

Generators, Light Towers, Compressors, and Heaters

Used Compressors Fremont - Power is transferred into potential energy and stored as pressurized air inside of an air compressor. 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 utilized in a variety of industries. 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 different ways to compress air. 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. After maximum pressure is attained, a valve or port opens and the air is discharged into the outlet system from the compression chamber. Vane Compressors, Rotary Screw Compressors, and Piston-Type are popular kinds of positive-displacement 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. There is a spinning impeller to generate centrifugal force. This mechanism accelerates and decelerates the contained air to produce 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. 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. 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. Copious amounts of moderate pressure air are generated for numerous industrial applications.

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 types of air compressors are favored 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 Air compressors can be utilized with many different power sources. 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. Often, gas and diesel-powered models are used in remote places that do not have great electricity access. These models are quite loud and require proper ventilation for their exhaust.

Electric-powered air compressors are common in workshops, garages, production facilities and warehouses where electricity is abundant.

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 models are often used to replace piston compressors in vast industrial applications where large volumes of high-pressure air are required. High-power air tools and impact wrenches are popular. 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. Rotors are used by the rotary-screw compressors to make gas compression possible. Timing gears come into play with dry-running rotary-screw compressor models. These items ensure the perfect alignment of the male and female rotors. Lubricating oil fills the space between the rotors in oil flooded rotary-screw models. This serves as a hydraulic seal while simultaneously transferring mechanical energy between the rotors. 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. Success and overall effectiveness rely on specific clearances being achieved between 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. Many applications including food processing plants, automated manufacturing facilities and other industrial job sites rely on 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. It is common in vacuum pumps, to supercharge vehicles and in air conditioning equipment. A variety of air conditioning systems, residential heat pumps and a variety of automotive air conditioner utilize a scroll compressor in place of wobble-plate, reciprocating and traditional rotary compressors. This machine has dual inter-leaving scrolls that complete the pumping, compressing and pressurizing fluids such as liquids and gases. As one of the scrolls is often fixed, the other scroll eccentrically orbits with zero rotation. This action traps and pumps or compresses fluid between the two scrolls. The compression movement occurs when the scrolls co-rotate with their rotation centers offset to create a motion akin to orbiting. The Archimedean spiral is found in flexible tubing variations. It functions similarly to a tube of toothpaste and resembles 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. 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.