

Generators, Light Towers, Compressors, and Heaters

Used Compressors Northwest Territories - 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. Once the tank reaches its' upper limit, the air compressor turns off, as the compressed air is held into the tank until needed. Compressed air is used for many applications. The tank depressurizes as the kinetic energy of the air is used. 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 multiple methods for air compression. There are two categories: roto-dynamic or positive-displacement. 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. Popular types of positive-displacement compressors include Piston-Type, Rotary Screw Compressors and Vane Compressors.

Dynamic Displacement Air Compressors Axial compressors and centrifugal air compressors fall under the dynamic displacement air compressors. 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. 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 Air compressors are used in many different industries. 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. Moderate pressurized air is used in large capacities for a variety of industrial jobs.

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-less and oil-injected are the two main kinds 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. Better quality is provided by oil-free systems.

Power Sources There are a variety of power sources that can be used alongside 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. 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 popular air compressors available is the rotary-screw model. 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. Some common tools that rely on air compressors include impact wrenches and high-power air tools. 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. Rotors are used by the rotary-screw compressors to make gas compression possible. 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. 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. 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. 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. 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. The scroll compressors are popular in air-conditioning equipment, supercharging vehicles and vacuum pumps. A variety of air conditioning systems, residential heat pumps and a variety of automotive air conditioner utilize a scroll compressor in place of wobble-plate, reciprocating and traditional rotary compressors. Fluids including gases and liquids are pumped, compressed and pressurized with the dual interleaving scrolls on this compressor. One of the scrolls is usually in a fixed position and the other scroll orbits extensively with no rotation. This motion traps and pumps the fluid between the scrolls. Compression motion may be achieved by co-rotating the scrolls synchronously with their centers of rotation offset to create a similar motion 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. The lack of glands, seals and valves keeps them simple to operate and fairly inexpensive in terms of maintenance. Compared to many other pump models, this tube or hose feature is relatively low cost.