

Generators, Light Towers, Compressors, and Heaters

Used Compressors Oakland - 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. After the tank reaches a certain limit, it is turned off and the compressed air is held in the tank until it needs to be used. Compressed air is used for many applications. Once the kinetic energy in the air tank is used up, the tank undergoes depressurization. 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. 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. After maximum pressure is attained, a valve or port opens and the air is discharged into the outlet system from the compression chamber. 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. 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. Heat is generated by air compressors and these machines need a heat disposal method, generally with some form of air or water cooling component. 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. There are many industrial applications that rely on moderate air pressure.

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 air compressor models are utilized 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. 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 One of the most sought after compressors is the rotary-screw compressor. This model of gas compressor relies on a positive-displacement mechanism of the rotary type. 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. 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. In oil-flooded rotary-screw compressors, the space between the rotors is lubricated. 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. 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. Many applications including food processing plants, automated manufacturing facilities and other industrial job sites rely on rotary-screw compressors. Besides fixed units, there are mobile versions in tow-behind trailers that are powered with small diesel engines. 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 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. 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. 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. The Archimedean spiral is found in flexible tubing variations. It functions similarly to a tube of toothpaste and resembles a peristaltic pump. There is a lubricant on the casings to stop exterior pump abrasion. 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. In comparison to other pump units, the hose or tube feature is very inexpensive.