Understanding the different types of compressed air dryers

Compressed air dryers are critical to a number of industrial manufacturing processes. Food and beverage manufacturing， compound synthesis， pharmaceuticals， and oil and gas exploration are just a few of the industries that require dry compressed air for optimal productivity. This article will further describe the different types of air dryers that can be used.

What is a compressed air dryer?

A compressed air dryer is a device that removes water vapor from air that has been pressurized for a variety of industrial purposes. Compressed air dryers are almost indispensable in many moisture-sensitive applications. How do air dryers work? Air dryers come in a variety of configurations and operate in different ways.

Types of Compressed Air Dryers

The following is a description of the most commonly used air dryer systems

Refrigerated air dryers

Dehydrated Air Dryer

Desiccant Air Dryer

Chemical air dryer

Membrane Air Dryer

Refrigerated Air Dryer

These dryers operate on the principle of condensation. Refrigerated air dryers cool compressed air to a very low temperature， causing the water suspended in the air to condense into liquid form. Once the water has been removed， the dry air stream can continue to flow to the application that requires it.

There are circulating and non-circulating freeze dryers. Circulating freeze dryers operate similar to a standard refrigerator， providing variable cooling based on demand. Non-circulating units provide constant cooling independent of demand， but this makes them a less efficient option.

Applications

Freeze air dryers are a popular choice for a number of manufacturing and service applications that require compressed air to be free of detectable moisture. However， they are not suitable for highly sensitive applications where even small amounts of water can cause damage.

Advantages and Disadvantages

Advantages of refrigerated air dryers include

Low installation costs

Low operating costs

Resistant to airborne particles

Disadvantages include

Not suitable for operation at sub-zero temperatures

Has marginal dew point capability

Dehydrated Air Dryers