

DIN EN 16851:2017-06 (E)

Cranes - Light crane systems

	Contents	Page
European foreword	5	
Introduction	6	
1 Scope	7	
2 Normative references	7	
3 Terms and definitions	9	
4 List of significant hazards	11	
5 Safety requirements and/or protective measures	16	
5.1 General	16	
5.2 Aluminium structures	17	
5.2.1 General	17	
5.2.2 Products and materials	17	
5.2.3 Proof of static strength	18	
5.2.4 Proof of fatigue strength	18	
5.2.5 Proof of elastic stability	19	
5.3 Actions on supporting structures	19	
5.4 General components	19	
5.4.1 Joints in crane tracks, crane bridges and monorails	19	
5.4.2 Suspensions	20	
5.4.3 Bridge skewing	20	
5.4.4 Backup devices for trolleys and suspensions	20	
5.4.5 Turntables and switches	20	
5.4.6 Interlock	21	
5.4.7 Loading/unloading station	22	
5.4.8 Telescopic and cantilevered crane systems	22	
5.4.9 Trolleys	23	
5.4.10 End stops and motion limiters	23	
5.4.11 Power supply	24	
5.5 Tandem operation of cranes/trolleys from a single control station	24	
5.6 Use of multiple lifting devices	24	
5.7 Man-machine interface	24	
5.7.1 Control devices and control stations	24	
5.7.2 Horizontal speeds	24	
5.7.3 Guarding and access	25	
5.7.4 Lighting	26	
5.7.5 Reduction of noise by design	26	
5.8 Equipment for warning	27	
5.8.1 General	27	
5.8.2 Warning markings	27	
5.8.3 Cableless control warning light	27	
5.8.4 Location of the visual display unit	27	
5.9 Safety related functions of control systems	27	
6 Fitness for purpose testing	28	
6.1 Functional test	28	
6.2 Static test	28	

6.3	Dynamic test	29
7	Information for use	29
7.1	General	29
7.2	Operator's manual	29
7.3	User's manual	30
7.3.1	General	30
7.3.2	Instructions for installation	30
7.3.3	Instructions for maintenance	32
7.4	Marking of rated capacities	33
Annex A (informative) Guidance for specifying the operating duty		34
Annex B (normative) Actions on supporting structures and installation dimensions		35
B.1	Loads and load combinations	35
B.2	Jib cranes	36
B.2.1	Pillar jib crane	36
B.2.2	Wall-mounted jib crane	37
B.3	Suspended light crane systems	38
B.4	Free-standing systems	39
Annex C (normative) Noise test code		40
C.1	General	40
C.2	Description of machinery family	41
C.3	Determination of a conventional emission sound pressure level by calculation	41
C.3.1	Principle of the method	41
C.3.2	Calculation	41
C.4	Determination of emission sound pressure level at control stations and other specified positions and determination of sound power level by measurement	43
C.4.1	Measurement method and points	43
C.4.1.1	Measurement of sound pressure level at working positions	43
C.4.1.2	Determination of sound power level or sound pressure level at determined positions	44
C.4.2	Installation and mounting conditions	44
C.4.3	Operating conditions	45
C.4.3.1	General	45
C.4.3.2	Hoisting and traversing	45
C.4.3.3	Travelling	45
C.5	Uncertainties	46
C.6	Information to be recorded	46
C.7	Information to be reported	46
C.8	Declaration and verification of noise emission values	46
Annex D (informative) Selection of a suitable set of European Standards for cranes in a given application		48
Annex ZA (informative) Relationship between this European Standard and the essential requirements of Directive 2006/42/EC aimed to be covered		50
Bibliography		51