

ISO 8100-2:2026-03 (E)

Lifts for the transport of persons and goods - Part 2: Design rules, calculations, verifications and tests of lift components

Contents

Page

Foreword.....	v
Introduction.....	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Design rules, calculations, verifications and tests	2
4.1 General.....	2
4.2 Verification of landing and car door locking devices.....	3
4.2.1 Verifications and tests.....	3
4.2.2 Test particular to certain types of locking devices.....	5
4.2.3 Instructions.....	5
4.3 Verification of safety gear.....	5
4.3.1 General provisions.....	5
4.3.2 Instantaneous safety gear.....	6
4.3.3 Progressive safety gear.....	8
4.3.4 Additional verifications.....	10
4.3.5 Instructions.....	10
4.4 Verification of overspeed governors.....	10
4.4.1 General provisions.....	10
4.4.2 Check on the characteristics of the overspeed governor.....	10
4.4.3 Instructions.....	11
4.5 Verification of buffers.....	12
4.5.1 General provisions.....	12
4.5.2 Samples subject to test.....	12
4.5.3 Testing.....	12
4.5.4 Instructions.....	15
4.6 Verification of safety circuits and SIL-rated circuits.....	16
4.6.1 General provisions.....	16
4.6.2 Samples subject to test.....	16
4.6.3 Tests.....	17
4.6.4 Instructions.....	18
4.7 Verification of ascending car overspeed protection means.....	19
4.7.1 General provisions.....	19
4.7.2 Statement and test sample.....	19
4.7.3 Testing.....	19
4.7.4 Instructions.....	20
4.8 Verification of unintended car movement protection means.....	20
4.8.1 General provisions.....	20
4.8.2 Statement and test sample.....	21
4.8.3 Testing.....	21
4.8.4 Instructions.....	23
4.9 Verification of rupture valve/one-way restrictor.....	23
4.9.1 General provisions.....	23
4.9.2 Testing.....	24
4.9.3 Test procedure.....	24
4.9.4 Instructions.....	27
4.10 Guide rails calculation.....	28
4.10.1 Range of calculation.....	28
4.10.2 Bending.....	28
4.10.3 Buckling.....	30

4.10.4	Combination of bending and compression/tension or buckling stresses	31
4.10.5	Flange bending.....	31
4.10.6	Deflections.....	32
4.11	Traction calculation	33
4.11.1	General	33
4.11.2	Evaluation of T_1 and T_2	34
4.11.3	Formulae for a general case (see Figure 6).....	35
4.12	Evaluation of safety factor of steel wire ropes	38
4.12.1	General	38
4.12.2	Equivalent number, N_{equiv} of pulleys.....	39
4.12.3	Safety factor	40
4.13	Verification of suspension means, compensation means and their terminations	41
4.13.1	Material and construction verification	41
4.13.2	Verification of elastomeric coated traction sheave grooves	41
4.13.3	Terminations of suspension means	42
4.13.4	Minimum breaking force (MBF).....	44
4.13.5	Fatigue lifetime testing.....	44
4.13.6	Friction factor.....	45
4.13.7	Additional mechanical tests for elastomeric coated suspension means.....	52
4.13.8	Additional mechanical tests for CFRP elastomeric coated suspension means.....	52
4.13.9	Instructions	53
4.14	Discard criteria for suspension means and sheaves.....	54
4.14.1	General	54
4.14.2	Steel wire ropes.....	54
4.14.3	Elastomeric coated suspension means.....	55
4.15	Calculations of rams, cylinders, rigid pipes and fittings.....	56
4.15.1	Calculation against over pressure.....	56
4.15.2	Calculations of the jacks against buckling.....	60
4.16	Pendulum shock tests.....	66
4.16.1	General	66
4.16.2	Test rig.....	67
4.16.3	Tests.....	67
4.16.4	Assessment of the test results.....	68
4.17	Electrical and electronic components — Fault exclusion	71
4.18	Design rules for SIL-rated circuits.....	75
4.19	Verification of the tripping element.....	75
4.19.1	General provisions.....	75
4.19.2	Check of the characteristics of the tripping element.....	75
4.19.3	Instructions	76
Annex A (normative) SIL-rated circuits.....		77
Annex B (informative) Example for calculation of guide rails.....		97
Annex C (informative) Calculation of traction — Example.....		106
Annex D (informative) Equivalent number of pulleys, N_{equiv} — Examples.....		108
Bibliography.....		110