

DIN EN ISO 23125:2015-04 (E)

Machine tools - Safety - Turning machines (ISO 23125:2015)

Contents		Page
Foreword		4
Introduction		5
1	Scope	6
2	Normative references	6
3	Terms and definitions	9
3.1	General terms	9
3.2	Terms related to parts of turning machines	10
3.3	Terms related to modes of operation -- Mandatory and optional modes of operation for turning machines	12
3.4	Terms related to sizes and groups of turning machines defined	13
3.5	Terms related to maximum permissible spindle speeds and axes feeds	18
4	List of significant hazards	19
4.1	General	19
4.2	Main hazard zones	19
4.3	Significant hazards and hazardous situations covered by this International Standard	20
5	Safety requirements and/or protective measures	24
5.1	General requirements	24
5.1.1	Overview	24
5.1.2	Required characteristics for guards for all machine groups	25
5.2	Specific requirements resulting from mechanical hazards identified in Clause 4	25
5.2.1	Group 1 machines	25
5.2.2	Groups 2, 3 and 4 machines	26
5.2.3	Workpiece clamping conditions	29
5.2.4	Modes of machine operation	30
5.2.5	Optional or additional equipment for turning machines	35
5.3	Specific requirements resulting from electrical hazards	37
5.4	Specific requirements resulting from noise hazards	38
5.5	Specific requirements resulting from radiation hazards	38
5.6	Specific requirements resulting from material or substance hazards	38
5.7	Specific requirements resulting from neglect of ergonomic principles hazards	39
5.8	Specific requirements resulting from unexpected start-up, over-run or over-speed hazards	40
5.9	Specific requirements resulting from variation in rotational speed of tool hazards	42
5.10	Specific requirements resulting from failure of the power supply hazards	43
5.11	Specific requirements resulting from failure of the control circuit hazards	43
5.12	Specific requirements resulting from errors of fitting hazards	45
5.13	Specific requirements resulting from ejected fluids or objects hazards	45
5.13.1	General requirements	45
5.13.2	Guards for large vertical Group 3 machines (NC turning machines and turning centres) ..	46
5.13.3	Guards for large horizontal Group 3 machines (NC turning machines and turning centres)	46
5.14	Specific requirements resulting from loss of stability hazards	47
5.15	Specific requirements resulting from slips, trips and fall of persons hazards	47
5.16	Verification of the safety requirements and/or protective measures	47
6	Information for use	49

6.1	Marking	50
6.2	Instruction for use	50
6.2.1	General	50
6.2.2	Tooling	52
6.2.3	Workpiece clamping	52
6.2.4	Machine functions accessible from the NC panel	53
6.2.5	Restart	53
6.2.6	Noise	53
6.2.7	Ancillary handling devices	54
6.2.8	Residual risks to be addressed by the machinery user	54
6.2.9	Installation instructions for the turning machine	55
6.2.10	Cleaning instruction for the machine	55
Annex A (normative) Impact test method for guards on turning machines		56
Annex B (informative) Test equipment for impact test and examples of materials		61
Annex C (informative) Calculation of direct impact energy		64
Annex D (informative) Example of checklist for safety functions		66
Annex E (informative) Examples of exhaust and extinguishing systems		68
Annex F (informative) Example of the determination of performance level for interlocked guard		72
Bibliography		78
AnnexZA(informative)RelationshipbetweenthisEuropeanStandardandtheEssential RequirementsofEUDirective2006/42/EC		77