

## Generators, Light Towers, Compressors, and Heaters

Used Compressors Norwalk - 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. 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. These methods are divided into positive-displacement or roto-dynamic categories. 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** 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. 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. 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. Moderate pressurized air is used in large capacities for a variety of industrial jobs.

**Types of Air Compressors** Most air compressors are the reciprocating piston style, the rotary vane model or the rotary screw kind. These air compressor models are utilized 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 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. 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 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. The rotary-screw gas compression unit has a continuous rhythm; featuring minimum pulsation which is a hallmark of piston model units. Pulsation can contribute to 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. 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. 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. 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. Mobile models that rely on tow-behind trailers are another option compared to fixed models. They use compact diesel engines for power. Often referred to as “construction compressors,” portable compression systems are necessary for riveting tools, road construction crews, sandblasting applications, pneumatic pumps and numerous other industrial paint systems. Scroll Compressor Compressing air or refrigerant is made possible with a scroll compressor. 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. This apparatus features dual interleaving scrolls that are responsible for pumping, compressing and pressurizing fluids including gases and liquids. As one of the scrolls is often fixed, the other scroll eccentrically orbits with zero rotation. This motion traps and pumps the fluid between the scrolls. The compression movement happens when the scrolls synchronously rotate with their rotation centers misaligned to create an orbiting motion. 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.