STANDARDS UPDATE NOTICE (SUN)
ISSUED: July 26, 2024

STANDARD INFORMATION

Standard: CSA E60974-5
Standard ID: Arc Welding Equipment - Part 5: Wire Feeders [CSA C22.2#60974-5:2023 Ed.3]
Previous Standard ID: Arc Welding Equipment - Part 5: Wire Feeders (R2018) [CAN/CSA E60974-5:2009 Ed.2]

EFFECTIVE DATE OF NEW/REVISED REQUIREMENTS

Effective Date: **October 1, 2025**

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 Reports not updated to this version by the effective date above will be withdrawn.

Note: The Standard Number has been updated to CSA C22.2#60974-5.

Overview of Changes:

- Addition of requirements for welding circuit connections
- Addition of requirements in relation to abnormal operation
- Addition of Measuring instruments and Routine tests
- Revisions to Protection provided by the enclosure

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 – Please immediately identify any current Listing Reports or products that are no longer active and should be removed from our records.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
		Additions to existing requirements are <u>underlined</u> and deletions are shown ~~lined out~~ below.
1		**Scope** <u>This Standard applies to equipment intended to be installed or used in accordance with CSA C22.1, Canadian Electrical Code, Part I.</u> <u>General requirements applicable to these products are provided in CSA C22.2 No. 0.</u>
5	Info	**Tests**
5.2		***New clause added;*** **Measuring instruments** The accuracy of measuring instruments shall be: a) electrical measuring instruments: class 1 (±1 % of full-scale reading), except for the measurement of insulation resistance and dielectric strength where the accuracy of the measuring instruments is not specified, but shall be taken into account for the measurement; b) thermometer: ±2 K; c) tachometer: ±1 % of full-scale reading; d) pressure measuring instruments: class 2,5 (±2,5 % of full-scale reading).
5.5		**Routine tests** All routine tests given below shall be carried out on each WIRE FEEDER in the following sequence: a) visual inspection in accordance with manufacturer's specification; b) continuity of the protective circuit, if applicable (as specified in 10.5.3 of IEC 609741: 2017); c) dielectric strength (as specified in 6.1.5 of IEC 60974-1:2017). ~~d) visual inspection (see 3.7 of IEC 60974-1).~~

CLAUSE	VERDICT	COMMENT
6	Info	**Protection against electric shock**
6.2	Info	**Protection against electric shock in normal service (direct contact)**
6.2.1		**Protection provided by the enclosure** WIRE FEEDERS shall have a minimum degree of protection in accordance with Table 1 using IEC 60529 test procedures and conditions. WIRE FEEDERS with degree of protection IP23S may be stored but are not intended to be used outside during precipitation unless sheltered. Adequate drainage shall be provided by the enclosure. Retained water shall not interfere with the correct operation of the equipment or impair safety. The quantity of water that may enter the enclosure during the following test is not limited. Conformity shall be checked by the following test: The filler wire shall be fed into the drive system and all external connectors shall be connected or covered. The WIRE FEEDER shall be subjected to the appropriate water test without being energized. Immediately after the test, the WIRE FEEDER shall be moved to a safe environment and subjected to the insulation resistance test, listed in 5.4 g) and to the dielectric strength test, listed in 5.4 h). ~~The degree of water protection is met if, immediately after this test, the dielectric strength is verified as specified in 6.2.1 of IEC 60974-1.~~ When live parts at welding potential are protected against precipitation, the filler wire shall show no visual wetness after the test.
6.2.4		***New clause added;*** **Isolation of the welding circuit** Subclause 6.2.4 of IEC 60974-1:2017 applies.
6.2.5		***New clause added;*** **Welding circuit touch current** For class I stand-alone WIRE FEEDERS, 6.2.5 of IEC 60974-1:2017 applies.

CLAUSE	VERDICT	COMMENT
		New clause added;
6.2.6		**Touch current in normal condition** Subclause 6.2.6 of IEC 60974-1:2017 applies.
6.3	Info	**Protection against electric shock in case of a fault condition (indirect contact)**
6.3.1		**Protective provisions** WIRE FEEDERS shall be class I, class II or class III equipment in accordance with IEC 61140, with the exception of the welding circuit. Connection of exposed conductive parts to the protective conductor is not required if the supply voltage is supplied by the welding circuit or safety extra-low voltage (SELV). Connection of exposed conductive parts to the protective conductor is required if the WIRE FEEDER is rated for supply voltages above SELV. The protective conductor connection shall be secured to the frame or enclosure by a screw or fastening that shall not require removal during any servicing operation. Solder alone shall not be used for securing the protective conductor terminals. This terminal shall not be used for any other purpose (such as for clamping two parts of the casing together). The welding circuit and conductive parts connected to the welding circuit shall not be connected to the protective conductor. Where a protective conductor is used, it shall be protected against damage by stray welding currents, for example, by: a) a device to sense welding current in the protective earth conductor under a fault condition and to de-energize the welding circuit or b) insulation of the relevant metal parts, for example, by an enclosure. Conformity of designs in line with example a) shall be tested by: 1) testing that a current not greater than the rated current value of the protective conductor does de-energize the welding circuit; 2) passing the maximum rated welding current through the protective conductor until the welding circuit is de-energized without damage. Conformity of designs in line with example b) shall be checked by visual inspection.
		New clause added;
6.3.5		**Touch current in fault condition** For class I stand-alone WIRE FEEDERS, 6.3.6 of IEC 60974-1:2017 applies.

CLAUSE	VERDICT	COMMENT
6.9	Info	**Welding circuit connections**
6.9.1		***New clause added;*** **Protection against unintentional contact** Welding circuit output connections, with or without welding cables connected, and welding circuit input connections with welding cables connected, shall be protected against unintentional contact by persons or by metal objects, for example vehicles, crane hooks, etc. The following are examples of how such protection can be afforded. a) Any live part of a coupling device is recessed behind the plane of the access opening. Devices complying with IEC 60974-12 meet the requirement. b) A hinged cover or a protective guard is provided. Conformity shall be checked by visual inspection.
6.9.2		***New clause added;*** **Location of coupling devices** Uncovered output coupling devices shall be located so that their openings are not tilted upwards. NOTE Coupling devices fitted with an automatic closing device can have their openings tilted upwards. Conformity shall be checked by visual inspection.
6.9.3		***New clause added;*** **Outlet openings** Where welding cables pass through metallic parts, the edges of the opening shall be smoothly rounded with a radius of at least 1,5 mm. Conformity shall be checked by visual inspection.

CLAUSE	VERDICT	COMMENT
6.9.4		***New clause added;*** **Marking** Connections designed specifically for attachment to the workpiece or to the electrode shall be so identified. For DC WIRE FEEDERS' welding power sources, the polarity shall be clearly marked, either on the welding output connections or on the polarity selector. Conformity shall be checked by visual inspection.
7		**Liquid cooling system** Component parts of WIRE FEEDERS through which cooling liquid flows shall be capable of operating at an inlet pressure up to 0,5 MPa (5 bar) and with a coolant temperature up to 70 °C without leaking. Conformity shall be checked by visual inspection while applying 0,75 MPa (7,5 bar) for ~~30 s~~ 120 s at test conditions specified in 5.1.
9		**Thermal requirements** The WIRE FEEDER motor shall be loaded to provide a current corresponding to the MAXIMUM LOAD in accordance with 11.7 for all tests. WIRE FEEDERS designed for use with manual torches shall be capable of operating at rated welding current at 60 % duty cycle (6 min "on" and 4 min "off") without causing any component to exceed its rated temperature. WIRE FEEDERS designed for use with mechanically guided torches shall be capable of operating at rated welding current at 100 % duty cycle without causing any component to exceed its rated temperature. Where a WIRE FEEDER and a power source are housed in a single enclosure, the WIRE FEEDER shall be capable of operating at the duty cycle corresponding to the rated maximum welding current of the power source. For liquid-cooled apparatus, the test shall be carried out with the minimum flow and with the maximum temperature of the coolant, as recommended by the manufacturer. Additionally, the WIRE FEEDER shall meet the requirements specified in the first five paragraphs of Clause 9 when it is cycled for 4 s "on" and 2 s "off" during the 6 min "on" time of the duty cycle specified in the second paragraph of Clause 9.

CLAUSE	VERDICT	COMMENT
		Current-carrying components shall be capable of carrying the rated welding current without causing the external surface temperatures of the WIRE FEEDER specified in Table 7 of CSA C22.2 No. 60974-1 to be exceeded. External surface temperatures in restricted access areas, e.g. robotic applications, or covered areas in normal use, e.g. welding circuit, may exceed the limits of Table 7 of CSA C22.2 No. 60974-1 if marked with the following symbol IEC 60417-5041:2002-10:  Conformity shall be checked by measurement in accordance with 7.2 of IEC 60974-1:2017 with the WIRE FEEDER loaded to the MAXIMUM LOAD.
10	Info	**Mechanical provisions**
10.1		***New clause added;*** **General requirements** A stand-alone WIRE FEEDER which relies on motor-driven fan(s) for conformity with the tests of Clause 9 shall neither breakdown nor increase the risk of electric shock or fire, under the conditions of operation of 10.2. These tests are conducted without regard to temperature attained on any part, or to the continued proper functioning of the WIRE FEEDER. The only criterion is that the WIRE FEEDER does not become unsafe. These tests may be conducted on any WIRE FEEDER that functions correctly. WIRE FEEDERS protected internally, for example, by a circuit-breaker or by thermal protection, meet the requirement for safe functioning if the protection device operates before an unsafe condition occurs. Conformity shall be checked by the following tests: a) A layer of dry absorbent surgical type cotton is placed under the WIRE FEEDER, extending beyond each side for a distance of 150 mm. b) Starting from the cold state, the WIRE FEEDER is operated in accordance with 10.2. c) During the test, the WIRE FEEDER shall not emit flames, molten metal or other materials that ignite the cotton indicator. d) Following the test and not more than 5 min after the test, the WIRE FEEDER shall be capable of withstanding a dielectric test in accordance with IEC 609741: 2017, 6.1.5 b).

CLAUSE	VERDICT	COMMENT
10.2		***New clause added;*** **Stalled fan test** A WIRE FEEDER that relies on motor-driven fan(s) for conformity with the tests of Clause 9, is operated at rated supply voltage for a period of 4 h while the fan motor(s) is(are) mechanically stalled and the WIRE FEEDER operated at the output condition of IEC 609741: 2017, 7.1. NOTE The intention of this test is to run the WIRE FEEDER with the fan stationary to check the safety of both the fan and the WIRE FEEDER.
10.8A		***Clause deleted;*** ~~Non-metallic enclosures shall meet the requirements of Flame Test D — Horizontal Burning Flame Test, in Appendix D of CAN/CSA-C22.2 No. 0.17.~~
13	Info	**Instructions and markings**
13.2		***Clause deleted;*** ~~Exposed metal parts that could be at welding potential and that are accessible shall be marked with the following or equivalent wording:~~ ~~CAUTION: PARTS MAY BE AT WELDING VOLTAGE.~~