

BS 7121-2-4:2013



BSI Standards Publication

Code of practice for the safe use of cranes

Part 2-4: Inspection, maintenance and thorough examination – Loader cranes

Publishing and copyright information

The BSI copyright notice displayed in this document indicates when the document was last issued.

© The British Standards Institution 2013

Published by BSI Standards Limited 2013

ISBN 978 0 580 79129 1

ICS 53.020.20

The following BSI references relate to the work on this document:

Committee reference MHE/3/11

Draft for comment 13/30264261 DC

Publication history

First published July 2013

Amendments issued since publication

Date	Text affected
-------------	----------------------

Contents

Foreword *ii*

Introduction *1*

- 1** Scope *1*
- 2** Normative references *1*
- 3** Terms and definitions *1*
- 4** General *2*
- 5** Personnel carrying out pre-use checks, in-service inspections, maintenance and thorough examinations *2*
- 6** Pre-use checks and in-service inspections *2*
- 7** Maintenance of loader cranes *5*
- 8** Thorough examination of loader cranes *8*
- 9** Overload testing and dynamic testing of loader cranes, and measurement of sink rate *16*
- 10** Non-destructive testing of loader cranes to supplement thorough examination *18*
- 11** Assessment of wire rope condition and discard criteria *20*

Annexes

Annex A (informative) Example of a pre-use checklist for a loader crane and for a lorry loader *21*

Annex B (informative) In-service inspection – Example of additional checks to be carried out in addition to pre-use checks, at intervals of 1 week to 1 month *22*

Annex C (informative) In-service inspection – Example of checklist for in-service inspections at intervals of 3 months to 6 months *23*

Annex D (informative) Example of an in-service inspection checklist for a loader crane attachment *25*

Annex E (informative) Stress concentration points in loader cranes *26*

Bibliography *27*

List of figures

Figure 1 – Areas to be subjected to NDT *20*

Figure E.1 – Stress concentration points on a loader crane *26*

Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 28, an inside back cover and a back cover.

Foreword

Publishing information

This sub-part of BS 7121-2 is published by BSI Standards Limited, under license from the British Standards Institution and came into effect on 31 July 2013. It was prepared by Subcommittee MHE/3/11, *Crane safety and testing*, under the authority of Technical Committee MHE/3, *Cranes and derricks*. A list of organizations represented on these committees can be obtained on request to their secretary.

Supersession

Together with BS 7121-2-1, BS 7121-2-3, BS 7121-2-5 and BS 7121-2-7, this sub-part of BS 7121-2 supersedes BS 7121-2:2003, which will be withdrawn when all these sub-parts have been published.

Relationship with other publications

The BS 7121 series is being revised. The following new sub-parts of BS 7121-2 have been published or are in preparation.

- Part 2-1: *Inspection, maintenance and thorough examination – General;*
- Part 2-3: *Inspection, maintenance and thorough examination – Mobile cranes;*
- Part 2-4: *Inspection, maintenance and thorough examination – Loader cranes;*
- Part 2-5: *Inspection, maintenance and thorough examination – Tower cranes;*
- Part 2-7: *Inspection, maintenance and thorough examination – Overhead travelling cranes including portal and semi-portal cranes, hoists, and their supporting structures;*
- Part 2-9: *Inspection, maintenance and thorough examination – Cargo handling and container cranes.*

When all sub-parts of BS 7121-2 have been published, it is intended that CP 3010 will be withdrawn and BS 5744 will be revised to cover manually operated and light cranes only.

This sub-part of BS 7121-2 is intended to be used in conjunction with BS 7121-2-1.

Information about this document

The Health and Safety Executive (HSE) commends the use of this British Standard to those who have duties under the Health and Safety at Work etc. Act 1974 [1]. This standard was drawn up with the participation of HSE representatives and it will be referred to in the relevant HSE publications.

The BS 7121-2 series has been accepted by the HSE as representing the consensus of opinion based on practical experience for safety of cranes.

Hazard warnings

WARNING. This British Standard calls for the use of procedures that can be injurious to health if adequate precautions are not taken. It refers only to technical suitability and does not absolve the user from legal obligations relating to health and safety at any stage.

Use of this document

As a code of practice, this sub-part of BS 7121-2 takes the form of guidance and recommendations. It should not be quoted as if it were a specification and particular care should be taken to ensure that claims of compliance are not misleading.

Any user claiming compliance with this sub-part of BS 7121-2 is expected to be able to justify any course of action that deviates from its recommendations.

It has been assumed in the preparation of this British Standard that the execution of its provisions will be entrusted to appropriately qualified and experienced people, for whose use it has been produced.

Presentational conventions

The provisions of this standard are presented in roman (i.e. upright) type. Its recommendations are expressed in sentences in which the principal auxiliary verb is "should".

Commentary, explanation and general informative material is presented in smaller italic type, and does not constitute a normative element.

Contractual and legal considerations

This publication does not purport to include all the necessary provisions of a contract. Users are responsible for its correct application.

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

Particular attention is drawn to the following specific regulations:

- Health and Safety at Work etc. Act 1974 [1];
- Lifting Operations and Lifting Equipment Regulations (LOLER) 1998 [2];
- Provision and Use of Work Equipment Regulations (PUWER) 1998 [3];
- Supply of Machinery (Safety) Regulations 2008 (as amended) [4];
- Road Vehicles (Construction and Use) Regulations 1986 (as amended) [5];
- Road Traffic Act 1991 [6];
- Work at Height Regulations 2005 (as amended) [7].

NOTE Details of the Lifting Operations and Lifting Equipment Regulations 1998 [2] and the Provision and Use of Work Equipment Regulations 1998 [3], together with an HSE Approved Code of Practice and HSE Guidance, are given in HSE publications Safe use of lifting equipment [8] and Safe use of work equipment [9].

Introduction

Loader cranes have traditionally been used to load and unload vehicles on which they are mounted, These vehicles, complete with the crane, being referred to as "lorry loaders". Increasingly loader cranes are being used in place of mobile or overhead cranes.

Loader cranes can be installed in a static location, for instance on a quay, in a factory or on the roof of a building.

1 Scope

This sub-part of BS 7121-2 gives recommendations for the pre-use checks, in-service inspection, maintenance, thorough examination (in service and following exceptional circumstances) and supplementary testing of loader cranes.

This sub-part of BS 7121-2 also covers lifting accessories, attachments and interchangeable equipment that may be used in conjunction with loader cranes, such as brick grabs, muck grabs, augers, clamshells, pallet forks, wire rope hoists, fly jibs, magnets, vacuum lifters, manipulators, integrated man baskets and spreaders.

This sub-part of BS 7121-2 is applicable both to lorry loaders and to loader cranes used in other situations.

This sub-part of BS 7121-2 does not cover the stability testing and certification immediately following installation of loaders cranes on vehicles, or in static locations. This is covered by BS EN 12999.

This sub-part of BS 7121-2 is not applicable to lorry loaders or loader cranes on marine and other water-borne vessels.

2 Normative references

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

BS 7121-2-1:2012, *Code of practice for safe use of cranes – Part 2-1: Inspection, maintenance and thorough examination – General*

BS ISO 4309:2010, *Cranes – Wire ropes – Care and maintenance, inspection and discard*

3 Terms and definitions

For the purposes of this sub-part of BS 7121-2, the terms and definitions apply given in BS 7121-2-1:2012 and the following apply.

3.1 loader crane

powered crane comprising a column which slews about a base, and a boom system which is attached onto the top of the column

3.2 lorry loader

commercial vehicle or trailer, fitted with a loader crane, which normally has a load-carrying capability