

## Generators, Light Towers, Compressors, and Heaters

Used Compressors El Cajon - 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. 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. Once the lower limit is reached, the air compressor turns on again to start the pressurization process again.

**Positive Displacement Air Compressors** There are a variety of air compression methods. 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** Axial compressors and centrifugal air compressors fall under the dynamic displacement air compressors. Pressure energy is transformed via discharged kinetic energy with a rotating component. 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. 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. There are many industrial applications that rely on moderate air pressure.

**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** 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. Overall, the oil-less system is considered to deliver higher quality.

**Power Sources** There are numerous power sources that are compatible with 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. Isolated work sites with limited electricity commonly use diesel and gas-powered machines. Gas and diesel models are noisy and emit exhaust. Interior locations such as workshops, warehouses, garages and production facilities have power and can rely on quieter, electric-powered models.

**Rotary-Screw Compressor** One of the most sought after compressors is the rotary-screw compressor. A rotary-type, positive-displacement mechanism is what this type of gas compressor relies on. These compressors are often used in industrial applications in place of piston compressors. They are popular for jobs that depend on high-pressure air. Impact wrenches and high-power air tools are common. 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. Dry-running rotary-screw models use timing gears. These components are important to ensure the female and male rotors operate perfectly aligned. In oil-flooded rotary-screw compressors, the space between the rotors is lubricated. This serves as a hydraulic seal while simultaneously transferring mechanical energy between the rotors. 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. Rotation at high speeds minimizes the ratio of a leaky flow rate versus 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. Often referred to as “construction compressors,” portable compression systems are necessary for riveting tools, road construction crews, sandblasting applications, pneumatic pumps and numerous other industrial paint systems. Scroll Compressor Compressing air or refrigerant is made possible with a scroll compressor. It is popular with supercharging vehicles, in vacuum pumps and commonly used in air-conditioning. 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 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 action traps and pumps or compresses fluid between the two 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. Lubricant-rich casings stop exterior abrasion from occurring. 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.