



# FEM

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Product Group/  
**MEWP**  
mobile elevating work platforms  
Subgroup elevating equipment



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## Traffic lights functionality in a Vehicle Loading Dock Area

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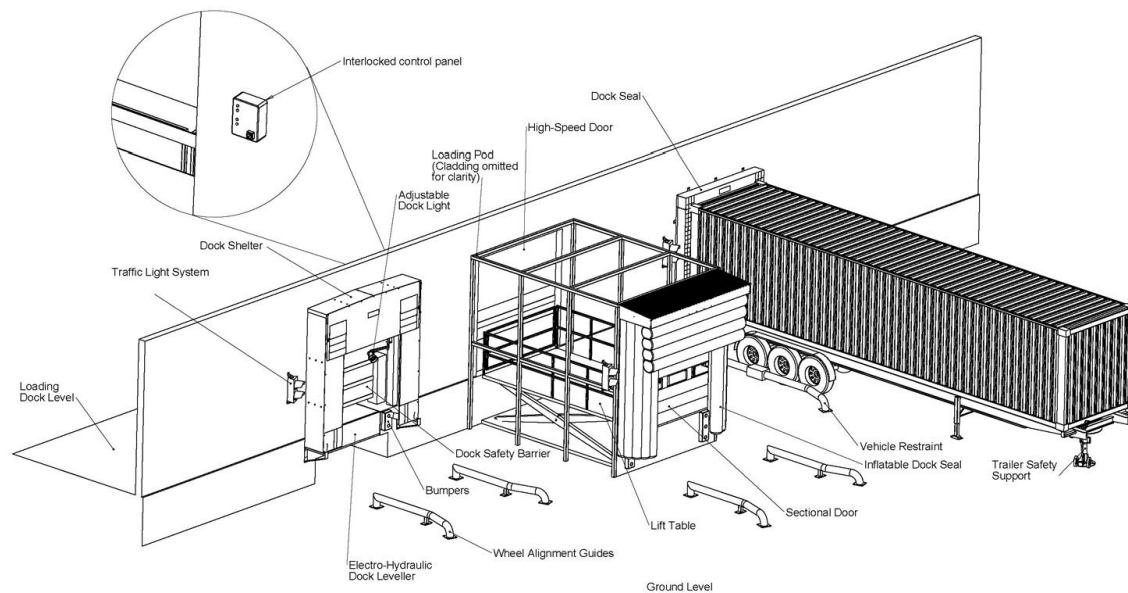
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## 1. What is a loading / unloading dock?

A loading/unloading area is an area within a building or facility where vehicles are loaded and unloaded, where a height differential exists.

The vehicles are normally loaded/unloaded with either; a dock leveller, scissor lift or bridging plate. There is a height differential between outside yard height, and the inside building floor level. The loading/unloading application takes place on/around the envelope of the building.

Normally a door is installed in this area. This door can be hand operated or power driven. For extra safety measures hand operated wheel chocks (with or without a sensor for wheel detection) or automated restraint can be present.



## **2. Intention of this guideline**

The intention of this guideline is to create an unambiguous functionality of traffic lights around a loading and unloading dock for users, truck drivers, designers, investors and suppliers.

This guideline will make it possible to reduce the misinterpretation of traffic lights, thus reducing the risk of accidents.

This document is not exhaustive; new products may be released to provide alternative solutions at any time.

Note that this document does not include specific details relating to the operation/maintenance of equipment. All solutions proposed must be operated and maintained in accordance with suppliers' recommendations to remain effective.

## **3. Traffic light installation**

Basically, traffic lights are always mounted outside of the building. Optionally, traffic lights for inside can be added.

### **3.1 outside traffic lights**

Traffic lights installed outside will inform the truck driver about the status of the loading dock.

These traffic lights should be installed on the common driver side of the specific country, next to the dock as close as possible.

The installation height and the light intensity must be in line with the visual possibilities of the truck driver.

### **3.2 inside traffic lights**

Traffic lights installed inside the building inform the loading and unloading staff about the status of the dock.

These traffic lights should be installed on the same side as from where the dock is operated.

The installation height and the light intensity must be in line with the visual possibilities of the staff.

## 4. Design philosophy of traffic lights

Not every colour of the traffic light is needed f.i. only red or green or the combination red and green or red and amber are also possible. The amber light may be replaced by a blinking green light.

The following rules are applied to the traffic light installation:

### 4.1. outside traffic lights

- Green: The dock is ready for use and moving of the truck is allowed
- Amber (or green blinking): (If the approach system is installed) The truck is approaching and almost in position
- Amber (or green) blinking: Wheel chock or other manual blocking element has to be removed, if installed
- Red: Moving of the truck is not allowed and, if the approach system is installed, the truck is in correct position
- Red blinking: The truck is in correct position, but repositioning is allowed

### 4.2. inside traffic lights

- Red: Door may not be opened, dock is not ready for use
- Red blinking: could be used for an error status and could be combined with an audible signal
- Amber (or green blinking): it is allowed to operate the door (truck is in correct position and / or secured if “Dock approach system” and / or “Notification system truck is in position” is installed)
- Green: Door is open, leveller out of resting position and the truck is secured with a restraint or wheel chock and monitored: It may be assumed that it is safe to use the dock leveller.

## 5. Devices at the loading bay

Different elements can be used at the loading bay. Below a list of the most common elements which are relevant for the functions of the traffic lights:

- Dock leveller with sensor for resting position
- Dock door (power operated or manual)
- Wheel chock with sensor or wheel restraint (with or without interlock function)
- Dock approach system or another notification confirming that the truck is in correct position

# Annex A: Design table of possible combinations

It is conceivable that further devices will be added in the future

## Overview of the functions of the traffic lights at specific status on a loading dock

| Door only                    |               |                   | Outside |       |       | Inside |       |       |
|------------------------------|---------------|-------------------|---------|-------|-------|--------|-------|-------|
| Status                       | door released | Leveller released | Red     | Amber | Green | Red    | Amber | Green |
| Door not in use and no truck | yes           | n.a.              | ☒       | ☒     | ✓     | ☒      | ☒     | ☒     |
| Door open                    | yes           | n.a.              | ✓       | ☒     | ☒     | ☒      | ☒     | ☒     |
| Door closed, truck may leave | yes           | n.a.              | ☒       | ☒     | ✓     | ☒      | ☒     | ☒     |

| Dock leveller + Door                               |               |                   | Outside |       |       | Inside |       |       |
|--|---------------|-------------------|---------|-------|-------|--------|-------|-------|
| Status   | door released | Leveller released | Red     | Amber | Green | Red    | Amber | Green |
| Door not in use and no truck                       | yes           | no                | ☒       | ☒     | ✓     | ☒      | ☒     | ☒     |
| Door open  | yes           | yes               | ✓       | ☒     | ☒     | ☒      | ☒     | ☒     |
| Dock leveller out of resting position or door open | no            | yes               | ✓       | ☒     | ☒     | ☒      | ☒     | ☒     |
| Door closed, truck may leave                       | yes           | no                | ☒       | ☒     | ✓     | ☒      | ☒     | ☒     |

| Dock leveller + Door + Notification truck is in correct position |               |                   | Outside |       |       | Inside |       |       |
|--|---------------|-------------------|---------|-------|-------|--------|-------|-------|
| Status   | door released | Leveller released | Red     | Amber | Green | Red    | Amber | Green |
| Not in use and no truck  | no            | no                | ☒       | ☒     | ✓     | ✓      | ☒     | ☒     |
| Notification truck in position with closed door                  | yes           | no                | ✓       | ☒     | ☒     | ☒      | ☒     | ☒     |
| Door open  | yes           | yes               | ✓       | ☒     | ☒     | ☒      | ✓     | ☒     |
| Dock leveller out of resting position                            | no            | yes               | ✓       | ☒     | ☒     | ☒      | ✓     | ☒     |
| Dock leveller in resting position                                | yes           | yes               | ✓       | ☒     | ☒     | ☒      | ✓     | ☒     |
| Door closed, truck may leave                                     | yes           | no                | ☒       | ☒     | ✓     | ✓      | ☒     | ☒     |

| Dock leveller + Door + Wheel check or other manual blocking element |               |                   | Outside |          |       | Inside |       |       |
|---|---------------|-------------------|---------|----------|-------|--------|-------|-------|
| Status  | door released | Leveller released | Red     | Amber    | Green | Red    | Amber | Green |
| Door not in use and no truck  | no            | no                | ☒       | ☒        | ✓     | ✓      | ☒     | ☒     |
| Truck is secured with closed door                                   | yes           | no                | ✓       | ☒        | ☒     | ☒      | ☒     | ☒     |
| Door open   | yes           | yes               | ✓       | ☒        | ☒     | ☒      | ✓     | ☒     |
| Dock leveller out of resting position                               | no            | yes               | ✓       | ☒        | ☒     | ☒      | ☒     | ✓     |
| Dock leveller in resting position                                   | yes           | yes               | ✓       | ☒        | ☒     | ☒      | ✓     | ☒     |
| Door closed   | yes           | no                | ☒       | blinking | ☒     | ✓      | ☒     | ☒     |
| Chock is removed, truck may leave                                   | no            | no                | ☒       | ☒        | ✓     | ✓      | ☒     | ☒     |

| Dock leveller + Door + Power operated wheel restraint |               |                   | Outside |       |       | Inside |       |       |
|---|---------------|-------------------|---------|-------|-------|--------|-------|-------|
| Status  | door released | Leveller released | Red     | Amber | Green | Red    | Amber | Green |
| Door not in use and no truck                          | no            | no                | ☒       | ☒     | ✓     | ✓      | ☒     | ☒     |
| Restraint in operation for securing the truck         | no            | no                | ✓       | ☒     | ☒     | ✓      | ☒     | ☒     |
| Truck is secured with closed door                     | yes           | no                | ✓       | ☒     | ☒     | ☒      | ✓     | ☒     |
| Door open   | yes           | yes               | ✓       | ☒     | ☒     | ☒      | ✓     | ☒     |
| Dock leveller out of resting position                 | no            | yes               | ✓       | ☒     | ☒     | ☒      | ☒     | ✓     |
| Dock leveller in resting position                     | yes           | yes               | ✓       | ☒     | ☒     | ☒      | ✓     | ☒     |
| Door closed   | yes           | no                | ☒       | ☒     | ☒     | ✓      | ☒     | ☒     |
| Restraint in operation for releasing the truck        | no            | no                | ✓       | ☒     | ☒     | ✓      | ☒     | ☒     |
| Restraint is removed, truck may leave                 | no            | no                | ☒       | ☒     | ✓     | ✓      | ☒     | ☒     |

| Dock leveller + Door + Dock approach system + Notification truck is in correct position |               |                   | Outside |       |       | Inside |       |       |
|---|---------------|-------------------|---------|-------|-------|--------|-------|-------|
| Status  | door released | Leveller released | Red     | Amber | Green | Red    | Amber | Green |
| Door not in use and no truck  | no            | no                | ☒       | ☒     | ✓     | ✓      | ☒     | ☒     |
| Truck approaching   | no            | no                | ☒       | ☒     | ☒     | ✓      | ☒     | ☒     |
| Notification truck in position with closed door   | yes           | no                | ✓       | ☒     | ☒     | ☒      | ✓     | ☒     |
| Door open   | yes           | yes               | ✓       | ☒     | ☒     | ☒      | ✓     | ☒     |
| Dock leveller out of resting position   | no            | yes               | ✓       | ☒     | ☒     | ☒      | ✓     | ☒     |
| Dock leveller in resting position   | yes           | yes               | ✓       | ☒     | ☒     | ☒      | ✓     | ☒     |
| Door closed   | yes           | no                | ☒       | ☒     | ☒     | ✓      | ☒     | ☒     |
| Truck has left the dock   | no            | no                | ☒       | ☒     | ✓     | ✓      | ☒     | ☒     |

| Dock leveller + Door + Dock approach system + Notification truck is in correct position + Wheel check or other manual blocking element |               |                   | Outside |          |       | Inside |       |       |
|--|---------------|-------------------|---------|----------|-------|--------|-------|-------|
| Status   | door released | Leveller released | Red     | Amber    | Green | Red    | Amber | Green |
| Door not in use and no truck   | no            | no                | ☒       | ☒        | ✓     | ✓      | ☒     | ☒     |
| Truck approaching  | no            | no                | ☒       | ☒        | ☒     | ✓      | ☒     | ☒     |
| Notification truck in position with closed door  | no            | no                | ✓       | ☒        | ☒     | ☒      | ☒     | ☒     |
| Truck is secured with closed door  | yes           | no                | ✓       | ☒        | ☒     | ☒      | ☒     | ☒     |
| Door open  | yes           | yes               | ✓       | ☒        | ☒     | ☒      | ✓     | ☒     |
| Dock leveller out of resting position  | no            | yes               | ✓       | ☒        | ☒     | ☒      | ☒     | ✓     |
| Dock leveller in resting position  | yes           | yes               | ✓       | ☒        | ☒     | ☒      | ✓     | ☒     |
| Door closed  | yes           | no                | ☒       | blinking | ☒     | ✓      | ☒     | ☒     |
| Chock is removed, truck may leave  | no            | no                | ☒       | ☒        | ✓     | ✓      | ☒     | ☒     |

| Dock leveller + Door + Dock approach system + Notification truck is in correct position + Power operated wheel restraint |               |                   | Outside |       |       | Inside |       |       |
|--|---------------|-------------------|---------|-------|-------|--------|-------|-------|
| Status   | door released | Leveller released | Red     | Amber | Green | Red    | Amber | Green |
| Door not in use and no truck   | no            | no                | ☒       | ☒     | ✓     | ✓      | ☒     | ☒     |
| Truck approaching  | no            | no                | ☒       | ☒     | ☒     | ✓      | ☒     | ☒     |
| Notification truck in position with closed door  | no            | no                | ✓       | ☒     | ☒     | ☒      | ☒     | ☒     |
| Automatic restraint in operation for securing the truck  | no            | no                | ✓       | ☒     | ☒     | ☒      | ☒     | ☒     |
| Truck is secured with closed door  | yes           | no                | ✓       | ☒     | ☒     | ☒      | ☒     | ☒     |
| Door open  | yes           | yes               | ✓       | ☒     | ☒     | ☒      | ✓     | ☒     |
| Dock leveller out of resting position  | no            | yes               | ✓       | ☒     | ☒     | ☒      | ☒     | ✓     |
| Dock leveller in resting position  | yes           | yes               | ✓       | ☒     | ☒     | ☒      | ✓     | ☒     |
| Door closed  | yes           | no                | ☒       | ☒     | ☒     | ✓      | ☒     | ☒     |
| Automatic restraint in operation for releasing the truck   | no            | no                | ✓       | ☒     | ☒     | ✓      | ☒     | ☒     |
| Restraint or chock is removed, truck may leave   | no            | no                | ☒       | ☒     | ✓     | ✓      | ☒     | ☒     |

The recommendations and advice contained in this Guidance Note are based on specifications, procedures and other information that have been collected from the FEM from its members. They represent what is, as far as FEM is aware, the best available data at the time of publication on the instruction and use of the equipment concerned in the general conditions described and are intended to provide guidance for such use.

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