



**BUSINESS PLAN**  
**CEN/TC 151**  
**CONSTRUCTION EQUIPMENT**  
**AND BUILDING MATERIAL MACHINES – SAFETY**

**EXECUTIVE SUMMARY**

**Business Environment**

- Europe represents near 20% of the worldwide production in the sector of construction equipment and building material machine industry
- European industry in this sector represents approximately 1200 Enterprises with 300.000 employees and turnover of 40 billions € (2016)
- Parties involved:
  - Manufacturers of construction equipment and building material machine industry
  - Health and safety authorities
  - governmental institutions
  - customer organizations
  - testing laboratories
  - certification bodies

**Benefits**

To define the necessary standards to be used to perform the desired level of commercial interoperability in Europe, considering its very significant position in the international market.

- Since establishing CEN/TC 151, 98 standards were adopted
- Confidence of consumers in respect of security, quality and ergonomics
- European harmonization of machinery safety requirements for this sector and partly with regard to electromagnetic compatibility
- free circulation of construction equipment and building material machines in the EC
- reduction of international trade barriers as far as possible by:
  - reference to International Standards
  - preparation of new standards and revision of existing standards in parallel with the relevant ISO/TC under the Vienna Agreement
  - transfer of European standards to the ISO level using the procedures of the Vienna Agreement

**Priorities**

To make European standards available related to:

- Machinery safety of construction equipment and building material machines

## **1 BUSINESS ENVIRONMENT OF THE CEN/TC**

### **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:

Relevant stakeholders are industry, health and safety organisations and governmental institutions.

#### **Legal factors**

- Apart from few exemptions all standards of CEN/TC 151 are safety standards.
- European legislation in this respect are the following New Approach Directives:
  - Council Directives on the approximation of laws of the Member States relating to machinery (2006/42/EC)
  - Council Directive on the approximation of laws of the Member States relating to electrical equipment designed for use within certain voltage limits (2006/95/EC) and its amending Directives
  - Council Directive on the approximation of laws of the Member States relating to electromagnetic compatibility (2014/30/EU) and its amending Directives.

#### **Economical factors**

Besides the North American market the European market is the largest market world-wide for construction equipment and building material machines. Due to a predominant export orientation of the European construction equipment and building material machines industry it is of great interest to reach a world-wide harmonization, especially by incorporating the North American and Asiatic Market (Japan), based upon the harmonization of safety requirements in Europe.

By applying Harmonized Standards for the European market the reduction of a multiplicity of different safety-related technical solutions and the cost saving resulting could be extended.

#### **Social factors**

Machinery taking into account the safety requirements and measures specified in the CEN/TC 151 standards contribute to a decrease of accidents and occupational diseases. Consequently, the social costs will be reduced for the benefit of a stronger economy within the European Community.

#### **International trade and standardization aspects**

A lot of projects of CEN/TC 151 for construction equipment use ISO Standards especially standards elaborated by ISO/TC 127 "Earth-moving machinery" as normative reference documents. For several projects agreements on parallel processing according to the Vienna Agreement exist.

Between CEN/TC 151, CEN/TC 196 "Mining machinery and equipment – Safety", ISO/TC 127 "Earth-moving machinery", ISO/TC 82 "Mining" and ISO/TC 195 "Building construction machinery and equipment" a close co-operation exists ensuring a co-ordination of the activities.

Market access outside the European Community is frequently restricted by technical barriers to trade based on national regulations for health, safety and environmental issues. A free market access can be achieved by applying justified European Standards transferred to the ISO level. Those standards have to be supported by the national legislation in the particular countries for being effective. The International Model of the UN Economic Commission for Europe (UN ECE) is an excellent example for creating those technical legislation at national level. The technical details within this International Model will be specified by International Standards which will allow a harmonisation of the market access.

## **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:

The most interested party in the standardization process is the industry producing construction equipment and building material machines which have to comply with the European Machinery Directive (2006/42/EC) specifying general requirements for health and safety.

This party includes particularly small- and medium-size enterprises. In some sectors of the construction equipment industry with a high market volume (e. g. earth-moving machinery) large multi-national companies are involved.

The construction equipment and building material machine industry, especially in the field of mineral processing, glass and ceramic machinery, manufactures among the machine technology for the production and processing of mineral building materials for the most part also machine technology for other fields of application, e. g. chemistry, food industry, automobile-related industry and fine ceramics industry. Due to this fact and to the high autonomy of the markets for the different fields of machinery being dealt with in CEN/TC 151, a comprehensive description of the overall market situation is not possible.

A clue about the significance of the construction equipment and building material machines industry indicate the economical data of the Committee for European Construction Equipment (CECE) representing the national associations from Belgium, Finland, France, Germany, Italy, Poland, Spain, Sweden, The Netherlands and the United Kingdom in the field of road equipment, concrete equipment, mechanical processing equipment and earth-moving equipment. These associations represent approximately 1200 enterprises with 300 000 employees. In 2016 these companies reached a turnover of approximately 40 billions €, which means 20% of the world-wide production in this industrial sector.

A further important interested party are all authorities responsible for the protection of health and safety of people employed in the construction and building material industry.

Other interested parties, e.g. governmental institutions, customer organizations, testing laboratories and certification bodies collaborate in certain standardization projects on a small scale.

## **2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC**

Standards elaborated by CEN/TC 151 are candidates for Harmonized European Standards to support and specify general European legislation in respect to machine safety and partly with regard to electromagnetic compatibility.

CEN/TC 151 provides Harmonized European Standards that enables a free circulation of construction equipment and building material machines in the European Community.

These Standards specify a high level of safety which result in a reduction of accidents and the related costs for health and safety at work.

Furthermore the standards will facilitate a reasonable reduction of the multiplicity of different safety-related technical solutions and the cost saving resulting could be extended.

As a contribution to the reduction of international trade barriers CEN/TC 151 follows as far as possible the following principles:

- reference to International Standards prepared by ISO/TC127, ISO/TC195 and relevant other Committees;
- preparation of new standards and revision of existing standards in parallel with the relevant ISO/TC under the Vienna Agreement;
- transfer of European Standards to the ISO level using the procedures of the Vienna Agreement.

CEN/TC151 supports the pilot project within UN ECE to establish Common Regulatory Objectives for earth-moving machinery which will be specified by the ISO version of the relevant European Standard EN 474.

## **3 PARTICIPATION IN THE CEN/TC**

All the CEN national members are entitled to nominate delegates to CEN Technical Committees and experts to Working Groups, ensuring a balance of all interested parties. Participation as observers of recognized European or international organisations is also possible under certain conditions. To participate in the activities of this CEN/TC, please contact the national standards organization in your country.

## **4 OBJECTIVES OF THE CEN/TC AND STRATEGIES FOR THEIR ACHIEVEMENT**

### **4.1 Defined objectives of the CEN/TC**

Based on the considerations above, the CEN/TC proposes the following objectives and strategic directions for its future work:

Elaboration of

- Machine safety standards (Type C-standards according to EN ISO 12100) giving detailed safety requirements for a particular construction equipment, building material machine or a group of machines. In the context of the mandate M/396 which support the Machinery Directive

2006/42/EC each European Standard will be harmonised. It means that the ENs address the essential requirements of the Machinery Directive listed in this Directive, by specifying requirements/measures for reducing/eliminating the risk associated with the hazards relevant to the products covered by the standard. As each standard gets published, it can then be used by the manufacturers and suppliers as an alternative to the Machinery Directive for claiming “presumption of conformity” with the relevant Essential Safety Requirements (ESR) of the Directive;

- Machine specific standards relating to electromagnetic compatibility (EMC) of construction equipment and building material machines.

Adoption of ISO Standards (with modifications so far necessary) which

- describe requirements for basic, safety-relevant items
- describe significant, safety-relevant test procedures
- include basis terminology

as European Standards within Subsector I 27 (including their revision in parallel to ISO under the Vienna Agreement).

In order to reach a wide application of European Standards elaborated by CEN/TC 151 by the industry, standards with a high safety and technical level are striven for, the requirements of which can be fulfilled with a justifiable financial effort.

CEN/TC 151 will observe the essential principles for standardisation (global openness and transparency, consensus, technical coherence and national commitment) in its work. In addition, the standards prepared by CEN/TC 151 shall not restrict the further development of the products and shall encourage the development of high safety levels.

The scope of CEN/TC 151 encompasses the following kinds of construction equipment and building material machines:

1. Earth-moving machinery, according to EN ISO 6165
2. Drilling and foundation equipment

Examples include:

- drill rigs for soil and rock mixture
- Horizontal directional drilling equipment (HDD)
- Foundation equipment,
- Diaphragm walling equipment,
- Jetting, grouting and injection equipment
- Interchangeable auxiliary equipment

Excluded: rock drill rigs (covered by CEN/TC 196)

3. Tunnel boring machines (TBM) and associated machines and equipment

Excluded: road headers, continuous miners, raise boring machines, shaft boring machines, mining auger boring machines (covered by CEN/TC 196)

**4. Road construction machines**

Examples include:

- Mobile road construction machinery
  - road-milling machines;
  - soil-stabilising machines and recycling machines;
  - compaction machines (excluding rollers);
  - paver-finishers.
- Mixing plants for road construction materials
  - hot Asphalt mixing plant;
  - cold mixing plant (e.g. for production of cement gravel, cold mix asphalt);
  - mixing plant for bituminous or non-bituminous reclaimed materials;
  - mixing plant for mastic asphalt, also including natural asphalt
- Road surface treatment machines
  - binder sprayer;
  - chipping spreader;
  - binder sprayer chipping spreader
  - mastic asphalt mixer
  - joint sealer
  - micro-surfacing machines/slurry machines
  - demountable equipment

**5. Machines and equipment to process building materials**

Examples include:

- Core drilling machines on stand
- Masonry and stone cutting-off machines for job site
- Floor cutting-off machines
- Transportable wall saw and wire saw equipment for job site
- Portable, hand-held, internal combustion engine driven cut-off machines

**6. Machines and plants for the production of cement, lime, and gypsum, including crushing, screening, sizing and recycling**

Examples include:

- single machines and processing plants
- feeding machinery
- crushing and milling machinery
- screening machinery
- cleaning, recycling, sorting and mud treatment machinery

**7. Machines and plant for the production of stones, slabs, pipes, prefabricated elements of concrete and calcium-silicate**

**8. Machines and plants for mining and tooling of natural stone**

Examples include:

- surface finishing machines
- stationary diamond wire saws
- transportable diamond wire saws
- edge finishing machines
- chain- and belt-slotting machines
- circular block saws
- gantry-type and cut-to-size saws
- grinding, polishing, calibrating machines
- bush hammering and flaming machines

9. Machines and plants for manufacture of fine, heavy clay and refractory ceramics

10. Machines and plants for the production, treatment and processing of flat, hollow and special glass

Examples include:

- Cutting machines
- Tilting tables
- Machines and installations for stacking and de-stacking
- Machines for break-out
- Cutting machines for laminated glass
- Machines and plants for production of insulating glass
- Washing installations
- Grinding and polishing machines
- Mirror coating plants
- Gob feeder
- Handling machines for feeding
- IS Machines
- Multi-station rotating machines

11 Road operation machinery

Examples include:

- Winter service machines
- Machines for road surface cleaning
- Highway maintenance machines

12 Snow grooming equipment

The following machines are excluded:

- Cranes (CEN/TC 147);
- Elevating work platforms (CEN/TC 98);
- Building hoists (CEN/TC 10 SC 1);
- Mining machinery and equipment (CEN/TC 196);
- Industrial trucks (CEN/TC 150).

#### **4.2 Identified strategies to achieve the CEN/TC's defined objectives**

The structure of CEN/TC 151 which has 17 Working Groups, that are partly divided into Sub Working Groups, being responsible for the standards elaboration, is adapted to the subject-specific subdivision resulting from the CEN/TC 151 scope. According to the given priorities the elaboration of standards progresses within the Working Groups in parallel and independent from the activities of other Working Groups.

The agreement on standardization projects within the individual Working Groups is carried out in normal cases in writing or during meetings.

In order to reduce costs and to save time, the Working Groups generally have decided to use the English language for correspondence and discussions at meetings, only.

## **CEN/TC 151 Business Plan**

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Generic items are dealt with by the Secretariat of CEN/TC 151 by correspondence or within its plenary meetings.

In order to be currently informed about horizontal items (e.g. principles for machinery safety standardization, hazards related to electricity, noise and vibration) and similar standardization items, liaisons to relevant horizontal TC's and corresponding product-related TC's do exist.

Reflecting the tendency to transfer European Standards to ISO level and to elaborate standards in parallel under the Vienna Agreement respectively, the liaisons with ISO/TC 82, ISO/TC127 and ISO/TC195 will become more important in the future.

### **4.3 Environmental aspects**

The documents elaborated by CEN/TC 151 do not explicitly deal with such aspects as these are not part of the Essential Health and Safety Requirements of the Machinery Directive. Environmental aspects will be evaluated again during the revision of standards which CEN/TC 151 is responsible for. CEN/TC 151 will follow the recommendations in the adoption of a New Work Item, clause 6 and carefully check the environmental aspects which could be relevant on new projects and will bring in environmental expertise from the experts in the working group combined with the environmental checklist. In case of uncertainty, CEN/TC 151 will contact the CEN Environmental Helpdesk (CEN/EHD).

## **5 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE CEN/TC WORK PROGRAMM**

Due to the small- and medium-sized structure of industry and the increasing stress of competition it becomes more difficult for the industry to provide experts for the standards elaboration. A similar tendency have to be recognised regarding the participation of experts from health and safety organisations due to financial restrictions.

The technical and editorial modification of basis documents for standardization, which is carried out in unnecessary short intervals, causes delays and frustration in the Committees responsible for the elaboration of Type C-standards.

Considering the improvements made in the last two years regarding the procedures for assessing standards supporting European Directives by the HAS consultants there seems to be further chances for accelerating and simplifying in the co-operation between working groups and HAS consultants. This is particularly the case regarding items which are common in different draft standards. Such items should be agreed once and then be applied uniformly in each standard. Such a procedure will improve the consistency and therefore the quality of the European Standards of the particular sector.