

MACHINES AND PLANTS OF BUILDING AND TRANSPORT MECHANIZATION- TECHNICAL REGULATIONS CONDITION¹⁾

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Product distribution at market of the Member States of the European Union is restricted by application of new directives that regulate the product quality. In order to increase the export Serbia and Montenegro should take part in assuming and applying the EU technical regulations so that state administration could be reorganized and trained. In this paper key directive requirements related to machines are shown and analyzed. Relations between directives and national legislation are also given as well as starting assumptions and actions for technical regulation harmonization.

Key words: UE directives, standards, harmonization, machines.

1. INTRODUCTION

Free flow of goods enables pretty larger offer for consumers and induces competition. of The European Union market, defined as a space with no borders, was formed in order to enable free flow of goods, people, service and assets.

This market is of great importance for economy of Serbia and Montenegro. The condition for placing the goods on this market is strictly observing the legislative and technical regulations.

On the basis of defined rules of the EU market organization, the interests of the EU members are being protected through environment protection, occupational health, property protection etc.

The enterprises that intend to export the products on the EU market must apply and be acquainted with the EU regulations before the country from which the enterprise comes become the EU member. The country should assume these regulations into national legislation as soon as possible. They also include harmonized EU regulations related to technical regulations and marking the products with CE mark.

In order to be exported into UE countries the product must satisfy following conditions:

- functioning
- design
- price
- delivery terms
- quality
- appropriate marketing.

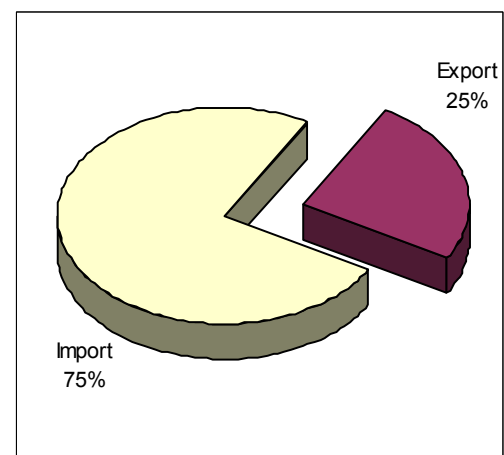
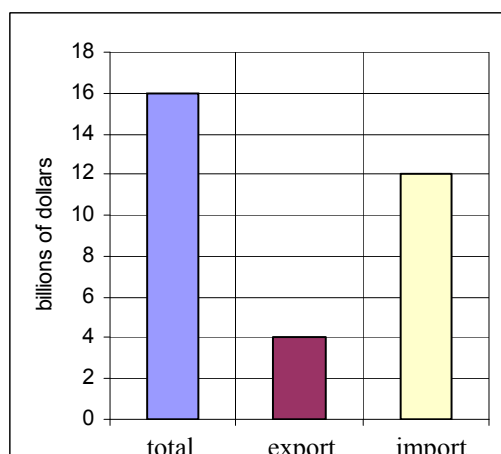


Fig.1- Trade exchange in Serbia and Montenegro in 2004

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The stated conditions are not legally obligatory but they must be fulfilled if the producer wants a part of the market.

Last year total foreign-trade exchange of Serbia and Montenegro was about 16 billion dollars, the export was about 4 billion dollars and import was about 12 billion dollars. It is obvious that there was a great deficit in foreign-trade exchange (fig.1). In order to decrease the mentioned deficit it is essential to carry out the harmonization with legal obligatory conditions for placing the products on the EU market from the aspect of people's health and safety.

Before the product is being placed on the market the producer must carry out procedure of harmonization with valid technical regulations regarding safety.

All these activities must be done through appropriate institutions, accredited and notification bodies regarding machines.

The EU legislation on industrial product safety can be grouped as follows:

- a) General approach directives such as directives for agriculture, food industry, chemical products, medicines, motor vehicles...
- b) New approach directives

2. NEW APPROACH DIRECTIVES

The aim of new approach directives is to enable free flow of products according to requirements determined by particular directives. The directives were stated by the Council's resolution on new approach to technical harmonization and standardization and they introduced following principles:

- Harmonization of legislation is restricted by important requirements that products must satisfy in order to have free flow inside community.
- Technical specifications on product harmonization with important requirements, are given in harmonized standards.
- Application of harmonized or other standards is not obligatory. The producer can always use other technical specifications that satisfy important requirement.
- The assumption on harmonization with important requirements applies to all products made in accordance with harmonized standards
- Producers can chose among different procedures for harmonization determination.

Relation between new approach directives, national legislation and harmonized standards is shown in fig.2.

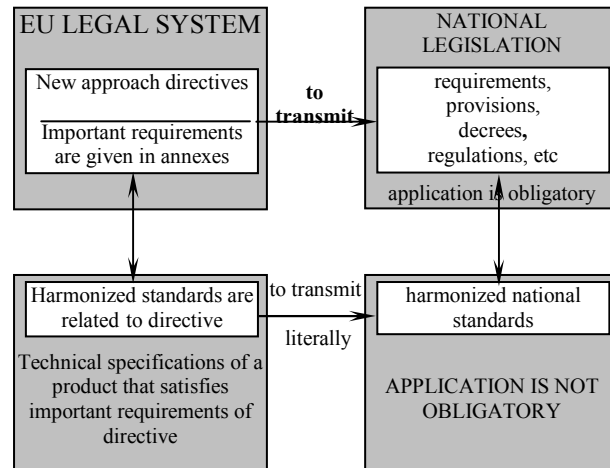


Fig.2- Relation between new approach directives, national legislation and harmonized standards

New approach directives are applied for new products made in the Member States as well as for new and used products imported from the third countries into the EU countries.

New approach directives point to product marking with CE mark. Twenty-one directives for technical products that require CE marking are in practice as well as four directives that do not allow CE marking.

3. REVIEW OF MACHINE PRODUCTION IN SERBIA AND DIRECTIVES RELATED TO MACHINES

Key products of "IMK 14.oktobar" in Kruševac are building machines. Production started in 1954 and reached the maximum from 1984-1986. The number of produced machines in types in three periods is shown in table1:

Table 1

year	caterpillars	wheel loaders	ex-cavators	rollers	other machines
1981	658	254	205	90	33
1982	652	248	168	81	10
1983	461	208	29	50	49
1984	1 200	280	99	60	21
1985	1 112	290	57	44	29
1986	1 165	331	51	35	30
1987	542	367	70	50	36
1988	510	392	93	50	58
1989	354	336	75	26	44
1990	268	319	73	37	18

The percentage of total number of produced machines in types is shown in fig. 3.

Since these machines operate on uneven ground or on the fields with canals for irrigation, roll-overs with accidents were very frequent.

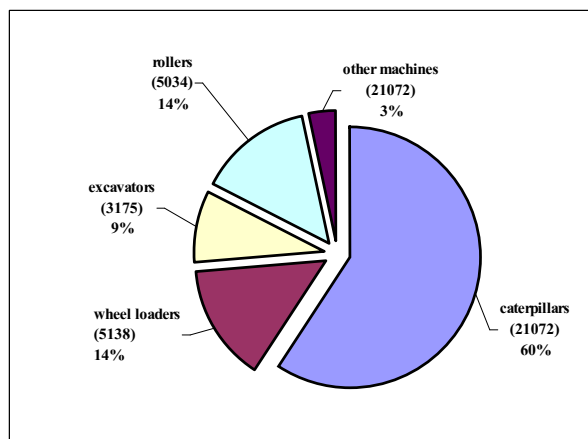


Fig.3- The percentage of total number of produced machines from 1954-2003

The first international regulation related to this field was brought by OECD (Organization for Economic Cooperation and Development) in 1967. In the USA a year later SAE standards (Society of Automotive Engineers) are brought treating operator's protection (SAE J333) as well as requirements and conditions of testing for tractor frame (SAE J334). We also brought the Regulations on occupational health in agriculture, by which tractors must have a cab or protection frame which protects the operator in case of roll-overs.

ROPS (Roll-over protective structures) is included in the standard defining structure for protection during machine roll-over (figures 4 and 5). FOPS (Fall-over protective structures) is included in ISO 3449 standard and testing scheme is shown in fig. 6. In both cases protective zone of the operator must not be endangered, which is defined by ISO 3164 standard.

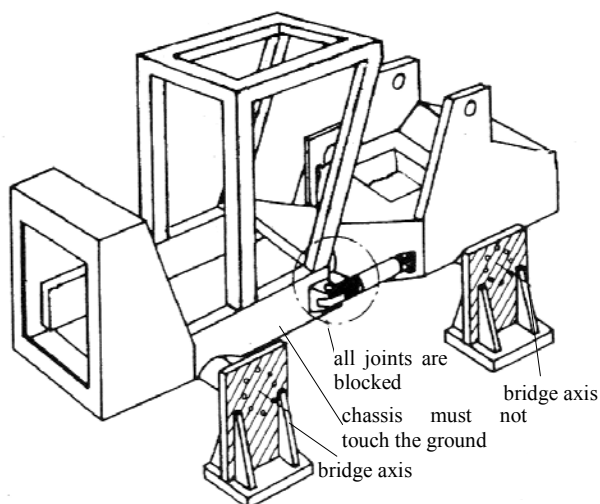


Fig.4- Fixing of joint loader chassis

Directives of the European Council and European Parliament No. 98/37/EC dated 22nd June 1998, points out the approaching in law harmonization of the EU states related to machines, their construction, exploitation and maintenance, failure prevention, protection of environment and occupational health.

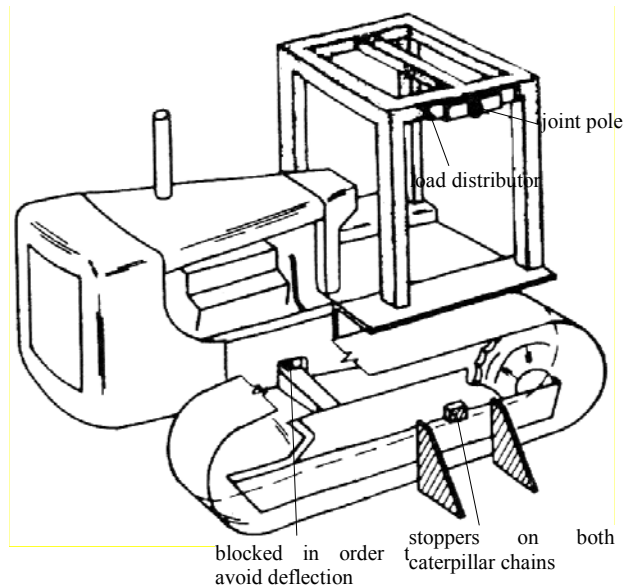


Fig. 5- Fixing of caterpillar chassis

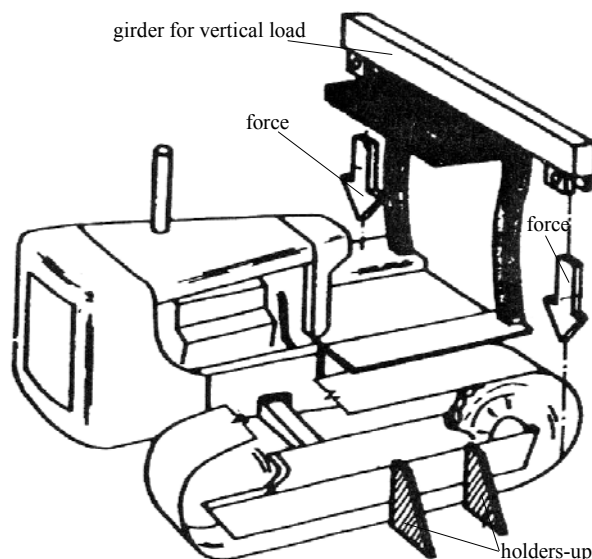


Fig. 6- Frame exposure to vertical load

The requirements of this directive are given in following chapters:

Chapter I: Goods placing on market and free flow of goods

Chapter II: Procedure of harmonization estimation

Chapter III: CE mark

Chapter IV: Final regulations.

In chapter I machines are defined as:

- assembly of connected parts or components so that particular process, work, movement or material packing could be done
- assembly of many machines which are operated so that they are a whole and function as a whole
- changeable equipment (modulus). The main machine can operate without the mentioned equipment and the machine function is changed if the equipment is changed (tractor with additional modulus).

So, safety components, as constituent parts of machines, are defined and built in by producer so that in the case of breakdown or failure safety or health of the persons near machine will not be brought into danger.

During the estimation process of application range it is essential to notice that EU Directive No.98/37/EC excludes particular groups of machines.

In chapter II procedures for harmonization estimation are defined as well as fulfillment of conditions and form of CE certificate, graphic presentation of the certificate, data on producer and authorized agent, what the certificate should include. All this is defined in 9 annexes where application of protection depending on machine type and components type is also defined.

Minimum criteria that must be fulfilled by staff are defined as well as necessary equipment so that administrative activities related to verification should be properly done.

Chapter II deals with CE marking and obligations that must be satisfied so that a product could get and keep CE mark.

Domestic standardization follows world trends in accordance with society development. The act on standardization (The Official Gazette No.30/1996, 59/1998 and 57/2001) regulates the following: standard bringing and its application, technical and other regulations, checkout the harmonization of process, products and services with technical and other regulations, that is with standards, product declaration, marking, packing as well as supervision of law realization.

Basic theses of this act are:

- standard is a technical norm and it should be in accordance with international and European standards or with standards of developed industrial countries;
- technical regulations are brought by the ministries, in the first place by citing the state demands;
- technical recommendations are done for faster application of new knowledge and technologies;
- making of national system for checkout and estimation of harmonization of process, product and service based on international documents;
- system realization of accredited laboratories, first of all the ones needed for obligatory checkout of harmonization with technical regulations and standards;
- forming of state accredited body, issuing of manner and conditions of accreditation and supervision of accredited legal persons by which conditions for internationally harmonized concept of accreditation is accomplished;
- cooperation with international and European organizations for standardization, working bodies of the United Nations dealing in standardization and national organizations for other countries standardization;

- establishing of fast and accurate information system in the field of standardization, both in the country and abroad;
- supervision of carrying out the act is regulated for competent institutions.

4. CONCLUSION

Since Declaration No.98/37/EC corresponds to over 500 harmonized standards and other technical regulations (EN and EN ISO) the significance of work on further harmonization of domestic regulations with international ones is obvious.

A large number of producers, some of them being the leaders, makes machines and devices that are in domain of this Directive. Present technical regulations mostly are not in accordance with the appropriate ones in the EU.

Beside acceptance and standard making in Serbia and Montenegro the following should be done:

- Work out of methods and procedures for testing, control and certificates in accordance with procedures for harmonization estimation.
- Development of laboratory capacities in various neutral and independent institutions (faculties and institutes) but:
 - a) Plant for measurement and testing should be reactivated
 - b) If something is missing it should be acquired or completed
 - c) New devices for testing and measurement should be designed and produced.

One should look at directive application as a transformational process which would turn the economy and whole society the quality, consumers' protection, environment protection, and which would enable free flow of goods and assets. Directives also have some characteristics of previous transformational process, such as energy saving, limitless competition and quality. They especially influence on the market transformation, that is on producer-consumer relation but also on the employees' attitude toward a product or service.

5. REFERENCES

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