

Standard Information

Standard Number: CSA C22.2 No. 128

Standard Name: Vending Machines

Standard Edition and Issue Date: 4th Edition Dated December 20, 2009

Date of Revision: January 2016

Date of Previous Revision to Standard: 3rd Edition (R2013)

Effective Date of New/Revised Requirements

Effective Date (see Schedule below): **July 28, 2017**

Impact, Overview, Fees 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requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.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: Significant additions and revisions. Specific details of new/revised requirements are found in table below.

The content in this SUN is derived from the CSA Notice dated April 14, 2016.

Fees: So that production of products bearing the Listing Mark will not be interrupted, a quote will be issued for the Applicant to work with their local Intertek Lab to determine the necessary test program, sampling requirement and needed construction details and/or updated marking/instruction details.

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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.

Description of New/Revised Technical Requirements

| Clause | Verdict | Comment |
|---------|---------|---|
| | | <i>Additions to existing requirements are <u>underlined</u> and deletions are shown lined-out below.</i> |
| 5.2.4 | Info | New Glass assemblies |
| 5.2.4.1 | | Except as permitted in Clause 5.2.4.2 , a glass door or glass panel used for the enclosure of electrical parts or that is subject to contact during intended use or maintenance of the vendor, or both, shall be supported or secured in place and shall comply with the impact test in Clause 7.17.2 . Other glass components shall comply with Clauses 5.2.4.3 and 5.2.4.4 . |
| 5.2.4.2 | | A glass assembly is not required to comply with the requirements of Clause 7.17.2 if the assembly includes a means to de-energize the live parts enclosed by the glass in response to the breakage of glass. |
| 5.2.4.3 | | Glass components, other than lamps, used inside the equipment shall have smooth edges if the edges are exposed to contact during normal use, including cleaning. Additionally, edges of the glass components that are exposed in their normal use position shall be fire polished, heat-toughened or tempered, or be covered by permanently attached smooth framing. |
| 5.2.4.4 | | Glass components, other than lamps, shall a) be of a non-shattering or tempered type that, when broken, complies with ANSI Z97.1; or b) withstand, without breakage, an impact test as specified in Clause 7.17.2.3 . |
| 5.3 | Info | Significantly Revised Protection from fire hazard |
| 5.3.1.2 | | <u>A polymeric material serving as an enclosure of insulated live parts shall comply with the V-0 flame rating of CAN/CSA-C22.2 No. 0.17. If ignition sources are separated or isolated from the polymeric material in accordance with Clause 5.3.3, materials complying with the HB or HBF flame rating of CAN/CSA-C22.2 No. 0.17 may be used.</u> |
| 5.3.1.3 | | <u>Parts intended for illumination or decorative purposes shall comply with the HB or HBF flame rating of CAN/CSA-C22.2 No. 0.17. A part shall not be required to comply with the HB or HBF flame rating if the part</u> a) <u>does not occupy a volume greater than 2000 mm³ (0.122 in³), does not have any dimension greater than 30 mm (1.18 in.), and is located so that it does not propagate flame from one area to another or bridge between a possible source of ignition and other ignitable parts;</u> b) <u>does not enclose uninsulated live parts; and</u> c) <u>is not in contact with incandescent lamps.</u> |

Standards Update Notice (SUN)

Issued: May 4, 2016

| Clause | Verdict | Comment |
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| 5.3.3 | Info | Separation from combustible material |
| 5.3.3.1 | | <u>Polymeric materials shall be isolated from ignition sources. Ignition sources within the unit are considered to be wiring (other than wires with FT1 classification as specified in CSA C22.2 No. 0.3), and any electrical components, such as switches, relays, transformers, motor windings, splices, or arcing parts not enclosed in metal or a polymeric material that has been evaluated as an enclosure. Acceptable means of isolation are as specified in Clause 5.3.3.2.</u> |
| 5.3.3.2 | | <u>a) metal foil not less than 0.13 mm thick; b) fibreglass not less than 12.7 mm thick; c) polymeric material classified as type 5VA per CAN/CSA-C22.2 No. 0.17; or d) wiring insulation not less than 1.6 mm thick, except that a lesser thickness is acceptable if the wiring is restricted and maintained by design such that it is spaced not less than 6.4 mm from combustible material.</u> |
| 5.4 | | Significantly Revised Protection from shock hazard |
| 5.5 | | New Protection from mechanical hazards |
| 5.9.2.1 | | New Equipment intended for cord connection shall be provided with a) a non-detachable power supply cord for connection to the supply by means of an attachment plug; or b) an appliance inlet for connection of a detachable power supply cord set. |
| 5.9.2.2 | | New Power supply cords and special-use cord sets shall comply with the applicable requirements specified in CSA C22.2 No. 21. |
| 5.9.3 | Info | Revised Permanently-connected vending machines |
| 5.9.3.1 | | Vending machines intended for permanent connection shall be provided with a terminal or connection box or similar compartment having provision for conduit connection to the source of supply, and shall have a terminal means to accept the bonding conductor as required by CAN/CSA-C22.2 No. 0.4. Such boxes shall comply with the requirements of CAN/CSA-C22.2 No. 0. <u>Conduit openings shall accommodate the trade size of conduit as determined in Section 12 of the <i>Canadian Electrical Code, Part I</i>.</u> |
| 5.9.3.2 | | The metal plate to which conduit is to be attached in the field shall be not less than 0.78 mm (0.0307 in) thick if uncoated steel, not less than 0.88 mm (0.0346 in) thick if galvanized steel, and not less than 1.14 mm (0.045 in) thick if nonferrous metal. |
| 5.9.3.3 | | A vending machine shall have provision for permanent connection to the supply if it will not start and operate as intended without opening a time-delay supply-circuit fuse, as determined during the starting test in Clause 7.11. |
| 5.9.3.4 | | <u>Terminal boxes or wiring compartments in which supply connections are made shall be secured to prevent rotation and shall be located so that connections will be readily accessible for inspection after the vending machine is installed as intended.</u> |

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| 5.9.3.5 | | <u>Terminal boxes or wiring compartments in which supply connections are made shall have wiring space as specified in Table 22 and Section 12 of the <i>Canadian Electrical Code, Part I</i>.</u> |
| 5.9.3.6 | | <u>No electrical component shall be mounted on a part such as the cover of a wiring terminal compartment that must be removed to permit field wiring connections to be made or inspected.</u> |
| 5.9.3.7 | | <u>Field wiring terminals shall be a size which will accommodate conductors of an ampacity as required by the <i>Canadian Electrical Code, Part I</i>, when operating under normal load conditions as specified in Clause 7.4.</u> |
| 5.9.3.8 | | <u>Where leads are provided for field connection, they shall be not smaller than No. 18 AWG or less than 450mm 152 mm (6 in) long. These leads shall be provided with means for strain relief if stress on the leads might be transmitted to terminals, splices, or internal wiring that could cause the leads to separate from their terminations, or subject them to damage by sharp edges.</u> |
| 5.9.3.9 | | <u>If a binding head screw is employed at a field wiring terminal, it shall be not smaller than No. 8 if the supply circuit conductors are No. 14 AWG, and not smaller than No. 10 if the supply circuit conductors are No. 12 or No. 10 AWG. Screws made of steel shall be suitably plated.</u> <u>Note: The terminals of a control may be employed for field wiring connection of supply circuit conductors, provided the terminals comply with the size requirements above.</u> |
| 5.9.3.10 | | <u>Terminal blocks used for field wiring connection shall comply with the applicable requirements of CSA C22.2 No. 158.</u> |
| 5.12.2.5 | | New Wiring to external accessories The interconnecting wiring from accessories to the cabinet shall be, at least, a three-conductor Type SPT-3 flexible cord terminating in an attachment-plug having a grounding pin, and shall be routed and protected against mechanical damage. The interconnecting wiring shall comply with the strain relief requirements specified in Clause 5.9.4. |
| 5.12.3 5.12.3.1 – 5.12.3.4 | | New Conductor size |
| 5.14.2.7 | | New Where the motor overload protection is provided by an electronic circuit, the circuit shall be analyzed for failure of any component that is considered likely to fail in an open or shorted mode when the electronic circuit is analyzed as a Class B control as specified in CSA C22.2 No. 0.8. The electronic circuit shall not be required to comply with CSA C22.2 No. 0.8 if the motor complies with Clause 5.14.2.4 with the control open circuited or short-circuited, whichever condition removes the electronic circuit as part of the motor protection. |

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| 5.15.4 | | Revised Capacitors intended for connection directly across the line shall comply with the applicable requirements of CAN/CSA-E60384-14. |
| 5.16.1 | | New Incandescent and electric discharge lighting equipment Incandescent and electric discharge lighting equipment shall comply with CSA C22.2 No. 250.0. |
| 5.16.2 | | New LED lighting equipment LED lighting equipment shall comply with CAN/CSA-C22.2 No. 250.13. |
| 5.18.1 | Info | New Water heaters |
| 5.18.1.1 | | Equipment that has a water heating tank that is not vented to the atmosphere shall have a temperature regulating thermostat to control the heating element so that the temperature of the water in the tank will not exceed 90 °C, and a temperature limiting means that will prevent the temperature of the water in the tank from exceeding 96 °C in case of failure of the regulating thermostat. |
| 5.18.1.2 | | Equipment that has a water heater that may operate when dry shall be provided with a protective device that will open the power supply or reduce the power input to the heating element to prevent unsafe operation, as determined by the test in Clause 7.8.8 . Note: <i>Such protection is unnecessary on appliances constructed so that they may be operated safely, when dry, at maximum rated voltage. Heating elements are not considered protective devices.</i> |
| 5.18.1.3 | | Fusible links provided in appliances to prevent hazardous temperatures due to abnormal operation shall be constructed or enclosed so as to prevent tampering, and shall operate without short-circuiting or grounding of live parts. |
| 5.18.1.4 | | Reset levers or buttons of manually-reset protective devices shall be recessed or guarded so that the protective device cannot be operated accidentally. |
| 5.18.1.5 | | The design of the protective device shall be such that its purpose cannot be defeated. |
| 5.18.2 | | Revised Heaters |
| 5.18.2.1 | | Heater elements shall comply with the applicable requirements of CSA C22.2 No. 72. |
| 5.18.2.2 | | Heater elements shall be supported in a substantial and reliable manner, and shall be protected against mechanical injury and contact with outside objects. |
| 5.18.2.3 | | Heaters, including forced air and convection heaters and those for heating liquids, shall comply with Clause 7.8.8 and shall not create a hazard under any normal or abnormal operating conditions. |

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| 5.21 | Info | New Transformers and power supplies |
| 5.21.1 | | Low voltage transformers shall comply with the applicable requirements of CSA C22.2 No. 66.1. General purpose transformers shall comply with the applicable requirements of CSA C22.2 No. 66.2. Class 2 transformers shall comply with the applicable requirements of CSA C22.2 No. 66.3. |
| 5.21.2 | | Transformers that supply Class 2 circuit voltages shall be of the isolating type. |
| 5.21.3 | | Where a combination of transformer and thermal overload or overcurrent protective device is required for extra-low voltage secondary circuits to meet Class 2 requirements, the combination shall comply with the applicable requirements of CSA C22.2 No. 66.3. |
| 5.21.4 | | Transformers other than Class 2 types shall be provided with overcurrent protection in accordance with the <i>Canadian Electrical Code, Part I</i> , Section 26. |
| 5.26.1 | | New Refrigerants shall be one of the types listed and classified in CSA B52. Notes: 1) Use of flammable refrigerants or refrigerant blends is covered in Annex E. 2) Annex C is included in this Standard to show the refrigerant types and the minimum high and low side design pressures listed by CSA B52 at the time of publication of this Standard. |
| 5.26.2 | | New Except for components and pressure vessels that are required to comply with requirements in CSA B52, refrigerant-containing components shall comply with the requirements of CSA C22.2 No. 140.3, and shall have a working pressure rating suitable for the application. |
| 5.28 | Info | Revised If the refrigerating system includes a liquid-containing pressure vessel with an inside diameter greater than 75 mm (but not greater than 150 mm) that can be isolated by valves from the other parts of the equipment, the pressure vessel shall be protected by a) a rupture member or pressure-relief valve that will relieve the pressure at not more than 40% of the pressure defined in Clause 5.26.2 or 40% of the pressure it is capable of withstanding, as determined by the pressure test in Clause 6.6 6.1 of CSA C22.2 No. 140.3; or b) a fusible plug which, provided that the critical pressure of the refrigerant used does not exceed either the relieving pressure specified in Item a) or the saturation pressure of the refrigerant used at the temperature marked on the plug, does not exceed the relieving pressure specified in Item a). |

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| 5.29 | Info | Pressure-limiting devices |
| 5.29.1 | Info | A pressure limiting device shall be provided on all air-cooled and remote type equipment: a) having a liquid receiver capable of containing 9 kg (20 lb) <u>10 kg (22 lb)</u> or more of refrigerant without the liquid occupying more than 90% of the volume of the receiver at a temperature of 32°C (89.6°F); or b) <u>containing more than 10 kg (22 lb) of refrigerant.</u> |
| 5.29.2 | | A pressure limiting device shall be provided on all equipment having a water-cooled condenser unless a) the capacity of the liquid receiver at 32 °C (89.6°F) does not exceed 1.4 kg (3.1 lb) if 90% of the available volume is filled with liquid; and b) a compressor motor overload device will stop the action of the compressor before the pressure exceeds one-fifth of the high side pressure that the system is capable of withstanding without failure, as determined in Clause 5.27. |
| 5.29.3 | | <u>Except as specified in Clause 5.29.4, if the equipment has a pressure-limiting device, the maximum pressure to which it may be readily set by the adjusting means provided shall not exceed 90% of the following, whichever is the least:</u> <u>a) one-fifth of the pressure that the high side parts of the system are capable of withstanding without failure (see Clause 5.26.2);</u> <u>b) the lowest marked design pressure of pressure-containing components used in the high side; or</u> <u>c) the setting of the pressure relief device, if any, in the high side of the system.</u> <u>Note: The pressure limiting device may have a maximum pressure setting higher than specified in this Clause if the adjusting means on the device is locked in some manner to prevent the maximum adjustable pressure from being exceeded.</u> |
| 5.29.4 | | New <u>For a pressure limiting device installed on air-cooled equipment not required by Clause 5.29.1 to be provided with such a device, the device shall have a maximum adjustable cutout setting not exceeding a) one-third of the pressure that the high side parts of the system are capable of withstanding without failure (see Clause 5.26.2); or</u> <u>b) 90% of the setting of the pressure relief device, if provided.</u> |
| 5.30 | | New Information technology equipment Information technology equipment such as a printer, visual display unit, or computer shall comply with applicable requirements in CAN/CSA-C22.2 No. 60950-1. |

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| 6 | Info | Addition and revision of marking requirements |
| 6.1 | | <p>The equipment shall be plainly marked in a permanent manner, in a place where the details will be readily visible after installation, with the following:</p> <ul style="list-style-type: none"> a) manufacturer's identification name, <u>trademark, tradename, or other recognized symbol of identification</u>; b) catalogue, style, model, or other type designation; c) rated input voltage; d) frequency <u>or frequencies</u>; e) <u>the total or individual input loads in amperes; the number of phases, except for equipment obviously intended for single-phase use only;</u> f) <u>for permanently connected vending machines, the full-load and locked-rotor amperes of each hermetically sealed compressor motor; the total or individual input loads in amperes (see Clauses 6.3.1 and 6.3.2);</u> g) <u>the type and weight of refrigerant for vending machines containing refrigerants; and for each refrigerating system, high and low side design pressures as determined in Clause 5.27.3 on remote and factory-charged equipment, except that only high side design pressures are required on high side components (condensing units)</u> h) <u>for each refrigerating system, the type and mass of refrigerant; and</u> i) <u>the statement: FOR OUTDOOR USE, where applicable.</u> |
| 6.2 | | <p>Markings shall comply with the requirements of CSA C22.2 No. 0. Adhesive nameplates shall comply with the applicable requirements of CSA C22.2 No. 0.15.</p> |
| 6.3.1 | | <p>Permanently connected equipment may be marked with the total load in amperes as specified in Clause 6.1 or with the individual loads as outlined in Clause 6.3.2. When the total load is marked, the markings specified in Clause 6.3.2, Items d) and e) shall also be included.</p> |
| 6.3.2 | | <p>When permanently connected equipment is marked with the individual loads, the marking shall consist of the following:</p> <ul style="list-style-type: none"> a) <u>for hermetic refrigerant motor compressors, the rated load amperes as determined by Clause 7.3 and locked-rotor amperes;</u> b) <u>the horsepower and full load amperes of each motor, except motors smaller than 1/8 hp, which may be rated in watts or amperes;</u> c) <u>the load in amperes of other loads;</u> d) <u>for loads rated 1A or more, the minimum circuit ampacity for each circuit as calculated in Annex F, except as specified in Clause 6.3.3; and</u> e) <u>for loads rated 1A or more, the maximum overcurrent protective device type and size for each circuit as calculated in Annex F, except as specified in Clause 6.3.3.</u> <p>Note: <u>Where the overcurrent protective device is a fuse, it is considered to be a "time delay" "D" type unless otherwise specified</u></p> |
| 6.3.3 | | <p>Sectional type equipment intended to be interconnected and grouped in the field and supplied by a single branch circuit need not be marked with the minimum circuit ampacity and maximum overcurrent protection. However, the wiring diagrams on the equipment, together with the nameplate information, shall provide the necessary information and instructions for the determination of minimum circuit ampacity and maximum overcurrent protection for the number of units to be grouped.</p> |

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| 6.9 | | <u>The type and maximum rating of any incandescent lamps permitted shall appear on or adjacent to the lampholder.</u> |
| 6.10 | | <u>If the temperature in the compartment intended for field connection of the supply circuit conductors exceeds 60 erature in the compartment intended for field 7.4 and 7.5, the equipment shall include the following statement, or equivalent, in the vicinity of the point of field connection:</u> USE SUPPLY WIRES SUITABLE FOR AT LEAST °C |
| 6.11 | | <u>For equipment that requires installation clearances to be maintained in order to comply with the tests in Clauses 7.4 and 7.8, the clearances shall be marked on the equipment or shall be provided with the installation instructions.</u> |
| 7.8 | | Addition and revision of abnormal temperature test requirements |
| 7.15 | | New Addition of accelerated aging test requirements for gaskets and polymeric materials |
| 7.17.2 | Info | Addition Impact test — Glass assemblies |
| 7.17.2.1 | | As required by Clause 5.2.4.1, glass door or glass panel assemblies shall be tested as specified in Clause 7.17.2.2. Other glass components shall be tested as specified in Clause 7.17.2.2. |
| 7.17.2.2 | | One glass panel assembly shall be supported in a manner representative of its intended use. An impact of 8 J shall be applied at the approximate centre of both the inside and outside surfaces. The impacts shall be produced by a 51 mm diameter, 0.56 kg steel ball. After this test the glass panels shall not a) reduce electrical spacings below those specified in Clause 5.23; or b) expose uninsulated live parts, as judged by the requirements in Clause 5.4.8. |
| 7.17.2.3 | | As required by Clause 5.2.4.4, glass components shall withstand, without breakage, a 2.2 J impact from a 50.8 mm diameter, 0.56 kg steel ball. The impact energy shall be imposed on the sample by the steel ball, either falling vertically or by swinging as a pendulum from a height of 413 mm. The sample component shall be struck within 25.4 mm of its centre. |
| 7.19 | | New Addition of spill test |
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| | | 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. |