

Generators, Light Towers, Compressors, and Heaters

Used Compressors Utah - Power is transferred into potential energy and stored as pressurized air inside of an air compressor. Air compressors use diesel, gasoline or electric motors, forcing air into a storage tank to pressurize it. 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. 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 different ways to compress air. They are divided into roto-dynamic or positive-displacement categories. 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. Vane Compressors, Rotary Screw Compressors, and Piston-Type are popular kinds of positive-displacement 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 generate heat and require a method for heat disposal; usually with some type of air cooling or water. 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 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. Moderate pressurized air is used in large capacities for a variety of industrial jobs.

Types of Air Compressors The vast majority of air compressors are either the rotary screw kind, the rotary vane type or the reciprocating piston model. These air compressors are chosen for smaller and more portable jobs.

Air Compressor Pumps Oil-injected and oil-less are two specific types of air-compressor pumps. The oil-free system is more expensive compared to oil-lubed systems and they last less time. The system that functions without oil has been recognized with delivering better quality.

Power Sources There are numerous power sources that are compatible with air compressors. 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. 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 gas compressor requires a rotary type positive-displacement mechanism. 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. 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. In the rotary-screw model, compressors rely on rotors to compress the gas. 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. Lubricating oil fills the space between the rotors in oil flooded rotary-screw models. This design creates a hydraulic seal and transfers mechanical energy in between the rotors simultaneously. Entering at the suction portion, gas travels through the threads while the screws rotate; forcing the gas to pass through the compressor and exit through the screws ends. Success and overall

effectiveness rely on specific clearances being achieved between 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. Also known as “construction compressors,” portable compression systems are popular for sandblasting, industrial paint systems, construction crews, pneumatic pumps, riveting tools and more. 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. 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 motion traps and pumps the fluid between the 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. Compared to many other pump models, this tube or hose feature is relatively low cost.