

INTERNATIONAL  
STANDARD

ISO  
15871

First edition  
2000-09-15

---

---

**Industrial trucks — Specification for  
indicator lights for container handling and  
grappler arm operations**

*Chariots de manutention — Spécifications relatives aux voyants lumineux  
pour la manutention de conteneurs et les opérations de bras de grappin*

STANDARDSISO.COM : Click to view the full PDF on ISO 15871:2000



Reference number  
ISO 15871:2000(E)

© ISO 2000

**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.

STANDARDSISO.COM : Click to view the full PDF of ISO 15871:2000

© ISO 2000

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.ch](mailto:copyright@iso.ch)  
Web [www.iso.ch](http://www.iso.ch)

Printed 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 3.

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 International Standard may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

International Standard ISO 15871 was prepared by Technical Committee ISO/TC 110, *Industrial trucks*, Subcommittee SC 2, *Safety of powered industrial trucks*.

STANDARDSISO.COM : Click to view the full PDF of ISO 15871:2000



# Industrial trucks — Specification for indicator lights for container handling and grapple arm operations

## 1 Scope

This International Standard specifies requirements for indicator lights to show the status of freight-container-handling spreaders and grapple arms.

This International Standard is applicable to

- a) container-handling spreaders with twistlocks for handling unladen and/or laden freight containers,
- b) grapple (bottom lift) arms for handling semi-trailers and swap bodies,

when fitted to

- counterbalanced lift trucks, with masts, as defined in 3.1.3.1.1 of ISO 5053:1987,
- single side-loading trucks as defined in 3.1.3.1.7 of ISO 5053:1987,
- rough terrain trucks, with masts, as defined in 3.1.3.1.8 of ISO 5053:1987, or
- variable-reach trucks.

## 2 Normative reference

The following normative document contains provisions which, through reference in this text, constitute provisions of this International Standard. For dated references, subsequent amendments to, or revisions of, any of these publications do not apply. However, parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the normative documents indicated below. For undated references, the latest edition of the normative document referred to applies. Members of ISO and IEC maintain registers of currently valid International Standard.

ISO 5053:1987, *Powered industrial trucks — Terminology*.

## 3 Terms and definitions

For the purposes of this International Standard the following terms and definitions apply.

### 3.1

#### **variable-reach trucks**

counterbalanced lift trucks with telescopic booms, as defined in 4.13.2.2.2 of ISO 5053:1987, for stacking loads

### 3.2

#### **light “on”**

illumination from the indicator continuous with respect to time and at full output

**3.3**

**light “flashing”**

illumination from the indicator nominally equally divided between the conditions of light "on" and light "off"

**3.4**

**light “off”**

no illumination from the indicator

**3.5**

**non-reflective shield**

device to minimize stray light from an unrelated source that would make the indicator light simulate an unintended "on" condition

**3.6**

**arms clamped**

load-engaging part of the grappler arm in full horizontal contact with the load

**3.7**

**foot seated**

load-engaging part of the grappler arm in full vertical contact with the load

**3.8**

**arm fully up**

grappler arm raised to its highest position to provide clearance over the top of the load

**3.9**

**arm fully down**

grappler arm completely lowered and ready to engage the load

## 4 Requirements

NOTE To minimize the number of lights required, three conditions of the light are employed: “off”, “flashing” and “on”.

### 4.1 Freight-container-handling spreaders

NOTE See 4.3.1 for location of indicator lights. See Table 1 for a tabular presentation of 4.1.1 and 4.1.2.

#### 4.1.1 Twistlocks located in the freight container

When all the twistlocks are fully located in the freight container corner pockets, orange light Y shall be “on”. When the freight container is lifted, this light shall go “off”.

#### 4.1.2 Twistlocks locked/unlocked

When all the twistlocks are fully unlocked, the red light R shall be “on”.

In any intermediate position of the twistlocks, the red light R may be "flashing". Provision of this "flashing" red light is optional.

When all the twistlocks are fully locked in the freight container corner pockets, the green light G shall be “on”.

Table 1 — Handling freight containers by twistlocks

Twistlock position	Colour of light	Mode of operation of light		Comment
		On	Flashing	
Seated in container	Orange	X		
Fully unlocked	Red	X		
Neither locked nor unlocked	Red		X	Fitment optional
Fully locked	Green	X		

## 4.2 Grappler arms

NOTE See 4.3.1 for location of indicator lights. See Table 2 for tabular presentation of 4.2.1.1 to 4.2.1.4.

### 4.2.1 Arms

NOTE Normally indication by lights is only necessary for the front arms which are out of sight of the operator (for additional lights see 4.4).

#### 4.2.1.1 Front arms fully up

When both front arms are fully up, the white light W shall be "on".

#### 4.2.1.2 Front arms fully down and fully unclamped

When both front arms are fully down and fully unclamped, the yellow light Y shall be "on".

#### 4.2.1.3 Front arms fully down and partially clamped

When both front arms are fully down and neither clamped nor unclamped, the yellow light Y shall be "on" and the red light R may be "flashing". Provision of this "flashing" red light condition is optional.

#### 4.2.1.4 Front arms fully down and fully clamped

When both arms are fully down, fully clamped and seated, the green light shall be "on".

Table 2 — Handling loads by grappling arms

Arm position	Colour of light	Mode of operation of light		Comment
		On	Flashing	
Front arms fully up	White	X		
Front arms fully down and fully unclamped	Yellow	X		
Front arms fully down and neither clamped nor unclamped	Yellow Red	X	X	Fitment optional
Front arms fully down, fully clamped and seated	Green	X		

**4.3 Details of indicator lights**

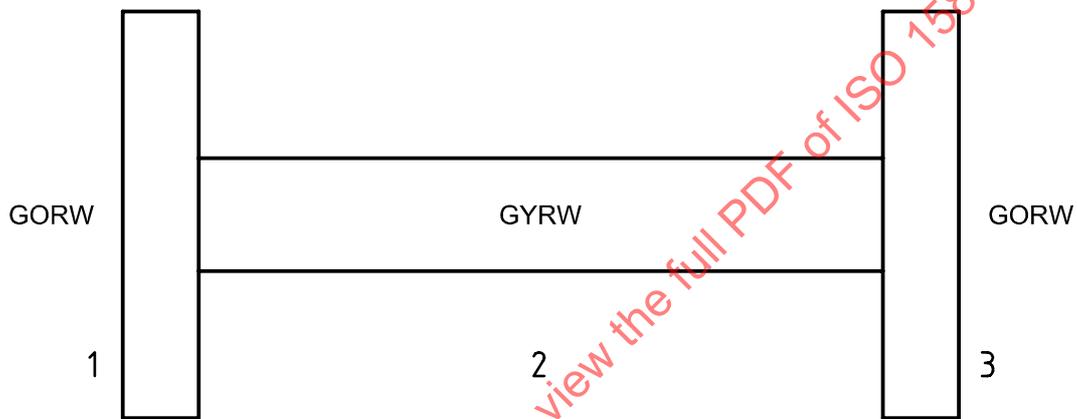
**4.3.1 Location**

**4.3.1.1** Indicator lights shall be mounted in a position visible to the operator in his normal operating position. A non-reflective shield may be necessary.

**4.3.1.2** If fitted on the freight-container-handling spreader or grapples arms, the relative position of the lights to one another shall be as shown in Figure 1.

Lights within, or adjacent to, the operator's position shall be in the same relative positions.

**4.3.1.3** The light displays may be duplicated to indicate the status at each end of the handling attachment, or quadrupled to show the status at each corner of the attachment. The relative positioning shall correspond to that of the function(s) that they are indicating.



**Key**

- 1 Left
- 2 Rear (truck side)
- 3 Right

NOTE G = green; O = orange; R = red; W = white; Y = yellow.

**Figure 1 — Relative positions of the lights**

**4.3.2 Size, power and frequency of the indicator lights**

**4.3.2.1 Indicator lights on freight-container-handling spreader or grapples arms**

These lights shall have a minimum area of 1 200 mm<sup>2</sup> and shall have a minimum electrical power of 20 W.

**4.3.2.2 Indicator lights at the operator's position**

These lights shall have a minimum area of 200 mm<sup>2</sup> and shall have a minimum electrical power of 2 W.

**4.3.2.3 Frequency**

If flashing lights are used, their flash frequency shall be between 120 and 180 flashes per minute.