

General

This guidance document is to clarify what standards and requirements should be used for Arc Welding Machines within definition of AS/NZS 4417.2

Note: this requirement applies due to AS 60974.6 being withdrawn and is an interim requirement while clarification is obtained as to appropriate safety standards for welding machines. For any specific situation variations to this may be accepted by regulators on a case by case submission and based on meeting safety outcomes.

Question

What standard should be used to test and certify an Arc Welding Machine that is within the definition of Arc Welding Machines listed in AS/NZS 4417.2.

Answer

Generally

IEC 60974.6:2015 together with the Australian deviations listed in AS 60974.6:2006 (withdrawn), which will include as a minimum:

- test for resistance to heat, fire and tracking shall be carried out in accordance with AS/NZS 60335.1 as an attended appliance.
- For heating tests of GMAW and FCAW power sources, the manufacturer's duty cycle(s), as specified on the machine rating plate, shall be used for the test
- supply coupling device shall be provided as a part of the welding power source and shall be suitable for the application. Its current rating shall be not less than the maximum effective supply current (I_{1eff}). It shall have either a supply cord and plug or appliance inlet. If supply cord is provided it shall be of a type not inferior to a heavy-duty sheathed type in accordance with AS/NZS 3191 and have a plug complying with AS/NZS 3112. If an appliance inlet is provided, it shall comply with AS/NZS 60320.1.
- any supplied welding cables shall meet the requirements of AS/NZS 1995 or IEC 60245-6.
- Hazard reducing device - as specified in IEC 60974-1, Clause 13

Exception for specific situation of **frequency conversion type welding machines**, use AS 60974.1:2020 with the following:

- test for resistance to heat, fire and tracking shall be carried out in accordance with AS/NZS 60335.1 as an attended appliance.
- supply coupling device shall be provided as a part of the welding power source and shall be suitable for the application. Its current rating shall be not less than the maximum effective supply

current (I_{1eff}). It shall have either a supply cord and plug or appliance inlet. If supply cord is provided it shall have a plug complying with AS/NZS 3112. If an appliance inlet is provided, it shall comply with AS/NZS 60320.1.

- any supplied welding cables shall meet the requirements of AS/NZS 1995 or IEC 60245-6.

-in addition to clause 6.2.1, protection provided by the enclosure, the enclosure shall be such that:

1. a 50 mm long test pin (see IEC 61032 test finger 12) cannot be inserted from all sides except the underside, and
2. a 15 mm long test pin (see IEC 61032 test finger 13) cannot be inserted from the underside;

to touch:

- a) live parts of the input circuit or
- b) in the case of Class II welding power sources, any metal part which is separated from live parts only by basic insulation.

Conformity shall be checked in accordance with IEC 61032

For all welding machines:

For equipment intended for sale in New Zealand it shall have a 230V rating marked or a marked voltage range that includes 230V and include testing at 230V (or if a voltage range at verified worst case voltage). If not intended for New Zealand the certificate shall state so.

For Australia, where equipment is marked for operation at a voltage or voltages within the range that includes 230 V a.c. or 240 V a.c., tests shall be carried out as if the equipment is marked at 230 and 240 V a.c (test at both voltages or verified worst case of either). Equipment that is not marked with an operating voltage of at least 240 V for single-phase equipment, for testing purposes at 240V the rating in amperes or loading in watts or volt-amperes is equal to the calculated value corresponding to 240 V for single-phase equipment.

NOTE 1 (as listed in AS 60947.6:2006) Example of calculation: If the equipment is marked with an operating voltage of 230 V and a current rating in amperes "A" or a loading in watts "P" or a loading in volt-amperes "VA", it will be tested as if it is marked with an operating voltage of 240 V and a current rating in amperes of "A x (240/230)" or a loading in watts of "P x (240/230)²" or a loading in volt-amperes of "VA x (240/230)²".