

**DRESSER-RAND®**

A Siemens Business



HIGH SPEED RECIPROCATING COMPRESSORS

# HOS™ Compressors

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# HOS™ compressors

Greater flexibility to meet any type of application.

Dresser-Rand business, part of Siemens Power and Gas (PG) Division brings more than 65 years of separable compressor operating experience to the heavy-duty HOS compressor line.

These rugged compressors are engineered for high horsepower packaged applications, including gas lift, gas gathering, gas processing, injection, enhanced oil recovery (EOR), gas transmission, gas storage (injection and withdrawal), fuel gas boosting, landfill gas recovery, and many other applications. They are suited not only for sweet natural gas services, but are flexible enough to handle sour natural gas, propane, carbon dioxide, air, nitrogen, gas and most other gases.

As an alternative to more costly other competing units, the HOS compressor provides a platform for process applications by offering as options jacketed cylinders for water cooling capability and liners as well as provision for non-lube. The lower cost and rapid delivery of packaged HOS compressors can be applied to hydrogen, nitrogen, syngas, and other process requirements.

With more than 30 years of experience in our closed-loop test facility using a variety of field gases, we can assure the integrity of the HOS compressor design and performance.

Rated to 7,200 hp (5370 kW) and 1,500 rpm with design pressures up to and exceeding 10,000 psig (689.47 bar), HOS compressors provide long life due to their heavy-duty construction. They are available in two-, four- or six-throw configurations and in cylinder sizes ranging from 3.5 in. (88.9 mm) to 28 in. (711.2 mm). The rigid, cast iron compressor frame is heavily ribbed and reinforced, with integrally cast crosshead extensions.

## Available in jacketed or non-jacketed configurations

HOS compressor cylinders are non-jacketed for most applications. For special applications, the HOS compressor is available with jacketed cylinders for water cooling thus providing additional protection in higher temperature services or non-lube applications. Each system is designed and engineered to match your operating needs.

HOS cylinders use a solid bore cylinder barrel cast in nodular iron. The 26-28 in. (660-711 mm) cylinder is a two piece, clam shell type cylinder. Jacketed HOS cylinders are of similar construction, and are standard on 16.25-28.00 in. (412.8-711.2 mm). A full line-up of higher pressure, forged steel cylinders are available in sizes 3.5 in. (88.9 mm) to 7.0 in. (177.8 mm).

The line-up also includes a pipeline cylinder line-up for gas transmission and a storage cylinder for gas injection and withdrawal applications.

## A single source for all your compression needs

HOS compressors offer many benefits to gas compressor users, whether used in a standard or customized package, in rental service, or purchased outright.

The Dresser-Rand business and its packagers can provide single-source responsibility, including engineering, manufacturing, packaging, installation, parts, and service.

With HOS compressors on the job, you can expect less maintenance, lower vibration and less fuel consumption. The Dresser-Rand business and its authorized packagers and resellers support the HOS compressor line with a network of computerized parts warehouses, and overhaul/revamp facilities located throughout the world.



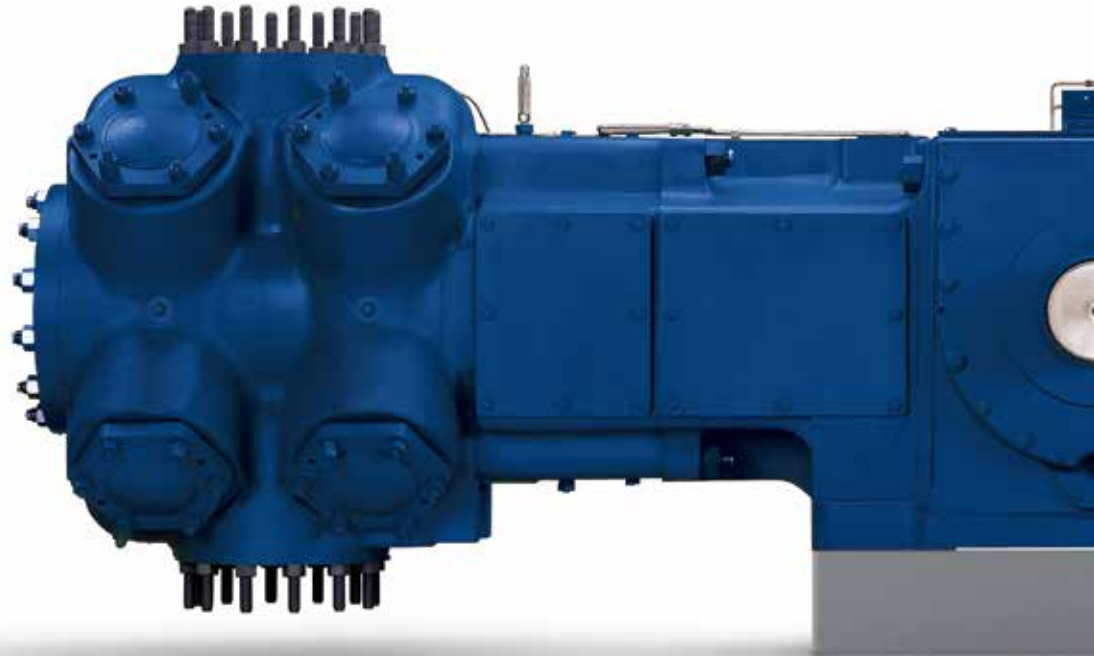
Six-throw HOS compressor installed in China.

# Rugged design for smooth operation

Every HOS compressor includes components designed to enhance performance. The compressor frame and cylinders are matched to provide years of smooth, reliable, efficient compression service when operated within OEM recommendations.

The open top frame construction with tie bars ensures rigidity while providing large access areas for maintenance and inspection.

A full-length distance piece with an oversized door also provides easy access. The unique thru-bolt distance piece is designed for improved load carrying ability and reduced vibration. Cylinder performance is optimized because multiple valve sizes and types can be used with the same size cylinder. Large valve areas improve efficiency, and oversized gas passages reduce valve losses. Optional high-volume, manually operated variable volume clearance pockets provide clearance for greater capacity control.



High-strength, nodular iron crossheads come in two sizes; shim-adjustable bolt-on aluminum shoes at the top and bottom or single piece Babbitted overlay, which is the new standard offering. Surface-hardened crosshead pins are full floating for optimum reliability. Crosshead pin bushings are tri-metal bronze with babbitt overlay.



The heavy-duty forged alloy steel crankshaft is balanced and rifle-drilled for pressure lubrication. The crankshaft is counterweighted to reduce horizontal moments.

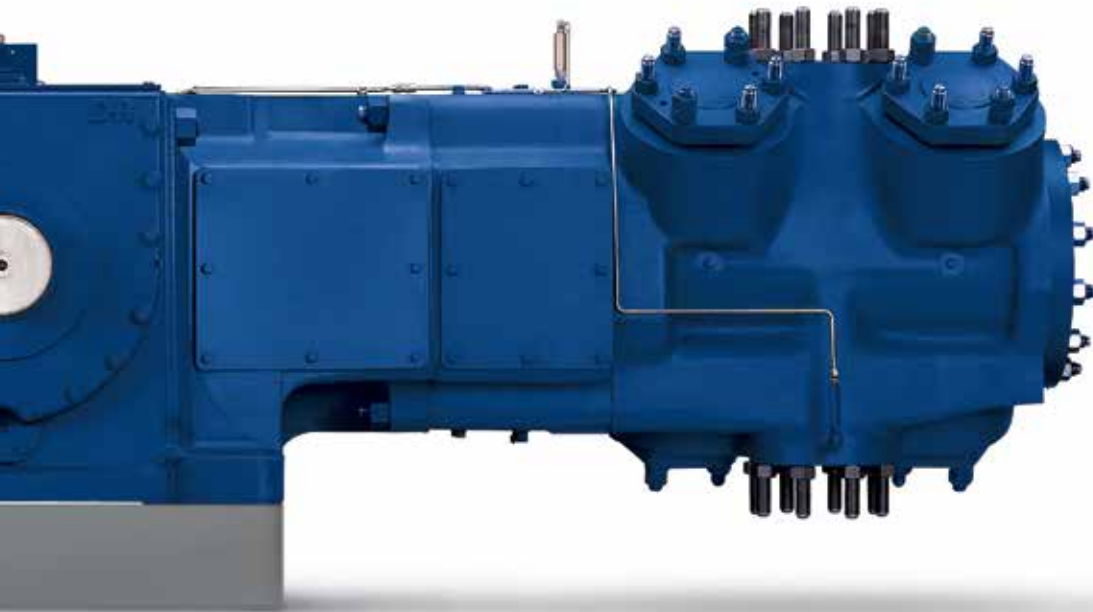
# ation, long life and efficiency.

Cylinder performance is optimized through the use of two types of valves which are available on the HOSS compressor: the PF valve (ported plate-type) and the D-R Magnum® HammerHead™ valve (mini-Poppet element).

Both valves use exclusive Dresser-Rand business Hi-Temp nonmetallic wear parts material. Each valve offers different advantages and is sized to optimize performance and reliability for a given application or client preference.



Forged steel connecting rods are rifle-drilled for pressure lubrication and feature high-strength bolts with rolled threads. Crankpin bearings are tri-metal bronze with a micro-babbitt overlay plate for added start-up protection and corrosion resistance. Connecting rod pin bushings are tri-metal bronze with babbitt overlay.



Precision aluminum alloy main bearings have micro-babbitt overlay and are pressure lubricated. Bronze thrust shoes and two-piece precision tri-metal bronze crankpin bearings ensure better heat dissipation, reliability, and increased life.

The HOS compressor uses either solid or two-piece cast iron, steel or aluminum pistons depending upon service conditions, balance and inertia forces. Integral steel pistons and rods may be used in high-pressure applications.

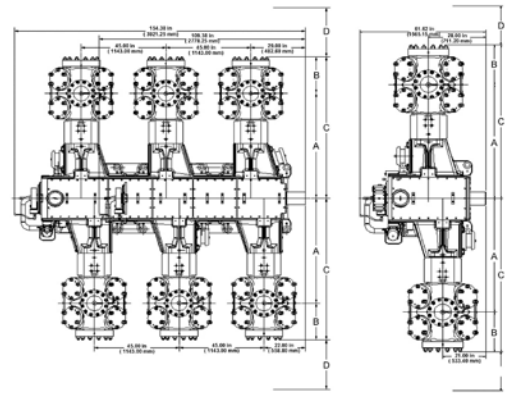


Each piston rod is made from a high-strength alloy steel and is wet-magnetic-particle inspected. Every piston rod thread form is inspected using Johnson gauging. Piston rods for a given stroke are identical, regardless of cylinder size.

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## Ratings

Model	Stroke in. (mm)	Number of cylinders	Nominal Rated Power hp (kW)	Max. Allowable Operating Rod Load lbs.(kN)	Rated rpm
5HOS2	5 (127.0)	2	2,400 (1,790)	60,000 (267)	1,500
5HOS4	5 (127.0)	4	4,800 (3,580)	60,000 (267)	1,500
5HOS6	5 (127.0)	6	7,200 (5,370)	60,000 (267)	1,500
6HOS2	6 (152.4)	2	2,000 (1,492)	60,000 (267)	1,200
6HOS4	6 (152.4)	4	4,000 (2,983)	60,000 (267)	1,200
6HOS6	6 (152.4)	6	6,000 (4,475)	60,000 (267)	1,200
7HOS2	7 (177.8)	2	2,200 (1,641)	60,000 (267)	1,000
7HOS4	7 (177.8)	4	4,400 (3,281)	60,000 (267)	1,000
7HOS6	7 (177.8)	6	6,000 (4,475)	60,000 (267)	1,000



"D" is the required clearance to remove/install the piston and rod assembly

### Standard Features

- Rigid cast gray iron frame, heavily ribbed and reinforced with integrally cast crosshead extensions; open top frame construction with steel tie rods, cast iron spacers, and an individual cover over each section
- Forged alloy steel crankshaft with passages for pressure lubrication, counterweighted to reduce horizontal moments
- Forged alloy steel connecting rods, rifle-drilled for pressure lubrication
- Nodular iron crossheads, pressure-lubricated
- Horizontally-split, precision-type, aluminum main bearings
- Solid bronze connecting rod bushings
- Bronze thrust bearings
- Crankcase filter-breather
- Single compartment distance piece
- Metallic oil wiper rings
- Main lube oil pump direct driven from crankshaft, complete with relief valve
- Twenty-five micron, full-flow oil filter with cartridge-type cleanable elements and differential pressure gauge
- Shell-and-tube oil cooler
- Bulls-eye oil level gauge
- Direct driven force-fed cylinder lubrication system
- Set of special tools consisting of crosshead nut wrench, piston rod entering sleeve; one set provided per frame

### Optional Features

- Variable volume clearance pocket
- Automatic unloading devices
- Dresser-Rand TC3 (HVOF) coated piston rods
- 17-4 PH stainless steel piston rods
- Purged packing and purged wiper case

- Two-compartment distance piece
- Crankcase and lubricator oil heaters
- Crankcase explosion relief devices
- Main bearing, packing case RTDs
- Torsional studies
- Flywheel (if required)
- Dynamic valve analysis
- Pump-to-point cylinder lubrication
- Electric drive lubricator
- Dual oil filter
- Manual frame pre-lube pump

### Specifications

Frame.....	One piece, cast iron, high-strength
Crankshaft.....	Forged steel
Connecting rods.....	Forged steel
Connecting rod bolts.....	Alloy steel, rolled threads
Crosshead pins.....	Hardened steel
Crosshead bolt-on shoes.....	Nodular iron, aluminum shoes
Crosshead integral shoes.....	Nodular iron, babbitt running shoes
Bearings - main.....	Aluminum with micro-babbitt overlay
Bearings - crankpin.....	Tri-metal bronze
Bushings - connecting rod and crosshead.....	Tri-metal bronze
Oil pump.....	Positive displacement gear-type
Oil filter.....	Full-flow, 25 micron
Oil cooler.....	Shell-and-tube
Cylinders.....	Nodular iron
Pistons.....	One or two piece; iron, aluminum or steel
Piston rods.....	Alloy steel, rolled threads
Piston rods packing rings.....	Filled Teflon®

## Standard Cylinder Offering and Dimensions

Cylinder Size in. (mm)	MAWP psig (bar)		A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)
	LP	HP				
4.75 (120.7)	1,925 (133.7)		58 (1,473)	18 (457)	76 (1,930)	48 (1,219)
6.00 (152.4)	1,925 (133.7)	2,750 (189.6)	59.62 (1,515)	21 (533)	80 (2,032)	52 (1,321)
7.00 (177.8)	1,650 (113.8)	2,750 (189.6)	58 (1,473)	18 (457)	76 (1,930)	40 (1,016)
8.00 (203.2)	1,575 (108.6)	2,200 (151.7)	59 (1,499)	20 (508)	79 (2,007)	41 (1,041)
9.00 (228.6)	1,265 (87.2)	2,400 (165.5)	57.5 (1,461)	19 (483)	76 (1,930)	38 (965)
9.50 (241.3)	1,265 (87.2)	1,925 (133.7)	57.5 (1,461)	19 (483)	76 (1,930)	38 (965)
10.00 (254.0)	1,025 (70.7)	1,650 (113.8)	57.5 (1,461)	19 (483)	76 (1,930)	42 (1,067)
10.50 (266.7)	1,025 (70.7)	1,650 (113.8)	57.5 (1,461)	19 (483)	76 (1,930)	42 (1,067)
11.50 (292.1)	885 (61.0)	1,265 (87.2)	57 (1,449)	18 (457)	75 (1,905)	37 (940)
12.25 (311.1)		1,050 (72.4)	57.75 (1,467)	19 (483)	77 (1,956)	42 (1,067)
13.00 (330.2)	644 (44.4)	970 (66.9)	57.75 (1,467)	19 (483)	77 (1,956)	42 (1,067)
14.00 (355.6)		750 (51.7)	58.5 (1,486)	20 (508)	79 (2,007)	39 (991)
15.00 (381.0)	495 (34.1)	745 (51.4)	58.5 (1,486)	20 (508)	79 (2,007)	39 (991)
*16.25 (412.7)		600 (41.4)	58.75 (1,492)	20 (508)	79 (2,007)	40 (1,016)
*17.50 (444.5)		545 (37.6)	58.75 (1,492)	20 (508)	79 (2,007)	40 (1,016)
*19.00 (482.6)		470 (32.4)	59.5 (1,511)	21 (533)	80 (2,032)	41 (1,041)
*20.50 (520.7)		470 (32.4)	59.5 (1,511)	21 (533)	80 (2,032)	41 (1,041)
*22.00 (558.8)		350 (24.1)	62.5 (1,588)	23 (584)	86 (2,184)	48 (1,219)
*23.00 (584.2)		350 (24.1)	62.5 (1,588)	23 (584)	86 (2,184)	48 (1,219)
*24.50 (622.4)		280 (19.3)	62.5 (1,588)	24 (610)	86 (2,184)	48 (1,219)
26.00 (660.4)		280 (19.3)	61.75 (1,570)	22 (559)	84 (2,134)	32 (813)
26.50 (673.1)		280 (19.3)	61.75 (1,570)	22 (559)	84 (2,134)	32 (813)
28.00 (711.2)		185 (12.8)	61.75 (1,570)	22 (559)	84 (2,134)	32 (813)
3.75 (95.3) to 7.00 (177.8)	6,600 (455.1) or 4,000 (275.8) 10,000 (689.5)**		VARIES DEPENDING ON PIPING NEEDS			

\*Flanges are offset from piston rod centerline. \*\*Contact HSRC team for more information. Dimensions are for reference only and are not to be used for package design purposes.

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