

DIN EN 415-8:2025-08 (E)

Safety of packaging machines - Part 8: Strapping machines

Contents		Page
European foreword		5
Introduction		7
1	Scope	8
2	Normative references	8
3	Terms and definitions	10
3.1	Definitions of general terms	10
3.2	Definitions of machines covered by this document	12
4	Safety requirements	15
4.1	General requirements	15
4.1.1	General	15
4.1.2	Requirements to achieve an acceptable risk reduction	15
4.1.3	Reduction of hazards from electrical equipment	16
4.1.4	Reduction of hazards generated by the control system	16
4.1.5	Reduction of thermal hazards	17
4.1.6	Reduction of noise hazards	17
4.1.7	Reduction of ergonomic hazards	17
4.1.8	Reduction of hygiene risks	17
4.2	Requirements for typical strapping machines	17
4.2.1	Pneumatic and hydraulic equipment	17
4.2.2	Reduction of risks generated by products and materials	17
4.2.3	Reduction of risks generated by strapped products	17
4.2.4	Reduction of risks generated by the strap	17
4.3	Requirements for common mechanisms on strapping machines	18
4.3.1	Strap dispenser	18
4.3.2	Strap feeding mechanism	19
4.3.3	Strap gripping mechanism	19
4.3.4	Strap retraction mechanism	19
4.3.5	Strap tension mechanism	19
4.3.6	Strap cutting mechanism	19
4.3.7	Strap sealing mechanism	19
4.3.8	Strap tension	19
4.4	Requirements for powered hand strapping tools	20
4.4.1	General	20
4.4.2	Powered mechanisms	20
4.4.3	Controls	20
4.4.4	Vibration	21
4.4.5	Ergonomic design principles	21
4.5	Requirements for a semi-automatic strapping machine	21
4.5.1	General	21
4.5.2	Strap dispenser	22
4.5.3	Strapping head	22
4.5.4	Strap feeding mechanism	22
4.5.5	Compression mechanisms	22
4.5.6	Integrity of safety related control systems	23
4.6	Requirements for an automatic strapping machine	23
4.6.1	General	23
4.6.2	Strap dispenser	24

4.6.3	Strapping head	24
4.6.4	Strap feeding mechanism	24
4.6.5	Strap chute	24
4.6.6	Product conveyors	24
4.6.7	Product positioning and compression mechanisms	24
4.6.8	Turntable	25
4.6.9	Integrity of safety related control systems	25
4.7	Requirements for horizontal pallet strapping machine	26
4.7.1	General	26
4.7.2	Strap dispenser	27
4.7.3	Strapping head	27
4.7.4	Strap chute assembly	27
4.7.5	Strap chute raise and lower mechanism	27
4.7.6	Product positioning and compression mechanisms	30
4.7.7	Product conveyor	30
4.7.8	Integrity of safety related control systems	30
4.8	Requirements for a vertical pallet strapping machine	31
4.8.1	General	31
4.8.2	Strap dispenser	31
4.8.3	Vertical strap chute	32
4.8.4	Strapping head	32
4.8.5	Raise and lower mechanism (pressure mechanism)	32
4.8.6	Strap bayonet	32
4.8.7	Product positioning and compression mechanisms	32
4.8.8	Product conveyor	32
4.8.9	Turntable	32
4.8.10	Integrity of safety related control systems	33
4.9	Requirements for a needle strapping machine	33
4.9.1	General	33
4.9.2	Strap dispenser	35
4.9.3	Strapping head	35
4.9.4	Strap feeding mechanism	35
4.9.5	Needle	35
4.9.6	Product conveyors	35
4.9.7	Product positioning and Compression mechanisms	35
4.9.8	Lateral movement of the machine	35
4.9.9	Integrity of safety related control systems	36
5	Verification of safety requirements	36
5.1	General	36
5.2	Visual inspections with the machine stopped	36
5.3	Measurements with the machine stopped	36
5.3.1	Guards	36
5.3.2	Electrical testing	36
5.4	Visual inspections with the machine running	36
5.5	Measurements or tests with the machine running	37
5.5.1	Electrical testing	37
5.5.2	Measurement of noise emission	37
5.5.3	Vibration measurements on hand-held strapping tools	37
5.5.4	Temperature	38
5.6	Verification procedures	38
6	Information	39
6.1	General	39
6.2	Marking	39
6.3	Signals and warning signs	39
6.4	Instructions	40
6.4.1	General	40
6.4.2	Additional information for specific machines	40
Annex A (informative)	List of significant hazards	42

A.1	Hazards which occur on all machines in the scope of this document	42
A.2	Hazards specific to common mechanism on strapping machines	45
A.3	Hazards associated with a powered hand strapping tool	46
A.4	Hazards associated with a semi-automatic strapping machine	47
A.5	Hazards associated with an automatic strapping machine	49
A.6	Hazards associated with a horizontal pallet strapping machine	51
A.7	Hazards associated with a vertical pallet strapping machine	53
A.8	Hazards associated with a needle strapping machine	55
Annex B (normative) Noise test code		57
B.1	General	57
B.2	Terms and definitions	57
B.3	Determination of emission sound pressure level at the workstation	58
B.4	Determination of the sound power level	59
B.5	Alternative method for very large machines	60
B.6	Assembly and installation conditions	61
B.7	Operating conditions	61
B.8	Measurement	61
B.9	Measurement uncertainty	61
B.10	Information to be recorded	62
B.11	Information to be reported	62
B.12	Declaration and verification of the noise emission values	62
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC aimed to be covered		64
Bibliography		67