

# SHOT BLASTING INCREASES EFFICIENCY IN FOUNDRY, FORGING & ALLIED INDUSTRIES



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Shot Blast Cleaning Equipments are used for surface preparation in Foundry, Forging, Shot Peening, Strip Descaling, Plate, Billet, Wire Coil Cleaning, Stainless Steel Strip Cleaning and have many more applications. It has now become more efficient and sophisticated. Shot blasting minimizes operation cost, maintenance cost. Therefore there is need for better understanding of the basic factors which controls the process and sub assemblies, which makes up a whole Shot Blast Machine

## TWO SYSTEMS OF BLASTING :

**Fig - 1 "Pressure Blast System":** In pressure blasting system the blast media is stored in pressurized vessel, which is mixed with compressed air. The air flow accelerates the media, through a blast gun on to the surface.

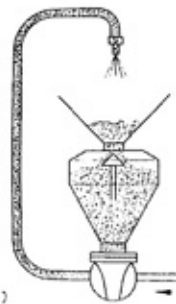


Fig - 1

10mm Nozzle 5 Bar Pressure.  
Blast Media Flow : 22 Kgs./Min.  
Air Consumption 275 M/Hr.  
Energy Consumption 25 KW.  
Specified Energy Consumed 1.14 KW/KG.

## 'BLASTWHEEL BLASTING SYSTEM :

**Fig - 2** In blast wheel system the blast media is fed to the center of the blast wheel, which is rotating at high speed. The media is rapidly accelerated by centrifugal force and is directed on the surface to be blasted.

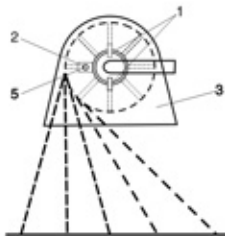


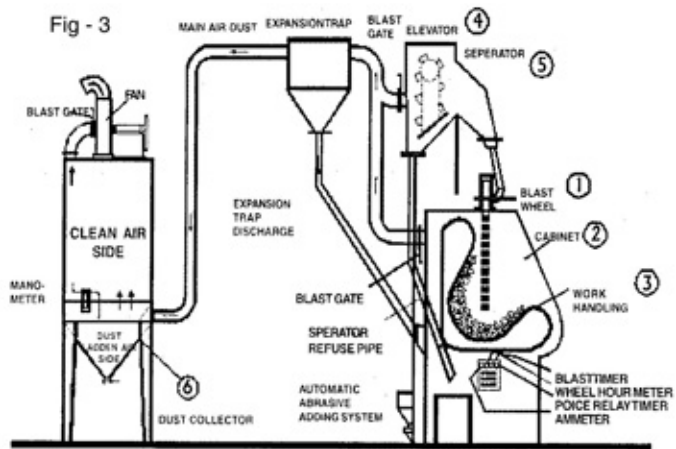
Fig - 2

Blast Media Flow 150 Kgs./Min.  
Air Consumption Negligible  
Energy Consumption 7.5 KW/Kg.  
Specified Energy Consumption 0.05 KW/Kg.

This comparison of different blasting systems, clearly shows that the blast wheel blasting system (fig - 2) has the lowest specified energy consumption. Blast wheels are driven by electric motors, whereas the air required by the air blasting system (fig - 2) has to be generated by a compressor which is to be purchased and maintained in addition to blast machine itself and the additional power cost.

## THE MACHINE

For efficient shot blasting operation we should understand the basic concept of the process and the machine (Fig 3)



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.

Fig - 3

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