

DIN EN 81-22:2022-02 (E)

Safety rules for the construction and installation of lifts - Lifts for the transport of persons and goods - Part 22: Passenger and goods passenger lifts with inclined travel path

Contents		Page
European foreword		5
0	Introduction	6
1	Scope	10
2	Normative references	11
3	Terms and definitions, symbols and abbreviated terms	13
3.1	Terms and definitions	13
3.2	Symbols and abbreviated terms	20
4	List of significant hazards	20
4.1	General	20
5	Safety requirements and/or protective measures	22
5.1	General provisions	22
5.2	Lift well	22
5.3	Machine, working areas and pulley spaces	33
5.4	Landing doors	45
5.5	Car, vehicle, counterweight, balancing weight	52
5.6	Suspension, compensation, overspeed protection and protection against unintended vehicle movement	64
5.7	Running tracks, guide rails, counter-guide rails and safety gear operating element - Buffers - Final limit switches	75
5.8	Clearances between vehicle and wall facing the vehicle entrance, and between car, counterweight or balancing weight	81
5.9	Lift machine	82
5.10	Electric installations and appliances	88
5.11	Protection against electric faults; controls; priorities	94
6	Verification of the safety requirements and/or protective measures	111
6.1	Methods to be used	111
6.2	Specific data, test reports and certificates	119
7	Information for use	119
7.1	General	119
7.2	Signals and warning devices	119
7.3	Inspection and test	124
7.4	Accompanying documents (in particular, instruction handbook)	125
Annex A (normative) List of the safety contacts		129
Annex B (normative) Unlocking triangle		131
Annex C (informative) Technical dossier		132
C.1	Introduction	132
C.2	General	132

C.3	Technical documents and plans	132
C.4	Electric schematic diagrams	133
C.5	Verification of conformity	133
Annex D (normative) Examinations and tests before putting into service		134
D.1	General	134
D.2	Examinations	134
D.3	Tests and verifications	134
Annex E (informative) Periodical examinations and tests, examinations and tests after an important modification or after an accident		139
E.1	Periodical examinations and tests	139
E.2	Examinations and tests after an important modification or after an accident	139
Annex F (normative) Safety components - Test procedures for verification of conformity		141
F.1	Introduction	141
F.2	Landing door locking devices	142
F.3	Safety gear	146
F.4	Overspeed governors	151
F.5	Buffers	153
F.6	Safety circuits containing electronic components and/or programmable electronic systems (PESSRAL)	159
F.7	Ascending vehicle overspeed protection means	162
F.8	Unintended vehicle movement protection means	165
Annex G (informative) Calculation of the supporting structure, the running tracks, the guide rails, the vehicle and the safety gear gripping element		170
G.1	General	170
G.2	Actions to take into account for calculation	170
G.3	Proof of guide rails	173
Annex H (normative) Electronic components- Failure exclusion		174
H.1	Scope	174
H.2	Failure exclusions - conditions	174
Annex I (informative) Safety circuits		179
I.1	Design guide-line for safety circuits	179
I.2	Description of possible measures	179
Annex J (normative) Pendulum shock tests		187
J.1	General	187
J.2	Test rig	187
J.3	Panels	187
J.4	Test procedure	187
J.5	Interpretation of the results	188
J.6	Test report	188
J.7	Exceptions from the tests	188
Annex K (informative) Traction evaluation		193
K.1	General provisions	193
K.2	Traction calculation	194
K.3	Practical example	198
Annex L (normative) Evaluation of safety factor for suspension ropes		202

L.1	General	202
L.2	Equivalent number Nequiv of pulleys	202
L.3	Static safety factor	203
L.4	Examples	204
Annex M (informative) Machinery spaces - Access		206
Annex N (informative) Building interfaces		207
N.1	General provisions	207
N.2	Support of guide rails	207
N.3	Ventilation of car, lift well and machinery spaces	207
Annex O (informative) Environment: aspects to be considered for a risk analysis		210
Annex P (informative) Determination of anti-slip properties for floor surfaces		212
P.1	General	212
P.2	Testing and assessing anti-slip properties	212
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2014/33/EU aimed to be covered		214
Bibliography		219