

Generators, Light Towers, Compressors, and Heaters

Used Compressors Salem - 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. Eventually, the tank reaches its limit and the air compressor turns off, holding the air in the tank until it can be used. Compressed air is utilized in a variety of industries. The tank depressurizes as the kinetic energy of the air is used. After the lower limit has been attained, the air compressor roars back to life to begin the process of pressurization.

Positive Displacement Air Compressors There are different ways to compress air. There are two categories: roto-dynamic or positive-displacement. 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. There are different kinds of positive-displacement compressors including Vane Compressors, Piston-Type and Rotary Screw Compressors.

Dynamic Displacement Air Compressors The dynamic air compressors consist of centrifugal air compressors and axial compressors. A rotating component discharges its' kinetic energy and it eventually converts into pressure energy. 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. Atmospheric changes are also taken into consideration during compressor cooling. Inlet temperature, the area of application, the power available from the compressor and the ambient temperature are all factors the equipment must take into consideration.

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. Moderate pressurized air is used in large capacities for a variety of industrial jobs.

Types of Air Compressors Most air compressors are the reciprocating piston style, the rotary vane model or the rotary screw kind. These types of air compressors are favored 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 system is more expensive compared to oil-lubed systems and they last less time. The system that functions without oil has been recognized with delivering better 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. Isolated work sites with limited electricity commonly use diesel and gas-powered machines. 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. Some common tools that rely on air compressors include impact wrenches and high-power air tools. 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. Rotors are used by the rotary-screw compressors to make gas compression possible. 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. Lubricating oil fills the space between the rotors in oil flooded rotary-screw models. A hydraulic seal is created which transforms the mechanical energy in between the rotors at the same time. 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. 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. Also known as “construction compressors,” portable compression systems are popular for sandblasting, industrial paint systems, construction crews, pneumatic pumps, riveting tools and more.

Scroll Compressor A scroll compressor is used to compress refrigerant. The scroll compressors are popular in air-conditioning equipment, supercharging vehicles and vacuum pumps. 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 apparatus features dual interleaving scrolls that are responsible for pumping, compressing and pressurizing fluids including gases and liquids. One of the scrolls is usually in a fixed position and the other scroll orbits extensively with no 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. Acting like a peristaltic pump, the Archimedean spiral is contained within flexible tubing variations’ similar to a tube of toothpaste. Casings contain a lubricant to prevent exterior abrasion of the pump. 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 additional pump items, this tube or hose piece is fairly low cost.