

Generators, Light Towers, Compressors, and Heaters

Used Compressors Scottsdale - Air compressors are popular equipment that stores pressurized air by transferring power into potential energy. These units use electric, diesel or gas motors to force air into a storing tank to increase the pressure. 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 utilized in a variety of industries. As the kinetic energy in the air is used, the tank depressurizes. Once the lower limit is reached, the air compressor turns on again to start the pressurization process again.

Positive Displacement Air Compressors There are different ways to compress air. These methods are divided into positive-displacement or roto-dynamic categories. The air is forced into a chamber with decreased volume in the positive-displacement model and this is how the air becomes compressed. A port or valve opens one maximum air pressure is achieved. Next, the air is discharged from the compression chamber into the outlet system. Vane Compressors, Rotary Screw Compressors, and Piston-Type are popular kinds of positive-displacement compressors. Dynamic Displacement Air Compressors Axial compressors and centrifugal air compressors fall under the dynamic displacement air compressors. Pressure energy is transformed via discharged kinetic energy with a rotating component. Pressurization is attained from a spinning impeller that creates centrifugal force to accelerate and decelerate contained air. Air compressors generate heat and require a method for heat disposal; usually with some type of air cooling or water. Compressor cooling also relies on atmospheric changes. Many factors need to be considered for this kind of equipment including the power available from the compressor, inlet temperature, the location of application and ambient temperature.

Air Compressor Applications There are many uses for air compressors and they are used frequently in a variety of industries. 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. Copious amounts of moderate pressure air are generated for numerous industrial applications.

Types of Air Compressors The majority of air compressors are either the rotary screw type, the rotary vane model or the reciprocating piston type. These air compressor models are utilized for portable and smaller applications.

Air Compressor Pumps Oil-less and oil-injected are the two main kinds 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. Better quality is provided by oil-free systems.

Power Sources There are a variety of power sources that can be used alongside air compressors. The most popular models are diesel-powered, gas and electric air compressors. Additional models are available on the market that have been built to use hydraulic ports or engines that are commonly utilized by mobile units and rely on power-take-off. Isolated work sites with limited electricity commonly use diesel and gas-powered machines. Gas and diesel models are noisy and emit exhaust. Interior locations such as workshops, warehouses, garages and production facilities have power and can rely on quieter, electric-powered models.

Rotary-Screw Compressor One of the most sought after compressors is the rotary-screw compressor. This gas compressor requires a rotary type positive-displacement mechanism. These models are often used to replace piston compressors in vast industrial applications where large volumes of high-pressure air are required. Impact wrenches and high-power air tools are common. Gas compression of a rotary-screw model features a sweeping, continuous motion, allowing minimal pulsation which is common in piston model compressors and may cause a less desirable flow surge. In the rotary-screw model, compressors rely on rotors to compress the gas. There are timing gears affixed on the dry-running rotary-screw compressors. These components are responsible to make sure the female and male rotors operate in perfect alignment. There are oil-flooded rotary-screw compressors that rely on lubricating oils to fill the gaps between the rotors. 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. Rotary-screw compressors are used in industrial locations that need constant air, food processing plants and automated manufacturing facilities. Other than fixed models, there are mobile units in tow behind trailers that run on diesel engines. Often referred to as “construction compressors,” portable compression systems are necessary for riveting tools, road construction crews, sandblasting applications, pneumatic pumps and numerous other industrial paint systems. Scroll Compressor A scroll compressor is used to compress refrigerant. 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. Fluids including gases and liquids are pumped, compressed and pressurized with the dual interleaving scrolls on this compressor. 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. Compression motion may be achieved by co-rotating the scrolls synchronously with their centers of rotation offset to create a similar motion to orbiting. The Archimedean spiral is found in flexible tubing variations. It functions similarly to a tube of toothpaste and resembles a peristaltic pump. There is a lubricant on the casings to stop exterior pump abrasion. The lubricant additionally helps to dispel heat. With zero moving items coming into contact with the fluid, the peristaltic pump is an inexpensive solution. With zero valves, seals or glands, this equipment stays simple to operate in maintenance terms. Compared to many other pump models, this tube or hose feature is relatively low cost.