

This is a preview of "ISO 8686-1:2012". [Click here to purchase the full version from the ANSI store.](#)

Second edition
2012-12-15

Cranes — Design principles for loads and load combinations —

Part 1: General

*Appareils de levage à charge suspendue — Principes de calcul des
charges et des combinaisons de charge —*

Partie 1: Généralités



Reference number
ISO 8686-1:2012(E)

© ISO 2012

This is a preview of "ISO 8686-1:2012". Click here to purchase the full version from the ANSI store.



COPYRIGHT PROTECTED DOCUMENT

© ISO 2012

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

This is a preview of "ISO 8686-1:2012". Click here to purchase the full version from the ANSI store.

Contents

	Page
Foreword	iv
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols	2
5 General	2
5.1 General principles	2
5.2 Methods of proof of competence calculations	3
5.3 Assessment of loads	3
5.4 Categories of loads	4
6 Loads and applicable factors	4
6.1 Regular loads	4
6.2 Occasional loads	9
6.3 Exceptional loads	10
6.4 Miscellaneous loads	13
7 Principles of choice of load combinations	13
7.1 Basic considerations	13
7.2 Load combinations during erection, dismantling and transport	17
7.3 Application of Table 3	17
7.4 Partial safety factors for the proof of rigid body stability	20
Annex A (normative) Application of allowable stress method and limit state method of design	21
Annex B (informative) General guidance on application of dynamic factors ϕ	26
Annex C (informative) Example of model for estimating value of dynamic factor ϕ_4 for cranes travelling on rails	27
Annex D (informative) Example of determination of loads caused by acceleration	31
Annex E (informative) Example of method for analysing loads due to skewing	40
Annex F (informative) Illustration of types of hoist drives	46
Bibliography	49

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 8686-1 was prepared by Technical Committee ISO/TC 96, *Cranes*, Subcommittee SC 10, *Design — Principles and requirements*.

This second edition cancels and replaces the first edition (ISO 8686-1:1989), which has been technically revised.

ISO 8686 consists of the following parts, under the general title *Cranes — Design principles for loads and load combinations*:

- *Part 1: General*
- *Part 2: Mobile cranes*
- *Part 3: Tower cranes*
- *Part 4: Jib cranes*
- *Part 5: Overhead travelling and portal bridge cranes*