

DIN EN 536:2016-01 (E)

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

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