



**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 22419-2023

**Industrial trucks - Specifications for indicator lights for
container handling and grapple arm operations**

工业车辆 集装箱吊具和抓臂操作指示灯技术要求

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Foreword

This document was issued on 17 March 2023 by the State Administration for Market Regulation; Standardization Administration of the PRC and takes effect on 1 October 2023.

It is a GB/T standard: recommended rather than compulsory, but it is the text a Chinese reviewer applies when assessing a submission.

1 Scope

GB/T 22419-2023 covers the indicator lights that tell an industrial truck operator what a freight container handling spreader or a grapple arm is doing. Three working states carry the whole scheme - light off, light flashing and light on, with 'on' defined as a continuous glow at full power - and the general rules adopt those three states deliberately, in order to hold down the number of separate lamps a cab has to carry. Requirements are then given for freight container handling spreaders and for the grapple arm in turn, with a clause on the lights themselves and a further clause on optional additional lights on the grapple arm. The document has no normative references and closes with a bibliography. An operator handling containers works several metres away from the point of contact and cannot read the state of the attachment directly, so the lamp is the indication acted on; when two machines use the same lamp to mean different things, the habit built on one becomes a mistake on the next. Of use to lift truck and reach stacker manufacturers, attachment builders, port and terminal operators, and engineers laying out a cab.

This document specifies the requirements for indicator lights used to indicate the status of

freight container handling spreader and grappler arm.

This document is applicable to:

- a) Container handling spreaders, with twist locks, for handling unloaded and / or loaded freight containers;
- b) Grappler arms (bottom-gripping) for handling semi-trailers and swap bodies.

These handling spreaders and grappler arms are equipped on the following trucks:

- counterbalance lift trucks, with masts, as defined in 3.3 in ISO 5053-1:2015;
- rough terrain trucks, with masts, as defined in 3.7 in ISO 5053-1:2015;
- non-stacking low-lift straddle carriers, as defined in 3.18 in ISO 5053-1:2015;
- stacking high-lift straddle carriers, as defined in 3.19 in ISO 5053-1:2015;
- variable-reach trucks, as defined in 3.20 in ISO 5053-1:2015;
- rough-terrain variable-reach trucks, as defined in 3.21 in ISO 5053-1:2015;
- variable-reach container handlers, "reach stackers", as defined in 3.23 in ISO 5053-1:2015;
- counterbalance container handlers, as defined in 3.24 in ISO 5053-1:2015.

2 Normative References

This document does not have normative references.

3 Terms and Definitions

The following terms and definitions are applicable to this document.

3.1 light "on"; "on"

Light "on" / "on" means the indicator light continuously glows at full power.

3.2 light "flashing"; "flashing"

Light "flashing" / "flashing" refers to the luminance state of the indicator light alternately changes between "on" and "off" at an equal pre-determined time.

3.3 light "off"; "off"

Light "off" / "off" means the indicator light does not glow.

3.4 non-reflective shield

Non-reflective shield refers to a device that prevents scattered light from irrelevant light

sources

from causing the indicator light to be mistakenly deemed as turned "on".

3.5 clamped

Clamped means there is complete contact between the gripping part of the grapple arm and the

load in the horizontal direction.

3.6 seated

Seated means there is complete contact between the gripping part of the grapple arm and the

load in the vertical direction.

3.7 fully up

Fully up means the grapple arm is lifted to its highest position to ensure that there is clearance

on top of the load.

3.8 fully down

Fully down means the grapple arm is fully lowered and ready to grip the load.

4 Requirements

4.1 General Rules

In order to reduce the number of indicator lights required, three working states are adopted for

the indicator lights: light "off", light "flashing" and light "on".

4.2 Freight Container Handling Spreaders

4.2.1 General rules

The location of the indicator lights is shown in 4.4.1. A tabular presentation of 4.2.2 and 4.2.3

is shown in Table 1.

1---left;

2---rear (one side of the truck);

3---right.

NOTE: G represents green; O represents orange; R represents red; W represents white; Y

represents

yellow.

Figure 1 -- Relative Positions of Indicator Lights

4.4.2 Size, power, luminous intensity and flashing frequency of indicator lights

4.4.2.1 Indicator lights on freight container handling spreader or grappler arm

The minimum area of the indicator lights shall be 1,200 mm². For incandescent lamps, the minimum power shall be 20 W. For other types of light sources, for example, LED, the minimum luminous intensity shall be 20 cd.

4.4.2.2 Indicator lights at the operator's position

The minimum area of the indicator lights shall be 200 mm². For incandescent lamps, the minimum power shall be 2 W. For other types of light sources, for example, LED, the minimum

luminous intensity shall be 2 cd.

4.4.2.3 Flashing frequency

If a flashing indicator light is installed, its flashing frequency shall be 120 times/min ~ 180 times/min.

4.5 Optional Additional Indicator Lights on the Grappler Arm

4.5.1 If necessary, an indicator light may be installed on the grappler arm, or at or near the operator's position to indicate the status of the rear arm. At this moment, the indicator light shall comply with the stipulations of 4.3.2.1 ~ 4.3.2.4, and its position shall be lower or closer

to the operator than the indicator light on the front arm.

4.5.2 Any other indicator lights shall be determined by the related parties through negotiation.

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