

DIN EN 1493:2011-02 (E)

Vehicle lifts

Contents		Page
Foreword		4
Introduction		5
1 Scope		6
2 Normative references		6
3 Terms and definitions		7
4 List of hazards		10
5 Safety requirements and/or measures		14
5.1 General		14
5.2 Preventing unauthorised operation		14
5.3 Control devices		14
5.4 Control positions		15
5.5 Duplicated drive systems		16
5.6 Speeds		16
5.7 Structural design of the supporting structure		16
5.8 Driving machinery		25
5.9 Load carrying devices		28
5.10 Additional requirements for lifts with balconies		30
5.11 Limiting the travel of the load carrying device		31
5.12 Unintended blocking of the load carrying device		31
5.13 Safety against rupture of mechanical bearing devices		31
5.14 Safety against leakage		32
5.15 Additional requirements for lifts with several drives or lifting elements		32
5.16 Additional requirements for movable and mobile lifts		33
5.17 Protection against pinching and shearing		33
5.18 Safety devices		35
5.19 Protection against damage		35
5.20 Manually driven vehicle lifts		36
5.21 Electrical equipment		36
5.22 Special requirements for vehicle lifts where it is permitted to stand under the load during lifting and lowering movement		36
6 Verification of the safety requirements and/or measures		37
6.1 General		37
7 Information for use		39
7.1 General		39
7.2 Marking		39
7.3 Operation instructions		40
7.4 Name plate		41
Annex A (informative) Structural calculations		42
A.1 Permissible stresses		42
Annex B (informative) Examples of solutions		46

Annex C (normative) Design of rope drives	52
Annex D (informative) Example of information about wind	54
Annex E (normative) Protection against leakage	55
Annex F (normative) Additional requirements for cableless controls and control systems	57
F.1 Introduction	57
F.2 General	57
F.3 Control limitation	57
F.4 Stop	57
F.5 Serial data communication	57
F.6 Use of more than one operator control station	59
F.7 Battery-powered operator control stations	59
F.8 Wireless control components	59
Annex G (normative) Noise	60
Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC	61
Bibliography	62