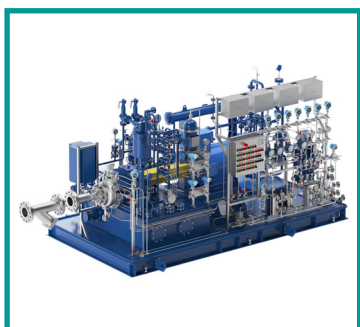




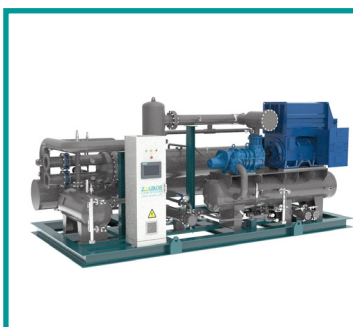
Air & Gas Compressors



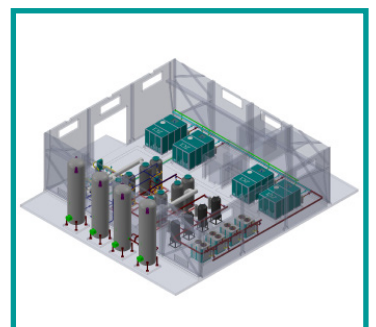
Industrial Chillers



Refrigeration Packages



Gas Generation Packages



About Zagros Compressor Iranian

Zagros Compressor Iranian (ZCI) is a well-known and knowledge-based industrial company known for its high-quality standard products, as well as its customized high quality and engineered products and dedicated customer service.

A strong research and development team, consisting of highly trained and experienced engineers combined with skilled technicians and a precisely quality-controlled production system, has enabled the company to compete with well-known European brands in the Iranian market and also in neighboring countries.

ZCI's highly efficient and cost-effective standard products as well as customized packages are designed for reliable and long-lasting operation, taking into account easy installation, less service, and convenient maintenance.

Products and Engineering Services:

- ▶ Process gas compressor packages.
- ▶ Refrigeration packages.
- ▶ Process gas dehumidification packages based on refrigeration and adsorption systems.
- ▶ Gas generation plants for O₂, N₂, and H₂ (based on PSA, electrolyzing, and cryogenic).
- ▶ Oil-injected and oil-free air compressors for instrument and plant air.
- ▶ Air-cooled and water-cooled industrial chillers.



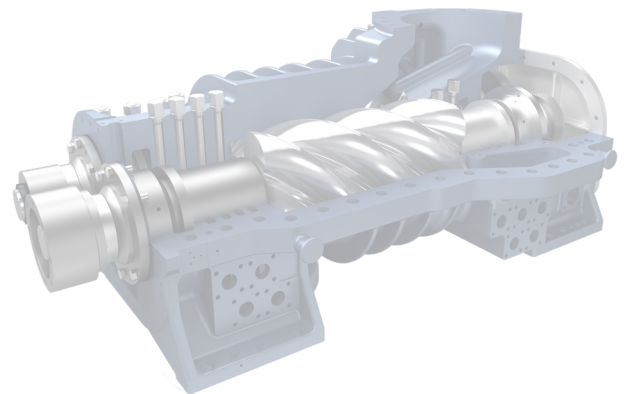


Process Gas Screw Compressors

Oil-injected and oil-free process gas rotary screw compressors, which can be also referred to as positive displacement rotary piston compressors, are robust machines for process applications.

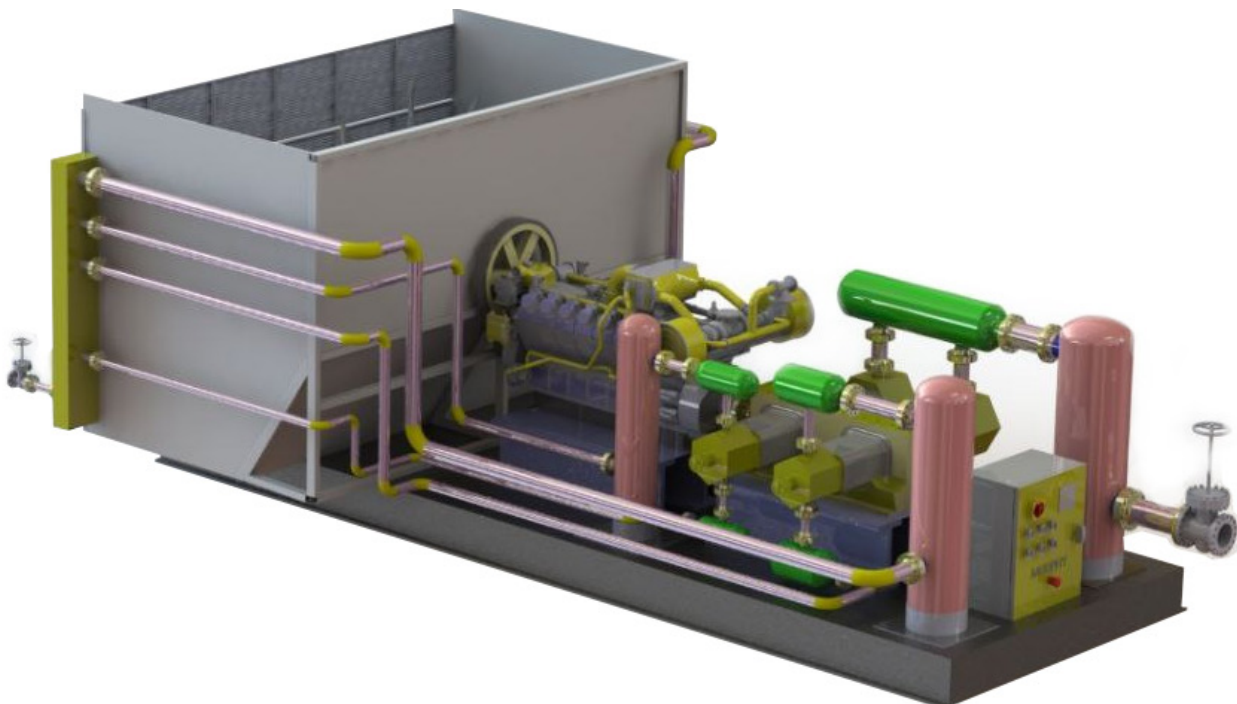
Due to rigid rotors, fewer wearing parts, and their operating principle, they require little maintenance and are less sensitive to inlet and outlet pressure variations, load fluctuations, changes in molecular weight, and low liquid ingestion.

ZCI is a professional screw compressor design and packaging company based on API619 standards.



Applications:

- ▶ Flare gas recovery
- ▶ Refrigeration systems
- ▶ Fuel gas enrichment for gas turbines and reactors
- ▶ Gas and vapor gathering and recovery
- ▶ Pressure recovery in oil wells

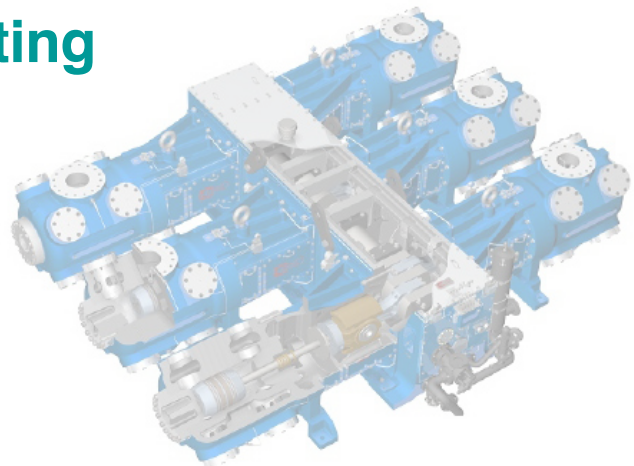


Process Gas Reciprocating Compressors

A reciprocating compressor is a positive displacement machine that uses a piston driven by a crankshaft to compress and deliver gas at high pressure.

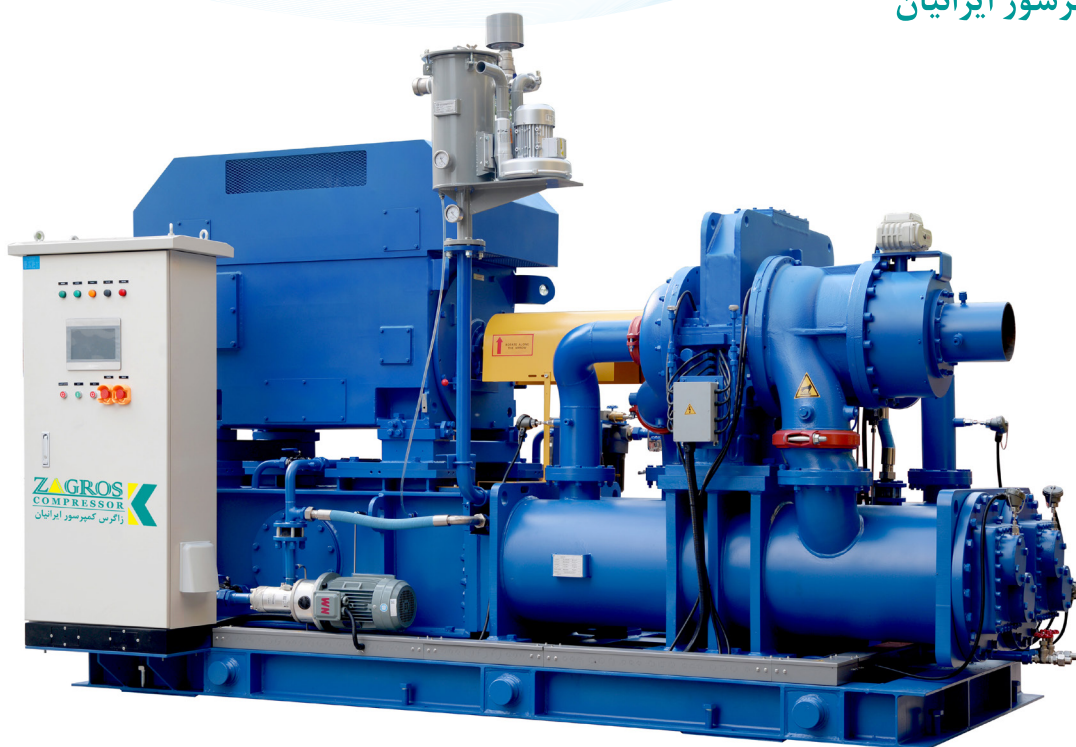
Reciprocating compressors are typically used when high compression ratio (ratio of discharge to suction pressure) are required per stage without high flow rates and the process fluid is relatively dry.

Reciprocating compressors are flexibly designed for different capacities. It can be delivered different discharge pressures from the same compressor and receive incoming gas at different pressures (side stream). Our reciprocating compressors are developed based on API 618, API 11P, ISO 13631, and ISO 13707 standards.



Applications:

- ▶ Gas transport
- ▶ Gas liquefaction
- ▶ Gas injection for gas lift at high pressure
- ▶ Hydrogen, Oxygen, etc. boost up for chemical processing
- ▶ Light hydrocarbon fractions in the refining process

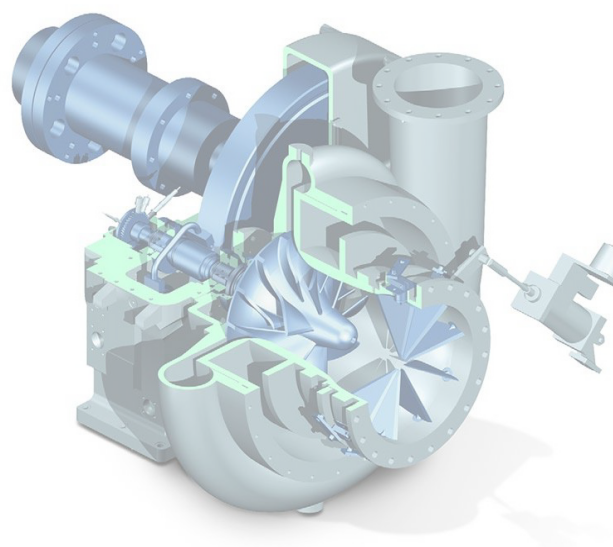


Process Gas Centrifugal and Axial Compressors

Centrifugal and axial compressors use dynamic pressure to increase the static pressure of the gas. High-velocity boosters or vanes give momentum to the gas molecules to increase velocity. The velocity of the gas converts to the static pressure in the gas passages and diffusers.

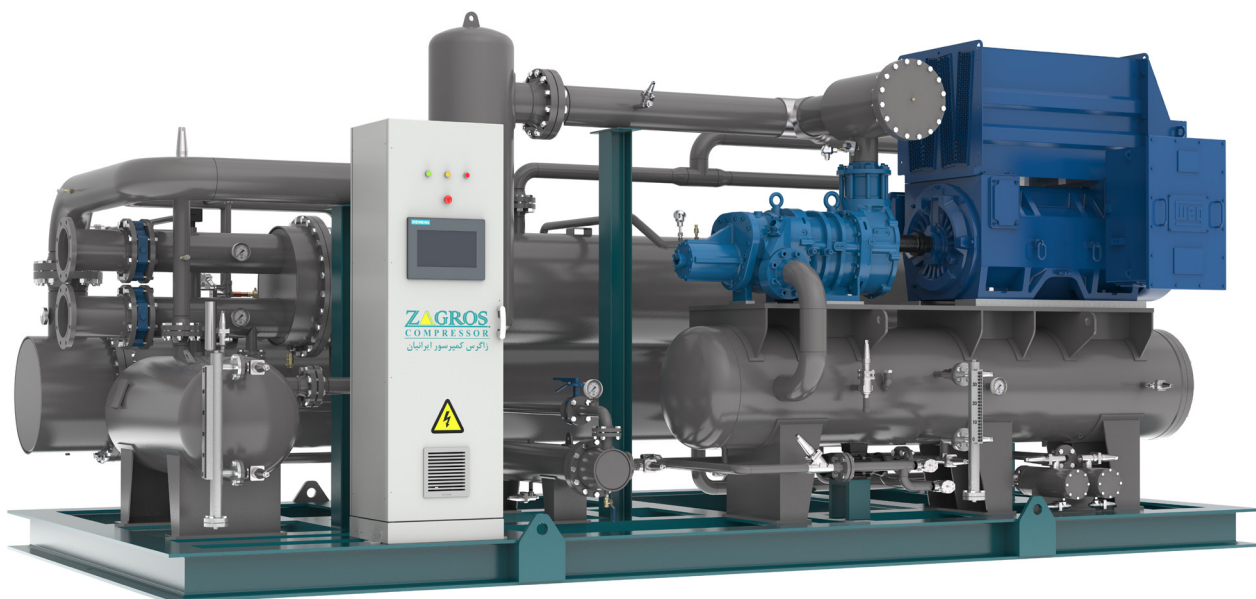
The pressure ratio of each stage is lower than screw or piston compressors, so the multi-stage design is used to achieve the desired pressure ratio. This principle allows the use of centrifugal and axial compressors with intercoolers, which are more efficient than other types.

The centrifugal compressors are characterized by the fact that they can receive gas at different pressures (side stream), deliver gas without pulsation, operates continuously, and can handle particularly large flow rates that are the key features for some applications.



Applications:

- ▶ Fuel gas boosting
- ▶ Natural gas gathering
- ▶ Hydrocarbon refrigerant gas
- ▶ Low molecular weight gas recycling
- ▶ Landfill gas



Refrigeration Packages

Refrigeration packages consist of compressor (screw, reciprocating, or centrifugal), driving motor, lubricating oil system, evaporator, condenser, piping, control system, and instrumentation. Our refrigeration packages can be designed based on API standards or other desired standards.

The refrigerant can be hydrocarbons (propane, isobutane, propylene) or HFC refrigerant gases such as R134a, R404A, or ammonia.

We can design and manufacture refrigeration packages for low-temperature applications down to -90°C and cooling capacities from 100RT up to 10000RT.

Applications:

- ▶ Process cooling
- ▶ Gas dehydration of ASU plants
- ▶ Gas liquefaction
- ▶ Vapor recovery
- ▶ Boil-off gas recovery
- ▶ Large-scale food industry
- ▶ Electricity production
- ▶ Agriculture
- ▶ Marine
- ▶ District cooling



Air Screw Compressors

ZCI's oil-injected and oil-free screw compressors are designed for continuous operation in harsh conditions. By using high-quality air-ends, drive motors, and instrumentation elements manufactured by reputable European companies, **ZCI** can offer reliable and durable solutions.

The Z-life series compressors are fixed speed direct drive equipment and the Z-life VSD series compressors are equipped with PID-controlled variable speed drives in conjunction with an energy-saving capacity control and enables a soft start mode.

The main advantages:

- ▶ Designed for high ambient temperatures
- ▶ The ability to operate continuously, because of highly efficient and oversized cooling system
- ▶ Low maintenance costs due to precisely machined and dynamically balanced couplings
- ▶ Redundant temperature and pressure switches and sensors to avoid risks caused by electronic sensor failures
- ▶ Adaptive power control when using VFD
- ▶ Remote display and monitoring via Siemens PLC-based control system

Gas Generation Packages and Air Separation Units (ASU)

Industrial gases such as Nitrogen, Oxygen, and Argon are widely used in the industry. There are various technologies for separating the air components.

ZCI manufactures PSA-based gas separation equipment of its own design and technology, and also cryogenic air separation units (ASU) and electrolysis equipment in collaboration with well-known world-class brands.



PSA technology range:

Oxygen from 0.50 Nm³/h to 2,000 Nm³/h, purity up to 95%.

Nitrogen from 0.50 Nm³/h to 10,000 Nm³/h, purity from 95% up to 99.9999%.

Electrolyzing technology range:

Hydrogen from 0.50 Nm³/h to 100 Nm³/h, purity up to 99.9999%.

Oxygen from 0.50 Nm³/h to 200 Nm³/h, purity up to 99.9999%.

Cryogenic technology range:

Oxygen from 100 Nm³/h to 10,000 Nm³/h, purity up to 99.99%.

Nitrogen from 370 Nm³/h to 20,000 Nm³/h, purity up to 99.9999%.



Air and Gas Dryers

Desiccant and refrigeration dryers are used to remove water vapor from air or gas streams. **ZCI** manufactures both types of dryers as part of its design and engineering.

Desiccant dryer:

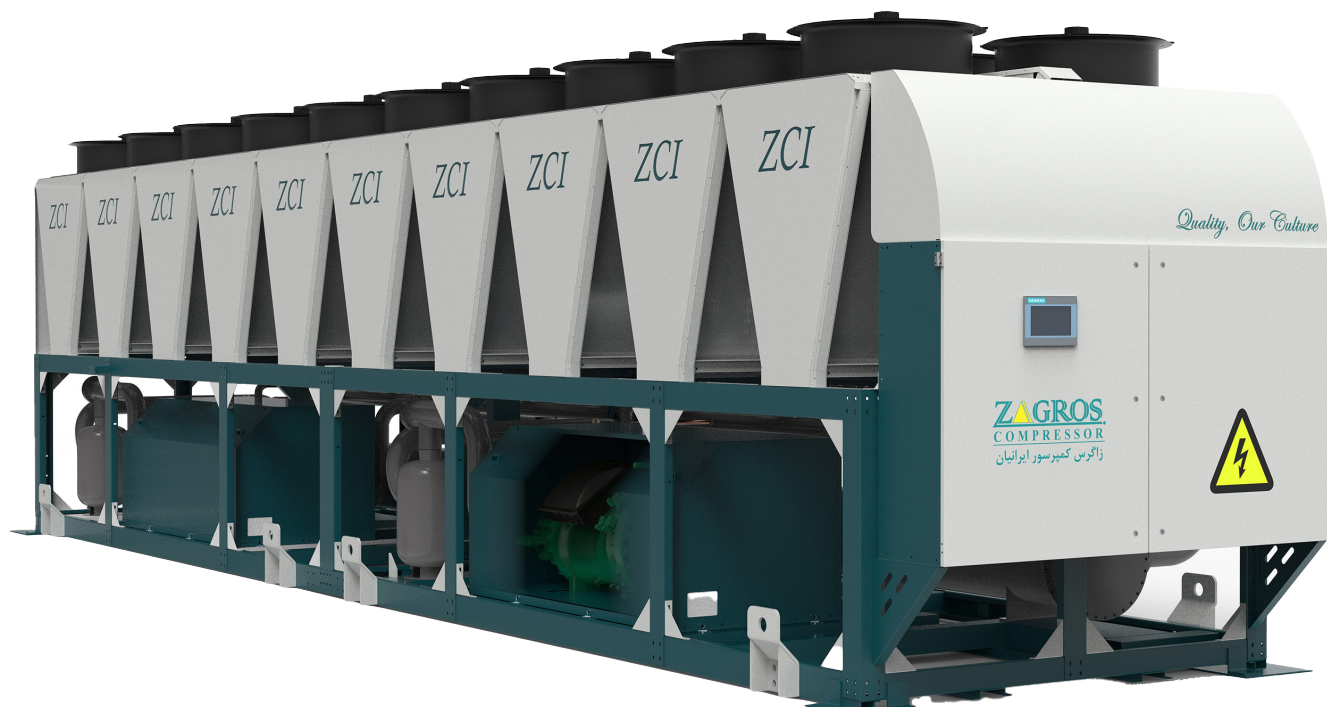
This type of dryer uses desiccants (activated alumina or molecular sieve) to adsorb water vapor from gas or air stream. The dew point can be as low as -40°C when using heatless dryers and as low as -90°C when using heat regenerated dryers.



Refrigeration dryer:

This type of dryer is a simple refrigeration system specifically designed for drying air and gases.

The air is cooled down to $+3^{\circ}\text{C}$ by the latent heat of the evaporating refrigerant and, after removing the condensation, it is reheated before discharging to the downstream equipment to save energy and reduce the risk of re-condensation at a lower pipe temperature.



Air-Cooled and Water-Cooled Chillers

Industrial and HVAC chillers are one of **ZCI**'s standard products. From 3RT to 500RT (air-cooled) and 20RT to over 5000RT (water-cooled) capacity can be designed and manufactured by **ZCI**.

Environmentally friendly refrigerants are used in these equipment. Various types of compressors (scroll, reciprocating, screw, and centrifugal) can be used in parallel or single refrigerant circuits, depending on capacity.

ZCI chillers are completely factory assembled, electrically wired, and charged with refrigerant gas at the factory. They are tested under extreme conditions and quality is controlled and approved before leaving the factory.

The main advantages:

- ▶ Designed for high ambient temperatures
- ▶ High efficiency (COP).
- ▶ Low noise and low vibration.
- ▶ Oversized condenser and evaporator designed with appropriate fouling factors in mind.
- ▶ Flexibility in sizing, depending on available space.
- ▶ Remote display and monitoring with Siemens PLC-based control system.





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