

Generators, Light Towers, Compressors, and Heaters

Used Compressors Tempe - Air compressors are valuable equipment that transfers power into potential energy which is stored in pressurized air. Air compressors use diesel, gasoline or electric motors, forcing air into a storage tank to pressurize it. Once the tank reaches its' upper limit, the air compressor turns off, as the compressed air is held into the tank until needed. Compressed air is used for many applications. Once the kinetic energy in the air tank is used up, the tank undergoes depressurization. Once the lower limit is reached, the air compressor turns on again to start the pressurization process again.

Positive Displacement Air Compressors There are multiple methods for air compression. These methods are divided into positive-displacement or roto-dynamic categories. In the positive-displacement method, air compressors force the air into a space with decreased volume and this compresses the air. Once the ultimate pressure is found, a port or valve opens to discharge the air from the compression chamber into the outlet system. Popular types of positive-displacement compressors include Piston-Type, Rotary Screw Compressors and Vane Compressors.

Dynamic Displacement Air Compressors Centrifugal air compressors, along with axial compressors fall under the dynamic displacement air compressor category. Pressure energy is transformed via discharged kinetic energy with a rotating component. A spinning impeller generates centrifugal force, accelerating and decelerating contained air, creating pressurization. Air compressors generate heat and require a method for heat disposal; usually with some type of air cooling or water. Changes in the atmosphere play a role in compressor cooling. Certain equipment factors need to be considered including the available compressor power, inlet temperature, ambient temperature and the location of the application.

Air Compressor Applications Numerous industries rely on air compressors. Supplying clean air with moderate pressure to a submerged diver is one use. Providing clean air with high-pressurization to fill gas cylinders to supply pneumatic HVAC controls and powering items such as jackhammers or filling vehicle tires are other popular uses. There are many industrial applications that rely on moderate air pressure.

Types of Air Compressors The vast majority of air compressors are either the rotary screw kind, the rotary vane type or the reciprocating piston model. These air compressors are chosen for smaller and more portable jobs.

Air Compressor Pumps Oil-injected and oil-less are two specific types of air-compressor pumps. The oil-free system relies on more technical components; however, it lasts for less time in comparison to oil-lubed pumps and is more expensive. Overall, the oil-less system is considered to deliver higher quality.

Power Sources Air compressors can be utilized with many different power sources. Electric, gas and diesel-powered models are the most popular; although, other models have been engineered to use hydraulic ports, power-take-off or vehicle engines that are often utilized in mobile applications. Often, gas and diesel-powered models are used in remote places that do not have great electricity access. They need adequate ventilation for their gas exhaust and are quite noisy. Indoor applications including warehouses, production facilities, garages and workshops that offer easy access to electricity typically rely on electric-powered air compressors.

Rotary-Screw Compressor The rotary-screw compressor is one of the most popular kinds on the market. A rotary-type, positive-displacement mechanism is what this type of gas compressor relies on. These compressors are often used in industrial applications in place of piston compressors. They are popular for jobs that depend on high-pressure air. Impact wrenches and high-power air tools are common. The rotary-screw gas compression unit has a continuous rhythm; featuring minimum pulsation which is a hallmark of piston model units. Pulsation can contribute to a less desirable flow surge. In the rotary-screw model, compressors rely on rotors to compress the gas. Dry-running rotary-screw models use timing gears. These components are responsible to make sure the female and male rotors operate in perfect alignment. In oil-flooded rotary-screw compressors, the space between the rotors is lubricated. This design creates a hydraulic seal and transfers mechanical energy in between the rotors simultaneously. Beginning at the suction location, as the screws rotate, gas traverses through the threads, causing the gas to pass through the compressor and leave via the screws ends.

Overall success is effective when particular clearances are achieved regarding the sealing chamber of the compression cavities, the rotors and the helical rotors. Fast speed and rotation are behind minimizing the ratio of a leaky flow rate or an effective flow rate. Food processing plants, industrial applications requiring constant air and automated manufacturing facilities use rotary-screw compressors. Other than fixed models, there are mobile units in tow behind trailers that run on diesel engines. Commonly called “construction compressors,” these portable compression units are useful for road construction, pneumatic pumps, riveting tools, industrial paint systems and sandblasting jobs. Scroll Compressor Compressing air or refrigerant is made possible with a scroll compressor. It is popular with supercharging vehicles, in vacuum pumps and commonly used in air-conditioning. These compressors are used in a variety of places to replace reciprocating and traditional wobble-plate compressors. They are used in residential heat pumps, automotive air-conditioning units and other air-conditioning systems. This machine has dual inter-leaving scrolls that complete the pumping, compressing and pressurizing fluids such as liquids and gases. Usually, one of the scrolls is fixed, while the second scroll is capable of orbiting with zero rotation. This motion traps and pumps the fluid between the scrolls. The compression movement occurs when the scrolls co-rotate with their rotation centers offset to create a motion akin to orbiting. Flexible tubing variations contain the Archimedean spiral that operates similar to a tube of toothpaste and acts like a peristaltic pump. Lubricant-rich casings stop exterior abrasion from occurring. The lubricant diverts heat. Since there are no moving parts coming into contact with the fluid, this pump is an affordable option. Having no seals, glands or valves keeps this equipment easy to operate and quite inexpensive in maintenance. Compared to many other pump models, this tube or hose feature is relatively low cost.