SLOVENSKI STANDARD
SIST EN 4877-001:2024

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Aeronavtika - Kovinsko polnilo za varjenje - 001. del: Tehnična specifikacija

Aerospace series - Filler metals for welding - Part 001: Technical specification

Luft- und Raumfahrt - Schweißzusätze - Teil 001: Technische Lieferbedingungen

Série aérospatiale - Métaux d'apport de soudage - Partie 001 : Spécification technique

Ta slovenski standard je istoveten z: **EN 4877-001:2024**

ICS:

25.160.20	Potrošni material pri varjenju	Welding consumables
49.025.05	Železove zlitine na splošno	Ferrous alloys in general

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EUROPEAN STANDARD

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English Version

Aerospace series - Filler metals for welding - Part 001: Technical specification

Série aérospatiale - Métaux d'apport de soudage - Partie 001 : Spécification technique

Luft- und Raumfahrt - Schweißzusätze - Teil 001: Technische Lieferbedingungen

This European Standard was approved by CEN on 8 January 2024.

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European foreword

This document (EN 4877-001:2024) has been prepared by ASD-STAN.

After enquiries and votes carried out in accordance with the rules of this Association, this document has received the approval of the National Associations and the Official Services of the member countries of ASD-STAN, prior to its presentation to CEN.

This document shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2024, and conflicting national standards shall be withdrawn at the latest by October 2024.

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

This document supersedes EN 3879:2023.

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Introduction

This document is part of the series of EN metallic material standards for aerospace applications. The general organization of this series is described in EN 4258.

From the date of publication of this document, specifications for different welding products can be written in only one standard instead of separated material standards.

Already existing material standards of filler metals for welding can continue to follow the organization described in EN 4258.

1 Scope

This document specifies the requirements for the ordering, manufacture, testing, inspection and delivery of all forms of filler metal. It is presupposed to be applied when referred to and in conjunction with the product procurement specification unless otherwise specified on the drawing, order or inspection schedule.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 2032-001, *Aerospace series — Metallic materials — Part 001: Conventional designation*

EN 2032-2, *Aerospace series — Metallic materials — Part 2: Coding of metallurgical condition in delivery condition*

EN 2078, *Aerospace series — Metallic materials — Manufacturing schedule, inspection schedule, inspection and test report — Definition, general principles, preparation and approval*

EN 4259, *Aerospace series — Metallic materials — Definition of general terms*

EN 4268, *Aerospace series — Metallic materials — Heat treatment facilities — General requirements*

EN 4877-002, *Aerospace series — Filler metals for welding — Part 002: Authorized filler metals*

EN ISO 544, *Welding consumables — Technical delivery conditions for filler materials and fluxes — Type of product, dimensions, tolerances and markings* (ISO 544)

ISO 3954,[1] *Powders for powder metallurgical purposes — Sampling*

ISO 4497,[2] *Metallic powders — Determination of particle size by dry sieving*

[1] Published by: ISO International Organization for Standardization https://www.iso.ch/.
[2] Published by: ISO International Organization for Standardization https://www.iso.ch/.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 4259 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp/

— IEC Electropedia: available at https://www.electropedia.org/

3.1
filler metal for welding
added metal required for welding joints, which can be in the form of wire or rod

Note 1 to entry: Wire is a wrought product of uniform solid section supplied in coil or on spools.

Note 2 to entry: Rod is a wire supplied in straight cut lengths.

3.2
heat
metal from a same last melting operation

3.3
producer
producer of the alloy

3.4
supplier
producer, transformer or reseller

3.5
batch
quantity of product from one manufacturing campaign, and characterised by a homogeneous chemical composition and grain size/diameter

3.6
product
material as manufactured and delivered by the supply source

3.7
reseller
company that performs product storage and reselling operations

3.8
transformer
producer of product in the form requested by the customer (rod or wire)

4 Wording of order

The order shall clearly indicate:

— quantities to be supplied;

— dates of delivery;

— material designation;

— material standard number, or EN 4877-002 (when the product procurement specification is described in EN 4877-002);

— marking method;

— delivery condition;

— dimensions and tolerances or reference to an appropriate dimensional standard;

— forwarding address;

— nature and type of packing, if required;

— definition and frequency of any special tests and their retest procedures, if required.

5 Health and safety

A product safety data sheet shall be available.

NOTE 1 The product in the delivery condition needs to take into account the health and safety laws of the area of the country when and where it is to be delivered.

The implementation of certain special processes implies using substances or chemical preparations that may present risks for health, safety, or the environment.

NOTE 2 In addition to the regulations in effect in the country where the process is performed, the purchaser can prohibit and/or restrict the use of certain substances by its subcontractors. These prohibitions and/or restrictions can be described in the applicable procedures of the purchaser.

When several choices of chemicals exist, the chemicals presenting a lower risk for a given set of processes should be used.

Furthermore, parties involved should always:

— be informed of and comply with the recommendations and the uses identified provided in the material safety data sheets for the chemical substances used in processes; and

— apply the prevention and protection measures specified in the safety data sheets and/or resulting from the workstation chemical risk assessment, in accordance with the applicable health and safety regulations.

6 List of authorized filler metals

Filler metals authorized with associated material standard are listed in EN 4877-002.

7 Technical requirements

7.1 General

The product shall be manufactured in accordance with the requirements of the relevant product's procurement specification and the applicable requirements of this specification. A manufacturing schedule shall be established and applied in accordance with EN 2078.

Products shall satisfy the requirements of the product's procurement specification and/or order and shall be free from irregularities and defects prejudicial to the subsequent manufacture or use of these products.

Notwithstanding previous acceptance complying with this product's procurement specification, any product that is found at a later stage to contain such defects shall be rejected. Instructions for the use of the material standard are contained in EN 4258.

Unless otherwise specified, the requirements in Table 3 and Table 4 shall apply in conjunction with those of the relevant product's procurement specification. Table 3 relates to lines 1 to 29 (inclusive) of the material standard and Table 4 relates to line 30 onwards in which the sub-line format is also used. Lines 2 to 98 may also be opened in line 100 if the product's procurement specification details specific qualification requirements. If a specific line number is not shown in Table 3 and Table 4, the requirement is stated in the product's procurement specification and/or order.

7.2 Supply

7.2.1 Agreement

All products covered by the present document shall be produced by supply sources approved by the purchaser, according to the procedures in force.

7.2.2 Freezing the production operation sheets

Consistent quality shall be ensured at the time of production.

The manufacturing and inspection operation sheet can be modified by the producer provided that the proposed modifications have no influence on part quality. It shall inform the purchaser's Quality Departments and demonstrate that the level of the product has not been affected by this change. Otherwise, the request for change shall be submitted to the notice of the purchaser's Quality Department for a decision.

The purchaser reserves the right to check the relevance of the changes made by the supply source.

7.2.3 Production process

See Table 3, line 4.2 “Method of production”.

7.2.4 Transformation

The transformation shall make it possible to obtain the dimensional, metallurgical, surface roughness and quality requirements stipulated in the present document and in the procurement specification of the product.

7.2.5 Heat treatment

See Table 3, line 6.1 “Delivery condition — Heat treatment”.

7.2.6 Surface condition

Unless indicated otherwise in the product’s procurement document or the order, the required surface condition is chemical pickling, with prior machine finishing in certain cases. In cases of a product delivered in annealed condition in a controlled atmosphere, the pickling may be removed if the surface condition following annealing has no negative effect on the welding.

7.2.7 Batching

Unless otherwise specified in the order or with the agreement of the purchaser, the delivered welding rods and wires shall come from the same batch.

7.2.8 Packaging

See Table 3, line 6.1 “Delivery condition”.

7.2.9 Marking

See Table 3, line 6.1 “Delivery condition”.

7.2.10 Traceability

Each product shall be traceable to the cast production batch and/or heat treatment batch at all stages of manufacture and delivery.

Traceability shall be established in order to be able to trace, for each product, the concerned heat, the manufacturing and heat treatment steps, the inspections and the batches delivered.

The supply source shall keep the documents relative to the manufacture and inspections of the product at the disposal of the purchaser.