

DIN EN 536



ICS 93.080.10

Supersedes
DIN EN 536:1999-10

**Road construction machines –
Mixing plants for road construction materials –
Safety requirements;
English version EN 536:2015,
English translation of DIN EN 536:2016-01**

Straßenbaumaschinen –
Mischanlagen für Materialien zum Straßenbau –
Sicherheitsanforderungen;
Englische Fassung EN 536:2015,
Englische Übersetzung von DIN EN 536:2016-01

Machines pour la construction des routes –
Centrales d'enrobage pour matériaux routiers –
Prescriptions de sécurité;
Version anglaise EN 536:2015,
Traduction anglaise de DIN EN 536:2016-01

Document comprises 62 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original shall be considered authoritative.

A comma is used as the decimal marker.

National foreword

This standard includes safety requirements.

This document (EN 536:2015) has been prepared by Technical Committee CEN/TC 151 “Construction equipment and building material machines — Safety” (Secretariat: DIN, Germany).

The responsible German body involved in its preparation was *DIN-Normenausschuss Maschinenbau* (DIN Standards Committee Mechanical Engineering), Working Committee NA 060-13-05 AA *Straßenbaumaschinen* of Section *Bau- und Baustoffmaschinen*. Representatives of manufacturers and users of road construction machines, and of the employers' liability insurance associations contributed to this standard.

This standard contains specifications giving detail to the essential requirements set out in Annex I of the “Machinery Directive”, Directive 2006/42/EC, and which apply to machines that are either first placed on the market or commissioned within the EEA. This standard serves to facilitate proof of compliance with the essential requirements of that directive.

Once this standard is cited in the Official Journal of the European Union, it is deemed a “harmonized” standard and thus, a manufacturer applying this standard may assume compliance with the requirements of the Machinery Directive (“presumption of conformity”).

The European Standards referred to in Clause 2 and in the Bibliography of the EN have been published as the corresponding DIN EN or DIN EN ISO Standards with the same number.

Where the International Standards referred to are not also DIN ISO Standards with the same number, there are no national standards available.

Amendments

This standard differs from DIN EN 536:1999-10 as follows:

- a) the standard has been fundamentally revised;
- b) Clause 2 “Normative references” has been updated;
- c) the structure of the standard has been changed;
- d) Annex ZA (informative) “Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC” has been included.

Previous editions

DIN EN 536: 1999-10

English Version

Road construction machines - Mixing plants for road construction materials - Safety requirements

Machines pour la construction des routes - Centrales d'enrobage pour matériaux routiers - Prescriptions de sécurité

Straßenbaumaschinen - Mischanlagen für Materialien zum Straßenbau - Sicherheitsanforderungen

This European Standard was approved by CEN on 3 July 2015.

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-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

European foreword	5
Introduction	6
1 Scope	7
2 Normative references	7
3 Terms and definitions	9
4 List of significant hazards	12
5 Safety requirements and/or measures	15
5.1 General.....	15
5.2 Means of access	15
5.2.1 General.....	15
5.2.2 Mobile plants	15
5.2.3 Openings	16
5.3 Guards	17
5.3.1 General.....	17
5.3.2 Fixed guards.....	17
5.3.3 Interlocking devices and interlocking devices with guard locking	17
5.4 Electrical installation	18
5.4.1 General.....	18
5.4.2 Electrical cables.....	18
5.4.3 Earthing	18
5.4.4 Isolation for maintenance purposes	18
5.5 Pneumatic.....	18
5.5.1 General.....	18
5.5.2 Energy isolation and dissipation	18
5.6 Hydraulic.....	19
5.6.1 General.....	19
5.6.2 Isolation and energy dissipation.....	19
5.7 Emergency stops	19
5.8 Hot parts	19
5.9 Piping	19
5.9.1 General.....	19
5.9.2 Piping for hot liquids	20
5.10 Control stations	20
5.10.1 General.....	20
5.10.2 Main control station.....	20
5.10.3 Starting	20
5.10.4 Stopping	20
5.10.5 Restarting	21
5.10.6 Troubleshooting.....	21
5.10.7 Maintenance mode.....	21
5.10.8 Alarms and warnings	21
5.11 Materials sampling.....	21
5.12 Restricted areas	22
5.13 Lifting, tie down and transport	22
5.13.1 General.....	22
5.13.2 Design of attachment points for transportation purpose.....	22
5.13.3 Location of tying-down and lifting attachment points for transportation purpose	22

5.13.4	Identification of tying-down and lifting attachment points for transportation purpose	23
5.13.5	Other lifting attachment points for handling purpose of components or other sub-assemblies	23
5.14	Transportable and mobile machines - Erecting equipment	23
5.15	Equipment for storage of constituent materials	23
5.15.1	Silos	23
5.15.2	Tanks	24
5.16	Equipment for handling of constituent materials	25
5.16.1	Conveyor belts	25
5.16.2	Vibrating scalping screen	26
5.16.3	Rotating drums	26
5.16.4	Bucket elevator	28
5.16.5	Screw conveyors	29
5.16.6	Rotary valve	29
5.16.7	Manually introduced additives	29
5.16.8	Screen	29
5.16.9	Hot aggregates storage	30
5.16.10	Equipment for metering	30
5.16.11	Water steam duct	31
5.16.12	Mixer	31
5.16.13	Mixing tower exhaustion	31
5.16.14	Lifting equipment	31
5.17	Equipment for handling of mixed material	31
5.17.1	Transfer skips	31
5.17.2	Skip Hoists	32
5.17.3	Drag slat conveyor	35
5.18	Burner	35
5.19	Exhaust system	36
5.19.1	Exhaust fans	36
5.19.2	Dust collector	36
5.20	Safety signs	36
5.21	Hazard generated by noise	37
5.21.1	Noise reduction at source at the design stage	37
5.21.2	Noise reduction by protective devices	37
5.21.3	Noise reduction by information	37
6	Verification of safety requirements and/or measures	37
7	Information for use	38
7.1	General	38
7.2	Information for the foundations	38
7.3	Erection and transport instructions	39
7.3.1	Erection	39
7.3.2	Transport	39
7.4	Instructions for use	39
7.5	Information for maintenance	39
7.6	Tools and equipment	40
7.7	Spare parts and wear parts	40
7.8	Troubleshooting	40
7.9	Procedure in case of fire	40
8	Marking	40
8.1	Machine plate	40
8.2	Thermal heaters	41
8.3	Tanks and vessels	41
Annex A (normative)	Minimum passage openings	42
A.1	Passage of the body	42

Annex B (normative) Noise test code – Grade 2	43
B.1 Scope	43
B.2 Determination of A-weighted emission sound pressure levels on a contour	43
B.2.1 Measurement method.....	43
B.2.2 Measurement positions on the contour	43
B.2.3 Measurement procedure	44
B.3 Determination of the A-weighted emission sound pressure level at workstations	45
B.3.1 Workstations	45
B.3.2 Measurement procedure	45
B.4 Measurement uncertainty	45
B.5 Installation conditions.....	46
B.6 Operating conditions.....	46
B.7 Information to be recorded	46
B.8 Information to be reported.....	46
B.9 Declaration of noise emission values	46
Annex C (informative) Examples for asphalt mixing plants and terminology.....	48
C.1 Stationary plant.....	48
C.2 Transportable plant	49
C.3 Mobile plant	49
C.3.1 Mobile plant assembled	49
C.3.2 Mobile plant during transportation	50
C.4 Batch plant	50
C.5 Continuous plant	52
Annex D (normative) Movable gratings	54
D.1 General.....	54
D.2 Safety requirements	54
D.2.1 General.....	54
D.2.2 Access	54
D.2.3 Controls	54
D.2.4 Maintenance	54
Annex E (informative) Pictorials	56
E.1 Examples	56
Annex F (normative) Performance levels of the safety related parts of control system.....	58
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC	59
Bibliography	60

European foreword

This document (EN 536:2015) 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 February 2016, and conflicting national standards shall be withdrawn at the latest by February 2016.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 536:1999.

This document 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).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

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, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.