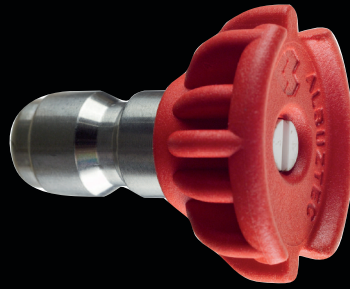


# PUMP SET-UP



## Why & How to Nozzle Your Pump

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### What does 'NOZZLING A PUMP' mean?

Typically when a new pump is installed the same nozzles that came with the machine which could have been the wrong nozzles to begin with are the ones used on the new pump.

Knowing how to nozzle the pump is the first step in knowing how to maintain your own equipment. You should learn this because experience tells me that most pressure washer distributors seldom get it right.

Let's say you buy a 5.6 GPM 3,500 PSI pump. The first thing you want to do is determine the exact nozzle that it will take to produce these specs. When you look at the nozzle chart it tells you that a number '06.0' nozzle is the one you should use. So let's see if that is right. Most times it isn't. Manufacturer's have been known to occasionally over state the capabilities of some of their pumps.

Before you start this procedure remove your chemical injector and hook up your hose and gun and install that new '06.0' nozzle.

Before starting the engine always **turn your unloader down** to where you will be getting very low pressure once you fire off the engine and pull the trigger.

### FIRST:

With the trigger gun in the open position start to turn the unloader adjusting knob slowly to increase pressure. Watch your gauge closely. When you get to a point where the gauge needle stops moving you **STOP** turning. At this point this is the absolute most you will be able to get out of this pump with that nozzle.

### REMEMBER:

We are trying to find the perfect nozzle that will give us the manufacturers advertised specifications. So if the nozzle chart says a 06.0 is the nozzle needed to get 5.6 @ 3,500 psi and the gauge needle stopped moving at 3,100 PSI this means you have the wrong nozzle for your set-up. If the pressure is too low you will need to install a smaller nozzle. In this case try a '05.5' nozzle. If the pressure is too high you will need to install a larger nozzle.

### Considerations for problems:

If you can't get the pressure with the nozzle that is recommended for the advertised pump specifications here are some possible reasons why.

1. The manufacturer has over rated the pump and you are not getting 5.6 GPM. TS2021's always seem to be in the 5.3 GPM range.
2. The engine speed is not correct. (See 'Engine Speeds' article)
3. You have the wrong pulley sizes on the machine. (See Pulley/Gear article)

To maintain your equipment properly you must have a few, low cost tools. Here are the ones you will need when nozzling a pump.

1. 2 (not 1) pressure gauges just in case one is giving you a false reading.
2. A tachometer on your engine. This is so easy to install that everyone should have one.

**NOW** - the most important thing you **MUST** learn is this. Never - ever touch the unloader again! Once you have nozzled the pump correctly **ALL** pressure adjustments from here on out should be done by using a **LARGER** nozzle only. Why Larger **ONLY**? Because when you determined the correct nozzle by finding out the absolute smallest nozzle required to obtain the correct specifications - anything smaller will over pressurize or '*red-line*' the pump. Once you have nozzled the pump correctly that is the smallest nozzle you should ever use. A good rule of thumb is if you are using a 05.5 nozzle and it is giving you 3,500 PSI on a 5.6 GPM pump and you install a 09.0 nozzle the pressure will drop to around 2,000 PSI and your GPM will remain the same. If you try to adjust the unloader to reduce the pressure then you are also reducing the GPM. Using the unloader to adjust the pump to 2,000 PSI will by-pass around 1.5-2.0 GPM.