

Generators, Light Towers, Compressors, and Heaters

Used Compressors Nebraska - Power is transferred into potential energy and stored as pressurized air inside of an air compressor. These units use electric, diesel or gas motors to force air into a storing tank to increase 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 different ways to compress air. These methods are divided into positive-displacement or roto-dynamic 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. There are different kinds of positive-displacement compressors including Vane Compressors, Piston-Type and Rotary Screw 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. 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. 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 Numerous industries rely on air compressors. 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 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 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. 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. 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 popular air compressors available is the rotary-screw model. This model of gas compressor relies on a positive-displacement mechanism of the rotary type. These units are commonly used in industrial settings to replace piston compressors for jobs that require high-pressure air. High-power air tools and impact wrenches are popular. Gas compression of a rotary-screw compressor offers a sweeping motion. This creates less pulsation compared to piston model compressors which can result in a less productive flow. 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 responsible to make sure the female and male rotors operate in perfect alignment. There are oil-flooded rotary-screw compressors that rely on lubricating oils to fill the gaps between the rotors. 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. 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. Rotary-screw compressors are used in industrial locations that need constant air, food processing plants and automated manufacturing facilities. 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 common in vacuum pumps, to supercharge vehicles and in air conditioning equipment. 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 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 occurs when the scrolls co-rotate with their rotation centers offset to create a motion akin to orbiting. 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. 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.