

Contents

Acknowledgements	iii
Foreword	iv
Scope	vi
1. Introduction	1
2. Definitions and symbols	2
2.1 Definitions	2
2.2 Symbols	5
3. Design and detailing	7
3.1 General	7
3.2 Design / sizing of cables	10
3.3 Detailing and lightning protection	17
3.4 Saddles	22
3.5 Execution aspects	24
3.6 Cable vibrations	25
4. Functional requirements for cables	28
4.1 Evolution of cable technology	28
4.2 General requirements	28
4.3 Requirements for the free length	31
4.4 Requirements for the transition zones	36
4.5 Requirements for anchorages	42
4.6 Requirements for saddles	44
5. Materials: properties, requirements, testing	47
5.1 General	47
5.2 High tensile steel for tensile elements (prestressing steel)	48
5.3 Structural steel for anchorages, saddles, guiding devices, deviators and pipes	51
5.4 Stainless steel components in cable system	51
5.5 Filling materials	53
	vii

5.6	Sheathing for prestressing strands	56
5.7	Cable pipes and other pipes	57
5.8	Guiding devices and deviators	60
5.9	Damping devices	60
5.10	Quality control testing	60
6.	Testing of cable systems	63
6.1	General	63
6.2	Initial approval testing of anchorage systems	68
6.3	Initial approval testing of saddle systems with isolated tensile elements	77
6.4	Suitability testing	88
6.5	In-situ damping measurement test	90
7.	Installation	91
7.1	General	91
7.2	Shipment and storage of components	93
7.3	Assembly and installation	94
7.4	Stressing and adjustment	96
7.5	Finishing works and corrosion protection	99
8.	Inspection, maintenance and repair	100
8.1	General	100
8.2	Initial inspection	102
8.3	Routine inspection	103
8.4	Detailed inspection	103
8.5	Exceptional inspection	105
8.6	Monitoring	105
8.7	Evaluation for results of inspection	105
8.8	Maintenance, repair, replacement and strengthening	106
9.	References and literature	107
9.1	References	107
9.2	Standards	107
9.3	Extended literature	110