

DIN EN 619:2022-07 (E nglisch)

Continuous handling equipment and systems - Safety requirements for equipment for mechanical handling of unit loads

Contents		Page
European foreword		5
Introduction		7
1	Scope	8
2	Normative references	8
3	Terms and definitions	12
4	Safety requirements and/or protective/risk reduction measures	17
4.1	General	17
4.1.1	Area concept	17
4.1.2	Restricted area	17
4.2	Protection against mechanical hazards	18
4.2.1	General requirements for protection against moving parts	18
4.2.2	Conveyors in assembly-lines on which persons may travel in horizontal direction .22	22
4.2.3	Measures for protection against unintended movement	22
4.2.4	Strength calculation	22
4.2.5	Stability against overturning for mobile conveyors	23
4.2.6	Protection against falling or ejected objects	23
4.2.7	Prevention of sharp edges, sharp angles and rough surfaces	23
4.2.8	Preventing access to danger areas across the load entry/exit points or stopping the dangerous movement (Figure 1: B or C)	23
4.2.9	Preventing access across the load entry/exit points to restricted areas (Figure 1: A)	24
4.2.10	Requirements for separating plates, nets, mats, roof type profiles and sloping plates	25
4.3	Measures for protection against electrical hazards	25
4.3.1	Electrical equipment	25
4.3.2	Means of disconnection	26
4.3.3	IP-Degree of protection	26
4.4	Safety requirements related to EMC	26
4.5	Electrostatic charges	26
4.6	Hydraulic and pneumatic systems and equipment	27
4.6.1	Hydraulics	27
4.6.2	Pneumatics	27
4.7	Measures for isolation and energy dissipation	27
4.8	Protection against thermal hazards	27
4.9	Noise reduction at design stage	27
4.10	Means of access	28
4.10.1	General	28
4.10.2	Cross over passageways	28
4.11	Provisions for maintenance	29
4.11.1	Work at machines with open guards	29
4.11.2	Lighting	30
4.12	Transport of machines	30
4.13	Lifting of machines or parts of the plant	30
4.14	Ergonomic requirements in machine design	30
4.15	Control devices	30
4.16	Start and restart function	31
4.17	Stop functions and stop control devices	31
4.18	Emergency stopping	31

4.19	Failure of the power supply	32
4.20	Particular/additional requirements for specific conveyors	32
4.20.1	Vertical switch conveyors	32
4.20.2	Crushing and shearing points between conveyors and conveyed unit loads	32
4.20.3	Nip points on belt driven roller conveyors	33
4.20.4	Plate conveyors	33
4.20.5	Underfloor chain conveyors	33
4.20.6	Telescopic conveyors (boom conveyors)	33
4.20.7	Rail bound conveyors	35
4.20.8	Overhead conveyors	35
4.20.9	Transfer cars	38
4.20.10	Destination Coded Vehicle - systems and rail-guided floor track conveyors	41
4.20.11	Vertical transfer devices	41
4.20.12	Horizontal transfer devices	45
4.20.13	Sorters	46
4.20.14	Conveyors in public areas of airports	48
4.21	Safety related parts of control systems/performance level	49
5	Verification of safety requirements and/or protective/risk reduction measures	53
5.1	General	53
5.2	Visual inspections	53
5.3	Measurements	54
5.4	Functional test	54
5.5	Calculation	54
5.6	EMC-Tests in relation to the Machinery Directive	54
6	Information for use	65
6.1	Instruction handbook	65
6.1.1	General	65
6.1.2	Instructions for the installation of the equipment	65
6.1.3	Instructions for the use of the equipment	65
6.1.4	Instructions for maintenance	66
6.1.5	Training	67
6.1.6	Remaining underneath loads	67
6.1.7	Instruction handbook for vertical transfer devices	67
6.1.8	Hazards generated by conveyed loads	67
6.1.9	Noise emission declaration	68
6.2	Marking	68
6.2.1	Rating plate	68
6.2.2	Load bearing capacity	68
6.2.3	Sign at vertical transfer devices	68
6.2.4	Marking of hydraulic fluid reservoirs	68
6.2.5	Marking of couplings in hydraulic or pneumatic systems	68
6.2.6	Prohibition sign for unauthorised persons	68
6.2.7	Sign "No thoroughfare"	69
6.2.8	Signs at conveying systems	69
Annex A (informative)	Examples of continuous handling equipment	70
Annex B (informative)	Examples of mechanical hazards	90
Annex C (normative)	Typical safety requirements and/or measures	94
Annex D (normative)	Typical examples to prevent access to restricted and danger areas or to stop the dangerous movements	123
Annex E (normative)	Noise test code	142
E.1	General	142
E.2	Determination of A-weighted emission sound pressure level	142
E.3	Measurement positions	143
E.3.1	Operator positions	143

E.3.2	Positions if working places are undefined	143
E.3.3	Additional measurement positions	145
E.4	Operating conditions during measurements	146
E.5	Information to be recorded	147
E.6	Information to be reported	147
E.7	Noise emission declaration	147
E.8	Example of a dual-number noise declaration for a vertical transfer device	148
Annex F (informative) List of significant hazards on conveyors and conveyor systems		149
Annex ZA (informative) Relationship between this European Standard and essential requirements of Directive 2006/42/EC aimed to be covered		152
Bibliography		161