

DRESSER-RAND®

A Siemens Business



HIGH SPEED RECIPROCATING COMPRESSORS

HOSS™ Compressors

dresser-rand.com

HOSS™ compressors

More rugged to handle the most demanding jobs.

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

These heavy duty compressors are engineered for higher 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 rugged 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 standard jacketed cylinders for water cooling capability (if required) as well as liners and provision for non-lube. The lower cost and rapid delivery of packaged HOSS 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, Dresser-Rand business assures the integrity of the HOSS compressor design and performance.

Rated to 8,700 hp (6490 kW) and 1,200 rpm with design pressures up to and exceeding 10,000 psig (689.5 bar), HOSS compressors provide long life because of their heavy-duty construction. We offer two-, four- or six-throw configurations and in cylinder sizes ranging from 3.50 in. (88.9 mm) to 28.0 in. (711.2 mm). The cast iron compressor frame is heavily ribbed and reinforced, with integrally cast crosshead extensions for heavy rod load carrying capability and rigidity.



HOSS compressor for a CO₂ application.

Cylinder configurations

The HOSS compressor uses the same cylinders of the high-pressure HOS lineup; the only difference between the two is the size of the piston rod which has been increased to 2.875 in. (73.0 mm) in the HOSS. (For a given bore size, the packing case and piston rod are the only uncommon components between the two.) HOSS cylinders use a solid bore cylinder barrel cast in nodular iron. Like the HOS, the 26-28 in. (660-711 mm) cylinder is a two piece, clam shell type cylinder. A full line-up of higher pressure, forged steel cylinders is available in sizes 3.75 in. (95.3 mm) to 7.0 in. (177.8 mm). In addition, the HOSS cylinders include pipeline cylinders for gas transmission and storage cylinders for gas injection and withdrawal applications.

A 16 in. (406.4 mm) distance piece (similar to that of the HOS design) with its HOS type through-bolt, heavy load-carrying design, is standard.

A single source for all your compression needs

HOSS compressors offer cost-effective benefits to gas compressor users, whether acquired as standard or customized. Our compressors are available for outright purchase or under rental agreements through authorized packagers.

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

Our goal is for clients to experience reliability, less maintenance, and greater fuel efficiency with the use of HOSS compressors. The Dresser-Rand business and its authorized packagers and resellers support the HOSS compressor line with a network of computerized parts warehouses. When you purchase or lease a HOSS compressor, we help you protect your investment by overhauling or revamping your compressor at facilities located throughout the world.

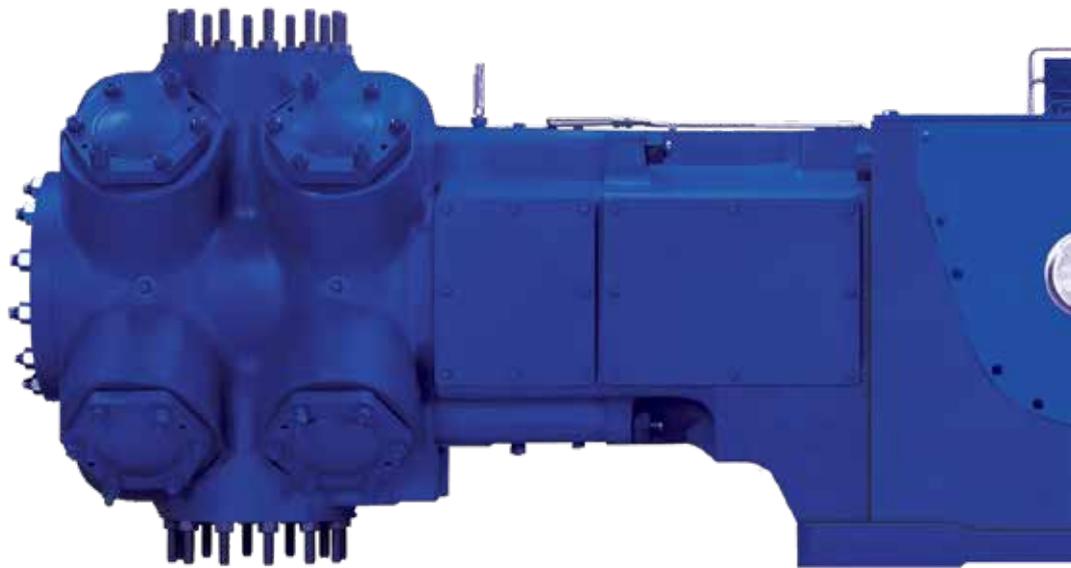
Rugged design for smooth operation

HOSS compressors are 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.

Heavily ribbed frame walls and bearing saddles, plus integral crosshead guides ensure added strength and rigidity. The open top frame construction and entrance windows on either side of the crosshead guide provide large access areas for easy maintenance and inspection.

Cylinder performance is optimized because valve sizes and types can be varied without altering cylinder size. Gas passages are oversized to reduce losses, and depending on the application valves can be sized to optimize efficiency. An optional high-volume, manually operated variable volume clearance pocket, capable of “on-the-fly” adjustment, provides clearance for greater capacity control.

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 vibrations.



High-strength, nodular iron crossheads feature shim-adjustable aluminum shoes at the top and bottom. Surface-hardened crosshead pins are full floating for optimum reliability.



The heavy-duty forged alloy crankshaft is rifle drilled for connecting rod lubrication. The crankshaft is equipped with integral counterweights on the two- and four-cylinder ends to reduce horizontal moments.

ation, long life and efficiency.

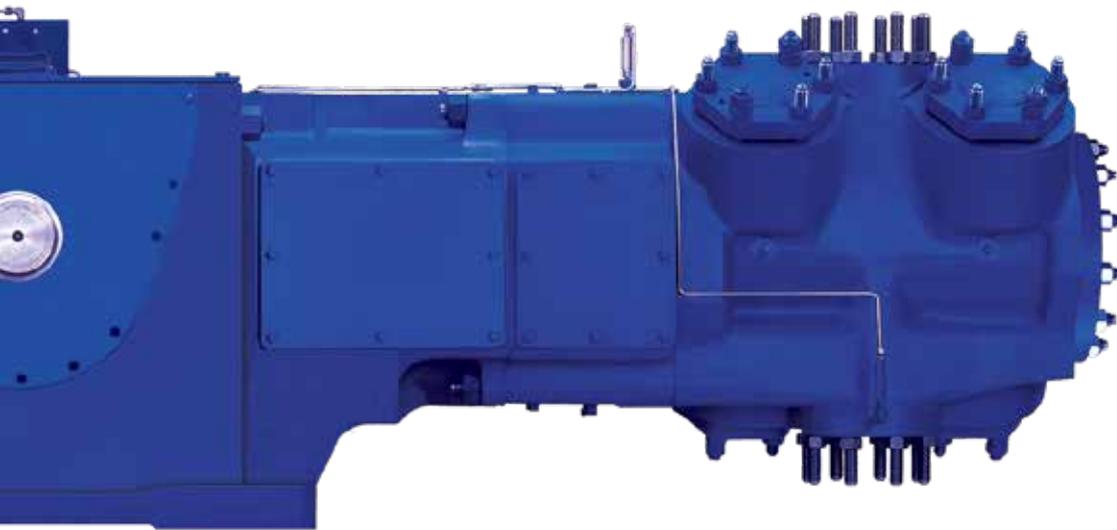
Cylinder performance is optimized through the use of two types of valves which are available on the HOSS compressor: the PF valve (ported plate-type) and the D-R Magnum® HammerHead™ valve (mini-Poppet element).

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.



The HOSS 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.



Bearings are horizontally split precision-type tri-metal bronze with micro-babbitt overlay to ensure better heat dissipation, reliability, and increased life; main bearings are identical to crankpin bearings.

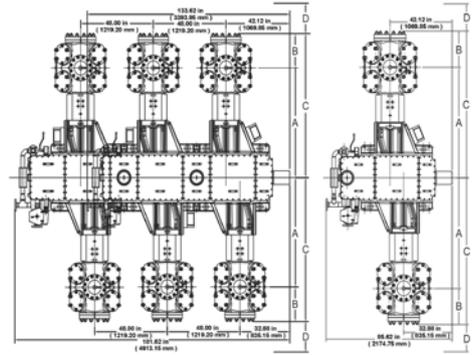


Forged steel connecting rods are rifle-drilled for pressure lubrication and feature high-strength forged ferrule head capscrews with rolled threads. Connecting rod pin bushings are solid bronze with a micro-babbitt overlay.

l-balanced
equipped
r-throw units

Ratings

Model	Stroke in. (mm)	Number of cylinders	Nominal Rated Power hp (kW)	Max. Allowable Operating Rod Load lbs.(kN)	Rated rpm
6HOSS2	6 (152.4)	2	3,100 (2,311)	75,000 (333)	1,200
6HOSS4	6 (152.4)	4	6,200 (4,632)	75,000 (333)	1,200
6HOSS6	6 (152.4)	6	8,700 (6,487)	75,000 (333)	1,200
7HOSS2	7 (177.8)	2	2,800 (2,087)	75,000 (333)	1,000
7HOSS4	7 (177.8)	4	5,600 (4,175)	75,000 (333)	1,000
7HOSS6	7 (177.8)	6	7,800 (5,816)	75,000 (333)	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, with babbitted running surface
- Horizontally-split, precision-type, tri-metal bronze main and crankpin 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
- Ten-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

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
Crossheads.....	Nodular iron, shim-adjustable aluminum shoes
Crosshead pins.....	Hardened steel
Bearings - main and crankpin.....	Tri-metal bronze
Bushings - connecting rod.....	Solid bronze
Oil pump.....	Positive displacement gear-type
Oil filter.....	Full-flow, 10 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)
4.75 (120.7)	2,750 (189.6)	64.25 (1,632)	18 (457)	83 (2,108)	51 (1,295)
6.00 (152.4)	2,750 (189.6)	65.88 (1,673)	21 (533)	87 (2,210)	54 (1,372)
7.00 (177.8)	2,750 (189.6)	64.25 (1,632)	18 (457)	82 (2,083)	43 (1,092)
8.00 (203.2)	2,200 (151.7)	65.25 (1,657)	20 (508)	86 (2,184)	43 (1,092)
9.00 (228.6)	2,400 (165.5)	63.75 (1,619)	19 (483)	83 (2,108)	41 (1,041)
9.50 (241.3)	1,925 (132.7)	63.75 (1,619)	19 (483)	83 (2,108)	41 (1,041)
10.50 (266.7)	1,650 (113.8)	63.75 (1,619)	19 (483)	82 (2,082)	44 (1,118)
11.50 (292.1)	1,265 (87.2)	63.25 (1,607)	18 (457)	81 (2,057)	40 (1,016)
12.25 (311.1)	1,050 (72.4)	64.00 (1,626)	19 (483)	83 (2,108)	45 (1,143)
13.00 (330.2)	970 (66.9)	64.00 (1,626)	19 (483)	83 (2,108)	45 (1,143)
14.00 (355.6)	750 (51.7)	64.75 (1,645)	20 (508)	85 (2,159)	42 (1,067)
15.00 (381.0)	745 (51.4)	64.75 (1,645)	20 (508)	85 (2,159)	42 (1,067)
*16.25 (412.7)	600 (41.4)	65.50 (1,664)	21 (533)	85 (2,159)	44 (1,118)
*17.50 (444.5)	545 (37.6)	65.00 (1,651)	20 (508)	86 (2,184)	43 (1,092)
*19.00 (482.6)	470 (32.4)	65.75 (1,670)	21 (533)	87 (2,210)	43 (1,092)
*20.50 (520.7)	470 (32.4)	65.75 (1,670)	21 (533)	87 (2,210)	43 (1,092)
*22.00 (558.8)	350 (24.1)	68.75 (1,746)	23 (584)	92 (2,337)	51 (1,295)
*23.00 (584.2)	350 (24.1)	68.75 (1,746)	23 (584)	92 (2,337)	51 (1,295)
*24.50 (622.4)	280 (19.3)	68.75 (1,746)	24 (610)	93 (2,362)	52 (1,321)
26.00 (660.4)	280 (19.3)	68 (1,727)	22 (559)	90 (2,286)	35 (889)
26.50 (673.1)	280 (19.3)	68 (1,727)	22 (559)	90 (2,286)	35 (889)
28.00 (711.2)	185 (12.8)	68 (1,727)	22 (559)	90 (2,286)	35 (889)
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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