

BASIC INSTRUCTIONS IN RISK PREVENTION

SAFETY INSTRUCTIONS FOR PERFORMING WORK INVOLVING THE USE OF LADDERS

1. A ladder may be used for work at height only where the use of other safer means is not justified and practical in view of the risks and the working conditions do not permit it.
2. Only **short-term, physically demanding work** using hand tools may be performed on ladders.
3. Work involving the use of dangerous tools or equipment such as portable chainsaws, hand pneumatic tools **must not be performed** on ladders.
4. When ascending, descending and working on the ladder, the employee must **face the ladder** and at all times have a **secure grip and a reliable support**.
5. Loads **weighing up to 15 kg** can be lifted and carried on the ladder.
6. No **more than one person may** ascend or descend the ladder or work on it at the same time.
7. The ladder **shall not be used as a crossing bridge** except where it is intended for such use by the manufacturer.
8. Ladders used for ascent and descent shall have their **upper end extending at least 1.1 m beyond the climbing platform**, which may be replaced by fixed handles or other parts of the structure by which it can be held securely.
9. The **slope of the ladder shall not be less than 2.5:1**, a clear space of at least **0.18 m** shall be left **behind the rungs** and a clear space of at least **0.6 m** shall be left **at the foot of the ladder** on the access side.
10. The ladder must be positioned so as to ensure its **stability** throughout its use.
11. A **portable ladder** must be erected on a stable, solid, level, sufficiently large, non-movable base so that the rungs are horizontal.
12. They shall be prevented from slipping by securing the sides at the upper or lower end by the use of anti-slip components or other effective measures.
13. **Folding and extension ladders** must be used in such a way that the individual parts are secured against mutual movement.
14. **Mobile** ladders must be secured against movement before and during work.
15. Wooden portable ladders of more than 12 m in length must not be used.
16. **Suspension ladders** must be fixed in a safe manner and, with the exception of rope ladders, secured against sliding and swaying.
17. **Rope ladders** may only be used for ascent and descent.
18. A ladder may only be worked on at a **safe distance from its upper end**, which is considered to be:
 - for a support ladder, foot clearance at least 0.8 m,
 - for a double ladder, at least 0.5 m from its upper end.
19. When working on a ladder where the employee stands with the feet at a height of **more than 5 m**, **fall protection PPE must be provided**.
20. **Inspections of ladders** must be conducted in accordance with the manufacturer's instructions.
21. **Walking on a wooden double ladder** (e.g. for painting work) may be performed by trained employees if they are walking on a surface where the risk of losing the stability of the ladder is eliminated.

SAFETY INSTRUCTIONS FOR THE OPERATION OF GAS EQUIPMENT

1. Perfect ventilation must be provided in the buildings, taking into account the characteristics and quantity of the gas stored and treated. Perfect ventilation is defined as such ventilation which ensures that the maximum permissible concentrations of gases in the spaces are not exceeded while maintaining the thermal conditions specified in the hygiene regulations and that the maximum permissible concentrations in terms of explosion hazard are not exceeded (natural gas – lower explosive limit of 4.3% by volume in a mixture with air, upper explosive limit of 15% by volume in a mixture with air). Ventilation may be natural or forced.
2. Gas production and gas treatment equipment
 - The handling of open flames is prohibited in buildings where flammable and combustible gases are produced and treated. If welding is required, a special technological procedure with safety measures must be drawn up.
3. Gas storage equipment
 - Gas storage facility shall be equipped with pressure and gas quantity gauges.
 - Compliance with the technical values, exceeding which could result in an accident or equipment failure, must be reliably ensured.
 - The equipment must be reliably protected against the effects of atmospheric electricity.
 - For the storage of gases, protective zones must be established and maintained, in which any handling of open flames and storage of any substances is prohibited. The protection zone must be clearly marked with signs.
 - Gas storage facility shall not be established in inadequately ventilated areas.
4. Equipment for increasing and decreasing gas pressure
 - The individual stages of the equipment must be secured against unauthorised pressure increase or decrease and, in the case of compressors, refrigerant control must be provided.
 - The equipment must be separated from the inlet and outlet gas pipelines by isolation joints.
 - The main shut-off valve on the gas supply must be located in front of the equipment and marked with a safety sign.
5. Gas distribution equipment
 - The individual sections of the gas piping must be sealable and each section must be capable of being vented and degassed.
 - Gas piping must be protected against corrosion and, in the case of pipes above ground, against the effects of atmospheric electricity.
 - Flames must not be used to thaw a gas pipeline or find leaks on a pipeline that is in operation.
6. Equipment for the combustion of gases
 - The equipment must comprise a main cap, marked with a safety plate.
 - The gas pipe to the equipment must comprise regulating, measuring and a safety device.
 - Before the gas in the equipment is ignited, the combustion chamber must be purged of the explosive mixture by ventilation.
 - The equipment must be located in an area with sufficient air exchange to ensure perfect combustion.
 - Combustion products must be discharged in such a way as not to endanger the safety of workers.

RULES FOR SAFE HANDLING OF BENCH GRINDERS

1. The grinding wheel may only be clamped on the grinder by an authorised person.
2. When replacing the grinding wheel, check the label on the wheel to ensure that it is suitable for the relevant grinder. Inspect and tap the wheel to ascertain that it is intact. Unmarked grinding wheels must not be used.
3. After clamping the wheel on the spindle of the grinder, put the wheel into a test run with a working cover, at working speed for a minimum of 5 minutes. During this test, the worker must stand outside the plane of rotation of the grinding wheel.
4. When grinding by hand, use adjustable supports (rests, tables). Correct adjustment of the support to the grinding wheel reduces the risk of wedging the workpiece.
5. Do not remove the protective covers of the grinding wheels!
6. By moving the gate as close as possible to the wheel in time, the amount of dust particles flying off is reduced and the risk of tear-off fragments from the protective cover is reduced.
7. Use protective glasses or a face shield to protect your eyes when grinding and truing the grinding wheel.
8. Use suitable tools (pulleys, dressers with handles) for truing the grinding wheels.
9. Regular removal of dust and dirt from the grinder and cleaning of the extraction equipment improves the working environment and maintains order at the workplace.
10. Store unused grinding wheels in cabinets, racks. It is forbidden to leave them loose on the floor or lean them against other equipment.
11. When using rotary tools, it is forbidden to wear protective gloves, loose clothing and other items that could be wound up onto the tool.
12. Air guns used for cleaning machines and workpieces and clamping tools must be fitted with a protective device to prevent the worker from being struck by flying substances.
13. When checking the surface quality, clamping and removing workpieces, unless these operations performed automatically, the grinder must be stopped and moved to a safe distance.
14. Chip removal shall only be carried out when the machine is off.
15. A suitable position on the grinder must be permanently marked with a sign indicating the rotation style of the grinding tool (an arrow located directly on the grinder or on the grinding wheel cover).
16. Grinding tools must be secured against spontaneous release from the spindle or from the clamping device during grinding.
17. Grinders with grinding tools made of synthetic abrasives with a peripheral speed of more than 10 m/s must be fitted, unless the grinding tool is working inside the workpiece, with a protective cover which will not shatter if the grinding tool is torn or released.
18. Grinding and cutting wheels, grinding segments, bodies and other grinding tools must be marked with basic technical data (e.g. permissible peripheral speed, wheel diameter).
19. Stored grinding tools must be protected from mechanical damage, moisture and frost and the possibility of damage during transport must be excluded.

FIRE SAFETY RULES FOR THE OPERATION OF PREMISES WITH FLAMMABLE LIQUIDS

1. All containers and tanks containing flammable liquids must be labelled to indicate their contents. The same applies to containers and tanks containing residues of flammable liquids.
2. A plate or tag may be used for temporary marking of containers and tanks, provided that there is no risk of the marking being torn off or confused.
3. Openings in the peripheral structures (windows, doors, vents) of closed storerooms must be made and secured against unauthorised persons. If the windows are glazed with plain glass, a wire mesh with a maximum mesh size of 10 x 10 mm must be placed on the outside.
4. Areas where flammable liquids are present must be marked with signs prohibiting smoking and handling of open flames and the entry of unauthorised persons.
5. Stained materials used to remove spilled flammable liquids must be removed to a safe place where they cannot cause a fire. They must not be stored in areas where flammable liquids are present.
6. No flammable liquids or other objects shall be placed at the entrances and exits to or from areas where flammable liquids are present, including areas for the full opening of door leaves. All substances and objects shall be placed in such a way that if they tumble down (collapse, fall), the possibility of entering or exiting the premises will not be restricted. If there is no entrance to or exit from the premises directly into the open space, then this condition shall apply for the entire route leading to the entrance.
7. For operation of the premises, measures must be established and implemented to prevent the leakage, spillage and infiltration of flammable liquids (this shall apply to containers with a capacity of 200 l or more), and to prevent leakage of these substances (including vapours) from coming into contact with a potential initiating source, other flammable substances or combustible substances (other than oxygen in the air) or substances which, when in contact with a flammable liquid, develop heat from a potential source of ignition.
8. Flammable liquids may only be stored in containers designed for them.
9. Areas where flammable liquids are present must be protected from dangerous effects of static electricity.
10. Transport packaging, including containers, must be secured against falling and against danger from transport or other equipment.
11. The total storage height for loose loading of flammable liquid containers is a maximum of 2 m, unless otherwise specified by the manufacturer.
12. In storerooms inside the building, the distance between the top of the transport packaging or container and lights located on the ceiling or wall must be a minimum of 0.8 m. The lights shall be fitted with covers to ensure protection against mechanical damage.
13. Full containers and empty dirty containers with one opening shall not be stored with the opening downwards unless otherwise specified by the manufacturer.
14. Storage areas for empty dirty containers shall be marked with an "Empty containers" sign.
15. Substances and products not directly related to the flammable liquids stored and which could initiate a fire in such storerooms, spread a fire or accelerate the spread of a fire, or make it difficult to evacuate persons or to respond to a fire, shall not be stored simultaneously in flammable liquid storages. In particular, explosives, including explosive detonation devices, shall not be stored there.
16. No more than 7 m³ of flammable liquids may be stored in flammable liquids storerooms.
17. In the event of solid flammable substances being present in storerooms, these substances shall be separated from the flammable liquids and spillage of flammable liquids into the area containing the solid flammable substances shall be prevented.
18. In storerooms with containers where the maximum of 100 m³ of flammable liquids of all hazard classes is stored, flammable liquids can be handled. These areas must be adequately ventilated.

Annex 1

19. Flammable liquids of hazard class I may be expelled by air at the maximum overpressure of 0.01 MPa or by means of an inert transport gas without overpressure limitation. Flammable liquids of hazard classes II to IV may be expelled by air without overpressure limitation.
20. Repairs, cleaning and maintenance in explosion hazardous areas may only be carried out after measuring the vapour concentration in the area, which must not exceed 25% of the lower explosive limit.
21. Forklifts for explosion hazardous areas must comply with the requirements of ČSN EN 1755.

RULES FOR SAFE HANDLING OF DRILLS

1. Special attention should be paid to correct work clothing and attire (tight sleeves, use of hats or scarves).
2. Work gloves must not be worn when working with drills.
3. The drilled object must be properly clamped or secured against rotation by cutting resistance. Holding the workpiece by hand only is prohibited.
4. The clamping and removal of jigs, fixtures, tools and workpieces which, because of their weight, shape or dimensions, do not permit safe manual handling and positioning in the machine must be ensured either by the use of suitable handling equipment or with the assistance of another person.
5. Only change tools when the spindle is off.
6. The belt transmission from the drive electric motor to the drilling spindle must be closed with a protective cover when working.
7. Use rose bits to bevel the edges (burrs). The workpiece must not be held by hand during this work activity.
8. After switching off the machine, do not stop the running spindle with your hand or any object held in your hand.
9. If the spindle does not return to the upper position or goes down spontaneously after the drilling operation is finished, this fault must be reported to the supervisor.
10. Use brushes, scrapers, brooms or air blow guns to remove chips. Removing chips with bare hands, gloves or by blowing through the mouth is strictly prohibited.
11. Air guns used for cleaning machines, workpieces and clamping tools must be fitted with a protective device to prevent injury to the worker from flying substances.
12. The ejector wedge must not be attached to the drill or other equipment by chain, cable or any other means. Do not leave the ejector wedge in the spindle.
13. Only enter the clamping surface of a table, plate or other hazardous area when machining large workpieces for the purpose of measuring, inspecting or performing other similar operations when these parts of the machine are off.
14. When checking the surface quality, clamping and removing workpieces, unless these operations are performed automatically, the spindle (press slide) must be stopped and the tool moved to a safe distance.
15. If the machine tool is not equipped with a chip guard or if it is not possible to use the chip guard, personal protective equipment (protective glasses, protective shield) must be worn.
16. Chip removal shall only be carried out when the machine is off.
17. Drills with sliding spindles must be secured against the spindle moving downwards.
18. The drilled object must be secured against rotation.

Annex 1

1. Only pressure tanks (hereinafter referred to as PT) complying with ČSN 69 0010 and ČSN 69 0012 standards, properly marked and tested, equipped with prescribed and tested equipment and having a valid inspection book may be used. The PT shall be positioned so that it can be properly inspected from all sides and from below and that all fittings are well lit, visible and accessible.
2. Each PT shall be legibly and durably marked with the following specifications: the name of the manufacturer, the serial number of the tank as listed by the manufacturer, the year of manufacture, the maximum working overpressure of each pressure compartment, the highest or lowest working temperature of the pressure compartment, as appropriate, and the volume of the pressure compartment. The information shall be on a label that is firmly attached to the PT. The specifications shall be clearly legible at all times and shall not be covered either by insulation or by a protective coating which would impair their legibility. If the PT has more than one pressure compartment, the working overpressure, contents and temperature shall be indicated separately for each pressure compartment.
3. Each PT must be equipped with the necessary safety fittings: a pressure gauge, on which the working overpressure must be marked with a red line directly on the gauge scale and not on the protective glass, a safety valve securing the PT against exceeding the maximum working overpressure, a closing device, a dump valve, a closing valve located at the highest point of the PT, etc.
4. PTs may only be operated by persons over 18 years of age, physically and mentally fit for the job, who have been demonstrably familiarised with the operation of pressure tanks.
5. Obligations of the operator:
 - to know, control and operate all equipment at their workplace so that safe and economic operation is ensured and to intervene successfully in emergency circumstances so that safety is ensured,
 - to follow the orders of the supervisor, unless they conflict with the relevant regulations and the obligations of the operator,
 - to report immediately any malfunction, defect or unusual occurrence in the operation of the tank and its accessories to a superior, immediately take the tank out of service if there is a danger of delay or if the supervisor fails to act to remove the danger immediately; to undergo, as far as possible, revisions and inspections of the tank so as to know its condition,
 - to check and test the tank equipment (correct operation of pressure gauges – once every 3 months and of safety valves – once a month) according to the ČSN 690012 standard and to record the test results in the operating log book). The charge air overpressure indicated on the PT label must be sufficient for the heating system (1 m of water in the system = 10 kPa). After filling the system with water and venting, mark the hydrostatic water pressure in the system on the scale. Adjust the value of the charge air overpressure in the expansion tank by releasing it to the same value as on the pressure gauge. Adjust the system pressure to 10 kPa higher by adding water to the system. Mark the value of the opening overpressure of the safety valve on the pressure gauge with another line. During the first heating, maintain the maximum working water temperature in the heating system for 4 hours and carefully vent the system during operation. Refill the water system when it cools down.
6. Periodic inspections and tests:
 - External inspection must be conducted once a year.
 - The pressure test must be conducted not later than 9 years after the date of manufacture.
7. Pressure expansion tank testing
 - The air pressure shall be checked with a test pressure gauge. If it drops, it must be reinflated.
 - For equipment where the water side of the diaphragm can only be depressurised by draining the entire heating system, it is sufficient to reduce only the pressure in the heating system to the static pressure of the system during the test and then measure the air pressure above the diaphragm. If the readout is the same as the readout on the heating system pressure gauge, the tank is fine. If it is lower, air must be added.
 - Testing and installation of expansion tanks must be arranged by a professional organisation with

a licence for installation of closed heating systems (ČSN 06 0830).

SAFETY REGULATIONS FOR ELECTRICAL EQUIPMENT INTENDED FOR USE BY PERSONS WITHOUT ELECTRICAL QUALIFICATIONS

Workers familiar with the regulations **must not**:

- work on exposed live parts of the electrical equipment, touch them directly or with any object.
- use damaged electrical equipment.
- if they move or stay near electrical equipment they must not come closer than - for equipment up to 1 kV 1 m, for equipment from 1 to 35 kV 2 m, etc., to the exposed live parts of the electrical equipment with any part of the body, clothing or object used at work; if this requirement cannot be met, the electrical equipment must be switched off and secured.

Workers familiar with the regulations **can**:

- independently operate simple low-voltage electrical equipment which is designed so that they cannot come into contact with exposed live parts during the operation,
- switch on and off simple electrical equipment
- when the equipment is switched off, they may move and extend moving inlets with connecting cords, before which they must be safely disconnected from the network by pulling the plug out of the socket (does not apply to equipment adapted as tools, hand lamps, etc.)
- replace blown fuse links only with screw and mechanical fuse links of the same value (do not repair the links yourself)
- replace bulbs
- maintain electrical appliances according to the manufacturer's instructions
- perform maintenance work (cleaning, lubrication, routine inspections without dismantling with tools, etc.), but only when the electrical equipment is switched off
- work in the vicinity of live parts while maintaining safe distance

Workers familiar with the regulations **must**:

- follow the relevant instructions and operating regulations and ensure that the equipment is not overloaded or otherwise damaged,
- if a fault is detected in the equipment during operation, it must be switched off immediately and the fault reported to the electrical maintenance engineer or to a supervisor; the same applies in the event of static electricity in electrical or non-electrical equipment, manifested by sparks, discharges, etc.