

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 |