BS ISO 10972-1:2025

BSI Standards Publication

Cranes — Requirements for mechanisms

Part 1: General

Documents
Document Sharing Hub

Full document details: BS ISO 10972-1:2025

National foreword

This British Standard is the UK implementation of ISO 10972-1:2025. It supersedes BS ISO 10972-1:1998, which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee MHE/3/3, Bridge, gantry and slewing jib cranes.

A list of organizations represented on this committee can be obtained on request to its committee manager.

Contractual and legal considerations

This publication has been prepared in good faith, however no representation, warranty, assurance or undertaking (express or implied) is or will be made, and no responsibility or liability is or will be accepted by BSI in relation to the adequacy, accuracy, completeness or reasonableness of this publication. All and any such responsibility and liability is expressly disclaimed to the full extent permitted by the law.

This publication is provided as is, and is to be used at the recipient's own risk.

The recipient is advised to consider seeking professional guidance with respect to its use of this publication.

This publication is not intended to constitute a contract. Users are responsible for its correct application.

© The British Standards Institution 2025
Published by BSI Standards Limited 2025

ISBN 978 0 539 26037 3

ICS 53.020.20

Compliance with a British Standard cannot confer immunity from legal obligations.

This British Standard was published under the authority of the Standards Policy and Strategy Committee on 28 February 2025.

Amendments/corrigenda issued since publication

Date	Text affected

Documents
Document Sharing Hub

International Standard

ISO 10972-1

Second edition
2025-02

Cranes — Requirements for mechanisms —

Part 1: General

Appareils de levage à charge suspendue — Prescriptions pour les mécanismes —

Partie 1: Généralités

Reference number
ISO 10972-1:2025(en)

© ISO 2025

Documents
Document Sharing Hub

Full document details: BS ISO 10972-1:2025

COPYRIGHT PROTECTED DOCUMENT

© ISO 2025

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Documents
Document Sharing Hub
Full document details: BS ISO 10972-1:2025

Contents

Page

Foreword ... **iv**
Introduction ... **v**
1 Scope ... **1**
2 Normative references ... **1**
3 Terms and definitions ... **2**
4 General ... **3**
4.1 Design criteria ... 3
4.1.1 General design and layout ... 3
4.1.2 Criteria for strength of components ... 3
4.2 Power ... 3
4.3 Couplings ... 4
4.3.1 General ... 4
4.3.2 Clutches ... 4
4.4 Brakes ... 4
4.4.1 General ... 4
4.4.2 Hoist brake ... 5
4.4.3 Travel and slewing brake ... 5
4.5 Out-of-service requirements ... 5
4.6 Hydraulic and pneumatic systems ... 5
4.6.1 General ... 5
4.6.2 Hydraulic reservoir ... 6
4.6.3 Filters ... 6
4.6.4 Installation ... 6
4.7 Gear drives ... 6
4.7.1 Strength requirements ... 6
4.7.2 Gears ... 7
4.7.3 Gear enclosures ... 7
4.7.4 Bearings and supports ... 7
4.8 Rope drive requirements ... 8
4.8.1 General ... 8
4.8.2 Drums ... 8
4.8.3 Sheaves ... 8
4.8.4 Ropes ... 9
4.9 Chain drive requirements ... 9
4.9.1 General ... 9
4.9.2 Chains ... 9
4.9.3 Chain guides ... 9
4.9.4 Chain mountings ... 9
4.10 Shafts ... 10
4.11 Load lifting attachment requirements ... 10
4.11.1 General ... 10
4.11.2 Hooks ... 10
5 High-risk applications ... **11**
5.1 General ... 11
5.2 Additional requirements for the transportation of hot molten metal or similar hazardous materials ... 11
5.2.1 Rope drives ... 11
5.2.2 Rope systems ... 11
5.2.3 Other requirements ... 11
Bibliography ... **12**

© ISO 2025 – All rights reserved

Documents
Document Sharing Hub
Full document details: BS ISO 10972-1:2025

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

ISO draws attention to the possibility that the implementation of this document may involve the use of (a) patent(s). ISO takes no position concerning the evidence, validity or applicability of any claimed patent rights in respect thereof. As of the date of publication of this document, ISO had not received notice of (a) patent(s) which may be required to implement this document. However, implementers are cautioned that this may not represent the latest information, which may be obtained from the patent database available at www.iso.org/patents. ISO shall not be held responsible for identifying any or all such patent rights.

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

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

This second edition cancels and replaces the first edition (ISO 10972-1:1998), which has been technically revised.

The main changes are as follows:

— in 4.4, the requirement for cranes intended for transportation of molten metals or similar hazardous materials has been moved to a new Clause 5;

— in 4.8, the requirement of rope drives has been revised according to ISO 16625;

— in 4.11, the requirement of load lifting attachment has been revised according to EN 13135:2013+A1:2018;

— a new Clause 5 on high-risk applications has been added.

A list of all parts in the ISO 10972 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

© ISO 2025 – All rights reserved

Documents
Document Sharing Hub
Full document details: BS ISO 10972-1:2025

Introduction

This document establishes design requirements and guidance that reflect the present state of the art in the field of crane machine design. This document enables cranes to fulfil the essential safety requirements and ensures adequate service of their components. It is acknowledged that new technologies, materials, etc. can bring about new solutions that result in equal or improved safety and durability.

© ISO 2025 – All rights reserved

Documents
Document Sharing Hub
Full document details: BS ISO 10972-1:2025