

COMPARISON OF APPROACHES TO PREVENTION OF INJURIES, ACCIDENTS AND INCIDENTS BETWEEN THE CZECH REPUBLIC AND RUSSIA

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Abstract: *Important aspects of the design of machinery are estimation of their risks and assessment of operator safety. This article compares legislation in the field of industrial safety, and prevention of injuries, accidents and incidents in the Czech Republic and Russia. Information from the article could be beneficial especially for Czech (or European) enterprises, which try to enter the Russian region markets.*

Keywords: *Machinery, safety of machinery, risk assessment, prevention of accidents, pressing and forging*

1. Introduction

The development of legislation is important for industrial safety which regulates the minimum requirements for industrial processes. Legislative requirements vary from state to state; in advanced countries they are based on the fundamental principle - the employer is responsible for health of workers. Operation of machinery is one of the areas of safety in industry. Important trading partner of the Czech Republic and the EU (European Union) is Russia. According to data given on the website BusinessInfo.cz, import to Russia in 2010 increased by 47.4% to 140.0 billion U.S. dollars compared to the same period of 2009. A considerable part of the import consists of machinery, equipment and vehicles. Therefore it is important for both countries to know the requirements concerning safety in the industry.

2. Ensuring safety of machinery in the Czech Republic and Russia

2.1. Ensuring safety of machinery relating to the design of machinery

As early as a manufacturer designs machinery he has to define the parameters that ensure workers safety during assembling, dismantling, commissioning, as well as for self-dependent operation, and as part of technological systems in accordance with the requirements of operational documentation.

Safety of machinery in the designing process in the Czech Republic and Russia provides:

- 1) Identification of potential risks;
- 2) Risk assessment - the machinery must be designed and constructed to take into account the results of risk assessment;

In Russia and Czech Republic the acceptable risk for machinery is also determined. In case a degree of risk is higher than acceptable, it is necessary to adjust the machinery for reducing the risk. Provided this is not possible or not economically efficient, it is necessary to include into the instruction manual the information that restricts the conditions for using of equipment, or add a notice of additional requirement for safety measures.

- 3) Determination of levels of physical factors (noise, infrasound, air and contact ultrasound, local and general vibration, electromagnetic fields) and the level of emission of hazardous and toxic substances to ensure a safe operation.

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4) Preparation of the instruction manual - the manufacturer has to take into account not only the expected use of machinery but also any reasonable expectable use. The instruction manual has to notify of incorrect use of machinery.

In case the machinery is intended to be used by unskilled operators, the text and adjustment of instruction manual must take into account the level of general education and the abilities to understand that can be reasonably expected from such operators.

5) Consideration of ergonomic principles to reduce discomfort, fatigue and psychological stress of operators.

2.2. Ensuring safety of machinery during manufacturing, storage, transportation, use and disposal of machinery

Safety of machinery in terms of manufacturing, storage, transportation, use and disposal in the Czech Republic and Russia, provides:

- 1) Ensuring compliance with requirements on design and operational documentation;
- 2) Testing of machinery according to project documentation;
- 3) Risk assessment by manufacturer that is prior to launching and after overhaul;
- 4) Produce of warning labels or marks to notify of danger;
- 5) Use of safe materials and substances;
- 6) Use of guards and protection devices;
- 7) The information in the instruction manual to avoid misuse. In Russia the instruction manual also provides recommendations for safe disposal of equipment and its components.
- 8) State control over compliance with safety requirements.

2. Conclusion

This article discusses legislation of the Czech Republic and Russia in the field of industrial safety. In particular, this article compares legislative requirements to ensure the safe operation of machines while their design, manufacture, storage, transportation, use and disposal. This article also deals with classification of machinery in the Czech Republic and Russia, in accordance to legislation. To describe the differences and similarities in the requirements of legislation, hydraulic press is chosen as an example. This article may be useful for Czech and European companies which wish to export their products to Russia, or move their production facilities.

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