, the vessel has a flat copper or aluminium base over a diameter of $120 \text{ mm} \pm 10 \text{ mm}$, its edges being rounded with a radius of at least 10 mm. It is uniformly filled with at least 1.3 kg of sand or shot so that the total mass is $1.80 \text{ kg} \pm 0.01 \text{ kg}$.

After subjecting each cooking zone in turn to this impact, the vessel is removed and all hob elements are operated simultaneously until steady conditions are established.

A quantity of $1^{+0.1}_{0}1$ of water having a temperature of 15 °C ± 5 °C and containing approximately 1 % NaCl is poured steadily over the hob surface. The appliance is then disconnected from the supply. After 15 min, all excess water is removed and the appliance allowed to cool to approximately room temperature. The

same quantity of the saline solution is poured over the hob surface after which excess water is removed again.

The infrared hob surface shall not crack and the appliance shall withstand the electric strength test of 16.3.

22.Construction

This clause of Part 1 is applicable except as follows.

22.51 Replacement:

Hobs shall not be controlled by a remote control.

22.101 Hobs shall be constructed so that hob elements are prevented from rotating about a vertical axis and are adequately supported in all positions of adjustment of their supports.

If a hob element is clamped by a nut on a central stud, an additional means is required to prevent its rotation.

Hobs with detachable hob elements shall be constructed so that damage is unlikely to occur while the hob elements are being removed or replaced.

Compliance is checked by inspection.

22.102 Hobs shall be constructed so that inadvertent operation of touch controls is unlikely if this could give rise to a hazardous situation due to:

spillage of liquids, including that caused by a vessel boiling over;

a damp cloth placed on the control panel.

Compliance is checked by the following test; the appliance being supplied at rated voltage.

The test is carried out with each hob element energized in turn and then without energizing any hob elements.

Sufficient water to completely cover the control panel to a depth not exceeding 2 mm, with a minimum of 140 ml, is poured steadily over the control panel so that bridging occurs between combinations of touch pads.

A white cloth having a mass between 140 g/m 2 and 170 g/m 2 and dimensions approximately 400 mm \times 400 mm, is folded four times into a square pad, saturated with water and placed over the control panel in any position.

In case of doubt, different coloured cloths can be used.

There shall be no operation of any hob element for longer than 10 s.

During the test, it shall be possible to switch off the energized hob element by operating the touch controls, unless it switches off automatically.

22.103 Hobs having touch controls shall require at least two manual operations to switch on a hob element but only one operation to switch it off. However, additional hob elements may be switched on by a single manual operation. In this case, 1 min after all the hob elements have been switched off, two manual operations are required to re-energize one hob element. Touching the contact surface at the same point twice is not considered to be two manual operations.

Infrared hobs having touch controls shall incorporate visual means to indicate when each hob element is energized.

Compliance is checked by inspection and by manual test.

22.104 Appliances incorporating more than one hob element shall be designed so that it is possible to switch off any energized hob element in the case of failure of any electronic component.

Compliance is checked by the following test:

The appliance is operated under the conditions specified in Clause 11 but supplied at rated voltage.

The fault conditions in a) to g) of 19.11.2 are then considered and, if necessary, applied one at a time to the electronic circuit.

It shall be possible to switch off any energized hob element during the test.

22.105 Appliances incorporating more than one hob element shall be designed so that the hob element does not become energized unintentionally in case of any electronic component being rendered inoperative.

Compliance is checked by the following test:

The appliance is operated under the conditions specified in Clause 11 with all individual hob elements switched off, the appliance being supplied at rated voltage.

The fault conditions in a) to g) of 19.11.2 are then considered and, if necessary, applied one at a time to the electronic circuit.

22.106 For infrared hob element controlled by an electronic circuit, safety shall not be impaired in the event of a fault in the electronic circuit.

Compliance is checked by the following test:

The appliance is operated under the conditions specified in Clause 11 but supplied at rated voltage.

The fault conditions in a) to g) of 19.11.2 are applied one at a time to the electronic circuit controlling the duty cycle for each hob element in turn.

The control setting shall not change to a higher setting for longer than 2 min.

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 Addition:

Switches controlling infrared hob elements are subjected to 30000 cycles of operation.

24.1.4 Addition:

- energy regulators
 - for automatic action 100 000
 - for manual action 10 000
- self-resetting thermal cut-outs
 - for heating elements of glass-ceramic hobs 100 000
 - for heating elements of other hobs 10 000

25. Supply connection and external flexible cords

This clause of Part 1 is applicable.

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

29.2 Addition:

The microenvironment is pollution degree 3 unless the insulation is enclosed or located so that it is unlikely to be exposed to pollution during normal use of the appliance.

30. Resistance to heat and fire

This clause of Part 1 is applicable.

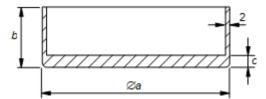
31. Resistance to rusting

This clause of Part 1 is applicable.

32. Radiation, toxicity and similar hazards

This clause of Part 1 is applicable.

The figure and the table replace the figure and narrative given above



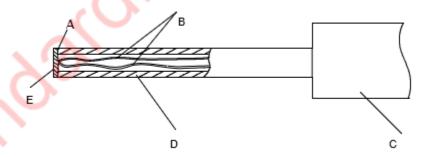
The vessel is made of low carbon steel having a maximum carbon content of 0,08 %. It is cylindrical without metallic handles or protrusions. The diameter of the flat area of the base of the vessel is to be at least the diameter of the cooking zone.

Dimensions in millimetres

Diameter of cooking	Approximate dimension		
zone	a	b	c
mm	mm	mm	mm
≤ 110	110	140	8
>110 ≤145	145	140	8
>145 ≤180	180	140	9
>180 ≤220	220	120	10
>220 ≤300	300	100	10

The maximum concavity of the base of the vessel is to be not more than 0,05 mm. The base of the vessel is not to be convex.

Figure 101 – Vessel for testing infrared cooktop/hob



Key

- A adhesive
- B thermocouple wires 0,3 mm diameter to IEC 60584-1 Type K (chrome alumel)
- c handle arrangement permitting a contact force of 4 N ± 1 N
- D polycarbonate tube: inside diameter 3 mm, outside diameter 5 mm
- E flat tinned copper disc: 5 mm diameter, 0,5 mm thick

Figure 101 – Probe for measuring surface temperatures

Annexes

The annexes of Part 1 are applicable.

Bibliography

The bibliography of Part 1 is applicable except as follows.

Addition:

NS 564:2076: Household and similar electrical appliances – Safety – Part 1: General requirements

NS 116: Electric Plugs

IEC 60335-2-9, Household and similar electrical appliances – Safety – Part 2-9: Particular requirements for grills, toasters and similar portable cooking appliances

IEC 60335-2-25, Household and similar electrical appliances – Safety – Part 2-25: Particular requirements for microwave ovens, including combination microwave ovens