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SECURITY RULES OF VIBRATING TABLE

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Abstract: The paper is a theoretical study concerning a statement by the construction of the tables and then application of security rules relating to their implementation in their operation and use.

Key words: Exciter, security rules.

1. INTRODUCTION

1.1. The vibration of concrete table vibration

Items, in concrete, can be performed compact vehicles for on the exciter. Patterns will be fixed on the vibrant. Duration of vibration varies based on the workability and the thickness of concrete, i.e. between 60-120 min. Power vibrating tables will be correlated with the weight of the printing element Assembly.

Apply and a vibrating of the concrete with a length of 15-30 min. During compaction, up before the PTO cement concrete, thus producing better quality and with a capacity superior peripheral [1].

Vibrating tables can be used in various industrial applications to achieve compaction, sorting materials, emptying and filling of containers etc. Vibrating tables will design according to their destination. The principle of operation of these tables consists of inducing vibrations in a metal countertop, which is isolated by means of elastic elements of the fixed part of the meal (its support).

The vibrations are induced by fitting metal countertop has one or more electric or hydraulic vibrators. Centrifugal force to them you can adjust by changing hexcentric position vibrators. You can also adjust the vibration frequency converters and frequency through. Vibrations can be low frequency 5-15 Hz or high frequency over 100 kHz. Table could be fitted with restraint systems or containers of forms, which are used in the production process. Application of vibrating tables is the manufacture of semi-finished products made of concrete, starting from small mouldings (pavers, kerbs) to mouldings of large and very large (panels, fence poles, tubes and concrete homes, beams, etc.).

1.2. Types of vibration exciter used in industry

a. Vibrant table with a flat surface for the production of finished parts made of materials such as concrete, refractory concrete etc. [7].

Vibrating table has a size of 3 x 3 meters, and is designed to withstand the weight of 7000 kg, the supply vibrated with a maximum frequency of 60 Hz.

Fig. 1 Vibrating table [7].

b. Table with guiding rails vibrant, attachment for drums or other containers.

Drums or other containers round table is fixed with clamps. The clips can be moved on Rails variable diagonal, which lies on the surface of the table [7].

Fig. 2 Vibrant table with guide rails [7].

c. Vibration exciter for compacting concrete in thin layers (as option) mounting Table vibrant flush with the floor of the Hall, used for tamping of concrete into the formwork, steel sheet.

For isolation of oscillations and to control the race in the position of working table will be used for filling pneumatic bellows some clamping [7].

Fig. 3 Vibrant table for tamping the concrete carcasses [7].

2. MAIN ELEMENTS of the MACHINE VIBRATING

2.1. General considerations relating to the engineering

Problems of cars vibrating theory of vibration [6] have been developed over time after three main directions:-preventing, eliminating unwanted vibration and damping;
-generating and using vibration with certain characteristics in different industries;
- the equipment's and systems for tracking, verification and control of vibration.

The second of these strands a great development and diversification and is related to the construction and calculation of vibratory machines and devices.

Vibration of an environmental action is carried out by means of machines, devices, tools, test benches or vibrating tools. The most complex aggregates are vibrating machines of the most varied types and uses, include as a problematic devices, vibrators vibrating tools etc.

In the evolution of the development construction of vibratory machines there are distinguished three stages [6]: first stage, today it has been overcome, characterized by the fact that the efficiency of these machines was achieved by increasing the size, the weight of the machine of vibration and so and power consumed.

The second stage is characterized by building machines that work as a sounding board or close to the regime of resonating, this resulting in a reduction in the size and power consumption. All these results were obtained by applying the theory of vibrations of linear systems.

The last stage, highly topical, relates to obtaining superior performance with minimal power consumption and low cost price of the car.

They involve taking, into account in the design calculations, nonlinear modeling of friction forces as essential factor of elastic elements, unlinearity, synchronizing and synchronization of radiopharmaceuticals vibration etc. [6].

In what follows, it will outline the broad picture of the overall issues of vibrating machines and their use.

3. RULES for the SECURITY and PROTECTION of work

3.1. Operating instructions table vibrant

Any industrial equipment, machine-tool before being put into operation shall follow some steps, which is particularly important in terms of safety in the work of the operator having a serving and last but not least, the time of service, as follows:

a. Service safety

In the event of failure of the remote control, for safety, there must be a safe service. It will be at the door at the front of the Panel, where the mass will be flap raised and lowered again.

For this you will need a selector brought into position (service). And here, you have to lift the table hooked up an engine. By lifting and lowering the table keys flap can be lifted and lowered, just as with the remote control (the same operation, the bypass switch through the end, etc.).

b. Coupling-uncoupling safety

It pushbutton lock keys to the control panel the table flap will remain in place, to that position and the engine will shut off.

The engine will be secured against overload via a relay, which will be controlled at about 13A (Ampere).

3.1 Operating instructions and maintenance for pump aggregates

In terms relating to aggregates with pump is given safely:

- **Transport**

Transport pump aggregates will catch on transport links welded through vents will pull cords. In no event it will not fix pipe pipes, valves or other engines.

- Hydraulic aggregates shall be positioned as far as possible, in dry and clean, with good ventilation, it will center with specifically linear and it will be fixed in such a way, such as is not subject to jolts.

Attention, command, control and maintenance will need to be visible and easily accessible.

- **Hydraulic connection**

Pipes from the cylinders and screw pipe joints shall be thoroughly cleaner before installing to contain no corrosion-wool Board, waste or other impurities.

The pipes will have to be cut exactly rectangular and without burrs (if you are using pipe cutters will produce strangling cross section). The leads of the aggregate shall mark with ' P '; „R”; , "And" B ", and thus, with the help of hydraulic connections plane will be able to connect with those consumers connections.

- **Electrical connection**

The electrical connection will be made by a specialist in accordance with legislative requirements. If an appliance is delivered completely electrically, it can be connected to electrical connections in accordance with the plan. It will mark, especially, cutting with hydraulic connections plan.

- **The pressure**

As pressure fluid is used, mainly mineral oil. Other liquids are (oils, synthetic oils, native), only upon request. It will provide necessarily, account should be taken of the recommendation relating to the oil.

It is not permitted the mixing of different groups of oil (mineral oil with synthetic esters), because it could damage the plant.

- **Hydraulic oil**

Unchanged will be done at the proper time because the twin causes increased wear in the apparatus. In normal circumstances, the oil will be done after about 2000 to 3000 hours of operation, but at least once a year. Putting into operation after filling it with hydraulic fluid (usually with the filling filter integrated into the recirculating filter) after the connection of the electric and hydraulic, after checking the direction of rotation, the facility would be ready for operation. The trial operation will plant ventilate thoroughly.

- **Cleaning after running-in time**

It multiple effects of processes of washing, replace the recirculation filter element with a new one.

The following filter replacement will be when it reaches the Red marking from the dirt. It is necessary to control the weekly.

Air filter, mounted in the recirculating filter, will replace depending on the degree of dirt. Ducting, inlets and joints of pipes will oversee to stand at fixed into place and be watertight. After about 10 hours of operation screw connections must be tightened again, because after a while it sits.

The minimum level of hydraulic oil can be seen at the marking of glass oil control and not allowed to drop below that level. This will check weekly. In the same way it must be checked and hydraulic oil that contain water (opaque), air (Milky color) and other dishing.

The frequency is adjusted after operating conditions. At each exchange hydraulic oil capacity oil will cleanse thoroughly.

4. CONCLUSION REGARDING OPERATING INSTRUCTIONS FOR VIBRATING TABLES WITH GENERATORS AND ELECTRICAL MAINS PANELS

- Compulsory wearing of protective and safety equipment (overalls, helmet, boots, gloves, reflective vest, etc.).
- Access to the ward and will be made only on paths marked as such.
- Putting the pieces, vibrant table will not sit under the tracks caught using the bridge, there is a risk of falling and their handling and the bridges will be done by a skilled worker.
- Pouring concrete into moulds (formworks), vibrant on the table, it will makes a worker (head of team), who was trained in advance.
- It will abide by the terms of the vibrating and frequency depending on the thickness of the Panel cast.
- It will leave the respective panel drying, observing the instructions of the head of the CTC and the team.
- The de-moulding agents, use only approved devices (Tools) not improvisations, in order not to damage the Panel cast.
- Lifting vertically vibrating table, it will be done by the head of the team, ensuring that they are not any worker near the vibrant table.
- Vibrant mass rises up to about 85-90 ° (command to lift stops acting-decoupling is limits).
- After you will get on the Panel, with meal rolling bridge and actuator devices approved, vibrant mass returns to position 0 (horizontal) having into account beforehand, warning its meal, acoustic and visual too.
- It will be put into storage, cast Panel using the rolling bridge and continues the production process while observing the rules in technological and industrial safety (NTSM).
- In case of accident, notify immediately the team leader etc.

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Norme de securitate privind mesele vibrante

Abstract: Lucrarea este un studiu teoretic privind instrucţiuni privind constructia meselor vibrante şi apoi aplicarea normelor de securitate privind punerea lor în funcţiune şi utilizarea lor.

Cuvinte cheie. Mese vibrante, norme de securitate.

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