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CLASSIFICATION AND DESIGN FEATURES OF DEEP WASHING EQUIPMENT

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Submersible washing machines are used to clean parts and components of equipment from dirt. Cleaning is carried out by immersing the repair objects in a bath with a solution of synthetic detergents and involves a complex effect on the contamination of physico-chemical and mechanical factors. Physico-chemical effects are carried out by the use of detergents, mechanical effects are carried out by submerged jets of washing liquid [1].

Depending on the method of intensification of the cleaning process, submersible equipment is classified into four types: with hydraulic, pneumatic, vibration and mechanical activators.

Hydraulic swirlers activate the liquid in the washing chamber and consist of cylindrical guide cups with tubes for supplying the washing solution. The turbulence of the flow is created by submerged jets emerging from the tubes.

When using pneumatic activators, two fundamentally different schemes for creating turbulence in the washing solution are possible:

- blowing with compressed air through a system of nozzles in the lower part of the washing chamber, which breaks up into individual bubbles and rises to the top through the entire mass of the liquid;

- creating the effect of the so-called vacuum bubbling, when a vacuum is created above the surface of the solution in the washing chamber, where the air flows contained in the liquid are directed.

Vibration activators can be platforms with cleaning objects that are given reciprocating motion on a low-frequency oscillatory principle, or high-frequency vibration is given directly to the cleaning solution. Mechanical activators are divided into three types: rotary, screw, and blade.

When using a rotary activator, the cleaning process is carried out by periodically immersing containers with parts in a bath, moving them inside the bath and lifting them above the bath to drain the solution from the holes of the containers [2].

The screw activator is placed inside a drum, the lower part of which is immersed in a cleaning solution. The parts are moved, intensively washed with the solution.

The paddle activators are driven by an electric motor and direct jets of cleaning solution in the bath to the objects to be cleaned.

Immersion cleaning is carried out in baths of various designs, which consist of the bath itself, cleaning solution heaters and equipment for intensifying the cleaning process. These are emitters (ultrasonic, cavitation, mechanical, electro-hydraulic, etc.) that generate directed flows or vibrations in the liquid; screws; devices for giving the object to be cleaned complex movements in the cleaning solution.

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