

TECHNICAL DATA - TRIGGER GUNS

...along with the Industry's Most Trigger Guns

Most Pressure Washes come equipped with a pistol style trigger gun. Because this is the trigger gun that manufacturers supply, it is the industry standard. There are other options that can be a better choice. There are also trigger guns that are better in specialized cleaning applications than others.

Basic Function:

A trigger gun provides an operator with a grip that is designed so the human hand can hold it comfortably. Some designs do a better job providing comfort than others. There are pistol style guns, straight through style guns, front and rear entry guns, open guns, and dump guns. When using any type gun that can stop the water flow, a pressure washer must be equipped with an unloader valve. Using an open gun, or a dump gun eliminates the need for an unloader valve. A pressure relief valve should be installed on equipment regardless of the gun type used, but it is most important when there is no unloader valve.

Trigger guns have an inlet port where they are attached to the high-pressure hose. Industry standard for the size of the inlet port is 3/8". The industry standard size of a trigger gun outlet port is 1/4". The two ports are connected together allowing the water to flow through. An open gun simply provides a grip for the operator while allowing the water to pass thru. Dump guns divert water either to the high-pressure nozzle installed on the center outlet port when the trigger is depressed, or to a pipe around the center outlet port when the trigger is released. Because there is no restrictive nozzle to create pressure in dump mode, the water escapes under low pressure.

The most common trigger guns are those that are used in conjunction with an unloader valve. These trigger guns have a spring, ball and seat that controls the water flow. The operator controls the spring, ball and seat with the trigger. A variation on a standard trigger gun is called a weep gun. The weep gun continues to allow a very small amount of water to pass through the trigger gun when it is in the closed position. This is useful in situations where freezing is a possibility. Enough water continues to move to prevent freeze up.

When the most common type of trigger gun is in the closed position, with the trigger released, the water flow through the gun is stopped. Inside, the ball is held against the seat by the spring and water. The unloader valve is in by-pass mode when the trigger gun is closed. The water circulates in the by-pass loop from the pump to the unloader valve and then back to the pump. The trigger gun is opened when the operator depresses the trigger. The force of the water and spring is overcome and the ball is pushed away from the seat. When the unloader senses the demand for water, it sends the water to the gun and by-passes only a small amount. When the trigger is released again, the spring and water pressure seal the ball to the seat and the unloader cycles back into by-pass.

Trigger Guns Are For Safety:

Pressure Washes today operate at pressure ranges that can be dangerous if not controlled properly. A trigger gun is designed to close if dropped by an operator. Don't defeat this safety feature by fastening the trigger in the open position. The use of an open gun can be dangerous, even when operating at fairly low pressure. Should a piece of debris lodge in the nozzle the pressure can increase. This can create a dangerous situation. The reason most people use an open gun or fasten a trigger in the open position is to avoid hand fatigue. If this is a problem, look into different styles of trigger guns, like easy pull trigger guns or straight through trigger guns, rather than creating the potential for injury or damage.

Gun Styles:

Most all pressure Washes are equipped from the factory with a pistol style trigger gun. Don't spend your life using it because they sent it that way. It seems most manufacturers don't have the time invested using different types of trigger guns to understand that other styles are ergonomically more beneficial to the operator. Or perhaps they don't think it is worth going against what is considered standard, or the norm. Fortunately, we don't think that way. Here are the various gun styles with advantages and disadvantages detailed.

• Pistol Style Gun:



Perhaps 95% of all machines are sold with this type of trigger gun. It is the industry standard. This gun works well when used with a straight lance, or equipped with only a nozzle for close work, it allows the operator to hold the trigger open without undo stress on the forearm and wrist. For operators using a lance with a 20 to 45 degree bend at the nozzle end, this gun isn't the best choice. Using a pistol style gun combined with a lance with a bend requires the operator to work with the wrist and forearm twisted. This becomes very tiring and painful over time. Because a 45 degree bend on a lance provides even contact of the nozzle fan to the surface, consider using a straight through style gun.

• Straight Through Gun

This type of gun is commonly found on telescoping lance and gun combinations. Anytime a bent lance is used to wash vertical or horizontal surfaces a straight through trigger gun allows the operator to hold the trigger open without twisting the wrist and forearm. A 24-foot extension wand requires strength and effort to operate, that's why most of them use an ergonomically helpful straight through trigger gun.

• Easy Pull Pistol Style Trigger Gun

(such as our HI-TECH 4100 - 5700):

This gun is a variation of the pistol style gun. The design allows the trigger to be pulled with less force than a standard pistol grip gun.



• Front Entry Trigger Gun

A front entry trigger gun provides a few advantages over traditional guns in some specialized circumstances. When high-pressure work is being done with a short lance in a stationary setting, the weight of the hose coming off the front of the gun can provide a counterbalance to the force of the water pressure. Underwater pressure washing is an industry niche in which the front entry gun provides stability to the operator. Another application is for low-pressure chemical application. A front entry gun tends to make it harder when moving around pulling pressure hose.



• Open Gun

An open gun is a pipe with a handle on it. It doesn't provide the ability to stop the water flow at the gun. These guns come in pistol style.

• Dump Gun

This type of gun dumps water out around the high-pressure nozzle until the trigger is pulled; it then directs the water flow to the nozzle.



Repair or Replacement:

Trigger Guns either get damaged because of rough handling, or the seat and ball get damaged or worn. The value of rebuilding a trigger gun is questionable. With most trigger guns selling for \$10.00 to \$29.00, they are generally a throw away and replace item. Rebuild kits are available and very easy to install. Unscrew and remove the grip. Unscrew the hex cap on top of the valve body. Remove the stem, spring, ball and o-ring. Replace with the new parts from the kit, installing them in the same order. Use thread seal on the threads of the valve body cap, reinstall, and then screw the molded grip back onto the inner gun assembly.

Sometimes debris gets caught in the valve assembly and stops the ball from seating properly. This causes the trigger gun to continue to allow water flow after the operator has released the trigger. Pulling and releasing the trigger a few times will fix this problem most of the time.

Notes:

- Guns come in different sizes, just like hands. Find a gun that is a comfortable size for the equipment operator.
- Trigger guns last longer if they are not dropped or thrown to the ground.
- The trigger gun grip also insulates the operator's hands from the hot water.
- Trigger Guns are high wear items regardless of the use environment. Don't expect any gun to last more than 200-300 hours.
- Trigger Guns will self destruct when used with bleach. Typically you can expect a gun to start leaking with as little as 5-20 hours when bleach is in the equation. You may want to use a very inexpensive gun when using bleach.