Prüfbericht - Produkte
Test Report - Products

Test report no.: *Prüfbericht-Nr.:*	**CN225P6Z 003**	**Order No.:** *Auftragsnr:*	168447311	**Page 1 of 54** *Seite 1 von 54*
Client reference no.: *Kunden-Referenz-Nr.:*	N/A	**Order date:** *Auftragsdatum:*	2023-08-23	
Client: *Auftraggeber:*	**Hardshell Technology (Foshan) Co., Ltd.** 6 Zhongjian Road, Zhongchong Village, Leliu, Shunde, Foshan, Guangdong, P.R. China			
Test item: *Prüfgegenstand:*	Coffee Maker			
Identification / Type no.: *Bezeichnung / Typ-Nr.:*	CM1633, 3700 PRO, GCF20FM, CM1663, 3700 GENSE, GCF20F, CM1662, 3700 ESSENTIAL, CM1635, CM1665B**, 4700 GENSE, CM1638A, GCF20FA, CM1670A, CM1666**			
Order content: *Auftrags-Inhalt:*	cTUVus approval			
Test specification: *Prüfgrundlage:*	**UL 1082: 2009 R9.17** **CSA C22.2 No. 64-19**			
Date of sample receipt: *Wareneingangsdatum:*	2023-08-23			
Test sample no.: *Prüfmuster-Nr.:*	A003550128			
Testing period: *Prüfzeitraum:*	2023-08-23 to 2023-09-18			
Place of testing: *Ort der Prüfung:*	TÜV Rheinland (Shenzhen) Co., Ltd.			
Testing laboratory: *Prüflaboratorium:*	TÜV Rheinland (Shenzhen) Co., Ltd.			
Test result*: *Prüfergebnis*:*	Pass			
tested by: Michael Zhan *geprüft von:* **Date:** 2023-10-30 *Datum:*	Michael Zhan	**authorized by:** Lion Tao *genehmigt von:* **Issue date:** 2023-10-30 *Ausstellungsdatum:*	Lion Tao	
Position / *Stellung:*	Trainee	**Position** / *Stellung:*	Reviewer	
Other: *Sonstiges:*	- This report is issued for adding alternative new models and adding alternative water pump based on report CN225P6Z 001-002. This report includes: - Cover page with this report (54 pages) - Photo documentation (20 pages) - This report is under supervised by Univ Xie.	Univ Xie		
Condition of the test item at delivery: *Zustand des Prüfgegenstandes bei Anlieferung:*	*Test item complete and undamaged* Prüfmuster vollständig und unbeschädigt			

* Legend:	P(ass) = passed a.m. test specification(s)	F(ail) = failed a.m. test specification(s)	N/A = not applicable	N/T = not tested
* Legende:	P(ass) = entspricht o.g. Prüfgrundlage(n)	F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet

Remarks
Anmerkungen

1	The equipment used during the specified testing period was calibrated according to our test laboratory calibration program. The equipment fulfils the requirements included in the relevant standards. The traceability of the test equipment used is ensured by compliance with the regulations of our management system. Detailed information regarding test conditions, equipment and measurement uncertainty is available in the test laboratory and could be provided on request. *Alle eingesetzten Prüfmittel waren zum angegebenen Prüfzeitraum gemäß eines festgelegten Kalibrierungsprogramms unseres Prüfhauses kalibriert. Sie entsprechen den in den Prüfprogrammen hinterlegten Anforderungen. Die Rückverfolgbarkeit der eingesetzten Prüfmittel ist durch die Einhaltung der Regelungen unseres Managementsystems gegeben.* *Detaillierte Informationen bezüglich Prüfkonditionen, Prüfequipment und Messunsicherheiten sind im Prüflabor vorhanden und können auf Wunsch bereitgestellt werden.*
2	As contractually agreed, this document has been signed digitally only. TUV Rheinland has not verified and unable to verify which legal or other pertaining requirements are applicable for this document. Such verification is within the responsibility of the user of this document. Upon request by its client, TUV Rheinland can confirm the validity of the digital signature by a separate document. Such request shall be addressed to our Sales department. An environmental fee for such additional service will be charged. *Wie vertraglich vereinbart, wurde dieses Dokument nur digital unterzeichnet. Der TÜV Rheinland hat nicht überprüft, welche rechtlichen oder sonstigen diesbezüglichen Anforderungen für dieses Dokument gelten. Diese Überprüfung liegt in der Verantwortung des Benutzers dieses Dokuments. Auf Verlangen des Kunden kann der TÜV Rheinland die Gültigkeit der digitalen Signatur durch ein gesondertes Dokument bestätigen. Diese Anfrage ist an unseren Vertrieb zu richten. Eine Umweltgebühr für einen solchen zusätzlichen Service wird erhoben.*
3	Test clauses with remark of * are subcontracted to qualified subcontractors and descripted under the respective test clause in the report. Deviations of testing specification(s) or customer requirements are listed in specific test clause in the report. *Prüfklausel mit der Note * wurden an qualifizierte Unterauftragnehmer vergeben und sind unter der jeweiligen Prüfklausel des Berichts beschrieben. Abweichungen von Prüfspezifikation(en) oder Kundenanforderungen sind in der jeweiligen Prüfklausel im Bericht aufgeführt.*
4	The decision rule for statements of conformity, based on numerical measurement results, in this test report is based on the “Zero Guard Band Rule” and “Simple Acceptance” in accordance with ILAC G8:2019 and IEC Guide 115:2021, unless otherwise specified in the applied standard mentioned on Page 1 of this report or requested by the customer. This means that measurement uncertainty is not taken in account and hence also not declared in the test report. For additional information to the resulting risk based of this decision rule please refer to ILAC G8:2019. *Die Entscheidungsregel für Konformitätserklärungen basierend auf numerischen Messergebnisen in diesem Prüfbericht basiert auf der "Null-Grenzwert-Regel" und der "Einfachen Akzeptanz" gemäß ILAC G8:2019 und IEC Guide 115:2021, es sei denn, in der auf Seite 1 dieses Berichts genannten angewandten Norm ist etwas anderes festgelegt oder vom Kunden gewünscht. Dies bedeutet, dass die Messunsicherheit nicht berücksichtigt wird und daher auch nicht im Prüfbericht angegeben wird. Zu weiteren Informationen bezueglich des Risikos durch diese Entscheidungsregel siehe ILAC G8:2019.*

TEST REPORT
UL1082 / CSA C22.2 No. 64
Household Electric Coffee Makers and Brewing-Type Appliances
Household cooking and liquid-heating appliances

Testing Laboratory ..... :	**TÜV Rheinland (Shenzhen) Co., Ltd.**
Address ..... :	1F East & 2-4F, Cybio Technology Building No.1, No.16 Kejibei 2nd Road, High-Tech Industrial Park North Nanshan District, 518057, Shenzhen China
Applicant's name ..... :	See cover page
Address ..... :	See cover page
Test specification:	
Standard ..... :	See cover page
Test procedure ..... :	cTUVus
Non-standard test method……..:	N/A
Test Report Form No. ..... :	UL 1082 / CSA C22.2 No. 64
Test Report Form(s) Originator..... :	**TÜV Rheinland (Shenzhen) Co., Ltd.**
Master TRF ..... :	Dated 2021-12
Test item description .....:	Coffee Maker
Trade Mark..... :	GeekChef®, CASABREWS, MAttinata
Model/Type reference ..... :	CM1633, 3700 PRO, GCF20FM, CM1663, 3700 GENSE, GCF20F, CM1662, 3700 ESSENTIAL, CM1635, CM1665B**, 4700 GENSE, CM1638A, GCF20FA, CM1670A, CM1666**
Ratings ..... :	120V~, 60Hz, 1350W

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)

Summary of testing:

Full test were carried out on submitted samples and fulfilled the test specifications.

The tested model was complied with the test standards UL 1082 & CSA C22.2 No. 64

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.
"(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.

Factory:

Hardshell Technology (Foshan) Co., Ltd.

6 Zhongjian Road, Zhongchong Village, Leliu, Shunde, Foshan, Guangdong, P.R. China

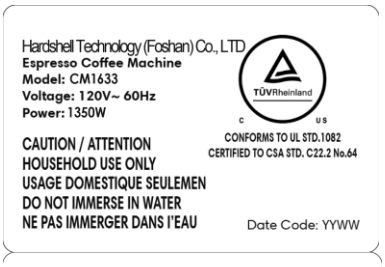
General product information:

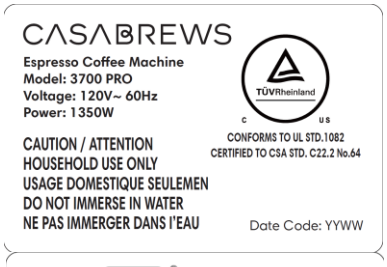
- The product covered by this report are coffee makers, having a rating of AC 120V, 60Hz, 1350W, provided with a non-detachable power supply cord terminated in a 2-wire polarized plug. It's intended to be indoor used only.
- Models GCF20FM and 3700 PRO are identical to model CM1633 except model name; models 3700 GENSE and GCF20F are identical to model CM1663 except model name.

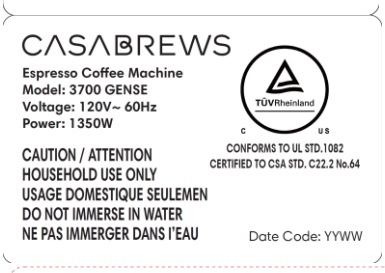
This report is not valid without using in conjunction with the original test report CN225P6Z 001-002.
History of modifications:
- Report No. CN225P6Z 001, dated 2022-09-14 (original test report);
- Report No. CN225P6Z 002, dated 2023-07-03, adding new models and adding a new trademark;
- Report No. CN225P6Z 003, dated see cover page, adding alternative new models and adding alternative water pump.

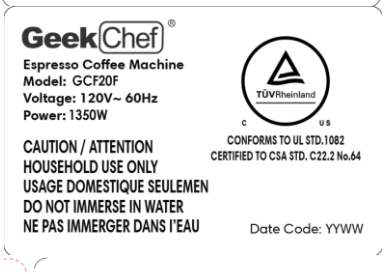
Modification based on original report CN225P6Z 001-002:
- Adding alternative new model **CM1638A**. The appearance, power board, control board, solenoid valve, and water pump of **CM1638A** and CM1635 are different, and **CM1638A** has an additional mechanical switch structure than CM1635, and the other structures are exactly the same.
- Adding alternative new model **GCF20FA**. **CM1638A** and **GCF20FA** are completely the same, except for model name.
- Adding alternative new model **CM1670A**. The appearance, power board, control board, and solenoid valve of **CM1670A** and CM1663 are different, and **CM1670A** has an additional left hot water pipe and mechanical switch structure compared to CM1663, and the other structures are exactly the same.
- Adding alternative new model **4700 GENSE**. **CM1670A** and **4700 GENSE** are completely the same, except for model name.
- Adding alternative new model **CM1666**. The appearance, power board and control board of **CM1666** and CM1663 are different, and the other structure are exactly the same.
- Adding alternative water pump for all models.
- Others remain unchanged.

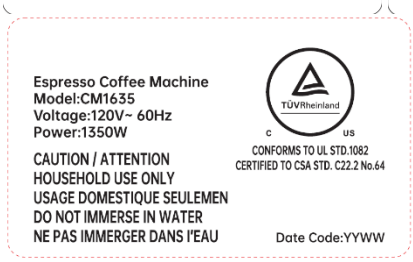
Copy of marking plate

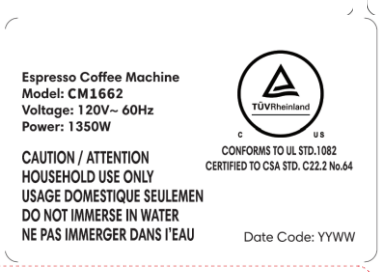


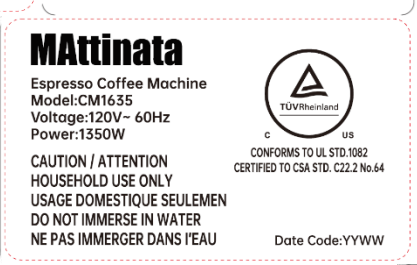


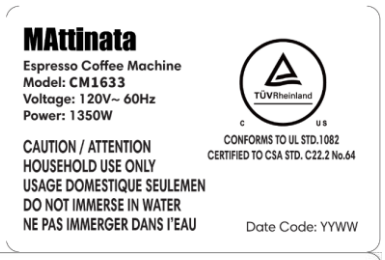


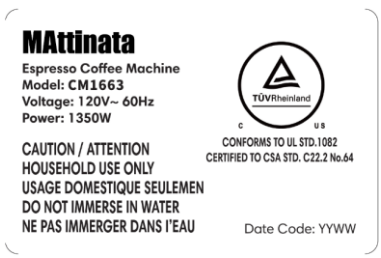


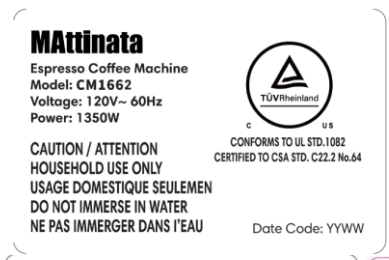












Remark: Date code: YYWW: YY represents year of manufacture, WW represents week.

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict

6	**General**		**P**
6.1	Only materials that are acceptable for the particular use shall be used in an appliance. An appliance shall be made and finished with the degree of uniformity and grade of workmanship practicable in a well-equipped factory.		P
6.2	A component of a product covered by this Standard	See CDF document	P
6.3	A component that is also intended to perform other functions	No such component	N/A
6.4	A component not anticipated by the requirements of this end product Standard, not specifically covered by the component standards noted in this Standard…	See CDF document	N/A
6.5	With regard to a component being additionally investigated, reference to construction and performance requirements in another UL end product standard is suitable …	See CDF document	N/A

7	**Frame and Enclosure**		**P**
7.1	The frame and enclosure of an appliance shall be strong and rigid enough to resist the abuses likely to be encountered during normal service.		P
	The degree of resistance inherent in the appliance shall preclude total or partial collapse with the attendant reduction of spacings, loosening or displacement of parts, and other serious defects that alone or in combination constitute an increase in the risk of fire, electric shock, or injury to persons.		P
7.2	An appliance shall be provided with an enclosure of material acceptable for the particular application.		P
	The enclosure shall house all electrical parts, except a supply cord, that may present a risk of fire, electric shock, or injury to persons under any conditions of use.		P
7.3	Among the factors that shall be considered when an enclosure is being judged for acceptability are its:	Considered	P
	a) Physical strength		P
	b) Resistance to impact		P

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
	c) Moisture-absorptive properties		P
	d) Combustibility		P
	e) Resistance to corrosion		P
	f) Resistance to distortion at temperatures to which the enclosure may be subjected under conditions of normal or abnormal use.		P
	UL 746C, for a nonmetallic enclosure		P
	Impact Tests for metal enclosure or enclosure part		N/A
	Exception:		N/A
	- When considering the abnormal and severe conditions tests of UL 746C, the appliance enclosure is to be subjected to the Abnormal Operation Tests of Section 47.		N/A
	- Thermoset materials need not be subjected to the relative thermal capability requirements of UL 746C. For a thermoset material operating at a temperature above its temperature rating, the 1000 hour aging test specified in 40.1 shall be conducted..	Recognized material used.	N/A
	- An appliance employing a thermoplastic enclosure with a HB flammability rating is not required to comply with the flammability requirements of UL 746C if it complies with the requirements in Table 7.1.		N/A
7.4	Cast- and sheet-metal portions of the enclosure shall be no thinner than indicated in Table 7.2 unless the enclosure is found to be acceptable when judged under considerations such as mentioned in 7.3.		N/A
7.5	Electrical parts of an appliance shall be located or enclosed so that protection against unintentional contact with uninsulated live parts is provided.	Uninsulated live parts are not accessible.	P
7.6	For an appliance as mentioned in 47.2.6.4, the enclosure mentioned in 7.5 shall be provided with drainholes located below the lowest live part.	No such part.	N/A
7.7	The enclosure shall be constructed so that molten metal, burning insulation, flaming particles, or the like does not fall on the supporting surface.		P
7.8	The requirement in 7.7 necessitates that an enclosure bottom with an opening be provided with a barrier above or below the opening if the opening is:		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
	a) Under a motor unless:		N/A
	1) The structural parts of the motor or of the appliance provide the equivalent of such a barrier;		N/A
	2) The protection provided with the motor is such that no burning insulation or molten material falls to the surface that supports the appliance when the motor is energized under each of the following fault conditions:		N/A
	i) Open main winding		N/A
	ii) Open starting winding;		N/A
	iii) Starting switch short-circuited;		N/A
	iv) For a permanent-split-capacitor motor the capacitor is short circuited. The short circuit is to be applied before the motor is energized and the rotor is to be blocked		N/A
	3) The motor is provided with a thermal motor protector (a protective device that is sensitive to both temperature and current) that prevents the temperature of the motor windings from becoming more than 125°C (257°F) under the maximum load under which the motor runs without causing the protector to cycle, and from becoming more than 150°C (302°F) with the rotor of the motor locked; or		N/A
	4) The motor complies with the requirements for impedance-protected motors		N/A
	b) Under wiring, unless the wiring complies with the VW-1 (FR-1) flame test or the Vertical Flame Test described in the Reference Standard for Electrical Wires, Cables, and Flexible Cords, UL 1581.		N/A
	c) Under an unenclosed switch, transformer, relay solenoid, and the like, unless it can be shown that malfunction of the component is not likely to result in a fire.		N/A
	d) Under field- and factory-made splices and overload and overcurrent protective devices.		N/A
	Exception: Barrier need not be provided if the opening is not within the area under the component requiring a barrier as illustrated by Line D in Figure 7.1.		P
7.9	The barrier mentioned in 7.8 shall be:	No such barrier	N/A
	a) Of metal, ceramic, or a material that would be acceptable as an enclosure in accordance with 7.3;		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
	b) Horizontal; and		N/A
	c) Located as indicated in Figure 7.1, and shall not have an area less than that described in Figure 7.1.		N/A
7.10	An opening in the enclosure that has a minor dimension of less than 1 inch (25.4 mm) is acceptable if a probe as illustrated in Figure 7.2, inserted through the opening, cannot be made to touch any uninsulated live part of film-coated wire that involves the risk of electric shock. The probe shall be applied in all possible articulated positions before, during, and after insertion.	Less than 25.4 mm	P
7.11	An opening that has a minor dimension of 1 inch (25.4 mm) or more, in an enclosure, as illustrated in Figure 7.3, is acceptable if, within the enclosure, there is no uninsulated live part or film-coated wire less than:		N/A
	a) R distance from the inside edge of the perimeter of the opening; and		N/A
	b) X distance from the plane of the opening.		N/A
	T equals the enclosure thickness, R equals X minus T, and X equals 5 times the diameter of the largest round rod that can be inserted through the opening but not less than 6-1/16 inches (154 mm). In evaluating an opening, any barrier located within the volume is to be ignored unless it intersects the boundaries of the volume in a continuous, closed line.		N/A
7.12	If a marking draws attention of the user to a hole of any size in the enclosure for the adjustment of a thermostat or for a similar activity, it shall not be possible to damage insulation or contact uninsulated live parts through the hole with a 1/16-inch-diameter rod (1.6 mm).		N/A
7.13	During the examination of an appliance in connection with the requirements in 8.2 – 8.4, any part of the enclosure is to be disregarded – that is, it will not be assumed that the part in question affords protection against electric shock or injury to persons – if it either:		N/A
	a) Must be opened or removed, with or without the use of tools, to perform manufacturer's recommended user servicing, maintenance, operating adjustments, attachment of accessories, or other instructions; or		N/A
	b) Can be opened or removed without the use of tools.		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
	Exception: A part that requires a tool for opening or removal to perform manufacturer's recommended user servicing, maintenance, operating adjustments, attachment of accessories, or other instructions is to remain in place if the appliance is marked in accordance with 54.6.		N/A
7.14	A component of an appliance that is likely to need inspection, replacement, cleaning, or other servicing shall be as accessible as possible. The component shall be readily accessible without the use of special tools (tools not available to other than service personnel) if it is intended to be manually operated or adjusted or periodically serviced.	No such components.	N/A
7.15	The bulb and capillary tube of a thermostat shall be protected from mechanical damage if damage of the tube or bulb increases the risk of fire.		N/A
7.16	A part relied upon for compliance with this Standard, when fabricated from polymeric materials, shall have clear traceability as to composition, ingredients, and processing for the fabricated part to the extent that the composition, ingredients, or process impacts the compliance of the product. Fabricated parts complying with the Standard for Polymeric Materials – Fabricated Parts, UL 746D, meets this requirement.	No such part.	N/A
8	**Assembly**		**P**
8.1	A switch, lampholder, or plug-type connector provided as a part of an appliance shall be mounted securely and prevented from turning by means other than friction between surfaces.	Switch mounted properly	P
8.2	A lock washer properly applied is acceptable as a means to prevent turning of a stem-mounted switch.		N/A
8.3	Uninsulated live parts shall be secured to the base or surface so that they are prevented from turning or shifting in position as the result of stresses if such motion may result in a reduction of spacings below the minimum required in 24.1.1 and 24.1.2.	Checked.	P
8.4	Friction between surfaces is not acceptable as a means to prevent shifting or turning of live parts, but a lock washer properly applied is acceptable.	No friction means.	N/A
9	**Handles**		**N/A**
9.1	General		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
9.1.1	Unless determined to be acceptable for the purpose, fastening of the vessel handle assembly of an appliance shall not rely on cement or equivalent materials alone. Mechanical means, such as pressure clamping, bosses and lances, and the like, shall be provided.		N/A
9.1.2	A handle assembly for a percolator, kettle, carafe, or other vessel used to lift, tilt, and hold a beverage shall be subjected to the requirements of Dynamic load, 41.7. This test is not to be applied to a percolator, kettle, carafe, or other hot liquid container vessel in which the handle and vessel (or vessel outer enclosure) are molded of one continuous material.		N/A
9.1.3	For an appliance or separate vessel that is provided with a webbed handle – that is a solid handle that cannot be grasped by wrapping the fingers around it – the web shall be a minimum of 1 inch in width and 3.25 inches in length. See Figure 9.1.		N/A
9.1.4	No portion of a nonmetallic handle whose failure could result in the loss of handle strength or integrity is to be subjected to a temperature in excess of the mechanical temperature index (without impact) of the material when tested as indicated in Normal Temperature Tests, Section 33.		N/A
9.1.5	On a vessel where handle securement is accomplished by a band around the body of the vessel, the diameter of the vessel above and below the band securement area shall be larger than the diameter at the area of securement. A handle shall be fastened so that a positive stop, interference screw, rivet, or other arrangement is provided so that with minor loosening, disengagement of the handle from the vessel does not result.		N/A
	Exception: The diameter of the vessel above and below the band securement need not be larger than the diameter at the area of securement if an equivalent means of preventing movement of the handle assembly is provided.		N/A
9.1.6	Iron and steel parts of a handle assembly shall be provided with corrosion protection in accordance with 10.1 or shall be constructed of stainless steel or other noncorrosive metal acceptable for the application.	No such parts	N/A
9.1.7	A handle secured by a single fastening means shall be prevented from rotating by means other than friction. A lockwasher alone shall not be sufficient.		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
9.2	Handle assembly		N/A
9.2.1	A handle assembly for a percolator, kettle, carafe, or other vessel used to lift, tilt, and hold a beverage shall be subjected to the requirements of Dynamic load, 41.7. This test is not to be applied to a percolator, kettle, carafe, or other hot liquid container vessel in which the handle and vessel (or vessel outer enclosure) are molded of one continuous material.		N/A
10	**Corrosion Protection**		**P**
10.1	Iron and steel parts shall be protected against corrosion by enameling, galvanizing, plating, or other equivalent means, if the deterioration of such unprotected parts increases the risk of fire or electric shock.		P
	Exception: Where the oxidation of steel is not likely to be accelerated due to the exposure of metal to air and moisture or other oxidizing influence – thickness of metal and temperature also being factors –surfaces of sheet steel within an enclosure may not be required to be protected against corrosion. Cast-iron parts are not required to be protected against corrosion. A sheath employed on a heating element operating in air and terminal parts attached directly to the heating element need not be protected against corrosion.		N/A
10.2	The aging characteristics of plating or other finish used in an appliance shall be such that deterioration of the finish does not result in unacceptable performance of the appliance		P
11	**Supply Connections**		**P**
11.1	General		P
11.1.1	An appliance shall be provided with a length of attached flexible cord and an attachment plug for connection to the supply circuit, or shall have male pin terminals that accommodate a detachable power-supply cord. The length of flexible cord shall be within the limits indicated in Table 11.1.	Flexible cord with attached plug. Appliance has a cord storage facility.	P
11.1.2	The rating (both current and voltage) of the cord and the fittings of a nondetachable and a detachable power supply cord, shall not be less than that of the appliance.		P

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
11.1.3	A 3- to 2-wire grounding-type adapter shall not be provided with an appliance.	Not provided	P
11.1.4	An attached flexible cord and the cord in a detachable power-supply cord that is provided with an appliance shall be of a Type HPD, HPN, HSJ, HSJO, SP-2, SPE-2, SPT-2, SV, SVE, SVO, SVT, SVTO, SJ, SJE, SJO, SJT, or SJTO cord,……..:	SPT-2	P
	or shall have such properties that are at least equally as serviceable for the particular application.		N/A
11.1.4.1	A cord set or power supply cord shall comply with the Standard for Cord Sets and Power-Supply Cords, UL 817.		P
11.1.4.2	Flexible cords and cables shall comply with the Standard for Flexible Cords and Cables, UL 62.Flexible cord and cables are considered to fulfill this requirement when preassembled in a cord set or power supply cord complying with the Standard for Cord Sets and Power-Supply Cords, UL 817.		P
11.1.5	Supplementary insulation, if employed, shall not extend more than 1/2 inch (13 mm) outside the appliance (unless provided with additional mechanical protection), shall be prevented from fraying or unraveling, and shall not affect adversely the means for providing strain relief.	No supplementary insulation extended outside the appliance.	N/A
11.1.6	The attachment plug of the power supply cord of an appliance provided with a 15- or 20- ampere general use receptacle shall be of the 3-wire grounding type.	A 2-wire polarized attachment plug is provided.	N/A
	The attachment plug of the power supply cord of an appliance provided with a manually operated, line-connected, single pole switch for appliance on-off operation, or an Edison base lampholder, shall be of the polarized or grounding type.		N/A
11.1.7	If a 3-wire grounding-type attachment plug or a 2-wire polarized attachment plug is provided, the attachment plug connection shall comply with Figure 11.1 and the polarity identification of the flexible cord shall comply with Table 11.3.		P
11.1.8	The conductor of the power supply cord that is intended to be grounded shall have the following items connected to it:		N/A
	a) The screw shell of an Edison base lampholder		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
	b) The terminal or lead of a receptacle intended to be grounded.		N/A
11.1.9	Attachment plugs, receptacles, appliance couplers, appliance inlets (motor attachment plugs), and appliance (flatiron) plugs, shall comply with the Standard for Attachment Plugs and Receptacles, UL 498.	No such parts.	N/A
	Exception No. 1: Attachment plugs and appliance couplers integral to cord sets or power supply cords that are investigated in accordance with the Standard for Cord Sets and Power-Supply Cords, UL 817, are not required to comply with UL 498.	UL 817 certified cord-set used	P
	Exception No. 2: A fabricated pin terminal assembly need not comply with UL 498 if it complies with Frame and Enclosure, Section 7; Assembly, Section 8; 11.3; Current-Carrying Parts, Section 12; and Spacings, Section 24, of this end product Standard.		N/A
11.1.10	Female devices (such as receptacles, appliance couplers, and connectors) that are intended, or that may be used, to interrupt current in the end product, shall be suitably rated for current interruption of the specific type of load, when evaluated with its mating plug or connector. For example, an appliance coupler that can be used to interrupt the current of a motor load shall have a suitable horsepower rating when tested with its mating plug.	No such parts.	N/A
11.2	Strain relief		P
11.2.1	Strain relief shall be provided to reduce the risk of a mechanical stress on an attached flexible supply cord from being transmitted to terminals, splices, or interior wiring.		P
11.2.2	If wood, pressed board, or other fibrous material is used to secure the strain relief assembly, the fibrous material shall be secured to the appliance by a pin, setscrew, or other positive means.	Not used.	N/A
11.2.3	Means shall be provided to reduce the likelihood of an attached supply cord or lead from being pushed into the enclosure of an appliance through the cord entry hole		P
	Push-Back Relief Test, Section 38.		P
11.2.4	If a knot serves as strain relief in an attached flexible cord, any surface with which the knot may come in contact shall be free from projections, sharp edges, burrs, fins, and the like, which may cause abrasion of the insulation on the conductors.	No knots	N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
11.3	Pin Terminals		N/A
11.4	Bushings		N/A
11.4.1	At a point where a flexible cord passes through an opening in a wall, barrier, or enclosing case, there shall be a bushing or the equivalent which shall be substantial, reliably secured in place, and shall have a smooth, well-rounded surface against which the cord may bear. If Type SP-2, SPT-2, or other cord lighter than Type HSJ is employed, if the wall or barrier is of metal, and if the construction is such that the cord may be subjected to strain or motion, an insulating bushing shall be provided. The heat- and moisture-resistant properties of the bushing material shall be such that the bushing is acceptable for the particular application.		N/A
11.4.1.1	In addition to the requirements in 11.4, Insulating bushings shall comply with the Standard for Insulating Bushings, UL 635.		N/A
11.4.2	If the cord hole is in wood, porcelain, phenolic composition, or other acceptable nonconducting material, a smooth, well-rounded surface is considered to be equivalent to a bushing.		N/A
11.4.3	There is no temperature limit applicable to glass fiber, beads of inorganic material, or the equivalent employed as conductor insulation.		N/A
11.4.4	An insulated metal grommet may be accepted in place of an insulating bushing if the insulating material used is not less than 1/32 inch thick (0.8 mm), and completely fills the space between the grommet and the metal in which it is mounted.		N/A
12	**Current-Carrying Parts**		**P**
12.1	Each current-carrying part shall be made of metal that is acceptable for the particular application.		P
12.2	Current-carrying parts made of corrosion-resistant alloys (for example, stainless steel) are acceptable regardless of temperature. Current-carrying parts made of ordinary iron and steel are not acceptable unless they are rendered corrosion-resistant by an appropriate coating and, even then, they are acceptable only as follows:		P
	a) Pin terminals.		N/A
	b) Parts whose normal operating temperature is higher than 100°C (212°F).		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
	c) Parts of a component that the requirements referred to in 2.1 indicate as being acceptable with coated iron and steel parts.		N/A
12.3	If a reservoir is part of an appliance, all live parts shall be so located or protected that they will not be subject to dripping if the reservoir develops leaks, unless:		P
	a) The reservoir is adequately resistant to corrosion from the liquid intended for use in it; and		P
	b) The reservoir does not develop cracks as a result of aging.		P
13	**Internal Wiring**		**P**
13.1	General		P
13.1.1	The internal wiring of an appliance shall consist of wire of a size and type or types which are acceptable for the particular application, when considered with respect to the temperature and voltage to which the wiring is likely to be subjected.	Recognized wirings used as intending.	P
13.1.2	There is no temperature limit applicable to glass fiber, beads of inorganic material, or the equivalent employed as conductor insulation.		P
13.1.3	Deleted June 17, 2011		N/A
13.1.4	Internal wiring composed of insulated conductors shall comply with the Standard for Appliance Wiring Material, UL 758.		P
13.2	Protection of wiring		P
13.2.1	If the wiring of an appliance is located so that it may be in proximity to combustible material or may be subjected to mechanical injury, it shall be protected.		P
13.2.2	Wires within an enclosure or the like shall be disposed or protected so that no damage to conductor insulation results from contact with any rough, sharp, or moving part.		P
13.2.3	A hole by means of which insulated wires pass through a sheet-metal wall within the over-all enclosure of an appliance shall be provided with a smooth, well-rounded bushing or shall have smooth, well-rounded surfaces upon which the wires may bear, to prevent abrasion of the insulation.		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
13.2.4	Insulated wires may be bunched and passed through a single opening in a metal wall within the enclosure of an appliance.		N/A
13.2.5	Wire positioning devices shall comply with the requirements in Electrical Insulation, Section 16. A device that complies with the Standard for Positioning Devices, UL 1565, is considered to comply with this requirement.		N/A
13.3	Splices		P
13.3.1	All splices and connections shall be mechanically secure and shall provide adequate and reliable electrical contact. A soldered connection shall …		P
13.3.2	A splice shall be provided with insulation equivalent to that of the wires involved if permanence of spacing between the splice and other metal parts of the appliance is not reliably maintained.		N/A
13.3.3	Insulation consisting of two layers of friction tape, two layers of thermoplastic tape, or of one layer of friction tape on top of one layer of rubber tape, is acceptable on a splice. In determining whether splice insulation consisting of coated fabric, thermoplastic, or other type of tubing is acceptable, consideration is to be given to such factors as its dielectric properties, heat resistant and moisture-resistant characteristics. Thermoplastic tape wrapped over a sharp edge is not acceptable.		N/A
13.3.4	Where stranded internal wiring is connected to a wire-binding screw, loose strands of wire shall be positively prevented from contacting any other uninsulated live part that is not always of the same polarity as the wire, and from contacting any dead metal part. This may be accomplished by the use of pressure terminal connectors, soldering lugs, crimped eyelets, soldering all strands of the wire together, or other equivalent means.	No stranded internal wiring is connected to a wire-binding screw.	N/A
13.3.5	Quick-connect type wire connectors shall be suitable for the wire size, type (solid or tranded), conductor material (copper or aluminum) and the number of conductors terminated. If insulated, they shall be rated for the voltage and temperature of the intended use. They shall be applied per the installation instructions of the wire connector manufacturer.		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
13.3.6	Quick-connect terminals, both connectors and tabs, for use with one or two 22 – 10 AWG copper conductors, having nominal widths of 2.8, 3.2, 4.8, 5.2, and 6.3 mm (0.110, 0.125, 0.187, 0.205, and 0.250 in), intended for internal wiring connections in appliances, or for the field termination of conductors to the appliance, shall comply with the Standard for Electrical Quick-Connect Terminals, UL 310.		P
	Exception: Other sizes of quick-connect terminals shall be investigated with respect to crimp pull out, insertion-withdrawal, temperature rise, and all tests shall be conducted in accordance with UL 310.		N/A
13.3.7	Wire connectors shall comply with the Standard for Wire Connectors, UL 486A-486B.		N/A
13.3.8	Splicing wire connectors shall comply with the Standard for Splicing Wire Connectors, UL 486C.		P
13.3.9	Single and multi-pole connectors for use in data, signal, control and power applications within and between electrical equipment, and that are intended for factory assembly to copper or copper alloy conductors, or for factory assembly to printed-wiring boards, shall comply with the Standard for Component Connectors for Use in Data, Signal, Control and Power Applications, UL 1977.		P
13.3.10	Multi-pole splicing wire connectors that are intended to facilitate the connection of hard-wiredutilization equipment to the branch-circuit conductors of buildings shall comply with the Standard forInsulated Multi-Pole Splicing Wire Connectors, UL 2459.		N/A
13.3.11	Equipment wiring terminals for use with all alloys of copper, aluminum, or copper-clad aluminum conductors, shall comply with the Standard for Equipment Wiring Terminals for Use with Aluminum and/or Copper Conductors, UL 486E.		N/A
13.3.12	Terminal blocks shall comply with the Standard for Terminal Blocks, UL 1059, and, if applicable, be suitably rated for field wiring.		N/A
	Exception: A fabricated part performing the function of a terminal block need not comply with UL 1059, if the part complies with the requirements of 11.3; Current-Carrying Parts, Section 12; Electrical Insulation, Section 16; and Spacings, Section 24, of this end product Standard. This exception does not apply to protective conductor terminal blocks.		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict

14	**Secondary Circuits** **No secondary circuit used.**	**N/A**

15	**Heating Elements**		**P**
15.1	A heating element shall be supported in a sturdy and reliable manner. It shall be protected against mechanical damage and contact with outside objects.		P
15.2	In determining that a heating element is adequately supported, consideration shall be given to sagging, loosening, and other adverse conditions of the element resulting from continuous heating. For an open-wire (uninsulated resistance wire) heating element, consideration shall also be given to breakage at any point.		P
15.3	An open-wire element, that is, uninsulated resistance wire, may be used in an appliance provided it complies with the following:	Not an open wire heating element.	N/A
	a) It is enclosed or protected by barriers or covers that require tools for removal;		N/A
	b) It complies with the accessibility of live parts requirements specified in 7.5 – 7.13		N/A
	c) It complies with the Broken Element Test, Section 36.		N/A
15.4	A sheathed heating element, rope heater, or the like shall be judged under the applicable requirements of this Standard.		P

16	**Electrical Insulation**		**P**
16.1	Insulating washers, bushings, and the like that are integral parts of an appliance and bases or supports for the mounting of current-carrying parts shall be of a moisture-resistant material that is not damaged by the temperatures to which they are subjected under conditions of actual use		P
	Molded parts shall be constructed so that they have the mechanical strength and rigidity necessary to withstand the stresses of actual service.		P
16.2	Insulating material employed in an appliance shall be judged with respect to its acceptability for the particular application.	Approved plastic material	P

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
	Materials such as mica, some molded compounds, and certain refractory materials are usually acceptable for use as the direct support of live parts.		P
	Other materials which are not acceptable for general use, such as magnesium oxide, may be acceptable if used in conjunction with other more appropriate insulating materials or if located and protected against mechanical damage and the absorption of moisture is minimized		N/A
	When it is necessary to investigate a material to determine whether it is acceptable, consideration is to be given to its mechanical strength, dielectric properties, insulation resistance, heat-resistant qualities, the degree to which it is enclosed or protected, and any other features having a bearing on the risk of fire, electric shock, or injury to persons involved, in conjunction with conditions of actual service. All of these factors are considered with respect to thermal aging. The appropriate tests in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C (see Temperature Considerations – General, Functional-Use Temperature Indices, and Generic Thermal Indices) are to be used to evaluate a material for the above-mentioned properties.		N/A
	Exception: Thermoset materials need not be subject to the relative thermal capability requirements of UL 746C. For a thermoset material operating at a temperature above its temperature rating, the 1000 Hour Aging Test as specified in 40.1 shall be conducted.		N/A
16.3	In the mounting or supporting of small fragile insulating parts, screws or other fastenings should not be tight enough to cause cracking or breaking of these parts with expansion and contraction. Generally, such parts should be slightly loose	Not particular small fragile insulating parts	N/A
16.4	Sleeving or tubing used as an insulator for uninsulated live parts (such as glass fiber in rope heaters) shall be so disposed or protected that no damage to the sleeving or tubing can result from contact with any rough, sharp, or moving part. The sleeving or tubing shall not be installed under a compression that renders it incapable of complying with the dielectric voltage-withstand requirements in 35.1.		P

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
16.5	The requirements for supplemental insulation (e.g. tape, sleeving or tubing) are not specified unless the insulation or device is required to fulfill the requirements of 16.4, or a performance requirement of this Standard. In such cases:		P
	a) Insulating tape shall comply with the Standard for Polyvinyl Chloride, Polyethylene, and Rubber Insulating Tape, UL 510;		N/A
	b) Sleeving shall comply with the Standard for Coated Electrical Sleeving, UL 1441; and		N/A
	c) Tubing shall comply with the Standard for Extruded Insulating Tubing, UL 224.		P
16.6	A printed-wiring board shall comply with the requirements in the Standard for Printed-Wiring Boards, UL 796. A printed-wiring board shall be rated V-1 or better.	V-0	P
16.7	Film-coated wire (magnet wire)		N/A
17	**Thermal Insulation**		**N/A**
18	**Thermal Cut offs**		**P**
18.1	If an appliance is provided with a thermal cut off, it shall be secured in place and be located so that it is accessible for replacement without damaging connections or internal wiring. See 54.6.	This operation can be done only by service people, not by the user.	P
18.2	If an appliance is provided with a thermal cutoff, it shall be capable of opening the circuit in the intended manner without causing the short-circuiting of live parts and without causing live parts to become grounded to the enclosure when the appliance is connected to a circuit of voltage in accordance with 33.1.11, and operated in a normal position to cause abnormal heating in accordance with 47.4.		P
18.3	Revised and Relocated as 47.4.		P
18.4	A pressure brewing appliance provided with a function to keep water heated above room temperature before brewing, or to keep brewed beverage heated after the cycle is complete shall be provided with limiting-type devices in accordance with 22C.3.		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
19	**Lamp holders**		**N/A**
20	**Switches**		**P**
20.1	A switch or other control device provided as a part of an appliance shall be of a type intended for the particular application and shall have a current and voltage rating not less than that of the circuit (load) which it controls.		P
20.2	A switch employed on an appliance shall be located or protected so that it is not subjected to mechanical damage during use.		P
20.3	A manually operated, line-connected, single pole switch for appliance on-off operation shall not be connected to the conductor of the power supply cord intended to be grounded. Table 11.3 specifies the identification of the power-supply cord conductor intended to be grounded.		P
20.4	Manually operated snap-switches shall comply with one of the following, as applicable:		P
20.5	A clock-operated switch, in which the switching contacts are actuated …		N/A
20.6	A timer or time switch, incorporating electronic timing circuits or switching circuits, with or without separable contacts, shall comply with the requirements for		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
21	**Dual Voltage Appliance**		N/A
21.1	The construction of the circuit voltage selector shall be such that the circuit voltage setting cannot be changed inadvertently.		N/A
21.2	If the appliance is so constructed that the supply circuit voltage selector can be changed, the action of changing the voltage selector setting shall also change the supply circuit voltage indication.		N/A
21.3	An appliance that can be set to different rated supply circuit voltages shall be provided with the statement required by 58.5.		N/A
22	**Controls and Control Circuits**		**P**
22.1	A safety or temperature-limiting control constructed to reduce the risk of fire or electric shock shall be operative whenever the appliance is connected to its power supply.		P
22.2	A control device shall not be constructed to deliberately overload the branch-circuit protective device as a means of disconnecting the appliance from the supply.		P
22.3	The terminals of a safety device within the enclosure of an appliance shall be so located or further enclosed that they will be protected against unintentional short-circuiting and damage.	Located inside the enclosure and insulated.	P
22.4	Auxiliary controls shall be evaluated in accordance with the applicable requirements of this end product Standard		N/A
22.5	Operating (regulating) controls shall be evaluated in accordance with the applicable component…		P

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
22.6	Operating controls that rely upon software for the normal operation of the end product where…		N/A
22.7	Protective (limiting) controls shall be evaluated in accordance with the applicable		P
22.8	Solid-state protective controls that do not rely upon software as a protective component shall comply…		N/A
22.9	Solid-state protective controls		N/A
22.10	An electronic, auxiliary or operating control (e.g. a non-protective control), the failure of which…		N/A
22A	**Electromechanical and Electronic Controls**		P
22A.1	A temperature control shall comply with one of the following: a) The Standard for Solid-State Controls for Appliances, UL 244A; b) The Standard for Temperature-Indicating and -Regulating Equipment, UL 873; or c) The Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1; and the Standard for Automatic Electrical Controls for Household and Similar Use; Part 2: Particular Requirements for Temperature Sensing Controls, UL 60730-2-9.		P
22A.2	A temperature sensing positive temperature coefficient (PTC) or a negative temperature coefficient (NTC) thermistor, that performs the same function as an operating or protective control shall comply with …		N/A
22A.3	A thermal cutoff shall comply with the Standard for Thermal-Links – Requirements and Application Guide, UL 60691.		P
22B	**Controls – End Product Test Parameters**		N/A
22B.1	General		N/A
22B.2	Auxiliary controls		N/A
22B.3	Operating controls (regulating controls)		N/A
22B.3.1	The following test parameters shall be among the items considered when judging the acceptability of an operating control investigated using the Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1:		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
22B.3.2	The following test parameters shall be among the items considered when judging the acceptability of an operating control investigated using other than the Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1:		N/A
22B.4	Protective controls (limiting controls)		N/A
22B.5	Controls using a temperature sensing device		N/A
22C	**Capsule-Type Brewing Appliance Controls**		N/A
23	**Overheating Protection**		**P**
23.1	The requirements in this section are applicable to all products. These requirements are in addition to or modify the applicable requirements in the Automatic Controls Test, Section 49.		P
23.2	An appliance shall be provided with a separate and distinct temperature-limiting device to limit temperatures within the appliance. A single combination regulating-limiting control is unacceptable for this purpose.	Distinct thermal cut off used.	P
	Exception No. 1: A temperature-limiting device is not required if, with all thermally responsive devices short-circuited, the results of all appropriate abnormal tests are in compliance with the Abnormal Operation Test, Section 47.		N/A
	Exception No. 2: A temperature limiting device, as specified in 23.3, is not required if an appliance is provided with:		N/A
	a) A manually reset operating control that operates during each cycle of normal operation to terminate the heating process; and		N/A
	b) A minimum of two independent temperature limiting thermostats, as specified in Table 49.1.		N/A
23.3	A limiting-type device shall be a thermal cut off, a single-operation thermostat or a manual-reset thermostat that is inaccessible to the user without the use of tools.	Enclosed.	P

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
	Exception: A manually reset device is permitted to have an accessible reset means if it is trip-free: that is, the automatic tripping shall be independent of the manipulation or position of the reset button, handle, lever, or the like. A manual reset control designated type M1 or M2 in accordance with the Standard for Temperature-Indicating and -Regulating Equipment, UL 873, is considered to comply with these requirements. Compliance with the Standard for Automatic Electrical Controls for Household and Similar Use, Part 1: General Requirements, UL 60730-1, and/or the applicable Part 2 standard from the UL 60730 series as a Type 2.H or Type 2.J action fulfills these requirements.		N/A
23.4	A single-operation thermostat or a manual-reset thermostat that is provided as the thermal limiting device shall comply with the applicable requirements in the Standard for Temperature-Indicating and Regulating Equipment		N/A
	UL 873 for limiting controls		N/A
	UL 60730-1, and/or the applicable		N/A
23.5	A thermal cut off shall comply with the applicable requirements in the Standard for Thermal-Links – Requirements and Application Guide, UL 60691.		P
23.6	If a grounding-type attachment plug is provided or the enclosure of the appliance has metal parts that are likely to become grounded, such as a metal bottom with bumped-out metal feet, the limiting-type device shall be located in one supply conductor and the temperature-regulating control shall be located in the other supply conductor.	No such parts.	N/A
	If identifiable, the ungrounded supply conductor shall contain the limiting-type device.		N/A

24	**Spacings**		**P**
24.1	General		P
24.1.1	The spacings in an appliance shall be 1/16 inch (1.6 mm) between uninsulated live parts of opposite polarity; and between a rigidly mounted uninsulated live part and a dead metal part that either is exposed for persons to contact or may be grounded.	Between live part on PCB and accessible enclosure: 5.1mm; Between L to N on PCB: 6.6mm;	P
	Exception No. 1: If exact centering of the cold pin of a sheathed-type heating element is required to maintain the 1/16-inch (1.6-mm) spacing, a spacing of 3/64 inch (1.2 mm) in one location is acceptable.		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
	Exception No. 2: As indicated in 24.1.2.		N/A
24.1.2	At closed-in points only, such as the screw-and-washer construction of an insulated terminal mounted in metal, a spacing of 3/64 inch (1.2 mm)		N/A
	Within a thermostat, except at contacts, the spacings between uninsulated live parts on opposite sides of the contacts are to be not less than 1/32 inch (0.8 mm) through air and 3/64 inch (1.2 mm) over the surface of insulating material, and the construction is to be such that the spacings are maintained permanently.		N/A
24.2	Barriers		N/A
24.2.1	An insulating liner or barrier of fiber or similar material employed where spacings would otherwise be unacceptable shall not be less than 1/32 inch (0.8 mm) thick and shall be so located or of such material that it cannot be adversely affected by arcing Except that fiber not less than 1/64 inch (0.4 mm) thick may be used in conjunction with an air spacing of not less than 50 percent of the spacing required for air alone.		N/A
	Exception: Insulating material having a thickness less than specified may be used if it is equivalent in appropriate properties for the application.		N/A
24.2.2	Unless protected from mechanical abuse during assembly and functioning of an appliance, a barrier of mica shall be 0.010 inch (0.25 mm) or thicker.		N/A
24A	**Spacings on Printed-Wiring Boards**		**N/A**
24A.1	As an alternative to the spacing requirements of 24.1.1, a printed-wiring board with spacings between opposite polarity circuits (other than a low-voltage circuit) less than those required is acceptable provided that the spacings:		N/A
	a) Are located on a portion of the printed wiring board provided with a conformal coating that complies with the requirements in the Standard for Polymeric Materials – Use in Electrical Equipment Evaluations, UL 746C, and the dielectric voltage-withstand test described in Dielectric Voltage-Withstand Test, Section 35;		N/A
	b) Are located on the load side of a resistor such that a short circuit from the load side of the resistor to the other side of the line does not result in the resistor power dissipation exceeding the resistor wattage rating;		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
	c) Comply with the spacing requirements in the Standard for Solid-State Controls for Appliances, UL 244A. Compliance with the Standard for Automatic Electrical Controls for Household and Similar Use; Part 1: General Requirements, UL 60730-1, and/or the applicable Part 2 standard from the UL 60730 series fulfills these requirements; or		N/A
	d) Comply with the spacing requirements in the Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, UL 840. The spacing requirements of UL 840 shall not be used for field wiring terminals and spacings to a dead metal enclosure.		N/A
24A.2	When conducting evaluations in accordance with the requirements in the Standard for Insulation Coordination Including Clearances and Creepage Distances for Electrical Equipment, UL 840, the following guidelines shall be used:		N/A
	a) A household electric cooking appliance is to be categorized as Overvoltage Category II, see Table 22B.1;		N/A
	b) The applicable Material Group per Table 22B.2;		N/A
	c) The Pollution degree shall be Pollution Degree 2, see Table 22B.3; and		N/A
	d) Any printed-wiring board which complies with the requirements in the Standard for Printed-Wiring Boards, UL 796, shall be determined to provide a Comparative Tracking Index (CTI) of 100, and when it further complies with the requirements for Direct Support in UL 796, then it shall be determined to provide a CTI of 175.		N/A
24A.3	In order to apply Clearance B (controlled overvoltage) clearances, control of overvoltage shall be achieved by providing an overvoltage device or system as an integral part of the product. This voltage limiting device or system shall comply with the Standard for Surge Protective Devices, UL 1449.		N/A

25	**Grounding**		**N/A**
25.1	On an appliance where grounding is provided, the flexible cord shall include a grounding conductor that shall be:		N/A
	a) Green, with or without one or more yellow stripes		N/A
	b) Connected to the grounding blade of an attachment plug of a grounding type		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
	c) Connected to the enclosure of the appliance by means of a screw not likely to be removed during ordinary servicing, or by other reliable means. Solder alone is not acceptable for making this connection.		N/A
25.2	All exposed dead metal parts of a cord-connected appliance that is equipped with a grounding conductor, and all dead metal parts within the enclosure that are exposed to contact during any user servicing and are likely to become energized, shall be conductively connected to the grounding conductor of the power-supply cord.		N/A
	Complies with the requirements in Resistance of Grounding Test, Section 29.		N/A
25.3	A separable connecting device provided with a grounding connection shall be such that the appliance grounding connection is made before connection to, and broken after disconnection from the supply circuit.		N/A
	Exception: This requirement does not apply to an interlocked plug, receptacle, and connector that is not energized when the appliance grounding connection is made.		N/A
26	**Protection Against Injury to Persons**		**P**
26.1	Materials employed in the construction of the appliance depended upon for protection against personal injury shall be appropriate for the particular use. See 7.1 and 7.3.	Enclosure is rigid and provides protection against mechanical or electrical injury.	P
26.2	An enclosure, a frame, a guard, a handle, or the like shall not be sharp enough to constitute a risk of injury to persons during normal maintenance and use.	Enclosures are not sharp to injure persons during normal use.	P
	Exception No. 1: A part or portion of a part needed to perform a working function need not comply with this requirement.		N/A
	Exception No. 2: A part or portion of a part inaccessible to the probe illustrated in Figure 7.2 need not comply with this requirement.		N/A
26.3	Compliance with the requirement of 26.2 shall be determined by applying the test procedures, equipment, and acceptance criteria specified in the Standard for Tests for Sharpness of Edges on Equipment, UL 1439		P
26.4	Stability of an appliance shall be such that it will not be overturned readily in normal use. The appliance shall be subjected to the stability test, Section 44	Tested at an angle of 15 degrees to the horizontal, no overturn.	P

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
26.5	If any part of an appliance requires proper assembly, for example fully inserting a lid or engagement of a twist-lock part, in order to reduce a risk of injury to persons, then improper assembly that may result in a risk of injury to persons shall be clearly visible to the user.	Not required	N/A
26.6	A coffee urn or similar water-heating appliance that is not lifted or tilted to dispense the liquid and that has a capacity of more than 17.5 oz (520 mL) shall be		N/A
	a) Provided with such a lid as described in 26.5	No such lids	N/A
	b) Subjected to the Tip Over Test, Section 45		N/A
26.7	The construction of an appliance shall be such as to minimize the possibility of physical injury when pouring under conditions simulating intended normal use. The pouring spout shall be constructed so that the direction and rate of liquid flowing from the spout will be as anticipated. Liquid shall not be emitted from other than the spout in the intended use.		N/A
26.8	An appliance, or that part of an appliance (such as a carafe), that requires lifting and tilting to dispense the liquid and that has a capacity of more than 17.5 fluid oz (520 mL) shall be subjected to the Tip Over Test, Section 45.		N/A
	Exception No. 1: The Tip Over Test is not required if the critical angle of balance is 45 degrees or greater. The critical angle of balance is determined as the angle at which a sample will tip over due only to the force of gravity, in any orientation throughout its vertical axis.		N/A
	Exception No. 2: The Tip Over Test is not required if it complies with the Dynamic Stability Test, Section 46.		P
26.9	The release mechanism for detachable handles shall be;	No detachable handles	N/A
	a) Located and/or guarded so that inadvertent detachment of the handle does not occur during normal use of the appliance;		N/A
	b) Constructed so that complete and proper engagement of the handle is obvious to the user during the operation of attaching the handle.		N/A

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
26.10	The battery compartment of an appliance or any accessory, such as a wireless control, incorporating one or more replaceable coin cell batteries of lithium technologies shall comply with the Standard for Products Incorporating Button or Coin Cell Batteries of Lithium Technologies, UL 4200A, if the appliance or any accessory is intended for use with one or more single cell batteries having a diameter of 32 mm (1.25 in) maximum with a diameter greater than its height.		N/A
	Exception: Not applicable to an appliance intended only to be mounted above a countertop.		N/A
26.11	A pressure brewing appliance shall be provided with a brewer operation indicator that is readily visible and distinguishable from the "off" position. The brewer operation indicator shall be "on" starting when the user initiates the cycle, and shall turn off when the dispensing stops.	Not such appliance	N/A
26.12	A pressure brewing appliance shall be constructed so that the brewing chamber cannot be opened by a simple or unintentional operation when the chamber is pressurized.	Not such appliance	N/A
	Note 1: An espresso coffee filter that can only be removed after having been rotated through an angle of at least 30 degrees is considered to comply with this requirement. For other brewing appliances, a brewing material holder provided with two separate and distinct means for securement, accomplished either manually or by an automatic process, is also acceptable.		P
	Note 2: A brewing chamber that cannot be opened while under pressure by exerting a force of less than 2.25 pounds (10 Newtons) is considered to comply with this requirement.		N/A
	Exception: An appliance that meets the requirements of the Open Brew Chamber Test - Pressure Brewing Appliances, Section 46B is not required to comply with this requirement.		N/A
26A	**Ground-Fault, Arc-Fault, and Leakage Current Detectors/Interrupters**		**N/A**
26B	**Surge Protective Device**		**N/A**
27	**Pressure Vessels and Parts Subject to Pressure**		**N/A**
	PERFORMANCE		**P**
28	**General**		**P**

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict

29	**Resistance of Grounding Test**	**N/A**
30	**Power Input**	**P**
31	**Leakage Current Test**	**P**
32	**Operational Tests**	**P**
33	**Normal Temperature Tests**	**P**
33.1	**General**	**P**
33.2	**Specific test conditions**	**P**
34	**Leakage Current as a Result of Moisture Tests**	**P**
35	**Dielectric Voltage-Withstand Test**	**P**
36	**Broken Element Test**	**N/A**
37	**Strain Relief Test**	**P**
38	**Push-Back Relief Test**	**P**
39	**Metal Enclosure Impact Tests**	**N/A**
40	**Thermal Degradation**	**N/A**
41	**Handle Securement Tests**	**N/A**
41.1	**General**	**N/A**
41.2	**Oven conditioning**	**N/A**
41.3	**Dishwashing**	**N/A**
41.4	**Flexing test**	**N/A**
41.5	**Static load**	**N/A**
41.6	**Static force**	**N/A**
41.7	**Dynamic load**	**N/A**
42	**Under-Cabinet and Wall Mounted Appliances-Impact Test**	**N/A**
43	**Loading Test**	**N/A**
44	**Stability Test**	**P**
45	**Tip Over Test**	**N/A**
46	**Dynamic Stability Test**	**N/A**
46A	**Hydrostatic Pressure Tests for Parts Subject to Pressure**	**N/A**
46B	**Open Brew Chamber Test – Pressure Brewing Appliances**	**N/A**
46C	**Brew Chamber Blockage Following Mold Stress Test for Capsule-Type Brewing Appliances**	**N/A**

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
47	**Abnormal Operation Tests**		**P**
47.1	**General**		**P**
47.2	**Specific test conditions**		**P**
47.3	**Dual voltage appliances**		**N/A**
47.4	**Fusible devices test**		**N/A**
47.5	**Surge test**		**N/A**
47.6	**Pressure brewing appliances**		**N/A**
47.7	**Abnormal operation reused sealed capsule test**		**N/A**
48	**Component Failure Test**		**P**
49	**Automatic Controls Test**		**P**
49.1	**General**		**P**
49.2	**Endurance**		**P**
50	**Permanence of Marking Tests**		**N/A**
	RATINGS		**P**
53	**Details**		**P**
54	**MARKINGS**		**P**
55	**CARTON MARKING**		**P**
	INSTRUCTION MANUAL		**P**
56	**GENERAL**		**P**
57	**ALL APPLIANCES**		**P**
58	**SPECIFIC APPLIANCES**		**N/A**
59	**User Maintenance**		**P**
	SUPPLEMENT SA - HOUSEHOLD ELECTRIC DRIP-TYPE COFFEE MAKERS AND SIMILARDRIP-TYPE BREWING APPLIANCES		**N/A**
SA1	Scope		**N/A**
SA2	Glossary		**N/A**

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict

SA3	Assembly	**N/A**
SA4	Corrosion Protection	**N/A**
SA5	Supply Connections	**N/A**
SA6	Gaskets and Seals	**N/A**
SA7	Water Connections	**N/A**
SA8	Thermal Conductivity	**N/A**
SA9	Grounding	**N/A**
SA10	Operating Controls	**N/A**
SA11	Power-On Indicator	**N/A**
SA12	Temperature Controls	**N/A**
SA13	Operation Degradation	**N/A**
SA14	Leakage Current	**N/A**
SA15	Normal Temperature	**N/A**
SA16	Leakage Current as a Result of Moisture	**N/A**
SA17	Stability	**N/A**
SA18	Loading Test	**N/A**
SA19	Impact Test	**N/A**
SA20	Abnormal Operation	**N/A**
SA21	Tests by Manufacturer	**N/A**
SA22	Markings	**N/A**
SA23	Graphical Symbols and Supplemental Markings	**N/A**
SA24	Important Safeguards	**N/A**
SA25	User Maintenance	**N/A**

	SUPPLEMENT SB – HOSPITALITY-USE APPLIANCES	**N/A**
SB1	Scope	**N/A**
SB2	Assembly	**N/A**
SB3	Supply Connections	**N/A**
SB4	Grounding	**N/A**
SB5	Operating Controls	**N/A**

UL 1082			
Clause	Requirement – Test	Result – Remark	Verdict
SB6	Power-On Indicator		**N/A**
SB7	Operation Tests		**N/A**
SB8	Test for Permanence of Cord Tag		**N/A**
SB9	Tests by Manufacturer – Continuity of Grounding Connection		**N/A**
SB10	Markings		**N/A**
SB11	Important Safeguards Cord Tag		**N/A**
SB12	User Maintenance		**N/A**

	SUPPLEMENT SC - SAFETY OF SMART ENABLED HOUSEHOLD ELECTRIC COFFEE MAKERS AND BREWING-TYPE APPLIANCES	**N/A**
SC1	Scope	**N/A**
SC2	Construction – General	**N/A**
SC3	Functional Safety	**N/A**
SC4	Resistance to Electro-Magentic Phenomena (Immunity)	**N/A**
SC5	Markings and Instructions	**N/A**

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
1	**Scope**		**P**
2	**Reference publications**		**P**
3	**Definitions**		**P**
4	**General requirements**		**P**
5	**Construction**		P
5.1	**General**		P
5.1.1	Electric component parts of appliances shall be of types specifically approved for the intended use or shall be investigated as an integral or separate part of the appliance.		P
5.1.2	Electric components of appliances shall conform to the particular Canadian Electrical Code, Part II Standard covering such components and shall be suitable for the application.		P
5.1.3	Closed-in cooking areas that are not vented external to the appliance to prevent undue accumulation of moisture, grease, etc., shall be the subject of investigation with respect to fire and shock hazards due to the deterioration of insulation in electric parts.		N/A
5.1.4	The maximum rating marked on cord-connected appliances for use on nominal 120 V branch circuits protected by overcurrent devices rated or set at not more than 15 A shall not exceed 1500 W at 115 V (see Clause 7.2). Exception: the maximum rating shall not exceed the values listed in Table 9 under either of the following conditions: (a) it is apparent from the usage of the appliance that the load presented by the appliance is not continuous; or (b) the duty cycle of the appliance is marked as specified in Clause 6.21.		P
5.1.5	Appliances having provision for connection to a water supply shall incorporate an air gap or vacuum breaker complying with the requirements of Clause 7.14 that will ensure an air gap between the water supply connection and the liquid contained in the appliance.		N/A
5.2	**Enclosures**		P
5.2.1	**General**		P
5.2.1.1	Appliances shall have enclosures of moisture-absorption-resistant material that enclose all live parts. These enclosures shall be formed and assembled such that they (a) have the strength and rigidity necessary to resist the abuses to which they might be subjected without increasing the fire or accident hazard due	UL CERTIFIED MATERIAL USED	P

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
	to deformation of the enclosure and the resultant reduction of spacings, loosening, or displacement of parts, etc.; (b) afford protection against accidental contact with live parts, except in the case of open-wire heating elements in toasters; and (c) afford protection for electrical components against the deleterious effects of moisture, steam, grease, or other injurious material that might be encountered in normal operation.		
5.2.1.2	Appliance (frypans, etc.) having electrical components, insulation, or spacing that would be adversely affected by water and might be immersed for washing shall be capable of meeting the requirements of clause 7.12 or shall be marked as required by clause 6.4.	No such construction	N/A
5.2.1.3	Appliances intended for use outdoors shall meet the Type 3R enclosure requirements in CAN/CSA-C22.2 No. 94.2.	Indoor use only	N/A
5.2.1.4	Enclosures of appliances shall comply with the applicable physical abuse tests of Clause 7.13.	See test results	P
5.2.2	**Metallic enclosures**		N/A
	The thickness of metal for enclosures shall comply with Table 1.	Polymeric enclosure	N/A
5.2.3	**Nonmetallic enclosures, supports, and decorative parts**		P
5.2.3.1	Nonmetallic materials for enclosures and supports of electrical components shall (a) have suitable mechanical strength and aging and moisture-resistant properties; (b) have limiting temperatures* not less than the maximum temperatures to which they could be exposed during normal operation, except that (i) thermoset materials may exceed their limiting temperatures if the materials comply with the test requirements of Clause 7.19; and (ii) thermoplastic materials may exceed their limiting temperatures by not more than 10% if the materials comply with the test requirements for thermoset materials specified in Clause 7.19; and (c) comply with the flammability requirements for 5 VA materials as specified in CSA C22.2 No. 0.17, or the appliance shall comply with the requirements of Clause 5.2.3.2. *The limiting temperature for plastic material is the maximum continuous-use temperature recommended by the plastic supplier.	UL APPROVED POLYMERIC MATERIAL AS ENCLOSURE	P

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
5.2.3.2	Appliances that do not comply with the flammability requirements specified in Clause 5.2.3.1(c) shall (a) comply with the abnormal test requirements of Clause 7.4 (abnormal test), with all cycling-type temperature-limiting, temperature-regulating, and combination temperature-limiting-regulating devices shorted out of the circuit; manual reset and one-shot thermal devices shall remain in the circuit; and (b) employ plastic material that (i) for enclosures of heater elements, complies with the flammability requirements for V-1 materials in CSA C22.2 No. 0.17; and Note: A resistor, rated 5 W or less, functioning as a heating medium, is not considered a heater element for the purposes of this requirement. (ii) for enclosures of live parts other than heater elements, complies with the flammability requirements for V-2 materials in CSA C22.2 No. 0.17, except that the material may have a flammability classification of HB as determined in accordance with CSA C22.2 No. 0.17 provided that the following conditions are met: (1) the appliance complies with the overheating protection requirements of Clause 5.13; (2) all enclosure parts, including ribs, grills, and similar parts are spaced not less than 12.7 mm (1/2 in) from bare live parts; (3) the material resists ignition for a period not less than 7 s when subjected to the hot wire ignition (HWI) test of CSA C22.2 No. 0.17; and (4) the material resists ignition when subjected to 60 arcs of the high-current arc ignition (HAI) test of CSA C22.2 No. 0.17.	See results of abnormal test	P
5.2.3.3	Decorative parts and those intended for illumination purposes that do not meet the requirements of Clause 5.2.3.1 shall (a) not be a support for electrical components; (b) not enclose bare live or arcing parts; (c) not be in contact with incandescent lamps; and (d) be of a material that complies with the flammability requirements for HB materials in CSA C22.2 No. 0.17.		P
5.2.4	**Openings in enclosures**		P

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
5.2.4.1	Openings in external enclosures shall not be located directly below (a) terminals; (b) heater elements other than those with metal sheaths that are cast in, brazed on, or swaged to external enclosures; (c) wiring; and (d) other live parts, unless baffled in order to prevent molten metal, flaming particles, etc., from falling through to the supporting surface, except as specified in Clause 5.2.4.7. Insulated wiring protected by a suitable sleeving, power supply cords fixed in place, and metal-sheathed heater elements of hand-held barbecue lighters shall be exempt from this requirement. The sleeving shall be retained in position and be non-fraying, suitable for the temperatures encountered, and in compliance with the requirements of Clause 7.17.1.		P
5.2.4.2	Openings in external enclosures shall be constructed, located, or baffled to prevent a probe, as shown in Figure 1, from being inserted and touching live parts. The probe shall be applied in any direction after removal of all parts that can be removed without the use of a tool.	Articulate probe cannot touch live parts through openings	P
5.2.4.3	Covers required to enclose wiring, bare live parts, etc., that open for cleaning (e.g., toaster crumb tray) and do not require the use of a tool (e.g., screwdriver) for opening or removal shall be permanently secured to the frame or enclosure by means of hinges, chains, or other equivalent means, unless the openings comply with Clauses 5.2.4 .1, 5.2.4.2, and 5.2.4.3. These covers shall incorporate an interlock or shall be marked as specified in Clause 6.9.	No such construction	N/A
5.2.4.4	Appliances provided with surface cooking elements shall have provision for the removal of food, etc., that might drop through the heater element.		N/A
5.2.4.5	Except as specified in Clauses 5.2.4.4 and 5.2.4.7, openings shall be located so that spillage occurring during the normal use of the equipment is not likely to enter the enclosure.	Located in the bottom	P
5.2.4.6	Supporting legs or the equivalent shall be permanently secured to the enclosure and shall have adequate strength to maintain the required spacing between the enclosure and the supporting surface under all conditions of normal use, unless the appliance meets the test requirements of this	No such constructions	N/A

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
	Standard with one or more legs removed.		
5.2.4.7	A drainage opening shall be provided in liquid-heating appliances for liquid that can cause a shock hazard by becoming entrapped as a result of leaking, filling, or overflowing.		P
5.3	**Protection against corrosion**		P
5.3.1	Iron and steel parts shall be protected against corrosion as required by CAN/CSA-C22.2 No. 0.		P
5.3.2	The surfaces of metal parts shall be protected, if necessary, against scaling, flaking, or other effects of corrosive action that might cause subsequent reduction in the dielectric strength of appliances or reduce the spacings to less than those required by Clause 5.19 while in normal use.		P
5.4	**Mechanical assembly**		P
5.4.1	Parts used in the construction of appliances shall have adequate strength and be assembled and secured in position to ensure proper and nonhazardous functioning under conditions of normal use.		P
5.4.2	Switches, lampholders, thermostats, etc., shall be fastened securely and rigidly to maintain the required clearances. Components held by a single screw and lockwasher (e.g., stem-mounted controls) shall be prevented from turning by a key or the equivalent if movement can result in a hazardous condition.		P
5.4.3	The operating mechanism of switches or controls shall not subject electrical parts to undue strain.		P
5.4.4	Screws or other fastenings of fragile insulating parts shall not be so tight as to result in cracking or breaking of such parts due to expansion and contraction, unless the insulating material is completely retained. Generally, such parts shall be slightly loose or shall be provided with cushioning material.		P
5.4.5	Adhesives shall not be employed as the sole means of securing enclosures or materials supporting live parts.	No adhesives are used.	N/A
5.4.6	A handle used on a steam mop shall withstand a force of four times the empty weight of the steam mop without damage to the handle, its securing means, or that portion of the enclosure to which the handle is attached. See Clause 7.25.		N/A
5.5	**Stability**		P

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
	Appliances shall meet the requirements of Clause 7.15. A floor-standing appliance may be provided with a bracket or other device for securing it to a floor or wall to obtain the necessary stability and shall be marked as required by Clause 6.12.		P
5.6	**Supply connections**		P
5.6.1	**Permanently connected appliances**		N/A
5.6.1.1	An appliance intended to be permanently connected shall have a suitable terminal box, or the equivalent, for conduit connection to the supply.		N/A
5.6.1.2	Where openings for conduit connection are provided in sheet metal enclosures, the metal thickness around such openings shall be not less than (a) 0.78 mm (0.0309 in) for sheet steel; (b) 1.11 mm (0.0438 in) for aluminium; or (c) 1.08 mm (0.0428 in) for other nonferrous metal.		N/A
5.6.1.3	The location of terminal boxes or wiring compartments in which supply connections are made shall be such that connections will be accessible for inspection. In a household-type appliance, including a built-in appliance, the supply connections shall be accessible for inspection from the front or top of the appliance when it is installed as intended, unless the appliance is provided with approximately 1.8 m (6 ft) of one of the following in order to extend the point of supply to an accessible location: (a) Type SJ, SJT, SPT-3, HSJO, or equivalent flexible cord with a suitable attachment plug; (b) flexible metallic conduit with conductors; or (c) armoured cable.		N/A
5.6.2	**Terminal parts**	No wiring terminals or terminal box	N/A
5.6.2.1	Wire-binding terminal parts and the identification of terminal parts and leads shall comply with the requirements of CAN/CSA-C22.2 No. 0.		N/A
5.6.2.2	Rigid wiring terminals shall thread into metal and shall be prevented by means other than friction from turning or shifting, which can result in reducing the spacings required by Clause 5.19.		N/A
5.6.2.3	Permanently connected appliances requiring connection to an identified conductor shall have one terminal or lead marked for the connection of the identified conductor of the supply circuit if they have lampholders, element holders of the screwshell type, single-pole switches, or automatic		N/A

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
	controls having a manually operable single-pole switch.		
5.6.2.4	Where leads in the terminal box are intended for connection to the power supply conductors at the time of installation, they shall (a) be of suitable ampacity and not less than 150 mm (6 in) in length; (b) be No. 18 AWG or larger; and (c) have insulation suitable for the conditions, e.g., voltage and temperature.		N/A
5.6.3	**Cord-connected appliances – Power supply cords, cord sets, and appliance terminal pins**		P
5.6.3.1	A cord-connected appliance intended for use with a cord set shall be provided with male terminals of the pin or blade type that will accommodate a suitable plug.		N/A
5.6.3.2	Attachment plugs shall conform to the requirements of CSA C22.2 No. 42. Cord sets shall meet the requirements for heater cord sets specified in CSA C22.2 No. 21.	Polarized attachment plug. Power supply cord complies with C22.2 No. 21	P
5.6.3.3	Power supply cords, cord sets, and interconnecting cords shall have a voltage rating not less than the rated voltage of the appliance and shall have an ampacity at least equal to the input in amperes corresponding to maximum normal load conditions. The type of supply cord shall be in accordance with Table 2 or the equivalent.	Type SPT-2, 18AWG X 2C, 105 °C, 300 V	P
5.6.3.4	Appliances intended for use outdoors shall have outdoor-type cords as specified in Table 2.	Indoor use only	N/A
5.6.3.5	Guards or an equivalent type of protection shall be provided to prevent accidental contact with terminals of the pin or blade type when they are live (see Clause 5.2.4) or to protect them from mechanical injury, or both. The guard shall prevent a straight edge placed in any position across the guard from touching any terminal, including the ground terminal. Guards shall afford protection equivalent to that of steel with a thickness not less than 0.68 mm (0.0269 in) and shall be fastened independently of the terminals, unless investigation shows that no hazard is present.	No such construction	N/A
5.6.3.6	Appliances that make use of plugs other than those specified in CSA C22.2 No. 57 shall be subject to investigation. Consideration shall be given to the configuration, the nature of the materials used, and the likelihood of use with appliances other than	Polarized attachment plug.	N/A

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
	those for which the plug was originally intended. See Clause 5.21.		
5.6.3.7	For all appliances, the length of the power supply cord and attachment plug, as measured from where the cord enters the appliance to the face of the attachment plug, or the overall length of a cord set supplied with the appliance shall be not less than 0.6 m (2 ft) nor greater than 2.1 m (7 ft). Deep fryer, cooker/fryer, or oil fondue type appliances shall be provided with a detachable power supply cord having a cord length greater than 0.6 m (2 ft) but less than 0.9 m (3 ft).		P
5.6.3.8	Cord sets having a thermostatic control shall be provided with a cord having an ampacity not less than 15 A.	No such construction	N/A
5.6.3.9	The supply cord on a cord reel shall meet the requirements of Clause 7.23.	No such construction	N/A
5.6.4	**Strain relief**		P
5.6.4.1	Strain relief shall be provided so that mechanical strain on the power supply cord will not be transmitted to terminals, splices, or interior wiring.	Cord clamp is provided.	P
5.6.4.2	The strain relief shall (a) withstand a steady pull in any direction of 90 N (20 lb); and (b) prevent the cord from being pushed into the equipment through the cord entry hole if such displacement is liable to (i) subject the cord to mechanical injury; (ii) expose it to a temperature higher than that for which it is rated; or (iii) reduce spacings to less than those specified in Clause 5.19. Note: In the case of flat cords (e.g., SPT/HPN) having parallel conductors that can be separated, the strain relief may be applied to the separated conductors provided that the separated portion of the cord does not extend outside the appliance enclosure or bushing.	Tests complied	P
5.6.5	**Flexing**		P
5.6.5.1	The power supply cord or cord set of cord-connected appliances shall withstand a flexing test as specified in Clause 7.6 without causing exposure or breakage of the conductors or displacement or breakage of the anti-kink device.	Refer to results of flexing test	P
5.6.5.2	Wiring routed between the handle and the base of a steam mop that can be subjected to the flexing or		N/A

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
	movement during normal operation of the appliance shall comply with the wire flexing requirements in Clause 7.7.4		
5.6.6	**Bushing**		N/A
5.6.6.1	Where cords or wiring pass through walls or barriers or change direction, there shall be smooth, well-rounded surfaces upon which the cord or conductors can bear, or a bushing shall be provided that is suitable for the conditions at the location (e.g., temperature, oil, etc.).		N/A
5.6.6.2	A bushing of noncombustible moisture-absorption-resistant insulating material shall be provided where (a) the cord is inferior in serviceability to Type HSJO; (b) the wall, barrier, etc., is of metal; and (c) the construction and use of the appliance are such that the cord can be subjected to strain or motion. Note: Insulated metal grommets may be used in lieu of insulating bushings provided that the insulating material used is not less than 0.8 mm (1/32 in) in thickness and that it completely fills the space between the grommet and the metal in which it is mounted.	Polymeric enclosure	N/A
5.7	**Electrical insulation**		P
5.7.1	Bare live parts shall be supported on heat-resistant moisture-absorption-resistant insulating material that is suitable for the particular application and capable of withstanding the most severe conditions likely to be encountered in service. Note: Materials such as mica, porcelain, phenolic composition, and cold-moulded and certain refractory materials generally may be used as the sole support of live parts. Other materials that are not suitable for general use may be acceptable if used in conjunction with other more suitable materials or if located and protected to prevent mechanical damage and to minimize the absorption of moisture.		P
5.7.2	Determination of the acceptability of insulating material shall include consideration of (a) mechanical strength; (b) dielectric strength; (c) insulation resistance; (d) heat- and moisture-resistant properties;		P

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
	(e) the degree of enclosure or protection; (f) any other factors that might have a bearing on fire and accident hazards under conditions of actual use; and (g) the suitability of sleeving over bare live parts (but not as insulation over internal wiring) as judged under the requirements of Clause 7.17.		
5.8	**Thermal insulation**	No thermal insulation is used.	N/A
5.8.1	Thermal insulating material shall be suitable for the particular application and shall be adequately enclosed and retained to prevent loss and shifting.		N/A
5.8.2	Thermal insulation (e.g., mineral wool) that could contain conductive impurities shall not contact bare live parts.		N/A
5.9	**Current-carrying pars**		P
5.9.1	Current-carrying parts shall have the mechanical strength and ampacity for the intended service and shall be of metal suitable for the particular application.		P
5.9.2	Stainless steel and other corrosion-resistant alloys may be used for current-carrying parts without temperature restriction. Suitably plated iron or steel may be used for current-carrying parts.		P
5.9.3	Bare current-carrying parts shall be rigidly supported to maintain the spacings required by Clause 5.19.		P
5.10	**Wiring**		P
5.10.1	Wiring connections and wires between parts of appliances shall be adequately protected or enclosed.	All wirings are enclosed within enclosure.	P
5.10.2	Raceways shall be smooth and entirely free from sharp edges, burrs, moving parts, etc., which can cause abrasion of the insulation on conductors.	No raceway	N/A
5.10.3	Holes in sheet-metal walls through which insulated conductors pass shall be provided with smoothly rounded bushings or shall have smooth, well-rounded surfaces upon which the wires can bear. Note: Insulated conductors may be bunched and passed through a single opening.	Polymeric enclosure	N/A
5.10.4	The movement of drip pans, drawers, trays, etc., shall not damage the insulation of conductors.		N/A
5.10.5	Wiring shall be so located that it will not be exposed to vapours from a vented oven or spillage from cooking operation.		P

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
5.10.6	Wiring subjected to flexing in the normal use of equipment (e.g., to hinged surface elements) shall have sufficient stranding of the conductors for the movement encountered as determined by the flexing test of Clause 7.6.1.		N/A
5.10.7	The internal wiring of appliances shall consist of wire of a type or types suitable for the particular application when considered with respect to (a) the temperature and voltage to which the wire is likely to be subjected; (b) exposure to oil, grease, or other substances likely to have a deleterious effect on the insulation; (c) ampacity; (d) exposure to moisture; and (e) other conditions of service to which the wire is likely to be subjected.		P
5.10.8	Connectors and joints in conductors and the insulation thereon shall comply with the requirements of CAN/CSA-C22.2 No. 0.		P
5.10.9	Soldered connections shall be made mechanically secure before soldering.		P
5.11	**Heating elements and heating elements**		P
5.11.1	Heating elements shall be supported in a substantial and reliable manner and shall be protected against mechanical injury and contact with outside objects. Note: Coiled-wire heating elements may be supported on porcelain-hook-type insulators, depending on the stiffness of the element, the spacing between hooks, the shape of the hook, etc.		P
5.11.2	Heating elements of the open-coil type shall be supported such that, if appliances are subjected to extreme conditions of operation, including element breakage at any point, short-circuits cannot occur between turns, between sections of the heating elements, or between bare live and non-current-carrying metal parts, with the appliance mounted in its normal operating position. Compliance shall be determined in accordance with the test of Clause 7.24.	Sheathed heating element	N/A
5.11.3	Appliances, other than toasters, shall not have open-wire elements unless the elements are enclosed or are guarded to meet the requirements of Clause 5.2.4.	Sheathed heating element	P
5.11.4	Heater elements shall be constructed such that turning or movement that can occur in normal	The position of heater element is fixed.	N/A

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
	service will neither put strain on electrical connections nor cause reduction of the spacings required by Clause 5.19.		
5.11.5	Heater elements of the porcelain-brick-type that are required to bear the weight of a cooking utensil shall be supported to prevent breakage. Note: It is not necessary that the support be solid metal or that it cover the entire under-surface of the porcelain. For bricks less than 150 mm (6 in) in diameter, four large tabs can give sufficient support. For larger bricks, additional support to that provided by tabs should be provided.		N/A
5.11.6	A heater element having terminals that can be connected to the supply circuit by means of a cord set or a permanently attached power supply cord shall not be of the removable type unless the element meets the applicable requirements of Clauses 5.21 and 7.23.	No such construction	N/A
5.11.7	Aluminum-sheathed elements shall not be used in appliances where the elements are immersed in liquid during normal use.	Sheathed element is not directly immersed in water.	P
5.11.8	Open-coil heater element insulators and supports shall be fixed in position independently of the heating element.		N/A
5.11.9	Element sheaths for barbecue lighters shall be constructed from at least No. 304 stainless steel alloy having a minimum thickness of 0.45 mm (0.018 in).		N/A
5.11.10	An appliance with a rope heater element shall not become a shock hazard when subjected to the thermal endurance test specified in Clause 7.23.		N/A
5.12	**Overcurrent protection**		P
5.12.1	Overcurrent protection for circuits and auxiliary devices, if provided in appliances, shall comply with the requirements of the Canadian Electrical Code, Part I.		P
5.12.2	Receptacles and lampholders for other than pilot duty in appliances rated more than 15 A shall have overcurrent protection not exceeding 15 A as part of the appliance. Note: Lampholders may be grouped with one receptacle, or two receptacles may be grouped.	No such construction	N/A
5.12.3	Overcurrent devices shall be of types recognized as suitable for the particular application and shall be readily accessible from the outside of appliances, but not without opening a door or cover		N/A

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
	that is hinged or attached in an equivalent manner.		
5.12.4	Fuseholders shall be constructed and installed so that bare live parts other than the screwshell in plug fuses will not be exposed to contact by persons removing or replacing fuses, i.e., they shall be dead-front.		N/A
5.12.5	The screwshells of plug fuseholders and the contact of extractor-post-cartridge-type fuseholders adjacent to the mounting surface shall be connected to the load side of the circuit.		N/A
5.12.6	Plug fuses shall be used only in circuits not exceeding 150 volts-to-ground.		N/A
5.13	**Protection against overheating**		P
5.13.1	Unless they can operate safely when dry, appliances intended to heat liquids that might be inadvertently operated when dry shall be provided with a protective device or devices that will open the power supply or reduce the power input to the heating element to prevent unsafe temperatures from being reached when the appliance is operated at the test voltage under such abnormal conditions. Heating elements shall not be considered as protective devices.	Thermal fuse is provided to protect the unit when the unit operates in dry operation	P
5.13.2	Vaporizers of the resistance-wire type that are provided with a thermostat or the equivalent shall be constructed so that the protective device is inaccessible and not readily adjustable by the user.	No such construction	N/A
5.13.3			
5.13.3.1	Appliances such as deep fryers and frypans that use oils, fats, and similar flammable substances in normal operation and that are capable of raising the temperature of the oil or fat to the ignition point shall be provided with suitable overheat protection, the adequacy of which is determined by compliance with the applicable normal and abnormal tests specified in Clauses 7.3 and 7.4, respectively.		N/A
5.13.3.2	Deep-fat fryers that employ two cycling-type thermostats to comply with the requirements of Clause 5.13.3.1 shall provide an indication (such as a warning light) to the user when the appliance is cycling on its temperature-limiting thermostat (see also Clauses 7.3.3.7 and 7.4.3).		N/A
5.13.4	Fusible links provided in appliances to prevent hazardous temperatures due to abnormal operation of the appliances shall		P

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
	(a) be constructed or enclosed to prevent tampering; (b) operate without the short-circuiting or grounding of live parts; and (c) comply with the performance requirements specified in Clause 7.11.		
5.13.5	Reset levers or buttons of manually reset protective devices shall be recessed or guarded to prevent resetting of the protective device by accidental means.		N/A
5.13.6	The setting, construction, and location of protective devices shall be investigated with respect to the nature of the substance being heated and any other feature bearing on the shock and fire hazards involved in actual service.		N/A
5.13.7	Appliances using PTC heaters shall be subjected to the performance test specified in Clause 7.21. During or upon completion of this test, the heater elements shall not crack, short, or open.		N/A
5.14	**Receptacles**	No such construction	N/A
5.15	**Lampholders and lamps**	No such construction	N/A
5.16	**Switches and controls**		P
5.16.1	Switches and controls shall comply with the applicable requirements of CSA C22.2 Nos. 24, 55, and 111 and the additional requirements specified in Clauses 5.16.3 and 5.16.10.		P
5.16.2	Switches and controls shall have current and voltage ratings not less than those of the circuits they control when the appliance is operated as described in Clause 7.3.2.		P
5.16.3	Switches and controls shall be capable of meeting the requirements of the overload and endurance tests specified in Clause 7.9.	UL recognized thermostat	N/A
5.16.4	Switches and controls shall be located or protected such that they are not subjected to mechanical damage or adversely affected by spillage from cooking or pouring and the collection of grease.		N/A
5.16.5	If appliances have live parts exposed to contact during operation or cleaning, the live parts shall be de-energized by a manually operated switch or control* (e.g., thermostat, timer) that can be turned to an OFF position. Such switches shall (a) in permanently connected appliances, disconnect all ungrounded conductors; (b) in cord-connected appliances, be of the double-		N/A

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
	pole type and arranged so that both supply conductors are disconnected simultaneously when the switch or control is in the OFF position. Single-pole switches, including those of auxiliary controls, may be used in addition to a double-pole switch to control lamps or a motor or for heat selection or control, except that the heating element, or one of the elements if more than one is provided, shall be controlled by the double-pole switch only; and (c) have an OFF position, which shall be marked or clearly indicated (e.g., the OFF position of a toaster control handle).		
5.16.6	If a switch or a control that can be turned manually to an OFF position is used to control one or more heat settings of a heater element, its OFF position, at minimum, shall be indicated on or adjacent to the switch. Alternatively, keys or legends may be used for showing the operating positions of switches; they shall indicate at minimum the OFF position and shall appear in a conspicuous, permanent location. No additional marking need appear if the handle is of such shape or design that the OFF position of the switch is clearly indicated. A low-temperature setting on a thermostat shall not be considered as a true OFF position and shall not be marked as such unless the thermostat does not reclose when cooled to a temperature of –35 °C.		N/A
5.16.7	Switches located in handles of wood or other combustible material shall be enclosed in metal or other noncombustible material.		N/A
5.16.8	The OFF position only may be marked by the symbol “O”.		N/A
5.16.9	Automatic temperature controls shall comply with the performance tests specified in Clause 7.10.	UL recognized thermostat	N/A
5.16.10	A clock-operated switch, in which the switching contacts are actuated by a clockwork, a gear train, hand, electrically wound spring motors, electric clock-type motors, or by equivalent arrangements, shall comply with one of the following:		N/A
5.16.11	In reference to clause 5.16.10, if a clock-operated switch incorporates a stay-on feature which is activated in the same direction as the countdown to OFF, two operations shall be conducted to engage the stay-on feature.		N/A
5.17	**Motors**		N/A
5.18	**Electromagnetic interference (EMI) filters**	No EMI filters	N/A
5.19	**Spacings**		P

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
5.19.1	Spacings in components of appliances (e.g., switches, lampholders, and thermostats) shall comply with the requirements of the applicable Standard of the Canadian Electrical Code, Part II. If no such Standard exists, spacings shall be the subject of investigation. See also Clause 5.1.2.		P
5.19.2	Except as otherwise specified in Clauses 5.19.1 and 5.19.3, the spacings in appliances shall be not less than those specified in Table 3. If a bare live part is not rigidly supported, or if a movable non-current-carrying metal part is in proximity to a bare live part, the construction shall be such that the minimum spacing specified will be maintained under all conditions of use.		P
5.19.3	An insulating barrier or liner may be used to obtain the required spacings provided that it meets all the following requirements: (a) it is of adequate dielectric strength and resistant to moisture; (b) it is not adversely affected by arcing and is suitable for the temperature encountered; (c) it is of adequate mechanical strength and permanently retained in place by means other than adhesives; (d) it is not less than 0.66 mm (0.026 in) thick, except that it may be not less than (i) 0.33 mm (0.013 in) thick if used in conjunction with a spacing not less than one-half of that required; or (ii) 0.25 mm (0.010 in) thick if it is of mica or other equivalent insulating material of suitable thickness. An insulating barrier or liner shall be held in position between the parts involved by mechanical means (no spacing required). Adhesive shall not be relied upon to fix such insulation in place; and (e) it meets the applicable requirements of Clause 7.19.		N/A
5.19.4	Insulating material (such as mica washers in depressions in metal) that is depended upon for maintaining spacings of live parts shall closely fit a well-defined depression in the metal at least 0.8 mm (1/32 in) deep. Other equivalent means may be used.	No such construction	N/A
5.20	**Leakage current**		P
	The leakage current for single-phase cord-	Refer to test results	P

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
	connected appliances shall not exceed 0.5 mA when tested in accordance with Clause 7.8, except that for appliances having sheathed heater elements the leakage current shall not exceed 4 mA for the first 10 min after power is first applied and 0.5 mA after the 10 min interval.		
5.21	**Bonding to ground**		N/A
5.22	**Electrical rating**		P
	The marked electrical input of an appliance shall be in accordance with Clause 7.2.		P
5.23	**Temperature (normal)**		P
	When tested as specified in Clause 7.3, an appliance shall not reach a temperature at any point high enough to constitute a fire hazard nor show temperatures at specific points greater than those specified in Table 4.	Refer to temperature test results	P
5.24	**Dielectric strength**		P
	Immediately following the temperature test of Clause 5.25, the appliance shall be capable of withstanding for a period of 1 min without breakdown the dielectric strength test specified in Clause 7.5.	Refer to test result	P
6	**Marking**		P
7	**Tests**		P
7.1	General		P
7.2	Rating		P
7.3	Temperature (normal)		P
7.3.1	General		P
7.3.2	Test voltage		P
7.3.3	Load conditions		P
7.4	Temperature (abnormal)		P
7.5	Dielectric strength		P
7.6	Flexing (power supply cords and cord sets) and detachment		P
7.7	Flexing (internal wiring)		N/A
7.8	Leakage current		P
7.9	Performance of manually operated switches		N/A
7.9.1	Overload		N/A
7.9.2	Endurance		N/A

CSA C22.2 No. 64			
Clause	Requirement – Test	Result – Remark	Verdict
7.10	Performance of automatic temperature controls		N/A
7.10.1	General		N/A
7.10.2	Calibration		N/A
7.10.3	Overload		N/A
7.10.4	Endurance		N/A
7.11	Performance of fusible links		N/A
7.12	Aging of water seals		N/A
7.13	Physical abuse		P
7.14	Backflow		N/A
7.15	Stability		P
7.16	Insertion endurance		N/A
7.17	Investigation of fibreglass sleeving (over bare conductors used as wiring)		N/A
7.18	Thermoset material aging		N/A
7.19	Insulating liner investigation		N/A
7.20	Electric toilets – Spillage		N/A
7.21	Performance of appliance having PTC heaters		N/A
7.22	Thermal endurance (rope heater element)		N/A
7.23	Mechanical endurance (cord reels)		N/A
7.24	Open-coil heating element breakage		N/A
7.25	Strength of handles		N/A
8	**Cord –connected double-insulated household cooking and liquid-heating appliance**		N/A
9	**Requirements for bare element water heaters**		N/A