

Shot Blasting Intro

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"Shot Blasting Intro" will provide a quick glimpse into the world of shot blasting and shot peening equipment. These machines are wonderful inventions and will provide many years of cost effectiveness and profitability.

Blast Wheel

The airless blast wheel is the "heart" of the shot blast system. These centrifugal "airless" wheels have an internal impeller and blade design which "slings" the shot at the parts. The blast wheel acts much like a pump. The blast wheel impeller and blades are revolving at 3600 RPM's and propel the steel shot from 250 to 300 ft. per second.

Blast Cabinet

The blast cabinet is the "body" of the shot blast system. The blast cabinet performs two purposes; one is to support the wheels and second to contain the steel shot within a confined area and recover it back to the primary storage hopper. The cabinet is usually fabricated from manganese steel and AR plate. The blast cabinet must withstand years of heavy duty wear in a three shift, 24 hour a day capacity.

Abrasive Recovering System

The abrasive recovering system is the "circulatory system" of the machine. After the steel shot is thrown from the blast wheel and strikes the parts, it falls to the bottom of the machine and is recovered via a screw conveyor and bucket elevator system. The reclaim of the media is then transported over an "air-wash" separation system to remove any small broken down contaminants and excessive dust. The recovery system is engineered to handle the continuous recycling of 500 to 4,000 pounds of shot per minute (respectively).

Work Handling System

The work handling system is the "legs and arms" of the system. The work handling system is the part of the machine that presents the work to be cleaned (tumble barrel, rotating table, spinner hanger fixture, etc.); other work handling systems include: overhead monorail, roll conveyer, continuous mesh belt, etc.

Dust Collector & Airwash Separator

The dust collector & air-wash separator are the "lungs" of the machine. The dust collector provides the necessary ventilation to remove dust from the blast cabinet. It also provides an air stream across the "air-wash" separator to clean the small fines and foreign contaminants from the shot before it's reused. All shot blast machines require good dust collection and air-wash separators for reliable & efficient long term operation.

Electrical Controls

The electrical system (push button controls, PLC, etc.) are the "brains" of the shot blast system. The electrical system is usually wired for 230/460 power and controls the random start/stop operation of the machine and dust collector. The DISA, GOFF systems can also be designed and engineered with PLC automation & robotic interfacing. These automation systems usually require factory pre-programming and customer input.

Machine Set-Up

All shot blast machines require proper set-up. The blast pattern is the most important aspect of the machine set-up. The pattern needs to be directed at the parts and not the cabinet. The blast pattern setting concentrates the blast directly at the parts and is called the "Hot Spot". The position of the "Hot Spot" is critical for maximum coverage and minimal cleaning times.

Machine Maintenance

The blast wheel is the most important facet to maintain on a shot blast system. It is the "heart" of the unit. The blast wheel parts are the "work horses" of the system and need to be replaced most often. The fluctuations in part life is directly related to the type of cleaning application (foundry castings, forgings, heat treated gears, etc.) and rockwell hardness (Rc) of the shot/grit utilized.

P.M. Programs

The most important aspect of owning a shot blast machine is constant inspections and P.M. programs. Regular P.M. programs will give you a schedule of repairs before the cleaning efficiency drops off, or the machine goes down.

Summary

All shot blast machines, by their very nature, are self destructive. However, they are also extremely efficient and economical to use compared with other pneumatic, mechanical or chemical means of cleaning parts. Shot blast machines are wonderful inventions.