

## COMPRESSED AIR EXPLAINED

### WHAT'S THE DIFFERENCE BETWEEN PSI AND CFM?

The difference between PSI and CFM are what they measure. PSI measures pressure, while CFM measures volume. PSI and CFM are often used as performance specifications for air compressors. Together, they indicate the maximum air volume and pressure produced by an air compressor to power air tools. To better understand the difference between PSI and CFM, let's learn what PSI means and what CFM means.

### WHAT DOES PSI MEAN?

The initials PSI stand for Pounds per Square Inch. PSI measures how many pounds of pressure (force), is in an area, specifically in one square inch. The force of the air is what gives compressed air its power. For example, an air compressor's output could be rated for 100 psi\*, which means that 100 pounds of pressure is delivered per square inch.

\*PSI is typically written in lower case letters, psi, in air compressor specs.

### WHAT DOES CFM MEAN?

CFM means Cubic Feet per Minute. CFM measures the volume of air in cubic feet for each minute it moves. In the case of an air compressor, CFM indicates how much air can move per minute. For example, an air compressor's output could be rated for 30 CFM, which means 30 cubic feet of air is flowing per minute.

### HOW DO CFM AND PSI RELATE?

CFM and psi relate to each other in an important way that ensures the proper operation of an air compressor. For a tool to operate and perform optimally, both CFM and psi must be sufficient.

Let's look at a real-life example to help understand how CFM and psi relate:

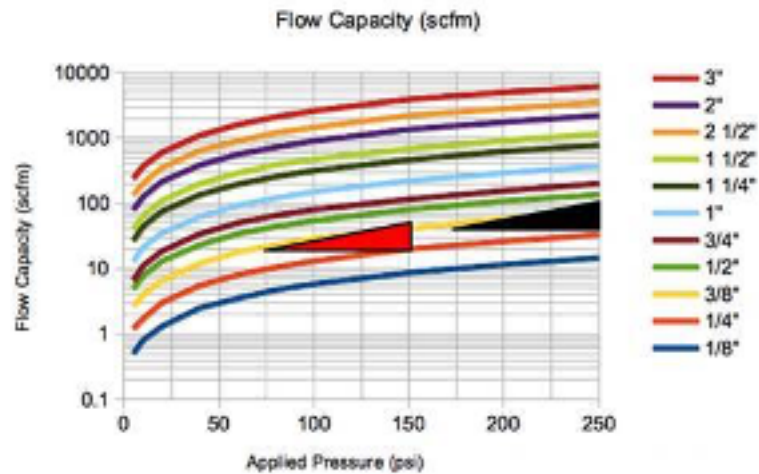
Imagine you have a garden hose, and you turn it on. Water will flow out, and it might reach a few feet past the end of the hose, perfect for filling up your bucket or watering can. If you take the garden hose and restrict the space at the end of the hose with your thumb to create less room for the water to flow out the water will shoot out with much more pressure than before. Even though the hose is producing the same amount of water, the extra pressure will allow the water to travel faster and further, perfect for having a water fight!

Hopefully this hose example is relatable, and even though the example used water to describe the relationship between CFM and psi, the concept is the same with air.

Consider this second real-life air example. There's a tunnel with wind blowing through it, and the tunnel gets smaller and smaller. As the wind blows into the tunnel, it travels through the shrinking space, and starts to feel stronger and stronger. This is because even though the volume of air (CFM) remains the same throughout the tunnel, the air is being squeezed into a tighter space, resulting in the pressure (psi) increasing.

In both examples we shared how psi relates to CFM. While having a sufficient volume of air to power air tools is important, it's also crucial to ensure there's enough psi (pressure) to give the air power.

Compressed Air Pipe Lines



### WHAT SIZE AIR COMPRESSOR DO I NEED TO RUN MY AIR TOOLS?

Now that you understand the difference between psi and CFM, you might be wondering how to be sure you have the right air compressor to run your air tools. The easiest way to do this is to check the air requirements of your air tools (both CFM and psi) and then ensure the air compressor you choose meets those requirements.