

# OVER HEAD WATER TANK CLEANING MACHINE

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## ABSTRACT

Now todays life to clean the domestic water tanks are very risky job. due to dirty inner surfaces in the tank like fungus, dirt because of that the various effects on the human health and also proper cleaning is not done by manually. to overcome this problem we design the mechanical system which is aim to clean the domestic cylindrical water tanks. Clean the tank carefully and reduced wastages of time.

The mechanical system includes various linkages, lead screw, there are two mechanisms one is four bar mechanism and other is screw jack mechanism to movement of the whole mechanism to up and down for cleaning the water tank. there are two spur gears arrangement one is connected to motor shaft other is attached to lead screw. on the lead screw four bar linkage or mechanism made such a way that it can be adjusted to inside diameter of the tank. the movement of four bar mechanism are with the help of screw jack mechanism.

**Keyword :** - DC motor, lead screw, four bar linkages, PVC Brushes.

## 1. INTRODUCTION

In overhead tank cleaning machine help to cleaning the variety of tanks of the domestic appliances in that case no any robot is use to clean this tanks properly. After the study about that the lots of difficulties to Clean and clear the water tanks, like dirty places in tank, labour payment, irregular work and other reasons. To over come such a type of problems we make the water tank cleaning machine the mechanical linkages or mechanism are useful to solve this problems. In this case the machine has ability to clean the tank easily and quickly.

### 1.1 Why cleaning of water tank are necessary ?

In the human life the water is the main source in every day life for the bathing, cleaning, washing cloths and brushing in other house hold applications. And the passage of the time the scale and algae are deposited in the walls and the all inner surface of the water tank. This contaminant in the water and its gets unfit to the human being. Because of this various deceases occurs in the human body like skin problems etc. its very dangerous to human health. Hence water tank cleaning are necessary.

### 1.2 What are the methods is use to water tank cleaning ?

Manual washing and cleaning in water tank is very time consuming and tedious job.

To clean of the tank wall and floor or tank are scrubbing to remove dirt, fungus, stains and sediments.

Chemical also used to clean the water tank but chemical may affect the human health.

High pressure water can spread on inner side of the water tank for cleaning of water tank.

## 2. IMPORTANT COMPONENTS

### 2.1 DC Gear Motor

Gear motor is used to produce high torque to low speed and its specification is 15A, 220V it is single phase and frequency is 50 Hz, shaft speed is 75 rpm

### 2.2 Spur Gear

Spur gears are the most common type of gear they have straight teeth and are mounted on parallel shafts.

### 2.3 Lead Screw

The lead screw is also known as translation screw to translate turning motion into linear motion.

### 2.4 Brush

The material of brushes are poly vinyl chloride are used. Brushes are attached to end four bar linkages which rotate with the help of lead screw and clean the inner side of water tank.

### 2.5 Mechanisms

#### 2.5.1 Screw Jack

We use the screw jack mechanism for up and down motion of the brushes and also adjust with the size of tank.

#### 2.5.2 Four Bar Mechanism

It consists of links. It is a plain mechanism. The four bar mechanism is adjusted such a way that it adjusts the inner diameter of the tank.

## 3. OBJECTIVES

The main objective of this project is to develop an automated water tank cleaner using rotating brushes with less time and human effort.

## 4. FUTURE SCOPE

Machine can be operated on PLC circuit. It can be fully automated by using sensors. Timer can be used for stroke of motion, during toggling of motion. The machine can be remotely operated. The horizontal shaft having brushes on the end can be fitted with nozzle. The machine can be operated on solar energy. In future, the advanced vacuum cleaner type system is developed to clean the tank without removing the water from the tank.

## 5. CONCLUSIONS

We studied this method was more effective and safe than conventional method. This method is capable to clean water tanks within less time and human effort. The water tank cleaner was used to clean the water tanks by using rotating brushes. We know, now day by day wastage of water is a very important issue. To resolve these issues we made this machine at great priority.



## 6. REFERENCES

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## BIOGRAPHIES

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