

## Generators, Light Towers, Compressors, and Heaters

Used Compressors Sacramento - Power is transferred into potential energy and stored as pressurized air inside of an air compressor. These machines rely on gasoline, diesel or electric motors to force air into a special storage tank, subsequently increasing 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 used for many applications. As the kinetic energy in the air is used, the tank depressurizes. 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. These methods are divided into positive-displacement or roto-dynamic categories. With positive-displacement models, compressors force air into a chamber that has decreased volume in order to compress 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. These units rely on a rotating component to discharge the kinetic energy and transform it into pressure energy. A spinning impeller generates centrifugal force, accelerating and decelerating contained air, creating 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. 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** Air compressors are used in many different 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. Moderate pressurized air is used in large capacities for a variety of industrial jobs.

**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 types of air compressors are favored for portable and smaller applications.

**Air Compressor Pumps** Oil-injected and oil-less are two specific types of air-compressor pumps. The oil-free system is more expensive compared to oil-lubed systems and they last less time. 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. Diesel and gas-powered models are often chosen for remote locations that offer limited access to electricity. 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. This gas compressor requires a rotary type positive-displacement mechanism. These compressors are often used in industrial applications in place of piston compressors. They are popular for jobs that depend on high-pressure air. High-power air tools and impact wrenches are popular. 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. Compressors use rotors to create gas compression in the rotary-screw compressor. Timing gears come into play with dry-running rotary-screw compressor models. These components are important to ensure the female and male rotors operate perfectly aligned. Lubricating oil fills the space between the rotors in oil flooded rotary-screw models. This design creates a hydraulic seal and transfers mechanical energy in between the rotors simultaneously. Entering at the suction portion, gas travels through the threads while the screws rotate; forcing the gas to pass through the compressor and exit through 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. Rotation at high speeds minimizes the ratio of a leaky flow rate versus an effective flow rate. Rotary-screw compressors are used in industrial locations that need constant air, food processing plants and automated manufacturing facilities. 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 Compressing air or refrigerant is made possible with a scroll compressor. The scroll compressors are popular in air-conditioning equipment, supercharging vehicles and vacuum pumps. 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. 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. Flexible tubing variations contain the Archimedean spiral that operates similar to a tube of toothpaste and acts like 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. 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.