
International Standard



700

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Power sources for manual metal arc welding with covered electrodes and for the TIG process

Sources d'alimentation pour soudage manuel à l'arc avec électrodes enrobées et procédé TIG

First edition — 1982-12-01

UDC 621.791.75.037 : 621.313/.314

Ref. No. ISO 700-1982 (E)

Descriptors : welding, electric welding, arc welding, gas tungsten arc welding, electric power supply, covered electrodes, vocabulary, tests, heating tests, heat limit, marking, dimensions.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been set up has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 700 was developed by Technical Committee ISO/TC 44, *Welding and allied processes*, and was circulated to the member bodies in May 1979.

It has been approved by the member bodies of the following countries :

Australia	Finland	Norway
Austria	France	Poland
Belgium	Germany, F.R.	Romania
Bulgaria	India	South Africa, Rep. of
Canada	Ireland	Spain
China	Italy	Sweden
Czechoslovakia	Libyan Arab Jamahiriya	Switzerland
Egypt, Arab Rep. of	New Zealand	United Kingdom

The member bodies of the following countries expressed disapproval of the document on technical grounds :

Japan
Netherlands
USA

This International Standard cancels and replaces ISO Recommendation R 700-1968, of which it constitutes a technical revision.

Power sources for manual metal arc welding with covered electrodes and for the TIG process

1 Scope

This International Standard specifies the necessary information for the description and specification of power sources for manual metal arc welding with covered electrodes and for the TIG process. It specifies the information to appear on the rating plate and describes test methods to verify the compliance of the power source with this International Standard.

It also specifies the minimum requirements for establishing a common basis for the specification of such power sources. It does not cover electrical safety requirements : these are included in IEC requirements which are currently in preparation.

2 Field of application

This International Standard applies to the types of power sources most commonly used in industrial applications for manual metal arc welding with covered electrodes and for the TIG process, except for oil-cooled power sources. It does not cover the ancillary equipment referred to in annex A.

2.1 Types of power source

The power sources are of the single operator type with drooping characteristics, for example :

- a) single-phase transformer,
- b) single-phase transformer/rectifier,
- c) static frequency converter/transformer/rectifier,
- d) polyphase transformer/rectifier,
- e) direct current generator with commutator,
- f) alternator,
- g) alternator with rectifier,
- h) motor generator (consisting of electric motor and direct current generator with commutator),

j) motor alternator rectifier (consisting of electric motor and direct current generator with commutator),

k) rotary frequency converter,

m) static frequency converter,

n) combined a.c. and d.c. power source consisting of transformer and rectifier,

p) combined a.c. and d.c. power source consisting of electric motor, alternator and rectifier.

NOTES

1 The above list includes power sources coupled to internal combustion engines.

2 A welding power source with a drooping characteristic is defined as having an external static characteristic which, in its normal welding range, is such that the voltage decreases as the current increases, the slope being generally greater than 7V/100A.

2.2 Altitude and temperature conditions

This International Standard applies to power sources for use under the following conditions :

2.2.1 Altitude

In the absence of any information regarding height above sea level at which the equipment is intended to work in ordinary service, the altitude is assumed not to exceed 1 000 m.

2.2.2 Temperature of the cooling medium

In the absence of any information to the contrary, it is assumed that, in the case of air-cooled power sources, none of the following temperature limits is exceeded :

— maximum ambient air temperature	40 °C
— daily average ambient air temperature	30 °C
— yearly average ambient air temperature	20 °C
— minimum ambient air temperature	— 10 °C

NOTE — Different conditions of altitude and temperature may be agreed between the manufacturer and user.