
**Cranes — Stiffness — Bridge and gantry
cranes**

*Appareils de levage à charge suspendue — Rigidité — Ponts et
portiques roulants*



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2007

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

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 22986 was prepared by Technical Committee ISO/TC 96, *Cranes*, Subcommittee SC 9, *Bridge and gantry cranes*.

This document is a preview generated by EVS

Cranes — Stiffness — Bridge and gantry cranes

1 Scope

This International Standard gives recommendations and requirements for the stiffness properties of the structures for bridge and gantry cranes in terms of deflections and natural frequencies.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 4306-1, *Cranes — Vocabulary — Part 1: General*

ISO 4306-5, *Cranes — Vocabulary — Part 5: Bridge and gantry cranes*

3 Terms and definitions

For the purposes of this document, the terms and definitions in ISO 4306-1 and ISO 4306-5 apply.

4 Requirements

4.1 General

The effect of flexibility is demonstrated as elastic deformations under load and as vibrations induced by motion or force transients.

Excessive flexibility of structures and mechanical components of cranes can affect their safe use; therefore, elastic deformations and vibrations should be limited so that they do not cause dangerous situations, nor prevent the crane from being used in the intended manner.

The requirements concerning the elastic deformations and vibrations depend upon the configuration of the crane and stem from the required accuracy of load handling, type and performance of the control system and location of the control station. However, the increased stiffness means increased investment costs and possibly larger space requirements, which may not be worthwhile in all applications. Furthermore, possibilities to eliminate flexibility depend very much on the type and configuration of the crane. Therefore, no exact limits are given for the deflections or the vibrations.

4.2 Basic requirements for elastic deformation

The elastic deformations of the crane structure shall not

- a) cause collision of the crane or crab/trolley with other surrounding objects and structures,
- b) prevent the crab/trolley from moving and braking with the designed drive/braking system with any load not exceeding the dynamic test load,