

## STANDARD INFORMATION

**Standard:** UL 749 / CSA C22.2 No. 167

**Standard ID:**

Household Dishwashers [UL 749:2023 Ed.12]

Household Dishwashers [CSA C22.2#167:2023 Ed.9]

**Previous Standard ID:**

Household Dishwashers [UL 749:2018 Ed.11]

Household Dishwashers [CSA C22.2#167:2018 Ed.8]

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** **May 25, 2026**

## IMPACT, OVERVIEW, AND ACTION REQUIRED

**Impact Statement:** Per our accreditation, Intertek is required to review reports against the standard revisions to confirm compliance. Once compliance is confirmed, the standard reference in the report is updated to show continued compliance to the technical requirements of the standard. Reports not updated to this version by the effective date above will be withdrawn.

**Overview of Changes:**

- DW Terminal Blocks
- Annex D – Alternative Electronic Circuit Requirements
- Liquid Leaking from an Auxiliary Reservoir Requirements
- Circuit Interrupters with Fire Extinguishing Agent for Use in Electrical Appliances
- Leakage Current Detection Requirements
- Nichrome Wire Test Requirements
- Unintentional operation requirements
- Remote safety firmware/software update requirements

Specific details of new/revise requirements are found in table below.

***Current Listings Not Active? – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records. We will do this at no charge as long as Intertek is notified in writing prior to the review of your reports.***



## STANDARD INFORMATION

CLAUSE	VERDICT	COMMENT
		<i>Additions to existing requirements are <u>underlined</u> and deletions are shown <del>lined-out</del> below.</i>
4	Info	<b>General Requirements</b>
4.2		In Canada, general requirements applicable to this standard are given in CSA C22.2 No. 0 <u>and grounding and bonding requirements are given in C22.2 No. 0.4.</u>
15	Info	<b>Moisture Resistance</b>
15.10	Info	<b>Liquid leaking from an auxiliary reservoir</b>
		<i><b>New clause added;</b></i>
		An appliance that uses an appliance wiring material (AWM) style that uses a covering layer in addition to the electrical insulation layer or uses tubing intended to protect the wire is considered to comply with 15.10 if the AWM with the secondary layer complies with Immersion Test No. 2 specified in 30.8.1(b) as follows:
15.10.2		a) For AWM with a polymeric covering or polymeric tubing, three samples of the AWM with the covering or tubing shall be immersed in 100 percent concentration of the rinse agent. The samples shall be immersed for 1,000 h at a temperature 10 °C (18 °F) above the temperature to which the part is subjected during normal operation, but not less than 70 °C (158 °F). b) For AWM with a rubber-based covering or rubber-based tubing, three samples of the AWM with the covering or tubing shall be immersed for 168 h immersion in 100 % rinse aid solution at boiling temperature.
		As a result of the test, the AWM or tubing samples shall show no cracking, leakage, deterioration, or evidence of wetting of the electrical insulation layer.
17	Info	<b>Abnormal Operation</b>
17.5	Info	<b>Hot coil ignition test</b>
		<i><b>New clause added;</b></i>
17.5.4		For a built-in product, the appliance shall be placed inside an enclosure constructed from painted plywood, cement board, or calcium silicate board with a minimum thickness of 9.5 mm (0.37 in). The appliance shall be levelled, starting with any adjustable feet at the maximum distance from the bottom of the appliance to the supporting surface. The feet shall be positioned such that they create the largest area under the unit allowed in the installation instruction. The enclosure shall consist of a bottom, a back, two sides, and a top. Each part of the enclosure shall be brought into the closest contact with the corresponding surface of the appliance



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		<p>as the configuration of the appliance permits. The following requirements shall apply:</p> <p>a) The top, two sides, and back inside surfaces of the test enclosure shall be completely covered by single-layer cheesecloth panels. A mechanical means, such as small pieces of metal foil adhesive tape, shall be used to secure the cheesecloth panels so there are no gaps between the panels. A single layer of cheesecloth slightly larger than the appliance bottom surface shall cover the supporting surface. A single layer of cheesecloth shall be draped from the top of the enclosure to the supporting surface and shall be secured to the sides such that it is held in close contact with the front of the appliance.</p> <p>b) If agreeable to those concerned, portions of the appliance may be tested by placing cheesecloth only in the area of the anticipated breach</p>
		<p><b><i>New clause added;</i></b></p>
17.5.5		<p>For a portable dishwasher, the top, two sides, front and back of appliance shall be completely covered by single-layer cheesecloth panels. A mechanical means, such as small pieces of metal foil adhesive tape, shall be used to secure the cheesecloth panels so there are no gaps between the panels. A single layer of cheesecloth, slightly larger than the appliance bottom surface, shall cover the supporting surface. If agreeable to those concerned, cheesecloth may be placed only in the area of the anticipated breach.</p>
		<p><b><i>New clause added;</i></b></p>
17.5.9		<p>The coil shall be:</p> <p>a) Nichrome wire [80 % Nickel, 20 % Chromium, 22 or 20 AWG, in accordance with ASTM B344]; or</p> <p>b) FeCrAl alloy wire [72.2 % Iron, 22 % Chromium, 5.8 % Aluminum; 22 or 20 AWG, in accordance with ASTM B603] and shall be applied to a connector or switching contact such that the adjacent non-metallic combustible materials will be ignited during the test.</p>
		<p><b><i>New clause added;</i></b></p>
17.5.11		<p>The hot coil shall be energized such that current in the circuit is immediately increased to the current setting per Table 17.1 and held constant for 20 minutes. If no ignition is detected within 20 minutes, the current shall be removed from the hot coil. If ignition is detected within 20 minutes, any burning of non-metallic combustible materials shall be allowed to cease naturally even if the burning goes beyond 20 minutes. If ignition of the cheesecloth occurs during the 20 minutes, the fire shall be extinguished as soon as possible. If the hot coil fractures prematurely, the test shall be repeated.</p>



CLAUSE	VERDICT	COMMENT
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*New table added;*

**Current Setting for Hot Coil Ignition Test**

Table 17.1	AWG	Type	Test current A
	22	Nichrome	11.0
20	Nichrome	13.9	
22	FeCrAl alloy	9.7	
20	FeCrAl alloy	12.5	

18 Info **Stability and Mechanical Hazards**

18.7 Info **Unintentional operation**

*New clause added;*

18.7.4 The requirements of 18.7.1 do not apply if the dishwasher doors do not lock from the outside. Examples of doors that lock from the outside are doors that require a secondary operation on the outside of the unit to open the door (i.e., “squeeze” latch or “throw” latch).

22 Info **Components**

22.11 Info **Controls**

22.11.8 Info **Leakage current detection devices**

*New clause added;*

22.11.8.2 The minimum test parameters for the evaluation of a leakage current detection device to CAN/CSA-E60730-1 and UL 60730-1 shall be specified as follows:

- a) Table 22.1 for constructions with heater sheaths that are grounded without a barrier as specified in 20.2.2(c); or
- b) Table 22.2 for constructions with heater sheaths that are grounded with a barrier as specified in 20.2.2(c); or
- c) Table 22.2 for constructions with heater sheaths that are ungrounded.

*New section added;*

22.21 **Circuit interrupters with fire extinguishing agent (CIFE) devices**

22.21.1 A circuit interrupter with fire extinguishing agent (CIFE) provided for compliance with 17.5 (Hot Coil Ignition Test) shall comply with:

- a) The Outline of Investigation for Circuit Interrupters with Fire Extinguishing Agent for Use in Electrical Appliances and Components, UL 60692; and



CLAUSE	VERDICT	COMMENT
		<p>b) Be evaluated in the end-use application to determine that the CIFEAs do not adversely interfere with the safe use of the appliance under normal operating conditions; and</p> <p>c) If the CIFEAs operate during abnormal operating conditions, the results of the expelled fire extinguishing agents shall be investigated to determine if any other hazards are introduced.</p>
22.21.2		22.21.2 To determine compliance with 22.21.1(b), the CIFEAs shall not operate during the Heating Test, nor shall the CIFEAs introduce conditions that may increase the risk of fire, electric shock, or injury to persons.
22.21.3		To determine compliance with 22.21.1(c), if the CIFEAs operate during abnormal operating conditions, the appliance shall be evaluated to determine if there are electric circuits and appliance functions still operable after the CIFEAs actuate that may increase the risk of fire, electric shock, or injury to persons.
23	Info	<b>Supply Connection and External Flexible Cords</b>
23.1	Info	<b>Permanently connected appliances</b>
		<i>New clause added;</i>
23.1.12		If the appliance is provided with a terminal block for connection of conductors, the terminal block shall be suitably rated for field wiring and have a flammability classification in accordance with 30.3.8 and 30.3.9 or be tested in accordance with 17.5, Hot coil ignition test.
23.1.13		The terminal box or compartment shall be evaluated for fire containment as specified in 17.5. The wire shall be wrapped around one of the twist type connectors or across the terminal block, and as a result of the test, there shall be no charred, burnt, or broken fibers of cheesecloth.
Annex B	Info	<b>SAFETY OF SMART ENABLED DISHWASHERS</b>
B2	Info	<b>General</b>
B2.6	Info	<b>Smart enabled or remote operation</b>
B2.6.3		<p>For a dishwasher that is provided with a door that locks from the outside a control on the appliance shall be manually adjusted to the setting for delayed start or remote operation before the appliance can be operated in this mode. This adjustment shall be provided on the appliance. The remote start enabled state shall be cancelled or terminated if the door is opened prior to start, restart, or due to power loss. See B3.4 and B3.5.</p> <p><u>A dishwasher that is provided with a door that does not lock from the outside can be remotely re-started and remotely operated if the door is opened prior to starting or re-starting. See B3.4(b) and B3.5(b).</u></p> <p>Note: The control is not to allow remote start or restart of a cycle unless enabled by the customer interacting with the dishwasher (i.e., selecting a button).</p>



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B2.7		<b><i>New section added;</i></b> <b>Remote safety firmware/Safety software updates</b>
B2.7.1		The following clauses apply when the manufacturer declares the appliance has Class B firmware or software and has the functionality to remotely update this firmware or software.
B2.7.2		The Class B firmware or software intended to be updated, shall comply with UL 60730-1, Clause H.11.12, Controls Using Software.
B2.7.3		The remotely actuated control function, including the software update function, shall comply with UL 60730-1, 5th edition, Clause H.11.12.4, Remotely Actuated Control Functions.  With respect to transmission faults, Note 1 of Clause H.11.12.4.1.3.1, Transmission, is considered normative.
B2.7.4		User authorization shall be required prior to any remote update of Class B firmware or software. This shall be evaluated in accordance with UL 60730-1, Clause H.11.12.4.4.3.
B2.7.5		The remote update of firmware or software shall occur when the appliance is in a ready-state, that is, with all loads de-energized. The software that enforces the appliance to be in a ready-state shall be at least Class A.
B2.7.6		The correct operation of the appliance's safety functions shall be maintained after the Class B firmware or software is updated.  Compliance is checked by a functional test of a remote software update and then a functional test to verify the proper operation of the appliance's protective control functions.
B3	Info	<b>Functional Safety</b>
B3.4		With respect to B3.2(c), the pausing of a normal operating cycle (stopping and restarting after a period of time), or restarting of the appliance after a power interruption, is acceptable if:  a) A door lock or interlock complying with 18.6.2 is actuated when the appliance cycle is interrupted; and b) When the door lock or interlock is deactivated before the operating cycle is restarted, a separate action from closing the door is necessary for the user to reinitiate the paused cycle. <u>The separate action shall comply with the requirements of 18.7. This separate action is permitted to occur remotely if the door does not lock from the outside. Doors with a "squeeze" latch or a "throw" latch are examples of door designs that lock from the outside.</u>



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B3.5		<p>With respect to B3.2(d), a delayed operating cycle or remote operation is acceptable if:</p> <p>a) A door lock or interlock complying with 18.6.2 is actuated when the appliance is set for delayed start or remote operation by the user in accordance with B2.6.3; and</p> <p>b) When the door lock or interlock is deactivated before the operating cycle is started, a separate action from closing the door is necessary for the user to reinitiate the delayed start or remote operation cycle. The separate action shall comply with the requirements of 18.7. <u>This separate action is permitted to occur remotely if the door does not lock from the outside. Doors with a “squeeze” latch or a “throw” latch are examples of door designs that lock from the outside.</u></p>
Annex D	Info	<p><b>ALTERNATIVE ELECTRONIC CIRCUIT REQUIREMENTS</b></p> <p><i>New section added;</i></p> <p><b>Components</b></p> <p>Printed wiring boards shall comply with:</p> <p>See standard for details.</p>
D5		
D16	Info	<p><b>Markings</b></p>
D16.2	Info	<p><b>Transformer overload test</b></p> <p><i>New clause added;</i></p> <p>Three transformers shall be placed on a tissue-paper covered soft wood surface and each covered with a layer of cheesecloth. A one-ampere cartridge fuse shall be connected in series from the core and the shield, if applicable, of each transformer to ground. Each transformer shall be protected by an overcurrent device. The device shall be the same as provided in the unit to protect the transformer, or if none is provided, shall be a branch circuit type and sized based upon the available energy to the end product using percentages of the intended branch-circuit overcurrent device, but not less than a 30 A normal-acting protective device. With all secondaries simultaneously short-circuited, each transformer shall be energized as for 7 h or until ultimate results occur. Results shall be in compliance when:</p> <p>a) The ground fuse remains intact;</p> <p>b) Each transformer withstands the potential specified in the Electric Strength Test, Section 16, while still warm from this test; and</p> <p>c) There is no ignition of the cheesecloth or tissue paper.</p>
D16.2.1		



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*New clause added;*

**Switch mode power supply overload test**

D16.3

Each output winding, or section of a tapped winding, shall be overloaded in turn, one at a time, while the other windings are kept loaded or unloaded, whichever load condition of normal use is the least favourable.

See standard for details.

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