CERTIFICATION Informs

An Urgent Bulletin from CSA Group

Ref No: I15-047

Welding Equipment No. 9

Date: March 6, 2015

New Service available as of today

Apply any time to have your products evaluated

Announcing: Update of Certification service to ANSI/IEC 60974-1:2008, Arc Welding Equipment Part 1: Welding Power Sources to include Certification Requirements for Rechargeable Battery-Powered welding power sources with their battery packs and dedicated chargers

Class No: 5611 83, WELDING MACHINES - Certified to US Standards

Who is affected?

Manufacturers of Arc-welding equipment for Industrial or Professional use.

What do you do?

1. This publication provides for new certification services that do not affect your currently certified product designs.
2. Please contact CSA technical staff if you have questions or need information concerning this publication and how it applies to you.
3. If you would like to take advantage of the new certification services, initiate a certification project by contacting our Client Services Centre at 1-866-797-4272. Please supply appropriate supporting documentation* and we will inform you of the samples required.

*which includes technical information, company name, address, factory locations and CSA file number or master contract number (if assigned), and any other relevant documentation.

Introduction:

Recent advances in battery technology are enabling arc-welding equipment to be powered by rechargeable batteries. However, the standard ANSI/IEC 60974-1-2008**,** Arc Welding Equipment Part 1: Welding Power Sources does not have any requirements to cover rechargeable battery-powered welding power sources.

Background and Rationale:

At the request of the industry, CSA is updating the Certification service offered for arc welding equipment to include Rechargeable Battery-Powered welding power sources. These products will be tested to the applicable requirements of standard ANSI/IEC 60974-1:2008 and UL 2595, First Edition, General Requirements for Battery-Powered appliances as detailed in Attachment 1.

The requirements outlined in this Informs will be used as the basis of certification for Industrial or Professional use Battery-powered welding power sources until the standard ANSI/IEC 60974-1:2008 is updated to include Battery-powered equipment.

For questions specific to your file or products contact your CSA Group technical staff associate.
Go to http://www.csagroup.org/us/en/services/testing-and-certification/certified-product-listing and enter your Master Contract # and the class numbers associated with this Informs to view your certified products.

For technical questions on this Informs

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ATTACHMENT 1

Background and Rationale

Additional Certification requirements for Rechargeable Battery-Powered welding power sources, battery packs and their dedicated chargers.

General:

The following requirements of UL 2595, First Edition, General Requirements for Battery-Powered Appliances, with the conditions and specifications as required by the "Indents" in Appendix D of this standard, supplement the requirements in ANSI/IEC 60974-1: 2008 to cover Industrial or Professional use welding power sources supplied by rechargeable batteries, their battery packs and their dedicated chargers.

NOTE: Important Test Considerations *– Some of the tests may result in fire or explosion. It is therefore important that personnel be protected from the flying fragments, explosive force, sudden release of heat, chemical burns, intense light and noise that may result from such explosions. The test area is to be well ventilated to protect personnel from possible harmful fumes or gases.*

A Indent A of Appendix D of UL 2595:

With respect to indent A of Appendix D in UL 2595, except as indicated elsewhere in UL 2595, the following requirements in the standard ANSI/IEC 60974-1-2008 or UL 2595 do not apply or are amended or added as indicated below:

A1 - Clause 1 (Scope), paragraph 1 in ANSI/IEC 60974-1-2008, amended as follows:

This part of ANSI/IEC 60974-1:2008 is applicable to power sources for arc welding and allied processes designed for industrial and professional use, and supplied by a voltage not exceeding that specified in Table 1 of IEC 60038, driven by mechanical means, or supplied by rechargeable batteries in accordance with the requirements of UL 2595.

A2a) - For Battery operated welding power sources that can be operated off-grid only, the following requirement in the standard ANSI/IEC 60974-1: 2008 do not apply.

Section 3 Terms and definitions-Clauses 3.30, 3.31, 3.32, 3.33, 3.34, 3.35, 3.36, 3.48, 3.49,
Section 6 Protection against Electric Shock -Clauses 6.1.1, 6.1.2, 6.1.3, 6.1.4 (between Supply circuits to welding circuit), 6.1.5 (between supply circuit to welding circuit), 6.2.3, 6.3.1, 6.3.2, 6.3.3, 6.3.4 (to input circuit in a), to protective conductor in b)), 6.3.7,
Section 7 Thermal Requirements-Clauses 7.3.3DV1, 7.5,
Section 10- Connection to the input supply network-Clauses10.2, 10.3, 10.4.10.5, 10.6, 10.7, 10.8, 10.9
Section 15 Rating Plate -Clause 15.5
Section 17 Instructions and markings -Clause 17.1d), 17.1DV.3, 17.2.4, 17.2.5, 17.2.7
-Annexes (Normative): Annex E, Annex N,

A2b) - For Battery operated welding power sources that can be operated off-grid only, the following requirement in the standard UL 2595 do not apply.

-Clause 22 Additional Requirements for Battery Operated Appliances with a Connection to Mains or a Non-isolated Source

A3 - The standard IEC 62133-Secondary cells and batteries containing alkaline or other non-acid electrolytes — Safety requirements for portable sealed secondary cells, and for batteries made from them, for use in portable applications, can be used as an alternate to UL 1642 that is referenced in clauses 3.30, 3.37, 3.41, 18.6 in the standard UL 2595.

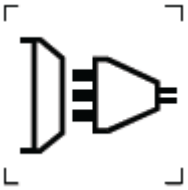
A4 – Clause 18.8 of UL 2595 is amended as follows:
"External and Internal chargers or power units shall comply with the following as applicable:
a) The Standard for Power Units Other Than Class 2, UL 1012;
b) The Standard for Class 2 Power Units, UL 1310"

A5 - Clause 6.1.4 in ANSI/IEC 60974-1: 2008, the following paragraph is added:
"Batteries shall be protected from damage by disconnecting or isolating them from the test voltage during the measurement."

A6 – Clause 6.1.5 in ANSI/IEC 60974-1: 2008, the following paragraph is added:
"Batteries shall be protected from damage by disconnecting or isolating them from the dielectric test voltage during the test."

A7 – Clause 15 (**Rating plate)** in ANSI/IEC 60974-1: 2008, the following boxes in the rating plate are amended as follows:

C) Energy supply:

Box	**Welding power sources with integral battery or with detachable or separable battery packs to be charged with an external charger**	
4	Li-ion or NiCd or NiMH and the symbol ⎓ – symbol for direct current (symbol 5031 of ISO 60417)	
Box	**Welding power sources with integral battery that are operated and/or charged directly from the mains or a non-isolated source**	
14		Supply circuit, number of phases (for example 1 or 3), symbol for alternating current and the rated frequency (for example 50 Hz or 60 Hz)
Box	**Welding power sources with integral battery to be charged with an external charger**	
15	U_1…V	Rated battery voltage
16	E…. Ah	The capacity assigned by the manufacturer in Ah, in accordance with Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Secondary Lithium Cells and Batteries for Portable Applications, IEC 61960; Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Portable Sealed Rechargeable Single Cells – Part 1: Nickel-Cadmium, IEC 61951-1; or Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Portable Sealed Rechargeable Single Cells – Part 2: Nickel-Metal Hydride, IEC 61951-2, as applicable;
Markings: *"For use only with ____ charger, " or the equivalent.* The charger may be identified by a catalog number, series identification, or the equivalent. Alternatively, the statement "See Instruction Manual for Additional Chargers," or the equivalent may be employed in addition to at least one charger referenced by catalog number.		
	Welding power sources with detachable or separable battery packs	

	U_1…V	Rated supply voltage
	U_1…V x (Y)	Rated battery pack voltage x (numbers of battery packs)
	E…. Ah	The capacity assigned by the manufacturer in Ah, in accordance with Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Secondary Lithium Cells and Batteries for Portable Applications, IEC 61960; Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Portable Sealed Rechargeable Single Cells – Part 1: Nickel-Cadmium, IEC 61951-1; or Secondary Cells and Batteries Containing Alkaline or Other Non-Acid Electrolytes – Portable Sealed Rechargeable Single Cells – Part 2: Nickel-Metal Hydride, IEC 61951-2, as applicable;
Markings: *"For use only with ____ battery (battery pack, etc.)" or the equivalent.* The battery pack may be identified by a catalog number, a series identification, or the equivalent. Alternatively, the statement "See Instruction Manual for Additional Battery Packs," or the equivalent may be employed in addition to at least one battery pack referenced by catalog number.		
	Welding power sources with integral battery that are operated and/or charged directly from the mains or a non-isolated source	
	U_1…V	Rated supply voltage
	$I1_{max}$... A	Rated maximum supply current
1	$I1_{eff.}$.. A	Maximum effective supply current

B Indent B of Appendix D of UL 2595:

With respect to indent B of Appendix D in UL 2595, users of welders are unlikely to be wet during the use of the product.

C Indent C of Appendix D of UL 2595:

With respect to indent C of Appendix D in UL 2595, detachable or separable battery packs are considered to be exposed to environments that would require a LT classification unless the instruction manual indicates a lower rated temperature during use.

D Indent D of Appendix D of UL 2595:

With respect to indent D of Appendix D of UL 2595, the following apply:

1. The heating test for Battery operated welding power sources is conducted in accordance with clause 7 - Thermal requirements in the standard ANSI/IEC 60974-1: 2008.

2. Clause 7.1.3 - Duration of test is amended as follows:

"The heating test shall be carried out in accordance with one of the following conditions:

a) For welding power sources with integral battery that is to be charged with an external isolated charger:
-The welding power source no longer operates due to the battery being discharged.

b) For welding power sources with detachable battery packs or separable battery packs:
-The test is repeated immediately with a minimum of two fully charged battery packs.

c) For welding power sources that are operated and/or charged directly from the mains or a non isolated source:
-The duration is in accordance to clause 7.1.3 and the charge of the battery shall be full at the end of the test."

3. Clause 7.4 (c) is replaced with “The welding power source no longer operates due to the battery being discharged” :

E Indent E of Appendix D of UL 2595:

With respect to indent E of Appendix D of UL 2595, the temperature limits of Table 9.1 in UL 2595 are replaced with those in Table 7 in the standard ANSI/IEC 60974-1: 2008.

F Indent F of Appendix D of UL 2595:

With respect to indent F of Appendix D of UL 2595, the abnormal tests of clause 11 are conducted without a load on the output terminals.

G Indent G of Appendix D of UL 2595:

With respect to indent G of Appendix D of UL 2595, the Safety Critical Function, SCFs in Table 11.1 are amended as follows:

Type and purpose of SCF	Required Performance Level (PL)
Prevent unwanted turn on where users are unaware of the risk of electric shock due to energized output circuit	b
Provide desired switch-off of the welder unless users are aware of the risk of electric shock due to continued energized output circuit.	b
Prevent exceeding a thermal limit as defined in Heating , Section 9	a

H Indent H of Appendix D of UL 2595:

With respect to indent H of Appendix D of UL 2595, detachable or separable batteries shall be dropped onto a concrete surface.

I Indent I of Appendix D of UL 2595:

With respect to indent I of Appendix D of UL 2595, welding power sources do not employ cutting devices. Therefore, clause 18.5 in UL 2595 is not applicable.

J Indent J of Appendix D of UL 2595:

With respect to indent J of Appendix D of UL 2595, battery operated welding power sources that can also be operated or charged by mains or a non-isolated power source as described in UL 2595 shall, in addition, meet the requirements of the standard ANSI/IEC 60974-1: 2008 that apply to the risk of electric shock.
In addition, provisions for accessible voltages in the output circuit are modified as described in Clause 11 of ANSI/IEC 60974-1:2008.