Reciprocating Compression

Ajax*
Cooper-Bessemer*
Gemini*
Superior*
We fuel the future. We push the boundaries of technology to bring energy to the world.

Technology Leadership
GE is there – in all the key plays in which you are working – with the field-proven components, systems and services you have relied on for nearly 200 years. From drilling to processing to industrial markets, GE is there with a broad range of products and services to address your needs.

As one of the leading worldwide providers of reciprocating compression equipment for oil and gas production, transmission, processing and independent power industries, you can count on GE for quality and reliability. We understand your need for flexible solutions that provide a lower life cycle cost and punctual delivery.

Exemplary Engineering
GE employs experienced engineers who use the latest tools and techniques to work out solutions for complex problems and bring new ideas to market.

Application Engineering – Teams of engineers develop custom solutions for specific applications, finding just the right combination of equipment and technology to meet stringent demands, including fully packaged compressors.

Rapid Prototyping and Virtual Testing – Using sophisticated 3D modeling software, advanced simulation software and 3D printing techniques, our engineers can perform thermal, stress, combustion and emissions analysis on parts and assemblies before a single prototype is built.

In the constant pursuit of improvement, we explore new technologies, test new designs and experiment with new ideas.

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<th>AJAX</th>
<th>COOPER-BESSEMER</th>
<th>GEMINI</th>
<th>SUPERIOR</th>
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Since 1833, GE has manufactured top-quality products that have become known throughout the industries we serve. Today, our reciprocating compression products are known for their reliability and performance.
Ajax Integral Engine-Compressors

For more than 50 years, Ajax integral engine-compressors have earned a reputation for being as reliable as any compressor product, through efficient and long-lasting service. Our product line – from 147 to 845 hp (110 to 630 kW), with a cylinder lineup capable of handling a wide range of pressures – offers up to six ratios of capability and a lower brake horsepower (BHP) per million flows for a wider range of applications.

Ajax integral technology provides lower overall operating costs and maintenance expenses. Improvements over the years have added to the strength and simplicity of the original design.

Slow-Speed Integral Gas Engine-Compressors

**DPC-2200 / DPC-2800**

147.8 to 845 bhp (110.2 to 630.1 kW) at 440 rpm

30,000 to 40,000-lb (133 to 178-kN) rod load

- Gas gathering
- Gas transmission
- Gas storage
- Gas reinjection
- Gas processing
- Helium processing
- Propane processing
- Coalbed methane

Slow-Speed Separable Compressor

**C-302**

Electric motor-driven separable, 200 to 455 rpm

30,000-lb (133-kN) gas rod load

- Gas gathering
- Gas transmission
- Gas storage
- Gas reinjection
- Gas processing
- Helium processing
- Propane processing
- Coalbed methane

40-hp Gas Engine

**E-565 Gas Engine**

40 bhp (29.8 kW) at 525 rpm

- Pump jacks
- Gas gathering
- Single-cylinder, two-stroke engine meets emissions without additional control systems
- Operational on a wide range of field gas
Ajax Advantages

- **Reliability** – Proven two-stroke design ensures reliable operation.
- **Availability** – 98% or better availability providing increased revenue and production time when properly maintained and operated.
- **Operating Efficiency** – Integral net compression efficiency is greater due to low mechanical losses when compared to non-integral technologies.
- **Fuel Flexibility** – Ability to operate using a wide variety of fuel gases, including sour gas up to 3.0 mol%.
- **Ease of Installation and Mobility** – Plug-and-play flexibility combined with the ability to relocate based on field life.
- **Low Total Cost of Ownership** – Lower overall operating costs due to fewer parts, slower speed and proven design.
Gemini High-Speed Reciprocating Compressors

Our HSR products range from 60 HP (45 kW) to 800 HP (596 kW), with a variety of piston rod load capacities and frame stroke combinations. Over 15,000 of our compressors can be found around the globe, working in fuel gas boosting, gas lift, CNG fueling, reinjection, gas gathering and vapor recovery applications – operating 24-hours a day, seven days a week.

**Economical**
GE Oil & Gas compressors are integrated into a package by a global network of authorized packagers. The compressor is matched with a driver, coolers, controls, and piping typically on a single skid. This allows the complete compressor package to be easily moved to a new location. This concept lowers your installation, site construction, and re-application costs.

Our compressors are designed to be directly connected to a variety of reciprocating natural gas engines (720 to 1,800 rpm) and electric motors (750 to 1,800 rpm). A variety of compressor frame strokes allow the compressor to be perfectly matched to the optimum driver.

**Flexible**
It is the nature of natural gas production that pressures and flows often change. Therefore, greater productivity can be attained if the compressor is easily adaptable to the new operating conditions.

Many GE Oil & Gas high-speed reciprocating compressors feature field-replaceable cylinder liners that allow the cylinder bore to be increased or decreased as operating conditions change. When the cylinder must be changed, several cylinders have identical flange connections, allowing the same piping and bottles to be used. In either case, there is no need to modify the on-skid piping and accessories, further lowering modification costs. If the cylinder bore is ever damaged, it is less expensive and less time consuming to replace a liner than a complete cylinder.

A variety of capacity-control devices are also available, including our standard variable-volume clearance pockets, featuring generous clearance volumes. These provide greater flexibility for changing operating conditions.

The modular design of our high-speed reciprocating compressors allows frames and cylinders to be easily reconfigured, offering maximum flexibility with minimal cost.

**Reliable**
GE Oil & Gas API 11P high-speed reciprocating compressors are balanced opposed to minimize vibration by equalizing the opposing reciprocating forces on the crankshaft. Heavy, ribbed frames distribute reciprocating stresses evenly for greater strength and longer life. Many compressor cylinders are water jacketed to lower operating temperatures, provide thermal stability, and improve valve life.

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**Power** up to 800 HP  
**Pressure** up to 6500 psig ... meet most applications  
**Stages** up to 4... flexible  
**Gases** ... natural gas and oilfield applications  
**Driver compatibility** ... engines and electric motors

### Applications
| CNG for NGV   |  |  |
| Fuel Gas Boosting |  |  |
| Vapor Recovery |  |  |
| Gas Lift |  |  |
| Reinjection |  |  |
| LNG |  |  |
## Gemini Portfolio

### Frame Offering

<table>
<thead>
<tr>
<th>Model</th>
<th>Max HP</th>
<th>Hp/Throw</th>
<th>No. of Throws</th>
<th>Stroke (in)</th>
<th>RPM</th>
<th>Piston Rod Diameter</th>
<th>Total Rod Load (lbs.)</th>
<th>No. of Stages</th>
</tr>
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<tbody>
<tr>
<td>M</td>
<td>120</td>
<td>60</td>
<td>1,2</td>
<td>3</td>
<td>1800</td>
<td>1.125</td>
<td>12,000</td>
<td>1 to 4</td>
</tr>
<tr>
<td>H</td>
<td>400</td>
<td>100</td>
<td>1,2,4</td>
<td>3</td>
<td>1800</td>
<td>1.125</td>
<td>20,000</td>
<td>1 to 4</td>
</tr>
<tr>
<td>A</td>
<td>800</td>
<td>200</td>
<td>1,2,4</td>
<td>3.5</td>
<td>1800</td>
<td>1.375</td>
<td>27,000</td>
<td>1 to 4</td>
</tr>
</tbody>
</table>

### Reciprocating Compression Product Line

- **M**
- **H**
- **A**

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**Gas Lift**

- CNG

**Fuel Gas Boosting**

- Productions and Gas Gathering

- Process

- FPSO

Transmission and Storage, Gas Injection/Gas Lift

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**Horsepower**

**RPM**
Superior High-speed Separable Reciprocating Compressors and Engines

GE’s Superior product line is a leading provider of reciprocating compression equipment, parts and services for oil and gas production, gas transmission, gas processing and independent power industries. Built to work long and hard in any gas application, the Superior product line includes a full line of air-cooled and water-cooled, lubricated and non-lubricated, lined and unlined cylinders.

**Experience** – With more than 130 years of compression experience, you can count on the quality and reliability of Superior products. You also can count on GE to understand your need for solutions that provide a lower life cycle cost. With installations in more than 70 countries, representing a diverse set of customers and applications, the Superior brand is recognized as a proven performer for reciprocating compression.

**Flexibility** – Superior engines and compressors are designed to provide the flexibility needed to fit your application. This flexibility is offered through an extensive line of cylinders and a variety of frames designed to cross a broad range of horsepower and speed. Our frames extend to 9000 hp with our WG model and 1800 rpm with our high-speed CFA.

As field conditions change over time, your Superior compressor frame can be reconfigured with our flexible line of cylinders to easily realign your equipment to production needs. This ability to utilize existing modular equipment for the life of your field, over purchasing new equipment, reduces overall downtime and increases total equipment availability.

**Support** – Before, during and after the sale, we listen and deliver. To provide you with the best possible service, GE Oil & Gas offers a dedicated team of parts support and field service personnel as well as providing comprehensive inventory availability because we understand your cost of downtime.

GE offers a versatile Superior cylinder selection for your specific application, from lined to non-lined, air- or water-cooled, high-pressure or integral tandems.
<table>
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<tr>
<th>Engine Type</th>
<th>Range</th>
<th>Description</th>
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<tr>
<td>CFA</td>
<td>290 to 580 hp (216 to 432 kW) at 1800 rpm</td>
<td>13,000-lb (58-kN) gas rod load</td>
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</tbody>
</table>
|             |       | • CNG  
|             |       | • Gathering  
|             |       | • Boosting  
|             |       | • Processing  
|             |       | • Offshore platforms  
|             |       | • Air  
|             |       | • FPSO  |
| RAM         | 950 to 1900 hp (708 to 1417 kW) at 1400 rpm | 40,000-lb (179-kN) gas rod load |
|             |       | • Fuel gas boosting  
|             |       | • Gathering  
|             |       | • Boosting  
|             |       | • Processing  
|             |       | • Processing  
|             |       | • FPSO  |
| MH/WH       | 1700 to 5400 hp (1268 to 4027 kW) at up to 1200 rpm | Up to 65,000-lb (291-kN) gas rod load |
|             |       | • Fuel gas boosting  
|             |       | • Gathering  
|             |       | • Boosting  
|             |       | • Processing  
|             |       | • Transmission  
|             |       | • Storage  
|             |       | • CO₂  
|             |       | • FPSO  |
| WG          | 2500 to 9000 hp (1065 to 6714 kW) at up to 1200 rpm | 75,000-lb (336-kN) gas rod load |
|             |       | • Gathering  
|             |       | • Boosting  
|             |       | • Processing  
|             |       | • Transmission  
|             |       | • Storage  
|             |       | • Injection  
|             |       | • CO₂  
|             |       | • FPSO  |
| 825 ENGINE  | 12 or 16 cylinders | 2000 to 2650 hp (1490 to 1975 kW) at 900 rpm |
|             |       | • Fuel gas boosting  
|             |       | • Gathering  
|             |       | • Boosting  
|             |       | • Processing  
|             |       | • Transmission  
|             |       | • Storage  
|             |       | • Injection  
|             |       | • CO₂  
The Learning Center

Educating customers, operators and maintenance personnel

The Learning Center is GE’s dedicated reciprocating engine and compression training resource for your employees. Staff well-trained in equipment operation and maintenance is one of your best tools for improving performance, reducing downtime and overall operating costs and maintaining a safe operation. For more information, contact us at tlc@ge.com or 1.713.354.1296.
GE Oil & Gas moves natural gas to fuel the future for a cleaner energy world.

GE works with our global customers and partners to deliver reciprocating compression innovation and technology that optimizes the production and distribution of natural gas. We put our expertise to work—through our R&D, engineering, financing, global infrastructure, and 24/7 service. GE delivers reliability and availability for end-users everywhere, every day.