

# Semi-Automatic Bearing Cleaning Machine

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**Abstract:** Now a days in the most automobiles workshop, the bearing of all vehicles i.e. either medium or heavy duty vehicles are cleaned manually. To overcome some difficulties which will be occurred in manual bearing cleaning and washing process, we need to apply some modern techniques. By using this techniques we make machine by using some mechanism. By using this machine we can clean bearing in less time, with less human efforts and more accuracy.

**Keywords:** Automatic Bearing Cleaning.

## 1. Introduction

In conventional bearing cleaning and washing process first we have to remove all the dust, dirt, small particles and used lubricating material such as grease. Then we clean the bearings completely with the help of oil such as diesel. Wastage of oil is main disadvantage of this conventional system. As it is done manually by human chances of mistakes or improper cleaning are more, this improper cleaning causes more wear and tear of bearing. So this conventional process is costly than our process. This conventional method is quite lengthy process and it also require more man power. So to overcome this type of problems we decide to prepare a machine to do all these stuffs properly

## 2. Working

First of all we have to check whether all the fittings are correctly fitted or not. Then clamping the bearing to the bearing holder system. Tightening the screw of bearing holder system firmly. Start the main power supply and after that we have to start the motor. When motor starts the bearing starts rotating which is to be cleaned. Checking all the hose connections properly and after that we have to start the pump. As soon as the pump starts the diesel starts to spray through nozzles. High pressure diesel is injected on the rotating bearing surface so dust particles and grease which is present on that bearing is completely removed and bearing cleaning process is done. After that the used diesel is drained out through drain pipe in the reservoir. After that cleaned bearing is removed from that bearing holder system and checking whether bearing is cleaned or not perfectly.

## 3. Content

- 1) Content of Semi-Automatic Bearing Cleaning Machine
  1. Pedestal Bearing
  2. Aluminium Pot
  3. Gear
  4. Motor
  5. Water Pump
  6. Brush Dimmer
  7. Figures

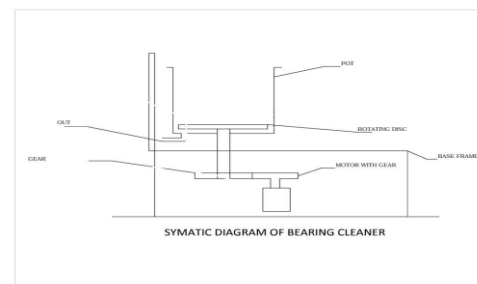


Fig.1. Block Diagram of Actual Model

## 4. Research and Reviews

1. *Proceco Typhoon®-HD* turntable spray cabinet washers are designed to clean large parts placed directly on a swing-out turntable. This heavy-duty industrial parts washer combines pressure, heat, and an aqueous cleaning solution to clean and degrease parts to your specification within minutes.
2. *The Proceco Typhoon® MB-H* is a heavy-duty power-spray belt parts washer designed for automatic processing and cleaning of heavily contaminated and/or heavy components. Inline conveyor washers clean railway axel bearings with the help of high-pressure spray jets of and heated aqueous solutions.

## 5. Future Scope

1. Sensors can be placed. So, the work can be done automatically. The compressed air and kerosene can be controlled by the computers by using sensors. So that machine can be controlled from the far distance. • Weightless material can be used. So that it can be portable
2. In future we can attach the automatic clamping device

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for the holding bearing.

3. We can also try some another cleansing agents instead of diesel.
4. This project concept can be used in automobile workshops for cleaning of various parts.

### 6. Conclusion

Our project involves the detailed study of the processes being carried out in cleaning process of cylindrical bearings and designing a single machine for cleaning of bearing is concluded. This machine will help the industry to minimize the maintenance cost, labor cost as well as energy required for the whole process. Thus single machine will perform all the cleaning process and will be of great advantage that a cylindrical bearing requires such as removal of dirt, inspection for the cracks, etc.

### References

- [1] Maintenance of Spherical Roller Bearing for ICF Coaches” by India Railway centres for advanced maintenance.
- [2] Maintenance handbook for roller bearing on axle by Government of India ministry of railways, INDIA.
- [3] Kugelfischer Georg Schäfer “Rolling Bearing Lubrication by FAG” Industrial Bearings and Services.
- [4] H. S. Gadiyar, Chintamani Das and K. B. Gaonkar “Decontamination and corrosion”. The Basics of Alkaline In-Process Cleaning for Metal Substrates.
- [5] Nalinkshyyas, “Technology mission on Indian railways”, Indian institute of technology, Kanpur, (2006).
- [6] NeerajNijjaawan, RasshmiNijjaawan, “Bearing and Its maintenance Modern Approach to Maintenance in Spinning”, 2010, Pages 333-364.
- [7] R.K. Upadhyay, L.A. Kumaraswamidhas, Md.SikandarAzam, Rolling element bearing failure Analysis: A case study, Case Studies in Engineering Failure Analysis SciVerse ScienceDirect, vol. 1, pp. 15–17, 2013.
- [8] Manigandan NaveenPrabhu.V and Devakumar.M, Design and Fabrication of Mechanical device for Effective Degreasing in Roller Bearing by Science Direct Elsevier Procedia Engineering vol. 97, pp. 134 – 140, 2014.