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## New rules for truck-mounted cranes (loader cranes)



### The Machinery Directive

The Machinery Directive 2006/42/EC has been valid in the EU since 29<sup>th</sup> December 2009. The directive has been ratified to national law in Denmark by the Danish Working Environment Service. The law prescribes how manufacturers of tools are to design and construct their machinery so that it is safe to work with; this also concerns marking, directions for use, testing and marketing.

To make the requirements of the Machinery Directive more accessible and comprehensible, product standards are elaborated under EU auspices for particular product areas such as truck-mounted cranes. Such product standards are also called harmonized standards and they describe in detail how the requirements of the Machinery Directive are to be "translated". A harmonized standard describes among other things requirements for safety, design, equipment and technical solutions on machinery so that it conforms to the directive.

### Product standard for truck-mounted cranes

The Working Group (CEN TC147/WG18) that has elaborated the product standard EN 12999:2009 for truck-mounted cranes consists of partly crane manufacturers, partly representatives from European safety organisations. The product standard is thus a result of a goal-directed work among professionally competent people.

For different reasons an appeal has been filed against the approval of the EN 12999:2009, and therefore it has not yet been published, but the final vote is going to take place on 26<sup>th</sup> October 2010, and it is then expected to be approved and will then be denominated "EN 12999:2010". The final entry into force takes place after publication in the "Official Journal of the European Union".

**However it is very important to point out that the product standard missing until so far DOES NOT exempt manufacturers and crane installers from having to respect the requirements of the Machinery Directive and any national rules as from 29<sup>th</sup> December 2009 and to comply with the new requirements should not be delayed only because the EN 12999:2010 has not yet been approved!**

It is optional whether the manufacturers will use the EN 12999 product standard in connection with their risk assessment, but it is definitely not optional whether they want to respect the requirements in the Machinery Directive 2006/42/EC!

### Examples of new and important requirements as from 29<sup>th</sup> December 2009:

#### Securing of stability

The Machinery Directive is valid and in section 4.2.2 under "Loading control" it is directly mentioned that cranes with a load moment exceeding 4 tm or that are capable of lifting 1000 kg must be fitted with devices to warn the driver and prevent dangerous movements in the event:

1. of overloading, either as a result of the maximum working load or the maximum working moment due to the load being exceeded or
2. of the overturning moment being exceeded

The latter requirement means that vehicle stability must be monitored e.g. by means of sensors on stabilizer legs and stabilizer beams that transmit signals to the safety system of the crane and which intervene in case of beginning instability of the vehicle. Complying with this requirement is of paramount importance to safety when working with truck-mounted cranes and possibly one of the most important actions taken since the Machinery Directive was implemented in Denmark and other European countries as at 29<sup>th</sup> December 1995.

This remarkable action must be seen in the light of the Machinery Directive pointing out that machinery must be safe to use

This remarkable action must be seen in the light of the Machinery Directive pointing out that machinery must be safe to use - even in case of misuse. Misuse is e.g. not to extend stabilizer beams completely, which means that necessary stability cannot be ensured during a lifting task.

#### Explanation of the requirement of securing of stability on truck-mounted cranes as from 29<sup>th</sup> December 2009

Among crane manufacturers there is no consensus about how the requirement for securing of stability should be interpreted. Therefore we would like to explain why loader cranes marketed after 29<sup>th</sup> December 2009 according to the EU Machinery Directive 2006/42/EC, MUST be fitted with a system that is monitoring the stability of the vehicle and thereby preventing dangerous situations from occurring.

At the European Commission's request a guide has been elaborated for the new Machinery Directive explaining terms and requirements into details.

It is called: "Guide to application of the Machinery Directive 2006/42/EC".

In the Machinery Directive section 1.1.2 about principles of safety integration it says:

"Machinery must be designed and constructed so that it is fitted for its function, and can be operated, adjusted and maintained without putting persons at risk when these operations are carried out under the conditions foreseen but also taking into account any reasonably foreseeable misuse thereof".

In direct connection to this section in the Machinery Directive, it is described literally in the guide that "**misuse**" is:

"using a crane without deploying the stabilizers"

The European Commission has thus found it necessary explicitly to say that it must not be possible to use a loader crane unless the stabilizer beams are fully extended and the stabilizer legs are down.

In the group of experts WG18 for truck-mounted cranes, set up under the technical committee CEN/TC147 which is responsible for elaborating and revising the harmonized standard for truck-mounted cranes EN 12999, the requirement for securing of stability is expressed as:

**5.6.1.8** For cranes with a rated capacity of 1 000 kg or above, or a maximum net lifting moment of 40 000 Nm or above, the stability of the vehicle shall be included in the safety function of the rated capacity limiter.

*NOTE Stability in this case means: Deployment of every stabilizer is monitored by the rated capacity limiter and the rated capacity is reduced or the crane is stopped, if not fully deployed.*

It should thus be obvious that cranes marketed after 29<sup>th</sup> December 2009 do not comply with the current legislation, as expressed in the Machinery Directive, if the stability of the vehicle is not being monitored, e.g. by being a part of the crane's safety system.

#### Protection during transport

The requirements for securing for transport in the EN 12999:2010 have been tightened so that in addition to a diode by the operator's seat, there must also be an acoustic signal warning the driver if:

- the crane height exceeds the max. permissible height, when it is stowed in the platform body
- stabilizer extensions (both manual and hydraulic) are not locked in correct transport position

These requirements have been included in the product standard as a consequence of many accidents in Europe, crashing into bridges because of the driver having forgotten to fold up the loader crane.

Also serious accidents happen when manually extensible stabilizer beams extend while driving, and consequently they may hit pedestrians and vehicles.

#### Summary

With the above, I hope to have thrown light on the most important issues regarding safety in the new directives, laws and regulations in force within the crane industry. Therefore I hope that implementing the remarkable actions for improvement of crane safety will not be delayed or even neglected because of misunderstandings or lack of knowledge regarding laws and regulations.

If you have any questions and/or comments to the above please do not hesitate to contact:

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