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Welding transformers for portable spot welding machines

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welding equipment

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Foreword

This translation has been made based on the original Japanese Industrial Standard revised by the Minister of International Trade and Industry through deliberations at Japanese Industrial Standards Committee in accordance with the Industrial Standardization Law:

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In the event of any doubts arising as to the contents,
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JAPANESE INDUSTRIAL STANDARD

Welding Transformers for Portable Spot Welding Machines JIS C 9317-1995

1. Scope

This Japanese Industrial Standard specifies welding transformers for portable spot welding machines (hereafter referred to as the "transformers") used for single phase a.c. electric source of a frequency of 50 Hz or 60 Hz, and their accessories.

Remarks 1. Normative references are as follows.

JIS B 1168-Eyebolts

JIS C 4003-Classification of Materials for Insulation of Electrical Machinery and Apparatus

JIS C 9305-General Rules for Resistance Welding Machines

2. The units and numerical values given in { } in this Standard are based on the traditional units and are appended for informative reference.

2. Definitions

The meaning of the main terms used in this Standard is as follows:

- (1) rated capacity The on-load input power when a transformer is loaded at the rated input voltage of the rated frequency and the duty cycle of 50 %, and the load is so adjusted that the temperature rise becomes the specified value. It is expressed in kVA.
- (2) maximum secondary voltage at No-Load The no-load voltage induced across the secondary terminals when the rated input voltage is applied to the primary tap which produces the maximum secondary voltage of the transformer.
- (3) maximum input voltage at No-Load The maximum input voltage at no-load is the maximum voltage applicable to input terminals of a transformer.

3. Classification

The classification of transformers is made as given in Table 1 according to their types, rated capacity, rated frequency and maximum secondary no-load voltage.

Table 1. Type, Rated Capacity and Maximum Secondary No-Load Voltage

Type	Rated capacity kVA	Maximum secondary v no-load voltage	
		50 Hz	60 Hz
Type 1	75	16.7	18.2
Type 2	100	19.0	21.0
Type 3	125	20.0	22.2
Type 4	150	21.0	23.5
Type 5	180	25.0	28.5

4. Standard Service Conditions

Service conditions of transformer shall be in accordance with the specification in 3. in JIS C 9305.

5. Cooling Water

5.1 Water Temperature The temperature of cooling water for transformers shall not exceed 30°C at the inlet port.

5.2 Water Quality The quality of cooling water for transformers shall be of industrial water or that similar thereto.

5.3 Flow-Rate and Pressure of Water The flow rate of cooling water for transformers shall not exceed 4 l/min for those of Types 1 to 3 and 6 l/min for those of types 4 and 5.

The pressure difference between inlet and outlet ports when water is passed at the flow rate indicated on the nameplate shall not exceed 69 kPa (0.7 kgf/cm²).

6. Rating

6.1 Rated Frequency The rated frequency is 50 Hz or 60 Hz.

6.2 Rated Input Voltage The rated input voltage (at no-load) is 200 V or 400 V.

6.3 Rated Capacity The rated capacities are as given in Table 1.

6.4 Maximum Input Voltage at No-Load The maximum input voltage at no-load is 230 V when the rated input voltage is 200 V and 460 V when the rated input voltage is 400 V.

6.5 Input Voltage at Maximum Load The input voltage at maximum load is 180 V when the rated input is 200 V and 360 V when the rated voltage is 400 V.

6.6 Maximum Secondary No-Load Voltage The maximum secondary no-load voltage shall be as given in Table 1.