INTERNATIONAL STANDARD 636

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

Filler rods for gas welding of mild steels and low alloy high tensile steels — Code of symbols

Métaux d'apport pour le soudage aux gaz des aciers doux ou faiblement alliés à haute résistance — Code de symbolisation

First edition — 1975-06-01

Annulation approuvée par 13 voix contre 0 (1983-07-21)

Annulation demandée Résolutions nos 2 et 3 (PARIS, février 1982) (1982-08-10)

Annulation approuvée par 16 CM. (2 Yougoslavie s'est abstenue.)

UDC 621.791.5.042 : 003.62

Ref. No. ISO 636-1975 (E)

Descriptors : welding, gas welding, filler metal, welding rods, steels, carbon steels, low alloy steels, high strength steels, designation, symbols, coding.

Price based on 2 pages

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.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 44 has reviewed ISO Recommendation R 636 and found it technically suitable for transformation. International Standard ISO 636 therefore replaces ISO Recommendation R 636-1967 to which it is technically identical.

ISO Recommendation R 636 was approved by the Member Bodies of the following countries :

Australia	Germany	Poland
Belgium	India	South Africa, Rep. of
Bulgaria	Israel	Spain
Czechoslovakia	Italy	Sweden
Denmark	Japan	Switzerland
Finland	Netherlands	U.S.A.
France	Norway	

The Member Bodies of the following countries expressed disapproval of the Recommendation on technical grounds :

Austria
Canada*
Romania*
United Kingdom

The Member Body of the following country disapproved the transformation of ISO/R 636 into an Interantional Standard :

Germany

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* Subsequently, this Member Body approved the Recommendation.

Printed in Switzerland

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0 INTRODUCTION

The mechanical properties of the deposited metal which serve as a reference for the symbolization of filler rods must be looked upon as conventional values resulting from the test methods described in ISO 637, *Filler rods for gas welding of mild steels and low alloy high tensile steels — Determination of mechanical properties of deposited weld metal.* They cannot be taken to characterize an assembly welded with the same filler rods because the influence of the parent metal, of the welding procedure, of the heat treatment after welding or the absence of heat treatment, may cause substantial changes in the conventional values found during the tests on the deposited metal.

1 SCOPE AND FIELD OF APPLICATION

This International Standard establishes an identification code for filler rods by means of symbols referring to their tensile strength, elongation and impact strength.

This International Standard applies only to filler rods for gas welding of mild steels and low alloy high tensile steels.

2 GENERAL

The code system is divided in two parts :

1) the first part gives a general symbol to designate the product to be identified;

2) the second part symbolizes certain mechanical properties.

3 SYMBOLIZATION AND RULES

3.1 Symbolization of the product

The general symbol for filler rods for gas welding is the letter G. It shall be placed at the beginning of the designation. It is separated from the second part by a dash signifying that the rod is for welding a mild steel or a low alloy high tensile steel.

The purpose of this symbol is to establish a difference between the designation of filler rods for gas welding and other filler rods used in welding with other energy sources, for example arc welding.

3.2 Symbolization of mechanical properties

The symbolization of filler rods for gas welding of mild steels and low alloy steels is made up of a code with three symbols showing respectively

- the tensile strength;
- the elongation;
- the impact strength.

3.2.1 The symbols corresponding to the tensile strength are given in table 1.

Since the tensile strength of the deposited metal may vary for different diameters of a given type of filler rod, it is specified that the highest value of this property shall not exceed by more than 100 N/mm² the minimum tensile strength indicated by the symbol for the filler rod.

TABLE 1

Symbol	Tensile strength, N/mm²
0	–
Z	< 340
Y	340
1	400
2	430
3	470
4	510
5	550
6	590

3.2.2 The symbols corresponding to the elongation are given in table 2.

TABLE 2

Symbol	Elongation %
0	–
Z	< 14
1	14
2	18
3	22
4	26
5	30

3.2.3 The symbols corresponding to the impact strength *KV* are given in table 3 (see ISO 637).

TABLE 3

Symbol	Impact strength, J
0	not specified
Z	< 30
1	30
2	60
3	90
4	120
5	150

3.2.4 These mechanical properties shall be determined by the test method described in ISO 637.

3.2.5 Only the lowest of the values resulting from tests on all the diameters of the filler rod shall be adopted for purposes of symbolization, and the symbol taken shall be that in each of the above tables which corresponds to that value or the next lower value.

3.2.6 The symbol 0 should be used when no guarantee is given as to the property in question.

3.2.7 The symbol — shall be used when the impact strength cannot be determined.

4 EXAMPLES

4.1 A filler rod, the minimum properties of which have been found to be as follows :

Tensile strength	480 N/mm²
Elongation	29 %
Impact strength *KV*	100 J

would be given the symbol G-343.

4.2 A filler rod, the minimum properties of which have been found to be as follows :

Tensile strength	330 N/mm²
Elongation	25 %
Impact strength *KV*	140 J

would be given the symbol G-Z 34.

4.3 A filler rod, the minimum properties of which have been found to be as follows :

Tensile strength	370 N/mm²
Elongation	20 %
Impact strength *KV*	not determined

would be given the symbol G-Y 2 —.