

Model 578b MagnaValve® General Arrangement
(MagnaValve located below the suction nozzle)

For suction type nozzle applications of the MagnaValve supplemental mechanical valves are NOT needed to isolate the MagnaValve from air pressure. The MagnaValve is designed to operate with a maximum 5 psi air pressure differential from top to bottom of the valve. The MagnaValve has no moving parts, but operates by using a magnetic field to restrict the flow of shot.

During operation the nozzle creates a venturi suction to draw the shot into the nozzle. The shot hopper is at atmospheric air pressure. The MagnaValve dispenses shot into a mixing chamber (tee) where aspiration air is introduced to convey the shot to the nozzle. A mechanical shut-off valve should be located above the MagnaValve to allow it to be removed for clearing of debris without having to empty the shot hopper.

The MagnaValve can be enabled at the same time as the application of air pressure to the nozzle. It is not necessary to sequence the start-up, as in direct pressure applications.

Notice:

1. We recommend use of unions for easy alignment and removal of the MagnaValve. The manual shut-off valve above the MagnaValve is provided so that you do not have to drain the hopper of shot in order to clear contaminants that may have lodged in the MagnaValve.
2. If a negative pressure exists in the shot hopper (i.e. when a pneumatic reclaim system is used to recycle the shot), then allow about 6-inches (15 cm) minimum distance between the top of the MagnaValve and the bottom of the shot hopper. This column of shot will act like a dam to isolate the pressure differences and prevent air and shot from being sucked back up into the hopper.
3. The aspiration air inlet should be a minimum of 0.5 inch. Smaller openings will permit a very large negative pressure which may draw shot through the MagnaValve and cause erratic operation. The nozzle must have adequate aspiration air volume to convey the shot through the blast hose. The inlet can be as large as 1.25 inch, but a screen should be provided to prevent the ingestion of unwanted debris into the air stream.
4. The venturi suction must be adequate to convey (lift) the shot up to the nozzle level and this may cause shot to be drawn through the MagnaValve. The remedy for this is a) increase the aspiration inlet size to reduce the negative pressure b) maintain a large "head" of shot above the MagnaValve to isolate the pressure difference c) re-locate the MagnaValve to be above the nozzle level.
5. A vacuum gage (negative pressure gage) can be temporarily fitted to the aspiration inlet to measure the suction efficiency of the nozzle. Two types of measurements can be made, static and dynamic. The static reading is the largest reading and measured by denying any aspiration air. Note: in some cases the negative pressure may be sufficient to draw shot through the MagnaValve. Do not operate the system with this gage in place as this will prevent introduction of aspiration air needed to convey the shot to the nozzle. The second type of measurement, dynamic, is performed insitu and does not alter the aspiration air volume. This type of measurement does not interfere with system performance and can be left in place permanently if desired.