International Journal of Advance Scientific Research
(ISSN – 2750-1396)
VOLUME 03 ISSUE 12 Pages: 120-125
SJIF IMPACT FACTOR (2021: 5.478) (2022: 5.636) (2023: 6.741)
OCLC – 1368736135

Journal Website: http://sciencebring.com/index.php/ijasr

Research Article

CURRENT CONDITION OF PUMPS AND THEIR USE

Submission Date: December 06, 2023, **Accepted Date:** December 11, 2023,
Published Date: December 16, 2023
Crossref doi: https://doi.org/10.37547/ijasr-03-12-22

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ABSTRACT

This thesis provides brief information about the existing pumping stations on the territory of our republic, the correct and efficient use of pumps and their current state, problems arising in pumping units and their elimination, improving the efficiency of pumping stations on the example of the Fayziabad pumping station.

KEYWORDS

Pump, liquid, mill, piston pump, centrifugal pump.

INTRODUCTION

The creation of water transmission machines and the lightness of the workflow have created problematic situations in the history of mankind. A water transmission machine called a sink and Noria, which is propelled by human or animal power, was used in Egypt thousands of years ago BC. The water-bearing Carpenter, using his chimneys to mechanically move the fluid movement, was used in irrigation of crops in ancient times in Central Asia, India, China and Egypt, reaching the present day[4].

In the XVII century, L.Euler founded the theory of shovel pumps and used this theory to establish a.A.Sablukov created a sample of the centrifugal pump in its current structure. With the invention of electric motors in the 19th century, porcelain pumps began to be replaced by centrifugal and axial pumps, which were much more compact,

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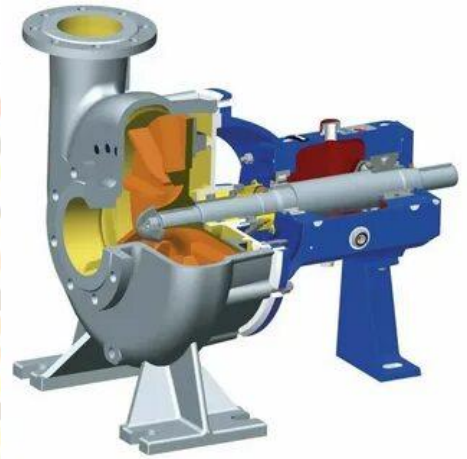
lightweight and inexpensive in comparison to them.

In Uzbekistan, at the beginning of the 20th century, there were pumping units powered by small oil engines. T. in the 1930s.A.Under the leadership of Kolpakova, work was carried out in our republic to design, build and Research simple pumping devices powered by tractor engines[10].



The first electrification immovable pumping stations are “Bayavut” in Mirzachul, built in 1959, and “Torakurgan pumping station " in Fergana Valley.

Today, the “Syrdarya Sokh irrigation systems Basin Directorate, Fergana Pumping Station Energy Directorate” is operating in Fergana Valley.

Mainly centrifugal pumps are operating in pumping stations due to the current situation.

A practical visit to the “Faiziabad” pumping station was organized. Centrifugal pumps through asynchronous and synchronous electric motors with a power of 6 kV with a power of 5 630 and 5 800 kW are working in a parallel state. The main task of pumping units is to supply water to agricultural irrigation systems.

The building of the pumping station was completed in the middle of the XIX century. In the building of the pumping station there are 10 pumping units, all pumping units are centrifugal NAOS. The pumping units are equipped with 5 synchronous electric motors with a power of 630kw and 5 asynchronous electric motors with a power of 800 kW. The pumping unit throws 500 liters/sec of water from the lower byef to the upper byef.

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If the pump is transmitting A M-mass liquid within a unit of time above the lower water level, the work it does will be equal to mgH (J). Where m=pQ is the useful capacity of the pump(kW):

$$N_f = \frac{\rho g Q H}{1000}$$

$$\text{Or } N_f = 9.81QH$$

p- density

Here: g=9.81 – free fall rate; Q – water consumption; H – height [3].

The useful coefficient of work, which represents the loss of all types of energy in the constructive parts of the pump, is determined as follows:

$$\eta_H = \frac{N_f}{N}$$

At the "Fayzobod" pumping station today, pumping units have fallen into a state of current and capital repair. The main reasons for this are described in the table below:

1- table

The essence of the malfunction	Cause of malfunction	Methods of elimination
Engine overload	Engine incorrectly selected	Checking, choosing and installing the engine correctly

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Failure to drive water after launch	The pump is incorrectly selected, the absorption of air into the suction bladder	The possibility of routing the pump working wheel is checked or high-rotation frequency engines are installed. Salniks, seams bolt and nut are fastened, the degree of immersion of the inlet of the suction chase in water is provided.
Low pump water transmission	Air intake into the pump	The above activities are carried out
	Worker wheel pollution	Checking and cleaning is necessary
	Damage to the working wheel or compaction ring	Opening, checking and replacing
	Contamination or clogging of pipes	Inspection and cleaning of suction and pressure pipes
Increased engine power	Eating a working wheel or compaction ring	Replacement of the working wheel or damping ring
	Improper Assembly of the rotor, the issue of compaction of the working grout or touching other details	Checking whether the axis of the pump and engine shafts fits

At the same time it will be necessary to carry out annual current and overhaul of pumping units. In the current repair, it is carried out after stopping the aggregate and drying the water, partially disassembling the details. Overhaul. Based on the data of preventive monitoring of pumping units and control of energy characteristic, a capital repair plan is drawn up and approved by higher organizations.

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Another of the main characteristic features of increasing the efficiency of pumping units is the correct Organization of the use of the pumping station. In order to ensure the effective use of pumping stations, administrative – managerial, direct management and repair work should be organized.

CONCLUSION

In conclusion, it should be noted that the scope of the above work directly depends on the professional management strategy of working personnel working at the pumping station and the knowledge of specialist personnel. Alternatively, it will be mimkin to achieve an extension of the process of operation of pumping units by timely implementation of seasonal and annual capital repair processes of pumping units at pumping stations.

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