GLOBAL LIFT EQUIPMENT

Generators, Light Towers, Compressors, and Heaters

Used Compressors Maryland - Power is transferred into potential energy and stored as pressurized air inside of an air compressor. 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 utilized in a variety of industries. Once the kinetic energy in the air tank is used up, the tank undergoes depressurization. Once the lower limit is reached, the air compressor turns on again to start the pressurization process again. Positive Displacement Air Compressors There are different ways to compress air. There are two categories: roto-dynamic or positive-displacement. In the positive-displacement method, air compressors force the air into a space with decreased volume and this compresses 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. There are different kinds of positive-displacement compressors including Vane Compressors, Piston-Type and Rotary Screw Compressors. Dynamic Displacement Air Compressors Centrifugal air compressors, along with axial compressors fall under the dynamic displacement air compressor category. A rotating component discharges its' kinetic energy and it eventually converts into pressure energy. There is a spinning impeller to generate centrifugal force. This mechanism accelerates and decelerates the contained air to produce 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. Compressor cooling also relies on atmospheric changes. 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 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 types of air compressors are favored for portable and smaller applications. 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. Overall, the oil-less system is considered to deliver higher 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. Often, gas and diesel-powered models are used in remote places that do not have great electricity access. 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 The rotary-screw compressor is one of the most popular kinds on the market. A rotary-type, positive-displacement mechanism is what this type of gas compressor relies on. 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 compressor offers a sweeping motion. This creates less pulsation compared to piston model compressors which can result in a less productive flow. Rotors are used by the rotary-screw compressors to make gas compression possible. There are timing gears affixed on the dry-running rotary-screw compressors. These components are important to ensure the female and male rotors operate perfectly aligned. In oil-flooded rotary-screw compressors, the space between the rotors is lubricated. 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. Rotary-screw compressors are used in industrial locations that need constant air, food processing plants and automated manufacturing facilities. 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 A scroll compressor is used to compress refrigerant. It is popular with supercharging vehicles, in vacuum pumps and commonly used in air-conditioning. 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. 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 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. Flexible tubing variations contain the Archimedean spiral that operates similar to a tube of toothpaste and acts like a peristaltic pump. Lubricant-rich casings stop exterior abrasion from occurring. 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.