

Generators, Light Towers, Compressors, and Heaters

Used Compressors Pennsylvania - Air compressors are valuable equipment that transfers power into potential energy which is stored in pressurized air. 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. 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. These methods are divided into positive-displacement or roto-dynamic categories. With positive-displacement models, compressors force air into a chamber that has decreased volume in order to compress the air. Once the ultimate pressure is found, a port or valve opens to discharge the air from the compression chamber into the outlet system. 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. A rotating component discharges its' kinetic energy and it eventually converts into pressure energy. Pressurization is attained from a spinning impeller that creates centrifugal force to accelerate and decelerate contained air. Air compressors create heat and need a method to dispose of the heat, typically with some kind of water or air cooling mechanism.

Atmospheric changes are also taken into consideration during 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. 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.

Copious amounts of moderate pressure air are generated for numerous industrial applications.

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 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. 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 gas compressor requires a rotary type positive-displacement mechanism. 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. In the rotary-screw model, compressors rely on rotors to compress the gas. Dry-running rotary-screw models use timing gears. These components are important to ensure the female and male rotors operate perfectly aligned.

There are oil-flooded rotary-screw compressors that rely on lubricating oils to fill the gaps between the rotors. This serves as a hydraulic seal while simultaneously transferring mechanical energy between the rotors. 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. Fast speed and rotation are behind minimizing the ratio of a leaky flow rate or 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 This type of popular air compressor specializes in compressing refrigerant or air. 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 machine has dual inter-leaving scrolls that complete the pumping, compressing and pressurizing fluids such as liquids and gases. 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 additionally helps to dispel heat. With zero moving items coming into contact with the fluid, the peristaltic pump is an inexpensive solution. 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.