

JIS

JAPANESE INDUSTRIAL STANDARD

General rules for arc welding power sources

JIS C 9300—1992

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1. Scope

This Japanese Industrial Standard specifies common matters relating to arc welding machines receiving a.c. power as the input and mainly consisting of a transformer and an output regulating device⁽¹⁾ and engine driven arc welding machines (hereafter referred to as "engine arc welders") among drooping characteristic and constant voltage characteristic a.c. or d.c. welding machines, and the auxiliary power sources accommodated in such welding machines. However, this Standard does not specify the accessories (voltage reducing device, high frequency generating device for TIG welding, etc.), they shall comply with the provisions if separately specified.

Note (1) The output regulating device means a device which regulates the output characteristics, output current, output voltage and its waveform.

Remarks: The following Standards are cited in this Standard:

JIS C 1102-Electrical Indicating Instruments

JIS C 1302-Insulation Resistance Testers (Battery Operated)

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

2. Definitions

For the purpose of this Standard the following principal definitions apply:

- (1) arc welding machine A machine which supplies the current and voltage of suitable characteristic for arc welding and associated works. Hereafter it is referred to as "welders" in this Standard.
- (2) drooping characteristic Such a static external characteristic that the output current does not change remarkably when the load voltage changes. The characteristic which shows especially small current change is called constant current characteristic and this is included in this category.
- (3) constant voltage characteristic Such a static external characteristic that the load voltage does not change remarkably when the output current changes.
- (4) rated value The constant value assigned by the manufacturer to ensure normal operation of a welder.
- (5) input circuit The circuit which receives the power necessary for welding.
- (6) output circuit The circuit which supplies the power necessary for welding.

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- (19) rated (revolution) speed The stabilized speed of welding generator (hereafter referred to as "generator") when the welder is operated at the rated load voltage and rated output current. The loading conditions, if provided, shall be followed.
- (20) temperature rise The difference between the temperature of the specified point of a welder and the temperature of ambient atmosphere of the welder.
- (21) type inspection The inspection to decide whether the quality and characteristics of the products of a type are good or not.
- (22) routine inspection The inspection carried out on individual product.
- (23) acceptance inspection The inspection carried out as agreed between the parties concerned with acceptance.
- (24) auxiliary power supply The power supply accommodated in a welder for the purpose of use other than welding such as lighting and motor operated tools. However, power supply utilizing no-load voltage of welder is excluded.

3. Service conditions

3.1 Standard service conditions Unless otherwise specified, welders shall operate without any abnormality under the following conditions:

- (1) The ambient temperature is,
-10°C to +40°C for welders receiving the input from a.c. power supply,
and -5°C to +40°C for engine driven ones.
- (2) The altitude is not exceeding 1000 m
- (3) Such atmospheric conditions that gases or fine particles produced by normal arc welding exists
- (4) The relative humidity of air is,
not more than 50 % at 40°C, and
not more than 90 % at 20°C.

3.2 Special service conditions When a welder is intended for work under one of the items given below, it is called as special service conditions, and in this case the user shall previously specify these conditions to the manufacturer.

- (1) The ambient temperature is other than stated in 3.1 (1)
- (2) The altitude exceeds 1000 m
- (3) Existence of corrosive gases, abnormal dust, etc.
- (4) The relative humidity of air exceeds that of 3.1 (4)
- (5) Receiving of abnormal vibration