
**Welding consumables — Technical
delivery conditions for welding filler
materials — Type of product, dimensions,
tolerances and markings**

*Produits consommables pour le soudage — Conditions techniques de
livraison des matériaux d'apport pour le soudage — Type de produit,
dimensions, tolérances et marquage*

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ISO 544:2003

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 544 was prepared by the European Committee for Standardization (CEN) in collaboration with Technical Committee ISO/TC 44, *Welding and allied processes*, Subcommittee SC 3, *Welding consumables*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

Throughout the text of this document, read “...this European Standard...” to mean “...this International Standard...”.

This third edition cancels and replaces the second edition (ISO 544:1989), which has been technically revised.

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Foreword

This document (EN ISO 544:2003) has been prepared by Technical Committee CEN/TC 121 "Welding", the secretariat of which is held by DS in collaboration with Technical Committee ISO/TC 44 "Welding and allied processes".

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by April 2004, and conflicting national standards shall be withdrawn at the latest by April 2004.

This document supersedes EN 759:1997.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

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1 Scope

This European Standard specifies technical delivery conditions for filler materials for fusion welding. This European Standard does not apply to auxiliaries such as shielding gases.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 10204, *Metallic products – Types of inspection documents*.

EN ISO 4063, *Welding and allied processes – Nomenclature of processes and reference numbers (ISO 4063:1998)*.

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3 Type of product and relevant processes

Table 1 below indicates the range of products covered by this standard and processes in which they are used. Within brackets reference numbers from EN ISO 4063 are given.

Table 1 - Type of product and relevant processes

Type of product	Applied in welding process ^a
Cored strip electrode	EG, ES, S
Covered electrode	E
Solid rod	W, O, P
Solid strip electrode	ES, S
Solid wire	W, P, L, EB
Solid wire electrode	EG, ES, G, S
Tubular cored rod	W, O, P
Tubular cored wire	L, W
Tubular cored electrode	EG, ES, P, S, T
Thin foil	L, EB

^a Correspondence between symbols used in this standard and reference numbers of EN ISO 4063, see below:

- E Manual metal-arc welding (111)
- EB Electron beam welding (51)
- EG Electro gas welding (73)
- ES Electro slag welding (72)
- G Gas-shielded metal-arc welding (131, 135)
- L Laser beam welding (52)
- O Oxy-fuel gas welding (31)
- P Plasma arc welding (15)
- S Submerged arc welding (12)
- T Tubular cored electrode arc welding with or without a shielding gas (136, 114)
- W Tungsten inert-gas arc welding (141)

4 Dimensions and dimensional limits

4.1 Filler wires, covered electrodes and filler rods

Table 2 indicates standardized dimensions and tolerances for filler wires, covered electrodes and filler rods.

Table 2 - Dimensions and tolerances^a

Dimensions in millimetres

Welding process	Solid wires and wire electrodes		Tubular cored wires and electrodes	Filler rods			Covered electrodes ^b			
	G, W, L, EB	S, ES, EG	T, S, EG	W, O, P	Length	Length tolerance	Diameter core wire	Diameter tolerance	Length	Length tolerance
0,5	+0,01 / -0,03	-	-	-	-	-	-	-	-	-
0,6										
0,8										
0,9			+0,02 / -0,05							
1,0										
1,2										
1,4										
1,6	+0,01 / -0,04				500	±5	1,6		200	±5
1,8					up to 1000		2,0	±0,06	up to 350	
2,0			+0,02 / -0,06				2,5			
2,4										
2,5										
2,8										
3,0	+0,01 / -0,07	±0,04								
3,2			+0,02 / -0,07				3,2			
4,0							4,0	±0,10	275	±5
5,0			+0,02 / -0,08				5,0		up to 450 ^c	
6,0							6,0			
8,0							8,0	±0,1		

^b Dimensions for the core wire.^a Other dimensions may be agreed. For intermediate dimensions tolerances given in the table shall be used.^c For special cases (for example gravity welding) length up to 1000 mm.