CABINET OF MINISTERS OF UKRAINE

RESOLUTION

of ___________ № _______

Kyiv

On Approving the Technical Regulation on Safety of Machines and Equipment

Pursuant to Article 14 of the Law of Ukraine “On Standards, Technical Regulations, and Conformity Assessment Procedures”, the Cabinet of Ministers of Ukraine hereby resolves:

1. To approve the Technical Regulation on Safety of Machines and Equipment (hereinafter referred to as the Technical Regulation) and the action plan for the implementation thereof, hereby attached.

2. To appoint the Ministry of Industrial Policy of Ukraine to be responsible for the implementation of this Technical Regulation.

Prime Minister of Ukraine       Yu. TYMOSHENKO

APPROVED

by the Resolution of the Cabinet of Ministers of Ukraine

No. _______of______.

TECHNICAL REGULATION
On Safety of Machines and Equipment


In this Technical Regulation basic terms are used in the meanings

In this Technical Regulation terms are used in the meanings, laid down in the Laws of Ukraine "On Standardization", "On Accreditation of Conformity Assessment Bodies" and "On Confirmation of Conformity".

1.2. Effect of this Technical Regulation shall extend to:

- manufacturers of machines and equipment (hereinafter – machines) and safety components;
- manufacturers’ authorized representatives who are residents of Ukraine or authorized persons responsible for placing machines and equipment on the market;
- central executive bodies, performing the duties on technical regulation and supervision over safety of machines and safety appliances (hereinafter – central executive bodies);
- authorized bodies on certification of machines and safety appliances, requirements to which are established by the Resolution of the Cabinet of Ministers of Ukraine of March 28, 2002, N 376 “On Approving the Order of Empowering Certification Bodies with Authority on Carrying Out Conformity Confirmation Works in the Legally Regulated Field” (hereinafter – authorized bodies)

The Technical Regulation applies to:

- machines and equipment;
- interchangeable equipment;
- safety components;
- lifting accessories;
- chains, ropes and webbing;
- removable mechanical transmission devices;
- partly completed machines.

1.3. In this Technical Regulation the following terms and definitions are used:

1.3.1. ‘Machine equipment’ (hereinafter – ‘Machine’):

- an assembly consisting of linked parts or components, at least one of which moves, fitted with or intended to be fitted with a drive system other than directly applied human or animal effort, intended to perform a specific function;
- an assembly referred to in the first indent, missing only the components to connect it on work site or to sources of energy and motion;
- an assembly referred to in the first and second indents, ready to be installed and able to function as it stands only if mounted on a means of transport, or installed in a building or a structure;
- an assembly referred to in the first, second and third indents or partly completed machinery referred to in point (1.3.7) which, in order to achieve the same end, are arranged and controlled so that they function as an integral whole;
- an assembly of linked parts or components, at least one of which moves, intended for lifting loads and whose only power source is directly applied human effort;

1.3.2. ‘Interchangeable equipment’ means:

a device which, after the putting into service of machine or of a tractor, is assembled with that machine or tractor by the operator himself in order to change its function or attribute a new function, in so far as this equipment is not a spare part or a tool;

1.3.3. ‘Safety component’ means a component:

— which serves to fulfill a safety function,
— which is independently placed on the market,
— the failure and/or malfunction of which endangers the safety of persons,
— which is not necessary in order for the machinery to function, or for which normal components may be substituted in order for the machinery to function.

An indicative list of safety components is set out in Annex II to the Technical Regulation;

1.3.4. ‘Lifting accessory’ means
a component or equipment not attached to the lifting machine, allowing the load to be held, which is placed between the machine and the load or on the load itself, or which is intended to constitute an integral part of the load and which is independently placed on the market; slings and their components are also regarded as lifting accessories;

1.3.5. ‘Chains, ropes and webbing’ means
chains, ropes and webbing designed and constructed for lifting purposes as part of lifting machines or lifting accessories;

1.3.6. ‘Removable mechanical transmission device’ means
a removable component for transmitting power between self-propelled machine or a tractor and another machine by joining them at the first fixed bearing. When it is placed on the market with the guard it shall be regarded as one product;

1.3.7. ‘Partly completed machinery’ means
an assembly which is almost machine but which cannot in itself perform a specific application. A drive system is a partly completed machine. A partly completed machine is only intended to be incorporated into or assembled with another machine or another partly completed machine or equipment, thereby forming machine to which this Technical Regulation applies;

1.3.8. ‘Placing on the market’ means making available for the first time in Ukraine a machine or a partly completed machine with a view to distribution or use, whether for reward or free of charge;

1.3.9. ‘Manufacturer’ means
any natural or legal person who designs and/or manufactures a machine or a partly completed machine covered by this Technical Regulation and is responsible for the conformity of the machine or the partly completed machine with this Technical Regulation with a view to its being placed on the market, under his own name or trademark or for his own use. In the absence of a manufacturer as defined above, any natural or legal person who places on the market or puts into service a machine or a partly completed machine covered by this Technical Regulation shall be considered a manufacturer;

1.3.10. ‘Authorised representative’ means
any natural or legal person established in Ukraine who has received a written mandate from the manufacturer to perform on his behalf all or part of the obligations and formalities connected with this Technical Regulation;

1.3.11. ‘Putting into service’ means the first use, for its intended purpose of a machinery covered by this Technical Regulation;

1.3.12. ‘Hazard’
means a potential source of injury or damage to health;

1.3.13. ‘Exposed person’
means any person who is wholly or partially in a danger zone;

1.3.14. ‘danger zone’ means
any zone within and/or around a machine in which a person is subject to a risk to his health or safety;

1.3.15. ‘Operator’ means
the person or persons involved into installing, operating, controlling, adjusting, maintaining, cleaning, repairing or moving a machine;

1.3.16. ‘Risk’ means
a combination of the probability and the degree of an injury or damage to health that can arise in a hazardous situation;

1.3.17. ‘Guard’ means
a part of the machine used specifically to provide protection by means of a physical barrier;

1.3.18. ‘protective device’ means
a device (other than a guard) which reduces the risk, either alone or in conjunction with a guard;

1.3.20. ‘intended use’ means

the use of machines in accordance with the information provided in the instructions for use;

1.3.21. ‘Possibility of unintended use’ means

the use of machinery in a way not intended in the instructions for use, but which may result from readily predictable human behaviour.

1.3.22. ‘Machine presenting hazards due to its mobility’ means

— a machine the operation of which requires either mobility while working, or continuous movement between a succession of fixed working locations, or
— a machine which is operated without being moved, but which may be equipped in such a way as to enable it to be moved more easily from one place to another.

1.3.23. ‘Driver’ means

an operator responsible for the movement of a machine. The driver may be transported by the machine or may be on foot, accompanying the machine, or may guide the machine by remote control.

1.3.24 'Lifting operation' means

a movement of unit loads consisting of goods and/or persons necessitating, at a given moment, a change of level.

1.3.25. ‘Guided load’ means

a load where the total movement is made along rigid or flexible guides whose position is determined by fixed points.

1.3.26. 'Working coefficient’ means

the arithmetic ratio between the load guaranteed by the manufacturer or his authorised representative up to which a component is able to hold it and the maximum working load marked on the component respectively.

1.3.27. 'Test coefficient’ means

the arithmetic ratio between the load used to carry out the static or dynamic tests on lifting machines or a lifting accessory and the maximum working load marked on the lifting machinery or lifting accessory.

1.3.28. 'Static test' means

the test during which a machine or a lifting accessory is first inspected and subjected to a force corresponding to the maximum working load multiplied by the appropriate static test coefficient and then re-inspected once the said load has been released to ensure that no damage has occurred.

1.3.29. 'Dynamic test' means

the test during which a machine is inspected in all its possible configurations at the maximum working load account being taken of the dynamic behaviour of the machine in order to check that it functions properly.

1.3.30. 'Cab (carrier)’ means

any construction on or in which persons and/or goods are located, and by means of which they are lifted, lowered or moved.

1.4. This Technical Regulation does not apply to:

— safety components intended to be used as spare parts to replace identical components and supplied by the manufacturer of the original machines and machinery;
— specific equipment for use in fairgrounds and/or amusement parks;
— machines and machinery specially intended to be put into service for nuclear purposes which, in the event of failure, may result in an emission of radioactivity;
— weapons, including firearms;
— the following means of transport:
— agricultural and forestry tractors for the risks covered by Directive 2003/37/EC, with the exclusion of machines and machinery mounted on these vehicles;

- motor vehicles exclusively intended for competition;

- means of transport by air, on automobile ways, on rail networks or on water, with the exclusion of machines and machinery mounted on these means of transport;

- seagoing vessels and mobile offshore machines and machinery altogether with equipment on board;

- machines specially intended and manufactured for military purposes or for protection of public order;

- machines and machinery specially designed and constructed for research purposes and for use in laboratories;

- mine winding gear;

- liftings for artistic performances;

- electrical and electronic products falling within the following areas, irrespectively to the fact they are covered by Council Directive 73/23/EEC of 19 February 1973 on the harmonisation of the laws of Member States relating to electrical equipment designed for use within certain voltage limits (3):

  - household appliances intended for domestic use,

  - audio and video equipment,

  - information technology equipment,

  - ordinary office computer-aided facilities,

  - low-voltage switchgear and control gear,

  - electric motors;

  - the following types of high-voltage electrical equipment:

    - switch gear and control gear,

    - transformers.

1.5. In case that some kinds of hazards produced by specific machines and safety equipment, which are considered in this Technical Regulation, are wholly or partly covered more specifically by other Technical Regulations on conformity confirmation, this Technical Regulation shall not apply, and such machines and safety equipment shall be covered by such specific Technical Regulations on conformity confirmation.


1.7. Placing machines and safety equipment, which are covered by this Technical Regulation, on the market shall be only allowed provided that such machines and safety equipment when properly installed, maintained and used, do not produce hazard for people, domestic animals, property and environment.

Safety requirements with which machines and safety equipment shall comply at the same time, are laid down in Chapter 2.

1.8. Machines and safety equipment, designed in accordance with the standards from the list of national standards, officially published by the specially authorized central executive body in the field of confirmation of conformity of the list of national standards, voluntary application of which may partially or entirely be taken as evidence of machines and safety equipment conformity with the requirements of this Technical Regulation (hereinafter – list of national standards), shall be considered as such that comply with the requirements of this Technical Regulation which cover the applied standards.

1.9. A manufacturer of machines and safety equipment or his authorized representative who is a resident of Ukraine or a person, responsible for placing machines and safety equipment on the market, according to the law respond for implementation of all conformity assessment procedures, established by this Technical Regulation, and also for specific machines and safety equipment conformity with safety requirements concerning it, from those laid down in Chapter 2.

1.10. Placing machines without declaration of conformity on the market and affixing of national conformity mark, description and application rules of which are approved by the resolutions of the Cabinet of Ministers of Ukraine of November 29, 2001, № 1599 and of October 7, 2003, № 1585, is prohibited.

Placing components without declaration of conformity on the market is prohibited.
1.10.1. List of machine and safety components types, for confirmation of conformity of which the procedures indicated in item 3.5 and 3.7 are used, is laid down in Annex 1.

Declaration of Conformity of the Machines relates only to machines in that state in which they are placed on the market, and does not include the components, which were later added by an end-user, or by operations performed by him.

Declaration of Conformity of the Machines shall contain the following information:

- business name and full address of the manufacturer and, where appropriate, his authorised representative;
- name and address of the person authorised to compile the technical documentation;
- description and identification of the machines and machinery, including generic denomination, function, model, type, serial number and commercial name;
- a sentence expressly declaring that the machine or machinery fulfils all the relevant provisions of this Technical Regulation and where appropriate, a similar sentence declaring the conformity with other Technical Regulations and/or relevant provisions with which the machine or machinery complies;
- where appropriate, the name, address and identification number of the authorized body which carries out the type-examination referred to in Annex V and the number of the type-examination certificate;
- where appropriate, the name, address and identification number of the authorized body which approved the full quality assurance system referred to in Annex VI;
- where appropriate, a reference to the harmonised standards used;
- where appropriate, the reference to other technical standards and specifications used;
- the place and date of the declaration;
- the identity and signature of the person empowered to draw up the declaration on behalf of the manufacturer or his authorised representative.

Declaration shall be drawn up in the Ukrainian language.

1.10.2. DECLARATION OF INCORPORATION OF PARTLY COMPLETED MACHINES (Annex III) shall contain:

- business name and full address of the manufacturer of the partly completed machines and, where appropriate, his authorised representative;
- name and address of the person authorized to compile the relevant technical documentation;
- description and identification of the partly completed machines including generic denomination, function, model, type, serial number and commercial name;
- a sentence expressly declaring the conformity of the machine or machinery with the appropriate provisions of this Technical Regulation, and where appropriate, the similar sentences approving the conformity with other Technical Regulations and/or the appropriate provisions with which the machine complies;
- enterprise name for transmission, in response to a reasoned request by the national executive authorities, relevant information on the partly completed machines and machinery. This also shall include the method of transmission and shall be without prejudice to the intellectual property rights of the manufacturer of the partly completed machines and machinery;
- a statement that the partly completed machines and machinery must not be put into service until the final machine or machinery into which it is to be incorporated has been declared in conformity with the provisions of this Technical Regulation, where appropriate;
- the place and date of the declaration;
- the identity and signature of the person empowered to draw up the declaration on behalf of the manufacturer or his authorised representative.

Declaration shall be drawn up in the Ukrainian language.

1.10.3. Declaration of Conformity of the Safety Components (Annex IV), indicative list of which is laid down in Annex I, shall contain:

- full name and address of the manufacturer or his authorised representative, who is a resident of Ukraine (in case the Declaration is compiled by the authorized representative, full name and address of the manufacturer shall be also indicated);
- description of the safety appliance (model, type, serial number if there is, etc.);
safety functions which are performed by the safety appliance, where it is not understandable form its description;

name and address of the authorized body and the number of the type-examination certificate issued by it (in case when for confirmation of conformity module B is used);

name and address of the authorized body (in case when confirmation of conformity was carried out in accordance with item 3.17.a);

a reference to the standards from the list of the national standards, in case they were used;

a reference to technical conditions used (specifications);

the position, surname and signature of the person empowered to draw up the declaration on behalf of the manufacturer or his authorised representative who is a resident of Ukraine.

Declaration shall be compiled in the Ukrainian language.

1.11. Presence of the national conformity sign on the production means that a natural or legal person who carried out marking or is responsible for it, examined and certifies production conformity with the requirements of all Technical Regulations relating to it, and carrying out of the appropriate conformity assessment procedures.

1.12. In case it is established that the national conformity mark and / or the declaration of conformity are applied with violation of the law requirements, a manufacturer of a person responsible for placing machines and safety appliances on the market, shall take measures on suspension of the violation on conditions defined in accordance with the effective law by the executive authorities, charged with technical regulating and supervision over the safety of machines and machinery (hereinafter – executive authorities), bring the machines and safety components to the state of conformity with the requirements of this Technical Regulation, and confirm this conformity in the established order.

In case of the continuous violation of the law, executive authorities shall take appropriate measures in accordance with the laws of Ukraine on limitation and prohibition of placing machines and safety components on the market or withdrawal them from the market.

Any decision, adopted in accordance with this Technical Regulation, concerning limitation and prohibition of placing machines and safety components on the market or withdrawal them from the market, shall contain a clear statement of the reasons it is based upon. The party in interest shall be informed about such decision without delay. At the same time the party in interest shall be informed on possibility and terms of the measures implementation, in accordance with the law, on the removal of violations.

1.13. Executive authorities shall not interfere with the demonstration of the machines and safety appliances, which do not comply with the requirements of this Technical Regulation on the trade fairs, exhibitions, demonstrations etc., in case that the manufacturer provided a clear visible marking, which informs about such machines and safety appliances noncompliance with the requirements of the Technical Regulation, and also informs that they are not subject for sell unless they are brought into state of compliance.

During the demonstrations of such machines and safety appliances the appropriate safety measures for human protection shall be carried out.

2. Health and safety requirements relating to the the design and construction of machines and safety appliances

2. Health and safety requirements relating to the the design and construction of machines

2.1. General principles

2.1.1. The manufacturer of machines or his authorised representative must ensure that a risk assessment is carried out in order to determine the health and safety requirements which apply to the machines. The machinery must then be designed and constructed taking into account the results of the risk assessment.

By the iterative process of risk assessment and risk reduction referred to above, the manufacturer or his authorised representative shall:

— determine the limits of the machines, which include the intended use and any reasonably foreseeable misuse thereof,

— identify the hazards that can be generated by the machines and the associated hazardous situations,

— estimate the risks, taking into account the severity of the possible injury or damage to health and the probability of its occurrence,

— evaluate the risks, with a view to determining whether risk reduction is required, in accordance with the objective of this Technical Regulation,
— eliminate the hazards or reduce the risks associated with these hazards by application of protective measures, in
the order of priority established in chapter (b) of section 1.1.2. (6, 2.2.1.1)

2.1.2. The obligations laid down by the essential health and safety requirements only apply when the corresponding
hazard exists for the machines in question when it is used under the conditions foreseen by the manufacturer or his
authorised representative or in foreseeable abnormal situations. In any event, the principles of safety integration
referred to in section 1.1.2 (2.2.1.1), and the obligations concerning marking of machines and machinery and
instructions referred to in sections 1.7.3 and 1.7.4. (2.2.7.4, 2.2.7.5) apply.

2.1.3. The essential health and safety requirements laid down in this Annex are mandatory; However, taking into
account the state of the art, it may not be possible to meet the objectives set by them. In that event, the machines
must, as far as possible, be designed and constructed with the purpose of approaching these objectives.

2.1.4. This chapter is organised in several parts. The first one has a general scope and is applicable to all kinds of
machines. The other parts refer to certain kinds of more specific hazards. Nevertheless, it is essential to examine the
whole of this chapter in order to be sure of meeting all the relevant essential requirements. When machines are being
designed, the requirements of the general part and the requirements of one or more of the other parts shall be taken
into account, depending on the results of the risk assessment carried out in accordance with point 2.1.1 of these
General Principles.

2.2. HEALTH AND SAFETY REQUIREMENTS

2.2.1. General provisions

2.2.1.1. Generalized Safety Principles

(a) Machines 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.

The aim of measures taken must be to eliminate any risk of accident, taking into account the foreseeable force
majeure risk, the throughout the foreseeable lifetime of the machine including the phases of transport, assembly,
dismantling, disabling and scrapping.

(b) In selecting the most appropriate methods, the manufacturer or his authorised representative must apply the
following principles, in the order given:
— eliminate or reduce risks as far as possible (inherently safe machinery design and construction),
— take the necessary protective measures in relation to risks that cannot be eliminated,
— inform users of the residual risks due to any shortcomings of the protective measures adopted, indicate
whether any particular training is required and specify any need to provide personal protective equipment.

(c) When designing and constructing machines and when drafting the instructions, the manufacturer or his
authorised representative must envisage not only the intended use of the machine but also any reasonably
foreseeable misuse thereof.

The machinery must be designed and constructed in such a way as to prevent abnormal use if such use
would engender a risk. Where appropriate, the instructions must draw the user's attention to ways — which
experience has shown might occur — in which the machines should not be used.

(d) Taking into account ergonomics principles, causes of inconveniences, tiredness and psychological load which the
operator is experiencing during the work under the appropriate conditions of machine use;

(e) Machinery must be designed and constructed to take account of the constraints to which the operator is
subject as a result of the necessary or foreseeable use of personal protective equipment (such as special shoes,
gauntlets etc.)

(f) Machinery must be supplied with all the special equipment and accessories essential to enable it to be adjusted,
maintained and used safely.

2.2.1.2. Materials and products

The materials used to construct machinery or products used or created during its use must not endanger persons'
safety or health.

In particular, where fluids are used, machine must be designed and constructed to prevent risks due to filling, use,
recovery or draining.

2.2.1.3. Lighting

A manufacturer must supply a machine with integral lighting suitable for the operations concerned where the absence
thereof is likely to cause a risk despite ambient lighting of normal intensity.

A manufacturer must provide that the integral lighting provides absence of nuisance, dazzle and dangerous
stroboscopic effects on moving parts.
Internal parts requiring frequent inspection and adjustment, and maintenance areas must be provided with appropriate lighting.

2.2.1.4. Design of machines to facilitate its handling

A machine, or each component part thereof, must:
— be capable of being handled and transported safely,
— be packaged or designed so that it can be stored safely and without damage (for instance, possess an appropriate resistance, special mountings etc.)

During the transportation of the machines and/or its component parts, there must be no possibility of sudden movements or of hazards due to instability at handling it in accordance with the instructions.

Where the weight, size or shape of the machine or its various component parts prevents them from being moved by hand, the machinery or each component part must:
— either be fitted with attachments for lifting gear, or
— be designed so that it can be fitted with such attachments (for instance, contain screw holes), or
— be shaped in such a way that standard lifting gear can easily be attached.

Where machinery or one of its component parts is to be moved by hand, it must:
— either be easily moveable, or
— be equipped for picking up and moving safely (for instance, by handles)

Special arrangements must be made for the handling of tools and/or machine parts which, even if lightweight, could be hazardous (form, material etc.).

2.2.1.5 Ergonomics

Under the intended conditions of use, the discomfort, fatigue and physical and psychological stress faced by the operator must be reduced to the minimum possible, taking into account ergonomic principles such as:
— allowing for the variability of the operator's physical dimensions, strength and stamina,
— providing enough space for movements of the parts of the operator's body,
— avoiding a machine-determined work rate,
— avoiding monitoring that requires lengthy concentration,
— adapting the man/machine interface to the foreseeable characteristics of the operators.

2.2.1.6 Operating positions

The operating position must be designed and constructed in such a way as to avoid any risk due to exhaust gases and/or lack of oxygen.

If the machine is intended to be used in a hazardous environment presenting risks to the health and safety of the operator or if the machine or machinery itself gives rise to a hazardous environment, adequate means must be provided to ensure that the operator has good working conditions and is protected against any foreseeable hazards.

Where appropriate, the operating position must be fitted with an adequate cabin designed, constructed and/or equipped to fulfil the above requirements. The exit must allow rapid evacuation. Moreover, when applicable, an emergency exit must be provided in a direction which is different from the usual exit.

2.2.1.7 Seating

Where appropriate and where the working conditions so permit, work stations constituting an integral part of the machine must be designed for the installation of seats.

If the operator is intended to sit during operation and the operating position is an integral part of the machine, the seat must be provided with the machine.

The operator's seat must enable him to maintain a stable position. Furthermore, the seat and its distance from the control devices must be capable of being adapted to the operator’s physical characteristics.

If the machinery is subject to vibrations, the seat must be designed and constructed in such a way as to reduce the vibrations transmitted to the operator to the lowest level that is reasonably possible. The seat mountings must withstand all stresses to which they can be subjected. Where there is no floor beneath the feet of the operator, footrests covered with a slip-resistant material must be provided.

2.2.2 Control

2.2.2.1 Safety and reliability of control systems

Control systems must be designed and constructed in such a way as to prevent hazardous situations from arising. Above all, they must be designed and constructed in such a way that:
— they can withstand the intended operating stresses and external influences,
— a fault in the hardware or the software of the control system does not lead to hazardous situations,
— errors in the control system logic do not lead to hazardous situations,
— reasonably foreseeable human error during operation does not lead to hazardous situations

Particular attention must be given to the following points:
— the machine must not start unexpectedly,
— the parameters of the machine must not change in an uncontrolled way, where such change may lead
to hazardous situations,
— the machine must not be prevented from stopping if the stop command has already been given,
— no moving part of the machine or piece held by the machine must fall or be ejected,
— automatic or manual stopping of the moving parts, whatever they may be, must be unimpeded,
— the protective devices must remain fully effective or give a stop command,
— the safety-related parts of the control system must apply in a coherent way to the whole of an assembly
of machine and/or partly completed machine.

For cable-less control, an automatic stop must be activated when correct control signals are not received, including
loss of communication.

2.2.2.2. Control devices
Control devices must be:
— clearly visible and identifiable, using pictograms where appropriate,
— positioned in such a way as to be safely operated without hesitation or loss of time and without ambiguity,
— designed in such a way that the movement of the control device is consistent with its effect,
— located outside the danger zones, except where necessary for certain control devices such as an emergency
stop or a teach pendant,
— positioned in such a way that their operation cannot cause additional risk,
— designed or protected in such a way that the desired effect, where a hazard is involved, can only be
achieved by a deliberate action,
— made in such a way as to withstand foreseeable forces; particular attention must be paid to emergency stop devices
liable to be subjected to considerable forces.

Where a control device is designed and constructed to perform several different actions, namely where there
is no one-to-one correspondence (for instance, application of a keyboard etc.), the action to be performed must be
clearly displayed and subject to confirmation, where necessary.

Control devices must be so arranged that their layout, travel and resistance to operation are compatible with
the action to be performed, taking account of ergonomic principles.

Machines must be fitted with indicators (dials, alarm systems etc.) as required for safe operation. The operator must
be able to read them from the control position.

From each control position, the operator must be able to ensure that no-one is in the danger zones, or the control
system must be designed and constructed in such a way that starting is prevented while someone is in the danger
zone.

If neither of these possibilities is applicable, the control systems must be designed and constructed in such a way that
before the machine starts, an acoustic and/or visual warning signal is given. The exposed persons must have time to
leave the danger zone or prevent the machine starting up.

If necessary, means must be provided to ensure that the machinery can be controlled only from control positions
located in one or more predetermined zones or locations.

Where there is more than one control position, the control system must be designed in such a way that the use of one
of them precludes the use of the others, except for stop controls and emergency stops.

When machine has two or more operating positions, each position must be provided with all the required control
devices without the operators hindering or putting each other into a hazardous situation.

2.2.2.3. Starting
It must be possible to start a machine only by intended actuation of a control device provided for the purpose.

The same requirement applies:
— when restarting the machine after a stoppage, whatever the cause,
— when effecting a significant change in the operating conditions (for instance, speed, pressure etc.)

This requirement does not apply to the restarting of the machine or a change in operating conditions which are the
consequence of the normal sequence of actions in the automatic cycle.

However, the restarting of the machine or a change in operating conditions may be effected by voluntary
actuation of a device other than the control device provided for the purpose, on condition that this does not lead to a
hazardous situation.

For machines functioning in automatic mode, the starting of the machine, restarting after a stoppage, or a change in
operating conditions may be possible without intervention, provided this does not lead to a hazardous situation.
Where machinery has several starting control devices and the operators can therefore put each other in
danger, additional devices must be fitted to rule out such risks (e.g. blocking devices or selectors, which enable to
move at the same time only one part of the starting machine). If safety requires that starting and/or stopping must be
performed in a specific sequence, there must be devices which ensure that these operations are performed in the
correct order.

2.2.2.4. Stopping
(a) Normal stop
Each machine must be fitted with a control device whereby the machine can be brought safely to a complete stop.
Each workstation must be fitted with a control device to stop some or all of the functions of the machine, depending on the existing hazards, so that the machine is rendered safe.

The machinery's stop control must have priority over the start controls.

Once the machinery or its hazardous functions have stopped, the energy supply to the actuators concerned must be cut off.

(b) Operational stop
Where, for operational reasons, a stop control that does not cut off the energy supply to the actuators is required, the stop condition must be monitored and maintained.

(c) Emergency stop
Each machine must be fitted with one or more emergency stop devices to enable actual or impending danger to be averted. The following exceptions apply:
— machines in which an emergency stop device would not lessen the risk, either because it would not reduce the stopping time or because it would not enable the special measures required to deal with the risk to be taken,
— portable hand-held and/or hand-guided machines.

The device must:
— have clearly identifiable, clearly visible and quickly accessible control devices,
— stop the hazardous process as quickly as possible, without creating additional risks,
— where necessary, trigger or permit the triggering of certain safeguard movements.

Once active operation of the emergency stop device has ceased following a stop command, that command must be sustained by engagement of the emergency stop device until that engagement is specifically overridden; it must not be possible to engage the device without triggering a stop command; it must be possible to disengage the device only by an appropriate operation, and disengaging the device must not restart the machinery but only permit restarting.

The emergency stop function must be available and operational at all times, regardless of the operating mode. Emergency stop devices must be a back-up to other safeguarding measures and not a substitute for them.

(d) Assembly of machines
In the case of machines or parts of machines are designed to work together, the machine must be designed and constructed by a manufacturer in such a way that the stop controls, including the emergency stop devices, can stop not only the machine itself but also all related equipment, if its continued operation may be dangerous.

2.2.2.5. Selection of control or operating modes
The control or operating mode selected must override all other control or operating modes, with the exception of the emergency stop.

If a machine has been designed and constructed to allow its use in several control or operating modes requiring different protective measures and/or work procedures (e.g. adjustment, maintenance, inspection are allowed), it must be fitted with a mode selector which can be locked in each position. Each position of the selector must be clearly identifiable and must correspond to a single operating or control mode.

The selector may be replaced by another selection method which restricts the use of certain functions of the machine to certain categories of operator (e.g. access codes to certain functions of program control etc.)

If, for certain operations, the machinery must be able to operate with a guard displaced or removed and a protective device disabled, the control or operating mode selector must simultaneously:
— disable all other control or operating modes,
— permit operation of hazardous functions only by control devices requiring sustained action,
— permit the operation of hazardous functions only in reduced risk (e.g. lowered speed, reduced power, step-by-step consecutive operation or other similar limitations) conditions while preventing hazards from linked sequences,
— prevent any operation of hazardous functions by voluntary or involuntary action on the machine's sensors.

If these four conditions cannot be fulfilled simultaneously, the control or operating mode selector must activate other protective measures designed and constructed to ensure a safe intervention zone.

In addition, the operator must be able to control operation of the parts he is working on from the adjustment point.

2.2.2.6. Failure of the power supply
The interruption, the re-establishment after an interruption or the fluctuation in whatever manner of the power supply to the machine must not lead to dangerous situations.

Particular attention must be given to the following points:
— the machine must not start unexpectedly,
— the parameters of the machine must not change in an uncontrolled way when such change can lead to hazardous situations,
— the machine must not be prevented from stopping if the command has already been given,
— no moving part of the machine or piece held by the machine must fall or be ejected,
— automatic or manual stopping of the moving parts, whatever they may be, must be unimpeded,
— the protective devices must remain fully effective or give a stop command.
2.2.3. PROTECTION AGAINST MECHANICAL HAZARDS

2.2.3.1. Risk of loss of stability
Machines and its components and fittings must be designed and constructed in a way to be stable enough to avoid overturning, falling or uncontrolled movements during transportation, assembly, dismantling and any other action involving the machines.

If the shape of the machine itself or its intended installation does not offer sufficient stability, appropriate means of anchorage must be incorporated and indicated in the instructions.

2.2.3.2. Risk of break-up during operation
The various parts of a machine and their linkages must be able to withstand the stresses to which they are subject when used according to its intended purpose.

The durability of the materials used must be adequate for the nature of the working environment foreseen by the manufacturer or his authorised representative, in particular as regards the phenomena of fatigue, ageing, corrosion and abrasion.

The instructions must indicate the type and frequency of inspections and maintenance required for safety reasons. They must, where appropriate, indicate the parts subject to wear and the criteria for replacement.

Where a risk of rupture or disintegration remains despite the measures taken (e.g. abrasive disks), the parts concerned must be mounted, positioned and guarded in such a way that any fragments in case of a rupture will be contained, preventing hazardous situations.

Both rigid and flexible pipes carrying fluids, particularly those under high pressure, must be able to withstand the foreseen internal and external stresses and must be firmly attached and/or protected to ensure that no risk is posed by a rupture (e.g. sudden movements, high pressure bumps etc.)

Where the material to be processed is fed to the tool automatically, the following conditions must be fulfilled to avoid risks to persons (e.g. from destroying of tool):
— when the workpiece comes into contact with the tool, the latter must have attained its normal working condition,
— when the tool starts and/or stops (intentionally or accidentally), the feed movement and the tool movement must be coordinated.

2.2.3.3. Risks due to falling or ejected objects
Precautions must be taken to prevent risks from falling or ejected objects (e.g. feedstock, tools, shaving, parts, waste materials etc.).

2.2.3.4. Risks due to surfaces, edges or angles
Insofar as their purpose allows, accessible parts of the machine must have no sharp edges, no sharp angles and no rough surfaces likely to cause injury.

2.2.3.5. Risks related to combined machinery
Where the machine is intended to carry out several different operations with manual removal of the piece between each operation (combined machinery), it must be designed and constructed in such a way as to enable each element to be used separately without the other elements constituting a risk for exposed persons.

For this purpose, it must be possible to start and stop separately any elements that are not protected.

2.2.3.6. Risks related to variations in operating conditions
Where the machine is designed to perform operations under different operation modes (e.g. different speeds or different powers), it must be designed and constructed in such a way that selection and adjustment of these modes can be carried out safely and reliably.

2.2.3.7. Risks related to moving parts
The moving parts of a machine must be designed, constructed and located in such a way as to prevent risks of contact which could lead to accidents or must, where risks persist, be fitted with guards or protective devices.

All necessary steps must be taken to prevent accidental blockage of moving parts involved in the work. In cases where, despite the precautions taken, a blockage is likely to occur, the necessary specific protective devices and tools must, when appropriate, be provided to enable the equipment to be safely unblocked.

The instructions and, where possible, a sign on the machine shall identify these specific protective devices and how they are to be used.

2.2.3.8. Choice of protection against risks arising from moving parts
Guards or protective devices used to protect against risks arising from moving parts must be selected on the basis of the type of risk. The following guidelines must be used to help to make the choice:

2.2.3.8.1. Moving transmission parts
Guards intended to protect persons against the hazards generated by moving transmission parts (such as pulleys, belts, gears, gear tracks, spindles etc.) must be:

— either fixed guards as referred to in section 2.2.4.2.1, or
— interlocking movable guards as referred to in section 2.2.4.2.2.

Interlocking movable guards should be used where frequent access is envisaged.

2.2.3.8.2. Moving parts involved in the process
Guards or protective devices intended to protect persons against the hazards generated by moving parts involved in the process (e.g. cutting tool, moving parts of presses, cylinders, processed parts etc.) must be:

— fixed guards as referred to in section 2.2.4.2.1, or
— interlocking movable guards as referred to in section 2.2.4.2.2, or
— protective devices as referred to in section 2.2.4.3, or
— a combination of the above.

However, when certain moving parts directly involved in the process cannot be made completely inaccessible during operation owing to operations requiring operator intervention, such parts must be fitted with:

— fixed guards or interlocking movable guards preventing access to those sections of the parts that are not used in the work, and
— adjustable guards as referred to in section 2.2.4.2.3, restricting access to those sections of the moving parts where access is necessary.

2.2.3.9 Risks of uncontrolled movements
When a part of the machine has been stopped, any drift away from the stopping position, for whatever reason other than action on the control devices, must be prevented or must be such that it does not present a hazard.

2.2.4. REQUIRED CHARACTERISTICS OF GUARDS AND PROTECTIVE DEVICES
2.2.4.1. General requirements
Guards and protective devices must:
— be of robust construction,
— not give rise to any additional hazard,
— not be easy to by-pass or render non-operational,
— be located at an adequate distance from the danger zone,
— cause minimum obstruction to the view of the production process, and
— enable essential work to be carried out on the installation and/or replacement of tools and for maintenance purposes by restricting access exclusively to the area where the work has to be done, if possible without the guard having to be removed or the protective device having to be disabled.

In addition, guards must, where possible, protect against the ejection or falling of materials or objects and against emissions generated by the machinery.

2.2.4.2. Special requirements for guards
2.2.4.2.1. Fixed guards
Fixed guards must be effectively fixed on its spot. Their fixing must be carried out by systems that can be removed only with tools. Their fixing systems must remain attached to the guards or to the machines when the guards are removed.

Where possible, guards must be incapable of remaining in place without their fixings.

2.2.4.2.2. Interlocking movable guards
Interlocking movable guards must:
— as far as possible remain attached to the machinery when open,
— be designed and constructed in such a way that they can be adjusted only by means of an intentional action.
— be associated with an interlocking device that prevents the start of hazardous machinery functions until they are closed and gives a stop command whenever they are open.

Where it is possible for an operator to reach the danger zone before the risk due to the hazardous machine functions has ceased, movable guards must be associated with a guard locking device in addition to an interlocking device that:
— prevents the start of hazardous machine functions until the guard is closed and locked, and
— keeps the guard closed and locked until the risk of injury from the hazardous machine functions has ceased.

Movable guards must be designed in such a way that the absence or failure of one of their components prevents starting or stops the hazardous machinery functions.

2.2.4.2.3. Adjustable guards restricting access
Adjustable guards restricting access to those areas of the moving parts strictly necessary for the work must be:
— adjustable manually or automatically, depending on the type of work involved, and
— readily adjustable without the use of tools.

2.2.4.3. Special requirements for protective devices
Protective devices must be designed and incorporated into the control system in such a way that:
— moving parts cannot start up while they are within the operator’s reach,
— exposed persons cannot reach moving parts after their starting,
- their installing is carried out only by means of an intentional use of a tool, wrench etc.,
— the absence or failure of one of their components prevents starting or stops the moving parts.

2.2.5. RISKS DUE TO OTHER HAZARDS

2.2.5.1. Electric supply
Where machines have an electricity supply, they must be designed, constructed and equipped in such a way that all hazards of an electrical nature are or can be prevented.

The safety objectives set out in Directive 73/23/EEC shall apply to the machines. However, the obligations concerning conformity assessment and the placing on the market and/or putting into service of machines with regard to electrical hazards are governed solely by this Technical Regulation.

2.2.5.2. Static electricity
Machines must be designed and constructed to prevent or limit the build-up of potentially dangerous electrostatic charges and/or be fitted with a discharging system.

2.2.5.3. Energy supply other than electricity
Where a machine is powered by source of energy other than electricity (for instance, hydraulic, pneumatic, thermal energy etc.), it must be so designed, constructed and equipped as to avoid all potential risks associated with such sources of energy.

2.2.5.4. Errors of fitting
Errors likely to be made when fitting, dismantling and refitting certain parts which could be a source of risk must be made impossible by the design and construction of such parts or, failing this, by information given on the parts themselves and/or their housings. The same information must be given on moving parts and/or their housings where the direction of movement needs to be known in order to avoid a risk. Where necessary, the instructions must give further information on these risks.

Where a faulty connection can be the source of risk, incorrect connections must be made impossible by design or, failing this, by information given on the elements to be connected and, where appropriate, on the means of connection.

2.2.5.5. Extreme temperatures
Steps must be taken to eliminate any risk of injury arising from contact with or proximity to machine parts or materials at high or very low temperatures. The necessary steps must also be taken to avoid or protect against the risk of hot or very cold material being ejected.

2.2.5.6. Fire
Machines must be designed and constructed in such a way as to avoid any risk of fire or overheating posed by the machine itself or by gases, liquids, dust, vapours or other substances produced or used during the machine operation.

2.2.5.7. Explosion
Machinery must be designed and constructed in such a way as to avoid any risk of explosion posed by the machine itself or by gases, liquids, dust, vapours or other substances produced or used during the machine operation.

Machines must comply, as far as the risk of explosion due to its use in a potentially explosive atmosphere is concerned, with the specific requirements.

2.2.5.8. Noise
Machines must be designed and constructed in such a way that risks resulting from the emission of airborne noise are reduced to the lowest level, taking account of technical progress and the availability of means of reducing noise, in particular at source of its generating.

2.2.5.9. Vibrations
Machines must be designed and constructed in such a way that risks resulting from vibrations produced by the machinery are reduced to the lowest level, taking account of technical progress and the availability of means of reducing vibration, in particular at source of its generating.

The level of vibration emission may be assessed with reference to comparative emission data for similar machines.

2.2.5.10. Radiation
Undesirable radiation emissions from the machines must be eliminated or be reduced to levels that do not have adverse effects on persons.

Any functional ionising radiation emissions must be limited to the lowest level which is sufficient for the proper functioning of the machine during setting, operation and cleaning. Where a risk exists, the necessary protective measures must be taken.

Any functional non-ionising radiation emissions during setting, operation and cleaning must be limited to levels that do not have adverse effects on persons.

2.2.5.11. External radiation
Machines must be designed and constructed in such a way that external radiation does not interfere with its operation.

2.2.5.12. Laser radiation
Where laser equipment is used, the following should be taken into account:
— laser equipment on machines must be designed and constructed in such a way as to prevent any accidental radiation,
— laser equipment on machines must be protected in such a way that effective radiation, radiation produced by reflection or diffusion and secondary radiation do not damage health,
— optical equipment for the observation or adjustment of laser equipment on machines must be such that no health risk is created by laser radiation.

2.2.5.13. Emissions of hazardous materials and substances
Machines must be designed and constructed and/or equipped in such a way that risks of inhalation, ingestion, contact with the skin, eyes and mucous membranes and penetration through the skin of hazardous materials and substances which it produces can be avoided.

Where a hazard occurs, the machines must be so equipped that hazardous materials and substances can be contained, evacuated, precipitated by water spraying, filtered or treated by another equally effective method.

Where the machines are not totally enclosed during normal operation, the devices for containment and/or evacuation must be situated in such a way as to have the maximum effect.

2.2.5.14. Risk of being trapped in a machine
Machinery must be designed, constructed or fitted with a means of preventing a person from being enclosed within it or, if that is impossible, with a means of summoning help.

2.2.5.15. Risk of slipping, tripping or falling
Parts of the machines where persons are liable to move about or stand must be designed and constructed in such a way as to prevent persons slipping, tripping or falling on or off these parts.

2.2.5.16. Lightning
Machines in need of protection against the effects of lightning while being used must be fitted with a system for conducting the resultant electrical charge to earth.

2.2.6. MAINTENANCE

2.2.6.1. Machinery maintenance
Adjustment, lubrication and maintenance points must be located outside danger zones. It must be possible to carry out lubricant, maintenance, repair, cleaning and servicing operations while machinery is at a standstill.

If one or more of the above conditions cannot be satisfied for technical reasons, measures must be taken to ensure that these operations can be carried out safely as referred to in point 2.2.2.5.

In the case of automated machines and, where necessary, other machines, a connecting device for mounting diagnostic fault-finding equipment must be provided by a manufacturer.

Automated machines components which have to be changed frequently must be capable of being removed and replaced easily and safely.

Access to the components must enable these tasks to be carried out with the necessary technical means (tools, measurement instrumentation etc.) in accordance with a specified operating method defined by the manufacturer.

2.2.6.2. Access to operating positions and servicing points
A machine must be designed and constructed in such a way as to allow access in safety (steps, ladders, gangways etc.) to all areas where intervention is necessary during operation, adjustment and maintenance of the machinery.

2.2.6.3. Isolation of energy sources
All machines must be fitted with means to isolate it from all energy sources. Such isolators must be clearly identified. They must be capable of being locked if reconnection could endanger exposed persons. Isolators must also be capable of being locked where an operator is unable, from any of the points to which he has access, to check that the energy is still cut off.

In the case of machines with electricity supply are connected with an electricity network by means of a plug, removal of the plug is sufficient, provided that the operator can check from any of the points to which he has access that the plug remains removed.

After the energy is cut off, it must be possible to dissipate normally any energy remaining or stored in the circuits of the machine without risk to persons.

As an exception to the requirement laid down in the previous paragraphs, certain circuits may remain connected to their energy sources in order, for example, to hold parts, to protect information, to light interiors, etc. In this case, special steps must be taken to ensure operator safety.

2.2.6.4. Operator intervention
Machinery must be so designed, constructed and equipped that the need for operator intervention is limited.

If operator intervention cannot be avoided, it must be possible to carry it out easily and safely.

2.2.6.5. Cleaning of internal parts
The machine must be designed and constructed in such a way that it is possible to clean internal parts which have contained dangerous substances or preparations without entering them; any necessary unblocking must also be possible from the outside.

If it is impossible to avoid entering the machine, measures have to be taken to ensure that the cleaning process can be carried out as safely as possible.

2.2.7. INFORMATION

2.2.7.1 Information and warnings on the machines
Information and warnings on the machines and machinery should preferably be provided in the form of readily understandable symbols or pictograms. Any written or verbal information and warnings must be expressed in the Ukrainian language.

2.2.7.1.1 Information and information devices
The information needed to control machinery must be provided in a form that is unambiguous and easily understood. It must not be excessive to the extent of overloading the operator.

Visual display units or any other interactive means of communication between the operator and the machine or machinery must be easily understood and easy to use.

2.2.7.1.2 Warning devices
Where the health and safety of persons may be endangered by a fault in the operation of unsupervised machinery, the machine must be equipped in such a way as to give an appropriate acoustic or light signal as a warning.

Where the machines are equipped with warning devices (such as signal devices etc.) these must be unambiguous and easily perceived.

The operator must have facilities to check the operation of such warning devices at all times.

The specific requirements concerning colours and safety signals must be complied with.

2.2.7.2 Warning of residual risks
Where risks remain despite the inherent safe design measures, safeguarding and complementary protective measures adopted, the necessary warnings, including warning devices, must be provided.

2.2.7.3 Marking of a machine
All machinery must be marked legibly and indelibly with the following minimum particulars:
— the business name and full address of the manufacturer and, where applicable, his authorised representative,
— designation of the machine,
— marking of the national conformity mark in accordance with point 1.9. -the CE Marking (see Annex III),
— designation of series or type,
— serial number, if any,
— the year of construction, that is the year in which the manufacturing process is completed.

It is prohibited to pre-date or post-date the machinery when affixing the CE marking.

Furthermore, a machine designed and constructed for use in a potentially explosive atmosphere must be marked accordingly.

Machines must also bear full information relevant to its type and essential for safe use (e.g. maximum speed of certain reverse parts, maximum diameter of an installing tool, mass etc.). Such information is subject to the requirements set out in section 2.2..7.1.

Where a machine part must be handled during use with lifting equipment, its mass must be indicated legibly, indelibly and unambiguously.

2.2.7.4 Instructions
All machines must be accompanied by instructions in the Ukrainian language.

The instructions accompanying the machines must be either ‘Original instructions’ or a ‘Translation of the original instructions’, in which case the translation must be accompanied by the original instructions.

By way of exception, the maintenance instructions intended for use by specialised personnel mandated by the manufacturer or his authorised representative may be supplied in only one language which the specialised personnel understand.

The instructions must be drafted in accordance with the principles set out below.

2.2.7.4.1 General principles for the drafting of instructions
The instructions must be drafted in the Ukrainian language. The words ‘Original instructions’ must appear on the language version verified by the manufacturer or his authorised representative.

Where the ‘Original instructions’ are drafted in the official language of the country where the machine or machinery is to be used, a translation into that language must be provided by the manufacturer or his authorized representative or by the person bringing the machine or machinery into the language area in question. The translations must bear the words ‘Translation of the original instructions’. (Where no ‘original instructions’ in the official language of the country where the machine or machinery is to be used, exist, a translation into appropriate language(s) must be provided by the manufacturer or his authorized representative or by the person bringing the machine or machinery into the language area in question. The translations must bear the words ‘Translation of the original instructions’.)

The contents of the instructions must cover not only the intended use of the machine or machinery but also take into account any reasonably foreseeable misuse thereof.
In the case of machines use by non-professional operators, the wording and layout of the instructions for use must take into account the level of general education and acumen that can reasonably be expected from such operators.

2.2.7.4.2. **Contents of the instructions**
Each instruction manual must contain, where applicable, at least the following information:
(a) the business name and full address of the manufacturer and of his authorised representative;
(b) the designation of the machines as marked on the machine itself, except for the serial number (see section 2.2.7.3);
(c) the EC declaration of conformity, or a document setting out the contents of the EC declaration of conformity, showing the particulars of the machinery, not necessarily including the serial number and the signature;
(d) a general description of the machinery;
(e) the drawings, diagrams, descriptions and explanations necessary for the use, maintenance and repair of the machinery and for checking its correct functioning;
(f) a description of the workstation(s) likely to be occupied by operators;
(g) a description of the intended use of the machine;
(h) warnings concerning ways in which the machinery must not be used that experience has shown might occur;
(i) assembly, installation and connection instructions, including drawings, diagrams and the means of attachment and the designation of the chassis or installation on which the machinery is to be mounted;
(j) instructions relating to installation and assembly for reducing noise or vibration;
(k) instructions for the putting into service and use of the machinery and, if necessary, instructions for the training of operators;
(l) information about the residual risks that remain despite the inherent safe design measures, safeguarding and complementary protective measures adopted;
(m) instructions on the protective measures to be taken by the user, including, where appropriate, the personal protective equipment to be provided;
(n) the essential characteristics of tools which may be fitted to the machine;
(o) the conditions in which the machine meets the requirement of stability during use, transportation, assembly, dismantling when out of service, testing or foreseeable breakdowns;
(p) instructions with a view to ensuring that transport, handling and storage operations can be made safely, giving the mass of the machine and of its various parts where these are regularly to be transported separately;
(q) the operating method to be followed in the event of accident or breakdown; if a blockage is likely to occur, the operating method to be followed so as to enable the equipment to be safely unblocked;
(r) the description of the adjustment and maintenance operations that should be carried out by the user and the preventive maintenance measures that should be observed;
(s) instructions designed to enable adjustment and maintenance to be carried out safely, including the protective measures that should be taken during these operations;
(t) the specifications of the spare parts to be used, when these affect the health and safety of operators;
(u) the following information on airborne noise emissions:
   — the A-weighted emission sound pressure level at workstations, where this exceeds 70 dB(A); where this level does not exceed 70 dB(A), this fact must be indicated,
   — the peak C-weighted instantaneous sound pressure value at workstations, where this exceeds 63 Pa (130 dB in relation to 20 μPa),
   — the A-weighted sound power level emitted by the machinery, where the A-weighted emission sound pressure level at workstations exceeds 80 dB(A).
These values must be either those actually measured for the machines or machinery in question or those established on the basis of measurements taken for technically comparable machines which is representative of the machinery to be produced.

In the case of very large machines and machinery, instead of the A-weighted sound power level, the A-weighted emission sound pressure levels at specified positions around the machinery may be indicated.

Where the harmonised standards are not applied, sound levels must be measured using the most appropriate method for the machinery. Whenever sound emission values are indicated the uncertainties surrounding these values must be specified. The operating conditions of the machinery during measurement and the measuring methods used must be described.

Where the workstation(s) are undefined or cannot be defined, A-weighted sound pressure levels must be measured at a distance of 1 metre from the surface of the machine and at a height of 1,6 metres from the floor or access platform. The position and value of the maximum sound pressure must be indicated;

Where specific Technical Regulations lay down other requirements for the measurement of sound pressure levels or sound power levels, those Technical Regulations must be applied and the corresponding provisions of this section shall not apply;

(v) where machinery is likely to emit non-ionising radiation which may cause harm to persons, in particular persons with active or non-active implantable medical devices, information concerning the radiation emitted for the operator and exposed persons.

2.2.7.4.3 **Sales literature**
Sales literature must not contradict the instructions as regards health and safety aspects. Sales literature describing the performance characteristics of a machine must contain the same information on emissions as is contained in the instructions.

2.3. **HEALTH AND SAFETY REQUIREMENTS FOR CERTAIN CATEGORIES OF MACHINES**
Foodstuffs machines, machinery for cosmetics or pharmaceutical products, hand-held and/or hand-guided machines, portable fixing and other impact machines, machines for working wood and material with similar physical
characteristics must meet all the essential health and safety requirements described in this chapter (see General Principles, point 2.1.4).

2.3.1. FOODSTUFFS MACHINES AND MACHINES FOR COSMETICS OR PHARMACEUTICAL PRODUCTS

Machines intended for preparation and processing with foodstuffs or with cosmetics or pharmaceutical products (e.g. heat treatment, cooling, defrosting, cleaning, processing, packing, keeping, transportation or distribution) must be designed and constructed in such a way as to avoid any risk of infection, sickness or contagion, with the following requirements observed:

(a) materials in contact with, or intended to come into contact with, foodstuffs or cosmetics or pharmaceutical products must satisfy the conditions set down in the relevant Technical Regulations. The machines must be designed and constructed in such a way that these materials can be cleaned before each use. Where this is not possible disposable parts must be used;

(b) all surfaces in contact with foodstuffs or cosmetics or pharmaceutical products, other than surfaces of disposable parts, must:
— be smooth and have neither ridges nor crevices which could harbour organic materials. The same applies to their joinings,

(c) machine assemblies must be designed in such a way as to reduce the projections, edges and recesses of assemblies to a minimum,

(d) all the surfaces in contact with foodstuffs must be easily cleaned and disinfected, where necessary after removing easily dismantled parts; the inside surfaces must have curves with a radius sufficient to allow thorough cleaning;

(e) it must be possible for liquids, gases and aerosols deriving from foodstuffs, cosmetics or pharmaceutical products as well as from cleaning, disinfecting and rinsing fluids to be completely discharged from the machine (if possible, in a ‘cleaning’ position);

(f) machines must be designed and constructed in such a way as to prevent any substances or living creatures, in particular insects, from entering, or any organic matter from accumulating in, areas that cannot be cleaned (for instance, machines which are not installed on holders or rollers, between the machine and its basis gaskets are placed; hermetic equipment is being used etc.);

(g) machines must be designed and constructed in such a way that no ancillary substances hazardous to health, including the lubricants used, can come into contact with foodstuffs, cosmetics or pharmaceutical products. Where necessary, machinery must be designed and constructed in such a way that continuing compliance with this requirement can be checked.

Instructions
The instructions for foodstuffs machines and machines for use with cosmetics or pharmaceutical products must indicate recommended products and methods for cleaning, disinfecting and rinsing, not only for easily accessible areas but also for areas to which access is impossible or inadvisable.

2.3.2. PORTABLE HAND-HELD AND/OR HAND-GUIDED MACHINES

Portable hand-held and/or hand-guided machines must:
— depending on the type of machines, have a supporting surface of sufficient size and have a sufficient number of handles and supports of an appropriate size, arranged in such a way as to ensure the stability of the machines under the intended operating conditions, defined by a manufacturer;

— except where technically impossible, or where there is an independent control device, in the case of handles which cannot be released in complete safety, be fitted with manual start and stop control devices arranged in such a way that the operator can operate them without releasing the handles,

— be designed, constructed and fitted to present no risks of accidental starting and/or continued operation after the operator has released the handles. Equivalent steps must be taken if this requirement is not technically feasible,

— be designed and constructed to permit, where necessary, visual observation of the danger zone and of the action of the tool with the material being processed.

The handles of portable machines must be designed and constructed in such a way as to make starting and stopping straightforward.

Instructions
The instructions must give the following information concerning vibrations transmitted by portable handheld and hand-guided machines:
— the vibration total value to which the hand-arm system is subjected, if it exceeds 2,5 m/s². Where this value does not exceed 2,5 m/s², this must be mentioned,

— the uncertainty of measurement.

These values must be either those actually measured for the machines in question or those established on the basis of measurements taken for technically comparable machines which is representative of the machines to be produced.

If harmonised standards are not applied, the vibration data must be measured using the most appropriate measurement code for the machines.
The operating conditions during measurement and the methods used for measurement, or the reference of the harmonised standard applied, must be specified.

2.3.2.1. **Portable fixing and other impact machines**

Portable fixing and other impact machines must be designed and constructed in such a way that:

— energy is transmitted to the impacted element by the intermediary component that does not leave the device,
— an enabling device prevents impact unless the machinery is positioned correctly with adequate pressure on the base material,
— involuntary triggering is prevented; where necessary, an appropriate sequence of actions on the enabling device and the control device must be required to trigger an impact,
— accidental triggering is prevented during handling or in case of shock,
— loading and unloading operations can be carried out easily and safely.

Where necessary, the manufacturer of the machine must provide it to be possible to fit the device with the appropriate guard(s) to protect from materials fragments ejections.

**Instructions**
The instructions must give the necessary information regarding:

— the accessories and interchangeable equipment that can be used with the machines,
— the suitable fixing or other impacted elements to be used with the machines,
— where appropriate, the suitable cartridges to be used.

2.3.3. **MACHINES FOR WORKING WOOD AND MATERIAL WITH SIMILAR PHYSICAL CHARACTERISTICS**

Machines for working wood and materials with similar physical characteristics must comply with the following health and safety requirements:

(a) the machines must be designed, constructed or equipped in such a way that the piece being machined can be placed and guided in safety; where the piece is hand-held on a work-bench, the latter must be sufficiently stable during the work and must not impede the movement of the piece;

(b) where the machinery is likely to be used in conditions involving the risk of ejection of workpieces or parts of them, it must be designed, constructed, or equipped in such a way as to prevent such ejection, or, if this is not possible, so that the ejection does not engender risks for the operator and/or exposed persons;

(c) the machinery must be equipped with an automatic brake that stops the tool in a sufficiently short time if there is a risk of contact with the tool whilst it runs down;

(d) where the tool is incorporated into a non-fully automated machine, the latter must be designed and constructed in such a way as to eliminate or reduce the risk of accidental injury, for instance, use of fillister tool heads, limitation of cutting depth etc.

2.4. **SUPPLEMENTARY ESSENTIAL HEALTH AND SAFETY REQUIREMENTS TO OFFSET SPECIFIC HAZARDS DUE TO THE MOBILITY OF MACHINERY**

Machines and machinery presenting hazards due to its mobility must meet all the essential health and safety requirements described in this chapter (see General Principles, point 2.1.4).

2.4.1. **WORK POSITIONS**

2.4.1.1. **Driving position**

Visibility from the driving position must be such that the driver can, in complete safety for himself and the exposed persons, operate the machine and its tools in their foreseeable conditions of use. Where necessary, appropriate devices must be provided to remedy hazards due to inadequate direct vision.

Machines on which the driver is transported must be designed and constructed in such a way that, from the driving positions, there is no risk to the driver from inadvertent contact with the wheels and tracks.

The driving position placed on the machine must be designed and constructed in such a way that a driver's cab may be fitted, provided this does not increase the risk and there is room for it. The cab must incorporate a place for the instructions needed for the driver.

2.4.1.2. **Seating**

Where there is a risk that operators or other persons transported by the machine may be crushed between parts of the machine and the ground should the machine roll or tip over, in particular for machinery equipped with a protective structure referred to in section 2.4.3.3 or 2.4.4.4, their seats must be designed or equipped with a restraint system so as to keep the persons in their seats, without restricting movements necessary for operations or movements relative to the structure caused by the suspension of the seats. Such restraint systems should not be fitted if they increase the risk.

2.4.1.3. **Positions for other persons**

If the conditions of use provide that persons other than the driver may occasionally or regularly be transported by the machine or work on it, appropriate positions must be provided which enable them to be transported or to work on it without risk.

The second and third paragraphs of section 3.2.1 also apply to the places provided for persons other than the driver.

2.4.2. **CONTROL SYSTEMS**

If necessary, steps must be taken to prevent unauthorised use of controls.

In the case of remote controls, each control unit must clearly identify the machine to be controlled from that unit.

The remote control system must be designed and constructed in such a way as to affect only:
— the machinery in question,
— the functions in question.
Remote controlled machinery must be designed and constructed in such a way that it will respond only to signals from the intended control units.

2.4.2.1. **Control devices**
The driver must be able to actuate all control devices required to operate the machinery from the driving position, except for functions which can be safely actuated only by using control devices located elsewhere. These functions include, in particular, those for which operators other than the driver are responsible or for which the driver has to leave the driving position in order to control them safely.

Where there are pedals, they must be so designed, constructed and fitted as to allow safe and correct operation. They must have a slip-resistant surface and be easy to clean.

Where their operation can lead to hazards, notably dangerous movements, the control devices, except for those with preset positions, must return to the neutral position as soon as they are released by the operator.

In the case of wheeled machinery, the steering system must be designed and constructed in such a way as to reduce the force of sudden movements of the steering wheel or the steering lever caused by shocks to the guide wheels.

Any control that locks the differential must be so designed and arranged that it allows the differential to be unlocked when the machinery is moving.

The sixth paragraph of section 2.2.2.2, concerning acoustic and/or visual warning signals, applies only in the case of reversing.

2.4.2.2. **Starting/moving**
All travel movements of self-propelled machines with a ride-on driver must be possible only if the driver is at the controls.

Where, for operating purposes, a machine is fitted with devices which exceed its normal clearance zone (e.g. stabilisers, jib, etc.), the driver must be provided with the means of checking easily, before moving the machinery, that such devices are in a particular position which allows safe movement.

This also applies to all other parts which, to allow safe movement, have to be in particular positions, locked if necessary.

Where it does not give rise to other risks, movement of the machinery must depend on safe positioning of the aforementioned parts.

It must not be possible for unintentional movement of the machinery to occur while the engine is being started.

2.4.2.3. **Travelling function**
Without prejudice to road traffic regulations, self-propelled machinery and its trailers must meet the requirements for slowing down, stopping, braking and immobilisation so as to ensure safety under all the operating, load, speed, ground and gradient conditions allowed for.

The driver must be able to slow down and stop self-propelled machinery by means of a main control device. Where safety so requires, in the event of a failure of the main control device, or in the absence of the energy supply needed to actuate the main device, an emergency device with a fully independent and easily accessible control device must be provided for slowing down and stopping.

Where safety so requires, a parking device must be provided to render stationary machinery immobile. This device may be combined with one of the devices referred to in the second paragraph, provided that it is purely mechanical.

Remote-controlled machinery must be equipped with devices for stopping operation automatically and immediately and for preventing potentially dangerous operation in the following situations:

— if the driver loses control,
— if it receives a stop signal,
— if a fault is detected in a safety-related part of the system,
— if no validation signal is detected within a specified time.

Section 2.2.2.4 does not apply to the travelling function.

2.4.2.4. **Movement of pedestrian-controlled machinery**
Movement of pedestrian-controlled self-propelled machinery must be possible only through sustained action on the relevant control device by the driver. In particular, it must not be possible for movement to occur while the engine is being started.

The control systems for pedestrian-controlled machinery must be designed in such a way as to minimise the risks arising from inadvertent movement of the machine towards the driver, in particular:

(a) possibility of crushing,
(b) possibility of injury from rotating tools.

The speed of travel of the machine must be compatible with the pace of a driver on foot.
In the case of a machine on which a rotary tool may be fitted, it must not be possible to actuate the tool when the reverse control is engaged, except where the movement of the machine results from movement of the tool. In the latter case, the reversing speed must be such that it does not endanger the driver.

2.4.2.5. **Control circuit failure**

A failure in the power supply to the power-assisted steering, where fitted, must not prevent a machine from being steered during the time required to stop it.

2.4.3. **PROTECTION AGAINST MECHANICAL HAZARDS**

2.4.3.1. **Uncontrolled movements**

A machine must be designed, constructed and where appropriate placed on its mobile support in such a way as to ensure that, when moved, uncontrolled oscillations of its centre of gravity do not affect its stability or exert excessive strain on its structure.

2.4.3.2. **Moving transmission parts**

By way of exception to section 2.2.3.8.1, in the case of moveable guards preventing access to the moving parts in the engine compartment need not have interlocking devices if they have to be opened either by the use of a tool or key or by a control device located in the driving position, providing the latter is in a fully enclosed cab with a lock to prevent unauthorised access.

2.4.3.3. **Tipping over**

Where, in the case of a self-propelled machine with a ride-on driver, operator(s) or other person(s), there is a risk of rolling or tipping over, the machine must be fitted with an appropriate protective structure, unless this increases the risk.

This structure must be such that in the event of tipping over it affords the ride-on person(s) an adequate deflection-limiting volume.

In order to verify that the structure complies with the requirement laid down in the second paragraph, the manufacturer or his authorised representative who is a resident of Ukraine must, for each type of structure concerned, perform appropriate tests or provide the results of such tests performed.

2.4.3.4. **Falling objects**

Where, in the case of a self-propelled machine with a ride-on driver, operator(s) or other person(s), there is a risk due to falling objects or material, the machine must be designed in such a way as to take account of this risk and fitted, if its size allows, with an appropriate protective structure.

This structure must be such that, in the event of falling objects or material, it guarantees the driver and ride-on operators an adequate deflection-limiting volume.

In order to verify that the structure complies with the requirement laid down in the second paragraph, the manufacturer or his authorised representative who is a resident of Ukraine must, for each type of structure concerned, perform appropriate tests or provide the results of such tests performed.

2.4.3.5. **Means of access**

Handholds and steps must be designed, constructed and arranged in such a way that the operators use them instinctively and do not use the control devices to assist access.

2.4.3.6. **Towing devices**

All machines used to tow or to be towed must be fitted with towing or coupling devices designed, constructed and arranged in such a way as to ensure easy and secure connection and disconnection and to prevent accidental disconnection during use.

Insofar as the tow bar load so requires, such machines must be equipped with a support with a bearing surface suited to the load and the ground.

2.4.3.7. **Transmission of power between a self-propelled machine (or tractor) and a recipient machine**

Mechanical transmission devices linking a self-propelled machine (or a tractor) to the first fixed bearing of a recipient machine must be designed in such a way that any part that moves during operation is protected over its whole length.

On the side of the self-propelled machine (or the tractor), the power take-off to which the mechanical transmission device is attached must be protected either by a guard fixed and linked to the self-propelled machine (or the tractor) or by any other device offering equivalent protection.

It must be possible to open this guard for access to the transmission device. Once it is in place, there must be enough room to prevent the drive shaft damaging the guard when the machine (or the tractor) is moving.

On the recipient machine side, the input shaft must be enclosed in a protective casing fixed to the machine.

Torque limiters or freewheels may be fitted to joint transmissions only on the side adjoining the driven machine only. The removable mechanical transmission device must be marked accordingly.

All recipient machines, the operation of which requires a removable mechanical transmission device to connect it to a self-propelled machine (or a tractor), must have a system for attaching the removable mechanical transmission device so that, when the machinery is uncoupled, the removable mechanical transmission device and its guard are not damaged by contact with the ground or part of the machine.
The outside parts of the guard must be so designed, constructed and arranged that they cannot turn with the mechanical transmission device. The guard must cover the transmission to the ends of the inner jaws in the case of simple universal cardan joints and at least to the centre of the outer joint or joints in the case of wide-angle universal joints.

If means of access to working positions are provided near to the mechanical transmission device, they must be designed and constructed in such a way that the shaft guards, indicated in paragraph six, cannot be used as steps, unless designed and constructed for that purpose.

2.4.4. PROTECTION AGAINST OTHER HAZARDS

2.4.4.1. Accumulator Batteries

The battery housing must be designed and constructed in such a way as to prevent the electrolyte being ejected on to the operator in the event of the machine tipover and/or to avoid the accumulation of vapours in places occupied by operators.

A machine must be designed and constructed in such a way that the battery can be disconnected with the aid of an easily accessible device provided for that purpose.

2.4.4.2. Risk of Fire

Depending on the hazards anticipated by the manufacturer, a machine must, where its size permits:
— either allow easily accessible fire extinguishers to be fitted, or
— be provided with built-in extinguisher systems.

2.4.4.3. Emissions of hazardous substances

The second and third paragraphs of section 2.2.5.13 do not apply where the main function of the machine is the spraying of products. However, the operator must be protected against the risk of exposure to such hazardous emissions.

2.4.5. INFORMATION AND INDICATIONS

2.4.5.1. Signs, signals and warnings

A machine must have signs and/or instruction plates concerning protection of the health and safety of exposed persons during use, adjustment and maintenance, wherever necessary. They must be chosen, constructed and installed in such a way as to be clearly visible and indelible.

Without prejudice to the provisions of road traffic regulations, a machine with a ride-on driver must have the following equipment:
— an acoustic warning device to alert persons,
— a system of light signals relevant to the intended conditions of use, for example braking lights, reverse movement lights and blinking beacon lights. The latter requirement does not apply to machines intended solely for underground working and having no electrical power,
— where necessary, there must be an appropriate connection between a trailer and the machinery for the operation of signals.

Remote-controlled machines which, under normal conditions of use, exposes persons to the risk of impact or crushing must be fitted with appropriate means to signal its movements or with means to protect persons against such risks. The same applies to the machines which involves, when in use, the constant repetition of a forward and backward movement on a single axis where the area to the rear of the machine is not directly visible to the driver.

The machine must be constructed in such a way that the warning and signalling devices cannot be disabled unintentionally. Where it is essential for safety, such devices must be provided with the means to check that they are in good working order and their failure must be made apparent to the operator.

Where the movement of the machine or its tools is particularly hazardous, signs on the machine must be provided to warn against approaching the machine while it is working. The signs must be legible at a sufficient distance to ensure the safety of persons who have to be in the vicinity.

2.4.5.2. Marking

The following must be shown legibly and indelibly on all machines:
— nominal power expressed in kilowatts (kW),
— mass of the most usual configuration, in kilograms (kg);
and, where appropriate:
— maximum drawbar pull provided for at the coupling hook, in Newtons (N),
— maximum vertical load provided for on the coupling hook, in Newtons (N).

2.4.5.3. Instructions

2.4.5.3.1 Vibrations

The instructions must give the following information concerning vibrations transmitted by the machine and machinery to the hand-arm system or to the whole body:
— the vibration total value to which the hand-arm system is subjected, if it exceeds 2,5 m/s². Where this value does not exceed 2,5 m/s², this must be mentioned,
— the highest root mean square value of weighted acceleration to which the whole body is subjected, if it exceeds 0,5 m/s². Where this value does not exceed 0,5 m/s², this must be mentioned,
— the uncertainty of measurement.
These values must be either those actually measured for the machines in question or those established on the basis of measurements taken for technically comparable machines which is representative of the machinery to be produced.

Where harmonised standards are not applied, the vibration must be measured using the most appropriate measurement code for the machinery concerned.

The operating conditions during measurement and the measurement codes used must be described.

2.4.5.3.2. Multiple uses
The instructions for machines allowing several uses depending on the equipment used and the instructions for the interchangeable equipment must contain the information necessary for safe assembly and use of the basic machine and the interchangeable equipment that can be fitted.

2.5. HEALTH AND SAFETY REQUIREMENTS TO OFFSET SPECIFIC HAZARDS DUE TO LIFTING OPERATIONS
Machines presenting hazards due to lifting operations must meet all the relevant essential health and safety requirements described in this chapter (see General Principles, point 4).

2.5.1. General Provisions
2.5.1.1. Protection against mechanical hazards

2.5.1.1.1. Risks due to lack of stability
Machines must be designed and constructed in such a way that the stability required by section 2.2.3.1 is maintained both in service and out of service, including all stages of transportation, assembly and dismantling, during foreseeable component failures and also during the tests carried out in accordance with the instruction handbook.
To that end, the manufacturer or his authorised representative who is a resident of Ukraine must use the appropriate verification methods.

2.5.1.1.2. Machines running on guide rails and rail tracks
Machines must be provided with devices which act on the guide rails or tracks to prevent derailment.
If, despite such devices, there remains a risk of derailment or of failure of a rail or of a running component, devices must be provided which prevent the equipment, component or load from falling or the machinery from overturning.

2.5.1.1.3. Mechanical strength
Machines, lifting accessories and their components must be capable of withstanding the stresses to which they are subjected, both in and, where applicable, out of use, under the installation and operating conditions provided for and in all relevant configurations, with due regard, where appropriate, to the effects of atmospheric factors and forces exerted by persons. This requirement must also be satisfied during transport, assembly and dismantling of the machines.

Machines and lifting accessories must be designed and constructed in such a way as to prevent failure from fatigue and wear, taking due account of their intended use.

The materials used must be chosen on the basis of the intended working environments, with particular regard to corrosion, abrasion, impacts, extreme temperatures, fatigue, brittleness and ageing of materials.

Machines and lifting accessories must be designed and constructed in such a way as to withstand the overload in the static tests without permanent deformation or patent defect. Strength calculations must take account of the value of the static test coefficient chosen to guarantee an adequate level of safety. That coefficient has, as a general rule, the following values:

(a) manually-operated machines and lifting accessories: 1,5;
(b) other machines: 1,25.

Machines must be designed and constructed in such a way as to undergo, without failure, the dynamic tests carried out using the maximum working load multiplied by the dynamic test coefficient. This dynamic test coefficient is chosen so as to guarantee an adequate level of safety: the coefficient is, as a general rule, equal to 1,1.

As a general rule, the tests are performed at the nominal speeds provided for. Should the control circuit of the machine allow for a number of simultaneous movements (for example, load rotation and travelling), the tests must be carried out under the least favourable conditions, as a general rule by combining the movements concerned.

2.5.1.1.4. Pulleys, drums, wheels, ropes and chains
Pulleys, drums and wheels must have a diameter commensurate with the size of the ropes or chains with which they can be fitted.
Drums and wheels must be designed, constructed and installed in such a way that the ropes or chains with which they are equipped can not come off.
Ropes used directly for lifting or supporting the load must not include any splicing other than at their ends. Splicings are, however, tolerated in installations which are intended by design to be modified regularly according to needs of use.
Complete ropes and their endings must have a working coefficient chosen in such a way as to guarantee an adequate level of safety. As a general rule, this coefficient is equal to 5.
Lifting chains must have a working coefficient chosen in such a way as to guarantee an adequate level of safety. As a general rule, this coefficient is equal to 4.

In order to verify that an adequate working coefficient has been attained, the manufacturer or his authorized representative, who is a resident of Ukraine, must, for each type of chain and rope used directly for lifting the load and for the rope ends, perform the appropriate tests or have such tests performed.

2.5.1.1.5. Lifting accessories and their components
Lifting accessories and their components must be sized with due regard to fatigue and ageing processes for a number of operating cycles consistent with their expected life-span as specified in the operating conditions for a given application.

Moreover:
(a) the working coefficient of wire-rope/rope-end combinations must be chosen in such a way as to guarantee an adequate level of safety; this coefficient is, as a general rule, equal to 5. Ropes must not comprise any splices or loops other than at their ends;
(b) where chains with welded links are used, they must be of the short-link type. The working coefficient of chains must be chosen in such a way as to guarantee an adequate level of safety; this coefficient is, as a general rule, equal to 4;
(c) the working coefficient for textile ropes or slings is dependent on the material, method of manufacture, dimensions and use. This coefficient must be chosen in such a way as to guarantee an adequate level of safety; it is, as a general rule, set at a higher level in order to secure an equivalent level of safety. Textile ropes and slings must not include any knots, connections or splicing other than at the ends of the sling;
(d) all metallic components making up, or used with, a sling must have a working coefficient chosen in such a way as to guarantee an adequate level of safety; this coefficient is, as a general rule, equal to 4;
(e) the maximum working load of a multilegged sling is determined on the basis of the working coefficient of the weakest leg, the number of legs and a reduction factor which depends on the slinging configuration;
(f) in order to verify that an adequate working coefficient has been attained, the manufacturer or his authorised representative, who is a resident of Ukraine, must, for each type of component referred to in points 2.5.1.1.5 (a), (b), (c) and (d), perform the appropriate tests or have such tests performed.

2.5.1.1.6. Control of movements
Devices for controlling movements must act in such a way that the machine on which they are installed is kept safe.

(a) Machines must be designed and constructed or fitted with devices in such a way that the amplitude of movement of its components is kept within the specified limits. The operation of such devices must, where appropriate, be preceded by a warning.

(b) Where several fixed or rail-mounted machines can be manoeuvred simultaneously in the same place, with risks of collision, such machines must be designed and constructed in such a way as to make it possible to fit systems enabling these risks to be avoided.

(c) Machines must be designed and constructed in such a way that the loads cannot creep dangerously or fall freely and unexpectedly, even in the event of partial or total failure of the power supply or when the operator stops operating the machine.

(d) It must not be possible, under normal operating conditions, to lower the load solely by friction brake, except in the case of machines whose function requires it to operate in that way.

(e) Holding devices must be designed and constructed in such a way that inadvertent dropping of the loads is avoided.

2.5.1.1.7. Movements of loads
The operating position of machinery must be located in such a way as to ensure the widest possible view of trajectories of the moving parts, in order to avoid possible collisions with persons, equipment or other machinery which might be manoeuvring at the same time and liable to constitute a hazard.

Machines and machinery with guided loads must be designed and constructed in such a way as to prevent persons from being injured by movement of the load, the carrier or the counterweights, if any.

2.5.1.1.8. Machines serving fixed landings
2.5.1.1.8.1. Movements of the carrier
The movement of the carrier of machines serving fixed landings must be rigidly guided to and at the landings. Scissor systems are also regarded as rigid guidance.

2.5.1.1.8.2. Access to the carrier
Where persons have access to the carrier, the machine must be designed and constructed in such a way as to ensure that the carrier remains stationary during possible access, in particular while it is being loaded or unloaded.
The machine must be designed and constructed in such a way as to ensure that the difference in level between the carrier and the landing being served does not create a risk of tripping.

2.5.1.1.8.3 Risks due to contact with the moving carrier
Where necessary in order to fulfil the requirement expressed in the second paragraph of section 2.5.1.1.7, the travel zone must be rendered inaccessible during normal operation.
When, during inspection or maintenance, there is a risk that persons situated under or above the carrier may be crushed between the carrier and any fixed parts, sufficient free space must be provided either by means of physical refuges or by means of mechanical devices blocking the movement of the carrier.

2.5.1.1.8.4. Risk due to the load falling off the carrier
Where there is a risk due to the load falling off the carrier, the machine must be designed and constructed in such a way as to prevent this risk.

2.5.1.1.8.5. Stopping Landings
Risks due to contact of persons at landings with the moving carrier or other moving parts must be prevented.
Where there is a risk due to persons falling into the travel zone when the carrier is not present at the landings, guards must be fitted in order to prevent this risk. Such guards must not open in the direction of the travel zone. They must be fitted with an interlocking device controlled by the position of the carrier that prevents:
— hazardous movements of the carrier until the guards are closed and locked,
— hazardous opening of a guard until the carrier has stopped at the corresponding stopping landing.

2.5.1.2 Fitness for purpose
When lifting machinery or lifting accessories are placed on the market or are first put into service, the manufacturer or his authorised representative must ensure, by taking appropriate measures, that the machines or the lifting accessories which are ready for use — whether manually or power-operated

— can fulfil their specified functions safely.
The static and dynamic tests referred to in section 2.5.1.1.3 must be performed on all lifting machines ready to be put into service.
Where the machine cannot be assembled in the manufacturer's premises or in the premises of his authorised representative, the appropriate measures must be taken for the purpose of its assembling at the place of use. Otherwise, the measures may be taken either in the manufacturer's premises or at the place of use.

2.5.2. SPECIFIC REQUIREMENTS FOR MACHINES WHOSE POWER SOURCE IS OTHER THAN MANUAL EFFORT

2.5.2.1. Control of movements
Hold-to-run control devices must be used to control the movements of the machines or its equipment. However, for partial or complete movements in which there is no risk of the load or the machines colliding, the said devices may be replaced by control devices authorising automatic stops at pre-selected positions without the operator holding a hold-to-run control device.

2.5.2.2. Loading control
Machines with a maximum working load of not less than 1 000 kilograms or an overturning moment of not less than 40 000 Nm must be fitted with devices to warn the driver and prevent dangerous movements in the event:
— of overloading, either as a result of the maximum working load or the maximum working moment due to the load being exceeded, or
— of the overturning moment being exceeded.

2.5.2.3. Installations guided by ropes
Rope carriers, tractors or tractor carriers must be held by counterweights or by a device allowing permanent control of the tension.

2.5.3. INFORMATION AND MARKINGS

2.5.3.1. Chains, ropes and webbing
Each length of lifting chain, rope or webbing not forming part of an assembly must bear a mark or, where this is not possible, a plate or irremovable ring bearing the name and address of the manufacturer or his authorised representative and the identifying reference of the relevant certificate.
The certificate mentioned above must show at least the following information:
- the name and address of the manufacturer or his authorised representative, who is a resident of Ukraine,
- address in Ukraine of the manufacturer or his authorised representative, who is a resident of Ukraine, where appropriate
- a description of the chain or rope which includes:
  — its nominal size,
  — its construction,
  — the material from which it is made,
  — any special metallurgical treatment applied to the material;
- the test method used;
- the maximum load to which the chain or rope should be subjected in service. A range of values may be given on the basis of the intended applications.
2.5.3.2. **Lifting accessories**
Each lifting accessory must show the following particulars:
— identification of the material (for instance, in accordance with the international classification) where this information is needed for safe use of the appropriate interchangeability ,
— the maximum working load.
- marking with the national conformity mark.

In the case lifting accessories include such components as ropes or cables on which direct marking is physically impossible, the particulars referred to in the first paragraph must be displayed on a plate or other equivalent means and securely affixed to the accessory.

The particulars must be legible and located in a place where they are not liable to disappear as a result of machine operation, wear or jeopardize the strength of the accessory.

2.5.3.3. **Lifting machines**
The maximum working load must be prominently marked on each machine. This marking must be legible, indelible and in an un-coded form.

Where the maximum working load depends on the configuration of the machine, each operating position must be provided with a load plate indicating, preferably in diagrammatic form or by means of tables, the working load permitted for each configuration.

Machines intended for lifting goods only, equipped with a carrier which allows access to persons, must bear a clear and indelible warning prohibiting the lifting of persons. This warning must be visible at each place where access is possible.

2.5.4. **INSTRUCTIONS**

2.5.4.1. **Lifting accessories**
Each lifting accessory or each commercially indivisible batch of lifting accessories must be accompanied by instructions setting out at least the following particulars:
- the intended use;
- instructions for assembly, use and maintenance;
- the limits of use (particularly for lifting accessories such as magnetic or vacuum pads which do not fully comply with section 2.5.1.1.6.(e));
- the static test coefficient used.

2.5.4.2. **Lifting machines**
Lifting machines must be accompanied by instructions containing information on:

(a) the technical characteristics of the machinery, and in particular:
— the maximum working load and, where appropriate, a copy of the load plate or load table described in the second paragraph of section 2.5.3.3;
— the reactions at the supports or anchors and, where appropriate, characteristics of the tracks,
— where appropriate, the definition and the means of installation of the ballast;
(b) the contents of the logbook, if the latter is not supplied with the machinery;
(c) advice for use, particularly to offset the lack of direct vision of the load by the operator;
(d) where appropriate, a test report detailing the static and dynamic tests carried out by or for the manufacturer or his authorised representative;
(e) for machine which is not assembled on the premises of the manufacturer in the form in which it is to be used, the necessary instructions for performing the measures referred to in section 2.5.1.2 before it is first put into service.

2.6. **HEALTH AND SAFETY REQUIREMENTS FOR MACHINES INTENDED FOR UNDERGROUND WORK**

Machines intended for underground work must meet all the essential health and safety requirements described in this chapter (see General Principles, point 4).

2.6.1. **RISKS DUE TO LACK OF STABILITY**

Powered roof supports must be designed and constructed in such a way as to maintain a given direction when moving and not slip before and while they come under load and after the load has been removed. They must be equipped with anchorages for the top plates of the individual hydraulic props.

2.6.2. **MOVEMENT**

Powered roof supports must allow for unhindered movement of persons.

2.6.3. **CONTROL DEVICES**

The accelerator and brake controls for movement of machines running on rails must be hand-operated. However, enabling devices may be foot-operated.

The control devices of powered roof supports must be designed and positioned in such a way that, during displacement operations, operators are sheltered by a support in place. The control devices must be protected against any accidental release.

2.6.4. **STOPPING**
Self-propelled machines running on rails for use in underground work must be equipped with an enabling device acting on the circuit controlling the movement of the machinery such that movement is stopped if the driver is no longer in control of the movement.

2.6.5. RISK OF FIRE
The requirements laid down in section 2.4.4.2, are mandatory in respect of machines which comprises highly flammable parts.

The braking system of machines intended for use in underground workings must be designed and constructed in such a way that it does not produce sparks or cause fires.

Machines with internal combustion engines for use in underground workings must be fitted only with engines using low-octane fuel and which exclude any spark of electrical origin.

2.6.6. EXHAUST EMISSIONS
Exhaust emissions from internal combustion engines must not be discharged upwards.

2.7. HEALTH AND SAFETY REQUIREMENTS FOR MACHINES PRESENTING PARTICULAR HAZARDS DUE TO THE LIFTING OF PERSONS
Machines presenting hazards due to the lifting of persons must meet all the relevant essential health and safety requirements described in this chapter.

2.7.1. General Provisions

2.7.1.1. Mechanical strength
The carrier, including any trapdoors, must be designed and constructed in such a way as to offer the space and strength corresponding to the maximum number of persons permitted on the carrier and the maximum working load.

The working coefficients for components set out in sections 2.5.1.1.4 and 2.5.1.1.5 are inadequate for machines intended for the lifting of persons and must, as a general rule, be doubled. Machines intended for lifting persons or persons and goods must be fitted with a suspension or supporting system for the carrier designed and constructed in such a way as to ensure an adequate overall level of safety and to prevent the risk of the carrier falling.

If ropes or chains are used to suspend the carrier, as a general rule, at least two independent ropes or chains are required, each with its own anchorage.

2.7.1.1.2. Loading control for machines moved by power other than human strength
The requirements of section 2.5.2.1.4 apply regardless of the maximum working load and overturning moment. This requirement does not apply to the machines, for which the manufacturer can demonstrate that there is no risk of overloading and / or overturning.

2.7.2. CONTROL DEVICES
2.7.2.1. Where safety requirements do not impose other solutions, the following requirements shall apply:

the carrier must, as a general rule, be designed and constructed in such a way that persons in the carrier have means of controlling upward and downward movements and, if appropriate, other movements of the carrier.

In operation, those control devices must override any other devices controlling the same movement with the exception of emergency stop devices.

The control devices for these movements must be of the hold-to-run type (which means that the movement stops after releasing a button, lever etc.), except for the machines which serve the determined levels with the carrier completely enclosed.

2.7.3. RISKS TO PERSONS IN OR ON THE CARRIER
2.7.3.1. Risks due to movements of the carrier
Machines for lifting persons must be designed, constructed or equipped in such a way that the acceleration or deceleration of the carrier does not engender risks for persons in it.

2.7.3.2. Risk of persons falling from the carrier
The carrier must not tilt to an extent which creates a risk of the occupants falling, including when the machinery and carrier are moving.

Where the carrier is designed as a work station, provision must be made to ensure stability and to prevent hazardous movements.

If the measures referred to in section 2.2.5.15 are not adequate, carriers must be fitted with a sufficient number of suitable anchorage points for the number of persons permitted on the carrier. The anchorage points must be strong enough for the use of personal protective equipment against falls from a height.

Any trapdoor in floors or ceilings or side doors must be designed and constructed in such a way as to prevent inadvertent opening and must open in a direction that obviates any risk of falling, should they open unexpectedly.

2.7.3.3. Risk due to objects falling on the carrier
Where there is a risk of objects falling on the carrier and endangering persons, the carrier must be equipped with a protective roof.

2.7.4. MACHINES SERVING FIXED LANDINGS

2.7.4.1. Risks to persons in or on the carrier

The carrier must be designed and constructed in such a way as to prevent risks due to contact between persons and/or objects in or on the carrier with any fixed or moving elements. Where necessary in order to fulfill this requirement, the carrier itself must be completely enclosed with doors fitted with an interlocking device that prevents hazardous movements of the carrier unless the doors are closed. The doors must remain closed if the carrier stops between landings where there is a risk of falling from the carrier.

The machinery must be designed, constructed and, where necessary, equipped with devices in such a way as to prevent uncontrolled upward or downward movement of the carrier. These devices must be able to stop the carrier at its maximum working load and at the foreseeable maximum speed.

The stopping action must not cause deceleration harmful to the occupants, whatever the load conditions.

2.7.4.2. Controls at landings

Controls, other than those for emergency use, at landings must not initiate movements of the carrier when:
— the control devices in the carrier are still being operated,
— the carrier is not at a landing.

2.7.4.3. Access to the carrier

The guards at the landings and on the carrier must be designed and constructed in such a way as to ensure safe transfer to and from the carrier, taking into consideration the established standards of goods and persons allowed to be lifted.

2.7.5. MARKINGS

The carrier must bear the information necessary to ensure safety including:
— the number of persons permitted travelling ,
— the maximum working load.

3. Procedures for assessing the conformity

3.1. In order to certify the machines and safety appliances conformity with the requirements of this Technical Regulation modules of procedures for assessing the conformity or their combinations shall be used in accordance with The Technical Regulation on Conformity Assessment Modules and the Requirements Concerning the Application of the National Conformity Mark, as Applied in Technical Regulations on Conformity Assessment, approved by the Resolution of the Cabinet of Ministers of Ukraine of October 7, 2003, №1585.

3.2. To certify conformity of machines and /or safety appliances which are not indicated in Annex I, module A shall be applied (inner control over manufacturing).

By means of procedures for assessing the conformity referred to in module A, the manufacturer or his authorized representative who is a resident of Ukraine, who implements the requirements laid down in point 3.3, guarantees and declares that the machines and / or safety appliances comply with all requirements of this Technical Regulation relating to them.

The manufacturer or his authorized representative who is a resident of Ukraine compiles a declaration of machines conformity (Annex 2), declaration of the incorporation of partly completed machines (Annex 3) and /or declaration on safety components conformity (Annex 4). Besides this, for machines only the manufacturer affixes the national conformity mark on each machine.

3.3. The manufacturer or his authorized representative who is a resident of Ukraine compiles a technical file referred to point 3.4 and provides it for inspection and registration to an executive body. The technical documentation must be available for at least 10 years following the date of manufacture of the last unit produced. On request of the legally appointed executive bodies the manufacturer or his authorized representative who is a resident of Ukraine must present the technical documentation for the inspection. In case that the authorized representative who is a resident of Ukraine is absent, a person, who placed the machines and components on the market, shall be charged with the duties of keeping and presenting the technical documentation.

On request of the executive body, the technical documentation must be drawn up in the Ukrainian language.

3.4. The technical file must cover all stages of the design, manufacture and operation of the machines or safety appliances and enable assessing of conformity with the requirements of this Technical Regulation.

The technical file shall comprise the following:
— the overall drawing of the machine or safety appliances and drawings of the control circuits,
— full detailed drawings, accompanied by any calculation notes, test results etc., required to check the conformity of the machines and safety appliances with the essential health and safety requirements,
- a list of the requirements of this Technical Regulation which apply to the specific machine or safety appliance,
- a list of the standards and other technical specifications used at the construction of machines and safety appliances;
- the description of the protective measures implemented to eliminate identified hazards associated with the machine or safety appliance,
— any technical report or conclusions provided by a competent body or laboratory, in the accreditation field of which there are appropriate standards from the national standards list (at will only);
- any technical report giving the results of the tests of the conformity with the standards of the national standards list carried out either by the manufacturer or by a competent body or laboratory chosen by the manufacturer, in the accreditation field of which there are appropriate standards (only in case of declaring the conformity with the standards of the national standards list);
- a copy of the instructions for the machine or safety appliance,
- internal measures which must be implemented to provide continuous conformity of the machines and safety appliances with the safety requirements of this Technical Regulation (for serial manufacture only).

The manufacturer must carry out the necessary examinations or test of assemblies, equipment or completed machines and safety appliances to determine whether their design and construction are safe at their installation and maintenance.

Failure to present the technical file in response to a duly reasoned request by the executive authorities may constitute sufficient grounds for doubting the conformity of the machines or safety appliances in question with the essential safety requirements of this Technical Regulation. This file must not be always in the completed state, but it must be compiled and presented on request for a time period relevant to its importance. This file must not include detailed drawings or any other information on assemblies, which are used at the construction of machines and safety appliances, except for those drawings and information possessing of which is essential for the inspection of the conformity with the essential safety requirements.

3.5. In case the machines and safety appliances are referred to in Annex I, and the manufacturer does not use the standards from the national standards list or uses them partially, or in case these standards are absent, module C (conformity of type) in combination with module B (examination of type) shall be applied for the certifying of conformity. During this by means of conformity assessment procedures of module B an authorized body certifies by issuing a type-examination certificate declaring that the sample of the machine or safety appliance of the specific manufacturer complies with the requirements of this Technical Regulation. By means of conformity assessment procedures of module C the manufacturer guarantees and declares that the certain machines and safety appliances comply with the type indicated in the type-examination certificate, and the requirements of this Technical Regulation.

3.6. In order to get a type-examination certificate the manufacturer or his authorized representative who is a resident of Ukraine shall submit an application for type-examination to a notified body of his choice. The application shall include:
— the name and address of the manufacturer and, where appropriate, his authorised representative, and the documentation on the delegation of responsibilities;
— a written declaration that the application has not been submitted to another notified body,
— the technical file in accordance with point 3.7.

The application shall be accompanied with a sample of the type of the machine or safety appliance, intended to be manufactured by the manufacturer or, where acceptable, indication of a location where a sample of the type may be examined. A sample of the type may cover several modifications of the machine and safety appliance provided that the difference between modifications does not influence the safety level or other requirements relating to the use of the machine or safety appliance.

The notified body may ask for further samples if the test programme so requires.

3.7. The technical file must cover all stages of the design, manufacture and operation of the machines or safety appliances and enable assessing of conformity with the requirements of this Technical Regulation.

The technical file shall comprise the following:
— the overall drawing of the machine or safety appliances and drawings of the control circuits,
— full detailed drawings, accompanied by any calculation notes, test results etc., required to check the conformity of the machines and safety appliances with the essential health and safety requirements,
— the description of the protective measures implemented to eliminate identified hazards associated with the machine or safety appliance,
— a list of the standards from the national standards list used;
— a copy of the instructions for the machine or safety appliance,
— internal measures which must be implemented to provide continuous conformity of the machines and safety appliances with the safety requirements of this Technical Regulation (for serial manufacture only).

The aforesaid file must not include detailed drawings or any other information on assemblies, which are used at the construction of machines and safety appliances, except for those drawings and information possessing of which is essential for the inspection of the conformity with the essential safety requirements.

3.8. The notified body shall:
- examine the technical file, check that a sample of the type was manufactured in accordance with it and that a sample of the type may be safe when applied in accordance with the established operation conditions;
- establish which elements of a sample of the type have been designed in accordance with the relevant provisions of the national standards list, and those elements whose design is not based on the relevant provisions of those standards;
- carry out appropriate inspections and tests to examine the correctness of the application of these standards, where the standards of the national standards list were applied by the manufacturer partially;
- carry out appropriate inspections and tests to examine the conformity of a sample of the type with the requirements of this Technical Regulation, relating to it, where the standards of the national standards list were not applied;
- check the ability of the safety appliances to perform safety functions declared by the manufacturer.

3.9. If the type satisfies the provisions of this Technical Regulation relating to it, the notified body shall issue the applicant with a type-examination certificate. The certificate shall include:
- the name and address of the manufacturer,
- the conclusions of the examination performed
- the conditions to which its issue may be subject.

The certificate shall be accompanied by the descriptions and drawings, necessary for the identification of the checked sample. Cope of the certificate with Annexes is retained by the authorized body.

In case of refusal of issuing the type-examination certificate or cancelling of the certificate issued before, the notified body gives detailed reasons for its refusal to the applicant, and informs other notified bodies on this matter.

3.10. At his own will instead of the implementation of the requirements referred to in points 3.2 and 3.5 the manufacturer or his authorized representative who is a resident of Ukraine may submit an application for assessing and approval of the full quality guarantee, referred to in Annex 6.

3.10. The applicant informs the notified body which issued the type-examination certificate on any, even insignificant modifications of the checked type. The notified body must examine whether such changes may influence the conformity with the requirements of this Technical Regulation, and inform the applicant about prolongation of effect of the issued type-examination certificate.

3.11. The other notified bodies may receive a copy of the type-examination certification and, on a reasonable request, copies of technical files and record on performed examinations and tests.

3.12. The manufacturer or his authorized representative who is a resident of Ukraine retains copies of the type-examination certification and Annexes to them along with the technical file over the period of 10 years after manufacture of the last machine or appliance. In case of the absence of the manufacturer or his authorized representative who is a resident of Ukraine, a person who placed the machines or safety appliances on the market shall be charged with the duties of retaining of the technical file.

3.13. Documentation and correspondence concerning type-examination on request of the notified body must be drawn up in the Ukrainian language.

3.14. After receiving of the type-examination certificate the manufacturer or his authorized representative who is a resident of Ukraine by means of the conformity assessment procedures of module C guarantees and declares that the certain machines or safety appliances correspond to the type, indicated in the type-examination certificate and the requirements of this Technical Regulation.

The manufacturer or his authorized representative who is a resident of Ukraine compiles a declaration of specific machines conformity (Annex III) or safety appliances (Annex 4) and affixes the national conformity mark on each machine.

3.15. The manufacturer must take measures so that the manufacture process provides the conformity of the machines or safety appliances with the type set out in the type-examination certificate, and the requirements of this Technical Regulation.

3.16. The manufacturer or his authorized representative who is a resident of Ukraine must retain a copy of the declaration of conformity over a period of 10 years after the manufacture of the last machine or safety appliance sample.

In case of the absence of the manufacturer or his authorized representative who is a resident of Ukraine, a person who placed the machines or safety appliances on the market shall be charged with the duties of retaining of the copies of the declaration and technical file.

3.17. In case the machines and safety appliances referred to in Annex I are manufactured with a complete application of the standards from the national standards list, for the certifying of the conformity the manufacturer or his authorized representative who is a resident of Ukraine must on his own choice:

(a) either present the technical file referred to in point 3.7 for a notified body inspection, which must only check whether the standards from the national standards list are applied properly, and present a conclusion on the sufficiency of the technical file. After this he must perform all the procedures in accordance with points 3.2 to 3.4,

(b) or perform all the procedures in accordance with points 3.5 to 3.14.

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Annex I

To point 1.10.1 of the Technical Regulation On Safety of Machines and Equipment

List of Categories of machines and machinery to which one of the procedures referred to in points 3.5 and 3.6. must be applied
1. Circular saws (single- or multi-blade) for working with wood and material with similar physical characteristics or for working with meat and material with similar physical characteristics
   1.1. sawing machines with fixed blade(s) during cutting, having a fixed bed or support with manual feed of the workpiece or with a demountable power feed;
   1.2. sawing machines with fixed blade(s) during cutting, having a manually operated reciprocating saw-bench or carriage;
   1.3. sawing machines with fixed blade(s) during cutting, having a built-in mechanical feed device for the workpieces, with manual loading and/or unloading;
   1.4. sawing machines with movable blade(s) during cutting, having mechanical movement of the blade, with manual loading and/or unloading.
2. Hand-fed woodworking surface planing machines
3. Thicknessers for one-side dressing having a built-in mechanical feed device, with manual loading and/or unloading for woodworking.
4. Band-saws with manual loading and/or unloading for working with wood and material with similar physical characteristics
   4.1. sawing machines with fixed blade(s) during cutting, having a fixed or reciprocating-movement bed or support for the workpiece;
   4.2. sawing machines with blade(s) assembled on a carriage with reciprocating motion.
5. Combined machines of the types referred to in points 1 to 4 and in point 7 for working with wood and materials with similar physical characteristics.
6. Hand-fed tenoning machines with several tool holders for woodworking.
7. Hand-fed vertical spindle moulding machines for working with wood and material with similar physical characteristics.
8. Portable chainsaws for woodworking.
9. Presses, including press-brakes, for the cold working of metals, with manual loading and/or unloading, whose movable working parts may have a travel exceeding 6 mm and a speed exceeding 30 mm/s.
10. Injection or compression plastics-moulding machines with manual loading or unloading.
11. Injection or compression rubber-moulding machines with manual loading or unloading.
12. Machines for underground working of the following types:
   12.1. locomotives and brake-vans;
   12.2. hydraulic-powered roof supports.
13. Manually loaded trucks for the collection of household refuse incorporating a compression mechanism.
14. Removable mechanical transmission devices including their guards.
15. Guards for removable mechanical transmission devices.
17. Devices for the lifting of persons or of persons and goods involving a hazard of falling from a vertical height of more than three metres.
18. Portable cartridge-operated fixing and other impact machinery.
19. Protective devices designed to detect the presence of persons.
20. Power-operated interlocking movable guards designed to be used as safeguards in machinery referred to in points 9, 10 and 11.
21. Logic units to ensure safety functions.
22. Roll-over protective structures (ROPS).
23. Falling-object protective structures (FOPS).

Annex II

To point 1.10.1 of the Technical Regulation On Safety of Machines and Equipment

Indicative List of the Safety Components Referred to in Point 1.3.3.
1. Guards for removable mechanical transmission devices.
2. Protective devices designed to detect the presence of persons.
3. Power-operated movable guards with a motorized drive designed to be used as safeguards in machines and machinery referred to in items 9, 10 and 11 of Annex I.
4. Logic units to ensure safety functions.
5. Valves with additional means for failure detection intended for the control of dangerous movements on machines and machinery.
6. Extraction systems for machines and machinery emissions.
7. Guards and protective devices designed to protect persons against moving parts involved in the process on the machine or machinery.
8. Monitoring devices for loading and movement control in lifting machines and machinery.
9. Restraint systems to keep persons on their seats.
11. Discharging systems to prevent the build-up of potentially dangerous electrostatic charges.
12. Energy limiters and relief devices referred to in sections 2.2.5.7, 2.4.3.7 and 2.5.1.1.5.
13. Systems and devices to reduce the emission of noise and vibrations.
14. Roll-over protective structures (ROPS).
15. Falling-object protective structures (FOPS).
16. Two-hand control devices.
17. Components for machines and machinery designed for lifting and/or lowering persons between different landings and included in the following list:
   (a) devices for locking landing doors;
   (b) devices to prevent the load-carrying unit from falling or unchecked upwards movement;
   (c) overspeed limitation devices;
   (d) energy-accumulating shock absorbers,
       — non-linear, or
       — with damping of the return movement;
   (e) energy-dissipating shock absorbers;
   (f) safety devices fitted to jacks of hydraulic power circuits where these are used as devices to prevent falls;
   (g) electric safety devices in the form of safety switches containing electronic components.

Annex III

To point 1.9.1 of the Technical Regulation on Safety of Machines and Equipment

Declaration of Conformity

__________________________________________
(full name of a manufacturer or his authorized representative, or a supplier,

__________________________________________
who are the residents of Ukraine, their addresses, identity numbers)

represented by ______________________________________________________
(position, surname, name and patronymic of the authorized person)

certifies that a machine _____________________________________________,
(full name of a machine, type, brand, model)

which is manufactured according to ____________________________________________,
(name and marking of manufacturer’s documentation – technical conditions or specification)

complies with the requirements of the Technical Regulation On Certifying of the Machines and Machinery Safety Conformity.

Certification of inspection of the type

__________________________________________
(name and address of the authorized

__________________________________________ № ______ of ________ 200_.

   certification body)
The Declaration is drawn up under entire responsibility of a manufacturer/authorized representative/supplier.

Technical documentation in accordance with the requirements of the Technical Regulation is provided.

________________________ (signature) ____________________________ (stamp)  ____________________________ (initials and surname) ____________________________ (date)

Annex IV

To point 1.9.3 of the Technical Regulation On Safety of Machines and Equipment

Declaration of Conformity

_______________________________________________________________

(full name of a manufacturer or his authorized representative, or a supplier, represented by ________________________________

(position, surname, name and patronymic of the authorized person)

certifies that a safety appliance __________________________________________,

(full name of a safety appliance, type, brand, model)

which is manufactured according to _______________________________________,

(name and marking of documentation – technical conditions or specification)

performs the following safety functions, in accordance with the Technical Regulation on Certifying of the Machines and Machinery Safety Conformity:

1 ___________________________________ in accordance with ________________________________

(name of a safety function) (name and marking of the standard, technical conditions, specifications)

2 ___________________________________ in accordance with ________________________________

(name of a safety function) (name and marking of the standard, technical conditions, specifications)
Technical documentation in accordance with the requirements of the Technical Regulation is provided.

Certification of inspection of the type / conclusion on the correctness of the standards application and adequacy of the technical documentation

__________________________________________________________

(name and address of the authorized certification body)

№ ______ of _______ 200_ .*

The Declaration is drawn up under entire responsibility of a manufacturer/authorized representative/supplier.

______________(signature)______________(stamp) ________________(initials and surname)_________________ _________________.

* The indicated paragraph shall be applied in case of the conformity assessing according to points 3.5 to 3.14 or 3.17.a of this Technical Regulation.

Annex V

To point 1.10.1 of the Technical Regulation On Safety of Machines and Equipment

Examination of Type

Examination of a type is the procedure whereby a notified body ascertains and certifies that a representative model of a machine referred to in Annex I (hereafter named as the type) satisfies the provisions of this Technical Regulation.

1. The manufacturer or his authorised representative must, for each type, draw up the technical file referred to in point 3.7.

2. For each type, the application for a type-examination shall be submitted by the manufacturer or his authorised representative to a notified body of his choice. The application shall include:
   — the name and address of the manufacturer and, where appropriate, his authorised representative,
   — a written declaration that the application has not been submitted to another notified body,
   — the technical file.

Moreover, the applicant shall place at the disposal of the notified body a sample of the type. The notified body may ask for further samples if the test programme so requires.

3. The notified body shall:
   3.1. examine the technical file, check that the type was manufactured in accordance with it and establish which elements have been designed in accordance with the relevant provisions of the standards referred to in Article 7(2), and those elements whose design is not based on the relevant provisions of those standards;
   3.2. carry out appropriate inspections, measurements and tests to ascertain whether the solutions adopted satisfy the essential health and safety requirements of this Technical Regulation, where the standards referred to in Article 7(2) were not applied;
   3.3. where harmonised standards were used, carry out appropriate inspections, measurements and tests to verify that those standards were actually applied;
   3.4. agree with the applicant as to the place where the check that the type was manufactured in accordance with the examined technical file and the necessary inspections, measurements and tests will be carried out.

4. If the type satisfies the provisions of this Technical Regulation, the notified body shall issue the applicant with a type-examination certificate. The certificate shall include the name and address of the manufacturer and his authorised representative, the data necessary for identifying the approved type, the conclusions of the examination and the conditions to which its issue may be subject. The manufacturer and the notified body shall retain a copy of this certificate, the technical file and all relevant documents for a period of 15 years from the date of issue of the certificate.

5. If the type does not satisfy the provisions of this Technical Regulation, the notified body shall refuse to issue the applicant with a type-examination certificate, giving detailed reasons for its refusal. It shall inform the applicant, the other notified bodies and the authority which notified it. An appeal procedure must be available.
6. The applicant shall inform the notified body which retains the technical file relating to the type-examination certificate of all modifications to the approved type. The notified body shall examine these modifications and shall then either confirm the validity of the existing type-examination certificate or issue a new one if the modifications are liable to compromise conformity with the essential health and safety requirements or the intended working conditions of the type.

7. The other notified bodies may, on request, obtain a copy of the type-examination certificates. On reasoned request, the other notified bodies may obtain a copy of the technical file and the results of the examinations carried out by the notified body.

8. Technical files and correspondence referring to the type-examination procedures shall be written in the Ukrainian Language.

9. Validity of the type-examination certificate

9.1. The notified body has the ongoing responsibility of ensuring that the type-examination certificate remains valid. It shall inform the manufacturer of any major changes which would have an implication on the validity of the certificate. The notified body shall withdraw certificates which are no longer valid.

9.2. The manufacturer of the machines and machinery concerned has the ongoing responsibility of ensuring that the said machines and machinery meets the corresponding state of the art.

9.3. The manufacturer shall request from the notified body the review of the validity of the type-examination certificate every five years. If the notified body finds that the certificate remains valid, taking into account the state of the art, it shall renew the certificate for a further five years.

The manufacturer and the notified body shall retain a copy of this certificate, of the technical file and of all the relevant documents for a period of 15 years from the date of issue of the certificate.

9.4. In the event that the validity of the type-examination certificate is not renewed, the manufacturer shall cease the placing on the market of the machinery concerned.

Annex VI

To point 1.10.1 of the Technical Regulation On Safety of Machines and Equipment

Full quality assurance

This Annex describes the quality assurance of machines and machinery referred to in Annex I, manufactured using a full quality assurance system, and the procedure whereby a notified body assesses and approves the quality system and monitors its application.

1. The manufacturer must operate an approved quality system for design, manufacture, final inspection and testing, and shall be subject to the surveillance.

2. Quality system

2.1. The manufacturer or his authorised representative shall lodge an application for assessment of his quality system to a notified body of his choice. The application shall contain:
— the name and address of the manufacturer and, where appropriate, his authorised representative,
— the places of design, manufacture, inspection, testing and storage of the machine or machinery,
— the technical file described in point 3.7, for one model of each category referred to in Annex I which he intends to manufacture,
— the documentation on the quality system,
— a written declaration that the application has not been submitted to another notified body.

2.2. The quality system must ensure conformity of the machines and machinery with the provisions of this Technical Regulation. All the elements, requirements and provisions adopted by the manufacturer must be documented in a systematic and orderly manner, in the form of measures, procedures and written instructions. The documentation on the quality system must permit a uniform interpretation of the procedural and quality measures, such as quality programmes, plans, manuals and records.

It must contain, in particular, an adequate description of:
— the quality objectives, the organisational structure, and the responsibilities and powers of the management with regard to the design and quality of the machines and machinery,
— the technical design specifications, including standards that will be applied and, where the harmonized standards are not applied in full, the means that will be used to ensure that the essential health and safety requirements of this Technical Regulation are fulfilled,
— the design inspection and design verification techniques, processes and systematic actions that will be used when designing machines and machinery covered by this Technical Regulation,
— the corresponding manufacturing, quality control and quality assurance techniques, processes and systematic
actions that will be used,
— the inspections and tests that will be carried out before, during and after manufacture, and the frequency with which they will be carried out,
— the quality records, such as inspection reports and test data, calibration data, and reports on the qualifications of the personnel concerned,
— the means of monitoring the achievement of the required design and quality of the machinery, as well as the effective operation of the quality system.

2.3. The notified body shall assess the quality system to determine whether it satisfies the requirements of point 2.2.

The notified body shall assess the quality system to determine whether it satisfies the requirements of point 2.2.

The team of auditors must have at least one member who is experienced in the assessment of the technology of the machines and machinery. The assessment procedure shall include an inspection to be carried out at the manufacturer’s premises. During the assessment, the team of auditors shall carry out a review of the technical files referred to in point 2.1, second paragraph, third indent to ensure their compliance with the relevant health and safety requirements.

The manufacturer or his authorised representative shall be notified of the decision. The notification shall contain the conclusions of the examination and the reasoned assessment decision. An appeal procedure must be available.

2.4. The manufacturer shall undertake to fulfil the obligations arising from the quality system as approved and to ensure that it remains appropriate and effective.

The manufacturer or his authorised representative shall inform the notified body which approved the quality system of any planned change to it.

The notified body shall evaluate the proposed changes and decide whether the modified quality assurance system will continue to satisfy the requirements referred to in point 2.2, or whether a re-assessment is necessary.

It shall notify the manufacturer of its decision. The notification shall contain the conclusions of the examination and the reasoned assessment decision.

3. Surveillance under the responsibility of the notified body

3.1. The purpose of surveillance is to make sure that the manufacturer duly fulfils the obligations arising out of the approved quality system.

3.2. The manufacturer shall, for inspection purposes, allow the notified body access to the places of design, manufacture, inspection, testing and storage, and shall provide it with all necessary information, such as:
— the documentation concerning the quality system,
— the quality records provided for in that part of the quality system concerned with design, such as the results of analyses, calculations, tests, etc.,
— the quality records provided for in that part of the quality system concerned with manufacture, such as inspection reports and test data, calibration data, reports on the qualifications of the personnel concerned, etc.

3.3. The notified body shall conduct periodic audits to make sure that the manufacturer is maintaining and applying the quality system; it shall provide the manufacturer with an audit report. The frequency of the periodic audits shall be such that a full reassessment is carried out every three years.

3.4. Moreover, the notified body may pay the manufacturer unannounced visits. The need for these additional visits and their frequency will be determined on the basis of a visit monitoring system managed by the notified body. In particular, the following factors will be taken into account in the visits monitoring system:
— the results of previous surveillance visits,
— the need to monitor remedial measures,
— where appropriate, special conditions attaching to approval of the system,
— significant modifications in the organisation of the manufacturing process, technical measures

4. The manufacturer or his authorised representative shall keep available for the national authorities, for a period of ten years from the last date of manufacture:
— the documentation referred to in point 2.1,
— the decisions and reports of the notified body referred to in point 2.4, third and fourth subparagraphs, and in points 3.3 and 3.4.