

Generators, Light Towers, Compressors, and Heaters

Used Compressors Pomona - 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. Eventually, the tank reaches its limit and the air compressor turns off, holding the air in the tank until it can be used. Compressed air is utilized in a variety of industries. The tank depressurizes as the kinetic energy of the air is used. 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. They are divided into roto-dynamic or positive-displacement categories. With positive-displacement models, compressors force air into a chamber that has decreased volume in order to compress the air. A port or valve opens one maximum air pressure is achieved. Next, the air is discharged 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. 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. Heat is generated by air compressors and these machines need a heat disposal method, generally with some form of air or water cooling component. Changes in the atmosphere play a role in 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 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. Moderate pressurized air is used in large capacities for a variety of industrial jobs.

Types of Air Compressors Most air compressors are the reciprocating piston style, the rotary vane model or the rotary screw kind. These air compressor models are utilized 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 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 units are commonly used in industrial settings to replace piston compressors for jobs that require high-pressure air. 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. 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. 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. 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. 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. 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. It is popular with supercharging vehicles, in vacuum pumps and commonly used in air-conditioning. 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 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. 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 also dispels heat. The peristaltic pump is a great solution since there are no moving items contacting the fluid. 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.