

STANDARD INFORMATION

Standard: UL 2158 / CSA C22.2 No. 112

Standard ID:

Electric Clothes Dryers [UL 2158:2021 Ed.6]

Electric Clothes Dryers [CSA C22.2#112:2021 Ed.12]

Previous Standard ID:

Electric Clothes Dryers [UL 2158:2018 Ed.5+R:20Sep2019]

Electric Clothes Dryers [CSA C22.2#112:2018 Ed.11+U1]

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **April 7, 2024**

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 Reports not updated to this version by the effective date above will be withdrawn.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:

- Addition of requirements for entrapment
- Stability test and anti-tip devices
- Heating test and surface temperature
- Dryers provided with a water inlet valve
- Acoustic insulation and heat pump clothes dryers and motor controls for commercial appliances

Specific details of new/ revised 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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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 lined-out below.</i>
6	Info	Marking and Instructions
6.1	Info	Marking
6.1.2	Info	Appliance markings
6.1.2.36		A dedicated receptacle shall have a marking immediately adjacent to it identifying its use. The marking shall include the statement: "Not a general-use receptacle — For use with _____ only". A description of the clothes washer to be connected to the receptacle, including the model number, catalog number, or other identification determined to be equivalent, <u>and the electrical rating in volts and amperes</u> , shall be inserted in the blank space.
		<i>New clause added;</i>
6.1.2.37		An appliance provided with a securing means or requires a leveling adjustment that is used to comply with Clause 17.2.3 shall be provided with a marking located where visible during installation stating that the installation is not complete until the appliance is secured to the structure with the securing means provided or adjusted as required, and that the installation instructions are to be referred to for proper installation.
6.1.5	Info	Heat pump clothes dryers
		<i>New clause added;</i>
6.1.5.1		For condensation-type and heat pump clothes dryers where the sharp edges of the condenser or evaporator coil fins are accessible during normal user maintenance in accordance with Clause 17.5.2, shall be legibly marked at a location visible before accessing the sharp edges with the word "WARNING" and the following statement or the equivalent: "Sharp Edges – To reduce the risk of injury, use care when cleaning the condenser or evaporator coil fins."
6.2	Info	Instruction manual
6.2.2	Info	Instructions pertaining to a risk of fire, electric shock, or injury to persons
6.2.2.4		The instructions required by Clause 6.2.2.1 shall include the items in the following list, as applicable, as well as any other instructions a manufacturer considers to be necessary for the appliance. The items in the list may be numbered (see Clause 6.2.1.7).



CLAUSE	VERDICT	COMMENT
IMPORTANT SAFETY INSTRUCTIONS		
		<p>WARNING – To reduce the risk of fire, electric shock, or injury to persons when using your appliance, follow basic precautions, including the following:</p> <p>3) <u>Risk of Suffocation and Injury from Entrapment</u>: Do not allow children to play on or in the appliance. Close supervision of children is necessary when the appliance is used near children.</p> <p><u>15) Do not use replacement parts that have not been recommended by the manufacturer (e.g. parts made at home using a 3D printer).</u></p>
		<i>New clause added;</i>
6.2.2.6		<p>For a heat pump clothes dryer where sharp edges of the condenser or evaporator coil fins are accessible during normal user maintenance in accordance with Clause 17.5.2, the instructions pertaining to a risk of fire, electric shock, or injury to persons shall include the following or details shall be provided in the user maintenance instructions and a reference to those instructions shall be included as a separate item in the list required by Clause 6.2.2.4.</p> <p>“Sharp Edges – To reduce the risk of injury, use care when cleaning the condenser or evaporator coil fins.”</p>
6.2.3	Info	Installation instructions
		<i>New clause added;</i>
6.2.3.12		<p>The installation instructions shall include the following or equivalent: “This appliance shall be secured to the structure or adjusted, using the methods for installation and securing means provided with the appliance.”</p> <p>Note: This applies only to dryers requiring securing means to comply with Clause 17.2.3.</p>
10	Info	Heating
10.1	Info	General
		<i>New clause added;</i>
10.1.6.1		<p>When the temperature of a coil or winding is not obtainable using the thermocouple measurement method, (e.g. encapsulated coils) the change-of-resistance method shall be used.</p>
		<i>New clause added;</i>
10.1.6.2		<p>When using the change-of-resistance method, a winding shall be at room temperature at the start of the test, and the temperature of a winding shall be calculated using the formula:</p>



CLAUSE	VERDICT	COMMENT
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$$\Delta t = \frac{R_1 - R_2}{R_1} (k + t_1) - (t_2 - t_1)$$

Where

Δt is the temperature rise of the winding;

R_1 is the resistance at the beginning of the test;

R_2 is the resistance at the end of the test;

k is equal to

- 225 for aluminum windings and copper/aluminum windings with an aluminum content $\geq 85\%$,
- 229,75 for copper/aluminum windings with a copper content $> 15\%$ to $< 85\%$,
- 234,5 for copper windings and copper/aluminum windings with a copper content $\geq 85\%$;

t_1 is the room temperature at the beginning of the test;

t_2 is the room temperature at the end of the test.

NOTE: It is recommended that the resistance of windings at the end of the test be determined by taking resistance measurements as soon as possible after switching off and then at short intervals so that a curve of resistance against time can be plotted for ascertaining the resistance at the instant of switching off.

10.6	Info	Household clothes dryer <i>New clause added;</i> A combination washer and clothes dryer shall be tested as specified in Clause 10.6.1, except the test cycles shall be as follows: a) The number of cycles shall be four cycles for the clothes washer function, and three cycles for the clothes dryer function. b) The appliance shall be tested beginning with the washing function, then the drying function, and repeated until seven cycles of washing and drying have been completed (e.g. wash, dry, wash, dry, wash, dry, wash). Test load shall be rearranged after each drying cycle. c) If the combination appliance is intended for closet installation, the requirements of Clause 10.3 are applicable. Note: If agreeable to all parties concerned, the clothes load does not need to be changed to complete the seven cycles of washing and drying. <i>New clause added;</i>
10.6.2		
10.6.3		For appliances provided with a water inlet valve (e.g. condensation-type dryers and clothes dryers provide with a steam option), water shall be supplied in accordance with the installation instructions. If the manufacturer recommends connection to



CLAUSE	VERDICT	COMMENT
		cold water, the water supply shall be 15 ±5°C at a minimum pressure of 150 kPa. If the manufacturer recommends connection to hot water, the water supply shall be 60 ±2°C at a minimum pressure of 150 kPa.
10.10		Surface temperatures <i>New clause added;</i> This test shall be conducted as follows: a) The test shall be first conducted with the clothes dryer installed per Clause 10.5 for all installations. The front and top surface temperatures shall be measured during this test. b) A second test with same cycle setting shall then be conducted with the appliance free-standing. The back and side surface temperatures shall be measured during this test.
10.10.4		Note 1: If the installation instructions indicate that the back of the appliance should be placed against a wall, the temperatures on the back surface are not to be measured. Note 2: When measuring the surface temperatures, surfaces in close proximity to the heating element are likely to be the highest. A thermal indicator method (e.g. thermal imaging, IR thermometer, heat sensitive paper, etc.) may be used as a referee method to identify the hottest surfaces to reduce the number of thermocouple locations and temperature measurements.
10.11	Info	Laundry centers and stacked appliances <i>New clause added;</i>
10.11.1		An appliance shall be tested to the relevant requirements of Clauses 10.2.1 – 10.9.5. The appliance shall be tested while the other appliance is operating to simulate worse case conditions. For example, a laundry center shall be operated with both the clothes washing and clothes drying function operating simultaneously, unless the design of the laundry center does not allow for simultaneous operation. Note: As cycle times differ between washers and dryers, the cycles and options of the appliance not under test (the one operating as a heat source) should be selected to generate the highest temperatures and operate for the maximum amount of time. If the heat source appliance stops, before the appliance being tested, it does not have to be restarted.
11	Info	Leakage Current and Insulation Resistance
11.1	info	Leakage current <i>New clause added;</i>
11.1.3		For condensate-type clothes dryers, the test sample shall be installed so that all parallel ground paths, such as through the fill and drain lines, will be eliminated.



CLAUSE	VERDICT	COMMENT
16	Info	Abnormal Operation
16.6	Info	Load fire containment
16.6.14		<p>Each of the fire containment tests shall be conducted on <u>two samples</u> under each of the following test conditions:</p> <p>a) <u>For each of the two samples</u>, the appliance is not started (no drum or basket motion).</p> <p>b) <u>For each of the two samples</u>, the appliance timer shall be set for the maximum time at the highest heat setting, and the appliance shall be started resulting in the drum or basket rotating.</p> <p>A separate test appliance shall be used for each test condition.</p>
16.6.21		<p>Each test shall be continued until the external cheesecloth ignites or for 7 hours, whichever is less. One <u>Two consecutive samples of each</u> appliance construction shall be tested.</p>
16.7	Info	Base fire containment
16.7.2		<p>Appliances having a rotating drum or basket shall be tested as described in Clauses 16.7.3 to 16.7.20, and there shall be no:</p> <p>a) ignition of the cheesecloth located on the outside of the appliance; nor</p> <p><u>b) indication of flaming or glowing embers in the load of cloth, either before or after the dryer access door is opened.</u></p> <p>Note: Browning of the test load is acceptable provided that all individual threads are unbroken.</p>
17	Info	Stability and Mechanical Hazards
17.2	Info	Stability (freestanding appliances)
17.2.3		<p>Front-loading appliances having a mass of more than 11.5 kg when empty, and having any hinged door, shelf, or other projection and that opens beyond the enclosure, <u>shall be tested in accordance with (a) and (b) if applicable:</u></p> <p>a) <u>The appliance, that has a projection hung with a horizontal hinge</u>, shall not overturn when a weight of 16 kg is supported from any position along the outside edge of such projection while the appliance is empty, on a level surface, and with any casters turned to the most unfavourable position. The test weight shall be 9 kg for a front-loading appliance that has a projection hung with a vertical hinge.</p> <p>b) An appliance provided with a means to permanently secure it to the structure, can be secured for the test specified in 17.2.3(a) using the means provided with the appliance, as long as:</p> <ol style="list-style-type: none"> <u>1) the appliance is provided with a marking indicating it shall be secured to the structure at the time of installation (see Clause 6.1.2.37);</u> <u>2) the installation instructions provided with the appliance specify that the securing means shall be used (see Clause 6.2.3.12); and</u> <u>3) the securing means is intended to be installed from the front of the appliance.</u>



CLAUSE	VERDICT	COMMENT
17.5	Info	Sharp edges, projections, and moving parts
		<i>New clause added;</i>
17.5.2		With respect to Clause 17.5.1, for condensation-type and heat pump clothes dryers, the opening in the enclosure that provides access to the sharp edges of the condenser or evaporator coil fins during normal user maintenance shall require two separate and independent actions by the user (such as pushing and turning) to access this portion of the appliance.
		<i>New section added;</i>
		Ventilation
17.8		With reference to Clause 17.6.1(b), the appliance shall be tested in accordance with Clauses 17.8.2 – 17.8.13. As a result of the testing: See standard for details.
19	Info	Construction
19.3	Info	Sound and thermal insulation
		<i>New clause added;</i>
19.3.3		A polymeric sound or thermal insulating material suitable for use in direct contact with live parts as specified in Clause 28.1.4 shall be considered suitable for use in contact with uninsulated current-carrying parts.
		<i>New clause added;</i>
19.3.4		Battling formed of an insulating material, such as fiberglass or polyester, shall be considered suitable for use in contact with uninsulated current-carrying parts if the appliance complies with the Leakage Current Test of Clause 11, the Moisture Resistance Tests of Clauses 13 and 16.3, and the Electric Strength Test of Clause 14 with the insulation installed in contact with the uninsulated current-carrying parts.
21	Info	Components
21.13	Info	Controls
21.13.2	Info	Operating controls
		<i>New clause added;</i>
21.13.2.4		For commercial appliances, as an alternative to the requirements in Clause 21.13.2.1, power conversion equipment intended to control a variable speed motor load (e.g. a variable frequency drive) can comply with UL 61800-5-1. For power conversion equipment that is also provided with electronic motor-overload protection functionality, the motor-overload requirements specified in Clause 21.7 are applicable.



CLAUSE	VERDICT	COMMENT
21.15	Info	Switches and controls <i>New clause added;</i>
21.15.3		Switches that comply with C22.2 No. 61058-1 and UL 61058-1 shall be rated as specified in Clauses 21.15.4 – 21.15.6. <i>New clause added;</i> Power switches shall be rated as follows: a) For a voltage not less than the rated voltage of the appliance; b) For a current not less than the rated current of the appliance; c) For Continuous Duty; d) With respect to load 1) Switches for motor-operated appliances: for resistance and motor load if the switch would encounter this load in normal use; or 2) Switches may be regarded as switches for a declared specific load and may be classified based upon the load conditions encountered in the appliance under normal load. e) For ac if the appliance is rated for ac; f) For dc if the appliance is rated for dc.
21.15.4		<i>New clause added;</i> Unless otherwise specified in this Standard, switches shall also be rated with respect to endurance as follows: a) Power and door-interlock switches: 6000 cycles; b) Power switches provided with series electronics shall be subject to an additional 1000 cycles of operation with the electronics bypassed; c) Switches other than power switches, such as speed selector switches, that may be switched under electrical load: 1000 cycles; d) The following non-power switches are not required to be rated for endurance: 1) Switches not intended for operation with an electrical load, and which can be operated only with the aid of a tool or are interlocked so that they cannot be operated under electrical load; or 2) Switches for 20 mA load as classified in C22.2 No. 61058-1 and UL 61058-1.
21.15.5		<i>New clause added;</i>
21.15.6		Ratings and load classifications for switches other than power switches shall be based on the conditions encountered in the appliance under normal load.



CLAUSE	VERDICT	COMMENT
22	Info	Supply Connection and External Flexible Cords
22.2	Info	Permanently connected appliances
		<i>New clause added;</i>
22.2.13		Sheet metal sub-enclosures to which a wiring system shall be connected in the field with the dimensions specified in Table 18 and Table 19 are considered to comply with the intent of Clause 22.2.12.
Supplement SA	Info	Safety of Smart Enabled Electric Clothes Dryers
SA2	Info	General
SA2.6	Info	Smart enabled or remote operation
		<i>New clause added;</i>
SA2.6.4		Remote user functionality not involving the automatic restarting, remote starting of a delayed cycle, or remote operation of the appliance does not require a control on the appliance to be manually adjusted for remote operation. Examples of this type of remote user functionality are: a) reading the appliance's status information; b) cancelling or pausing an operating cycle; or c) changing the appliance's user configurable settings (e.g. cycle temperature).
		<i>New section added;</i>
SA2.7		Remote safety firmware/Safety software updates 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. See standard for details.
Supplement SB	Info	Alternative Path for Electronic Controls Requirements
SB15	Info	Abnormal Operation and Fault Tests
SB15.1	Info	General
		<i>New clause added;</i>
SB15.1.13		If the appliance incorporates a protective electronic circuit which operates to ensure compliance with Clause SB15, the relevant test shall be repeated with a single fault simulated, as indicated in (a) to (g) of Clause SB15.1.11.
		<i>New supplement added;</i>
Supplement SD		Heat Pump Clothes Dryers These requirements are applicable to electric heat pump clothes dryers, including those dryer designs that use flammable refrigerants. See standard for details.



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New supplement added;

Supplement SE		
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Equipment Protection by Type of Protection "n"

Where reference is made to CSA 60079-15 / UL 60079-15 in Supplement SD, the following clauses of C22.2 No. 60079 / UL 60079-15 are applicable as modified below. See standard for details.
