



**Choose certainty.
Add value.**

Introduction of EN 60335-2-9/A12: 2007

By Michael Xu 2009-05-08

Part 2-9: Particular requirements for grills, toasters and similar portable cooking appliances

EN 60335-2-9/A12: 2007

标准的选用

- DOA(公布日): 2008-4-1 欧共体国家宣布新的国家协调标准的最晚日期
- DOP(出版日): 2008-10-1 欧共体国家出版新协调标准的最晚日期。
- DOW(取消日): 2010-10-1 欧共体国家取消与新标准有抵触的旧国家标准的最晚日期

Clause 3 Definitions



3.Z101

hot functional surface

surface that is intentionally heated by an internal heat source and has to be hot to carry out the function for which the appliance is intended

NOTE An example is the heating plate of a waffle iron

简译: 为了实现加热功能而必须发热的表面





11 Heating

11.1 Addition:

For **ovens, rotary grills and cookers**, compliance is also checked by the test of 11.Z101. ([简译: 烤箱, 旋转烤箱, 组合炊具需要满足11.Z101的测试](#))

For **contact grills, waffle irons, sandwich makers, radiant grills, raclette grills, griddles**, compliance is also checked by the test of 11.Z102. ([简译: 烤架, 三明治炉等需要满足11.Z102的测试](#))

For **breadmakers**, compliance is also checked by the test of 11.Z103. ([简译: 面包机需要满足11.Z103的测试](#))

Products classification: please see [Page 24 of EN 60335-2-9](#)

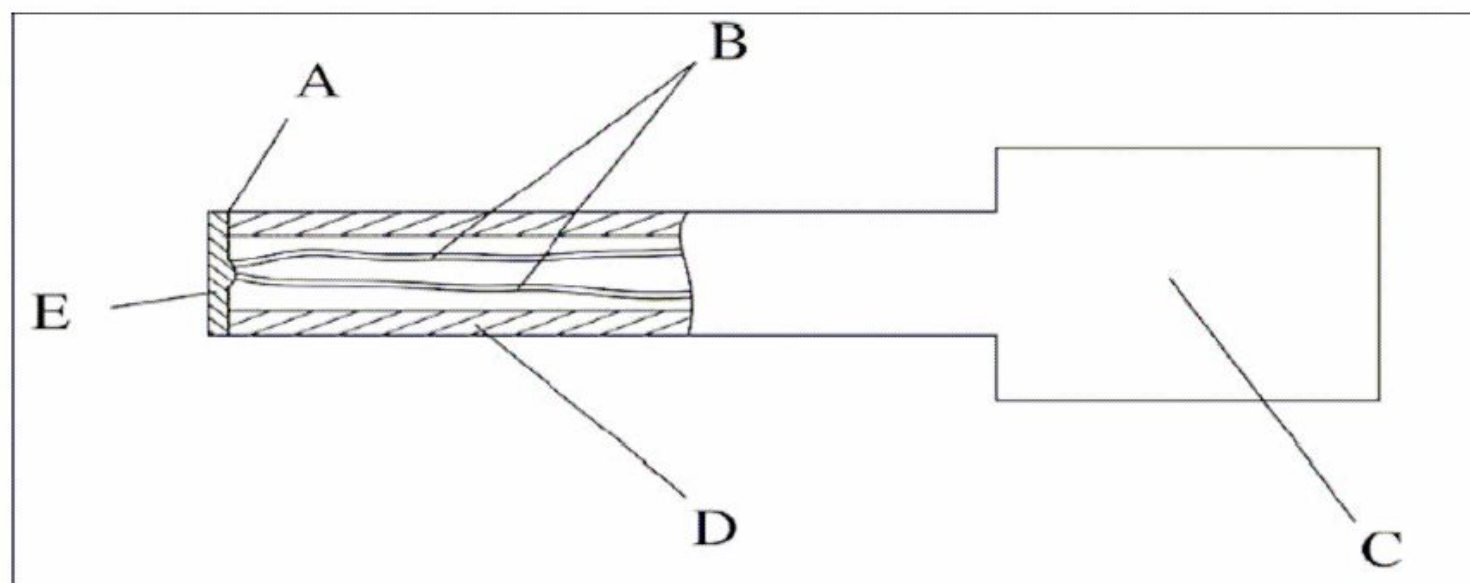
11.3 Addition:

For flat surfaces, temperature rises are measured using the probe of Figure Z101. **The probe** is applied with a force of $4\text{ N} \pm 1\text{ N}$ to the surface in such a way that the best possible contact between the probe and the surface is ensured.

NOTE Any measuring instrument giving the same results as the probe may be used.

(简译: 对于平坦的表面温升测量, 需要用图Z101的测试探棒来测, 探棒与接触表面的压力为 $4\text{ N} \pm 1\text{ N}$)

建议: Means that the thermocouples can be use if **non-flat surface**.
(如果不平坦的表面, 直接用热电偶线测量也可符合)

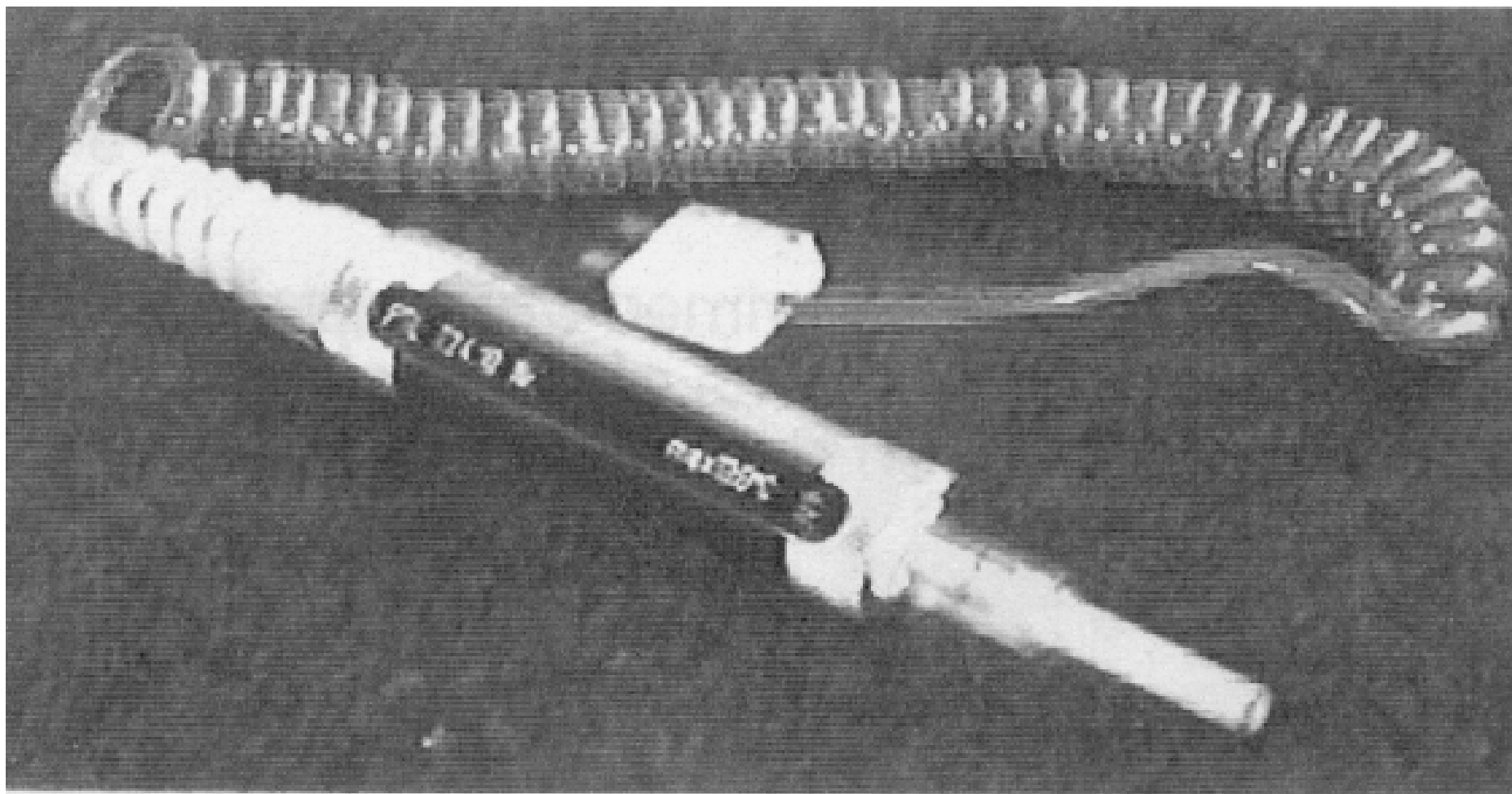


Key

- 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 $4 \text{ N} \pm 1 \text{ N}$
- D Polycarbonate tube: inside diameter 3 mm, outside diameter 5 mm
- E Tinned copper disc: 5 mm diameter, 0,5 mm thick

NOTE The contact face of the disc is to be flat.

Figure Z101 – Probe for measuring flat surface temperatures

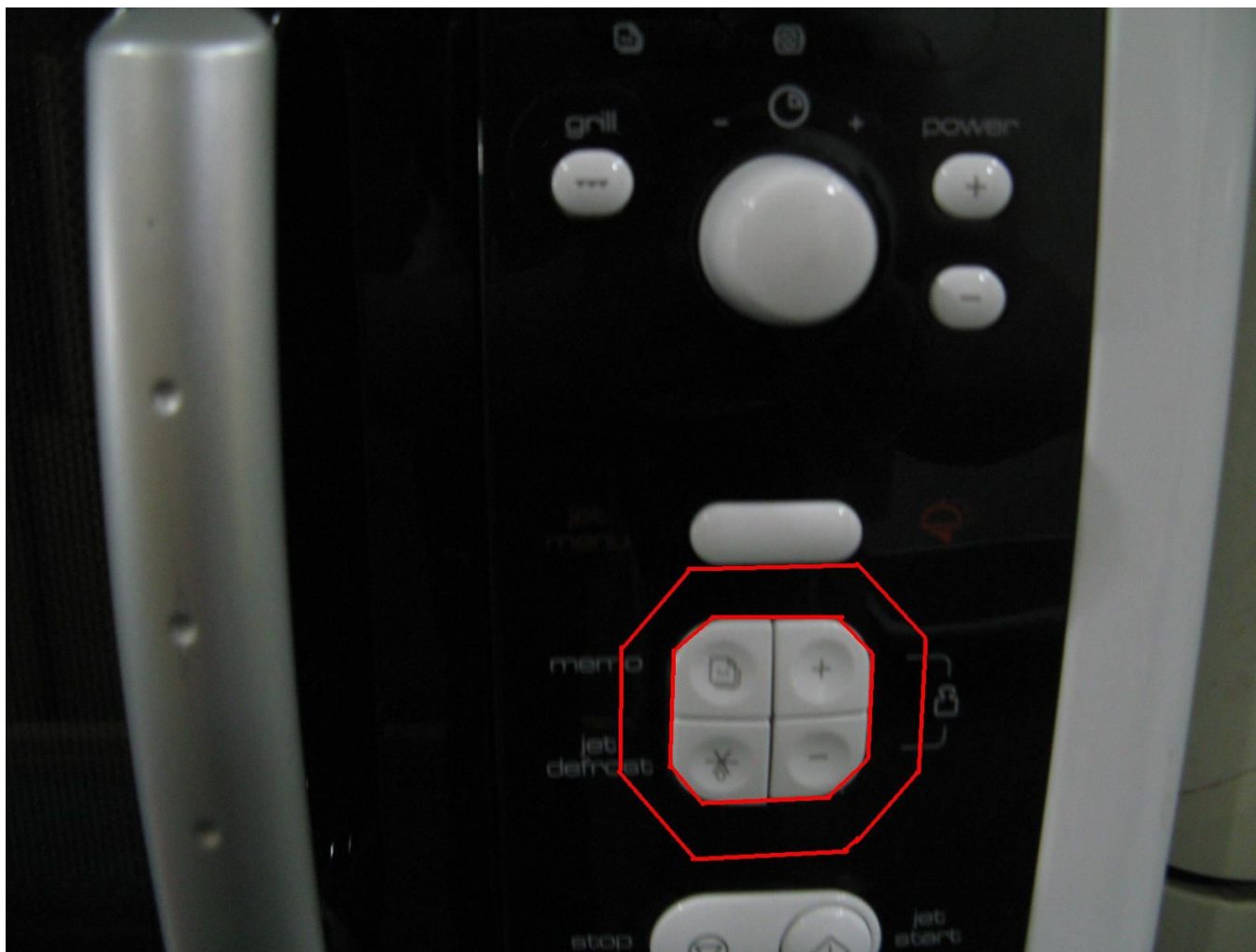


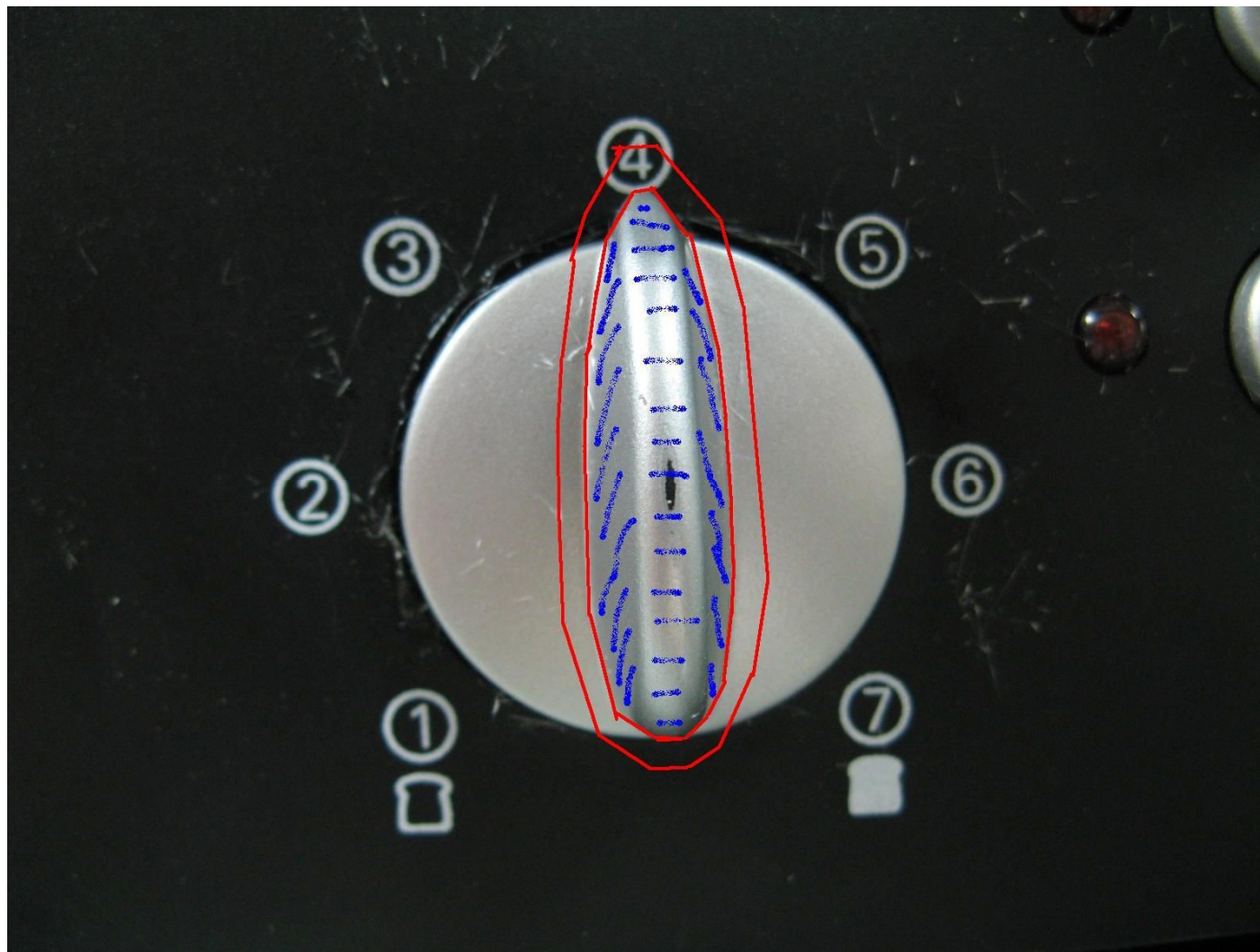
• 11.8 Addition:

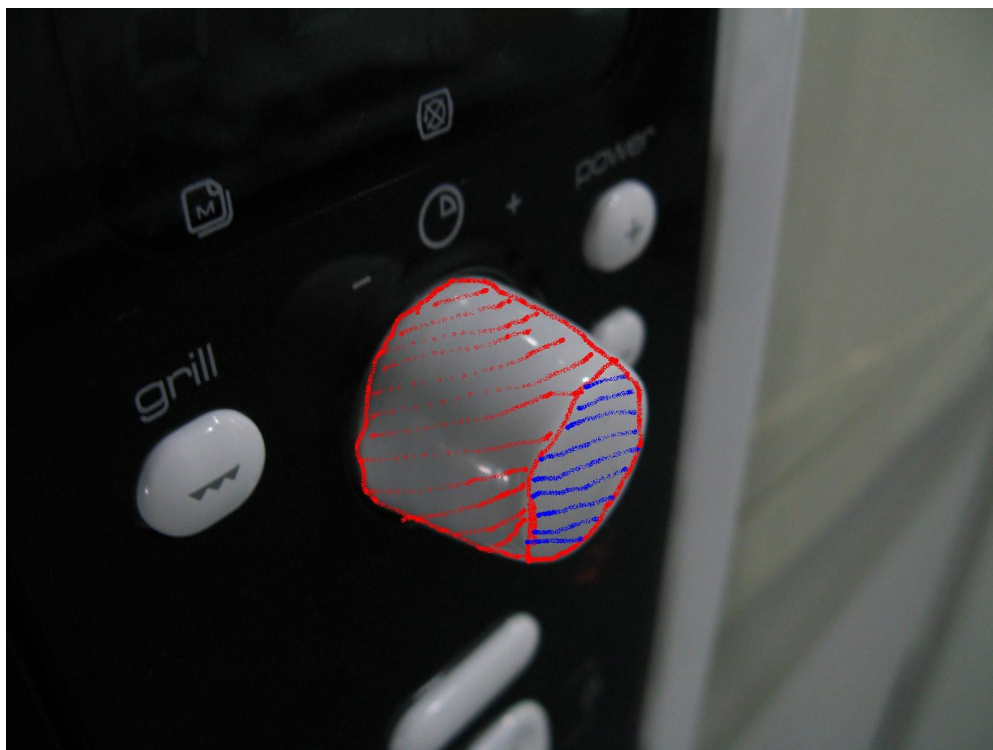
- The temperature rise of handles or grips and that of operational devices such as switches, keypads and knobs that are intended to be touched in normal use is measured as follows: (简译: 在正常情况下接触的手柄, 把手, 旋钮, 开关按键等按以下要求测试)
 1. for operational devices and grips with a surface greater than 300 mm², over an area of 20 mm around the part ***normally gripped or touched to operate the appliance.*** (简译: 对于正常情况下接触面积大于300 mm²部位, 需超出20mm范围内测量)
 2. for operational devices and grips with a surface less than or equal to 300 mm², over an area of 25 mm around the part normally gripped or touched to operate the appliance. (简译: 对于正常情况下接触面积小等于300 mm²部位, 需超出25mm范围内测量)

*The distance is measured along the surface as for **creepage distances** unless it is evident from the construction that the hot part cannot be touched unintentionally.* (简译: 这个距离是沿着表面的测量距离, 除非结构能够保证热表面不会以外接触到)

- Example:







*Note: the area of shadow less or more than 300mm²
the area of annulus is measured.*

正常情况下阴影部分被接触， 但环面部分也要被测量。

3. for handles, over an area of 20 mm around the orthogonal projection of all points located at a clearance less than 40 mm between the rear (inner) part of the handle or at least 80 mm along the handle (whichever is the more unfavourable) and the hot part, unless it is evident from the construction that the hot part cannot be touched unintentionally (see Figure Z102).

(简译: 对于把手结构, 手柄的内表面到接触面小于40mm部分直角投影到接触向外拓展20mm的范围需要测量, 或者沿着手柄80mm直角投影到接触向外拓展20mm的范围需要测量, 两者取最不利的, 见下图)

* 如果结构能够保证热表面不会接触到, 热表面无需测量。

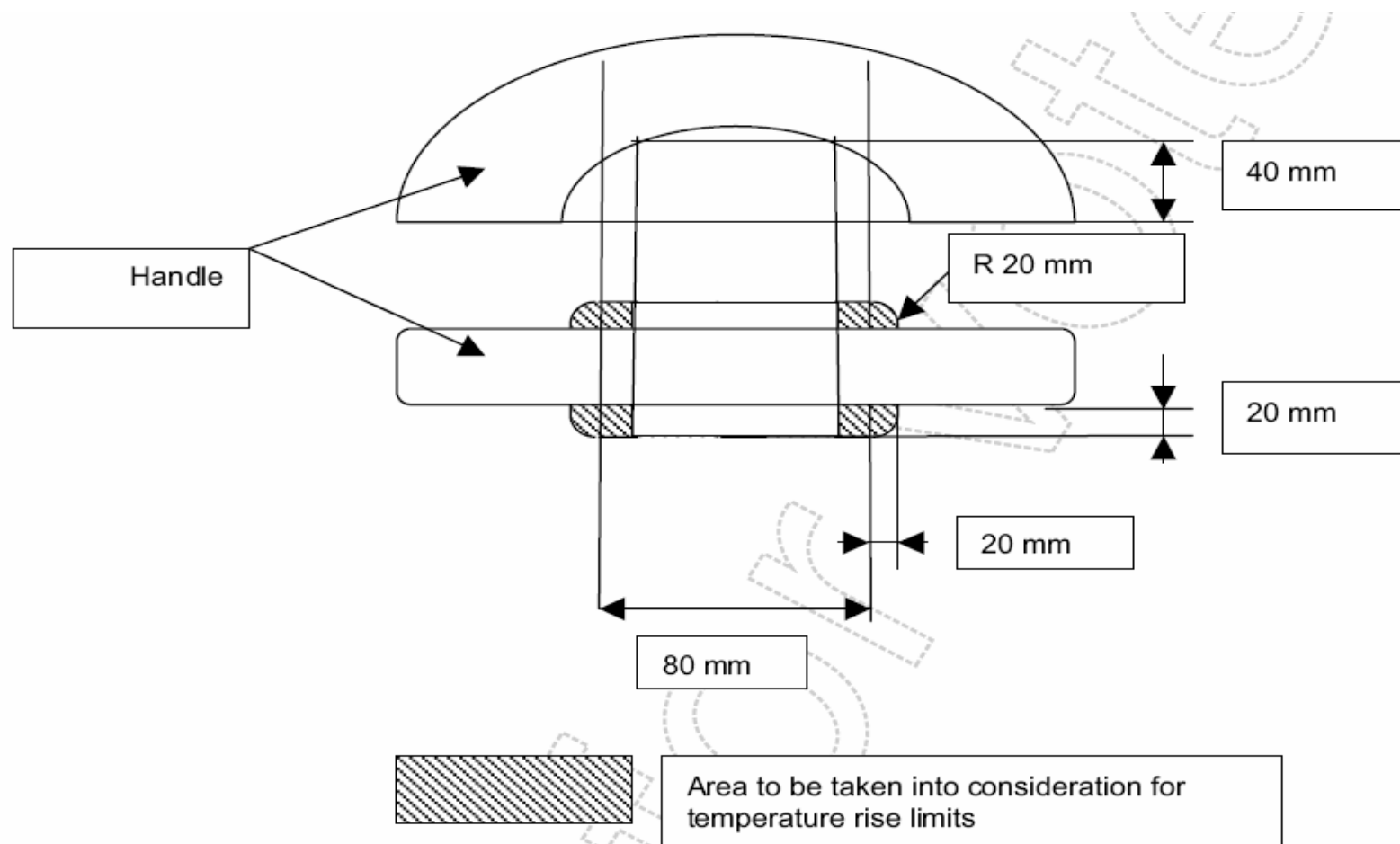
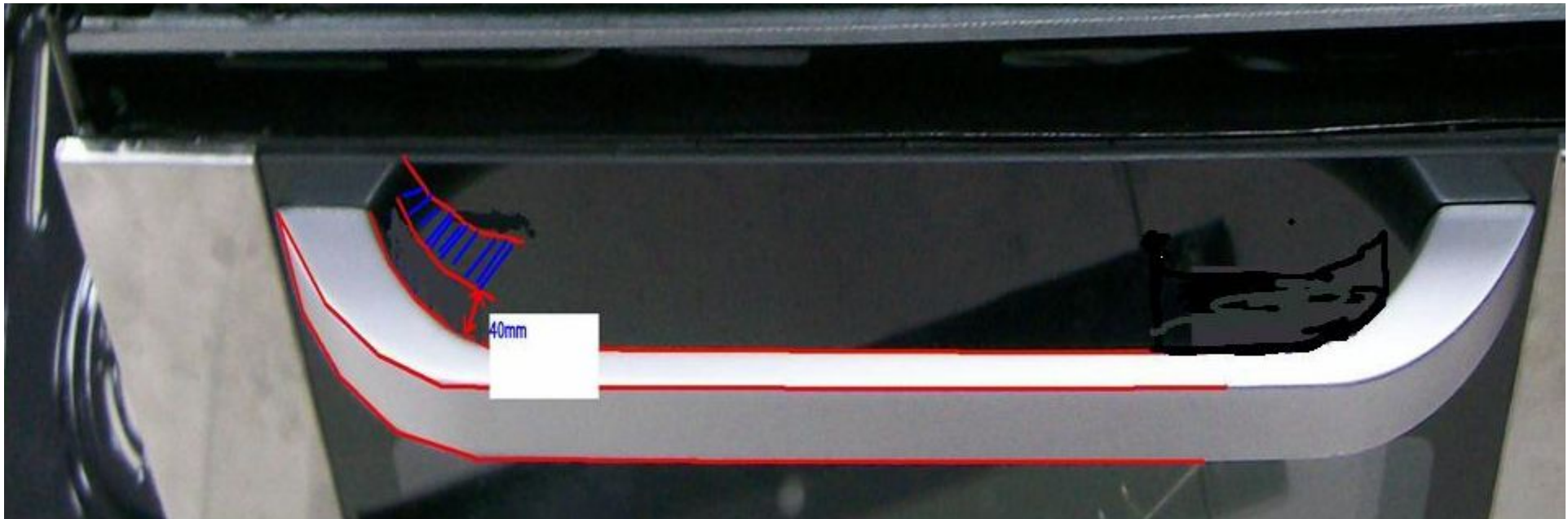


Figure Z102 – Projection of the accessible part of a handle

- **Example:**





Note: The area of shadow is measured. (W: 20mm)



For example: it is evident from the construction that the hot part cannot be touched unintentionally .

结构很明显能够保证热表面不会接触到，门表面无需测量。

- **11.Z101** Ovens, rotary grills and cookers are placed as specified in 11.2. The appliance is supplied at rated power and operated under normal operation.
- All heating units that can be connected to the supply mains at the same time during normal use are switched on. Ovens are operated without accessories.
- (测试方法按照11.2, 在额定功率下正常工作)

- 3.1.9.104** Ovens are operated with the door closed. Ovens having a **thermostat** are operated so that the mean temperature in the centre of the cavity is maintained at $240\text{ }^{\circ}\text{C} \pm \text{ }^{\circ}\text{C}$ or at the value obtained with the **thermostat** adjusted to its highest setting, if this results in a lower temperature. Other **ovens** are operated so that the temperature in the centre of the cavity is maintained at $240\text{ }^{\circ}\text{C} \pm 15\text{ }^{\circ}\text{C}$ by switching the supply on and off.
-

- **Test again:**

- Ovens having settings higher than 240 ° C are **also** operated **at the maximum setting** until steady state conditions are established or for 60 minutes, whichever is shorter. The temperature rise limits of Table Z101 for top surfaces and door surfaces are increased by 10 K.
- (当最高温度设定大于240度的烤箱, 需要在最高设定温度时再次测试, 但上表面和门的温升限值在Table Z101基础上加10度)

- Temperature rises are not measured on the following surfaces (see Figure Z103):
 1. surfaces on the oven door within 10 mm from the edge of the door (Zone 1);
(离门的边缘10mm距离, 门表面温升不用测量)
 2. surfaces around the oven door within 10 mm from the left, right or lower edge of the door, or 25 mm from the upper edge of the door (Zone 2);
(离门边缘外侧的左, 右, 下三个方位10mm范围, 和离门边缘上部25mm范围不用测量)
 3. surfaces within 25 mm of vents (Zone 3);
(通风孔周围25mm以内不用量)

4. the underside of appliances intended to be used on a working surface;

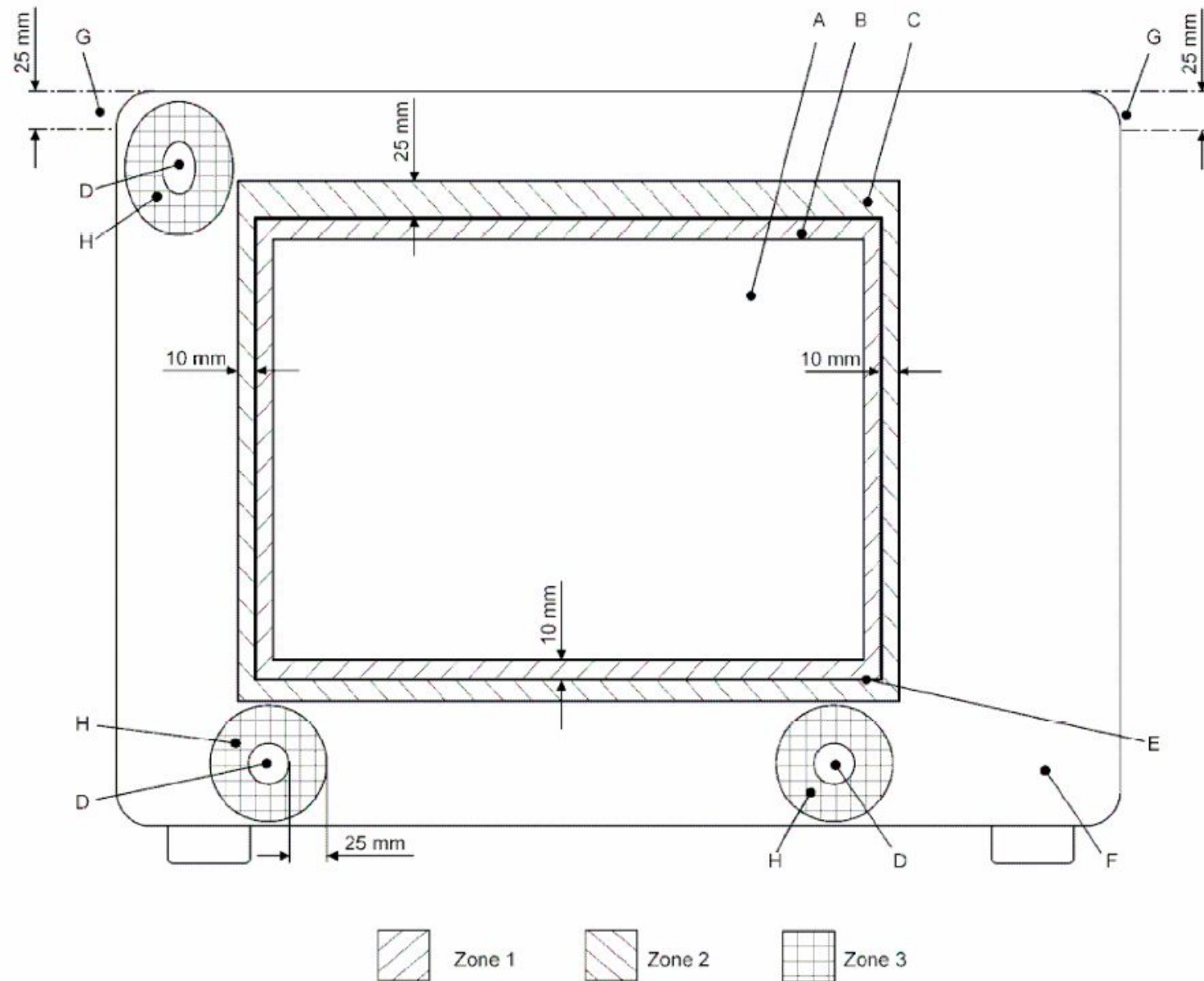
（根据说明书和结构预放在工作台面的产品下部不用测量）

5. the rear surface of appliances which, according to the instructions, shall be placed against a wall; （根据说明书预放置靠墙的产品背部不用测量）

6. surfaces within 25 mm from the level of the top surface of cookers when the hotplate is in operation.

（当烤盘在工作时，离cookers上表面25mm距离范围的表面不用测量）

During the test, the temperature rise of surfaces shall not exceed the values specified in Table Z101.



Key

- A Door
- B Excluded area on the door (Zone 1)
- C Excluded area around the door (Zone 2)
- D Vent
- E Door gap
- F Oven front surface
- G Excluded area on sidewall
- H Excluded area around vents (Zone 3)

Figure Z103 – Front view of appliance with identification of excluded areas

- **Examples:**

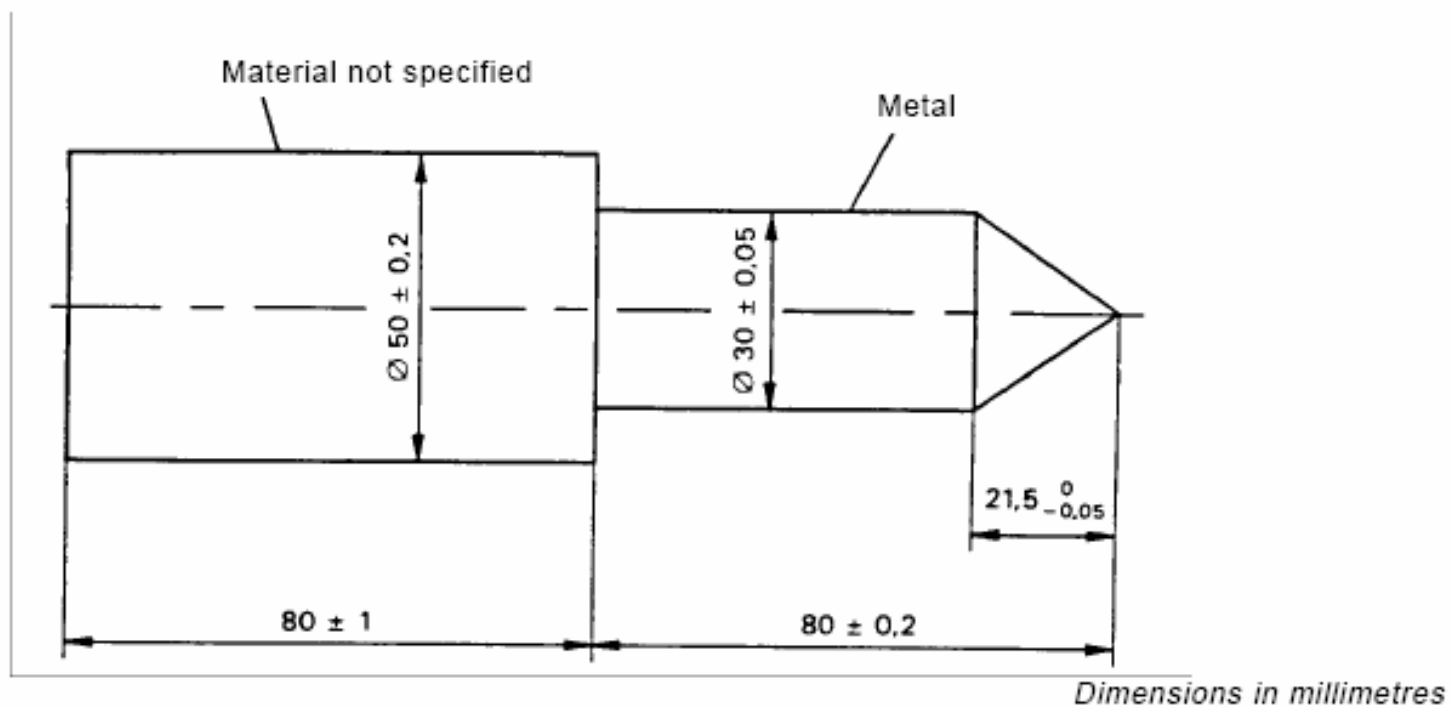




- *Note: The shadow is excluded area*

- **11.Z102** For contact grills, waffle irons, sandwich makers, radiant grills, raclette grills and griddles, the temperature rise limits for top surfaces in Table Z101 apply.
- Temperature rises are not measured on surfaces
 1. within 25 mm around the outline of the hot functional surface;
(离加热工作表面外轮廓25mm距离之内不用测量)
 2. within 25 mm from the ventilation openings.(离通风孔25mm距离之内不用测量)
 3. Underside surfaces that are not accessible with test probe 41 of IEC 61032 are not concerned. The probe is applied without appreciable force. (器具下部test probe 41不能接触地方不用测量)(正常放置,测试棒不用明显的力,建议1N即可)

a)



This probe is intended to verify the protection against access to glowing heating elements.

Figure 16 – Test probe 41

- Example: *note: the area of shadow is excluded. (within 25mm)*



- **11.Z103** For breadmakers, the temperature rise limits for other surfaces in Table Z101 apply.
- Temperature rises are not measured on surfaces
 1. within 25 mm from the edge of the lid; (离盖子边缘25mm距离之内不用测量)
 2. within 25 mm from the ventilation openings. (离通风孔25mm距离之内不用测量)

Example: *note: the area of shadow is excluded. (within 25mm)*



Table Z101 – Temperature rise limits for surfaces

Surface	Temperature rise K	
	Top surfaces and door surfaces	Other surfaces ^{a b}
Metal and painted metal	85	60
Vitreous-enamelled metal	95	65
Glass and ceramic	95	65
Plastic having a thickness exceeding 0,3 mm	105	80
^a For surfaces on the sidewalls within 25 mm from the level of the top surface, the temperature rise limits for top surfaces apply (Figure Z103, G). ^b For the surface between the excluded area of 25 mm from the upper edge of the door and the level of the top surface, the temperature rise limits for top surfaces apply.		



谢谢

