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Design and fabrication of burr collector to increase the rotor's life

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ABSTRACT:

The main aim of this project is to remove the dust materials in the rotor used in the machines like CNC's turning centre and Lathe machines. By removing dust Particles in this area helps to reduce the damage of rotor during running and machining process. This will results in the improving the efficiency of the system by using storage tanks to collect the dust materials.

Keywords: dust collector, blower, flexible pipes, Lathe machines.

I INTRODUCTION

A vacuum cleaner is a pneumatic device, which is used to remove the dust particles and dirt, by partially using vacuum to suck from the floors or from other components. Here vacuum cleaner is used to remove dust in lathe machine . The dusts are collected and stored in collected bag or storage tank. This vacuum cleaner is operated by AC motor of 230V current which is taken from the machine. The cleaner is attached in the tail stock of the lathe Machine in order to remove the dust particles from the machine. In this it mainly used for two common purposes certainly to make the clean surface of the rotor and to increase the lifetime of the rotor.

II LITERATURE SURVEY

In 2004 a British company released Arider, a hovering vacuum cleaner that floats on a cushion of air. It has claimed to be light-weight and easier to makeover (compared to using wheels), although it is not the first vacuum cleaner to do this — the Hoover Constellation predated it by at least 35 years.

A British inventor has developed a new cleaning technology known as Air Recycling Technology, which, instead of using a vacuum, uses an air stream to collect dust from the carpet. This technology was tested by the Market Transformation Programme (MTP) and shown to be more energy-efficient than the vacuum method. Although working prototypes exist, Air Recycling Technology is not currently used in any production cleaner. A vacuum's suction is caused by a difference in air pressure. A fan driven by an electric motor (often a universal motor) reduces the pressure inside the machine. Atmospheric pressure then pushes the air through the carpet and into the nozzle, and so the dust is literally pushed into the bag.

III. EXPERIMENTAL WORK

3.1 Material

In the present study, Aluminium casting and sheet metal plateas used as a material. This material is a ductile material and has used for various applications widely as an material.

3.2 Equipment

The used for absorbing the burrs and cleaning the table by the vacuum pump and motor.

3.3 Experiment setup

This is the air that sucks up, or vacuums, the dirt and dust. The low pressure air caused by the air going into the **vacuum cleaner** draws up small objects which then get trapped in bags, canisters or filters. **Vacuum cleaners** use low air pressure to help us pick up small particles of dirt and dust.The experiment setup is shown in Fig.1.

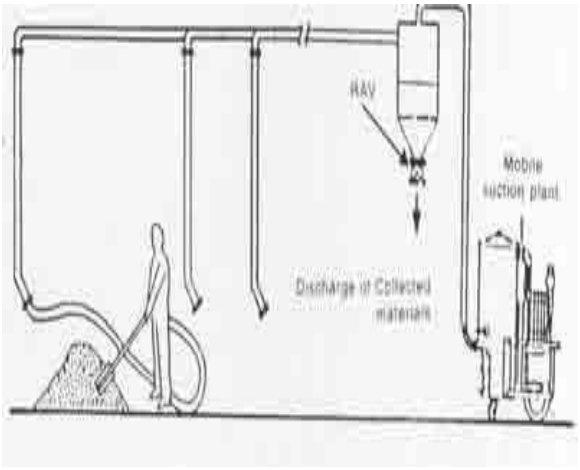

Fig.1. Schematic of vacuum cleaner in industry process

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A vacuum cleaner is a form of technology. Technology is something that people create to solve problems. Vacuum cleaners pull air in and the air sucks up dirt and dust. Inside vacuum cleaners a fan blows air (you can often feel it). In order for a fan to blow air, it needs to draw air in. This is the air that sucks up, or vacuums, the dirt and dust. The low pressure air caused by the air going into the vacuum cleaner draws up small objects which then get trapped in bags, canisters or filters.

Vacuum cleaners use low air pressure to help us pick up small particles of dirt and dust. Vacuum suction is also used in many industries to move materials around. A milking machine uses low air pressure (vacuum pressure) to create suction to milk a cow. The milk can also be moved to a large holding tank using vacuum pressure.

3.4 Machine Detail

Attachments

Most vacuum cleaners are supplied with numerous specialized attachments, such as tools, brushes and extension wands, which allow them to reach otherwise inaccessible places or to be used for cleaning a variety of surfaces. The most common of these tools are:

- Hard floor brush (for non-upright designs)
- Powered floor nozzle (for canister designs)
- Dusting brush
- Crevice tool
- Upholstery nozzle

Specifications

The performance of a vacuum cleaner can be measured by several parameters:

- Airflow, in litres per second [l/s] or cubic feet per minute (CFM or ft^3/min)
- Air speed, in metres per second [m/s] or miles per hour [mph]
- Suction, vacuum, or water lift, in pascals [Pa] or inches of water

Other specifications of a vacuum cleaner are:

- Weight, in kilograms [kg] or pounds [lb]
- Noise, in decibels [dB]
- Power cord length and hose length (as applicable)

IV DISCUSSION

A **vacuum cleaner**, also known as a **sweeper**, is a device that uses an air pump (a centrifugal fan in all but some of the very oldest models), to create a partial vacuum to suck up dust and dirt, usually from floors, and from other surfaces such as upholstery and draperies.

The dirt is collected by either a dustbag or a cyclone for later disposal. Vacuum cleaners, which are used in homes as well as in industry, exist in a variety of sizes and models—small battery-powered hand-held devices, wheeled canister models for home use, domestic central vacuum cleaners, huge stationary industrial appliances that can handle several hundred litres of dust before being emptied, and self-propelled vacuum trucks for recovery of large spills or removal of contaminated soil. Specialized shop vacuums can be used to suck up both dust and liquids.

V CONCLUSION

The selection of materials for use in vacuum systems is a very important part of the design and should be considered in consultation with the user. Not only must the material be capable of being fabricated into the required components but it must stand up to the environmental conditions of temperature, pressure and chemical attack etc., imposed on it by the vacuum processes, without limiting the attainable vacuum pressure that is required. Suitable vacuum materials can only be outlined here and the reader is referred to the references' 4 below for more detailed information.

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