



CEN/TC 121 N 2802

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[CEN/TC 121](#)

Welding and allied processes

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Business Plan CEN/TC 121 (update: 2021-03)

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Expected action Info



BUSINESS PLAN

CEN/TC 121 **"Welding and allied processes"**

EXECUTIVE SUMMARY

Business Environment

(Equal to the scope)

Standardization of welding by all processes, as well as allied processes; these standards include terminology, definitions and the symbolic representation of welds on drawings, apparatus and equipment for welding, raw materials (gas, parent and filler metals) welding processes and rules, methods of inspection, testing and quality control, design of welded joints, qualification of welding personnel, as well as safety and health.

Excluded: Electrical arc welding equipment and electrical safety matters related to welding which are the responsibility of CLC/TC 26; welding and brazing for aerospace which is the responsibility of ASD-STAN/D4/WG4.

Parties involved

The parties interested in the work of CEN/TC 121 are:

- the metalworking industries;
- the suppliers and manufacturers for equipment and consumables for welding;
- the corresponding trade unions (in particular standards for qualification of personnel and for health and safety in welding);
- the inspection authorities, third party inspection bodies and other parties assuring the quality of welded structures and products;
- the customers buying any kind of welded product or structure.

Benefits

Welding and the application of allied processes are widely used for joining of metallic materials. A significant proportion of all metallic finished products and structures include at least one weld. However, the materials properties of finished welded joints cannot be determined solely by non-destructive testing. Consequently, quality assurance in welding relies heavily on qualification, validation, verification, documentation and quality control of the welding activities.

Welding is referred to in a lot of product and application standards. To avoid duplication or lacks in these standards CEN/TC 121 develops Standards to which can be referred to in Product and Application Standards.

Most industrialized countries have, for many years, used standards for welding as a common basis of reference for formulation of requirements for inspection, testing and quality control of welded joints, approval testing of welding procedures, qualification of welders, and numerous other precautions. CEN/TC 121 has the task of establishing European Standards for welding, superseding all previous national standards, and thereby promoting establishment of a European market.

Priorities

To make European Standards or other CEN deliverables available related to:

- Specification and qualification of welding procedures for metallic materials;
- Qualification requirements for welding and allied processes personnel;
- Welding consumables;

- Quality management in the field of welding;
- Destructive and non-destructive tests on welds;
- Terminology;
- Health and safety in welding and allied processes;
- Welding equipment (excluded electrical arc welding equipment).

Relevant environmental aspects of welding and allied processes will be addressed in the respective EN Standards and other CEN documents produced.

1 BUSINESS ENVIRONMENT OF CEN/TC 121

1.1 Description of the Business Environment

The following political, economic, technical, regulatory, legal, societal and/or international dynamics describe the business environment of the industry sector, products, materials, disciplines or practices related to the scope of this CEN/TC, and they may significantly influence how the relevant standards development processes are conducted and the content of the resulting standards.

- CEN/TC 121 is responsible for welding of metallic materials and allied processes including mechanical joining techniques.
- The scope of work of CEN/TC 121 is not limited to welding of metallic materials only. However, CEN has formally allocated welding of plastics to another Technical Committee (CEN/TC 249).
- Welding includes thermal cutting, brazing and soldering, but soldering of electrical circuits is traditionally standardized by CLC/TC 26 A 'Electric arc welding' and 26 B 'Electric resistance welding'.
- Thermal spraying is closely related to welding, but this process has been allocated to a special Technical Committee (CEN/TC 240 'Thermal spraying and thermally sprayed coatings').
- Additive manufacturing is closely related to welding, but additive manufacturing has been allocated to a special Technical Committee (CEN/TC 438 'Additive manufacturing').
- Welding and brazing for aerospace industries is the responsibility of ASD-STAN in CEN (ASD-STAN/D4/WG4 'Welding and brazing').

1.2 Quantitative Indicators of the Business Environment

The following list of quantitative indicators describes the business environment in order to provide adequate information to support actions of the CEN/TC.

- Welding and the application of allied processes are widely used for joining of metallic materials. A significant proportion of all metallic finished products and structures include at least one weld.
- The material properties of finished welded joints cannot be determined solely by non-destructive testing. Assuring the quality of welds relies, for that reason, strongly on validation, verification, control and documentation of the welding processes.
- CEN/TC 121 has the task of establishing European Standards for welding, superseding all previous national standards, and thereby promoting establishment of an European market.
- The European Standards should be able to support application standards, EU-Directives and Regulations (EU).

2 BENEFITS EXPECTED FROM THE WORK OF CEN/TC 121

- CEN/TC 121 has developed a set of standards permitting design codes and application standards to reference these documents instead of developing their own rules, as outlined by e.g. Pressure Equipment Advisory Nucleus (CEN/PE/AN).
- Priorities were high and have been driven by the time schedules of directives and their supporting design codes.
- Subcontracting of welding work is very common. That makes it useful for all involved parties to standardize requirements for welding shops and sites.
- Consumables and certain interchangeable parts of equipment may be standardized in order to limit the number of variants. Examples are standards for consumables, standards for transparent curtains, hoses and hose connections. These standards promote trade, increase productivity and facilitate design and planning.
- Welding standards may specify procedures for a flow of work in order to assure a consistent and reliable output of that operation. This is widely used also for testing and inspection operations, which, as a general rule are covered by such "standard procedures". Post weld heat treatment is as well widely covered by "standard procedures".
- Welding includes several technologies, some of which are at the technological forefront, e.g. laser welding. Standards may promote the application or indeed be a condition for the application of such methods because a standard provides a visible sign to the parties concerned that a process is "recognized".
- Welding is associated with specific aspects of health and safety at the workplace. Standards for e.g. measurement of the concentration of fumes and smokes emitted in the welder's breathing zone are a basis for definition of limit values.

3 PARTICIPATION IN CEN/TC 121

Every CEN national member is entitled to nominate delegates to CEN Technical Committees and experts to Working Groups, ensuring a balance of all interested parties. Participation as observer of recognized European or international organizations is under certain conditions also possible. To participate in the activities of this CEN/TC the interested person shall contact the national standards organization.

4 OBJECTIVES OF CEN/TC 121 AND STRATEGIES FOR THEIR ACHIEVEMENT

4.1 Defined objectives of CEN/TC 121

4.1.1 General

- The structure of the CEN/TC 121 standards is reflected in the overall structure of the sub-committees and working groups. The sub-committees are each allocated to one or more set of requirements.
- Standardization at the international level is carried out by ISO/TC 44 "Welding and allied processes" and IIW "The International Institute of Welding". CEN/TC 121 has an efficient liaison with ISO/TC 44 (including IIW) since CEN/TC 121 was created. Synchronization of the work of the two TCs has been aimed for and obtained to the degree that the large majority of all new work items are created in parallel by both TCs, using the Vienna Agreement.
- CEN/TC 121 uses English as its working language. However, if a national body finds it necessary to provide an expert or delegate unable to communicate in English, this is permitted but that national body has to provide an interpreter on site, at its own expense.
- Meetings are arranged both as physical and virtual meetings. Adequate secretarial assistance is provided for all meetings of CEN/TC 121 and several SC- and WG-meetings, permitting preparation and printouts of resolutions, revised standards etc. during the meeting. Communication via CEN DOCS (Internet) is in use.

4.1.2 Requirements of the preparation of standards

- Highest priority has those standards, which are identified as candidates for harmonization under a mandate.
- If possible, standards will be prepared according to the Vienna Agreement.
- If possible, requirements for different processes and materials should be combined in one standard.
- Standards on terminology are the basis for the preparation of all other standards.
- Revisions of existing European Standards should be taken under the premise to prepare global relevant standards for a global market.

4.2 Identified strategies to achieve the CEN/TCs defined objectives

Details of requirements in the CEN/TC 121 standards depend on three sets of factors:

- general welding rules
- welding processes
- materials.

The requirements relevant for arc welding may, for example, differ from the requirements relevant for resistance welding and the requirements to welding of steel may differ from the requirements to welding of aluminum, copper, magnesium etc.

A main task of CEN/TC 121 is to create an overall structure, which results in a clear and logical structure and a manageable number of standards. CEN/TC 121 prefers the principle of horizontal standardization.

CEN/TC 121 has, for internal purposes, divided standards in "**SYSTEM A**" and "**SYSTEM B**"

System A standards

These standards contain requirements common for welding and allied processes and materials for wide applications (horizontal standards).

Many requirements are so comprehensive that standardization in a single document becomes impractical. A series of standards may be necessary. This has resulted in series of standards such as:

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|--------------------------------|---|
| — EN ISO 9606 | Qualification testing of welders |
| — EN ISO 15607 to EN ISO 15614 | Specification and qualification of welding procedures |
| — EN 1011 | Technological guidelines for welding |

These series are, if necessary, divided into parts according to welding processes. Further divisions according to materials may be needed for certain requirements.

6 FUTURE WORK OF CEN/TC 121

The major work of CEN/TC 121 for the next years beside the periodical revision of existing standards will be the control of the use of CEN/TC 121 standards by references in product- and application Standards as well as in industries.

Additionally CEN/TC 121 will keep an eye on the developments of new processes and techniques in welding and allied processes to detect further needs for standardisation, e.g. for characteristics of electron beams used for welding, standards for adhesive bonding as well as standards for simulation of welding induced distortions and residual stresses.

7 LIAISON WITH CEN/TC 121

Liaison and Partner organisations:

Organisation	Start date
EWI European Welding Federation	2014-01
SBS Small Business Standards	2014-04
IIW International Institute of Welding	2006-08

TC-Cooperation/Liaison:

Organisation	Start date
CEN/TC 249 Plastics	2015-08
ISO/TC 44 Welding and allied processes	2012-04
CEN/TC 186 Industrial thermoprocessing - Safety	2019-03
CEN/TC 250 Structural Eurocodes	2017-02
CEN/TC 438 Additive Manufacturing	2015-11
ISO/TC 61 Plastics	2017-04