

There's water in my Air!! Why??

For anyone that's ever used a compressor, they know that the process of compressing air generates water. Lots of water. **You can't compress air without creating water. It's a fact of life.**

Here's why:

Picture this. It's a real hot, sticky, sultry summer's day. The relative humidity (RH) exceeds the 85%, and the air even feels wet. There is no breeze, and your skin sticks to itself. Moving or working outside becomes increasingly unpleasant. The same conditions exist in a Spa; you might be doing nails next to the steam room, or sauna, or swimming pool, or whirl pool or jacuzzi. Your salon might be right next to the sea, or a lake.

At an R.H. of 85%, the air you are walking through, and breathing and working in, is holding 85% of the water vapour it's capable of holding. **At 100% relative humidity it starts to rain.**

Let's take that air at 85% relative humidity and suck it into the intake port on your compressor. The compressor will take that "free air" and it will compress it to 30 psi or more.

Each cubic meter of air is compressed into half a cubic meter. This means all the water is contained in half the space, so the **relative humidity is about 170% and it starts raining inside your compressor!**

A big compressor, (200 horsepower) compressor operating in a climate of 19C with 40 percent relative humidity will generate approximately 250 litres of water a day. However, that same compressor operating in a temperature of 30C with 70 percent relative humidity will generate approximately 1250 litres of water a day! OK, your airbrush compressor is only 1/8th of a horse power, but it will still suck a huge amount of water out of the air. - **It's a fact of life. You either deal with the water, or you give up airbrushing.**

There's another complication. As you use the compressor, it gets hot.

As the compressor gets hot, it heats up the air. And guess what? Hot air can hold more water! You see this effect every week in the weather. Its nice and warm and sunny, so the air can absorb lots of water. Along comes a 'cold front' (says the weather man), and as the cold air meets the warm air....clouds form and it rains!

So your compressor gets warm, the compressed air gets warm and absorbs more water. The then the water laden air comes out of the compressor and down the cold tube to your cold gun. As the air cools, the water condenses into droplets, just like rain. The water spits out of your gun and onto your artwork.

All right, no two ways about it, water can be a real problem for the compressed air user.

What can we do to get rid of the water?

There are lots of ways that commercial paint sprayers get rid of the water; electric dryers etc. and they all cost loads of money.

Practically there are only two things that the airbrush artist can do:

1. Fit a water trap. Most small compressors come with a water trap mounted to the compressor. These traps blow the air across a gauze. the gauze has a large surface area, which gives the water a chance to condense on it. The trouble is as the compressor gets hot, the gauze gets hot too and becomes less and less effective in removing the water. The hot air moves onto the next cold thing in the chain; the tube of the airgun and starts to condense there. Removing the water trap from the compressor will help keep it cool, and a cold water trap will trap more water.

So.....putting the water trap in a small fridge or bucket full of ice will enable it to trap more water. You'll have to empty the water trap regularly.

2. Get a small chemical water trap. This is a cylinder containing desiccating crystals (the type you

find in small packets to keep moisture out of electrical goods). There's an input and an output, as the air passes over the crystals the water is removed. The crystals change colour when they are saturated. You replace the crystals, or dry them out and re-use them.

3. Work in a room where the air is dry. Or dry enough that the small water trap can cope.

