BUSINESS PLAN CEN/TC 337

Road operation equipment and products

EXECUTIVE SUMMARY

The main objective of the Technical Committee, CEN/TC 337 founded in 2000 is to prepare

European standards on all types of road operation equipment and products:

- Winter service equipment (snow ploughs, snow removal machines, spreading machines, road weather information systems);

- Road service area maintenance equipment (grass-cutting machines, machines for mechanical cutting of plants);

- Road surface cleaning equipment (sweeping machines);

including the interfaces between vehicles and equipment (front mounted equipment – FMP - including hydraulic coupling system and a compact front mounting plate for combined on- and off-road applications; power systems and related controls including pressure connectors, oil quality…; data acquisition and transmission) and their products (just like solid absorbents for petroleum hydrocarbons intended for road service and de-icing agents), for roads, motorways, road service areas, airports and airbases, but excluding carriers and the safety-related aspects dealt with other CEN Technical Committees.

CEN/TC 337 has been divided into four different working groups:

- WG 1 "Winter service equipment and products"

- WG 2 "Road service area maintenance equipment"

- WG 3 "Interface between vehicles and equipment"

- WG 4 "Road surface cleaning equipment"

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:

European standardisation is done by the preparation of European standards on the terminology and functional specifications of road operation equipment for roads, motorways, airbases and their testing for assessment of the equipment performance, excluding safety aspects.

Road operation equipment are at the crossroads of several technical changes through a better correlation of their performance characteristics with the user needs.

All the European standards that have been recently published by CEN/TC 337 reflect the state of the art expressed by all relevant stakeholders (manufacturers, users, national public authorities, etc.).

The work done by CEN/TC 337 over the last two decades is the result of the work of European experts who ashare common values of listening and dialogue in order to achieve consensus at a European level.

Having so many European standards specifically dedicated to road operation equipment is a very great step forward because no rules were available in this field, with the exception of only few national standards. The European standards are of benefit for both customers and producers, leading to a better further development of modern techniques.

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:

By its consequences on the safety of road users' movements, but also on the economic activity linked with European transport, roadway maintenance, and especially winter service, has become a very important and sensitive subject.

During winter times, some of the major hazards while driving are mainly caused by two important environmental agents, such as dry/wet snow and ice on the road surface. Snow can cause minor accidents and in some cases, the partial closure of the road/highway.

At the contrary of snow, the formation of ice on the road can cause dangerous accident, since this phenomenon is not perceived by the average driver, who usually maintains high speeds even when the adherence properties of the road surface have decreased due to the effect of the ice itself.

During many years, the market of equipment to be used to facilitate the traffic in this kind of situations has evolved, especially in those Countries experiencing bad winter conditions (i.e: France, Germany, Italy, Sweden, Switzerland), which decided to merge their know-how in order to prepare European standards.

2 BENEFITS EXPECTED FROM THE WORK OF THE CEN/TC

- According to the fact that the market provides many choices in terms of equipment to be mounted on a vehicle, it was felt that the various types of mounting plates located frontally to the vehicle should have been standardized. The standard which derived from this work (EN 15432) defines 3 main plates, to be used to mount various types of implements for road operation, according to the weight of both the vehicle and the implement itself.

Two standards for front-mounted plates to fix implements on vehicles including pickups (EN 15432-1:2011) and for front-mounted plates with lifting systems (EN 15432-2:2013.

After mounting the implements (snow ploughs, spreaders and mowers) onto the vehicle, they shall obviously be connected to a power system in order to work. Therefore, for the same reason which drove WG3 to standardize the FMPs, an activity was started to guarantee the interchangeability between their power hydraulic connections, which ended up in the publication of the standard EN 15431 in 2008.

An European standard (EN 16330:2013) was prepared in order to add technical specifications for various types of electrical connections, such as:

- electrical connection used to drive an electrical driven hydraulic pump, used in trucks without hydraulic system;

- universal electrical connection used for front mounted mowers and other equipment with the functions of power supply and transmitting CAN BUS signals.

The EN 15430 series have been prepared to standardize the interface for the acquisition of data from the equipment control box to an in-vehicle board computer (Part 1 published in 2011 revised in 2015), as well as the protocol to be used to combine any vehicle equipment with different board computers to any client application server (Part 2 published in 2012 as a Technical Specification).

This protocol basically defines how data of a vehicle or equipment is generated, stored and transferred to a board-computer system in the vehicle and from the board-computer to the software application in the office. Using these two standards will improve the interchangeability on both sides of the communication flow (between the vehicle and the different equipment the same vehicle can carry), without any restriction in the range of communication technology including memory card, WLAN, GPRS or any other communication media.

- Many other European documents have been prepared in the field of winter service equipment. EN 15144:2007 gives the terminology for winter maintenance.

EN 15906 published in 2011 deals with Snow Removing Machines with Rotating Tools.

In this document basic definitions and requirements for snow cutters and snow blowers can be found. Concerning the performance of these machines technical requirements for removal speed, clearing capacity and throw-out distance are defined. It was not possible to define unique and exact requirements or testing procedures for these performance indicators, because there are several parameters which influence the results. Therefore it is important to at least describe these parameters, activity which might end up either in a future revision.

The standardisation of Snow Ploughs brought to the publication of the European standard EN 15583, which was divided in two parts: the first part was published in 2009, and the second one in 2012.

Part 1 deals with basic definitions, basic functions and measurements, treating both front ploughs and side ploughs. In addition, it standardizes mounting and de-mounting of the equipment, override protection and bump protection at obstacles too.

Concerning the override protection, requirements and a testing procedure are given in part 2 of the European standard.

Requirements and testing procedures for the removal tools performances and their quality are not easy to standardize, because different types and properties of snow should be taken into account.

Until new knowledge is provided from the experts, this topic will not be standardized.

The most important but also the most complicated project in the field of winter service is the standardization of Spreading Machines (EN 15597). The aim of this project is to standardize the quality of spreading and the spreading patterns, as well as to develop general testing procedures. Due to the complexity of this work, the standard was divided into two parts, and the second part was published as a Technical Specification:

- Part 1: General Requirements and definitions (published in 2009)

- Part 2: Requirements for distribution and their test (published in 2019)

Finally, CEN/TS 15366:2009 on solid absorbents intended for road usage was confirmed in 2012 for another three years as a technical specification.

Factors such as the effective use by the companies of all the standards previously mentioned, as well as the active and fruitful participation of experts coming from all European countries, demonstrated that the voluntary standardization is a fundamental help for all companies willing to constantly improve the quality and the reliability of their products.

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.

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

4.1 Defined objectives of the CEN/TC

The main documents prepared by CEN/TC 337 have been published. Some of them are under revision.

CEN/TC 337 and its four WGs will contribute to the elimination of trade barriers, harmonize the terms of reference in the sector thus facilitating understanding between parties, help manufacturers meet legislative requirements to areas of growing interest such as environment protection in particular, make standards of international applicability, thus favouring the global market.

- CEN/TC 337/WG 1 Winter service equipment and products

Four main areas are still under the standardisation activity:

- The area of Road Weather Information Systems (EN 15518) has been standardized.

The whole standard will content products of weather forecast, static and mobile measuring of road weather data including definitions, requirements, accuracies and testing procedures. This standard has been planned to be divided in several parts.

For the time being, four parts have been finalized:

- Part 1: Global Definitions and Components

- Part 2: Recommended Observation and forecast

- Part 3: Requirements on measured values of stationary equipment (under revision)

- Part 4: Test methods for stationary equipment (CEN/TS published in March 2013)

The remaining six parts to be published will deal with testing procedures for stationary equipment, with mobile equipment, data transfer and data processing.

The other parts intended to be prepared are the followings:

- Part 5: Requirements on measured values of mobile equipment

- Part 6: Test methods for mobile equipment

- Part 7: Requirements on measurements of portable equipment

- Part 8: Test methods for portable equipment

- Part 9: Thermal mapping

- Part 10: Data interface with other systems

- The area of de-icing agents used for winter service on roads and the related testing criteria and procedures. These documents result from demands of technical usability, thawing effectiveness, economic feasibility and ecological demands.

Some requirements are the SAME in some European countries. National standards or national regulations exist on this subject. Environmental aspects have to be considered.

The European Association EU Salt is associated to this work.

These documents give different classes for de-icing agents according to their use in order to fulfil the use of various methods in different countries. The national experience with standards and regulations in this area and the experience of the last winter seasons should be considered."

They are subject to three parts of EN 16811 "Winter service equipment and products - De-icing agents", as follows:

- Part 1: Sodium chloride - Requirements and test methods (published in 2016)

- Part 2: Calcium chloride and Magnesium chloride - Requirements and test methods (published in 2016)

- Part 3 (CEN/TS): Other solid and liquid de-icing agents - Requirements and test methods (published in 2015)

- CEN/TC 337/WG 2 Road service area maintenance equipment

Road service area grass-cutting, brush-cutting and mechanical plant-cutting operations require special equipment. The European buyer, from private sector or from Administration, must have the possibility to choose a machine, from any country or brand, with the same terminology and performance criteria.

The performance and their measurements require standardized test methods. For instance, the test method to assess the horizontal ranges of an articulated-arm grass cutter or the cutting width of a cutting tool was different. These differences could disappoint the buyers but also the suppliers.

Consequently, EN 15436-2, published in August 2008, describes the test methods used to assess the kinematic and power performance of the head of series in its working configuration with the production-run requirements tool. It has been revised and was published in 2015 in order to change the following aspects:

- Definition of the arm movements (amplitude and frequency)

- Revision of test parameters (ratio power, efficiency, temperature, precisions)

CEN/TS 15436-3, experimental when published as EN 15436-3 in 2009, is intended to classify the head of series from the Part 2 results and was revised as a EN standard published in 2015.

At last, EN 15436-4:2009, that deals with delivery acceptance of the machines by the users, was confirmed in 2020.

- CEN/TC 337/WG 3 Interface between vehicles and equipment

WG 3 standardizes interface tools that are linked to the vehicle for communal work, in particular: - Front plate - Powered hydraulic equipment - Connections -Electrical -Hydraulical -Power transmission - Systems for data acquisition and transmission.

EN 15430-1 was published in 2015 Winter and road service area maintenance equipment - Data acquisition and transmission - Part 1: In-vehicle data acquisition after CEN/TS 15430-2:2012 Protocol for data transfer between information supplier and client application server.

WG 3 reviewed CEN/TS 15430-2:2012 and concluded that it is never/seldom used and there is a need to have requirements for server to server communication, therefore this document was withdrawn in december 2020 and a new standard EN 15430-3 to cover Server to server communication is being prepared by WG 3.

- CEN/TC 337/WG 4 Road surface cleaning equipment

WG 4 is in charge for the European Standardization in the field of road cleaning, taking into account terminology and functional aspects.

The prepared and future documents apply to surface cleaning machines for outdoor applications on public areas, roads, airports and industrial plants. Surface cleaning machines in terms of these documents are self propelled, truck mounted, attached sweeping equipment or pedestrian controlled.

EN 15429-1 was published in October 2007.

The terms and definitions, the classification of sweeping equipment and its performance specifications are described in this document. Due to the fact that the applications are depending mainly on dimensions of sweepers the classification is of particular importance. Sweepers with bigger volume are designed to operate mainly to clean streets, highways, motorways, ordinary roads and bigger parking places or industrial plants. Sweepers with smaller volume and dimensions are designed for the cleaning of streets, pedestrian zones, pavements, bicycle lanes, parking lots, market places or industrial plants etc. Manoeuvrability is a main characteristic of such kind of sweeper.

Part 2 deals with the performance and functional characteristics and the test methods applied to the sweeping equipment. It specifies terms and definitions and different performance requirements and related test methods such as sweep ability, air flow capability, conveyor or elevator capability, fuel consumption, grade-ability.

This part was published in December 2012.

EN 15429-3 “Sweepers - Part 3: Efficiency of particulate matter collection - Testing and Evaluation” and EN 15429-4 “Sweepers - Part 4: Symbols for operator controls and other displays” were published in 2015.

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

The equipment for winter service equipment and the equipment for road service area maintenance have to be standardized by the same body (CEN/TC 337) for reasons of interchangeability of some implements, and because the working teams and contexts of intervention on the traffic either in winter or in summer are the same.

4.3 Environmental aspects

For instance, the preparation of a European standard (EN 15597) allowing the assessment of the performances of spreading machines is essential, in particular for the quality of the work carried out, but also for obvious economic reasons concerning the consumption of salt and for environmental protection.

This standard tries to harmonise the testing and delivery acceptance procedures for all European equipment.

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

European standardisation is done by the preparation of European standards on the terminology and functional specifications of winter service equipment and road service area maintenance equipment for roads, motorways, airbases and their testing for assessment of the equipment performance, excluding safety aspects.

This standardization takes into account the needs of the main stakeholders, such as road users, representatives of the administrations, park agents, equipment manufacturers, parts manufacturers, motorway exploitation companies, snow clearance product manufacturers…

TC Cooperation: Reciprocal information is ensured with CEN/TC's active in related fields (e.g. CEN/TC 151 *Construction equipment and building material machines – Safety*, CEN/TC 144 *Tractors and machinery for agriculture and forestry.*

Liaison and Partner organisations: A liaison with EU Salt (European Salt Producers Association) has also been established.

Affiliate participation: A liaison with DSTU (Ukrainian Scientific Research and Training Center for Standardization, Certification and Quality Problems) has also been established in 2020.