

Types of forklift truck (FLT)

Type 1:
Front loader



Type 2:
Reach truck



Type 3:
Order picker



Type 4:
Logistic train



Type 5:
Side loader without seat (with
drivers platform)
 $V_{max} > 6 \text{ km/h}$



Pallet trucks with drivers platform $V_{max} < 6 \text{ km/h}$ see PPT

Type 6
Driverless transport system



| FSS 3 Rev. 04 No. | Mandatory requirement | Safety objective | Decision based on the RA | Mandatory retrofitting (required from revision) | Remarks | Applies to |
|-------------------|--|---|--------------------------|---|---|---------------------|
| 1 | Adjustable speed limiting facility in accordance with the maximum speed limit specified for the pertinent type of vehicle in section 7.1.3 of FSS 3. | a) Traffic safety b) Reduction of vibration load | | Mandatory retrofitting 3 years after the FSS comes into force | | Types 1 to 6 |
| 2 | Front and rear turn signal flashers with acoustic signal for the driver to indicate that the flashers are switched on. | Signals to pedestrians and other industrial truck drivers / operators that the FLT is about to turn off. | | Revision 0 by the end of 2007 | Mandatory for type 1. Other types: decision on use based on the risk assessment (RA) | Type 1 |
| 3 | Overhead guard | To protect the driver against falling loads | | Revision 0 by the end of 2004 | | Types 1, 2, 3 and 5 |
| 4 | Driver restraint system (cab, safety belt, roll bar system) | To protect the driver and prevent him falling out of the truck if it overturns. | | Revision 0 by the end of 2004 | | Type 1 |
| 5 | Headlights and tail lamps switched on automatically as running lights. | Pedestrians notice industrial trucks in good time. Industrial truck drivers / operators notice one another more easily, e.g. in overhead mirrors, and are in a better position to determine the direction in which the other vehicle is moving (color of the front and rear lamps). | x | Revision 0 by the end of 2007 | Mandatory for type 1. Other types: decision on use based on the RA | Type 1 |
| 6 | Roof-mounted warning beacon / flashing alarm lamp that lights up automatically when the FLT starts to move. | Attracts the attention of pedestrians and other outsiders. | | (Revision 2) | | Types 1 to 5 |
| 7 | Brake lights | Signals to pedestrians and other industrial truck drivers / operators that the FLT is slowing down. | x | Revision 0 by the end of 2007 | Mandatory for type 1. Other types: decision on use based on the RA | Type 1 |
| 8 | Obstacle scanner for reversing, with acoustic or visual warning signal for the driver. The demand for a collision avoidance system for the surrounding space may be fulfilled as an alternative. | Warns the driver of obstacles or pedestrians standing in or moving into the danger zone behind the FLT; the detection / alarm range must be > the industrial truck's braking distance.. | x | (Revision 0) | Decision in favor of acoustic and/or visual based on the RA. | Type 1 |

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|----|--|--|---|---|--|------------------|
| 9 | Acoustic and/or visual signal (blue spot) when reversing. | Warns pedestrians with a high, frequently changing noise level with a function that automatically adjusts the volume to the ambient sound level. | x | (Revision 2) | Decision in favor of acoustic and/or visual signal based on the RA. | Type 1 |
| 10 | Panoramic mirror with 180° viewing angle or camera | Prevents obstacles / vehicles / pedestrians being overlooked in the blind spot. | x | Revision 0 by the end of 2004 | Decision in favor of mirror or camera based on the RA. | Type 1 |
| 11 | Dynamic lowering brake valves in the hydraulic system. | Prevents uncontrolled lowering of the load if a line or hose ruptures. | | (Revision 0) | | Types 1, 2 and 5 |
| 12 | The tilting angle adjustment available to the vehicle is reduced when the load is raised. | Prevents the load tipping over as a result of the fork boom tilting too quickly. | | (Revision 0) | Mandatory for FLT's, which put goods into storage in bays that are ≥ 2 meters above the ground. | Types 1, 2 and 5 |
| 13 | The exhaust brake must be allowed to take effect. No free-wheeling. | FLT decelerates if the driver's foot slips off the pedal. | | (Revision 0) | | Types 1 to 5 |
| 14 | a) HORN ON if the FLT is switched off without the handbrake being applied. Alternatives: - Vehicles are equipped with spring-loaded brakes - Vehicles are equipped with automatic parking brake systems | a) Warns of inadvertent "rolling away" | | Mandatory retrofitting 3 years after the FSS comes into force | | Types 1 to 5 |
| 15 | Automatic driver's seat occupancy detection system | This feature ensures that the vehicle is completely immobilized if the driver's seat is not occupied (with a minimum weight of 40 kg, for example). The system also influences the automatic parking brake (engaging / releasing). | | Mandatory retrofitting 3 years after the FSS comes into force | | Type 1 |
| 16 | EMERGENCY STOP function for electric (battery-powered) FLT's. | Central deactivation of all functions in an emergency. | | (Revision 0) | | Types 1 to 5 |
| 17 | Catalytic converters / filters for diesel / gas engines | Health and environmental protection (emissions) | | (Revision 0) | | Type 1 |
| 18 | Chip access control systems (transponder) | Prevents unauthorized use | | Mandatory retrofitting 3 years after the FSS comes into force | The system may also be used to ensure that timely instruction is assured and to renew the annual authorization document. | Types 1 to 5 |

| FSS 3 Rev. 04 No. | Extended requirement | Safety objective | Decision based on the RA | Mandatory retrofitting | Remarks | Applies to |
|-------------------------|--|--|--------------------------|------------------------|---|------------------|
| 1 | Front and rear turn signal flashers with acoustic signal for the driver to indicate that the flashers are switched on. | Signals to pedestrians and other industrial truck drivers / operators that the vehicle is about to turn off. | x | | Decision based on the RA according to use / application | Types 2 to 5 |
| 2 | Electric drives given precedence over internal combustion engines (ICEs). | Health and environmental protection (emissions) | x | | The need to drive through enclosed spaces shall be taken into account in the risk assessment. | |
| 3 | Rotating driver's seat, ergonomic design. | Ergonomical posture for the driver | | | | Type 1 |
| 4 | Hydraulic side loading fork slide adjustment (lateral fork movement). | | | | | Type 1+ 2 |
| 5 | 3-wheel or 4-wheel chassis | | x | | Decision based on the RA | Type 1 |
| 6 | Visual signal (blue spot) when driving forwards | Warns pedestrians in areas with reduced visibility that an industrial truck is approaching. | x | | Need for this evaluated on the basis of the RA | Types 1 to 5 |
| 7 | Telescopic forks | TO load and unload trucks safely | x | | | Types 1, 2 and 5 |