Generators, Light Towers, Compressors, and Heaters

Used Compressors Hayward - Air compressors are popular equipment that stores pressurized air by transferring power into potential energy. These units use electric, diesel or gas motors to force air into a storing tank to increase 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. As the kinetic energy in the air is used, the tank depressurizes. 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 a variety of air compression methods. They are divided into roto-dynamic or positive-displacement 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. Popular types of positive-displacement compressors include Piston-Type, Rotary Screw Compressors and Vane 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. 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. Atmospheric changes are also taken into consideration during 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 There are many uses for air compressors and they are used frequently in a variety of 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 Most air compressors are the reciprocating piston style, the rotary vane model or the rotary screw kind. 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. Better quality is provided by oil-free systems. 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. Often, gas and diesel-powered models are used in remote places that do not have great electricity access. 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. This gas compressor requires a rotary type positive-displacement mechanism. These units are commonly used in industrial settings to replace piston compressors for jobs that require high-pressure air. Impact wrenches and high-power air tools are common. 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. 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 serves as a hydraulic seal while simultaneously transferring mechanical energy between the rotors. 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. Food processing plants, industrial applications requiring constant air and automated manufacturing facilities use rotary-screw compressors. Besides fixed units, there are mobile versions in tow-behind trailers that are powered with small diesel engines. 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 A scroll compressor is used to compress refrigerant. It is common in vacuum pumps, to supercharge vehicles and in air conditioning equipment. 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 dynamic action traps and compresses or pumps fluid between both scrolls. The compression movement happens when the scrolls synchronously rotate with their rotation centers misaligned to create an orbiting motion. The Archimedean spiral is found in flexible tubing variations. It functions similarly to a tube of toothpaste and resembles a peristaltic pump. Casings contain a lubricant to prevent exterior abrasion of the pump. The lubricant diverts heat. Since there are no moving parts coming into contact with the fluid, this pump is an affordable option. 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.