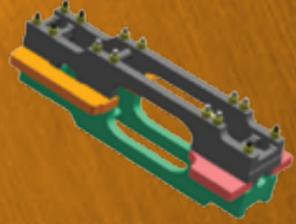


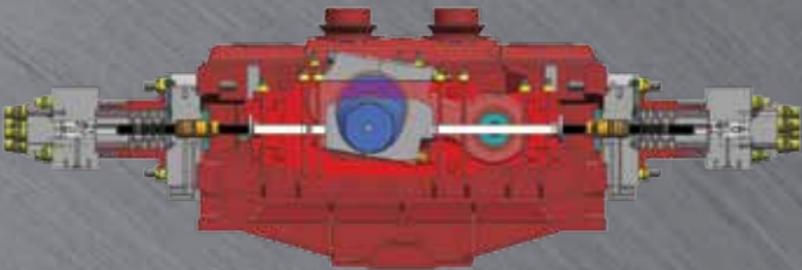
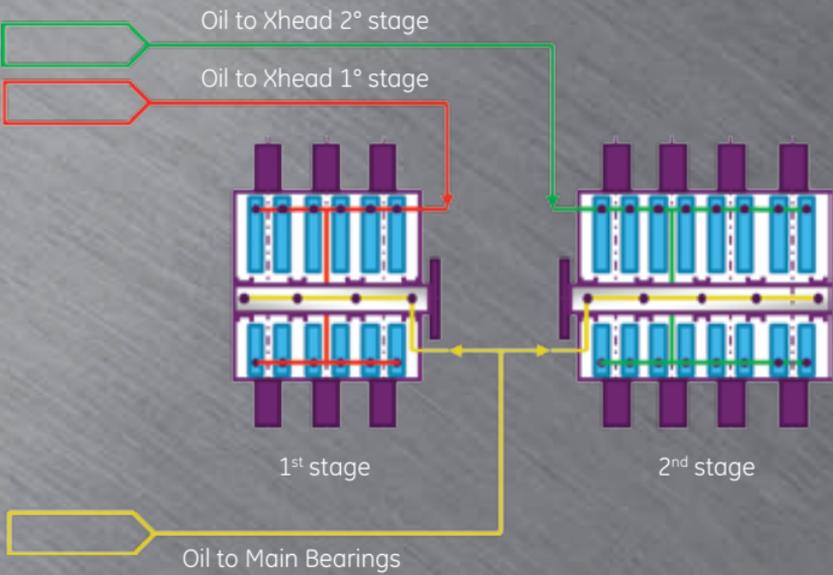
# GE Oil & Gas hypercompressors for LDPE applications

## Latest Features

- Improved configuration of sliding shoes designed leveraging CFD capabilities
- Patented lubrication system allowing better control of plunger run-out
- New tools and test rig experience are key enablers for increased compressor frame capability without impacting footprint



## Proven solution—ready for 500+ kty plants

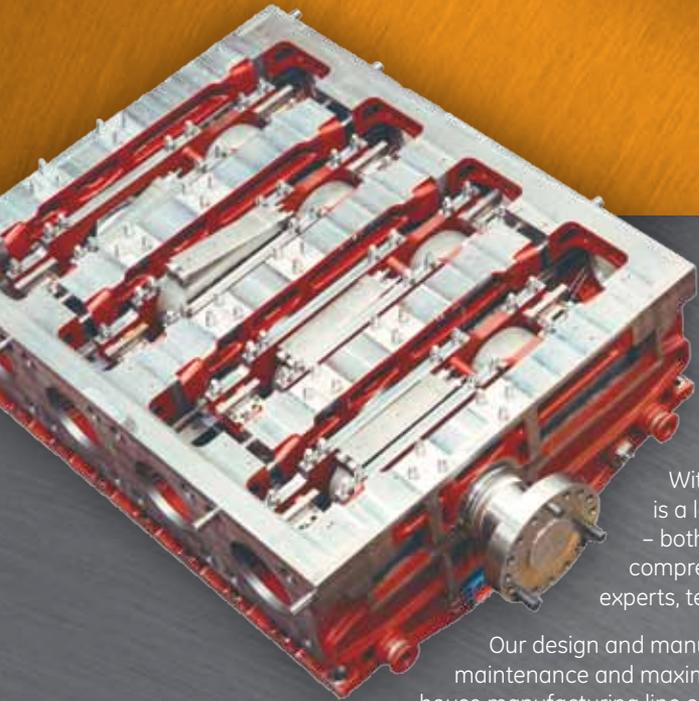


Frame size	PK
Throws	4-24**
Max. power* (kW)	60,000
Max. rod load (KN)	2,500
Max. stroke (mm)	400
Max. speed (rpm)	310

\*\* Up to 12 cylinders in a single frame



## Low Density Polyethylene (LDPE) Compressors



Technologically advanced and work-proven API 618 machines that reliably enable the economies of scale needed for commercial LDPE plant success.

The average size of an LDPE plant has more than doubled in the last decade, and plant configurations have changed significantly from strictly processing to fully integrated export-oriented complexes. Modern facilities are characterized by operating pressures up to 3,500 bar and highly fouling fluids that put extreme demands on compressor reliability and availability, and in fact are some of the most exacting challenges in the entire oil and gas industry.

With over a century of proven experience in compressor design, GE Oil & Gas is a leading manufacturer of machines for the most extreme LDPE applications – both booster primary and secondary hypercompressor duty. We also provide comprehensive lifecycle support through a dedicated Global Services network of experts, test and repair facilities around the world.

Our design and manufacturing philosophies focus on highest guaranteed reliability, ease of maintenance and maximum plant availability. This commitment to customers is exemplified by our in-house manufacturing line exclusively for LDPE hypercompressors, which ensures the highest quality and consistency of all critical components.

### Booster primary

There are more than 100 GE Oil & Gas compressors currently operating worldwide for this critical application. Our booster primary compressor designs merge 40 years of experience in both LDPE and large hydrocrackers – resulting in our state-of-the-art HG high-power frame with up to 10 cylinders.

We also provide our customers with unmatched in-house capabilities for the design and supply of all main process equipment (process gas coolers and separators), interconnecting piping, process gas control and block valves and associated instrumentation, as well as layout and pipe-routing studies.

### Secondary compressor

There are currently more than 50 GE Oil & Gas ethylene hypercompressors installed worldwide, with a proven plant capability of 500 kty and the largest installed power with a 33-MW electric motor.

Key features include the unique frame design that eliminates the auxiliary crosshead, fatigue-resistant cylinder bore diameters and flow distribution on more cylinders. These and others combine to ensure minimal pulsation, low vibration and smooth operation that in turn contribute to longer life of the most highly stressed parts such as packing cups and cylinder valves.

### Acoustic plant simulation

When designing compression plants with reciprocating compressors, special consideration must be given to the effects of pressure and flow pulsations in order to achieve performance targets and avoid discontinuous gas flow from the cylinders.

Since 1965, we have conducted comprehensive compression-system simulations, including precise analyses of pulsations and interactions between compressor and piping system. To ensure optimal reliability and efficiency of the whole LDPE plant, our study includes primary-booster compressor, hypercompressor, reactor, vessels and all interconnecting piping.

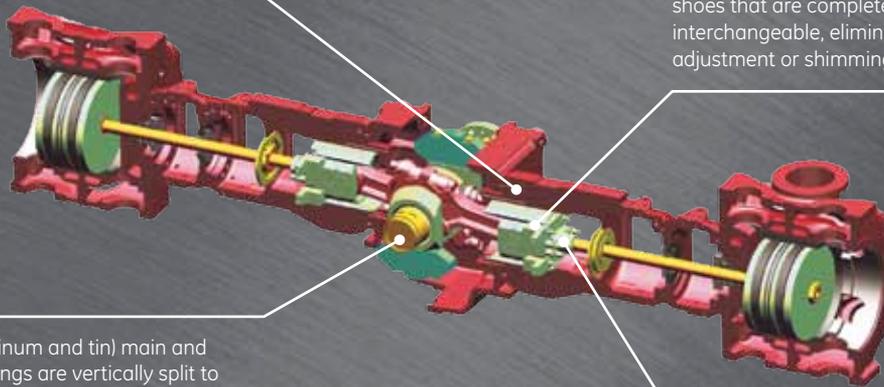


Frame Size	Throws	Max. Power (kW)	Max. Rod Load (kN)	Max. Stroke (mm)	Max. Speed (rpm)
HF	2-10	34,600	1,140	360	514
HG	2-10	41,000	1,550	400	450
PK	4-24*	60,000	2,500	400	310

\*Number of cylinders. Up to 12 cylinders in a single crankcase.

## Booster primary

Single-piece, cast iron crankcase with tight-tolerance transverse spacers fitted above the bearing housings between the two sides of the frame. Extremely stiff, closed body with large openings that cut maintenance time and cost.



Steel crossheads equipped with amply sized shoes that are completely machine finished and interchangeable, eliminating the need for any manual adjustment or shimming.

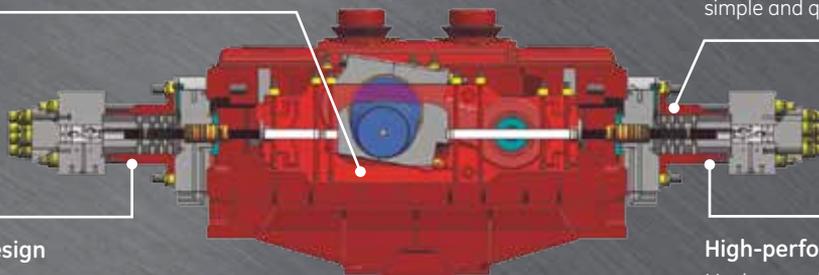
Proprietary bi-metallic (aluminum and tin) main and big-end bearings. Main bearings are vertically split to eliminate surface discontinuities from the most heavily loaded area, thereby increasing the load capability and reliability.

All main threaded connections (piston to piston rod, piston rod to crosshead, connecting rod to big-end tie rods, frame crosspieces, anchor bolts, high-pressure cylinder bolting) are hydraulically tightened.

## Hypercompressor

### Special crossheads design

Sliding surfaces pass through plunger axis for perfect straight plunger action in both cold and hot conditions. No on-site realignment required.



### Easy accessibility & maintenance

Frame and cylinder tie rods tighten with hydraulic jacks. Preassembled cylinder components enable simple and quick maintenance and replacement.

### Optimized packing design

Second stage cylinders have an average operating life of 20,000 hours and frequently achieve well over 32,000 hours without replacement.

### High-performance cylinders

Maximum reliability through shrink-fit packing cups, extensive use of auto fretting, silver plating and shot peening. Plunger is made of solid tungsten carbide with a cobalt binder or tungsten carbide-coated steel.

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GE imagination at work