

Generators, Light Towers, Compressors, and Heaters

Used Compressors Torrance - 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. 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. 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 different ways to compress air. They are divided into roto-dynamic or positive-displacement categories. The air is forced into a chamber with decreased volume in the positive-displacement model and this is how the air becomes compressed. A port or valve opens one maximum air pressure is achieved. Next, the air is discharged 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 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 create heat and need a method to dispose of the heat, typically with some kind of water or air cooling mechanism. Compressor cooling also relies on atmospheric changes. 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. Copious amounts of moderate pressure air are generated for numerous industrial applications.

Types of Air Compressors The vast majority of air compressors are either the rotary screw kind, the rotary vane type or the reciprocating piston model. 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 is more expensive compared to oil-lubed systems and they last less time. Better quality is provided by oil-free systems.

Power Sources There are a variety of power sources that can be used alongside air compressors. Electric, gas and diesel-powered models are the most popular; although, other models have been engineered to use hydraulic ports, power-take-off or vehicle engines that are often utilized in mobile applications. 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 The rotary-screw compressor is one of the most popular kinds on the market. 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 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. Dry-running rotary-screw models use timing gears. These items ensure the perfect alignment of the male and female rotors. 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. 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. Success and overall effectiveness rely on specific clearances

being achieved between the sealing chamber of the compression cavities, the rotors and the helical rotors. Fast speed and rotation are behind minimizing the ratio of a leaky flow rate or an effective flow rate. Food processing plants, industrial applications requiring constant air and automated manufacturing facilities use rotary-screw compressors. Other than fixed models, there are mobile units in tow behind trailers that run on 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 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. 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 machine has dual inter-leaving scrolls that complete the pumping, compressing and pressurizing fluids such as liquids and gases. As one of the scrolls is often fixed, the other scroll eccentrically orbits with zero rotation. This dynamic action traps and compresses or pumps fluid between both 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. Acting like a peristaltic pump, the Archimedean spiral is contained within flexible tubing variations’ similar to a tube of toothpaste. There is a lubricant on the casings to stop exterior pump abrasion. The lubricant diverts heat. Since there are no moving parts coming into contact with the fluid, this pump is an affordable option. With zero valves, seals or glands, this equipment stays simple to operate in maintenance terms. In comparison to other pump units, the hose or tube feature is very inexpensive.