

DIN EN 13218:2010-09 (E)

Machine tools - Safety - Stationary grinding machines (includes Amendment A1:2008 + Corrigendum AC:2010)

Contents		Page
Foreword		4
Introduction		5
1	Scope	5
2	Normative references	5
3	Terms and definitions	8
4	List of significant hazards	15
5	Safety requirements and/or protective measures	23
5.1	General	23
5.2	Mechanical hazards	23
5.3	Electrical hazards	27
5.4	Noise	27
5.5	Vibration	28
5.6	Hazards resulting from dusts, fumes and mists	28
5.7	Devices for the use of coolants	28
5.8	Measures against fire and explosion hazards	29
5.9	Lighting	30
5.10	Control systems and control devices	30
5.11	Electromagnetic compatibility	35
6	Verification of the safety requirements and/or measures	35
7	Information for use	38
7.1	General	38
7.2	Instruction handbook	38
7.3	Marking	41
Annex A (normative)	Abrasive product guards, workzone enclosures and their combinations on stationary grinding machines	42
A.1	Scope	42
A.2	Terms and Symbols	42
A.3	Safety requirements for abrasive product guards and workzone enclosures	43
A.3.1	Shapes of abrasive product guards and angles of aperture	43
A.3.2	Wall thicknesses and material	51
A.3.3	Compound abrasive product guards	62
A.3.4	Workzone enclosures	63
A.3.5	Verification of strength, testing	64
A.3.6	Attachment of transparent screens in workzone enclosures	65
A.3.7	Screens for bench and pedestal grinding machines	66
A.4	Criteria for the design of abrasive product guards and their means of attachment	67
A.4.1	General	67
A.4.2	Energy of abrasive product fragments	67
A.4.3	Determination of the wall thicknesses of abrasive product guards	68
A.4.4	Design of the means of attachment	69

Annex B (normative) Clamping methods for abrasive products and safety requirements for tool holding devices	71
B.1 Scope	71
B.2 Clamping methods	71
B.3 General requirements	71
B.4 Design of flanges	72
B.4.1 Clamping forces and tightening torques	72
B.4.2 Outside clamping diameter, radial width and covering	72
B.4.3 Stiffness	75
B.4.4 Marking of flanges	76
B.5 Devices for the mounting of abrasive products by means of clamping inserts	77
B.5.1 Central threaded inserts	77
B.5.2 Method for the determination of the run-out tolerance for collets	77
B.5.3 Inserts for abrasive products type 2, 35, 36, 37 (see EN 12413) and comparable abrasive products	78
Annex C (informative) Calculation of the clamping force and the tightening torque for the mounting of abrasive products by means of flanges	83
C.1 Symbols	83
C.2 Operating forces	84
C.3 Necessary clamping force	86
C.4 Tightening torque of the screws	88
C.5 Surface pressure	89
Annex D (informative) Noise reduction	90
D.1 Measures for the reduction of noise emission	90
Annex E (normative) Noise emission determination, declaration and verification	91
E.1 Measuring procedure	91
E.2 Operating conditions	91
E.3 Declaration and verification of noise emission values	91
generating flammable and explosive dusts	93
F.1 Devices for wet grinding	93
F.2 Devices for dry grinding with wet precipitation by means of instantaneous moistening ...	93
F.3 Devices for dry grinding with precipitation by means of a wet-type cyclone	94
F.4 Additional requirements, dry grinding	95
Annex G (informative) Relevant and special clauses for different types of stationary grinding machines	96
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directives 98/37/EC amended by Directive 98/79/EC, 89/336/EEC and 73/23/EEC"	99
Annex ZB (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC"	100
Bibliography	101