More reliability for gas processing plants

Atlas Copco Gas and Process Solutions

HANDLE THE PRESSURE.
High-performance solutions for gas processing plants

Natural gas is an important energy source around the world, providing up to one-third of global energy needs. Reliability, energy savings and safety are the key requirements to this dynamic industry: here’s where Atlas Copco Gas and Process’ compressors and expanders come into play.

Smart, efficient energy

When it comes to natural gas processing, reliability and efficiency is the name of the game. That’s because up to 50% of a modularized gas processing plant’s equipment cost is its compressor and expander cost. In addition, approximately 80% of a plant’s operational expenses come from power consumption.

Atlas Copco’s innovative and efficient centrifugal compressors and expanders can reduce your plant’s energy expenditure by 12% versus other compressor technologies. This efficiency translates into significant savings and gives greater pricing flexibility in the competitive natural gas market place.

Our compressors and expanders can be designed for unmanned operation, delivering top performance for up to five years before requiring major maintenance.

The bundling benefit

Natural gas isn’t the only important product derived from natural gas processing; commodity products like propane, butane, ethane, and other heavy hydrocarbons are often more lucrative than natural gas. Our turbomachinery is designed for all current, high-efficiency NGL / LPG recovery processes, and can be used in a bundle to help maximize your revenue stream.

Our dedicated products cover the complete gas processing cycle, from regeneration gas compressors for dehydrators, refrigeration gas compressors and expander compressors for cryogenic cycle, and through residue compressors to supply treated gas to the sales gas grid.
Customer benefits

- Extensive experience in natural gas processing industry
- Excellent efficiency that can save a minimum of 12% on energy costs
- Complete product line covering all standard compressor and expander machines for gas processing facilities
- Well-referenced designs for high reliability
- Can be built to API and/or other standards
- Available in fully-automated option for unmanned operation
- Up to five-years of non-stop service before major maintenance is required
- Serving customers in more than 180 countries

Five-year, non-stop performance

Our turbomachinery is built tough for natural gas processing. Fully-referenced, application-specific compressors and expanders can be designed for non-stop, five-year operation before their first servicing. And, because they do not need backup systems that gas screw and reciprocating compressors require, they reduce both capital expenditure and operating costs.

Easy setup and operation

Thanks to standardized design, the benefits of our compressors and expanders begin with faster delivery and setup times. Our compressors are available with an option which require only a foundation pad, no grouting – that reduces installation and setup time by up to 66%. Through an on-skid packaging concept, our compressors only need to be attached to utilities and process connections before commissioning.

Safe processing

With extensive experience in the natural gas industry, Atlas Copco Gas and Process compressors and expanders have an enviable track record of safe and efficient operation across an extensive reference list. Our machines can be designed to API, ISO, ASME, and NFPA standards as well as any other major codes or norms. Prior to commissioning, our machinery is fully tested in our production facilities and then onsite at your plant.
Our line-up for your process: from feed gas to cryo-expansion

Regeneration Gas

Our regeneration gas compressors are used in dehydration processes for midstream, downstream and LNG applications. They are built to fully support API requirements.

| Inlet Pressure: | 41.4 – 75.9 bar(a) / 600 – 1 100 psia |
| Outlet pressure: | 44 – 82.7 bar(a) / 640 – 1 200 psia |
| Inlet temperature: | 37.8 – 48.9 °C / 100 – 120 °F |
| Flow: | 170 – 1 190 m³/h / 100 – 700 ICFM |
| Power: | 75 – 375 kW / 100 – 500 HP |
More efficiency. More uptime. More reliability. Atlas Copco solutions for NGL processes can be used individually or as a package, to optimize your plant’s performance.

Refrigeration Gas

Our refrigeration compressors deliver high flow levels and maximum efficiency for optimal NGL recovery. They are an excellent solution for refrigeration loads up to 10–50 MMBtu/h (3–14 MW)

Inlet Pressure:
1–4.5 bar(a) / 14.5–65 psia*

Outlet pressure:
Up to 27 bar(a) / 400 psia*

Inlet temperature:
-41 to -12 °C / -42 to 10 °F

Flow:
60000–160000 lb/h / 27215–72575 kg/h

Power:
1491–4474 kW / 2000–6 000 HP

* Per recovery or rejection mode
Cryogenic Expansion

Our expander compressors are used in cryogenic NGL/LPG recovery, natural gas dew point control and various LNG cycles. Expander compressors are the heart of a gas processing plant.

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The Atlas Copco Gas and Process Division supplies a complete standardized turbomachinery package for your process in plants up to 250 MMSCFD / 295 000 m³/h.

**Residue Gas**

Our residue gas compressors ensure that sales gas is supplied to the pipeline as efficiently as possible. They provide uninterrupted gas supply without any pulsation or stress to pipeline.

**Inlet Pressure:**
172–31 bar(a) / 250–450 psia*

**Outlet pressure:**
up to 103.4 bar(a) / 1500 psia*

**Inlet temperature:**
up to 48.9 °C / 120 °F

**Power:**
5200–8950 kW / 7000–12 000 HP

**Flow:**
120 MMSCFD / 130 000 Nm³/h

* Per recovery or rejection mode
The technical edge

Atlas Copco Gas and Process solutions are the right match for requirements in your gas processing plant – thanks to these unique points.

Integral-gear technology

The integral-gear technology running the core compression unit is one of the most efficient technologies available in the field. It delivers multiple-speed capability by placing rotors on separate pinions while using the least amount of energy possible.

As the name suggests, all compression stages of integrally-geared compressors are mounted on one gearbox. Each stage runs at the optimum speed for high efficiency. Compressor bearings and gears are lubricated by the main lube-oil pump, which is driven through the bull gear for reliable oil flow.

As gas temperature rises during the compression process, interstage cooling can be easily accommodated between any of the compressor stages in order to improve compression efficiency.

Thanks to their rotor- and aerodynamic design, along with intercooling capability, integrally-geared compressors are more efficient than other rotary compressors.

Single-skid package

Atlas Copco compressors and expanders can be delivered on a compact skid including the core unit, driver, lube oil system, seal gas system and control system. That supports fast set-up and delivery while allowing customization to process requirements.

Packing efficiency, high machine availability and superb process control onto a small footprint, Atlas Copco integrally-geared compressors give your process the extra edge in NGL and gas processing applications.
**Rotors**

High-speed rotors are supported by radial tilting pad bearings that eliminate virtually all vibration, while providing superior rotor stability and smooth rotation.

Sealing options may include dry gas seals, floating carbon ring seals and labyrinth seals in various combinations and arrangements.

When process gas leakage is restricted, our equipment can be built with dynamic dry gas seals. In fact, Atlas Copco was the first compressor manufacturer to implement dry gas seals on integrally-geared compressors.

Our impellers – available in open or closed configurations – are designed using the latest computational-fluid dynamic (CFD) and finite-element analysis (FEA) and milled with the latest five-axis, computer-aided manufacturing processes.

**Variable inlet guide vanes**

Variable Inlet Guide Vanes (IGVs) are one of our division’s key competence areas. IGVs control how much flow is sent into the machine, providing accurate process control. With IGVs, compressor efficiency can be increased by around 9% versus other inlet assemblies.

In addition, Atlas Copco is one of the few manufactures to offer variable diffuser guide vanes (DGVs), which enable larger turndown and provide wider process control without impairing efficiency.

Both variable inlet and diffuser guide vanes provide stable compressor operation over a wide range of conditions at a constant discharge pressure.
**Project references**

**Regeneration Gas**

A regeneration gas compressor for a gas processing plant in Canada meets extreme temperature requirements for outdoor installation.

**Type:** Centrifugal  
**Inlet Pressure:** 51 bar(a) / 740 psia  
**Inlet Temperature:** 41.6 °C / 106 °F  
**Flow:** 697 m³/h / 410 acfm  
**Discharge Pressure:** 56.1 bar(a) / 814 psia  
**Power Consumption:** 224 kW / 300 hp  
**Driver Type:** E-motor (60 Hz) asynchronous  
**Gas:** Natural gas

**Refrigeration Gas**

A refrigeration compressor for an NGL / LPG processing plant in the USA is designed for a plant turndown up to 25%.

**Type:** Centrifugal  
**Inlet Pressure:** 7.21 bar(a) / 104 psia  
**Inlet Temperature:** 39.4 °C / 103 °F  
**Flow:** 93 230 m³/h / 54 900 acfm  
**Discharge Pressure:** 24.8 bar(a) / 360 psia  
**Power Consumption:** 4 852 kW / 6 500 hp  
**Driver Type:** E-motor (60 Hz) asynchronous  
**Gas:** Methane Mix
Expander Compressor

An expander compressor for a gas processing plant in Thailand implements “seal-less” design for zero emissions and elimination of vented seal gases.

**Type:** Radial Inflow  
**Inlet Pressure:** 38 bar(a) / 550 psia  
**Outlet Temperature:** -91 °C / -132 °F  
**Flow:** 108 kg/s / 237 lb/s  
**Speed:** 9 700 rpm  
**Gas Power:** 7 700 kW / 10 300 hp  
**Gas:** Natural gas

Residue Gas

A residue gas compressor for a gas plant in Nigeria provides unmanned operation and handles extreme temperatures.

**Type:** Centrifugal  
**Inlet Pressure:** 18.4 bar(a) / 267 psia  
**Inlet Temperature:** 43.2 °C / 110 °F  
**Flow:** 100 620 m³/h / 59 200 acfm  
**Discharge Pressure:** 53.4 bar(a) / 774 psia  
**Power Consumption:** 7 505 kW / 10 060 hp  
**Driver Type:** E-motor (50 Hz) asynchronous  
**Gas:** Natural gas
We stand by our responsibilities towards our customers, towards the environment and the people around us. We make performance stand the test of time. This is what we call — Sustainable Productivity.

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