



TEST REPORT IEC 60335-2-23 Part 1: Safety of household and similar electrical appliances Part 2: Particular requirements for appliances for skin or hair care	
Report Number	GZES191202943002
Date of issue	2020-06-03, Amendment 1: 2021-01-12
Total number of pages	13
Name of Testing Laboratory preparing the Report	SGS-CSTC Standards Technical Services Co., Ltd. Shunde Branch
Applicant's name	Guangzhou Fourto Sanitary Products Co., Ltd.
Address	7 Shiyuan 2nd Road, Xiuquan street, Huadu District, Guangzhou, China
Test specification:	
Standard	IEC 60335-2-23:2016, AMD1:2019 in conjunction with IEC 60335-1:2010, COR1:2010, AMD1:2013, COR1:2014, AMD2:2016, COR1:2016
Test procedure	SGS-CSTC
Non-standard test method	N/A
Test Report Form No	IEC60335_2_23L
Test Report Form(s) Originator	VDE Prüf- und Zertifizierungsinstitut GmbH
Master TRF	Dated 2019-09-10
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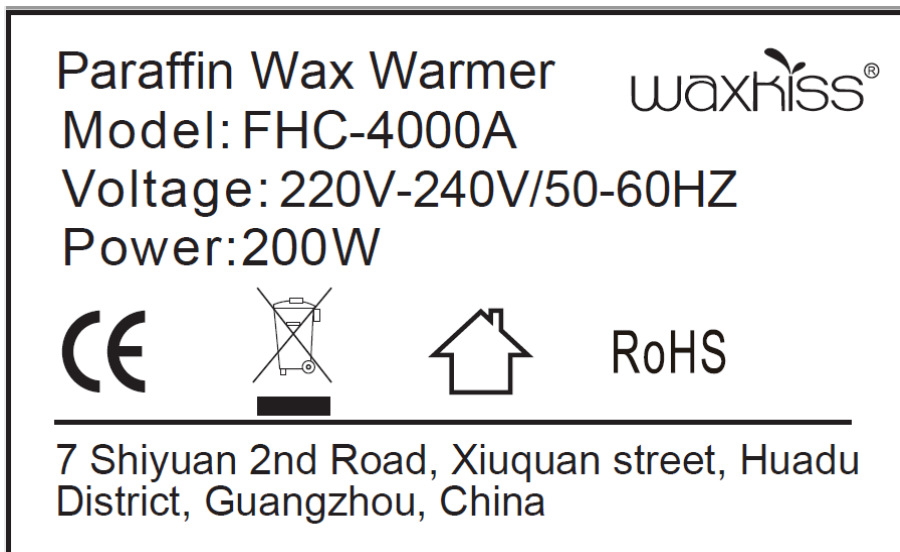



Test item description		Paraffin Wax Warmer
Trade Mark		
Original Product/Equipment Manufacturer		Same as applicant
Branding Manufacturer(s)		Same as applicant
Model/Type reference		FHC-4000A
Ratings		220 V - 240 V; 50 Hz / 60 Hz; 200 W; Class I
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input checked="" type="checkbox"/>	CB Testing Laboratory:	SGS-CSTC Standards Technical Services Co., Ltd. Shunde Branch
Testing location/ address		Building 1, European Industrial Park, No.1, Shunhe South Road, Wusha, Daliang, Shunde District, Foshan, Guangdong, China
Tested by (name, function, signature)		Ahern Lin / Project Engineer 
Approved by (name, function, signature) ..		Leo Huang / Reviewer 
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	N/A
Testing location/ address		
Tested by (name, function, signature)		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	N/A
Testing location/ address		
Tested by (name + signature)		
Witnessed by (name, function, signature) ..		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	N/A
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	N/A
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) ..		
Approved by (name, function, signature) ..		
Supervised by (name, function, signature) :		

<p>List of Attachments (including a total number of pages in each attachment): Attachment 2: Including 1 page of photo document</p>	
<p>Summary of testing:</p>	
<p>Tests performed (name of test and test clause):</p> <p>After reviewed, model FHC-4000A with alternative thermal link was subjected to clause 19.2, 19.3 and 30.1</p> <p>The submitted products fulfilled the above requirements.</p>	<p>Testing location:</p> <p>SGS-CSTC Standards Technical Services Co., Ltd. Shunde Branch</p> <p>Building 1, European Industrial Park, No.1, Shunhe South Road, Wusha, Daliang, Shunde District, Foshan, Guangdong, China</p> <p>Clause 19.11.4 was sub-contracted GZ CBTL: 198 Kezhu Road, Science City, Economic & Technological Development Area, Guangzhou, Guangdong, China</p>
<p>Summary of compliance with National Differences (List of countries addressed):</p> <p>EU Group Differences</p> <p><input checked="" type="checkbox"/> The product fulfils the requirements of</p> <p>EN 60335-1: 2012 + A11: 2014 + A13: 2017 + A1: 2019 + A14: 2019 + A2: 2019</p> <p>EN 60335-2-23: 2003 + A1: 2008 + A11: 2010 + A2: 2015</p> <p>EN 62233: 2008</p>	
<p>Statement concerning the uncertainty of the measurement systems used for the tests (may be required by the product standard or client)</p> <p><input type="checkbox"/> Internal procedure used for type testing through which traceability of the measuring uncertainty has been established:</p> <p>Procedure number, issue date and title:</p> <p>Calculations leading to the reported values are on file with the NCB and testing laboratory that conducted the testing.</p> <p><input checked="" type="checkbox"/> Statement not required by the standard used for type testing</p> <p>(Note: When IEC or ISO standard requires a statement concerning the uncertainty of the measurement systems used for tests, this should be reported above. The informative text in parenthesis should be delete in both cases after selecting the applicable option)</p>	

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.



- 1) Height of “

Test item particulars :
Classification of installation and use : Portable appliance
Supply Connection : Appliance inlet
..... :
Possible test case verdicts:
- test case does not apply to the test object: N/A
- test object does meet the requirement.....: P (Pass)
- test object does not meet the requirement: F (Fail)
Testing :
Date of receipt of test item: 2021-01-06
Date (s) of performance of tests: 2021-01-06 to 2021-01-08
General remarks:

"(See Enclosure #)" refers to additional information appended to the report.
 "(See appended table)" refers to a table appended to the report.

Throughout this report a comma / point is used as the decimal separator.

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.

This report GZES191202943002 is not valid without original report GZES191202943001.

Manufacturer's Declaration per sub-clause 4.2.5 of IEC60335-1:

The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided..... :

- Yes
- Not applicable

When differences exist; they shall be identified in the General product information section.

Name and address of factory (ies): Same as applicant

General product information and other remarks:

Appliance is for household and indoor use only.

Amendment 1:

The original Test Report Ref. No. **GZES191202943001**, dated 2020-06-03, was modified on 2021-01-12 to include the following changes, which were considered technical modifications:

1. Additional alternative thermal link, see table 24.1 for details.
2. Update the address of applicant, manufacturer and factory to '7 Shiyuan 2nd Road, Xiuquan street, Huadu District, Guangzhou, China'.

IEC 60335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
5	GENERAL CONDITIONS FOR THE TESTS		—
6	CLASSIFICATION		—
7	MARKING AND INSTRUCTIONS		—
8	PROTECTION AGAINST ACCESS TO LIVE PARTS		—
9	STARTING OF MOTOR-OPERATED APPLIANCES		—
10	POWER INPUT AND CURRENT		—
11	HEATING		—
13	LEAKAGE CURRENT AND ELECTRIC STRENGTH AT OPERATING TEMPERATURE		—
14	TRANSIENT OVERVOLTAGES		—
15	MOISTURE RESISTANCE		—
16	LEAKAGE CURRENT AND ELECTRIC STRENGTH		—
17	OVERLOAD PROTECTION OF TRANSFORMERS AND ASSOCIATED CIRCUITS		—
18	ENDURANCE		—
19	ABNORMAL OPERATION		—
19.1	The risk of fire, mechanical damage or electric shock under abnormal or careless operation obviated		P
	Electronic circuits so designed and applied that a fault will not render the appliance unsafe	(see appended table)	P
	Appliances incorporating heating elements subjected to the tests of 19.2 and 19.3, and		P
	Appliances incorporating electronic circuits subjected to the tests of 19.11 and 19.12, as applicable		P
	Unless otherwise specified, the tests are continued until a non-self-resetting thermal cut-out operates, or		P
	until steady conditions are established		P
19.2	Test of appliances with heating elements with restricted heat dissipation; test voltage (V), power input of 0,85 times rated power input (W)	$0,85 \times (220/230)^2 \times 200 \text{ W} = 155,5 \text{ W}$	P
	Restricted heat dissipation is obtained as follows (IEC 60335-2-23:2016):		N/A
	- motors disconnected (IEC 60335-2-23:2016);		N/A
	- hand-held hairdryers placed on floor of test corner in any stable position likely to occur (IEC 60335-2-23:2016);		N/A
	- appliances intended to be filled with water operated empty (IEC 60335-2-23:2016).		N/A

IEC 60335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
	- hand-held appliances without an integral rest are placed on the floor of the test corner in any stable position likely to occur (IEC 60335-2-23:2016).		N/A
	Hairdryers with flexible hood attachment also tested with motor operating, airflow through hose being restricted to give most unfavourable result (IEC 60335-2-23:2016)		N/A
	Heaters for detachable curlers placed on piece of low-density glass-fibre insulation having coefficient of thermal insulation of approximately 2,5 m ² K/W (IEC 60335-2-23:2016)		N/A
19.3	Test of 19.2 repeated; test voltage (V), power input of 1,24 times rated power input (W)	$1.24 \times (240/230)^2 \times 200 \text{ W} = 270 \text{ W}$	P
19.13	During the tests the appliance does not emit flames, molten metal, poisonous or ignitable gas in hazardous amounts		P
	Temperature rises not exceeding the values shown in table 9	(see appended table)	P
	Compliance with clause 8 not impaired		P
	If the appliance can still be operated it complies with 20.2		N/A
	Insulation, other than of class III appliances or class III constructions that do not contain live parts, withstands the electric strength test of 16.3, the test voltage as specified in table 4:		P
	- basic insulation (V)	1000 V	P
	- supplementary insulation (V)		N/A
	- reinforced insulation (V)	3000 V	P
	After operation or interruption of a control, clearances and creepage distances across the functional insulation withstand the electric strength test of 16.3, the test voltage being twice the working voltage		P
	The appliance does not undergo a dangerous malfunction, and		P
	no failure of protective electronic circuits, if the appliance is still operable		N/A
	Appliances tested with an electronic switch in the off position, or in the stand-by mode:		P
	- do not become operational, or		N/A
	- if they become operational, do not result in a dangerous malfunction during or after the tests of 19.11.4		P
	If the appliance contains lids or doors that are controlled by one or more interlocks, one of the interlocks may be released provided that:		N/A
	- the lid or door does not move automatically to an open position when the interlock is released, and		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- the appliance does not start after the cycle in which the interlock was released		N/A
20	STABILITY AND MECHANICAL HAZARDS		—
21	MECHANICAL STRENGTH		—
22	CONSTRUCTION		—
23	INTERNAL WIRING		—
24	COMPONENTS		—
25	SUPPLY CONNECTION AND EXTERNAL FLEXIBLE CORDS		—
26	TERMINALS FOR EXTERNAL CONDUCTORS		—
27	PROVISION FOR EARTHING		—
28	SCREWS AND CONNECTIONS		—
29	CLEARANCES, CREEPAGE DISTANCES AND SOLID INSULATION		—
30	RESISTANCE TO HEAT AND FIRE		—
30.1	External parts of non-metallic material,		P
	parts supporting live parts, and		P
	parts of thermoplastic material providing supplementary or reinforced insulation		P
	sufficiently resistant to heat		P
	Ball-pressure test according to IEC 60695-10-2		P
	External parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 75 °C, whichever is the higher; temperature (°C)..... :		N/A
	Parts supporting live parts tested at 40 °C plus the maximum temperature rise determined during the test of clause 11, or at 125 °C, whichever is the higher; temperature (°C)..... :		N/A
	Parts of thermoplastic material providing supplementary or reinforced insulation tested at 25 °C plus the maximum temperature rise determined during clause 19, if higher; temperature (°C)	(see appended table 30.1)	P
	Hand dryers and hairdryers, temperature rises occurring during tests of clause 19 not taken into account (IEC 60335-2-23:2016)		N/A
31	RESISTANCE TO RUSTING		—
32	RADIATION, TOXICITY AND SIMILAR HAZARDS		—
A	ANNEX A (INFORMATIVE) ROUTINE TESTS		—
B	ANNEX B (NORMATIVE) APPLIANCES POWERED BY RECHARGEABLE BATTERIES THAT ARE RECHARGED IN THE APPLIANCE		—

IEC 60335-2-23			
Clause	Requirement + Test	Result - Remark	Verdict
C	ANNEX C (NORMATIVE) AGEING TEST ON MOTORS		—
D	ANNEX D (NORMATIVE) THERMAL MOTOR PROTECTORS		—
E	ANNEX E (NORMATIVE) NEEDLE-FLAME TEST		—
F	ANNEX F (NORMATIVE) CAPACITORS		—
G	ANNEX G (NORMATIVE) SAFETY ISOLATING TRANSFORMERS		—
H	ANNEX H (NORMATIVE) SWITCHES		—
I	ANNEX I (NORMATIVE) MOTORS HAVING BASIC INSULATION THAT IS INADEQUATE FOR THE RATED VOLTAGE OF THE APPLIANCE		—
J	ANNEX J (NORMATIVE) COATED PRINTED CIRCUIT BOARDS		—
K	ANNEX K (NORMATIVE) OVERVOLTAGE CATEGORIES		—
L	ANNEX L (INFORMATIVE) GUIDANCE FOR THE MEASUREMENT OF CLEARANCES AND CREEPAGE DISTANCES		—
M	ANNEX M (NORMATIVE) POLLUTION DEGREE		—
N	ANNEX N (NORMATIVE) PROOF TRACKING TEST		—
O	ANNEX O (INFORMATIVE) SELECTION AND SEQUENCE OF THE TESTS OF clause 30		—
	Description of tests for determination of resistance to heat and fire		P
P	ANNEX P (INFORMATIVE) GUIDANCE FOR THE APPLICATION OF THIS STANDARD TO APPLIANCES USED IN TROPICAL CLIMATES		—
Q	ANNEX Q (INFORMATIVE) SEQUENCE OF TESTS FOR THE EVALUATION OF ELECTRONIC CIRCUITS		—
R	ANNEX R (NORMATIVE) SOFTWARE EVALUATION		—
S	ANNEX S (NORMATIVE) BATTERY OPERATED APPLIANCES POWERED BY BATTERIES THAT ARE NON-RECHARGEABLE OR NOT RECHARGED IN THE APPLIANCE		—
T	ANNEX T (NORMATIVE) UV-C RADIATION EFFECT ON NON-METALLIC MATERIALS		—

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19	Abnormal operation conditions						P
Operational characteristics			YES/NO	Operational conditions			
Are there electronic circuits to control the appliance operation?			YES	—			
Are there “off” or “stand-by” position?			YES	—			
The unintended operation of the appliance results in dangerous malfunction?			NO	—			
Sub-clause	Operating conditions description	Test results description	PEC description	EMP 19.11.4	Software type required	19.11.3 PEC	Final result
19.2	0,85 times rated power, empty	Steady conditions are established. The appliance does not emit flames, molten metal, or poisonous or ignitable gas in hazardous amounts	N/A	N/A	N/A	N/A	P
19.3	1,24 times rated power, empty	Thermal link operation. The appliance does not emit flames, molten metal, or poisonous or ignitable gas in hazardous amounts	N/A	N/A	N/A	N/A	P
19.4	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.6	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.7	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.9	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.11.2	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.11.4.8	N/A	N/A	N/A	N/A	N/A	N/A	N/A
19.10X	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Supplementary information:							

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19.13 TABLE: Abnormal operation, temperature rises			P
Thermocouple locations:	Max. temperature rise measured, ΔT (K)		Max. temperature rise limit, ΔT (K)
	19.2	19.3	
Appliance inlet	22,0	4,8	For cl.30.1
Plastic enclosure / Control panel (inside)	52,4	43,7	For cl.30.1
Test floor	18,5	1,6	150
Test Wall	28,3	8,7	150
Supplementary information: 19.2: NTC is short-circuit, the test is continued until steady conditions are established. 19.3: NTC is short-circuit, the test is continued until thermal link operation.			

24.1 TABLE: Critical components information					P
Object / part No.	Manufacturer/ trademark	Type / model	Technical data	Standard	Mark(s) of conformity ¹⁾
Plug	Lian Dung Electric Wire Material Co., Ltd.	KE-131	AC 250 V; 16 A	DIN VDE 0620-2-1 (VDE 0620-2-1): 2013 IEC 60884-1: 2002+A1+A2	VDE 40043520
Power cord	Sheng Yi Electrical Factory	H03VV-F 60227 IEC 52	3G 0,5 mm ² (Length of cord < 2 m); 3G 0,75 mm ²	EN 50525-2-11: 2011 IEC 60227-5: 2011	VDE 40023272
Appliance connector	Ching Cheng Wire Material Co., Ltd.	EL-701	AC 250 V; 10 A	IEC 60320-1: 2015 IEC 60320-3: 2014 EN 60320-3: 2014 EN 60320-1: 2015 + AC: 2016	VDE 40014003
Appliance inlet	Zhejiang LECI Electronics Co., Ltd.	DB-14-2	AC 250 V; 16 A	IEC 60320-1: 2015 IEC 60320-3: 2014 EN 60320-3: 2014 EN 60320-1: 2015 + AC: 2016	VDE 40032137
Internal Wire	Zhuhai Hengwang Electronics Co., Ltd.	3122	300 V; 200 °C; 20AWG	IEC/EN 60335-1 IEC/EN 60335-2-23	Tested with appliance UL E314186
Alternative	Zhongshang City Huanisi Electronic Co., Ltd.	3122	300 V; 200 °C; 20AWG	IEC/EN 60335-1 IEC/EN 60335-2-23	Tested with appliance UL E345499

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Alternative	Shenzhen Xingguang Electeic Product Co Ltd	3323	300 V; 200 °C; 20AWG	IEC/EN 60335-1 IEC/EN 60335-2-23	Tested with appliance UL E315073
Alternative	Zhongshang City Huanisi Electronic Co., Ltd.	3323	300 V; 200 °C; 20AWG	IEC/EN 60335-1 IEC/EN 60335-2-23	Tested with appliance UL E345499
Heat-Shrink Tube	GuangZhou Kaiheng New Material co., Ltd.	K-102	600 V; 125 °C	IEC/EN 60335-1 IEC/EN 60335-2-23	Tested with appliance UL E321827
NTC	Tianchang Shuyu Instrument Co., Ltd.	MBG-1-1245-1C	L=200/100K	IEC/EN 60335-1 IEC/EN 60335-2-23	Tested with appliance
Current Fuse	XC Electronics (shen zhen) corp., Ltd.	5TE	AC 250 V; 3,15 A	IEC 60127-1: 2006 + A1 + A2 IEC 60127-3: 2015 EN 60127-1: 2006 + A1 + A2 EN 60127-3: 2015	VDE 40029550
X2 Capacitor 1	Tenta Eletric Industrial Co., Ltd.	MEX	AC 275 V; 0,68uF; 40/100/21	IEC 60384-14: 2013 + A1 EN 60384-14: 2013 + A1	VDE 119119
X2 Capacitor 2	Tenta Eletric Industrial Co., Ltd.	MEX	AC 275 V; 0,22uF; 40/100/21	IEC 60384-14: 2013 + A1 EN 60384-14: 2013 + A1	VDE 119119
Varistor	Cerglass MFG Inc	10D471K	AC 2500 V; 40/85/21	IEC 61051-2: 1991 + A1 IEC 61051-2-2: 1991 IEC 61051-1: 2007 DIN EN 61051-1	VDE 40028836
PCB	Kingboard Laminates Holdings Ltd	KB-6150C, FR-4.0	V-0; 130 °C	IEC/EN 60335-1 IEC/EN 60335-2-23	Tested with appliance UL E123995
Alternative	Kingboard Chemical Holdings Ltd.	KB-3150	V-0	IEC/EN 60335-1 IEC/EN 60335-2-23	Tested with appliance UL E123995
Alternative	Shunde Junda Electronic Co., Ltd.	JD-D	94 V-0; 130 °C	IEC/EN 60335-1 IEC/EN 60335-2-23	Tested with appliance UL E173873
Alternative	Kingboard Laminates Holdings Limited	KB-7150, KB-7150C	V-0	IEC/EN 60335-1 IEC/EN 60335-2-23 DIN EN 60695-11-10: 2014 EN 60695-11-10: 2013	Tested with appliance VDE 40020660

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Heating element	Zhongshan City Huanisi Electronic Co., Ltd.	3323	220 V - 240 V; 200 W	IEC/EN 60335-1 IEC/EN 60335-2-23	Tested with appliance
Thermal link	A.R. Electric Co., Ltd.	F0-84C	250 Vac; 16 A; Tf=94°C	EN 60691: 2016 IEC 60691: 2015	VDE 40030329
Alternative	Zhong Shan City Dong Feng Town Yan Cheng Wang Electronics Factory	RY133	250 Vac; 10 A; Tf=133°C	EN 60691: 2016 IEC 60691: 2015	TUV No.B 098069 0001
Alternative	Zhongshan Sheng Ping Thermal Protectors Co., Ltd.	SPF129	250 Vac; 10 A; Tf=133°C	EN 60691: 2016 IEC 60691: 2015	VDE 40004430
Plastic Enclosure / Control panel	Taihua Plastic (Ningbo) Co., Ltd.	ABS	V-0; 80°C; min. thickness: 2.0	IEC/EN 60335-1 IEC/EN 60335-2-23	Tested with appliance
Supplementary information:					
1) Provided evidence ensures the agreed level of compliance. See OD-CB2039.					

30.1	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm)	2,0			—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
Plastic enclosure / Control panel (inside)	Taihua Plastic (Ningbo) Co., Ltd.	cl.19 + 25 = 77,4	1,46	
Appliance inlet	Zhejiang LECI Electronics Co., Ltd.	125	1,91	
Supplementary information:				

--- End of report ---

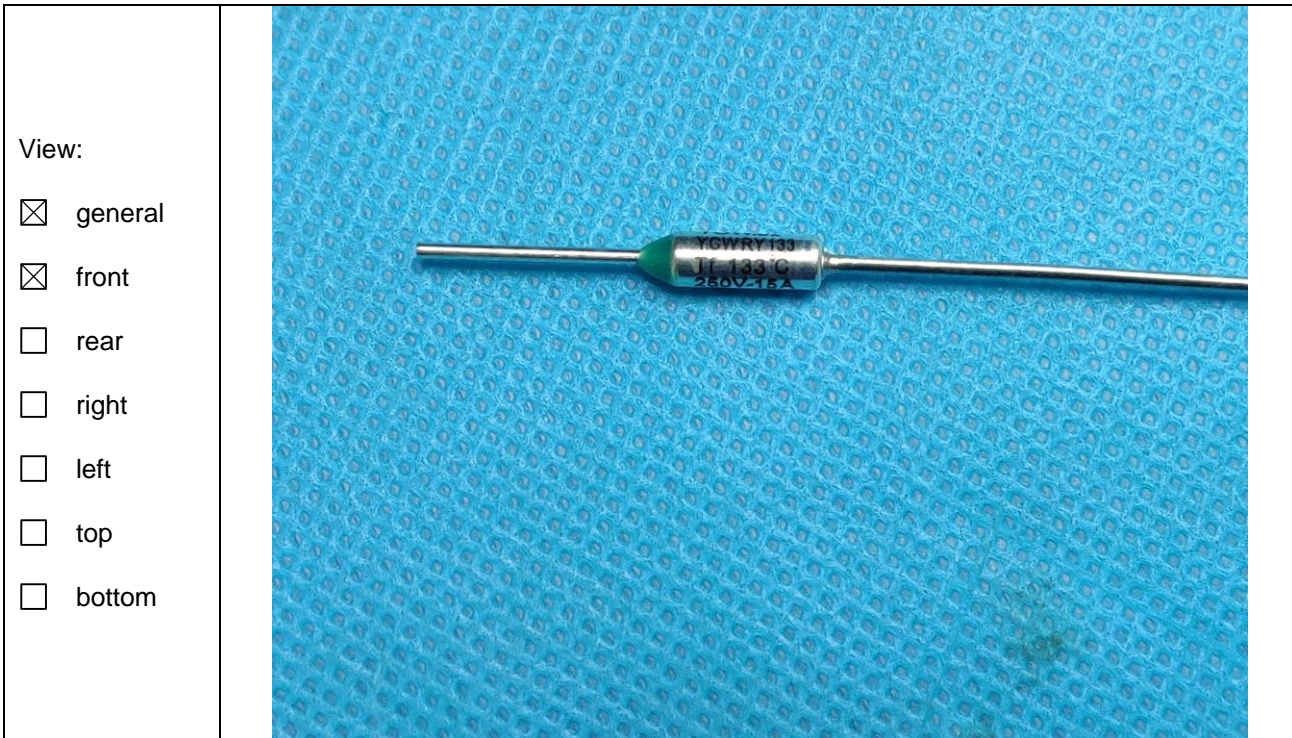
Photos

Type of equipment,
model:

Paraffin Wax Warmer
FHC-4000A

Details of:

Alternative thermal link



--- End of this Attachment ---