

Welding consumables — Quality requirements for manufacture, supply and distribution of consumables for welding and allied processes

The European Standard EN 12074:2000 has the status of a
British Standard

ICS 25.160.20

National foreword

This British Standard is the official English language version of EN 12074:2000.

The UK participation in its preparation was entrusted to Technical Committee WEE/39, Welding consumables, which has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible European committee any enquiries on the interpretation, or proposals for change, and keep the UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Summary of pages

This document comprises a front cover, an inside front cover, the EN title page, pages 2 to 13 and a back cover.

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Welding consumables - Quality requirements for manufacture, supply and distribution of consumables for welding and allied processes

Produits consommables pour le soudage - Exigences de
qualité pour la fabrication, la fourniture et la distribution des
produits consommables pour le soudage et les techniques
connexes

Schweißzusätze - Qualitätsanforderungen für die
Herstellung, die Lieferung und den Vertrieb von Zusätzen
für das Schweißen und verwandte Verfahren

This European Standard was approved by CEN on 6 September 1999.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the Central Secretariat has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 121, Welding, the Secretariat of which is held by DS.

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 October 2000, and conflicting national standards shall be withdrawn at the latest by October 2000.

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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This standard has been prepared such that:

- it is independent of the type of consumable to be manufactured and delivered;
- it defines quality requirements for manufacture, supply and distribution of consumables;
- it provides guidance for manufacturers, suppliers and distributors of consumables for describing the capability to manufacture, supply and deliver consumables for welding and allied processes to meet specified requirements;
- it can also be used as a basis for assessing and certifying the manufacturer, supplier and distributor in respect to his capability.

This standard is appropriate when demonstration of a manufacturer's, a supplier's or a distributor's capability to manufacture, supply and deliver consumables for welding and allied processes is specified in one or more of the following:

- a contract between involved parties;
- an application standard;
- a standard for approval of welding consumables;
- a regulatory requirement.

The requirements in the standard provide a framework for control of manufacture, supply and distribution of consumables in the following cases:

- a) to identify the requirements for manufacture, supply and distribution of consumables in contracts which require the manufacturer, the supplier or the distributor to have a quality system in accordance with EN ISO 9001 or EN ISO 9002;
- b) to provide specific requirements for manufacture, supply and distribution of consumables as a guidance to manufacturers, suppliers or distributors developing a quality system;
- c) to provide specific requirements for manufacture, supply and distribution of consumables in specifications, standards and regulations which require the manufacturer, the supplier or the distributor of consumables to have a quality system as a condition for approval or certification of consumables.

A company qualified in accordance with EN ISO 9001 or EN ISO 9002 as manufacturer or supplier of welding consumables, as appropriate, shall be deemed to comply with this standard.

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.

EN 759	Welding consumables - Technical delivery conditions for welding filler metals - Type of product, dimensions, tolerances and marking
EN ISO 9001	Quality systems - Model for quality assurance in design, development, production, installation and servicing
EN ISO 9002	Quality systems - Model for quality assurance in production, installation and servicing

3 Definitions

For the purposes of this standard, the following definitions apply:

3.1 manufacturer:

The party who manufactures the consumables totally or performs the final part of production, which determines the quality of the consumables.

Those purchasing the above-mentioned products as semi-finished or finished products, but undertaking the full guarantee with regard to the chemical composition, quality and properties of these products and ensuring inspection of the production and products, are also regarded as manufacturers.

3.2 supplier:

The party who purchases the welding consumable from a manufacturer and supplies it under his own brand name.

3.3 distributor:

The party who receives the consumable from a manufacturer or supplier and distributes it under the manufacturer's or supplier's brand name.

3.4 subcontractor:

The party who on the order of a manufacturer can produce part or the whole of the consumable or on the order of a manufacturer or supplier can provide service.

4 Organization

4.1 Management representative

The manufacturer, supplier and distributor shall appoint a management representative who, irrespective of other responsibilities, shall have defined authority and responsibility for quality matters and for ensuring that the requirements of this standard are implemented and maintained.

For the manufacturer this person shall be independent from production.

In particular he shall be responsible for:

- the coordination and monitoring of the quality system;
- the resolution of any non-conformity in the system;
- the implementation of timely and effective action by the appropriate department to ensure compliance with specified requirements.

4.2 Verification, resources and personnel

The manufacturer, supplier or distributor shall identify in-house verification requirements, provide adequate resources and assign trained personnel for appropriate verification activities.

4.3 Management review

The quality system adopted to satisfy the requirements of this standard shall be reviewed at appropriate intervals by the manufacturer's, supplier's or distributor's management to ensure its continuing suitability and effectiveness. Records of such reviews shall be maintained.

5 Quality system

The manufacturer, supplier or distributor shall establish and maintain a documented quality system as a means of ensuring that consumables conform to specified requirements. This shall include the preparation and implementation of documented procedures and/or instructions and the use of periodic internal audits to determine the effectiveness of this system.

6 Order review

The manufacturer, supplier or distributor shall establish and maintain procedures for order review. Each order shall be reviewed to ensure that:

- the requirements are adequately defined;
- the contractual requirements can be met.

7 Document control

The manufacturer, supplier or distributor shall establish and maintain clear, complete and current written production, inspection and test procedures for each operation, including those relating to the assessment of the adequacy of process controls. These documents shall be reviewed and approved by personnel, authorized by the management representative, prior to issue. This control shall ensure that:

- appropriate documents are available at all locations where operations essential to quality are performed;
- obsolete documents are promptly removed from all points of use.

Changes of documents shall be reviewed and approved by the authorized personnel. They shall have access to pertinent appropriate background information, and specifically to any specifications or a standard to which conformity is claimed for consumables.

Where practicable, the nature of the change shall be identified in the document or the appropriate attachments.

8 Purchasing

The manufacturer, supplier or distributor shall ensure that the intended purchased product, raw material or service conforms to specified requirements.

8.1 Assessment of sub-contractors

The manufacturer, supplier or distributor can subcontract elements of manufacture or service, which have a bearing on the quality of the finished consumables. Such sub-contractors shall be assessed on their ability to meet sub-contract requirements, by the manufacturer, supplier or distributor or by approval by a third body. Records of sub-contractors shall be established and maintained and shall indicate the basis for acceptance.

8.2 Purchasing specification

Purchasing specifications shall be reviewed and approved by authorized personnel and clearly define the consumable, raw material or service. They shall include, where applicable:

- the type, class, grade or other precise identification using recognized standards, wherever possible;
- the title or other positive identification and applicable issue of specifications, process requirements, inspection instructions and other relevant technical data. Such specifications shall include, in the case of rod, wire, strip, powders or solutions, whatever limits need to be placed on chemical composition or physical conditions to ensure that the finished product meets the specified requirements.

9 Identification and traceability during production and delivery

The manufacturer shall establish and maintain methods for traceability by identification during all stages of production and delivery.

Procedures for delivery shall be established and identification maintained by manufacturers, suppliers and distributors.

10 Production facilities

Any production facilities used by the manufacturer shall be such as to permit uniform production with uniform quality of the consumables.

11 Production process control

The manufacturer or his sub-contractor shall identify and plan the production processes, which directly affect the quality and shall ensure that these processes are carried out under controlled conditions. Controlled conditions shall include the following:

- documented work instructions where the absence of such instructions would adversely affect quality;
- the production facilities shall be adequately equipped with measuring and control devices;
- specifications, work instructions or procedures for the production process.

In particular:

- formulations;
- weighing;
- mixing process;
- wire-drawing method, cleaning, annealing, process, surface treatment if applicable;
- extrusion process;
- baking;
- marking and packaging.

shall be monitored where applicable.

12 Inspection and testing

12.1 Inspection, measuring and test equipment

The manufacturer, supplier and distributor shall control, calibrate and maintain suitable inspection, measuring and test equipment to demonstrate the conformity of product to the specified requirements. Such equipment can include but is not restricted to that used for:

- weighing;
- dimensional checks;
- chemical analysis;
- welding;
- temperature measuring;
- mechanical tests.

12.2 Receiving inspection and testing

The manufacturer, supplier or distributor shall not use, process or supply incoming material or consumable until it has been inspected or otherwise verified as conforming to specified requirements. Verification shall be in accordance with documented procedures.

12.3 In-process inspection and testing

The manufacturer shall perform inspection during manufacture on all specified characteristics that cannot be inspected at a later stage and shall ensure that process controls are implemented and are effective. The identification of inspection and test status shall be maintained as necessary throughout production to ensure that only product that has passed the required inspection and tests is despatched or used.

12.4 Final testing, inspection and release from production

The documented procedures for release from production shall require that all specified inspection and tests, including those specified either on receipt of product or in process, have been carried out and that the data meets specified requirements.

The manufacturer shall carry out all final inspection and testing in accordance with the documented procedures to complete the evidence of conformity of the finished consumables to specified requirements.

The supplier shall establish and maintain records, which give evidence that the product has passed inspection and/or tests with defined acceptance criteria.

No consumable shall be dispatched until the release documentation is authorized.

13 Nonconforming materials or consumables

The manufacturer, supplier and distributor shall establish and maintain procedures to ensure that materials or consumables that do not conform to specified requirements before, during or after manufacture, transportation and storage are prevented from inadvertent use. Nonconforming material or consumable can be rejected and scrapped or subject to rework, if appropriate, to meet the specified requirements. Reworked material shall be reinspected in accordance with documented procedures.

14 Corrective action

The manufacturer, supplier and distributor shall establish and maintain procedures to:

- investigate the cause of nonconformities and customer complaints and analyse adverse quality trends;
- initiate effective corrective actions to prevent recurrence, wherever practicable;
- assess the effectiveness of corrective actions and changes in procedure.

15 Handling, packaging and storage

The manufacturer, supplier and distributor shall establish, document and maintain procedures for handling, packaging and storage of consumables, as applicable.

15.1 Handling

The manufacturer, supplier and distributor shall establish methods of handling that prevent damage.

15.2 Packaging

The manufacturer, supplier and distributor shall control packaging, including materials used, to avoid damage and to ensure conformity to specified requirements.

The marking of the packaging shall be in accordance with the appropriate European Standard, e.g. EN 759.

15.3 Storage

The manufacturer, supplier and distributor shall provide adequate storage areas to maintain the consumables in the condition specified by the manufacturer.

Because temperature and humidity can affect the condition of consumables, these factors shall be considered.

The condition of product in stock shall be assessed at appropriate intervals.

16 Quality records

The manufacturer, supplier, distributor and subcontractor shall as appropriate maintain sufficient records of the production and of all inspections and tests performed to substantiate conformity to specified requirements. Records shall include, but not be restricted to

- identification during production;
- lot or batch identification;
- test results;
- nonconformities;
- any corrective action taken.

Retention times of quality records shall be 5 years unless otherwise specified.

Annex ZA (informative)

Clauses of this European Standard addressing essential requirements or other provisions of EU directives.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association and supports essential requirements of EU Directive 97/23/EEC.

WARNING: Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

The following clauses of this European Standard as detailed in table ZA.1 are likely to support requirements of the Directive 97/23/EEC.

Table ZA.1: Correspondence between this European Standard and Directive 97/23/EEC

Clauses/sub-clauses of this standard	Corresponding ERs of Directive 97/23/EEC	Comments
ALL CLAUSES	Annex 1, 3.1.2	Permanent joining

Compliance with the clauses of this European Standard provides one means of conforming with the specific essential requirements of the Directive concerned and associated EFTA regulations.

Annex ZB (informative)

Clauses of this European Standard addressing essential requirements or other provisions of EU directives.

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association and supports essential requirements of EU Directive 87/404/EEC.

WARNING: Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard.

The following clauses of this European Standard as detailed in table ZB.1 are likely to support requirements of the Directive 87/404/EEC.

Table ZB.1: Correspondence between this European Standard and Directive 87/404/EEC

Clauses/sub-clauses of this standard	Corresponding ERs of Directive 87/404/EEC	Comments
ALL CLAUSES	Annex I, 1.2	Welding materials

Compliance with the clauses of this European Standard provides one means of conforming with the specific essential requirements of the Directive concerned and associated EFTA regulations.

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