

SAND BLASTING DUST COLLECTOR

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INTRODUCTION

Abrasive blasting more commonly known as sand blasting it is a operation of forcibly propelling a stream of abrasive material against a surface under a high pressure to smooth a rough surface, roughen a smooth surface, shape a surface or remove a surface contamination. A pressurized fluid typically compressed air, or a centrifugal wheel is used to propel the blasting material often called media.

Abrasive blasting is utilized for many different purposes by foundries, shipyards, steel fabrication plants special purpose job, machine shops, gas transmission stations, steel mills, building cleaner.

Cleaning operations using abrasive blasting can prevent risk for workers health and safety specifically in portable air blasting or blast room's applications. There is a large amount of dust created through blasting rooms are not hazardous in themselves (steel shot and grit, cast iron, aluminium oxide, nickel slag, staurolite) have varying degree of hazard. However In all cases their use can present serious danger to worker or operators, such as burns due to projections (with skin and eye lesions) falls due to walking on round shots scattered on the ground, exposure to hazardous dust, heat exhaust

tion, creation of explosive atmosphere and exposure to excessive noise. Blasting rooms and portable blasters equipment have been adopted to these dangers. Blasting lead based paint can fill the air with lead particles which can be harmful for nervous system.

In the US the occupational safety and health administration (OSHA) mandates engineered solutions to potential hazards however silica sand continues to be allowed even though most commonly used blast helmets are not sufficiently effective at protecting the blast operator if ambient level of dust exceed allowable limits.

Dust collectors vary widely in design, operation, space requirements, construction effectiveness, capital, operating and maintenance costs. Each has its advantages and disadvantages. However the selection of dust collector should be based on various general factors.

Degree of dust collection required depends on its potential as a health hazard or public nuisance, the plant location, the allowable emission rate, the nature of dust its salvage value, and so forth. The selection of du

st collector should be based on efficiency r
equired and consider the need for high effi
ciency.

We have collect the dust s per specific c
haracteristics. In that the moderate to heavy
concentrations of many dust (such as dust
from silica sand or metal ores) can be ab
rasive to dry centrifugal collectors. Some pa
rticles sizes and shapes may rule out the u
s of electrostatic precipaters.

Method of dust removal and disposal vary
with the material, plant process, volume a
nd type of collector used. Collectors can u
nload continuously or in batches.



FIG- SAND BLASTING BOOTH

In sand blasting or shot blasting is preferr
ed for surface preparation before painting.
While performing this operations huge amou
nt of dust generated in sand booth area. T
o reduce this measure challenge in industrie
s to collect the leftout sand and reuse to a
void the wastage of large amount of sand.
Also recollection of sand consumes more ti
me and manpower also generated dust parti

cles of sand cause health problems to the
workers or the operators. Hence we have t
o collect the sand to avoid health problem
s. Hence we are design the collector using
magnet in which the magnetic power have
capacity to absorb dust . The magnet used
in device are Neodymium magnet having
grade 11800 gauss.

FUTURE SCOPE OF PROJECT

This work focus on the magnetic for
ce generated on the device. It can be decre
ased the time as well human efforts. So th
at we can collect more amount of dust par
ticles with short timing.

CONCLUSION

This machine is development of dust collectio
n operation. After making actual working model
this machine useful for the industry to increas
e the efficiency by reducing manpower and eas
y operation with minimum time. It is very flex
ible process in which duct collection is done b
y the magnetic force only. Less efficiency requi
red for this machine. Sand duct collector used
in industry for recollection of duct at less man
power and time. This machine required less hu
man efforts with a good integrated result. This
machine can be enquires low maintenance, doe
s not require skilled labor has high rate of acti
on , has longer span of time, require less capit
al investment, has low running cost hence can
be implemented in the industry to help to lowe
r down the production cost and increase the av
ailability of time as well reduce the required m
anpower for cleaning. From the above conclusio
n overall time can be reduced.

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