

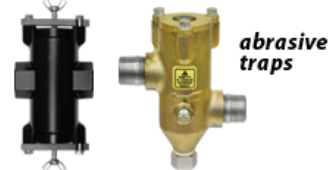
BLASTING INDUSTRY TERMS:

A QUICK OVERVIEW OF BLASTING TERMS YOU SHOULD BE FAMILIAR WITH OR WHICH ARE COMMONLY MISUNDERSTOOD



abrasive (a.k.a. media, grit) A granular material used for blasting the surface of an object. Avoid abrasives which contain free silica as they are a health hazard (see silica)

abrasive trap A screening device installed on the outlet of blasting equipment to keep abrasive from reaching the outlet valve thus extending its life. Running blasting equipment designed to have an abrasive trap without one (like the Pirate Brand® C-Series line) will cause the outlet valve to fail quickly.



abrasive cutoff An optional feature on blasting machines where through the use of a switch/button, the flow of abrasive can be stopped while allowing compressed air to continue to flow. This functionality allows operators to blow off objects with high velocity compressed air after blasting.

ANSI (American National Standards Institute) A private, non-profit organization that focuses on developing and promoting standards that help assure the health and safety of consumers and the protection of the environment. The most common application of ANSI in the blasting industry is certification of respirator lenses.

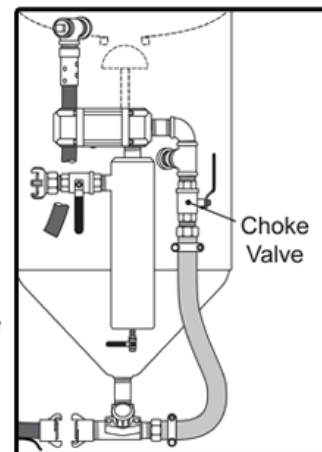


blast nozzle Attached to the end of the blast hose or cabinet suction gun, blast nozzles accelerate and shape the propelled abrasive stream. Blast nozzles must survive the constant bombardment of abrasives so they are made of hard materials like tungsten-carbide, ceramic, boron-carbide or SiAlON, and are commonly encased in polyurethane, brass or aluminum. Blast nozzles can be threaded, flanged, or smooth depending on the type of holder they will fit into. The internal shape of the nozzle bore determines the way the abrasive stream will perform (ex. venturi, double venturi, straight bore). Bore size is very important in blasting in that a larger bore will allow for a higher flow rate of abrasive but will require more CFM of air to drive it. Nozzles should be replaced when the bore diameter wears to 1/16" larger than original. Bore size is commonly referred to as a number which represents how many 1/16" wide the bore is, i.e. a #5 nozzle has a bore 5/16" wide.

blow-down (a.k.a. depressurize) The release of stored compressed air from inside an abrasive blaster. In pressure release blasting equipment, blow-down takes place whenever the control handle or foot pedal is released. In pressure hold blasting equipment, blow-down must be manually initiated by turning a valve.

CFM requirement The amount of "cubic feet per minute" of air required to effectively utilize a particular nozzle size. Blast with an insufficient amount of CFM (a compressor that is too small) will result in inefficient blasting and can cause blasting equipment controls to malfunction. Forecast Sales, Inc. maintains a "Nozzle, Air & Abrasive Requirements" chart in the technical info section of our website detailing these requirements.

choke valve A manually operated ball-valve located on blasting equipment between the pusher line leading to the metering valve and the split where compressed air enters the pressure vessel. Choke valves are used to clear minor obstructions in metering valves. When the choke valve is closed, higher pressure is achieved above the metering valve forcing the obstruction through. IMPORTANT: Choke valves should only be closed for 1-2 seconds when clearing obstructions, at all other times, choke valves must remain completely open or damage to the metering valve will occur.



combination valve



combination valve Commonly used on pressure release blasters (like the Pirate Brand® SPR-Series line) combination valves are both an inlet valve and outlet valve in one unit. When actuated, the combination valve pinches down on a hose connected to the blast equipment's blow-down outlet, and simultaneously opens the inlet side of the valve.

control valve



control valve A pneumatically or electrically triggered device that can start and stop the flow of compressed air to blasting equipment components. When the deadman control is activated, it triggers a control valve located on the blasting equipment to start and stop blasting. Multiple control valves are used in systems with an abrasive cutoff option (see abrasive cutoff) to allow for different valves to be controlled independently. Standard pressure release blasting equipment with pneumatic deadman controls do not require control valves because the deadman handle provides all the necessary control over the blasting equipment systems.

deadman (a.k.a. remote control, control handle) The start/stop switch for blasting equipment. Normally attached to the blast hose near the nozzle, the deadman starts the operation of blasting equipment when pressed, and automatically stops operation of the blast equipment when released or dropped. **All abrasive blasting equipment except for some automated blasting machines are required to be equipped with remote control systems with deadman safety handles by OSHA.**



dust collector A machine used in the blasting industry to separate and collect airborne dust caused by blasting thus preventing it from escaping into the surrounding area. Some dust collectors use bag type filters while others use cartridges. Two systems for maintaining the filtering ability of dust collectors exist. The first type is known as a **magnehelic system** which continuously pulses valves that shake or flex the filter, elements removing excess dust. A magnehelic gauge must be read to determine when the filter elements must be replaced. The second type is known as a **photohelic system** where the filters are automatically pulsed or shaken only when needed thus reducing noise and air consumption.

Inlet Valve



flat style metering valve (a.k.a. pancake valve, flat sand valve) A type of metering valve which uses a flat disc with a hole to regulate the flow of abrasive. The hole can be rotated into the path of the abrasive using a handle to adjust the flow. Flat style metering valves are typically manual and used on pressure release systems (like the Pirate Brand® C-Series line)



inlet valve A pneumatically controlled valve installed on the inlet of some blasting equipment (like the Pirate Brand® C-Series line) that opens when blasting begins and closes during blow-down.

metering valve The valve used to adjust the mixture of abrasive with compressed air located under the pressure vessel of abrasive blasting equipment. Common types of metering valves include automatic plunger valves, manual plunger valves, flat style metering valves, automatic pinch metering valves, manual pinch metering valves, and doughnut type metering valves. All metering valves come in contact with abrasive and are subject to wear. For this reason, metering valves should be serviced, lubricated and inspected for wear regularly according to the manufacturer's recommendations (at least every 90 days of use). All types and makes of metering valves that are serviced properly and have worn components replaced before a failure occurs last much longer.

NIOSH (The National Institute for Occupational Safety and Health) NIOSH is the federal agency responsible for conducting research and making recommendations for the prevention of work-related injury and illness. In the blasting industry, NIOSH approves and assigns approval numbers to respirators.

NPT (National Pipe Thread) The U.S. standard for tapered threads used on threaded pipes and fittings. The taper on NPT threads allows them to form a seal when torqued, as the threads compress against each other, as opposed to parallel/straight thread fittings where the threads merely hold the pieces together and do not provide the seal. NPT piping is notoriously difficult to measure since the OD and ID are not typically representative of the size.

OSHA (Occupational Safety and Health Administration) OSHA is part of the United States Department of Labor. Congress created OSHA to assure safe and healthful working conditions for working men and women by setting and enforcing standards and by providing training, outreach, education and assistance.



outlet valves



outlet valve A pneumatically controlled valve installed on the outlet of some blasting equipment (like the Pirate Brand® C-Series line) that closes when blasting and opens during blow-down.

pressure cabinet One of two types of blast cabinets, pressure cabinets mix compressed air and abrasive outside of the cabinet and send the mix into the cabinet through a single piece of blast hose. This type of cabinet works virtually the same way commercial blast pot systems work.

pinch valve (a.k.a. guillotine valve) Stops flow in a hose by pinching down on it when the valve receives signal pressure. Systems with pinch valves commonly make use of a backup emergency tank of air since pinch valves require air pressure to remain closed.

pinch valve



plunger valve A type of metering valve which uses a plunger inside a sleeve with an orifice to regulate the flow of abrasive. Adjustments are made by turning a knob on the top of the valve. Automatic plunger valves have the added functionality of being able to completely close the plunger with a pneumatic signal and are used on pressure hold systems and systems with an abrasive cutoff feature. Manual plunger valves are used on pressure release systems.

manual plunger valve



automatic plunger valve



pop-up



pop-up The part of the abrasive blaster which is forced up and seals the pressure vessel when compressed air is directed into the pressure vessel. When the abrasive blaster is depressurized, the pop-up falls back down allowing abrasive to be poured in.

pressure hold (a.k.a. manual blow-down) Any blasting system in which the pressure vessel remains pressurized when the deadman is released. To make this possible, an automatic metering valve (like an automatic plunger valve) is necessary because both the metering valve and an air valve must close to allow pressure to remain in the pressure vessel. Pressure hold systems must be blown-down manually by opening a valve. They have several advantages including faster starts/stops, reduced throbbing of the blast hose at start up, and hold up much better when the equipment is used for repeated short intervals of blasting. Most pressure hold systems can be equipped with an optional remote blow-down for use in blast room configurations with over head abrasive hoppers for automatic filling.

pressure release (a.k.a. automatic blow-down) Any blasting system in which the pressure vessel automatically depressurizes when the deadman is released. Since the metering valve remains open, starts/stops are slower than a pressure hold system and the blast hose will throb at start up due to abrasive collecting in the blast hose during blow-down. Pressure release systems are not appropriate to use when repeatedly blasting for short intervals (short cycle) as the constant pressurization/depressurization cycle will cause premature wear. Pressure release systems are commonly used with overhead abrasive hoppers as they can be automatically filled when the deadman handle is released.

reclaimer



pusher line A length of air hose on abrasive blast machines that supplies compressed air to the metering valve to be mixed with abrasive.

reclaimer A piece of blasting equipment that separates used abrasive that is still usable from the dust and debris from blasting. This "reclaimed" abrasive can then be reused for blasting. Reclaimers are usually one of two types; centrifugal or gravity fed air wash. Not all abrasives are able to be reused, consult the abrasive supplier/manufacturer for reusability information.

pusher line





respirator

respirator (a.k.a. hood, helmet) Protective head-gear which protects the wearer during blasting and is supplied with fresh air for the operator to breathe. Respirators are necessary in the blasting industry to properly protect personnel from the hazards of blasting. Filters are used with respirators to ensure the breathing air quality meets minimum standards set by OSHA. In cases where the compressed air source is potentially contaminated with carbon monoxide (for example, when air is fed from a diesel compressor) extra filtration which can remove CO and an CO monitor is used.

silica A hazardous substance which is contained in many naturally occurring abrasives like beach sand. Dust produced by blasting with abrasives which contain silica will cause respiratory disease when inhaled. **Never use abrasives which contain silica under any circumstance, even when respiratory protective equipment (like a respirator) is being used.**

suction cabinet One of two types of blast cabinets, suction cabinets use compressed air fed to a suction gun to pull abrasive through a separate hose (suction hose) where it is mixed in the suction gun and forced out through a nozzle. The suction gun is able to pull the abrasive through the suction hose by accelerating compressed air through an orifice creating vacuum.

whip hose (a.k.a. ergoflex) A length of flexible blast hose (typically tan in color) connected at the end of the blast hose run that is easier to manipulate for the person doing the blasting.



suction gun