

Effective Use and Maintenance of Shot-Blasting Machines

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The purpose of this article is to make the users more aware about the shot blasting equipment as well as its design, construction and maintenance. Effective maintenance will improve the finish of components shot blasted. It will also reduce operating cost, which is approximately 18 to 20 paise/kg depending upon power, abrasives, spare parts and labour cost in different states.

The Machine

For efficient shot blasting operation we should understand the basic concept of the process and the machine (Fig. 1).

The shot blasting machine consists of six basic parts :

1. Blast Wheel
2. Cabinet
3. Work Handling mechanism
4. Elevator
5. Separator
6. Dust Collector

Let's take a close look at these six parts and see what role each plays in the shot blasting process.

1. Blast Wheel : Abrasive particles are projected by centrifugal force from various kinds of turbine wheels. The number of wheels installed in the machine depends on the type of jobs to be shot blasted and the rate- of work. The wheel is the heart of every centrifugal shot-blasting machine. Efficiency and cleaning effect depend to a great extent on the quality of the wheel and its components.

2. Cabinet : As high speed of abrasive particles (50-100 m/s) is involved, the articles to be shot-blasted have to be treated in closed, vibration free booth or cabinet made of strong steel, lined with wear resistant alloy liners. For maintenance purpose proper inspection door and ventilation are essential.



About the Author

Shri P. A. Patel is a Mechanical Engineer from University to Missouri, USA. He started his career as a Design Engineer in the USA. Where he worked for several years in a reputed company, designing & manufacturing Shot Blasting Machines and Air Pollution Control Equipment. He has worked in many Indian Companies. After a long service, he started his own company in the name of Patel Furnace & Forging Pvt. Ltd. with a view to manufacture Shot Blasting Machines and Air Pollution Control Equipment. They have recently received ISO 9002 accreditation from AQA, USA.

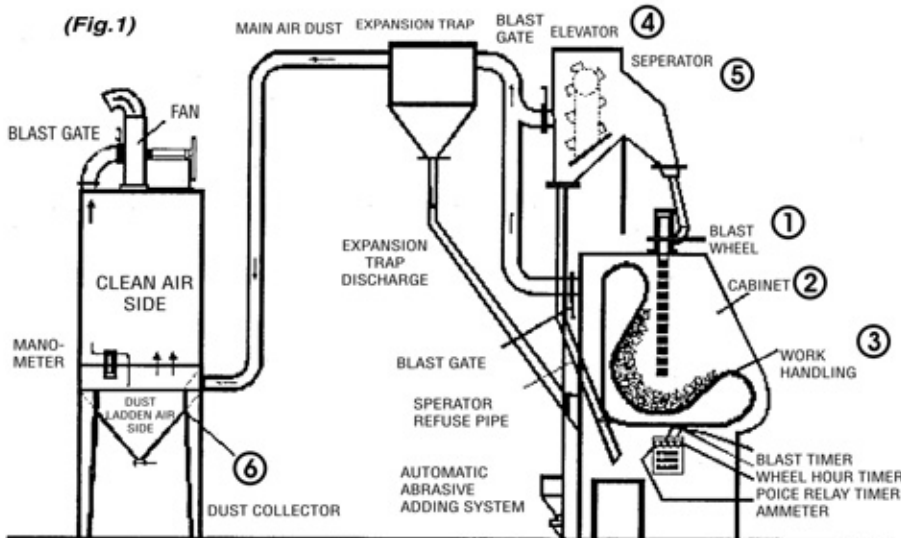
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3. Work Handling : Various systems exist for conveying the parts depending on the type, size and quality of the items to be treated.

Tumbblast Type Machine (Fig. A) : This design employs endless conveyor belt made of steel link and flats or rubber belt, which does not damage the job during tumbling.

Table Type Machine (Fig. B) : In this type of machine parts being cleaned must be positioned or repositioned on the table to assure complete cleaning of the full surface.

Monorail Hanger Type Machine (Fig. C) : In this type of machine, parts are suspended on trees hung on hanger or special fixtures and are carried into the abrasive stream.



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