

Generators, Light Towers, Compressors, and Heaters

Used Compressors Kansas - 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. After the tank reaches a certain limit, it is turned off and the compressed air is held in the tank until it needs to be used. Compressed air is used for many applications. Once the kinetic energy in the air tank is used up, the tank undergoes depressurization. The pressurization restarts after the air compressor turns on again, which is triggered after the lower limit is reached. Positive Displacement Air Compressors There are a variety of air compression methods. They are divided into roto-dynamic or positive-displacement categories. The air is forced into a chamber with decreased volume in the positive-displacement model and this is how the air becomes compressed. 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 Axial compressors and centrifugal air compressors fall under the dynamic displacement air compressors. These units rely on a rotating component to discharge the kinetic energy and transform it into pressure energy. There is a spinning impeller to generate centrifugal force. This mechanism accelerates and decelerates the contained air to produce pressurization. Air compressors create heat and need a method to dispose of the heat, typically with some kind of water or air cooling mechanism. Compressor cooling also relies on atmospheric changes. 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. Air compressors are used to provide pneumatic power to equipment such as air tools and jackhammers, to fill tires with air, to supply clean air with moderate pressure to divers and much more. Moderate pressurized air is used in large capacities for a variety of industrial jobs. 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 compressor models are utilized for portable and smaller applications. Air Compressor Pumps Two of the main kinds of air-compressor pumps include oil-injected and oil-less kinds. The oil-free model depends on technical items; however, it costs more and lasts less than oil-lubed models. Overall, the oil-less system is considered to deliver higher quality. Power Sources There are numerous power sources that are compatible with air compressors. Gas, electric and diesel-powered air compressors are among the most popular types. There are other models that have been created to rely on power-take-off, hydraulic ports or vehicle engines that are commonly used for mobile systems. Diesel and gas-powered models are often chosen for remote locations that offer limited access to electricity. 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 One of the most popular air compressors available is the rotary-screw model. 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. 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. 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. 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. Starting at the suction area, gas moves through the threads as the screws rotate. This makes the gas pass through the compressor and leaves through the ends of the screws.

Effectiveness and success are obtained when certain clearances are achieved with the sealing chamber of the helical rotors, the rotors and the compression cavities. Fast speed and rotation are behind minimizing the ratio of a leaky flow rate or an effective flow rate. Many applications including food processing plants, automated manufacturing facilities and other industrial job sites rely on rotary-screw compressors. Mobile models that rely on tow-behind trailers are another option compared to fixed models. They use compact diesel engines for power. 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 This type of popular air compressor specializes in compressing refrigerant or air. It is popular with supercharging vehicles, in vacuum pumps and commonly used in air-conditioning. Scroll compressors are used in many automotive air-conditioning units, residential heat pumps and air-conditioning systems to replace wobble-plate traditional and reciprocating rotary compressors. 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 dynamic action traps and compresses or pumps fluid between both scrolls. The compression movement happens when the scrolls synchronously rotate with their rotation centers misaligned to create an orbiting motion. The Archimedean spiral is found in flexible tubing variations. It functions similarly to a tube of toothpaste and resembles a peristaltic pump. Casings contain a lubricant to prevent exterior abrasion of the pump. The lubricant also dispels heat. The peristaltic pump is a great solution since there are no moving items contacting the fluid. 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.