

BUSINESS PLAN

CEN/TC 143

MACHINE TOOLS - SAFETY

EXECUTIVE SUMMARY

The main fields

CEN/TC 143 deals with safety of metal cutting machine tools, metal forming machine tools, electro-discharge machines (EDM), and with safety of high speed milling cutters, grinding tools, and chucks.

Since many years the machine tool business acts in a global market. Machine tool technology is an enabling technology: it realises the productivity of companies and whole societies and it materialises scientific ideas by producing the hardware needed for scientific experiments. Furthermore machine tools define working environment and work content for a large number of employees.

The machine tool business is always on the move, for improved accuracy, for higher productivity, for larger reliability, for better safety and for less environmental impact.

Machine tools are more and more sophisticated, as they become multi-axes and multi-tasking machines, manufacturing complex parts in one set up and combining different processes in one machine tool.

In 2015 the **machine tool production** was 46 billion US\$, machine tools for 46 billion US\$ were produced in Asia, for 27 billion US\$ in Europe, for 5 billion US\$ in North America, for 0.3 billion US\$ in South America.

Benefits

The standards of CEN/TC 143 efficiently have removed technical barriers of trade and unified the language used in the machine tool industry, thus reducing misunderstanding, confusion and misleading specifications, especially if safety issues are concerned.

CEN/TC 143 standards related to machine tools are harmonized standards, which gives the presumption of fulfilling the European Machinery Directive, if these standards are applied.

CEN/TC 143 safety standards are internationally accepted. This reduces the effort at the single manufacturer and user for developing own procedures to check and maintain safety in design, operation, maintenance, and disposal of machine tools. In consequence CEN/TC 143 started to cooperate with ISO/TC 29, small tools, and with ISO/TC 39/SC 10, safety of machine tools, in order to obtain worldwide accepted safety standards, which still fulfil the essential requirements of the European Machinery Directive. Any new projects are started under the Vienna Agreement, ISO lead, meaning that the standardisation work is carried out in ISO, based on the existing EN safety standards for machine tools.

The main objectives

CEN/TC 143 provides the machine tool industry, both manufacturers and users, with up-to-date standards for safety of machine tools and safety of high speed milling cutters, grinding tools, and chucks. These standards are in line with the European Machinery Directive.

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:

CEN/TC 143, safety of machine tools, deals with metal cutting machine tools, like turning machines, milling machines, machining centres, grinding machines, and sawing machines, with metal forming machine tools like presses, with electrodischarge machines (EDM), and with safety of high speed milling cutters, grinding tools, and chucks.

General aspects of the machine tool business:

- The machine tool business is in a global market since many years.
- Machine tools are produced in a large number of states, developed and emerging states.
- Machine tools are used practically all over the globe.
- Machine tools realise the productivity of a company, a region or a state, as they provide key technology for production lines as well as small batch production.
- Machine tools furthermore realise scientific experiments from biology to space research, as they produce the hardware needed for the experiments.
- Machine tools define working environment and work content for a large number of employees.

Changes in the machine tool business:

- The machine tool business is always on the move, for improved accuracy, for higher productivity, for larger reliability, for better safety and for less environmental impact.
- The machine tool business is heavily affected by the up and downs of the economy, which are quite immense.
- The users of machine tools have an increased demand for periodic checking their machine tools, for quality assurance or preventive maintenance.
- Machine tools are having more functionality, some machine tools are multi-tasking machines, i.e. are for example combining turning and grinding on the same machine. This makes the machine tools more and more complex.

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:

In 2015 the machine tool production was 80 billion US\$, machine tools for 46 billion US\$ were produced in Asia, for 27 billion US\$ in Europe, for 5 billion US\$ in North America, for 0.3 billion US\$ in South America.

The consumption of machine tools was for 45 billion US\$ in Asia, for 21 billion US\$ in Europe, for 11 billion US\$ in North America, for 1 billion US\$ in South America and for 1 billion US\$ in Africa (all data from the 2015 survey).

As advances in machine tools cause gains in productivity, reduced inventory needs, reduced prices, higher quality and higher energy efficiency the influence of machine tools to the overall

economy is multiplied. An AMT (American Machine Tool Builders Association) report from 2000 claims a benefit factor of roughly 40 between machine tool consumption and benefit for the (US) economy.

2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC

Cost savings:

- Following the standards of CEN/TC 143 related to machine tools gives the presumption of fulfilling the European Machinery Directive, which is an easy and cost-effective possibility to fulfil the legal requirements related to safety.
- For machine tools that are not fully covered by a single standard only the elements not covered need a special attention related to safety by the machine tool manufacturer/supplier.
- For machine tools not covered by a standard the standards are easy to read and easy to understand examples, how to cover safety issues.
- The cost savings are for machine tool builders, for machine tools users, also if they revise or modify existing machine tools, and for authorities checking machines or work places in respect to safety issues.

Technical barriers of trade:

- The standards of CEN/TC 143 efficiently have removed technical barriers of trade within Europe.

Safety issues:

- Due to the work within CEN/TC 143 the different views within Europe related to safety could be harmonized. The common European standards guarantee a high level of safety and a uniform and agreed approach to minimize risks.
- Due to the fact that European machine tool production covers roughly 45% of the world market, European safety is also exported worldwide, directly via European machine tools, indirectly by the consumption of non European machine tools in Europe that have to fulfil the European safety laws.

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 organizations is also possible under certain conditions. To participate in the activities of this CEN/TC, please contact the national standards organization in your country.

In CEN/TC 143, safety of machine tools, all relevant European machine tool producing and using countries are actively participating in the technical discussions, and attend the meetings of the working groups.

CEN/TC 143 has a very active liaison with

- CECIMO, the European machine tool manufacturers association

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

4.1 Defined objectives of the CEN/TC

CEN/TC 143 provides the machine tool industry, both manufacturers and users, with up-to-date standards

- for safety of machine tools,
- for safety of high speed milling cutters,
- for safety of grinding tools,
- for safety of chucks, and
- for definitions

The existing standards are frequently revised together with ISO/TC 39/SC 10, safety of machine tools, under the Vienna Agreement, ISO lead, in order to address changes in machine tools, methods and equipment.

4.2 Identified strategies to achieve the CEN/TC.s defined objectives.

Within ISO/TC 39, machine tools, for the safety of machine tools European safety standards are used to start any project. The work will be done under the Vienna Agreement, in order to head for identical ISO and CEN safety standards. On the other hand ISO standards on noise are recognised within CEN/TC 143 standards.

The structure of the TC is defined by the technical content: separate working groups deal with different metal cutting machine tools, grinding tools, high speed cutting tools, and chucks. This allows an effective allocation of experts to the work of their expertise and interest.

4.3 Environmental aspects

CEN/TC 143 is currently limited to the topic of safety of machine tools and harmonized standards related to the European Machinery Directive. If the scope of ISO/TC 143 will be changed, or any safety issues involve environmental aspects ISO/TC 143 will keep the following commitment:

Environmental commitment:

Environmental aspects in specifications and test standards of CEN/TC 143 will be identified and addressed in the drafting or revision of the standards.

CEN/TC 143 promotes environmentally conscious thinking and behavior at all levels by sustainable and focused work on standards; ecological megatrends, e.g. renewable energies, are of the same importance as economic aspects. It encourages producers to comply with international rules (specifically concerning human rights, fair labour conditions and child labour) as well as business ethics.

CEN/TC 143 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 project and will bring in environmental expertise from the experts in the working group combined with the environmental checklist. In case of uncertainty we contact the CEN Environmental Helpdesk (CEN/EHD)

5 FACTORS AFFECTING COMPLETION AND IMPLEMENTATION OF THE CEN/TC WORK PROGRAMME

The intended close cooperation with ISO in order to obtain worldwide accepted safety standards will increase the standards production time. The benefit for the machine tool manufacturers, which are acting in a worldwide market, and indirectly for the machine tool users by reduced costs, more than compensates for the longer standards production time.