

## Generators, Light Towers, Compressors, and Heaters

Used Compressors Pasadena - Air compressors are valuable equipment that transfers power into potential energy which is stored in pressurized air. 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. 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 a variety of air compression methods. 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. 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. 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. Atmospheric changes are also taken into consideration during compressor cooling. 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 Air compressors are used in many different industries. For example, supplying clean air at moderate pressure to a diver that is supplied for surface submersion, supplying clean air of high-pressurization to fill gas cylinders and supplying pneumatic HVAC controls with moderately pressurized clean air to power pneumatic tools including jackhammers and filling up high-pressure air tanks to fill vehicle tires. 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 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 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 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. 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 One of the most popular air compressors available is the rotary-screw model. This model of gas compressor relies on a positive-displacement mechanism of the rotary type. 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. 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. 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. 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. Overall success is effective when particular clearances are achieved regarding the sealing chamber of the compression cavities, the rotors and the helical rotors. High speeds and rotation are utilized to achieve harmony and minimize the ratio of leaky flow rate vs. 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. 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. The scroll compressors are popular in air-conditioning equipment, supercharging vehicles and vacuum pumps. 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. This apparatus features dual interleaving scrolls that are responsible for pumping, compressing and pressurizing fluids including gases and liquids. Usually, one of the scrolls is fixed, while the second scroll is capable of orbiting with zero rotation. This action traps and pumps or compresses fluid between the two 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. Acting like a peristaltic pump, the Archimedean spiral is contained within flexible tubing variations’ similar to a tube of toothpaste. 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. 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.