
British Standard Specification for
**Carbon and carbon-manganese steel
tubular cored welding electrodes**

Electrodes pour soudage à âme tubulaire en acier au carbone ou au carbone-manganèse — Spécifications

Rohrförmige Fülldrahtschweißeletroden aus Kohlenstoffstahl oder Kohlenstoff-Mangan-Stahl

Foreword

This British Standard has been prepared under the direction of the Welding Standards Committee and is one of a number specifying requirements for welding consumables. It includes requirements for continuous tubular metal-cored or flux-cored electrodes for arc welding with and without shielding gas, and gives details of the system by which they are to be classified. A descriptive appendix is included which gives information on the types and usage of the different electrodes.

Ordering electrodes complying with this standard gives an assurance of electrode quality and the classification has significance to the fabricator as a first step in selecting electrodes that may be suitable for a particular production joint. It should be noted that the impact and tensile strength of all-weld test specimens used to classify the electrodes will vary from those obtained in production joints because of differences in welding procedure such as electrode size, width of weave, welding position and material composition. Also tubular cored electrodes have different characteristics from covered electrodes. If notch toughness criteria have to be satisfied, the user is advised to carry out welding procedure tests and these tests should be representative of the appropriate production joints as specified in BS 4870 : Part 1. Furthermore if a fabrication is to be heat treated after welding, a similar post-weld heat treatment should be applied to the welding procedure test pieces because heat treatment can affect both the tensile and impact strength.

While this standard is generally in line with the principles of other British Standards for welding consumables, it was felt to be more logical for the digit for toughness to correlate with the temperature of testing, which differs from the system used in other British Standards for welding consumables.

The selection of electrodes should be made on the basis of the particular application and the user should consult the manufacturer or other appropriate authoritative sources for guidance.

Electrodes having identical classifications may be expected to have generally similar characteristics and properties, even if made by different manufacturers, but some differences may exist between such electrodes.

Purchasers ordering to this standard are advised to specify in their purchasing contract that the supplier operates a quality system in compliance with the appropriate Part of BS 5750 to assure themselves that the products claimed to comply with BS 7084 consistently achieve the required level of quality.

It has been assumed in the drafting of this British Standard that the execution of its provisions is entrusted to appropriately qualified and experienced people.

Compliance with a British Standard does not of itself confer immunity from legal obligations.



AMD 6281

**Amendment No. 1
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to BS 7084 : 1989**

**Specification for carbon and carbon-manganese
steel tubular cored welding electrodes**

Correction

**AMD 6281
November 1990**

Clause E.1 Preparation of test pieces
In paragraph 1, line 3, delete 'minimum' and substitute 'maximum'.

9011

WEE/39

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Specification for carbon and carbon-manganese
steel tubular cored welding electrodes

Correction

AMD 6814
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**Table 14. Welding procedures for preparation of transverse
bend test pieces**

In column 2, delete the text against 'Horizontal/vertical, weld slope 0°, weld
rotation 90°' entirely and substitute the following:

'First run with smallest size of electrode submitted

Subsequent runs with largest size submitted up to a maximum of 1.6 mm or
larger if recommended by the manufacturer'.

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Specification

1 Scope

This British Standard specifies requirements for continuous tubular metal-cored or flux-cored electrodes for arc welding with and without shielding gas and depositing carbon or carbon-manganese steel weld metal having a tensile strength not exceeding 650 N/mm². The standard does not cover products intended for submerged-arc welding.

It is recognized that the operating characteristics of tubular cored electrodes can be modified by the use of pulsed current, but for the purposes of this standard pulsed current is not used for determining the electrode classification.

NOTE 1. As this standard is primarily concerned with the mechanical properties of weld metals, no limits are placed on the chemical composition of weld metals. Where limits on individual elements are required, the values to be achieved and the methods of sampling and analysis should be agreed with the supplier (see clause 3(f)).

NOTE 2. The titles of the publications referred to in this standard are listed on the inside back cover.

2 Definitions

For the purposes of this standard the definitions given in BS 499 : Part 1 apply except for the following.

electrode extension. The length of electrode projecting beyond the current contact tube, disregarding any non-conducting electrode guide.

3 Information to be supplied by the purchaser

When ordering electrodes that comply with this standard, purchasers shall state:

(a) the number and date of this British Standard, i.e. BS 7084 : 1989;

(b) the electrode classification (see clause 4);

NOTE. The manufacturer's trade designation may also be quoted but the continuity of a trade designation is not an assurance that the electrode classification is unchanged (see note to clause 4(d)).

(c) whether additional tests and/or test certificates are required for each batch of electrodes supplied (see note to 8.1);

(d) whether a test certificate for the initial tests or for the most recent periodic check tests is required (see 8.1 and clause 9);

(e) whether a record of the welding parameters used for the initial tests is required (see 8.1);

(f) whether chemical analysis certificates are required and whether any elements have to be controlled to specific limits (see note 1 to clause 1);

(g) whether particular requirements for temper, cast and helix are to be agreed (see note to 7.2.2).

4 Classification

The classification of a tubular cored electrode shall be indicated by the following coding in the order stated.

(a) *Identification letter.* The letter 'T' for tubular cored electrodes for arc welding.

(b) *Strength.* A digit indicating the tensile properties of the weld metal as given in table 1.

Table 1. Designation for tensile properties

Digit	Tensile strength range	Minimum yield stress	Minimum elongation
	N/mm ²	N/mm ²	%
4	430 to 550	330	20
5	510 to 650	360	18

(c) *Toughness.* A digit indicating the temperature for a minimum average impact value of 47 J as given in table 2. When there is no requirement for toughness, a dash (—) shall be used instead of a digit.

Table 2. Designation for toughness

Digit	Temperature for minimum average impact value of 47 J
	°C
—	No requirement
0	0
2	–20
3	–30
4	–40
5	–50
6	–60
7	–70

(d) *Welding position.* A digit indicating the recommended welding positions for the electrode as given in table 3. (See also 11.2(i).)

NOTE. Electrodes having the same trade designation may have different classifications according to table 3.

(e) *Shielding.* The letter G to indicate that the electrode is to be gas-shielded or the letter N to indicate that the electrode is self-shielded.

(f) *Application and characteristics.* A letter describing the application and characteristics of the electrode as given in table 4.