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SHOT BLASTING AND PEENING PROCESS

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INTRODUCTION

In the present scenario of globalization of economy significant importance has been attached to technology upgradation, improvement in product and services and competitiveness. Necessity has emerged to review existing process and introducing new processes to cope with the challenges.

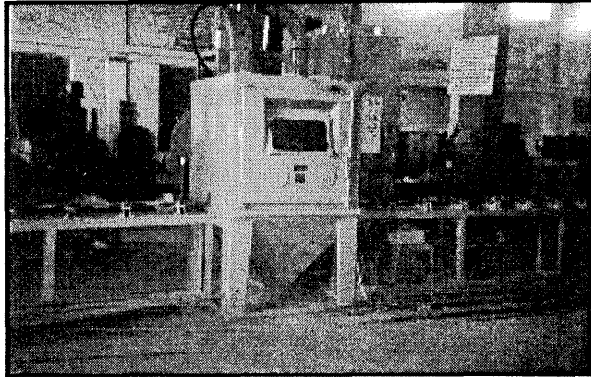
Grit / Shot Blasting and Shot Peening Process is one of the processes which is gaining wide appreciation and is becoming a part of manufacturing processes. There are numerous applications where the process has proved its worth and popularity, specially for removal of rust, carbon, scale, corrosion, paint, chemical deposits and burrs. In some of the applications, the blasting process has all together replaced the subsequent hazardous chemical treatment and keep the environment eco-friendly.

SPECIAL PURPOSE AIR OPERATED BLAST CLEANING MACHINES

The concept of special purpose machines to suit individuals needs for obtaining consistent blasting results in becoming popular. The extent of automation and sophistication employed depends upon the qualitative and quantitative end results required. We at MECSHOT in close cooperation with clients have developed designed, manufactured and supplied various types of special purpose machines matching with features and quality of imported machines at cheaper price. Some of the such machines with its salient features and applications are reproduced below.

In Line Metallic Rod/Pipe Cleaning / Shot Peening Machine

We have supplied in line high output blast cleaning machine for cleaning of external surface of M.S. Rods / Pipes.



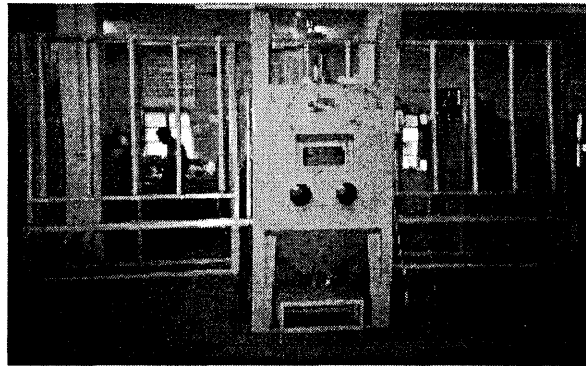
The abrasive blast cleaning machine is featured with motorized roller

conveyor arrangement with multi blast guns oriented at different angles. Air wash guns are also provided to air wash the blasted rods / pipes on and from the motorized roller conveyor.

The abrasive recycling is automatic and the dust generated during blasting process is collected in the dust collector, thus keeping environment clean and friendly.

Abrasive Blasting Machine for Etching / Frosting / Engraving / Decorative Designing on Glass Sheets

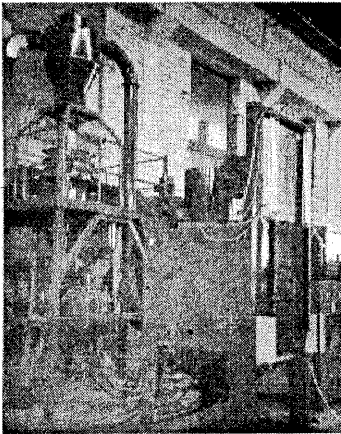
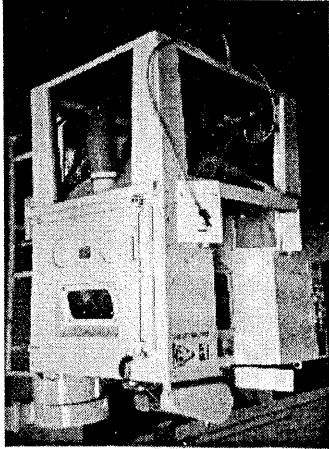
MECSHOT has successfully engineered and supplied Air operated Suction-induction type shot blasting machine for etching on glass sheets to reputed customers.



This machine is very effective to create beautiful designs and patterns on Glass sheets by blast-etching. The machine is simple to operate with minimum maintenance. One operator has to simply load and push the Glass sheets on idler rollers (inclined at a

certain angle to vertical) into the cabinet. Another operator manually uses the blasting gun to etch the glass sheet as per the stencil (Stencil is in buyer's scope).

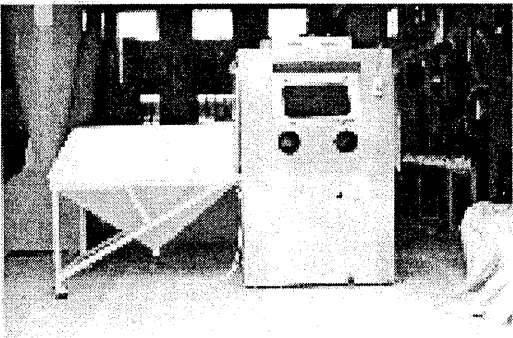
The machine is featured with Manual Blasting gun mounted on spring balancer to reduce operator fatigue, sliding front side with vision glass, hand holes and rubber curtain for easy access of glass sheets, idler roller arrangement on both sides of the cabinet.



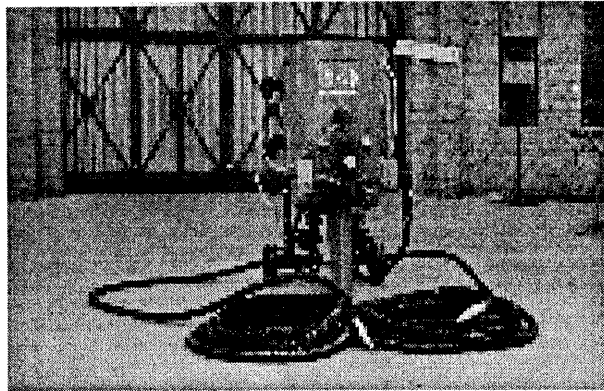
The abrasive recycling is automatic through reclaimer and usable media is recycled while dust generated during shot blasting is separated and collected in dust bags. The operator is simply loading and unloading the job and manually maneuvering the blasting gun from outside the cabinet ensuring simple and safe operation in dust free environment.

Blast Cleaning Machine for Compressor Valve Plates of Air Conditioners

The compressor valve plates of air conditioners are needed to be blasted on a small area around the periphery of holes on these plates. The area to be blasted and roughness desired is to be very precise. To accomplish blast clean-



ing process, we have developed and supplied air operated blast cleaning machine for this application.



The abrasive blast cleaning machine is featured with rotating satellites and rotary turntable with multi blast guns oriented at different blasting stations. Air wash guns are also provided to air wash the blasted valve plates to remove residual dust. The operator has to simply load and unload the valve plates on and from the satellites located on the rotary table. The satellites rotates while inside the cabinet.

The abrasive recycling is automatic and the dust generated during blasting process is collected in the dust collector, thus keeping environment clean and friendly.

Semi-Automatic Batch Cleaning / Shot Peening Machine for Small Components

MECSHOT has successfully engineered and supplied Belt Tumbler Type Air operated Abrasive Blasting Machine to reputed customers.

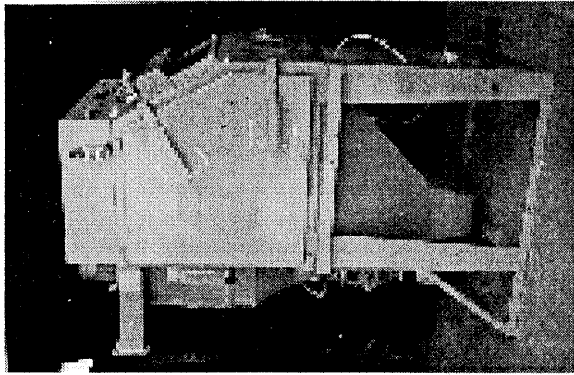
Deburring and post cleaning operations on small and medium size components like automobile parts remained the concern of component manufacturers due to varied shape, size and finish requirements. Such post cleaning operations are to be accomplished without imparting any kind of distortion, dimensional deterioration and surface damage to components.

The machine is highly productive as it is capable of cleaning small components in a batch. It is featured with Blast Gun reciprocation. PLC for operational sequential control with pneumatically operated front door, dryer arrangement to ensure

moisture free ambience for components, reclaimer and on line vibratory sieve classifier unit for grit classification.

Special Purpose Glass Beed Blasting / Peening Machine

The MECSHOT air operated glass beed blast cleaning / peening machine is a closed type cabinet and with automatic abrasive recycling. The equipment is featured with manual rotary turntable, job holding fixture and track extension.



The dust generated during blasting process is collected in ultra wired cartridge reverse jet type dust collector in dry blasting machines. However, provision of water wash gun, slurry agitation and mist collector are the standard features for wet blasting machines.

Portable Abrasive Blasting Machine for Internal Cleaning of Pipes

'MECSHOT' has engineered and supplied high pressure dual chamber, dual outlet portable grit blasting machine capable to blast clean pipes of ID 350 mm to 1200 mm of length 10 metres to 15 metres in-situ with the use of compressed air and abrasive media. The machine is a non stop blasting machine. Production continues during machine refill.

Internal cleaning of pipes in-situ was a challenging task till yesterday due to space limitation inside the pipes and their length. The pipes are generally used for heavy duty operations under most stringent conditions for conveying water / oil / natural gas / petroleum products and are laid for kilometers in areas where maintenance is virtually impossible.

These pipes are pre-coated with epoxy paints or even zinc sprayed after manufacture to prevent corrosion. The proper adhesion of

these coatings needs surface to be blast cleaned.

Further, with passage of service and time, the internal surface of pipes get contaminated, rusted, corroded and sometimes service media also gets deposited all around its internal periphery causing retardation of its optimum performance. Therefore, these pipes are to be periodically cleaned as preventive measure to remove contaminants, rust or sticky deposit.

The machine is featured with cycle timer and dual outlet with independent blasting control and with abrasive control valve for proper control of air abrasive ratio. A cycle timer makes the most of a dual chamber machine by allowing uninterrupted blasting for as long as abrasive supply lasts. The cycle timer automatically performs the loading function from storage hopper to upper machine chamber and transfer from upper to lower chamber.

Vapour Honing Process

Vapour honing process is basically a surface finishing operation which is known as Vapour Blasting or Wet Blasting process. The process has numerous applications particularly when fine and superfine surface finish of various degree is to be imparted on variety of components.

The equipment consists of Wet Blasting Cabinet duly zinc metalized to prevent rusting, blasting nozzle with glandless pump for slurry feeding, mist collector and necessary controls. Suitable automation of job handling/rotation and nozzle reciprocation is also provided against specific requirement

The slurry consists of suitable size of abrasives and liquid normally water with high pressure air is impinged on the job. The abrasive action of abrasive media creates the desired surface roughness. Surface roughness will be finer with the use of finer abrasives and vice versa. The use of very fine abrasives is not recommended with dry blasting process and use of wet blasting is the only choice.

POPULAR APPLICATIONS AND MODELS

We have supplied number of standard models for some of the industrial applications as enumerated below.

Blast cleaning of LPG cylinders, piston rings, automotive components, mould texturising, deflashing and deburring of moulded components, inline wire cleaning, shot separator and numerous other machines for various applications.

CONCLUSION

A careful selection of equipment, abrasive and adjustment of blasting parameters are vital to achieve optimum blasting results.

Selection of abrasives plays a vital role in accomplishing the blasting process. Abrasive selection depends upon the job materials, its condition before blasting, surface roughness required after blasting, rate of stock removal and subsequent operation after blasting.

The desired blasting results can be manipulated by proper selection of abrasives and optimum adjustment of pressure, nozzle size, nozzle distance from the job and exposure time of blasting. As the size of abrasive goes on increasing the surface roughness production on the job shall be coarser and vice versa. The nozzle size and its distance shall affect the pattern width of blasting accordingly. With the decrease of pressure, the surface roughness produced is finer compared with increased pressure.