



# FEM

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Product Group /  
**Industrial Trucks**



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(1st Edition)

Guidance on the Classification of  
Attachments for Industrial Trucks  
according to Machinery Directive  
2006/42/EC

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## 1. Introduction

The issue theme of the correct classification of attachments for handling loads intended for coupling with industrial trucks has often generated interpretative doubts. There have been numerous discussions and documentations produced on the subject by the European Commission's Machinery Committee.

## 2. Scope

With this document FEM intends to propose, on the basis of the documentation available to date and the technical knowledge of its members (industrial trucks manufacturers and attachment manufacturers), a correct classification of these attachments with reference to the applicable legislation.

This document refers only to attachments for self-propelled industrial trucks covered by the standards EN ISO 3691-1 and EN ISO 3691-2.

This document does not provide information on attachments for rough-terrain variable reach trucks.

## 3. Normative References

- EN ISO 3691-1:2015/A1:2020 Industrial trucks - Safety requirements and verification - Part 1: Self-propelled industrial trucks, other than driverless trucks, variable-reach trucks and burden-carrier trucks
- EN ISO 3691-2:2016 Industrial trucks - Safety requirements and verification - Part 2: Self-propelled variable-reach trucks
- ISO 2328:2011 Fork-lift trucks -- Hook-on type fork arms and fork arm carriages -- Mounting dimensions

## 4. Terms and Definitions

### 4.1. Attachment

Device that is mounted to an industrial truck to allow an alternative way for load handling with the lifting system.

### 4.2. Type of Mechanical Mounting of the Attachment with the Truck

#### 4.2.1. Removable Attachment<sup>1</sup>

Attachment mounted by the user or manufacturer onto an industrial truck fork carrier, without requiring the disassembly of any other portion of the lifting system to install or remove, to allow an alternative way for load handling with the lifting system and to return to standard configuration [1] par. 3.2.

The carrier interface can be standardized (fig.1 according to ISO 2328) or not standardized (fig. 2 e.g. T-West / Pin-Type etc.).

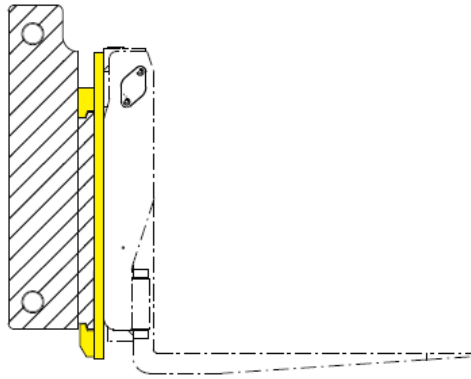


Figure 1: Standardized carrier interface according to ISO 2328

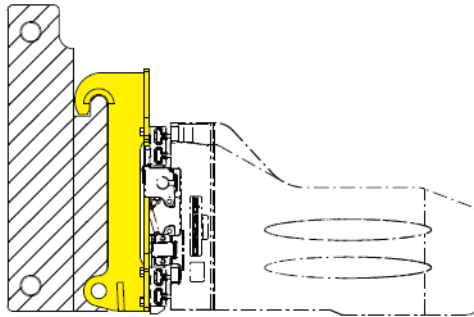


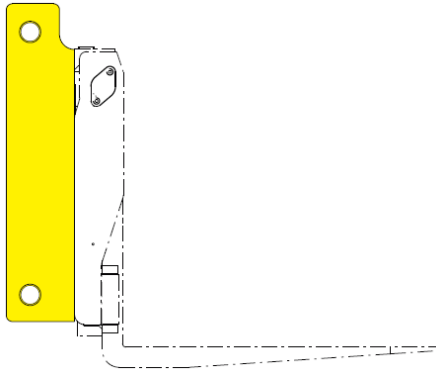
Figure 2: Non-standardized carrier interface

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<sup>1</sup> Also known as “Hook-on Attachment”

#### 4.2.2. Integrated Attachment

Device that is built into a lifting system of an industrial truck for use only in one application and changes have need of reference to the industrial truck manufacturer [1] par. 3.3



*Figure 3: Example of Integrated Attachment Interface*

#### 4.2.3. Fork Mounted Attachment

Device added by the user or manufacturer onto an industrial truck fork arm(s) to allow an alternative way for load handling with the lifting system and to return to standard configuration [1] par. 3.4



*Figure 4: Typical fork mounted attachment interface*

### 4.3. Normative Designation

Depending on the type and the characteristic function, the attachments can be classified in the following categories, according to the provisions of the Machinery Directive 2006/42/EC [2]<sup>2</sup>:

#### 4.3.1. Interchangeable Equipment

Table 1: Interchangeable Equipment

| Definition   | CE Marking to Machinery Directive 2006/42/EC Required | Indications to be provided with the instructions   |
|--|---|--|
| Device which, after the putting into service of machinery or of a tractor, is assembled with that machinery or tractor by the operator himself in order to change its function or attribute a new function, in so far as this equipment is not a tool (European Commission, Directive 2006/42/EC). Art.2 b | YES   | The manufacturer of the interchangeable equipment shall specify in the instructions on which trucks the equipment can be assembled and used safely, referring to the technical characteristics of the truck or, where appropriate, to specific models of trucks. He must also provide the necessary instructions for the assembly and safe use of the interchangeable equipment. (European Commission, Guide to application of the Machinery Directive 2006/42/EC - Edition 2.2, 2019) §41 |

#### 4.3.2. Part of the machine (= Integrated Attachment)

Table 2: Part of the machine

| Definition  | CE Marking to Machinery Directive 2006/42/EC Required                     | Indications to be provided with the instructions        |
|---|---|---|
| Attachment mounted on a machine by the industrial truck manufacturer or by the distributor with the approval of the industrial truck manufacturer when the industrial truck is placed on the market and which is not intended to be replaced by the operator. | Not necessary for the device. Covered by the CE marking of the machinery. | Provided with the instructions of the industrial truck. |

#### 4.3.3. Tool

Table 3: Tool

| Definition   | CE Marking to Machinery Directive 2006/42/EC Required | Indications to be provided with the instructions  |
|--|---|---|
| Devices that do not modify or bring a new function to the base machine. These tools are not covered by the Machinery Directive (although the machine manufacturer is required to specify the essential characteristics of the tools that can be mounted on the machine). | NO  | Purpose, limits, and methods of use, according to the specifications given by the truck manufacturer. |

<sup>2</sup> Attachment can be subject also to other European Directives and Regulations (eg. EMC, ATEX) which are not considered because out of the scope of this guideline.

#### 4.3.4. Load support

Table 4: Load Support

| Definition   | CE Marking to Machinery Directive 2006/42/EC Required | Indications to be provided with the instructions                                      |
|--|---|---|
| <p>Load support is a type of work equipment not covered by the Machinery Directive 2006/42/EC. This static device is not assembled to the basic machine but simply lifted from the same as part of the load even if equipped with systems to prevent the device from slipping or falling from the forks. Such equipment is considered as part of the load.</p> | NO  | Purpose, limits, and methods of use provided by the manufacturer of the load support. |

#### 4.3.5. Lifting Accessory

Table 5: Lifting Accessory

| Definition  | CE Marking to Machinery Directive 2006/42/EC Required | Indications to be provided with the instructions   |
|---|---|--|
| <p>A component or equipment not attached to the lifting machinery, allowing the load to be held, which is placed between the machinery and the load or on the load itself, or which is intended to constitute an integral part of the load and which is independently placed on the market. (European Commission, Directive 2006/42/EC) Art.2 d</p> | YES   | <p>4.4.1 Each lifting accessory or each commercially indivisible batch of lifting accessories must be accompanied by instructions setting out at least the following particulars: (a) the intended use; (b) the limits of use; (c) instructions for assembly, use and maintenance; (d) the static test coefficient used. (European Commission, Directive 2006/42/EC) Annex I 4.4.1</p> |

## 5. Attachments Classification Table – According to Functionality and Type of Mechanical Connection with the Truck

Table 6 shows the most known attachments. However, it is not possible to illustrate all the different variations for families of attachments, due to many variations in the individual types of equipment and the future development of new combinations between them. Therefore, this document represents and/or describes only the typical ones. Where available, definitions have been taken from ISO 5053-2:2019 [1].










The symbol  indicates that a CE Marking on the attachment is required.



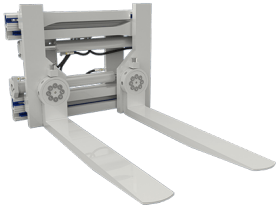


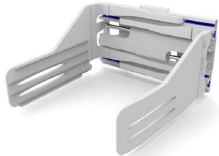








The symbol  indicates that a CE Marking on the attachment is NOT required.

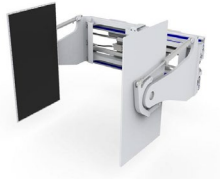










Table 6: Attachments Classification Table According to Functionality and Type of Mechanical Connection with the Truck

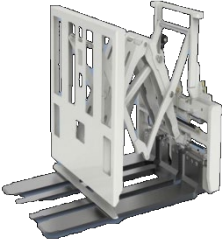


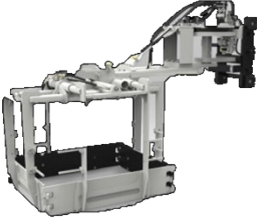





| NR. | DEVICE/FUNCTION   | TYPE OF MECHANICAL CONNECTION  |   |              | MAIN CHARACTERISTIC MOVEMENTS <sup>3</sup>                | NOTES   |
|-----|---|--|---|--------------|---|---|
|     |   | REMOVABLE  | INTEGRATED  | FORK MOUNTED |   |   |
| 1   | SIDE SHIFT (SINGLE, MULTIPLE)<br>  | Interchangeable Equipment<br> | Part of the truck<br> | N/A          | Lateral movement with fixed fork centre distance.         | Hydraulic connection  |
| 2   | FORK POSITIONER<br><br> | Interchangeable Equipment<br> | Part of the truck<br> | N/A          | Variation of the distance between the forks without load. | Hydraulic connection<br><br>Unless otherwise specified, this device is not suitable for clamping loads between the forks. |








<sup>3</sup> Combination with other movements possible.

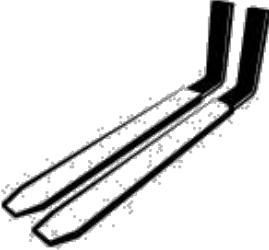





|   |   |  |   |            |                                     |                             |
|---|---|--|---|------------|-------------------------------------|-----------------------------|
| 3 | <p>FORK CLAMP</p>            | <p>Interchangeable Equipment</p>    | <p>Part of the truck</p>    | <p>N/A</p> | <p>Clamping, possible rotation.</p> | <p>Hydraulic Connection</p> |
| 4 | <p>BALE CLAMP</p>            | <p>Interchangeable Equipment</p>    | <p>Part of the truck</p>    | <p>N/A</p> | <p>Clamping between jaws</p>        | <p>Hydraulic connection</p> |
| 5 | <p>ROLL CLAMP</p>           | <p>Interchangeable Equipment</p>   | <p>Part of the truck</p>   | <p>N/A</p> | <p>Clamping, possible rotation</p>  | <p>Hydraulic connection</p> |
| 6 | <p>TURNING FORK CLAMP</p>  | <p>Interchangeable Equipment</p>  | <p>Part of the truck</p>  | <p>N/A</p> | <p>Rotation</p>                     | <p>Hydraulic connection</p> |








|   |   |  |   |     |   |                      |
|---|---|--|---|-----|---|----------------------|
| 7 | <p>FRONT ROTATION (OVERTURNING) OF THE LOAD <sup>4</sup></p>                     | <p>Interchangeable Equipment</p>    | <p>Part of the truck</p>    | N/A | Clamping, side shifting and overturning. Possible rotation.               | Hydraulic connection |
| 8 | <p>FRONT ROTATION (OVERTURNING) OF THE ENTIRE STRUCTURE THAT HOLDS THE LOAD</p>  | <p>Interchangeable Equipment</p>    | <p>Part of the truck</p>    | N/A | Clamping, side shifting and overturning. Possible rotation.               | Hydraulic connection |
| 9 | <p>REACH ATTACHMENT</p>    | <p>Interchangeable Equipment</p>  | <p>Part of the truck</p>  | N/A | Extension. Possible side shifting, inclination, positioning of the forks. | Hydraulic connection |




<sup>4</sup> Attachment not included in ISO 5053-2:2019 Industrial trucks — Vocabulary — Part 2: Fork arms and attachments

|    |   |  |   |     |  |   |
|----|---|--|---|-----|--|---|
| 10 | <p>PUSH/PULL ATTACHMENT</p>    | <p>Interchangeable Equipment</p>    | <p>Part of the truck</p>    | N/A | <p>Load pushing and pulling. Possible side shifting and positioning of the forks.</p>                          | <p>Hydraulic connection</p>                       |
| 11 | <p>LAYER PICKER</p>    | <p>Interchangeable Equipment</p>    | <p>Part of the truck</p>    | N/A | <p>Clamping and rotation on a horizontal plane. Possible side shifting.</p>                                    | <p>Hydraulic connection</p>                       |
| 12 | <p>THREE WAY ATTACHMENT<br/>(front and right &amp; left side)</p>  | <p>Interchangeable Equipment</p>  | <p>Part of the truck</p>  | N/A | <p>Side shifting, rotation on a horizontal plane. Possible lifting, inclination, positioning of the forks.</p> | <p>Hydraulic connection, possibly electrical.</p> |

|    |   |  |     |  |                                      |                      |
|----|---|--|-----|--|--------------------------------------|----------------------|
| 13 | <p>LOAD STABILISER</p>                                   | <p>Interchangeable Equipment</p>  | N/A | N/A  | Compression. Possible side shifting. | Hydraulic connection |
| 14 | <p>BOOM<br/>(carpets, skeins of rows, rings, pipes)</p>  | <p>Tool</p>                       | N/A | <p>Tool</p>           | /                                    |                      |
| 15 | <p>FORK ARM EXTENSION</p>                               | N/A  | N/A | <p>Load Support</p>  | /                                    |                      |

|    |  |  |     |              |                      |   |
|----|--|--|-----|--------------|----------------------|---|
| 16 | <p>TELESCOPIC FORK<br/>ARM</p>        | <p>Interchangeable<br/>Equipment</p>  | N/A | N/A          | Extension.           | Hydraulic<br>connection   |
| 17 | <p>TILTING CONTAINER<sup>5</sup></p>  | <p>Load support</p>                   | N/A | Load Support | Frontal overturning. | <p>Hand or manual<br/>operated tilting<br/>only, may be<br/>supported by<br/>gravity.</p> <p>Hydraulic<br/>connection, for<br/>power operated<br/>tilting container</p> |
| 18 | <p>CONTAINER<sup>5</sup></p>        | N/A  | N/A | N/A          | /                    | <p>Load support<br/>resting on the<br/>forks</p>                                   |

|    |   |  |     |  |  |  |
|----|---|--|-----|--|--|--|
| 19 | <p>PALLET<sup>5</sup></p>  | N/A  | N/A | N/A  | /  | <p>Load support resting on the forks</p>  |
| 20 | <p>BUCKET</p>              | <p>Interchangeable Equipment</p>  | N/A | <p>Interchangeable Equipment</p>  | <p>Frontal overturning and material picking.</p> | <p>Hydraulic connection, for power operated Bucket only</p>  |
| 21 | <p>DRUM CLAMP</p>         | N/A  | N/A | <p>Lifting Accessory</p>         | <p>Clamp of drum loads.</p>                      |  |

|    |   |  |     |  |   |   |
|----|---|--|-----|--|---|---|
| 22 | <p><b>WORK PLATFORM NOT INTEGRATED WITH THE TRUCK CONTROL SYSTEM</b></p> <p>(Europea, Guide to application of the Machinery Directive 2006/42/EC - Edition 2.2, 2019) §416 part 2</p>  | <p>Load Support<br/>(European Commission, Guide to application of the Machinery Directive 2006/42/EC - Edition 2.2, 2019) § 416 part 2</p>  | N/A | <p>Load Support<br/>(European Commission, Guide to application of the Machinery Directive 2006/42/EC - Edition 2.2, 2019) § 416 part 2</p>  | / | <p>Hydraulic connection for fixation (clamp) on the forks and/or for additional supply is possible.</p> <p><a href="#">FEM 4.006 Guideline</a> defines the specifications related to the special features of work platforms intended for exceptional use and specifies the conditions under which they may be operated in combination with industrial trucks.</p> <p>National Legislation has to be considered in addition for the use of this attachment</p> |
|----|---|--|-----|--|---|---|



## 6. Bibliography

[1] ISO TC 110. SC1, ISO 5053-2:2019 Industrial trucks — Vocabulary — Part 2: Fork arms and attachments, 2019.

[2] European Commission, Directive 2006/42/EC.

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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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