



U I C CODE

Leaflet to be classified in volumes :

- V - TRANSPORT STOCK
- VI - TRACTION
- VII - TECHNICAL SPECIFICATIONS

897-6

OR

2nd edition, 1-1-1986

**TECHNICAL SPECIFICATION
FOR THE ACCEPTANCE OF COMBINATIONS
OF WIRE ELECTRODES (SOLID OR CORED)
AND GASES AND ALSO FOR THE SUPPLY
OF WIRE ELECTRODES (SOLID OR CORED)
FOR AUTOMATIC AND SEMI-AUTOMATIC
GAS-SHIELDED WELDING
OF PLAIN-CARBON OR LOW-ALLOY STEELS (1)**

(1) This Leaflet is :

- *obligatory* for all technical documents prepared under the auspices of UIC and ORE
- in the nature of a *recommendation* for all technical documents prepared by member railways of the Union.

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REVISIONS

[illegible]

NOTE

This leaflet is part of a set which includes:

- Leaflets specified in sub-section 89 (897): Welding

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1 - PURPOSE

This specification governs the acceptance of combinations of wire electrodes (solid or cored) and gases and also the supply of wire electrodes (solid or cored) for the automatic and semi-automatic gas-shielded welding of plain-carbon or low-alloy steels used in the construction and repair of rolling stock.

It defines the minimum conditions laid down both for their acceptance and for checking that the supply conforms to the approved qualities.

The wire electrodes (solid or cored), the gases and the wire-electrode and gas combinations are defined in the order or in the associated documents by the symbols specified in UIC Leaflet 897-7.

2 - CHARACTERISTICS

2.1 - Wire electrode and gas

2.1.1 - Physical characteristics

The wire electrode must be of uniform quality, without traces of segregation or oxides, flaws or other irregularities.

The surface of the wire electrode must be free from all impurities such as oil, grease, paint, etc.

The covering must be uniform, adhesive and regular and shall not exhibit any fissures or shelling.

The wire electrode and the spool shall not present any defect making it difficult to unreel.

The solid wire electrode shall satisfy the mechanical characteristics requirements specified in the table below:

Diameter of wire (mm)	0.6 0.8	0.9	1.0	1.2	1.6 2.0	2.4 3.2
Tensile strength (1) (N/mm ²)	≥1,100	≥1,000	≥950	≥900	≥700	≥600
(1) For bobbins 100 mm in diameter the tensile strength of the wire may be 50 to 70% of the minimum value indicated.						

In the conditions of use corresponding to the diameter of the wire electrode there should be no difficulty in striking and re-striking an arc nor any possibility of the accidental extinction of the arc.

The slag deposited by the cored wire electrode shall be easy to remove when cold by means of a hand tool.

2.1.2 - Chemical characteristics

The purity of the shielding gas must correspond to the normal requirements for welding if not specified by the purchasing railway.

The chemical composition of the solid wire electrode shall conform to the order and the associated documents; in the absence of any indication in these documents, the chemical composition to be complied with is given in UIC Leaflet 897-7. The test is carried out on the wire complete with its protective coating.

In case of solid wires, the supplier shall provide for each batch number a certificate giving the chemical analysis.

2.1.3 - Geometrical characteristics of the wire electrode

The tolerances on the nominal diameter of the wire electrode must conform to those specified in the order and its associated documents; in the absence of any indication in these documents, the tolerances to be met are those indicated in the following table:

	d nominal diameter of wire electrode (mm)	tolerance (mm)
solid wire electrode	$0.6 \leq d < 1.0$	+ 0.01 - 0.03
	$1.0 \leq d \leq 2.0$	+ 0.01 - 0.04
	$2.0 < d \leq 3.2$	+ 0.01 - 0.07
cored wire electrode	$1.0 \leq d < 2.0$	+ 0.01 - 0.04
	$2.0 \leq d \leq 3.0$	+ 0.01 - 0.07
	$3.0 < d \leq 4.0$	+ 0.10 - 0.20

The wire electrode shall be coiled in one continuous length coming from the same manufacturing batch and, in the case of solid wire, from the same cast. The wire shall consist of a length not butt-jointed on the final drawing diameter. There shall be no bends, corrugations, folds or other irregularities. The wire must be wound in such a way that the coils can unwind without becoming entangled or crossing each other.

The terminal end of the wire electrode shall be firmly and visibly fixed.