# STANDARDS UPDATE NOTICE (SUN)
# ISSUED: April 9, 2020

## STANDARD INFORMATION - CSA C22.2 NO. 88:2019 ED.2

**Standard Number:** CSA C22.2 No. 88
**Standard Name:** Industrial Heating Equipment
**Standard Edition and Issue Date:** 2nd Edition Dated May 1, 2019
**Date of Revision:** May 1, 2019
**Date of Previous Revision of Standard:** 1st Edition Reaffirmed 2017

## EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

**Effective Date:** **November 2, 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requests in writing that current requirements be used along with their understanding that their listings will be withdrawn on Effective Date noted above, unless the product is found to comply with new/revised requirements.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:**

- Revised requirements for protection against rusting and corrosion
- Spacings, requirements updated and now aligned with other similar product standards
- Bonding means, updated to align with other similar product standards
- Marking, requirements aligned with other similar product standards
- Temperature, requirements updated and aligned with similar product standards
- Dielectric strength, requirements updated and aligned with similar product standards

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:**

**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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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 |
|---|---|---|
| | | *Additions to existing requirements are underlined and deletions are shown ~~lined out~~ below.* |
| | | |
| Title | Info | *Title of standard has changed from **Construction and Test of Industrial Heating Equipment** to **Industrial Heating Equipment*** |
| 4 | Info | **Construction** |
| 4.3 | Info | **Protection against rusting and corrosion** |
| 4.3.1 | | ~~Iron and steel parts shall be suitably protected against rust and corrosion as required by the latest issue of CSA Specification C22.2 No. 0, Definitions and General Requirements.~~<br><br>Iron and steel parts shall be provided with a means to reduce the likelihood of corrosion, such as enameling, galvanizing, and plating, if the corrosion of such unprotected parts would be likely to result in a risk of fire, electric shock, or injury to persons. |
| 4.3.2 | | ~~The surfaces of metal parts shall be protected, if necessary, against scaling, flaking, or other effects of corrosive action which might cause reduction in the dielectric strength of industrial heating equipment.~~<br><br>If deterioration or breakage of a liquid container provided as a part of an appliance would result in a risk of fire, electric shock, or injury to persons, the container shall be of a material that is resistant to corrosion by the liquid intended to be contained. |
| 4.17 | Info | **Spacings** |
| 4.17.3 | | If the spacings specified in Clause 4.17.2 cannot be maintained, an insulating barrier or liner may be used, provided that it is<br><br>~~(d) Not less than 0.028 inch thick, except that it may be not less than 0.014 inch thick:~~<br>~~(i) If used in conjunction with a spacing not less than one half of that required; or~~<br>~~(ii) If it is of mica or the equivalent and is held tightly in a fixed position by the parts between which the spacing is involved.~~<br>d) not less than 0.7 mm thick, except that it may be as thin as<br>i) 0.35 mm thick if used in conjunction with a spacing that is not less than one-half of that required before the barrier is applied; or<br>ii) 0.25 mm thick if it is of mica or other equivalent insulating material of suitable thickness to comply with the requirements of Items a) and b). Such parts 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. |

| CLAUSE | VERDICT | COMMENT |
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| 4.18 | Info | **Bonding means** |
| 4.18.1 | | ~~Exposed non-current-carrying metal parts shall be electrically connected together so that the equipment may be grounded on installation, in accordance with:~~<br><br>~~(a) Clause 4.5.3.1;~~<br>~~(b) Specification C22.2 No. 0, Definitions and General Requirements; and~~<br>~~(c) CE Code, Part I.~~<br><br>Exposed non-current-carrying metal parts that might become energized shall be conductively connected to the equipment bonding terminal or lead, in accordance with CSA C22.2 No. 0.4.<br><br>Bearing surfaces shall not be painted, enameled, or otherwise treated so as to result in a high-resistance connection between the metal parts. |
| 5 | Info | **Marking** |
| 5.1 | | Industrial heating equipment shall be marked in a permanent manner, in a place where the details are readily visible after installation, with the following:<br><br>a) manufacturer's name, trademark, or other recognized symbol of identification;<br>b) catalogue, style, model, or other type of designation;<br>c) rated voltage;<br>d) a marking after the voltage indicating<br>i) the letters "dc"; or<br>ii) the letters "ac", or the symbol " ~ ", or the frequency in hertz;<br>e) number of phases, unless for single-phase operation;<br>f) rated input in amperes or watts;<br>g) date code, serial number, or equivalent means denoting, at least, month and year of manufacture; and<br>h) other marking(s) as may be necessary to indicate the proper location or use of the equipment. |
| 5.2 | | Markings shall comply with CAN/CSA-C22.2 No. 0. Adhesive nameplates shall comply with the applicable requirements of CSA C22.2 No. 0.15. |
| 5.3 | | ~~The marking, "DISCONNECT BOTH SUPPLIES BEFORE WORKING ON EITHER CIRCUIT" or other equivalent wording shall be marked on equipment for which supplies of two different voltages have been permitted.~~<br><br>The marking "WARNING: RISK OF ELECTRIC SHOCK. CAN CAUSE INJURY OR DEATH. DISCONNECT ALL REMOTE ELECTRIC POWER SUPPLIES BEFORE SERVICING" or other equivalent wording shall be marked on equipment for which multiple hazardous voltage power supplies have been permitted. This marking shall be located on all panels providing access to hazardous voltage uninsulated live parts. |
| 5.5 | | ***New clause added;***<br><br>Markings shall be permanent, legible, accessible, and readily visible after the appliance is installed, except as otherwise stated. |

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| 5.8 | | ***New clause added;***<br><br>The marking "CAUTION: USE SUPPLY WIRES SUITABLE FOR ___°C" or the equivalent wording shall be located near the supply entrance or on the nameplate, if the maximum temperature in the terminal box or the compartment intended for the supply connections exceeds 60 °C in the normal temperature test. The temperature to be marked in the caution shall be 75 °C, 90 °C, or 110 °C for maximum temperatures of 61–75 °C, 76–90 °C, or 91–110 °C, respectively. See Table 2, Note h). |
| 5.9 | | ***New clause added;***<br><br>A replacement marking shall be provided for a replaceable fuse supplied as a part of a product. The marking shall be visible when the cover or door of the compartment is opened. The marking shall specify the rating of the fuse in amperes and voltage, and the fuse class, if marked. |
| 5.10 | | ***New clause added;***<br><br>A pressure wire connector intended for connection of an equipment bonding conductor shall be identified by being marked "G", "GR", "GND", "Ground", or "Grounding"; by the grounding symbol illustrated in Figure 1; or by a marking on the wiring diagram provided on the appliance. |
| 5.11 | | ***New clause added;***<br><br>Enclosures in equipment not complying with the requirements of Clauses 4.2.3.2 to 4.2.3.4 shall be marked with the following (or equivalent): CAUTION: MOUNT WITH BOTTOM OF EQUIPMENT AT LEAST 2.4 m ABOVE FLOOR OR GRADE.*<br><br>* The equivalent French wording is ATTENTION : FIXER AVEC LE DESSOUS DE L'APPAREIL AU MOINS 2,4 m AU DESSUS DU PLANCHER OU DU NIVEAU DU SOL. |
| 6 | Info | **Tests** |
| 6.3 | Info | **Temperature** |
| 6.3.1.1 | | Industrial heating equipment shall be tested as described in Clauses 6.3.1.2 and 6.3.1.3 and shall not<br><br>a) reach a temperature, at any point, high enough to result in a risk of fire or to damage any material used in the appliance; or<br>b) exceed the temperature rises specified in Table 2. |
| 6.3.1.4 | | ***New clause added;***<br><br>A motor-protective, thermal, or overcurrent-protective device shall neither operate nor open the circuit during the heating test. |

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| 6.3.1.5 | | ***New clause added;***<br><br>All temperature rises in Table 2 are based on an assumed ambient temperature of 25 °C. An observed temperature shall be corrected by addition (if the ambient temperature is lower than 25 °C) or by subtraction (if the ambient temperature is higher than 25 °C) of the difference between 25 °C and the ambient temperature. |
| 6.3.1.6 | | ***New clause added;***<br><br>A temperature is considered to be constant when three successive readings taken at intervals of 10% of the previously elapsed duration of the test, but not less than 5 min intervals, indicate no change. |
| 6.3.1.7 | | ***New clause added;***<br><br>Ordinarily, coil or winding temperatures shall be measured by thermocouples unless the<br><br>a) coil is inaccessible for mounting such as a coil immersed in sealing compound; or<br>b) the coil wrap includes thermal insulation of more than two layers, up to 0.8 mm maximum, of cotton, paper, rayon, or the like.<br><br>For a thermocouple-measured temperature of a coil of an ac motor other than a universal motor (refer to Items 11 and 14 in Table 2) having a frame diameter of 178 mm or less, the thermocouple shall be mounted on the integrally applied insulation of the conductor. |
| 6.3.2 | Info | **Abnormal** |
| 6.3.2.1 | | ***New clause added;***<br><br>Equipment shall be tested as described in Clauses 6.3.2.2 and 6.3.2.3, and there shall be no<br><br>a) emission of flame or molten metal; or<br>Note: Drops of melted solder are not considered to be molten metal.<br>b) glowing or flaming of combustible material upon which the appliance may be placed or that may be in proximity to the appliance as installed. |
| 6.3.2.2 | | ***New clause added;***<br><br>With consideration given to the design of the equipment, the equipment shall be operated under abnormal conditions representing those likely to be encountered in actual service. |

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| 6.4 | Info | **Dielectric Strength** |
| 6.4.1.1 | | Equipment, excluding furnaces having exposed heating elements, shall withstand for 1 min without breakdown the application of a dc potential or an ac 60 Hz essentially sinusoidal potential between live parts and dead (bonded) metal parts. The test potential shall be<br><br>a) ~~900~~ 1000 V ac or 1400 V dc for equipment rated 250 V or less, and which includes a motor rated at less than 373 W (1/2 hp); or<br>b) 1000 V plus twice rated voltage or 1400 V dc plus 2.8 times rated voltage for equipment rated more than 250 V or which includes a motor rated 373 W (1/2 hp) or larger. |
| 6.4.2 | | ***New clause added;***<br><br>If a transformer or an autotransformer is employed in the equipment, the test potential for the secondary circuit shall be<br><br>a) 500 V if the secondary operates at 50 V or less, except that this does not apply if the secondary circuit is supplied from a Class 2 transformer;<br>b) 1000 V if the secondary operates from 51 to 250 V; and<br>c) 1000 V plus twice the rated voltage of the equipment if the secondary operates from 251 to 600 V. |
| 6.4.3 | | ***New clause added;***<br><br>To determine whether the equipment complies with the requirements in Clause 6.4.1, the equipment shall be tested by means of a 500 VA or larger-capacity transformer, the output voltage of which is essentially sinusoidal and can be varied. The applied potential shall be increased from zero until the required test level is reached and shall be held at that level for 1 min. The increase in the applied potential shall be at a uniform rate and as rapid as is consistent with its value being correctly indicated by a voltmeter. The equipment shall be at the maximum operating temperature reached in normal use and all controls shall be in the ON position. |
| Table 2 | | ***New table added;***<br><br>**Maximum Acceptable Temperature Rise**<br><br>See standard for details. |
| | | 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. |