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Position Paper 15.05.2020

FIEC position paper on the revision of the Machinery Directive (2006/42/EC)

FIEC welcomes the Commission's efforts to analyse and possibly improve the performance of the Machinery Directive 2006/42/EC as part of its regulatory fitness and performance programme (REFIT). FIEC considers that the Machinery Directive is a very important instrument for the construction industry. While FIEC agrees that some changes are needed, its basic approach must be left unchanged. In particular, health and safety requirements must remain the highest priority. Also, FIEC appreciates the principle of technology neutrality which should prevail in the revision. A very important point which should be looked at during the revision process is that the Machinery Directive needs to legally ensure that the obligations from the manufacturers are not transferred to the users, as it has been sometimes attempted to in practice.

1. Digitalisation

FIEC welcomes that the Commission is looking at the possible needs for updating the Machinery Directive because of the challenges arising from progress in digital technologies.

Currently, the Machinery Directive relates to health and safety and ergonomics, but is not aimed at tackling digitalisation or communication aspects. However, FIEC believes that the Directive is robust enough to cover both these basic requirements, as well as most of the new emerging technologies. Indeed, as the Directive is "technology neutral" – also for new and future technologies – the traditional methods of risk assessment and risk reduction can and must be applied to digital technologies.

Cybersecurity: FIEC points out that there is a risk of malicious or accidental operation of machinery connected to the internet. FIEC acknowledges however that this is a general risk that can affect a wide range of equipment and apparatus and is not specific to machinery.

Self-driven machines: In future, more and more self-driven machines will be used on construction site. For now however, it seems that these machines – in spite of sensors and safety devices implemented in the machines – do not sufficiently take into account the workers moving around. The revision of the Machinery Directive needs to align to the basic principle that the use of self-driven machines is safe for operators and workers interacting with it on site. Moreover, self-driven machines from different producers have risks crashing against each other. Even if this is initially related to an interoperability problem, this has

direct health and safety consequences, which the Machinery Directive should take into account. Also, what would happen if such machine would begin to burn (i.e. inside a tunnel)? An emergency stop must be foreseen for self-driven machines, as it is already the case for "traditional" machinery (Annex I, point 1.2.4.3.).

Adapting the software: The users need to know basic data from manufacturers in order to properly use these machines (as covered in principle by the Machinery Directive in the instructions for use – Annex I, point 1.1.1.h.). However, it seems that such information is not always made available to the users. Also, the users should be allowed to adapt the software of these machines according to their specific needs (i.e. open interface). Currently, the final users have some flexibility on how to use the machine, but there are strong limits regarding the intended use of the machine (defined by the manufacturer in the instructions for use). A user can't go outside the boundary of the foreseeable use.

Data: With digitalisation, the question of data ownership and protection of data arises more often. In particular, the users of machines generate a lot of data which have a high value. It should be made clear to whom the various set of data do belong.

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Recommendations:

⇨ **The current methods of risk assessment and risk reduction can be successfully applied to assess and decide whether any digital technology can be incorporated into machinery design in order to ensure that machinery is compliant with the Machinery Directive.**

⇨ **The issue of cybersecurity should be dealt with in a separate horizontal item of legislation, including a reference to it in the revised Machinery Directive.**

- However, the "external influences" specified in Annex I, paragraph 1.2.1, which the control system must withstand, must be amended to specifically include cyber-attacks.

⇨ **As regards self-driven machines, the user should have the possibility to precise the real conditions in which machines operate and define, in cooperation with the manufacturer, the limits of coexistence in a shared space.**
⇨ **Manufacturers must provide open interfaces which ensure the communication between machines of different brands, as well as with other digital equipment (e.g. digital fences, intelligent personal protective equipment…).**
⇨ **A specific risk assessment should be carried out considering specific hazards (fire).**

⇨ **As the software is part of the control system of the machine (Annex I, point 1.2.), it must therefore be subject to a risk assessment.**
⇨ **As regards the adaption of the software of the machine, the user should have better possibilities to cooperate with the manufacturer in defining the various possible use, so that they can be taken into account at the design stage.**
⇨ **Moreover, the requirements of remote maintenance (Machinery maintenance, Annex I, point 1.6.1.) must also apply to the implementation of software updates. That is, they must not lead to unsafe conditions in plants or machines.**

⇨ **As regards data ownership, FIEC considers that the guiding principle should be that with the purchase of the construction machine, the machine and all machine- and building process data attributed to this machine becomes property of the construction company like the machine itself. This includes the set of users' data, technical data and data generated through productivity. This data can be given to the manufacturer, for example for maintenance purposes, but belongs to the owner of the machine after the purchase. This needs to be ensured by individual contractual agreements.**

2. Directive's enforcement and performance of market surveillance

FIEC understands that a number of problems arising in relation to the Machinery Directive is not due to its content as such, but rather to its weak enforcement, in some cases.

Also, FIEC is concerned that many problems would require to be solved thanks to a better performance of the market surveillance. Indeed, at present, the performance of market surveillance varies widely across the EU Member States, the majority of which carry out very little proactive work within the EU and at its borders. This situation leads to a rise in the amount of defective machinery in circulation, encourage non-conformity with the legislative requirements, increases the likelihood of accidents and injuries and creates unfair competition for law-abiding companies, placing them and their workers at risk.

Recommendation:

⇨ **A major revision of the Directive will not achieve its goals until the chronic understaffing, underfunding and poor performance of machinery inspections and controls (either before of after putting machinery into service) in the overwhelming majority of the Member States is resolved.**

3. Interactions with other legislations

FIEC points out that there is ambiguity between the two legislative domains regulating the design and the use of machinery, namely the Machinery Directive 2006/42/EC and the Use of Work Equipment Directive 2009/104/EC. **Without clarification of the interrelation between the two Directives, ambiguity will continue to surround the risk assessment duties of manufacturers, employers, market surveillance authorities and labour inspectors in respect of machinery.**

Also, exoskeletons can be used both as medical device or as personal protective equipment or as a machine. In the different related pieces of legislation (i.e. Medical Device Directive, Personal Protective Equipment Regulation, Machinery Directive), there are different standards for conformity.

Recommendations:

⇨ **It should be made clear that the safe design of machinery for all the phases of its life cycle is a precondition for safe use. This principle must not be challenged by topics such as the modification of machines, including machines with learning capabilities, during their operational service life! This is a very important clarification in the sense that it has potential repercussions on the responsibility of companies using machinery!**

⇨ **There should be a clear delimitation between the various pieces of legislation concerning the use of exoskeletons.**

⇨ **Also, it should be clarified what is the binding nature of EN ISO 20607 "Machine Safety - Operating Instructions - General principles of design" towards the Machinery Directive.**

4. Manuals

At present, instructions and information for use and maintenance of the machine (in accordance with EN ISO 12100:2010) are provided in the operator's manual. Considering the importance of the operator's manual ("force of law"), it's availability and quality is of paramount importance.

However, even if the content of the instructions in the manual is described in the Machinery Directive in 1.7.4.2, the quality of manuals varies a lot between the various manufacturers. It can happen that manuals have gaps, which can then lead to health and safety issues.

Only manufacturers have the information essential for the safe use of machinery. It is therefore necessary to define a standard that guarantees a sufficient level of quality of the manuals from all manufacturers. Although there is indeed such standardisation already (EN ISO 12100:2010), such standard level of quality should be **directly put into the Machinery Directive** in order to have a stronger impact. In case of non-compliance by manufacturers, sanctions must be possible. This is necessary as manuals are an essential prerequisite for the safe use of the machines on construction sites.

Also, the instructions and information contained in manuals concern different type of people (speaking different languages and having different level of understanding/reading capacity), who each need specific indications from the manual to do their tasks.

Therefore, manuals should better be adapted to these specific groups of users:
- for big machines construction / to assembly the machine,
- for maintenance purpose,
- for operators.

Recommendations:

- ⇨ **Manuals should be available both in paper and digital format.**
- ⇨ **Manuals must be provided for free in the official language of the country where the machine is put on the market. Unauthorised / unofficial translation by third parties can lead to significant mistakes and consequently to a high safety risk.**
- ⇨ **The operating instructions must be provided in an understandable and, when possible, non-verbal form.**
- ⇨ **Manuals must describe how the intended assembly, maintenance and cleaning can be carried out safely, taking into account the environment of use.**
- ⇨ **Manuals must also describe the safe accessibility to / exit from the workplaces, in particular in case of unexpected downtime of the machine (i.e. cranes).**
- ⇨ **FIEC supports the idea to develop simplified "quick-start guides" – in complement to the usual manuals. As a minimum, they should contain the following information:**
  - *Product identification: designation of the machinery as marked on the machinery itself*
  - *Sources of information (via e.g. QR code) and location of CE mark on the machine*
  - *Description of the intended use of the machinery (or warnings concerning ways in which the machinery must not be used) including the adequation with interchangeable equipment or the warning concerning multiple uses*
  - *Safety information and applicable safety warnings (e.g. instructions for operating the machine: controls for the driver's compartment/cockpit if it's not included on the parts of the machine, for multiple operators)*
  - *Instructions for transport, assembly and installation, depending on a risk assessment*
  - *Technical data (weight, power etc.)*
  - *Noise and vibration information*
  - *Protection clothes, or safety gears to be used in particular situations*
  - *Daily checkup before starting motorization or working... (Instructions for accessing and cleaning mirrors, visual examination of the state of preservation (the list of sensible parts to check), safety devices control, oil levels, pressure, etc.*
  - *Instructions for routine maintenance (scheduled daily/weekly) and draining and recovery (i.e. fluids, Annex I, point 1.1.3.)*
  - *Instructions for access to tanks (Gas, AdBlue, electric connector, etc.) and filling use*

5. Upgrade of machinery and liability issue

Upgrading machinery to the needs of construction companies comes along with liability questions between manufacturer and users of machinery.

Upgrade by the manufacturer: When the machine is being upgraded by the manufacturer, it would be important that he takes into account the user's feedback. In terms of responsibility, the manufacturer must ensure that a risk assessment is carried out (ref. recital 23, paragraph 24 on risk assessment in the guide, annex 1, general principles, paragraph 1 in the MD). Currently, the risk assessment is part of the manufacturer's know-how and there is no requirement for him to share this document with the user. It would be helpful however, that users are able to ask (part of) the results of the risk assessment in order to check what has been done to reduce specific problems / risks that they have indicated beforehand (e.g. provision of the "visibility map" to assess what has been done to reduce the poor visibility of a given machine).

Upgrade by the user: In order to upgrade a machine – improve its ergonomics, reduce dust in cabins, or noise or pollution, etc. – the user should be able to modify the machine. For that purpose, the manufacturer must provide the user with the necessary information regarding safety-related inquiries: extension of service life, welding of additional attachment points, effect on frame, attachment points for Personal Protective Equipment, conversion from storage facility to load suspension equipment, mounting options for air conditioning systems in crane cabins, etc.
In this respect, it is recommended that the "upgrading of machinery" be subject to a case-by-case consideration of the equipment in question. Consequently, it can be decided what will be covered by the Machinery Directive and what will not.

Currently, the user has the possibility to modify the machine. But whatever the reasons for the modification, it is then under his responsibility (i.e. modification of the machinery after being put into service).

It is possible to avoid that liability of the manufacturers be transferred to the users ONLY if the modifications were foreseen or agreed by the manufacturer and covered by the manufacturer's risk assessment, technical documentation and EC Declaration of Conformity (= technical modification undertaken in collaboration with the manufacturer, including joint technical risk assessment by manufacturer and user).

To ensure the safe use of machinery, he (the user modifying the machine) has to comply with the framework of the use of work equipment regulations and to implement a structured approach with a new risk assessment, if needed (= in the framework of the reintroduction of the modified machine in the construction site, new risk assessment to be undertaken by the user).

Recommendations:

⇨ **The section on "working conditions" in annex 1, point 1.1.7. should be reformulated in order to specifically mention heating, cooling, noise, dust, hazardous chemicals and body position compatible with long operating periods.**

⇨ **When upgrading their machines, manufacturers should also take into account feedbacks from the users. This should be explicitly mentioned in the Machinery Directive as an indispensable tool to be applied by manufacturers during the mandatory risk assessment and risk reduction phase.**

⇨ **In particular, the user should be able to ask the manufacturer to show (part of) the results of the risk assessment, to check how the relevant problems / risks have been tackled.**

- **Example:** *If, during use, during an assessment or during inspections by supervisory authorities, preventive specialists, employees of accident insurance institutions or inspection bodies, points are found which lead to a presumption of non-conformity,* ***the manufacturer must provide insight into the basics of his risk assessment.*** *This obligation to provide information includes in particular the information on the standards considered, the knowledge of accidents or events, the feedback from users and the state of the art.*

⇨ **As regards the upgrade / refurbishment of machinery by the user, a new conformity assessment and CE mark should be needed ONLY when new functions are added, or the operating range is extended, so that significant hazards that were not considered previously can be added.**

- NB: As regards self-learning machines, the user cannot take responsibility for the new functions acquired or the extension of their operating range.

⇨ **Also, the definition of "reasonably foreseeable misuse" (Annex I, 1.1.1. (i)) should be improved as follows: "Reasonably foreseeable misuse means the use of machinery in a way not intended in the instructions for use, but which may result from readily predictable human behavior. *Reasonably foreseeable misuse, whether intentional or unintentional, is predictable on the basis of experience of past use of the same type of machinery or of similar machinery, accident investigations and knowledge about human behavior."***

⇨ **Moreover, Article 7 paragraph 4 of the Directive should be enforced, so that social partners be better involved in standardization. At present, construction equipment manufacturers have a predominant position in standardization bodies. In particular, the high quantity of standards under consideration is a major difficulty for the active involvement of construction companies.**

6. Visibility of the operator

FIEC points out that sufficient visibility must be taken into account in the manufacturer's risk analysis, otherwise the Machinery Directive is not correctly applied by the manufacturer. If necessary, the manufacturer must provide suitable devices to eliminate hazards due to insufficient direct vision.

Indeed, even if visibility is covered by Annex 1, paragraph 3.2.1., as well as by standardisation, it seems that the enforcement of this requirement is quite poor. Moreover, the existing wording of this paragraph ("*Visibility from the driving position must be such that the driver can, in complete safety for himself and the exposed persons, operate the machinery and its tools in their foreseeable conditions of use. Where necessary,* ***appropriate devices must be provided to remedy hazards due to inadequate direct vision***.") would need to be more accurate, in particular when it comes to liability issues.

However, in the practice, it can sometimes lead to the installation of numerous mirrors and or video cameras which are not ergonomic at all for the operator.

Recommendations:

- ⇨ **The wording should be improved from "partial visual control" to "total visual control".**
- ⇨ **In particular, the wording "appropriate devices" should be improved in order to reflect the fact that such devices must also be ergonomic for the operator!**
- ⇨ **The Annex of the Machinery Directive could for instance refer to the relevant standards in this field: EN 474-1:2006 and ISO 5006:2017 (measuring visibility for earth moving machines).**

7. Lifting equipment

FIEC points out that, currently, there is no minimum standard for equipment such as storage boxes and big bags. Indeed, they are considered as storage equipment only. But while they are used as storage 90% of the time, they are also used as lifting equipment 10% of the time, which can cause major health and safety issues.

Also, work baskets for lifting people are currently out of the scope of the Machinery Directive. However, by definition, they can be considered as replaceable equipment.

Recommendations:

⇨ **Mixed storage-lifting equipment such as storage boxes and big bags should be included into the scope of the Machinery Directive in order to be covered by basic health and safety requirements. In doing so, this equipment would be covered by higher standard for risk assessment and the user would have access to minimum important information regarding in particular the maximum weight which can be put on the device and how to best secure it.**

⇨ **Work baskets used for lifting people should be included into the scope of the Machinery Directive.**

8. Quick couplers and interchangeable equipment

FIEC points out that, according to the Guide to application of the Machinery Directive (edition 2.1 of July 2017), § 41 on "Interchangeable equipment":

"*Interchangeable equipment may be placed on the market by the manufacturer of the basic machinery or by another manufacturer.* ***In either case, the manufacturer of the interchangeable equipment must specify in his instructions the machinery with which it can be safely assembled and used, either by reference to the technical characteristics of the machinery or, where necessary, by reference to specific models of machinery***. »

However, nowadays, 99% of manuals of the machine prescribe to use only original parts from the same brand, and do not provide the above-mentioned technical information.

Moreover, the Annex of the Machinery Directive should be extended in order to ensure an overall higher safety level from all quick couplers and interchangeable equipment.

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Recommendations:

⇨ **Users should be allowed to use different brands together – thanks to common standards – as it is already the case in the agricultural equipment industry, or at least, they should receive better information from the interchangeable equipment manufacturers regarding the elements which match together or not (i.e. the technical information and characteristics), as it is clearly mentioned in the above-mentioned Guide.**

⇨ The Annex of the Machinery Directive should be extended as follows:
Quick couplers must meet at least one of the following requirements:

- The system prevents the attachment from being moved as long as the locking mechanism has not been correctly engaged.
- The system is designed in such a way that incorrect locking is technically prevented.
- The system prevents the attachment from falling down, even if the locking has not been carried out correctly.
- The system uses sensors to detect the locking status and informs the driver by means of a visual and acoustic signal in the cabin if the locking is incorrect.