BRITISH STANDARD

BS EN
13019:2001
+A1:2008

Machines for road surface cleaning — Safety requirements

ICS 43.160

National foreword

This British Standard is the UK implementation of EN 13019:2001+A1:2008. It supersedes BS EN 13019:2001 which is withdrawn.

The start and finish of text introduced or altered by amendment is indicated in the text by tags. Tags indicating changes to CEN text carry the number of the CEN amendment. For example, text altered by CEN amendment A1 is indicated by [A1] [A1]

The UK participation in its preparation was entrusted to Technical Committee B/513, Construction equipment and plant, and site safety, to Subcommittee. B/513/1, Earth-Moving Machinery (International).

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

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard, having been prepared under the direction of the Sector Committee for Building and Civil Engineering, was published under the authority of the Standards Committee and comes into effect on 15 May 2001

Amendments issued since publication

Date	Comments
31 May 2009	Implementation of CEN amendment A1:2008

ISBN 978 0 580 61870 3

EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

EN 13019:2001+A1

December 2008

ICS 43.160

Supersedes EN 13019:2001

English Version

Machines for road surface cleaning - Safety requirements

Machines de nettoiement des chaussées - Exigences de sécurité

Maschinen zur Straßenreinigung - Sicherheitsanforderungen

This European Standard was approved by CEN on 1 January 2001 and includes Amendment 1 approved by CEN on 9 November 2008.

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 CEN Management Centre or to any CEN member.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

Ref. No. EN 13019:2001+A1:2008: E

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Foreword

This document (EN 13019:2001+A1:2008) has been prepared by Technical Committee CEN/TC 151 "Construction equipment and building material machines - Safety", the secretariat of which is held by DIN.

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 June 2009, and conflicting national standards shall be withdrawn at the latest by December 2009.

This document includes Amendment 1, approved by CEN on 2008-11-09.

This document supersedes EN 13019:2001.

The start and finish of text introduced or altered by amendment is indicated in the text by tags ⟦A1⟩ ⟨A1⟧.

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(s).

⟦A1⟩ For relationship with EU Directive(s), see informative Annexes ZA and ZB, which are integral parts of this document. ⟨A1⟧

Annex A is informative and contains "Terminology";

Annex B is informative and contains "Hopper safety device".

This standard contains a “Bibliography” as well.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

Introduction

This European Standard is a Type C-standard as stated in [A1] EN ISO 12100 [A1].

[A1] When provisions of this type C standard are different from those which are stated in type A or B standards, the provisions of this type C standard take precedence over the provisions of the other standards, for machines that have been designed and built according to the provisions of this type C standard.

The machinery concerned and the extent to which hazards, hazardous situations and events are covered are indicated in the scope of this European Standard. [A1]

1 Scope

This European Standard applies to road surface cleaning machines, which are defined in clause 3. The equipment would normally be mounted on a carrier vehicle (e.g. truck, tractor, construction machinery and mobile industrial handling equipment). It is also possible to mount a road surface cleaning machine on its own chassis construction and propulsion system. In all cases the machine and chassis form an integral unit. Directives and standards for the vehicular truck chassis aspect, termed 'carrier vehicle' in this standard, would be those relative to that equipment, even where specific modifications have been made to realize the road surface cleaning application. The use in public road traffic is governed by the national regulations.

This European Standard deals with all significant hazards identified through a risk assessment pertinent to road surface cleaning machines when they are used as intended and under the conditions foreseen by the manufacturer. This European Standard does not deal with significant hazards associated with [A1] *deleted text* [A1] EMC. This European Standard only specifies the appropriate technical measures to eliminate or reduce risks arising from the significant hazards associated with machine operation, setting and adjustments, load discharge and routine maintenance.

This European Standard does not include requirements for the carrier vehicles (e.g. truck) or special constructions. These are covered in directives related to the construction of vehicles. Demountable bodywork systems (e.g. demountable containers) are specified in other standards.

This European Standard does not apply to road surface cleaning machines such as front mounted tractor brooms according to [A1] EN 13524:2003. [A1]

This European Standard does not apply to machines or components that are specifically designed for cleaning tram-lines and rail tracks.

This European Standard does not deal with the risks associated with the operation of machines in potentially explosive atmospheres.

This European Standard applies to machines which are manufactured after the date of approval of the standard by CEN.

2 Normative references

[A1] The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies. [A1]

[A1] *deleted text* [A1]

[A1] EN 953:1997 [A1], *Safety of machinery — Guards — General requirements for the design and construction of fixed and movable guards*

[A1] EN 982:1996 [A1], *Safety of machinery — Safety requirements for fluid power systems and components — Hydraulics*

[A1] EN 983:1996 [A1], *Safety of machinery — Safety requirements for fluid power systems and components — Pneumatics*

[A1] *deleted text* [A1]

[A1] EN ISO 2867:2006 [A1], *Earth-moving machinery — Access systems* [A1] *(ISO 2867:2006)* [A1]

[A1] EN ISO 12100-1:2003, *Safety of machinery — Basic concepts, general principles for design — Part 1: Basic terminology, methodology (ISO 12100-1:2003)* [A1]

[A1] EN ISO 12100-2:2003, *Safety of machinery — Basic concepts, general principles for design — Part 2: Technical principles (ISO 12100-2:2003)* [A1]

[A1] EN ISO 13732-1:2008, *Ergonomics of the thermal environment — Methods for the assessment of human responses to contact with surfaces — Part 1: Hot surfaces (ISO 13732-1:2006)* [A1]

[A1] ISO 6750:2005 [A1], *Earth-moving machinery — Operation and maintenance — Format and content of manuals*

3 Terms and definitions

[A1] For the purposes of this document, the terms and definitions given in EN ISO 12100-1:2003 and the following apply. [A1]

3.1
road surface cleaning machines
machines for removal of spoil on traffic areas, where the machines are permanently fixed or demountable from a carrier vehicle or specially designed chassis (see annex A).

Road surface cleaning machines are equipped with sweep gear to scarify debris. The sweepings maybe collected by the machine and conveyed into a hopper

3.2
demountable machine
machine, that may be demounted from and remounted to the carrier vehicle

3.3
hopper
container for the collected sweepings or spoil

3.4
sweep gear
collective name for all components that perform the cleaning function such as brushes, brooms, pneumatic and/or mechanical conveyance equipment, flushing and high pressure washer equipment

3.5
pick-up system
means for conveying the sweepings into the hopper

3.6
traffic area
paved areas on which there is vehicular and/or pedestrian traffic. Not included are rail tracks which are solely for rail-mounted traffic, as well as traffic areas inside buildings and underground

4 List of significant hazards

This clause contains all hazards and hazardous situations, as far as they are dealt with in this European Standard, identified by risk assessments significant to this type of machinery that require action to eliminate or reduce risk.

Hazards		**Typical location of hazard**	**Relative Subclauses**
1	Mechanical hazards (caused for example by: - shape; - relative location; - mass and stability; (potential energy of elements) - mass and velocity; (kinetic energy of elements) - inadequacy of mechanical strength - accumulation of potential energy by: - elastic elements (springs), or - liquids or gases under pressure or - vacuum of the machine or parts or workpieces).		
1.1	Crushing hazard	Under elevating hopper Under hopper door	5.1.2 5.1.3 5.5.5
1.2	Shearing hazard	Sweep gear mechanisms	5.2.2
1.3	Entanglement	Rotating machinery Sweeping brushes	5.5.1 5.2.1
1.4	Drawing-in or trapping hazard	Rotating brushes	5.2.1
1.5	Impact hazard	Protruding parts	5.5.5
1.6	Friction or abrasion hazards	Sweeping brushes and brooms	5.2.1
1.7	High pressure fluid injection hazard	Hydraulic pipes/hoses High pressure washing system	5.1.6 5.5.4 5.6.2
1.8	Ejection of parts (of machinery and processed material/workpieces)	Fan systems High pressure jets	5.5.1 b) 5.6.2
1.9	Slip, trip and fall hazards in relationship with machinery (because of their mechanical nature)	Access, on or from walkways From climbing on equipment or from access ladders	5.3
2	Thermal hazards resulting in:		

Hazards		Typical location of hazard	Relative Subclauses
2.1	Burns and scalds, by a possible contact of persons, by flames or explosions and also by the radiation of heat sources	Engine cooling systems Engine exhaust systems	5.5.2 5.5.3
3	Hazards generated by materials and substances processed, used or exhausted by machinery for example:		
3.1	Hazards resulting from contact with or inhalation of harmful fluids, gases, mists, fumes and dusts	Fumes in cab Dust from brushes and brooms	5.5.3
4	Hazards generated by neglecting ergonomic principles in machine design (mismatch of machinery with human characteristics and abilities) caused for example by:		
4.1	Unhealthy postures or excessive efforts	Seats and control devices Manipulating heavy doors and access panels Hand held cleaning devices	5.1.4 5.5.5 5.8 5.9.1
4.2	Inadequate local lighting	Within cleaning zones	5.2.3
4.3	Human errors	Lifting of the hopper during carrier vehicle movement	5.1.5
5	Hazards caused by failure of energy supply, breaking down of machinery parts and other functional disorders, for example:		
5.1	Failure of energy supply (of drive and/or control circuits)	Elevating hopper Demountable machine systems Sweep gear stowage Hopper discharge door	5.1.3 5.9.1 5.2.2 5.2.2 5.1.3
5.2	Unexpected ejection of machine parts or fluids	Pipes and hoses Outlet of centrifugal fan Brushes and brooms	5.1.6 5.5.1 b) 5.2.1
5.3	Errors of fitting	Safety props Load descent control systems Demountable components Disconnectable systems Hydraulic pipes/hoses	5.1.2 5.2.2 5.9.1 5.9.3 6.1
5.4	Overturn, unexpected loss of machine stability	Elevating hopper Demountable components in general	5.1.5 5.9.1
6	Hazards caused by (temporary) missing and/or incorrectly positioned safety related measures/means, for example:		
6.1	All kinds of guard	Rotating machinery Hot surfaces Fixed guards	5.5.1 5.5.2 5.2.1

Hazards		Typical location of hazard	Relative Subclauses
6.2	Safety signs and signals	Rotating machinery Rotating brushes and brooms Elevating hopper Support legs Disconnectable systems	5.2.1 5.1.1 5.9.2 5.9.1 5.9.3
6.3	Essential equipment and accessories for safe adjusting and/or maintaining		6
[A1] 7	Hazards generated by noise, resulting in:		
7.1	Hearing loss (deafness), other physiological disorders (e.g. loss of balance, loss of awareness)		5.10
7.2	Interference with speech communication, acoustic signals, etc.		5.10
8	Hazards generated by vibration		
8.1	Whole-body vibration, particularly when combined with poor postures		5.11 [A1]

5 Safety requirements and/or measures

The machines shall comply with the safety requirements and/or measures of this clause. In addition the machines shall be designed to comply with the terms of [A1] EN ISO 12100 [A1] for hazards that are relevant but not significant and therefore are not dealt with in this standard.

For the application of the reference standards [A1] EN ISO 13732-1 [A1], EN 953, EN 982 and EN 983 which are used in this standard, the manufacturer shall carry out an adequate risk assessment relating to those requirements for which a special safety measure or category is necessary.

NOTE This specific risk assessment should be part of the general risk assessment relating to the hazards not covered by this standard.

5.1 Elevating hoppers and powered discharge doors

5.1.1 Multiple control systems

Multiple control systems shall be designed so that, only one set of controls can be activated for each function respectively.

5.1.2 Elevating hopper

[A1]

a) Elevating equipment shall be constructed or designed so that any unintentional lowering of the hopper, including lowering resulting from power interruption, shall be prevented. [A1]

For example this requirement is met by:

— check valves or similar functions within the control valves of hydraulic or pneumatic lifting equipment;

— self-locking actuators or automatically engaging latches;

— mechanical safety mechanisms.

〈A1〉 *deleted text* 〈A1〉

b) If persons have to enter beneath the elevated or tilted hopper when used as intended and under conditions foreseen by the manufacturer (e.g. maintenance, cleaning, inspection) it is necessary to provide safeguards, for example:

— automatically engaging mechanical safety mechanisms (see annex B);

— pilot controlled check valves integrated into the lifting cylinder;

— mechanical safety mechanisms that can be operated from outside the hazard zone.

5.1.3 Movement

Movement of the hopper and power operated discharge doors shall be provided with means to ensure a controlled lowering or closing.

5.1.4 Position of controls

Controls for tipping or elevating the hopper as well as for power operated hopper discharge doors, refer to 5.4.

A warning system shall indicate to the operator in the driving position that the tipped or elevating hopper is not in the fully lowered position.

5.1.5 Stability

The elevation of the hopper whether empty or laden shall not cause the machine to tip up or roll over when used according to the manufacturer's intended use (see 6.1). This is particularly relevant to road surface cleaning machines with high dumping hoppers that discharge into containers.

Verification of this stability requirement shall be derived from functional tests or calculation.

5.1.6 Hoses and pipework

All fluid hoses and pipe work employed for hydraulically powered elevated hoppers and discharge doors shall be in accordance with EN 982.

5.2 Sweep gear

5.2.1 Brushes and brooms

Rotating brushes and brooms that are located outside of the vehicle perimeter during the working operation shall be provided with fixed guards with the exception of their working area. If this is not practical due to technical reasons, warning signs shall be provided in the vicinity of the hazard zone to indicate risk and avoidance measures to operators and third parties.

5.2.2 Raising, lowering and slewing mechanisms

Free fall and uncontrolled movements of sweep gear mechanisms shall be prevented. The raising, lowering and slewing shall be in a controlled movement. Orifices, restrictors or specially sized hoses and pipes serving the hydraulic or pneumatic actuator system may be used to effect control.

5.2.3 Sweep gear illumination

For operation in poor light conditions, illumination shall be provided in accordance with ▌A1⟩ 4.8.6 of EN ISO 12100-2:2003 ⟨A1▐. The illumination shall not impede or dazzle third parties.

5.2.4 Sweep gear maintenance

For equipment maintenance, means shall be provided to lower all sweep gear to the lowered ground position and to render all controls and actuation power systems inert. In the case of fluid power systems, all pumps shall be stationary and stored energy expended, pneumatic systems shall be open and vented to atmosphere.

5.3 Access and walkways

Where equipment requiring regular access and walking on is away or inaccessible from the ground level, access ladders, walkways and standing areas complying with EN ISO 2867 shall be provided.

The bottom step or rung of a ladder shall not be more than 650 mm away from the ground level.

5.4 Controls

a) Controls for elevating and slewing movements shall be designed so that they automatically return to zero position when released. This does not apply to mechanisms that necessitate a float or pressure position for their function and also does not apply to continuously operating mechanisms such as hydraulic motors etc.

b) Controls for hazardous movements of elevating, lowering and slewing means shall be secured against unintentional actuation. This is accomplished, for example by:

   — guards;

   — mechanical locking;

   — locking through key operated switch.

c) Controls for tipping and elevating hoppers as well as for power-operated discharge doors shall be positioned outside the hazard zone. Hazardous conditions that are not protected shall be able to be observed by the operator during the operation of the controls.

5.5 Protection devices

5.5.1 Moving parts

a) Accessible moving parts transmitting power shall be provided with fixed guards in accordance with EN 953. If access is necessary once a day or more frequently then removable protection devices in accordance with EN 953 may be used;

b) In fan systems it shall be ensured that the hazardous ejection of parts/particles and fluids to the surrounding area does not occur.

5.5.2 Hot surfaces

Temperatures of surfaces of machinery with which the operator may come into contact shall conform to [A1] EN ISO 13732-1 [A1]. This shall be achieved by the use of guards (e.g. perforated plates placed in front of or around the hot surfaces) or be positioned to avoid unintended risk of contact. Where guarding is impractical, e.g. engine radiator caps, adequate warning signs shall be employed advising on the nature of the risk and avoidance measures described in information for use.

5.5.3 Fumes, gases and dust particles

a) Engine exhaust systems shall be designed, constructed and positioned to minimize health hazards from exhaust gas pollution to an absolute minimum in accordance with the state of the art. At the same time the flow of exhaust gas is to be directed away from the workstations;

b) Dust suppression means shall be provided to limit dust pollution from brushes, etc. in the operator's workstation, where no suppression means are employed, a pressurised operator's cabin with filtered air shall be specified.

5.5.4 Pipes and hoses

Fluid power pipes and hoses shall be in accordance with EN 982 and EN 983.

5.5.5 Doors and panels

Doors and panels that constitute a hazard in opened positions and by unintended closing shall be permanently secured in the opened and closed positions. Counterbalance springs, fluid power cylinders, gas struts or similar devices may be considered as a satisfactory support system if they retain the door or panel reliably.

The manual force required for opening and closing doors and panels shall not exceed 250 N.

The manual operation of opening and closing doors and panels shall only be possible from a safe standing position.

5.6 Water systems

5.6.1 Tanks

Means for filling the water tank shall be of an antisyphonic type when filling from public water systems via a fixed connection.

5.6.2 Washing/flushing system

Washing jets shall be so designed and positioned to act only in the intended direction. Shields or curtaining shall be employed if hazards from fierce over spray exist.

5.7 Fuel and hydraulic tanks

a) Fuel and hydraulic tanks shall have easily accessible filling ports which permit the filling by normal filling facilities or by cans with removable spouts;

b) Filling ports shall not be located in the operator's cabin environment;

c) Level indication means shall be provided for all tanks;

d) Labels shall be affixed near the filling port to indicate the correct fluid media.

5.8 Hand-held cleaning devices/suction hoses

Manually guided suction hoses shall be provided with hand holds permitting easy guiding of the suction hose in a controlled manner.

Counterbalance means by springs, pneumatic cylinders, mechanical actuators or hydraulic cylinders shall be employed when the force required by the operator exceeds 250 N.

Where power operated systems using fluid power cylinders or pneumatic means are employed, protection against free falling conditions through power failure shall be employed e.g. restrictors, flow controllers, check valves fitted directly to the actuator.

For manually guided hoses including rotatable booms, suitable means shall be provided which positively arrest these in a locked position.

5.9 Demountable machines and components

5.9.1 Demountable components

Demountable components shall be designed and constructed so that they can be safely mounted and demounted. Where disconnectable connections are employed for fluid and electrical power systems, it shall not be possible to make an incorrect connection. Where lifting elements are controlled independently of each other, each element shall be provided with an interlock (e.g. shut-off valve on the hydraulic cylinder).

Where manually actuated jacking systems are employed, such as screw jacks, helix angles shall be such that friction locking occurs in any position of the helix.

5.9.2 Supporting means for machines and components

Supporting means shall be designed and positioned or be able to be positioned so that the machine can be safety supported on level, stable ground.

Supporting means shall be connected to the machine by means of positive engagement.

The distance between the support legs shall be dimensioned to permit safe movements of the carrier vehicle during the mounting and demounting process.

Where the supporting means cannot carry the gross overall weight of the demounted machine (structural weight plus effective load) it shall be clearly marked with the maximum load which can be supported. Warning signs shall be fixed visible to the operator drawing attention to the need to check that the load to be supported does not exceed the maximum load which can be supported.

Supporting means employed for moving the machinery when demounted shall be fitted with equipment that prevents any unintentional rolling away in the unattended condition.

The manufacturer shall provide advice on safe working practices for the use of the supporting means in the information for use.

5.9.3 Disconnectable power and signal-transmitting systems

Disconnectable power and signal-transmitting systems shall be provided with connecting elements fit for their operating environment. Disconnectable hydraulic fluid power systems shall be provided with suitable, self-sealing coupling elements. If several coupling elements are closely grouped in a location, it shall be ensured that incorrect connections do not give rise to a hazardous situation. This can be achieved e.g. by providing non-interchangeable connections or by using unambiguous, permanent markings.

5.10 [A1] Noise reduction by design

5.10.1 Noise reduction at source

Machines shall be so designed and constructed that risks resulting from the emission of airborne noise are reduced to the lowest possible level, taking account of technical progress and the availability of means of reducing noise, in particularly, at source.

The available information and technical measures for reducing noise at source (see for example EN ISO 11688-1) shall be taken into account in the design of machines for road surface cleaning.

NOTE EN ISO 11688-2 provides useful information on noise generation mechanisms in machinery.

5.10.2 Noise reduction by protective measures

The following measures - if practicable - are among those that are suitable:

— a cab;

— encapsulation of the engine or engines;

— exhaust silencer.

NOTE Guidelines for the design of enclosures can be found in EN ISO 15667.

5.10.3 Noise reduction by information

The operating instructions shall contain information on residual risks associated with noise (see 6.1).

5.11 Reduction of vibration

The vibration emission in particular at the operator's position shall be reduced to the lowest level taking into account the technical progress and the available technical measures for vibration control. [A1]

6 Information for use

Written instructions shall be drawn up according to [A1] 6.5 of EN ISO 12100-2:2003 [A1].

[A1] The following user information shall be accompanied with the machine. [A1]

6.1 Operating and maintenance instructions

Road surface cleaning machines shall be delivered with operating instructions based on ISO 6750.

The operating instructions shall include at least the following information:

— Information on the intended use and hazard avoidance measures;

— Information on stability during hopper elevation and discharge;

— Advise on the qualification of the operating personnel and elements to be included in their training in safe working practices;

— Advice that road surface cleaning machines shall only be operated by specially trained personnel;

— Information on transport, weight, location of centre of gravity;

— Information on attachment points and positioning points for lifting equipment;

— Information on mounting and fixing of demountable machinery on the carrier vehicle;

— Information on the safe use of supporting means used in demountable machinery;

— Description of the controls;

— Information on risks which cannot be ruled out despite safety measures incorporated by the designer (e.g. change in stability through raised hoppers; risk of injury through rotating tools);

— Advise that maintenance work in hydraulic systems are only to be carried out by specially trained personnel;

[A1]

— If a blockage is likely to occur, information on the method to be followed for safely unblocking;

— Information on noise emissions:

  — the A-weighted sound power level emitted by the machine, where the equivalent continuous A-weighted emission sound pressure level at the operating position exceeds 80 dB(A);

  — the equivalent continuous A-weighted emission sound pressure level at the operating position, if this value exceeds 70 dB(A). Where this value does not exceed 70 dB(A), this fact shall be indicated;

  — the peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 µPa).

  The operating conditions of the machinery during measurement and the measurement methods used shall be described.

NOTE 1 A specific noise test code is under preparation.

Whenever sound emission values are indicated the uncertainties surrounding these values shall be specified.

NOTE 2 Additional noise emission values can be included in the manufacturer's declaration, but only such that a confusion with the values specified above is avoided. [A1]

6.2 Spare parts list

The spare part list shall contain all relevant safety related spare parts with an unambiguous identification and information of the location of the part to be replaced.

7 Marking

Each machine shall bear legibly and indelible the following minimal information.

[A1] *deleted text* [A1] Mandatory marking[1)];

— [A1] *deleted text* [A1]

[A1]

— business name and full address of the manufacturer and, where applicable, his authorized representative;

— designation of the machinery; [A1]

— Machine serial number [A1] , if any [A1];

— [A1] *deleted text* [A1]

[A1]

— designation of series or type; [A1]

— [A1] *deleted text* [A1]

[A1]

— year of construction, that is the year in which the manufacturing process is completed. [A1]

8 Verification

The verification methods of the safety requirements are self evident or are prescribed in the pertinent clauses in this standard.

The verification methods of the safety requirements shall be based on

— Review of documents (e.g. calculations, drawings, control logic);

— Checking information for use;

— Visual examination of the machine;

— Functional checks and functional tests.

1) [A1] For machines and their related products intended to be put on the market in the EEA, CE-marking as defined in the applicable European Directive(s), e.g. Machinery. [A1]

Annex A
(informative)

Terminology

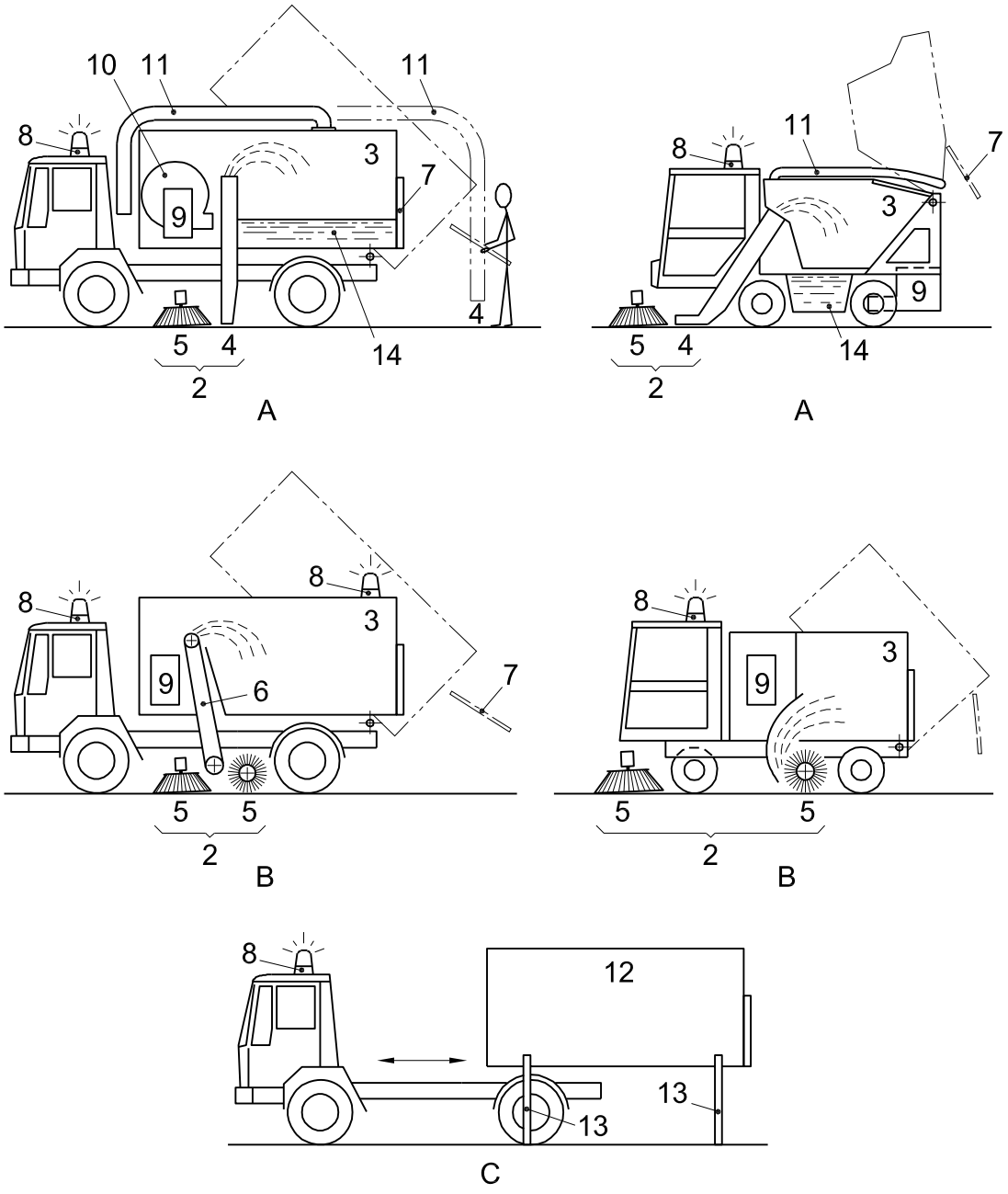

Figure A.1 — Road surface cleaning machines with hopper

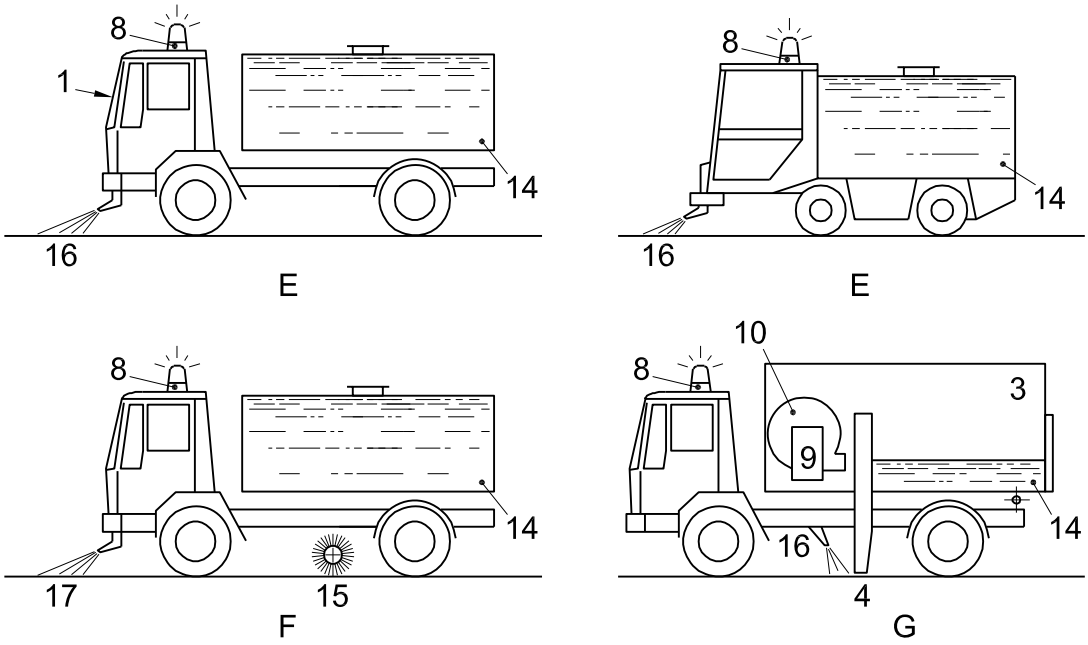

Figure A.2 — Flusher washer

	English Definition:	German Definition:	French Definition:
A	Sweeper with pneumatic pick-up	Kehrfahrzeuge mit pneumatischer Kehrrichtaufnahme	Balayeuse aspiratrice
B	Sweeper with mechanical pick-up	Kehrfahrzeuge mit mechanischer Kehrrichtaufnahme	Balayeuse à ramassage mécanique
C	Demountable bodywork	Wechselaufbau	Caisson amovible
E	Flusher washer	Spül-/Waschfahrzeug	Laveuse arroseuse
F	Scrubber	Schrubbfahrzeug	Brosse à écurer
G	High pressure washer with pneumatic pick-up	Hochdruckwaschfahrzeug mit pneumatischer Aufnahme	Balayeuse aspiratrice avec lavage haute pression
1	Truck chassis	LKW-Fahrgestell	Châssis
2	Sweepgear	Kehr- und Aufnahmeaggregat	Dispositif de balayage
3	Hopper	Schmutzbehälter	Caisson
4	Suction inlet	Saugmund	Tube d´aspiration
5	Brushes, cylindrical & conical	Besen, Walzenbesen und Tellerbesen	Balais cylindrique et conique
6	Mechanical conveyor	Mechanischer Schmutzförderer/ -aufnahme	Tapis convoyeur mécanique
7	Discharge door	Behälterklappe	Porte arrière
8	Beacon	Rundumkennleuchte	Gyrophare
9	Engine	Antriebsmotor	Moteur
10	Centrifugal fan	Radialventilator	Ventilateur d´aspiration
11	Manually guided suction hose	Saugschlauchausleger, handgeführt	Potence d´aspiration
12	Demountable bodywork	Wechselaufbau	Caisson amovible
13	Demount support legs	Stützen für Wechselaufbau	Béquille du caisson amovible
14	Water tank	Wasserbehälter	Réservoir à eau
15	Scrubbing brush	Schrubbürste	Balai
16	High pressure jets	Hochdruckdüsen	Jets de lavage haute pression
17	Flushing jets	Spüldüsen	Jets de lavage

Annex B
(informative)

Hopper safety device

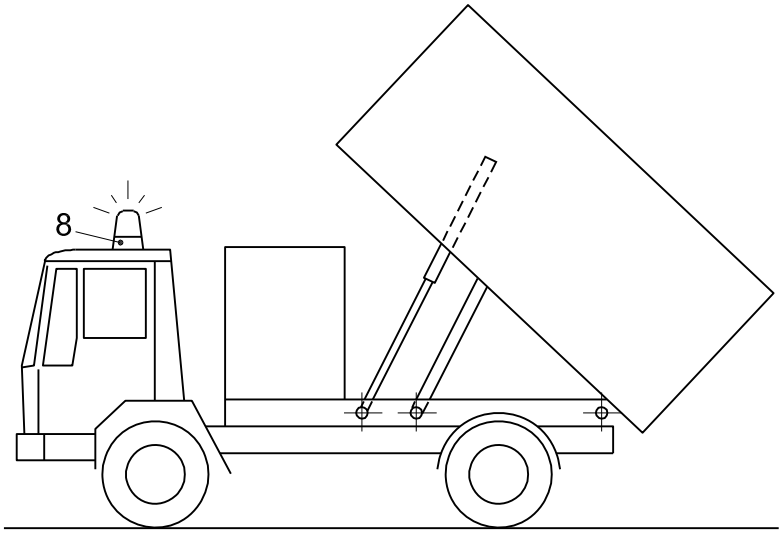

Figure B.1 — Tiltable hopper with Safety Device

WARNING / WARNUNG / ATTENTION

Always ensure prop is installed before working beneath hopper

Bei Arbeiten unter dem gekippten Schmutzbehälter muss die Sicherungsstütze eingelegt oder eingerastet sein

Toujours s´assurer que le support est installé avant de travailler sous le caisson

Annex ZA
(informative)

A1 Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive Machinery 98/37/EC, amended by 98/79/EC.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the relevant Essential Requirements except those of chapter 3 of Annex I of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard. A1

Annex ZB
(informative)

[A1] Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC

This European Standard has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association to provide a means of conforming to Essential Requirements of the New Approach Directive 2006/42/EC on machinery.

Once this standard is cited in the Official Journal of the European Communities under that Directive and has been implemented as a national standard in at least one Member State, compliance with the normative clauses of this standard confers, within the limits of the scope of this standard, a presumption of conformity with the relevant Essential Requirements except those of chapter 3 of Annex I of that Directive and associated EFTA regulations.

WARNING — Other requirements and other EU Directives may be applicable to the product(s) falling within the scope of this standard. [A1]

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⟩A1⟨ *deleted text* ⟩A1⟨

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