

USE OF SHOT BLASTING MACHINE IN FORGING & CASTING INDUSTRIES

By Chirag Modi
Director-Technical
Surface Finishing Equipment Co.
Jodhpur

Shot Blasting is a process in which the shots are thrown at high velocity on the surface to be cleaned. The impact of shots on surface as well as abrasive action of shots remove loose scales, impurities and foreign materials from the surface and leave the parent surface exposed. Due to impact force surface of job is slightly roughened, however, degree of roughness can be controlled. In Forging & Casting industries shot blasting process is extensively used for deburring & cleaning of forgings and casting prior to machining operation, heat scales are developed during heat-treatment process and these scales are removed by shot blasting process. Surface Finishing Equipment Co., Jodhpur have developed entire spectrum of Shot Blasting Machines for this purpose. For mass cleaning the Tumbblast Machine is preferred. These machines are designed with various cleaning capacity like 100 Kg., 150 Kg., 250 Kg., 350 Kg. and higher capacities.



For heavy components Table type machine is preferred. This machine is also designed in different load carrying capacities and size of job. The machine is having various diameter of table like 750mm, 900mm, 1200mm, 1800mm & 2440mm and higher capacities.



For cleaning of heavy and intricate, hangable forgings and casting the Hanger type machine is now a day preferred. These machines are designed as per customers requirement based on size of forging/casting and output requirement. The following machines are normally preferred.



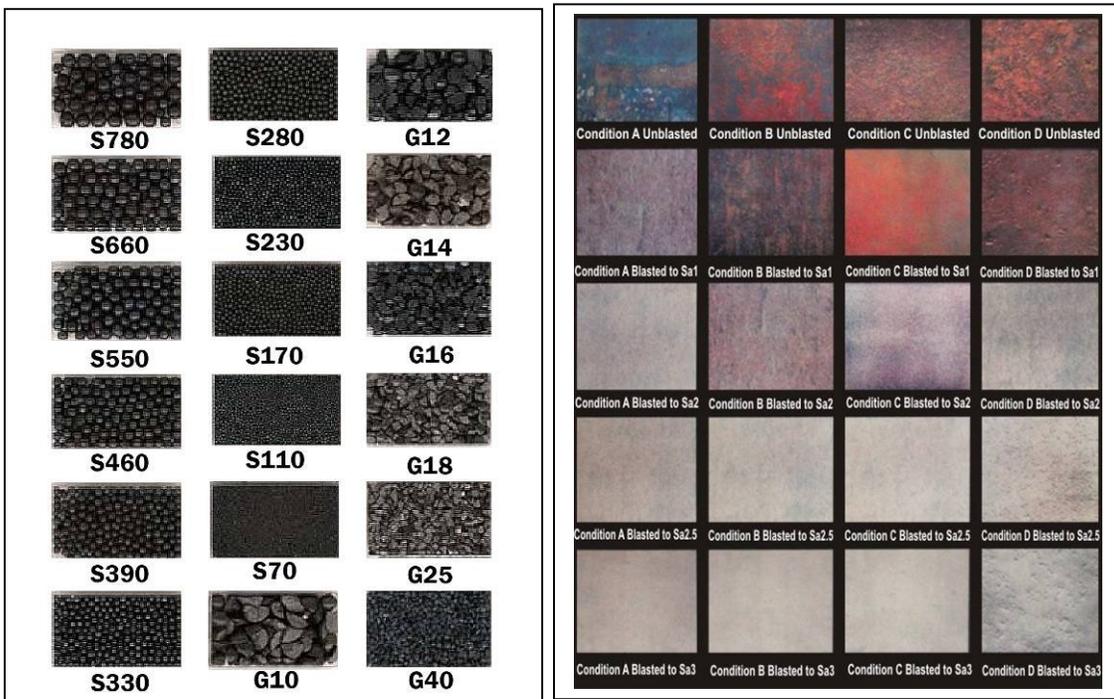
Some Forgings and casting have unassessable area like holes etc. which can not be cleaned by above type of machines. As such, such portion of forging and casting is cleaned by Portable Air Operated Shot Blasting Machines. These machines are manually operated by trained operator in which blasting nozzle is directed on the job to be cleaned. These machines are also available in different capacities:



The forgings and casting can be taken to blast chamber enclosure and operator work inside blast chamber and operate blast nozzle for cleaning of these forgings and casting. A suitable arrangement is to be made for conveying forgings and casting into blast chamber and thereafter taking it back from the blast chamber. Different type of shots recovery systems and cleaning systems have been developed as per customers preference. It can be manual system, Semi-Automatic System & Fully Automatic System. All these Blast Rooms are ventilated by dust collector system.



Since all the above mentioned machines require in common blast media, the selection of media is based upon the type of cleaning requirement. Normally steel shots in size varying from 0.5mm to 1.5mm with hardness of 45 to 65 HRC are used. In rare cases size of 1.6mm to 1.8mm is also used.



Now a day some forgings and casting are subjected to Shot Peening operation. The shot peening process is a cold working process under which shots are impacted at very high velocity on the surface resulting in to transfer of energy and generation of compressive stress on the surface which tend to reduce tensile stress on the surface resulting into increase in hardness of the components leading to increase in fatigue life. The shot peening process is a modification of shot blasting process in which direction of shots, velocity of shots, quantum of shots and size & hardness of shots are monitored and recorded in the machine.

