

PRECAUTIONS ON MAINTENANCE AND OPERATION OF MACHINES WITH NUMERICAL CONTROL

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Abstract. Questions of emergencies during the operation and maintenance of machine tools with numerical control. The proposed measures to eliminate violations and prevent emergencies.

Keywords: machine tools with numerical control, safety, emergencies, fire safety, coaching.

Анотація. Розглянуто питання надзвичайних ситуацій під час експлуатації та обслуговування верстатів з числовим програмним керуванням. Запропоновані заходи для ліквідації порушень та унеможливлення надзвичайних ситуацій.

Ключові слова: верстати з числовим програмним керуванням, правила техніки безпеки, аварійна ситуація, пожежна безпека, інструктаж.

Introduction. Work associated with operation and maintenance of machine tools with numerical program control rather complicated and dangerous. The operator of the machine must observe safety rules when working on the equipment. This allows you to minimize the risk of occupational injury or disease. To be admitted to the management of the machine, the operator must undergo medical examination and confirm knowledge of the rules of operation of the equipment.

Analysis of the question. Occupational safety when working on machines with numerical control (CNC) - one of the conditions for trouble-free operation of the equipment and no accidents. There are various causes of accidents. This equipment failure (power failure, jamming, breakage of the belt), accident, fire, explosion.

Objective. Develop a set of security measures in the maintenance and operation of machine tools with numerical control.

Methods, materials and research results. The operator of the machine with numerical control must observe safety rules when working on the equipment. Drives the machine should be turned off every time you need to install workpiece, remove the finished product, in the collection of chips, for measurement and replacement tools. When the processing of metal workpieces formed small chips, the operator must use protective glasses. It is forbidden to blow sawdust mouth or scrape it from the machine by hand. To do this, use a brush or special hooks. It is forbidden to drink alcohol in the workplace.

Prior should be checked:

- availability and performance tools;
- grounding;
- integrity lubricating systems and pipelines cooling;
- operation at idle.

Workers should firmly fix the workpiece so that ruled him unfastening and breakage. Equipment operator may not place on a wrist machine the workpiece or tool - they can cause injury to the employee in the event of a fall.

After the worker process operations need to disconnect electric equipment. Then you must remove the chips, make billets and finished products. The tool must be removed in position. If during the work shift were problems with equipment or repairing machine operations necessary to pass this information master. After stopping the moving parts of the machine lubrication should hold them. For any technical malfunctions that may cause an accident, you must stop and inform the master of the shop.

Stop the machine required when there:

- accident;
- fire;
- explosion;
- failure of equipment - power failure, jamming, breakage of the drive belt.

If there was an accident, should cause physicians to provide first aid and report on event management. To eliminate accidents caused by electric shock, CNC operators must comply with electrical safety when operating equipment. Connect the machine to the mains only after being grounded and electric bed. Electrical safety is ensured by disconnecting the machine over the supply line.

If the operator defeat electric shock should first terminate the current on the victim. To do this, use dry items that do not conduct electric current - board, rope, mop. Man need to pull from the voltage source, avoiding to take him for shoes or exposed areas of the body.

When operating the hardware of the numerical control there is a risk of fire. The causes may be a violation of safety and technical equipment malfunction. To prevent a fire:

- no smoking;
- monitor the operation of electric drives, preventing them from overheating;
- not save oiled rags on the table and open shelves;
- not to store materials and finished goods in the shop aisles;
- when dealing with parts of titanium alloy or magnesium chips not blow compressed air in order not formed an explosive slurry.

If fire occurred, do the following:

- disconnect the equipment;
- call the fire department;
- give a signal detector and inform management of the event;
- before the arrival of firefighters to extinguish the fire extinguisher powder or carbon dioxide;
- leave the shop if localized fire failed.

Hired machines operators and trainees are on the job primary instruction, which covers the following range of issues:

- list of potential hazards when working on the machine;

- maintain order in the workplace;
- location equipment parts that are potential hazards;
- the sequence of preparation before work;
- methods of operation of the machine that eliminates the appearance of abnormal situations;
- procedure in case of accidents;
- causes and methods of prevention of accidents and accidents.

When performing working operations should be in overalls and footwear. Overalls or jacket fastened all the buttons. This reduces the risk of seizure clothes moving parts of the equipment and protects the skin from the working wounds and burns in emergency situations. Footwear operator must be Closed with metal subsock to the fall of heavy objects - pieces or tools - to protect feet from injury. CNC Operator must use apron, sleeves, gloves coated goggles.

Conclusion. The paper analyzed Precautions on maintenance and operation of machine tools with numerical control. Proper organization of safety measures and strict adherence to safety when working on CNC machines - the key to successful branding policy and competitive advantage of modern metalworking company. Because goodwill manufacturing company depends not only on the volume and quality, but also on the duration of trouble-free operation, no accidents and occupational injuries.

References

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