

STANDARD INFORMATION

Standard Number: CSA C22.2 No. 218.2
Standard Name: Hydromassage Bathtub Appliances
Standard Edition and Issue Date: 2nd Edition Dated June 1, 2015
Date of Revision: June 1, 2015
Date of Previous Revision of Standard: January 1, 2013

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **September 1, 2020**

IMPACT, OVERVIEW, AND ACTION REQUIRED

Impact Statement: A review of all Listing Reports is necessary to determine which products comply with new/revised requirements and which products will require re-evaluation. **NOTE:** Effective immediately, this revised standard will be exclusively used for evaluation of new products unless the Applicant requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.

Overview of Changes:

- Added requirement for power supplies providing two levels of protection
- Updated the requirement for capacitors providing impedance isolation
- Updated the requirements for circuit breakers, branch-circuit fuses, supplemental fuses
- Added requirements for optical isolating devices
- Added criteria for impact test
- Introduced minimum temperature for the mould stress relief test

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

If the applicable requirements noted in the table are not described in your report(s), these requirements will need to be confirmed as met and added to your report(s) such as markings, instructions, test results, etc. (as required).

Client Action Required:

Information – To assist our Engineer with review of your Listing Reports, please submit technical information in response to the new/revised paragraphs noted in the attached or explain why these new/revised requirements do not apply to your product (s).

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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 underlined and deletions are shown lined out below.</i>
5	Info	Construction
5.4	Info	Features accessible to a tub occupant
5.4.3	Info	Isolation methods forming level(s) of protection
5.4.3.2	Info	Electrical isolation
		Components providing one level of protection components complying with the following requirements may be used to form one level of protection (electrical isolation):
5.4.3.2.1		<p>a) A transformer shall meet</p> <ul style="list-style-type: none">i) the construction requirements for miscellaneous and general purpose transformers, contained in CSA C22.2 No. 66.2, and the abnormal shock and fire hazard test requirements of Clause 7.9 of this Standard; orii) the construction requirements for a Class 2 or bell ringing transformer specified in CSA C22.2 No. 66.3, and meeting either the overload heating test of CSA C22.2 No. 66.3 or the abnormal shock and fire hazard test requirements of Clause 7.9 of this Standard. <p>b) A relay or contactor shall meet</p> <ul style="list-style-type: none">i) the overload and endurance requirements of CSA C22.2 No. 14 (suitable for the controlled load);ii) the spacing requirements of Clause 5.11.3, Item g) specific to one level of protection: between coil and contacts, including associated terminals; andiii) the applicable dielectric voltage withstand tests of Clause 7.5 and Table 2, applied between the coil and contacts. <p>c) An optical isolating device shall meet</p> <ul style="list-style-type: none">i) the applicable dielectric voltage withstand test of Clause 7.5 and Table 2;ii) the applicable spacing requirements of Clause 5.11.3, Item g) between the input and output terminals, external to the device; andiii) <u>CSA Certification Component Acceptance Notice No. 5A.</u> <p>d) Impedance isolation components providing one level of protection shall meet the requirements of Clause 5.4.3.3.</p>
5.4.3.2.2		Components providing two levels of protection components complying with the following requirements may be used to form two levels of protection (electrical isolation):
		<p>a) A transformer employing a bonded shield shall</p> <ul style="list-style-type: none">i) have input and output windings separated by a shield bonded to the equipment bonding terminal. The shield and the bonding path of the shield



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		<p>shall comply with the requirements of CAN/CSA-C22.2 No. 0.4;</p> <p>ii) meet the construction requirements of CSA C22.2 No. 66.1, Clause 11 for spacings and insulation between the primary circuit and winding(s), and the bonded shield and core. The bonded shield shall extend over the full width of the windings it separates. Locations within the transformer in which the bonded shield is not effective shall comply with the construction requirements of CAN/CSA-C22.2 No. 60950-1 for double or reinforced insulation. A floating core shall comply with the requirements for an intermediate circuit. A bonded core shall comply with the requirements of CAN/CSA-C22.2 No. 0.4 (all laminations). Spacings outside of the transformer, and inside the transformer between primary circuit winding(s) and parts, and isolated circuit winding(s) and parts shall comply with the requirements of Clause 5.11.3, Items f) and g); and</p> <p>iii) comply with the applicable dielectric voltage withstand test(s) of Clause 7.5 and Table 2, and the abnormal shock and fire hazard test requirements of Clause 7.9.</p> <p>b) A double insulated transformer shall comply with</p> <p>i) the general requirements of CSA C22.2 No. 0.1 and the specific construction requirements of CAN/CSA-C22.2 No. 950 <u>CAN/CSA-C22.2 No. 60950-1</u> for double or reinforced insulation between each isolated circuit and winding, and all other windings or internal parts; and</p> <p>ii) the applicable construction requirements for thickness through insulation of CAN/CSA-C22.2 No. 950 <u>CAN/CSA-C22.2 No. 60950-1</u>, the applicable dielectric voltage withstand test(s) of Clause 7.5 and Table 2, for a component providing two levels of protection, and the abnormal shock and fire hazard test requirements of Clause 7.9. Internal spacings (creepage and clearance) within a double insulated transformer shall comply with the requirements of Clause 5.11.3, Item f). Spacings (creepage and clearance) within a double insulated transformer other than between primary and isolated circuit windings shall comply with the requirements of Clause 5.11.3, Item g). The core of a double insulated transformer may be connected to an ac supply circuit, an intermediate circuit or an isolated circuit, with the required spacings and acceptance tests applied accordingly. A double insulated transformer having a core connected to an ac supply circuit shall provide double or reinforced insulation between the core and each isolated circuit and winding based on the ac supply voltage, and either basic or supplementary insulation between the core and each intermediate circuit and winding, with the complementary insulation provided between the intermediate circuit and winding and each isolated circuit and winding. A double insulated transformer having a floating core or a core connected to an intermediate circuit shall be provided with either basic or supplementary insulation between each primary circuit and winding and the core, with the complementary insulation between the core and each isolated circuit and winding. A double insulated transformer having a core connected to an isolated circuit or winding shall be provided with double or reinforced insulation between the core and each ac supply circuit and</p>



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		<p>winding, and either basic or supplementary insulation between the core and each intermediate circuit and winding, with the complementary insulation provided between each primary circuit or winding and each intermediate circuit or winding.</p> <p>c) <u>A power supply shall meet the construction and performance test requirements for a safety-extralow voltage circuit in accordance with CAN/CSA-C22.2 No. 60950-1 assuming an installation environment of Overvoltage Category II and Pollution Degree 3.</u></p> <p>d) A relay or contactor shall meet the overload and endurance requirements of CSA C22.2 No. 14 (suitable for the controlled load) and the spacing requirements of Clause 5.11.3, Item g) specific to two levels of protection: between coil and contacts, including associated terminals, and the applicable dielectric voltage withstand tests of Clause 7.5 and Table 2, applied between the coil and contacts. The relay or contactor shall meet the leakage test requirement of Clause 7.4 after completion of overload and endurance conditioning.</p> <p>e) An optical isolating device shall meet the following:</p> <ul style="list-style-type: none"> i) <u>the applicable dielectric voltage withstand test of Clause 7.5 and Table 2;</u> ii) <u>the spacing requirements of Clause 5.11.3, Item f) between input and output terminals external to the device;</u> iii) <u>the spacing requirements of Clause 5.11.3, Item f) between input and output terminals internal to the device (or the thermal cycling test of CAN/CSA-C22.2 No. 60950-1, Clause 2.10.9, followed by the dielectric voltage withstand test of Clause 7.5 and Table 2 of this Standard);</u> iv) <u>the minimum distance through insulation of 0.4 mm; and</u> v) <u>the CSA Certification Component Acceptance Notice No. 5A.</u> <p>f) Impedance isolation components providing two levels of protection shall meet Clause 5.4.3.3.</p>
5.4.3.3	Info	<p>Impedance isolation</p> <p>Components providing impedance isolation between an intermediate circuit and an ac supply circuit; between an intermediate circuit and an isolated circuit, or accessible feature or part in contact with the tub water; and when suitably combined between an ac supply circuit and an isolated circuit, a feature accessible to an occupant, or part in contact with the tub water shall comply with one of the following requirements:</p>
5.4.3.3.8		<p>a) A resistor shall meet</p> <ul style="list-style-type: none"> i) the dielectric voltage withstand test requirements of Clause 7.5 and Table 2, for a single level of protection, without breakdown, physical damage, or reduction of impedance characteristics; and ii) the spacing requirements of Clause 5.11.3, Item g) between the input and output terminals (external to the device). <p>b) Capacitor(s) — A capacitor shall meet</p> <p>(i) the ac line isolation requirement(s) applied to capacitors in CSA Standard CAN/CSA-C22.2 No. 1;</p>



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		<p>(ii) the applicable dielectric voltage withstand requirements of Clause 6.5 and Table 2; and</p> <p>(iii) the spacing requirements of Clause 4.11.3, Item (g) between applicable terminals (external to the capacitor).</p> <p><u>b) A capacitor shall be type Y (Y1, Y2 as applicable) as detailed in CAN/CSA-E60384-14.</u></p> <p>Products employing one or more capacitor(s) as impedance protection devices shall comply with the leakage current requirements of Clause 7.4 and the available current requirements of Clause 7.19.</p>
5.16	Info	Electrical protective devices
5.16.1	Info	Overcurrent protective devices
		<p>Overcurrent protective devices provided for the protection of wiring external to an enclosure, or for protection of a specific load operating at supply voltage within the unit, shall meet the requirements of</p> <p>(a) CSA Standard CAN/CSA C22.2 No. 5.1 or C22.2 No. 59.1; or</p> <p>(b) CSA Standard C22.2 No. 59.2 or CAN/CSA C22.2 No. 235, and shall comply with the abnormal test of Clause 6.9.</p> <p><u>a) for circuit breakers, CSA C22.2 No. 5 or for branch-circuit fuses, CSA C22.2 No. 248.6 or C22.2 No. 248.7 or CSA C22.2 No. 248.11; or</u></p> <p><u>b) for supplemental fuses, CAN/CSA-C22.2 No. 248.14 or for supplementary protectors, CSA C22.2 No. 235, and shall comply with the abnormal test of Clause 7.9.</u></p>
5.16.1.1		
7	Info	Tests
7.4	Info	Leakage current test — Occupant-accessible features and tub water
		<p>Leakage current shall not exceed 0.5 mA <u>the limits specified in Table 8</u> under any condition of test circuit switch settings, when measured between any</p> <p>7.4.7</p> <p>a) accessible part including the tub water and the identified supply conductor; and</p> <p>b) two simultaneously accessible parts having a separation distance of less than 1.5 m.</p>
7.12	Info	Enclosure tests
7.12.3	Info	Resistance to impact
		<p>Sample(s) of enclosure(s) shall be conditioned in accordance with Clause 7.12.3.2 and then subjected to the impact test described in Clause 7.12.3.3. The impact shall not</p> <p>7.12.3.1</p> <p>a) reduce spacings below the minimum values required by Clause 5.11;</p> <p>b) make any bare energized parts or internal wiring accessible to contact;</p> <p>c) have an adverse effect on insulation;</p>



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		d) produce any other condition resulting in a risk of shock, fire, or casualty hazard from the equipment; and e) <u>impair compliance with CAN/CSA-C22.2 No. 94.2 as required by Clauses 5.2.1.1.1, 5.4.2.7, and 5.29, Item c) of this Standard.</u>
7.23	Info	Mould stress relief test
7.23.1		Enclosures composed of polymeric materials shall be conditioned for not less than 24 h at a temperature 20 °C higher than the maximum temperature measured on the enclosure, during the normal temperature test of Clause 7.3, <u>but not less than 70 °C.</u>
9	Info	Cord- and plug-connected hydromassage units
9.2	Info	Supply cord and attachment plug
		The power supply cord shall be
9.2.1		a) factory installed; b) a cord of the hard usage type suitable for wet locations (e.g., Types SJOW, SJTW, and SJTOW), which complies with CSA C22.2 No. 49; c) <u>three conductor, of the appropriate gauge as determined by Canadian Electrical Code, Part I, Table 12; and</u> d) <u>provided with an attachment plug suitable for the electrical rating, which complies with CSA C22.2 No. 42 and moulded on to the power supply cord in accordance with CSA C22.2 No. 21.</u>

Protective device test currents

Table 5	Protective device used (CSA Group Standard)	Test current as percentage of rated current	Test duration
	Plug and cartridge fuses (C22.2 No. 59.1)	200% and 135%	Same as overload time limits from Table 3 of CSA Standard C22.2 No. 59.1
Cartridge Fuses (CSA C22.2 No. 248.6, CSA C22.2 No. 248.7) and Plug Fuses (CSA C22.2 No. 248.11)	100%	Same as maximum clearing time limits from Table 4 of CSA C22.2 No. 248.1 as amended by the applicable other parts of the CSA C22.2 No. 248 series	
Circuit breaker (CSA C22.2 No. 5.4)	200%	Same as maximum tripping times from Table 8 of CSA Standard CAN/CSA-C22.2 No. 5.1	
	135% (50 A and less) (more than 50 A)	1 h 2 h	
	100%	Until stabilized temperatures are reached	
Supplemental fuses (C22.2 No. 59.2) (CSA C22.2 No. 248.14)	200% and 135%	Same as maximum clearing time limits from Table 3 of CSA Standard C22.2 No. 59.2	
		Table 4 of CSA C22.2 No. 248.1 as amended by CSA C22.2 No.	



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		<u>248.14</u>
		Overcurrent protector (CSA C22.2 No. 235) * *
		* Acceptability of these devices is based on verification of the manufacturer's published current/clearing-time curves. Test currents and time durations shall correspond as closely as possible to those for fuses and circuit breakers as indicated.

New table added;

Table 8

Location	Limit, milliamperes, 50 or 60 Hz ac	Limit, milliamperes, pure dc†
Current circulating in the water from two points immersed in the water	0.5	2.0
Tub water and ground	0.5	2.0
Any point accessible to the tub occupant and ground	0.5	2.0
Any point on the tub control and ground*	0.5	2.0
Any two points on the tub control, or between two controls*	0.5	30.0
Note: The 0.5 and 2.0 mA limits specified correspond to the startle current threshold. The 5.0 and 30 mA limits specified correspond to the let-go current threshold. These limits are based on data contained in IEC TS 60479-2. * The outer layer of a membrane switch shall not be relied upon for mitigation of the risk of electric shock. † DC current is considered to be pure dc only if it is confirmed through test that the peak-to-peak value of ripple in the current is not more than 10% of the dc current.		

CUSTOMERS PLEASE NOTE: This Table and column “Verdict” can be used in determining how your current or future production is or will be in compliance with new/revised requirements.