## [Oil & Gas](https://www.quincycompressor.com/industries/compressed-air-use-standard-oil-gas/)

Several advancements in drill bits and rotary technologies were made, creating the systems we see today, which can reach to great depths and provide much faster methods for extraction. One technological advancement that has also contributed to the industry was the use of air and gas compressor systems.

Within the past 10 years, oil fields would often flare petroleum gas, which was the result of treating crude oil before it was transported in a pipeline. However, new regulations demanded that 95 percent of petroleum gas must be processed, requiring it to be compressed. In order to do so, compressors were needed at the oil fields. Commonly, reciprocating gas engine-driven compressor systems were employed while being fueled with the transported gas.

In addition, compressors are often used in oil fields for gas re-injection for maintaining reservoir pressures. By using a series of compressors, gas or, in some cases, air, can be used for re-injection. Both centrifugal air compressors, which are often the initial compression sources, as well as reciprocating compressor systems, are used to meet required pressures.

Because well flow and reservoir pressures slowly decrease over a period of time, compressors are often used to maintain or increase gas flow into a pipeline system, as well. Depending on the demand, or application, both centrifugal and reciprocating compressor systems can be useful.

**Types of Air Compressors Used in the Oil and Gas Industry**

As mentioned, both centrifugal and reciprocating compressors are used in the oil and gas industry. Below, we will take a look at these two types of compressor models, and their specifications:

**Reciprocating Air Compressor**

A reciprocating air compressor system operates through a crankshaft-driven piston and cylinder, which is used to compress the air. There are both single- and two-stage designs. In a single-stage, a solitary reciprocating piston works by drawing air into the cylinder. In a single stroke, this creates the compression, which is then sent to a storage tank.

Addition, two-stage reciprocating compressors include an additional step where a smaller piston is used. This can produce an even higher pressure if needed for certain applications.

### Centrifugal Compressor

Centrifugal compressors are different than reciprocating models, as they depend on the continuous flow of fluid through a rotor. Depending on the type, they may be a single-stage or multi-stage compressor, and are driven by large gas turbines. Unlike reciprocating compressors, centrifugal compressors are often reserved for the largest oil and gas operations and require thousands of horsepower.

## Common Compressor Applications in the Oil and Gas Industries

Operations both large and small utilize compressed air systems for a variety of purposes in their operations. Everything from pneumatic tools to pipeline transportation can benefit from a compressor system. Take a look at some of the most common applications compressors are used for:

* **Petroleum Refining** — By boosting the pressure of processed gas, a catalytic reaction used in the refining process will occur.
* **Petrochemical Synthesis** — Petrochemicals such as methanol, ammonia, ethylene, ethylene glycol and urea often rely on a specific pressurization of air and gas in the manufacturing processes.
* **Pipeline transportation** — Utilizing gas and compressed air is common in transporting gas through pipelines. Pressures need to be maintained, which requires some form of compressor system to work correctly.
* **Gas injection** — Increasing gas pressures and injecting oil layers can help promote the recovery of crude oil.

In addition, air pressure is often used for the transportation of liquids, pressurization of tanks, cooling, molding of petroleum products like plastics, as well as the synthesis of various petrochemicals.