

ISO 11031:2016-08 (E)

Cranes - Principles for seismically resistant design

Contents		Page
Foreword		iv
Introduction		v
1	Scope	1
2	Normative references	1
3	Symbols	1
4	Seismic design methods	2
5	Seismic design by Modified Seismic Coefficient Method	3
5.1	General	3
5.2	Calculation of horizontal seismic design coefficient, KH	3
5.2.1	General	3
5.2.2	Determination of normalized basic acceleration, Abg	3
5.2.3	Determination of subsoil amplification factor, 2	4
5.2.4	Determination of acceleration response factor, 3	5
5.3	Calculation of vertical seismic design coefficient, KV	8
5.4	Calculation of seismic design loads	8
5.4.1	Calculation of seismic accelerations	8
5.4.2	Calculation of seismic forces	9
6	Seismic design based on Maximum Response Spectrum Method	9
6.1	General	9
6.2	Calculation procedure for total seismic response (TSR)	10
7	Combinations of seismic and non-seismic effects	11
7.1	General	11
7.2	Proof of static strength: load combinations in accordance with ISO 8686-1	11
7.3	Proof of static strength: load combination according to SRSS Method	12
7.4	Proof of global stability	12
7.5	Proof of competence for crane structures	13
Annex A (informative)	Flow chart of seismic design	14
Annex B (informative)	Design accelerations and seismic zones	15
Annex C (informative)	Information about Maximum Response Method	32
Annex D (informative)	Time History Response Method and a comparison of different seismic methods available	35
Annex E (informative)	Relation between basic acceleration, Mercalli and Richter scales	38
Annex F (informative)	Vertical seismic intensity	39
Bibliography		40