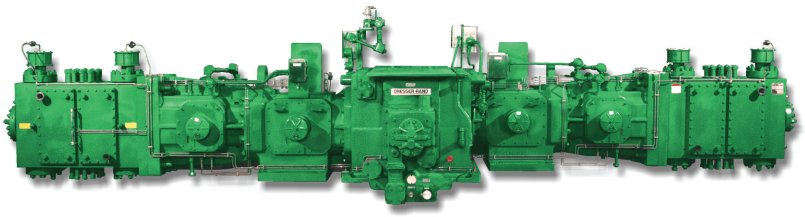
HHE-VG



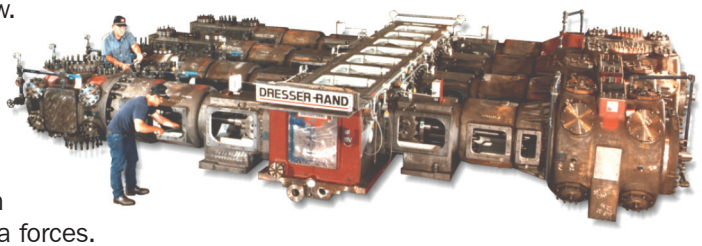
Reciprocating Process Compressor

The first Dresser-Rand HHE-class compressor was installed more than 50 years ago. Continuous advancements in technology have allowed Dresser-Rand to enhance the HHE's reputation as a highly reliable, heavy-duty process compressor. With more than 3,000 units serving in applications around the world, the HHE process compressor has proven to be an outstanding choice for a variety of applications.

A Rugged Performer

The HHE-VG is capable of rod loads to 105,000 lbs (467 kN) (MACCRL), gas loading to 125,000 lbs (556 kN) (MACGL), and up to 9,450 horsepower (7,047 kW), offering a sizable solution to almost any process requirement. Designed to API-618 specifications, the HHE-VG is available in standard stroke sizes from 10 to 15 inches (254-381 mm) with up to 10 throws.

For long-lasting reliability, the HHE-VG frame is engineered to the highest standards. The fine-grain, cast iron frame provides maximum stability through the use of internally ribbed walls and integral cross-member bearing saddle supports located between each crankthrow. The frame's rigid design is further enhanced with precision spacer blocks and tie rods at each bearing point. This greatly reduces distortion caused by gas and inertia forces. To ensure precise bearing alignment, the bearing saddles are bored in a single set-up.



Optimized Design, Precision-Built

Every HHE-VG is built with optimized crank angles and a minimum number of crank throws, resulting in minimal unbalanced forces and moments on the foundation. Available with up to ten throws, the design flexibility of Dresser-Rand doesn't limit the HHE to an even number of crank throws. The result of this variable crank angle design is a compressor that requires minimum foundation size and expense, reduced drive-train torsional stresses, and reduced motor current pulsation and power costs. The crankshaft is forged from high tensile strength alloy steel that is fully stress-relieved and heat-treated. All journals and crankpins are precision-ground and polished to exacting tolerances.

Rugged, precision-machined aluminum main and crankpin bearings are generously sized and micro-babbit coated for best run-in and long-lasting service. Bearings are provided on both sides of each crankthrow and doubled on the drive end. All bearings are forced-lubricated per API-618 specifications. Connecting rods are die-forged steel with rifle-drilled passages for positive lubrication of the crosshead pin and bearings.

The flanged crosshead is designed for error-free assembly, ensuring maximum reliability through the hydraulic pre-stressing of the critical piston-to-crosshead bolting. Hydraulic tensioning reduces labor and maintenance downtime while increasing safety and reliability. The crosshead flange is firmly secured to the piston rod by a hydraulically tensioned nut and the flange is then attached to the crosshead using six hydraulically tensioned

DRESSER-RAND®

For more information on **HHE-VG compressors,** contact one of the following Dresser-Rand locations.

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For a complete listing of products and services, visit us on the internet at **www.dresser-rand.com** or contact one of the following Dresser-Rand locations.

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studs. The design employs an adjusting ring on the nose of the crosshead to facilitate adjustment of piston rod run-out without having to re-shim the crosshead shoes. A spacer provides a simple, one-time adjustment of piston-to-cylinder end clearance. The hydraulics are located in the tensioning tool instead of the piston nut where an O-ring failure might otherwise necessitate torching through the rod to disassemble the joint. An air-motor driven hydraulic pump, tensioning devices and piston rod alignment tools are provided.

All frame and distance piece inspection and service openings are extra large to permit easy access. Bolting for frame-to-frame extension, frame extension-to-distance piece, and distance piece-to-cylinder is external, making tensioning easy and accurate.

Outstanding Cylinder Design And Selection

Each cylinder is designed with the capability of loading the frames maximum allowable continuous rod load. All cylinder bolting, piston nut, and valve differential pressures meet this design criteria. This will permit future flexibility if process conditions change or the compressor is reapplied for another application.

With experience in virtually every type of service, Dresser-Rand cylinders provide outstanding service and reliability. Our engineering expertise will ensure that each cylinder built for your application will provide maximum performance and reliability with minimum maintenance cost. Cylinder materials include nodular iron, cast steel, fabricated carbon or stainless steel, and forged steel. Most cylinders are available for either lubricated or non-lubricated service.

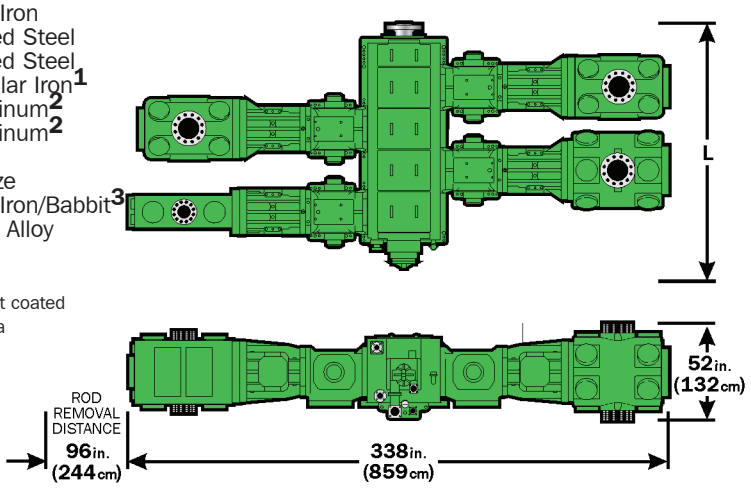
Specifications

MACCRL	105,000 lbs. (467 kN)
MACGL	125,000 lbs. (556 kN)
Maximum HP	9,450 (7,047 kW)
Standard Strokes	10 to 15 inch (254 to 381 mm)
Crankshaft Diameter	11 inches (279 mm)
Main Bearing Length	6.25 inches (159 mm)
Piston Rod Diameter	3.5 inches (89 mm)
Number of Throws	Up to 10
Standard Double-Acting Cylinder Bore Range	5 to 40.5 inch (127 to 1,029 mm)

Materials

Frame	Cast Iron
Crankshaft	Forged Steel
Connecting Rod	Forged Steel
Crosshead	Nodular Iron[1]
Main Bearing	Aluminum[2]
Crankpin Bearing	Aluminum[2]
Connecting Rod Pin Bushing	Bronze
Crosshead Shoe	Cast Iron/Babbit[3]
Crosshead Pin	Steel Alloy

1 Cast steel is optional
2 Bearing surfaces are micro-babbit coated
3 Crosshead shoe surfaces receive a 0.030 inch babbit coat



Dimensions

Dimensions provided are typical, basis API Type B distance pieces. For Types C & D distance pieces, add 32 inches (81 cm) to the width dimension and 16 inches (41 cm) to the rod removal distance.

HHE-VG Typical Length (L) Dimension

Throws	1	2	3	4	5	6	7	8	9	10
Inches	69	95	122	149	175	202	228	255	281	308
Centimeters	174	241	309	377	445	512	579	646	714	781