

Load lifting equipment used to lift workers

National Practices when using a forklift truck

Machex Sub-WG Cyprus, Italy, Poland, Portugal, Spain, Sweden, United Kingdom, Greece

Objective

As agreed at the 70th Meeting of the Committee of Senior Labour Inspectors (SLIC) (NL, 18th May 2016) the working group "Load lifting equipment used to lift workers" will compile national practices and list the requirements for the exceptional use of equipment designed to handle loads in the lifting of workers.

The concept of "exceptional use" is not part of this document since it is defined according to national practices.



The sub WG decided to study only with the lifting of workers with a forklift truck.

In the 2016 MACHEX meeting the minimum technical requirements in the use of cranes to lift workers were presented. The essential safety requirements for such (exceptional) operations are listed below:

1. Redundant disk brake;
2. Redundant safety limiters;
3. De-rate crane load capacity according to the charge diagram;
4. Manual disk brake release;
5. Reduce wind limit;
6. Wire rope control;
7. Operation of the crane from the basket and not from the operation cabin;
8. Operation at reduced speed.

The discussion that followed showed no consensus on this issue and some member states require CE marked equipment for the lifting of persons.

When member states were asked to share with the SubWG their national practices when using a crane, only 5 member states contributed. National practices were found on documents received from IT (referring to ISO 12480 Annex C and EN 14502-1), SE and DE.

Besides risks are higher when lifting workers with a crane, because the platform is not guided, as in a forklift truck, but is suspended from ropes and chains. That is why sometimes member states also require an administrative authorization from the labour authority for these operations.

Legal background

"DIRECTIVE 2009/104/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 September 2009 concerning the minimum safety and health requirements for the use of work equipment by workers at work (second individual Directive within the meaning of Article 16(1) of Directive 89/391/EEC) (codified version)

ANNEX II - PROVISIONS CONCERNING THE USE OF WORK EQUIPMENT

3. Provisions concerning the use of work equipment for lifting loads

3.1.2. Persons may be lifted only by means of work equipment and accessories provided for that purpose.

Without prejudice to Article 5 of Directive 89/391/EEC¹, **exceptionally**, work equipment which is not specifically designed for the purpose of lifting persons may be used for that purpose, provided appropriate action has been taken to ensure safety in accordance with national legislation and/or practice providing for appropriate supervision.

While workers are on work equipment designed for lifting loads the control position must be manned at all times. Persons being lifted must have reliable means of communication. In the event of danger, there must be reliable means of evacuating them."

Requirements stated in the Directive

Number 1 – General Requirements

...provided appropriate action has been taken to **ensure safety** in accordance with national legislation and/or practice...

Number 2 – Supervision procedures

...provided appropriate action has been taken to ensure safety in accordance with national legislation and/or practice providing for **appropriate supervision**.

Number 3 – Operator must remain at the controls

While workers are on work equipment designed for lifting loads the **control position must be manned at all times**.

Number 4 – Communication procedures

¹ EMPLOYERS' OBLIGATIONS Article 5 General provision

1. The **employer** shall have a duty to ensure the safety and health of workers in every aspect related to the work.

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Persons being lifted must have **reliable means of communication**.

Number 5 – Emergency procedures

In the event of danger, there must be **reliable means of evacuating them**.

References, national legislation and / or practice

2006_42. (n.d.). *DIRECTIVE 2006/42/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 17 May 2006 on machinery, and amending Directive 95/16/EC (recast)* .

2009_104. (n.d.). *DIRECTIVE 2009/104/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 September 2009 concerning the minimum safety and health requirements for the use of work equipment by workers at work (second individual Directive within the meaning of Article 16(1)*.

ACT 2011. (n.d.). *Segurança de Máquinas e equipamentos de trabalho (PT)*.

AFS 2006:7. (n.d.). *Temporary Lifting of Persons Using Cranes or Trucks. Provisions issued by the Swedish Work Environment Authority (SE)*.

AT 2016. (n.d.). *Department of Occupational Safety in the Austrian Central-Labour-Inspectorate*.

CY 22.05.2015. (n.d.). *Work Equipment for Lifting Persons – Working Platforms to be assembled with or placed on Lifting Machinery (CY)*.

EN 14502-1. (n.d.). *EN 14502-1:2010 Cranes - Equipment for the lifting of persons - Part 1: Suspended baskets*.

EN 14502-2. (n.d.). *EN 14502-2:2005+A1:2008 Cranes - Equipment for the lifting of persons - Part 2: Elevating control stations*.

GR. (n.d.). *Presidential Decree No. 89/1999 and 70/1990*.

ISO 12480. (n.d.). *ISO 12480-1:1997 Cranes -- Safe use -- Part 1: General Annex C: raising or lowering of persons*.

L117. (n.d.). *Rider-operated lift trucks: Operator training and safe use. Approved Code of Practice and guidance*.

LOLER. (n.d.). *Lifting Operations and Lifting Equipment Regulations 1998 (UK)*.

LOLER, ACOP. (n.d.). *Lifting Operations and Lifting Equipment Regulations 1998. Approved Code of Practice and Guidance (UK)*.

NTP 955. (n.d.). *Plataformas para elevación de personas acopladas a equipos de elevación de cargas (ES)*.

NTP 956. (n.d.). *Plataformas para elevación de personas acopladas a equipos de elevación de cargas (ES)*.

PM28. (n.d.). *Lifting Operations and Lifting Equipment Regulations 1998: Approved Code of Practice and Guidance (LOLER ACOP L113) (2nd Edition, 2014) (UK)*.

PT 18.04.2012. (n.d.). *Procedure tecniche da seguire nel caso di sollevamento persone con attrezzature non previste a tal fine (IT)*.

TROS 2121 Part 4. (n.d.). *Technical Rules on Operational Safety (TROS) - Risks to persons due to falling - Lifting persons using work equipment not intended for this purpose (DE)*.

National Practices when using a forklift truck

Number 1 – General Requirements

Provided appropriate action has been taken to ensure safety in accordance with national legislation and/or practice. (PT 18.04.2012): Characteristics of the work equipment, work environment, staff and rules of use of the work equipment.

(2009_104) 3.1.2 Persons may be lifted only by means of work equipment and accessories provided for that purpose.

(LOLER, ACOP) Where it is reasonably practicable to obtain and use purpose-built equipment for lifting people, then you should use such equipment.

(NTP 955) The employers must use equipment especially designed for lifting persons (EC marked).

(PM28) Truck/platform suitability

UK (PM28) 16 It is essential that the working platform is compatible with the truck on which it is used. Before any combination is used for the first time the working platform and truck manufacturer/supplier must be consulted.

(AT 2016) Combination is permitted only for fork lifts when manufacturer of the fork lift has destined the use of a certain basket or a certain type of basket (must be mentioned in the manual of the fork lift or as an amendment to it). Otherwise a third party inspection has to assess the safe combination of fork lift and basket.

(AFS 2006:7) **Third party inspection** General Section 19 Any combination of base machine and personnel work basket shall, in order for its use for lifting persons to be permissible, be inspected as provided in Sections 22-25 and Annex B. Any combination of base machine and personnel work basket shall, in order for its use for lifting persons to be permissible, be inspected as third party inspection, according with ISO EN 17020. The combination shall then have been judged to afford adequate safety for use in lifting persons. If, furthermore, an inspection body has indicated that the assessment is only valid if certain specified deficiencies are remedied, those deficiencies shall have been remedied.

(LOLER, ACOP) 132 To prevent inadvertent operation, the operator should scotch or lock out the tilt mechanism when the equipment is to be used with a working platform.

DE (TROS 2121 Part 4.) Any displacement or sliding down is prevented by a positive connection behind the back of the fork or the fork arm carriage,

e.g. using shackles, catches, chains, bolts or push-in rods, which are secured against unintentional release.

(PM28) **Exclusions from use:** 37 Non-integrated working platforms are not suitable for use on:

- trucks that require manual sequencing of the lift/tilt controls to maintain the working platform horizontal while being lifted;
- trucks with masts that can give erratic movement, eg due to sequencing problems during lowering;
- trucks that have an actual capacity (paragraphs 10 and 11) of less than 1000 kg unless their stability has been verified by testing or calculation verified by empirical data (paragraph 38). (Note: Some truck types with an actual capacity of less than 1000 kg may be suitable for use with working platforms but the truck manufacturer must be consulted to ensure the stability of the truck/platform combination);
- variable reach trucks (telehandlers) that can lift to a nominal height greater **than 6 m**. (Note: The use of non-integrated platforms on rough terrain variable reach trucks requires extra care because of the rough terrain environment in which these machines are normally used and the nature of the pneumatic tyres fitted);
- pallet stackers with wrap-over type forks.;
- (AFS 2006:7) A truck shall have a vertical lifting frame which cannot be tilted more than 10° in relation to the horizontal plane. (Which excludes telescopic handlers. Manufacturers often provide models intended for lifting of persons. It is important that this type of regulations do not disturb the market for products intended for that).

(PM28) 23 Attachments and the following functions must not be capable of movement while the working platform is elevated:

- tilt or side shift;
- chassis or mast levelling;
- reach (reach trucks).

(LOLER, ACOP) 128. Equipment not designed to be used for lifting people should be derated:

- (AT 2016) Following safety factor must be ensured: Stability against break of suspension elements of the lifting frame: 10.0; Lifting and descending speed is limited to 0.5 m/s;
- (LOLER, ACOP) 128. Equipment not designed to be used for lifting people should be derated by 50%, i.e. have a factor of safety relating to strength of at least twice that required for general lifting operations.
- (AFS 2006:7) When persons are lifted by means of a truck, the combined weight of personnel work basket and the load in the same must not in any position exceed 25% of the truck's maximum load.
- (NTP 955) Forklift truck capacity must be, at least, five times the load to lift and never less of 1000 kg;

- (DE) (TROS 2121 Part 4.) The industrial truck must have sufficient carrying capacity. In the case of front-end fork lift trucks and fork lift reach trucks, the carrying capacity is deemed to be sufficient if the floor area of the work platform does not exceed the dimensions of a Euro pallet (1200 mm x 800 mm), the standing position of the person(s) carried is at the height of the fork arms and the carrying capacity of the fork lift truck, at the lifting height corresponding to the raised work platform, amounts to at least 5 times the combined weight of the empty weight of the work platform, the weight of the person(s) carried and the load

Use of Lift Truck

(LOLER, ACOP) 130 People should never be lifted on the fork arms or a pallet balanced on the fork arms of a lift truck because they can easily fall off. You should use a properly maintained purpose-built working platform with suitable edge protection and toe boards. This platform should be compatible with the lift truck on which it is fitted to ensure it is secure and stable in use, including when loaded with people, tools and materials. It should be effectively secured to the truck's elevating carriage or fork arms to prevent it being displaced or tipping unduly.¹³¹ People carried on a platform should be prevented from reaching any dangerous parts (e.g. the chains of the truck) by effective screens or guards. They should also be protected against any overhead hazards that might exist (e.g. from coming into contact with rafters, the ceiling, pipework or overhead plant).

(NTP 955) **Design of platform:**

Must be added information to identify the forklift truck that can be attached.

(PM28) 16 It is particularly important to ensure that:

- the truck/working platform combination has adequate **stability** under all circumstances in which it is intended to be used;
- the platform can be **securely attached** to the truck;
- people on the platform **cannot reach hazardous moving parts** or controls on the truck.

(NTP 955) Must be protected with fixed guards in the back according to EN ISO 14120 with right resistance and security distances according to EN ISO 13857 or EN 349. Platform must include a blocked device to ensure the stability in the fork. Platform must include anchor system for harness safety. Fix guards, intermediate guards and baseboards along of platform.

SE (SS 3628): Defines the requirements on railings, Height: 1-1,1 m, handrail mounted 0,1 m inside the outer contour, lower railing covering 0 - 0,1 m height, number of rails:3 or more

(AT 2016) Platform must be equipped with fixed guards in the back against reaching dangerous parts of the lifting frame, and guards (at least 1.75 m

high), roof (in case of risk through falling objects) and handrail. Secure access: dimension of door, door opens only to the inside.

Number 2 – Supervision procedures

...provided appropriate action has been taken to ensure safety in accordance with national legislation and/or practice providing for appropriate supervision.

(PM28) Securing the platform to the truck

22 **Pre-use checks** must be carried out by a **competent person** to ensure that the working platform is properly located and secured to the truck each time and before it is used.

(AT 2016) Third party inspection every year for fork lifts and baskets.

(NTP 955) (RD 39/97) The works with this types of equipment must be supervised or watch over) by workers with competencies in the companies to supervise dangerous works. We call them Safety experts.

(GR) Work must be carried out **after taking appropriate measures** under the guidance of the enterprise's Safety experts / Safety Officer, so as to ensure the workers' safety

(ACT 2011) In construction works / sites there must still be a specific plan for carrying out the works, duly approved by the works manager, pursuant to no. 1, article 12 Decree-Law no. 273/2003, of 29 October, indicating the safety measures to be adopted for execution of the works.

Number 3 – Operator must remain at the controls

While workers are on work equipment designed for lifting loads the control position must be manned at all times.

(PM28) Truck operator

24 The truck operator must remain at the controls of the truck while the platform is in an elevated position.

(DE) (TROS 2121 Part 4.)The driver must not drive the industrial truck when the work platform is occupied. This does not apply for

- movements for fine-positioning at the place of use,
- driving with the work platform raised no higher than necessary to clear the ground, provided a supporting strap is available within the bounds of

the work platform and the maximum design speed of the industrial truck does not exceed 16 kph and

- for reach- and high-lift trucks, which can be driven in rack aisles with raised loads.

Number 4 – Communication procedures

Persons being lifted must have reliable means of communication

(LOLER, ACOP) **Communication procedures**

132 Suitable means of communication between the operator and platform should be provided (manual signals may be sufficient in many circumstances).

(PM28) 28 There must be adequate communication between the truck operator and people on the platform especially when raising and lowering. **Handheld communication devices** or a system of **signals** should be used where communication is difficult. If a working platform is lifted to a height greater than 4 m above the truck operator or the working platform is used in a noisy environment then it is likely that communication aids will be required. Extra consideration should be given to using a permissioning control platform, integrated working platform or a MEWP in these circumstances.

Number 5 – Emergency procedures *(In the event of danger, there must be **reliable means of evacuating them.**)*

In the event of danger, there must be **reliable means of evacuating them.**

(PM28) 34 They must be properly trained and given full instructions on safe systems of working with platforms, including **what to do in the event of an emergency** and the dangers associated with leaning out of the working platform.

(NTP 955): The risks assessment must include the emergency plan to evacuate the workers in case of failure electric or another contingency according with manufacturer's instructions. Training of worker is essential.

Number 6 -Training requirements

Self-propelled work equipment shall be driven only by workers who have been appropriately trained in the safe driving of such equipment.

(ACT 2011) The lifting equipment driver must be **entitled** for that purpose, pursuant to article 5 and 32-1 of Decree-Law no. 50/2005, of 25 February. Syllabus defined under the National Catalogue of Qualifications. Minimum 25 to 50 h training.

(L117)"Rider operated lift truck - Operator training and safe use"). Minimum 3 to 5 days training.

(AFS 2006: 5)"Use of industrial trucks". A competent driver is required.

(PT 18.04.2012) Specific certificate for driving a forklift truck. 4 h theoretical and 8h practical (12h training).

ACSHW: SK STN 26 8805 on training of forklift drivers

(AT 2016) The personal must be trained to use these types of equipment. Specific certificate for driving a forklift - theoretical and practical.

Number 7 - Personal Protective Equipment Requirements

(PPE Directive, 89/656/EEC) Personal protective equipment shall be used when the risks cannot be avoided or sufficiently limited by technical means of collective protection or by measures, methods or procedures of work organization

(PM28) People on the working platform. 31 It is not appropriate for people to stand on the guardrails. In addition, it is advisable not to lean out of the platform when it is raised and, so far as is reasonably practicable, the platform should be positioned to prevent the need for people to lean out when carrying out their work. If people have to lean out of the platform to carry out work at height then they should wear harness and lanyards that are linked to the platform's harness anchorage points to prevent them from overbalancing and falling over the rails.

(ACT 2011) Personal protection measures, namely against the risk of falling from heights, to minimize the hazards that cannot be eliminated or attenuated by other means.

(CY 22.05.2015) The employer must ensure that the workers in the lifting platform are secured with the use of harnesses. An appropriate anchoring point must be available on the platform.

Examples of conditions that can be required by labour inspectorates according to their national practices for the exceptional use of forklift trucks when lifting workers

Number 1	
General Requirements (provided appropriate action has been taken to ensure safety in accordance with national legislation and/or practice)	
	Persons may be lifted only by means of work equipment and accessories provided for that purpose.
	Where it is reasonably practicable to obtain and use purpose-built equipment for lifting people (EC marked), then you should use such equipment
Truck/platform suitability	
	It is essential that the working platform is compatible with the truck on which it is used, using one of the approaches below.
	1. Before any combination is used for the first time the working platform and truck manufacturer/supplier must be consulted. This combination should be mentioned in the manual of the forklift or as an amendment to it.
	2. Any combination of base machine and personnel work basket shall, in order for its use for lifting persons to be permissible, be inspected as third party inspection, according with ISO EN 17020. The combination shall then have been judged to afford adequate safety for use in lifting persons. If, furthermore, an inspection body has indicated that the assessment is only valid if certain specified deficiencies are remedied, those deficiencies shall have been remedied.
	To prevent inadvertent operation, the operator should scotch or lock out the tilt mechanism when the equipment is to be used with a working platform.
	Any displacement or sliding down is prevented by a positive connection behind the back of the fork or the fork arm carriage, e.g. using shackles, catches, chains, bolts or push-in rods, which are secured against unintentional release
	Non-integrated working platforms are not advisable for use on: <ul style="list-style-type: none"> - trucks that require manual sequencing of the lift/tilt controls to maintain the working platform horizontal while being lifted; - trucks with masts that can give erratic movement (eg. due to sequencing problems during lowering);

	<ul style="list-style-type: none"> - trucks that have an actual capacity of less than 1000 kg unless their stability has been verified by testing or calculation verified by empirical data. (Note: Some truck types with an actual capacity of less than 1000 kg may be suitable for use with working platforms but the truck manufacturer must be consulted to ensure the stability of the truck/platform combination); - variable reach trucks (telehandlers) that can lift to a nominal height greater than 6 m. (Note: The use of non-integrated platforms on rough terrain variable reach trucks requires extra care because of the rough terrain environment in which these machines are normally used and the nature of the pneumatic tyres fitted); - a truck that have a vertical lifting frame which can be tilted more than 10° in relation to the horizontal plane (which excludes telescopic handlers. Manufacturers often provide models intended for lifting of persons. It is important that this type of regulations do not disturb the market for products intended for that); - pallet stackers with wrap-over type forks. -
	<p>Attachments and the following functions must not be capable of movement while the working platform is elevated:</p> <ul style="list-style-type: none"> - tilt or side shift; - chassis or mast levelling; - reach (reach trucks). -
	<p>Equipment not designed to be used for lifting people should be derated according to the most restrictive rules:</p>
	<ul style="list-style-type: none"> - following safety factor must be ensured: stability against break of suspension elements of the lifting frame: 10,0; -
	<ul style="list-style-type: none"> - following safety factor must be ensured: Lifting and descending speed is limited to 0.5 m/s; -
	<ul style="list-style-type: none"> - equipment not designed to be used for lifting people should be derated by 50%, i.e. have a factor of safety relating to strength of at least twice that required for general lifting operations; -
	<ul style="list-style-type: none"> - when persons are lifted by means of a truck, the combined weight of personnel work basket and the load in the same must not in any position exceed 25% of the truck's maximum load; -
	<ul style="list-style-type: none"> - forklift truck capacity must be, at least, five times the load to lift and never less of 1000 kg.
	<ul style="list-style-type: none"> - The industrial truck must have sufficient carrying capacity. In the case of front-end fork lift trucks and fork lift reach trucks, the carrying capacity is deemed to be sufficient if the floor area of the work

	platform does not exceed the dimensions of a Euro pallet (1200 mm x 800 mm), the standing position of the person(s) carried is at the height of the fork arms and the carrying capacity of the fork lift truck, at the lifting height corresponding to the raised work platform, amounts to at least 5 times the combined weight of the empty weight of the work platform, the weight of the person(s) carried and the load.
	Use of the lift truck
	People should never be lifted on the fork arms or a pallet balanced on the fork arms of a lift truck because they can easily fall off.
	You should use a properly maintained purpose-built working platform with suitable edge protection and toe boards.
	This platform should be compatible with the lift truck on which it is fitted to ensure it is secure and stable in use, including when loaded with people, tools and materials. It should be effectively secured to the truck's elevating carriage or fork arms to prevent it being displaced or tipping unduly.
	People carried on a platform should be prevented from reaching any dangerous parts (e.g. the chains of the truck) by effective screens or guards. They should also be protected against any overhead hazards that might exist (e.g. from coming into contact with rafters, the ceiling, pipework or overhead plant).
	Must be added information to identify the forklift truck that can be attached.
	It is particularly important to ensure that: <ul style="list-style-type: none"> - the platform can be securely attached to the truck; - people on the platform cannot reach hazardous moving parts or controls on the truck.
	Must be protected with fixed guards in the back according to EN ISO 14120 with right resistance and security distances according to EN ISO 13857 or EN 349.
	Platform must be equipped with fixed guards in the back against reaching dangerous parts of the lifting frame, and guards (at least 1.75 m high), roof (in case of risk through falling objects) and handrail. Secure access: dimension of door, door opens only to the inside
	Requirements of platform railings: height: 1-1,1 m; handrail mounted 0,1 m inside the outer contour; lower railing covering 0 - 0,1 m height; number of rails:3 or more.
	Platform must include a blocked device to ensure the stability in the fork.

	Platform must include anchor system for harness safety.
	Pre-use checks must be carried out by a competent person to ensure that the working platform is properly located and secured to the truck each time and before it is used.
	Forklifts and baskets are required to have a third party inspection every year.
	The works with this types of equipment must be supervised or watch over) by workers with competencies in the companies to supervise dangerous works (safety experts / safety officer).
	In construction works/sites there must still be a specific plan for carrying out the works, indicating the safety measures to be adopted for execution of the works.
	The truck operator must remain at the controls of the truck while the platform is in an elevated position
	The driver must not drive the industrial truck when the work platform is occupied. This does not apply for: <ul style="list-style-type: none"> - movements for fine-positioning at the place of use, -driving with the work platform raised no higher than necessary to clear the ground, provided a supporting strap is available within the bounds of the work platform and the maximum design speed of the industrial truck does not exceed 16 kph and - for reach- and high-lift trucks, which can be driven in rack aisles with raised loads.
	Suitable means of communication between the truck operator and people on the platform (especially when raising and lowering) should be provided.
	Handheld communication devices or a system of signals should be used where communication is difficult.
	If a working platform is lifted to a height greater than 4 m above the truck operator or the working platform is used in a noisy environment then it is likely that communication aids will be required.
	Extra consideration should be given to using a permissioning ² control platform, integrated working platform or a MEWP ³ in these circumstances.

² Permissioning controlled working platforms' are non-integrated working platforms with an hold-to-run controls that link to and nullify the truck lift/ lower and traction controls until the controls in the platform are actuated by a person or persons in the platform; i.e. the height of the platform or truck movement can only occur by the truck operator operating truck controls when the platform controls are held by an operator in the platform.

	They must be properly trained on safe systems of working with platforms, including what to do in the event of an emergency and the dangers associated with leaning out of the working platform.
	They must have full instructions on safe systems of working with platforms, including what to do in the event of an emergency and the dangers associated with leaning out of the working platform.
	The risk assessment must include the emergency plan to evacuate the workers in case of an electrical failure or another contingency according with manufacturer's instructions.
	Workers should have a specific certificate for driving a self-propelled work equipment. Theoretical and practical training of up to 50 hours is normally required ⁴ .
	Personal protective equipment shall be used when the risks cannot be avoided or sufficiently limited by technical means of collective protection or by measures, methods or procedures of work organization.
	It is advisable not to lean out of the platform when it is raised and, so far as is reasonably practicable, the platform should be positioned to prevent the need for people to lean out when carrying out their work.
	If people have to lean out of the platform to carry out work at height then they should wear harness and lanyards that are linked to the platform's harness anchorage points to prevent them from overbalancing and falling over the rails. An appropriate anchoring point must be available on the platform.

³ Mobile Elevating Work Platforms

⁴ For instance training according to STN 26 8805 "Powered industrial trucks. Basic requirements. Qualification provide"