Air Compressors Need Clean Air Too!

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The air we breathe everyday is full of contamination. It has water vapor and airborne particulates that we inhale into our lungs. The vast majority is not harmful and we barely notice that its even there. However, to your air compressor these harmless contaminants can become quite harmful due to the compression process. During the compression process an air compressor concentrates natural contaminants in the air and this process makes them harmful to air compressors and its components. Overtime they begin to erode your components, valves and be passed on to your air tools. Lets look at water condensation. Water vapor is a normal part of the air we breathe, especially if you live in a humid climate. It is harmless at normal atmospheric pressures. However when the pressure is raised in the compression process, hot air is pushed through hoses and fittings and when it contacts the cooler air condensation forms. Water can be very damaging to your air compressor and air tools over time and removing it is a priority. Water is not the only liquid that can damage your system. Even, lubrication can cause damage if excessive amounts are in your air system. Older air compressors especially have this problem. As they get older and parts begin to wear out, lubricating oils leak into the compressed air can damage the unit. Donâ€™t forget solids too. Rust, dirt and metal are all present and will attack your compressed air system. The results of air contamination are reduced efficiency and increased maintenance costs on both your air compressor and air tools. There are several ways to attack these problems and protect your air compressor.

Aftercoolers

Aftercoolers will cool the air temperature as it is discharged from the compressor. As a general rule for every 20 degrees F cooled, approximately half of the moisture is condensed. Aftercoolers bring discharge air temperature down from 200 â€“ 400 degrees F to within 20 -50 degrees of the ambient air temperature. This process will cause most of the moisture to condense into a liquid state. Then the water can be removed from the system before it can cause any damage. An aftercooler can generally remove around 60% of the moisture from the air.

Dryers

Dryers also remove moisture from the air compressor system by reducing temperature. Dryers generally remove around 30% of the moisture. This is in addition to the 60% the aftercooler removed. This is why you commonly see an aftercooler and a dryer both hooked up to an air compressor to produce the driest air possible.

Coalescing Filters

Now that you are removing most of the water vapor from your air compressor using a aftercooler/dryer combination, that still leaves solid particulates in your system. These are commonly rust, metal and dirt. Lets face it, an auto shop is not the cleanest environment! Filters can be added to your shop air compressor to remove these particles. Filters do not condense water vapor and are only useful for solid particles. They are not a replacement for an aftercooler or dryer.

In order to get the cleanest air possible from your air compressor, I would recommend using all three options on your shop air system. They will pay for themselves in a longer life for your air compressor, better performance and efficiency for your air tools and longer air tool life.

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