

Generators, Light Towers, Compressors, and Heaters

Used Compressors Bakersfield - Air compressors are popular equipment that stores pressurized air by transferring power into potential energy. 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 used for many applications. 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 multiple methods for air compression. There are two categories: roto-dynamic or positive-displacement. 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. 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. 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. Changes in the atmosphere play a role in 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. 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 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 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 a variety of power sources that can be used alongside air compressors. Electric, gas and diesel-powered models are the most popular; although, other models have been engineered to use hydraulic ports, power-take-off or vehicle engines that are often utilized in mobile applications. Isolated work sites with limited electricity commonly use diesel and gas-powered machines. They need adequate ventilation for their gas exhaust and are quite noisy. Indoor applications including warehouses, production facilities, garages and workshops that offer easy access to electricity typically rely on electric-powered air compressors.

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 models are often used to replace piston compressors in vast industrial applications where large volumes of high-pressure air are required. 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 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. 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. Effectiveness and success are obtained when certain clearances are achieved with the sealing chamber of the helical rotors, the rotors and the compression cavities. 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. 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. Fluids including gases and liquids are pumped, compressed and pressurized with the dual interleaving scrolls on this compressor. As one of the scrolls is often fixed, the other scroll eccentrically orbits with zero rotation. This action traps and pumps or compresses fluid between the two scrolls. The compression movement occurs when the scrolls co-rotate with their rotation centers offset to create a motion akin 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 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. In comparison to other pump units, the hose or tube feature is very inexpensive.