



HD Industrial Gas Compressors

Oil-Free Compressors for Chemical, Petroleum and Industrial Process Applications

- Vapor Recovery
- Gas Gathering
- Gas Transfer
- Gas Evacuation
- Liquefied Gas Transfer
- Gas Blanketing
- Pressure Boosting
- Flare Elimination
- Leak Test Recovery





HD Industrial Gas Compressors

Oil-Free Compressors

Expert Engineers and Quality Assurance You Can Count On



ISO 9001 Certified

Blackmer has thousands of compressors operating worldwide. Each compressor is designed and manufactured to meet the industry's highest quality standards.

Castings

Most of the castings used in Blackmer compressors are supplied by the Blackmer foundry in Grand Rapids, MI. Having complete control over the casting process ensures both a high quality product and timely delivery of your order.

CAD

State-of-the-art 3D computer modeling speeds the design process and ensures that new designs work right the first time.

Repair Parts

Repair parts are readily available for all Blackmer compressors, both current production and previous models. Typical repair parts are available for shipment within 24 hours if needed.

Application Assistance

Blackmer compressors are used in a wide variety of applications, each with unique conditions. Our Application Engineers can provide expert assistance in selecting the right compressor, the right options and the right accessories for your application.

www.blackmer.com

Information for all Blackmer compressors, both present and past models are available at our website. Specification sheets, parts lists, instruction manuals and more are all available worldwide 24 hours a day. Visit us at www.blackmer.com.



Construction

High efficiency, PEEK valves

Blackmer valves are specifically designed for oil-free gas applications. Standard valve plates are constructed of self-lubricating PEEK (Poly Ether Ether Ketone) material that provides superior sealing characteristics, high efficiency and durability. Optional stainless steel Hoerbiger valves are also available. Note: Series HD160 and HD170 have TNT-12 impregnated steel valves

Live loaded piston rod seals

Filled PTFE seals are wear compensating and maintain a constant sealing pressure around the piston rods with minimum friction. This special seal design prevents crankcase oil contamination and cylinder blow-by.

Single or double-distance piece

Single or double distance pieces (isolation chambers), control contamination of the compressed gas from crankcase lubricant, even at high vacuum inlet conditions. Each isolation chamber may be independently purged, pressurized or vented for maximum containment of toxic or hazardous gases.

Heavy-duty precision ground crankshaft

The ductile iron crankshaft features roller bearings and integral counterweights for smooth, quiet operation. Rifle drilling ensures positive oil distribution to the wrist pin and connecting rod bearings.

Ductile iron construction

All pressure parts are ductile iron for greater resistance to both thermal and mechanical shock. For extended wear and corrosion resistance, specify the TNT-12 PTFE and Nickel impregnation option.

O-Ring seals

The head and cylinder are sealed with O-rings to ensure positive sealing under severe operating conditions. Buna-N, FKM, Neoprene, PTFE or Ethylene-Propylene O-rings are available.

One piece piston

Heavy-duty steel pistons are connected to the rod with a single positive locking nut, which eliminates potential problems associated with multiple piece designs.

Self-lubricating piston rings

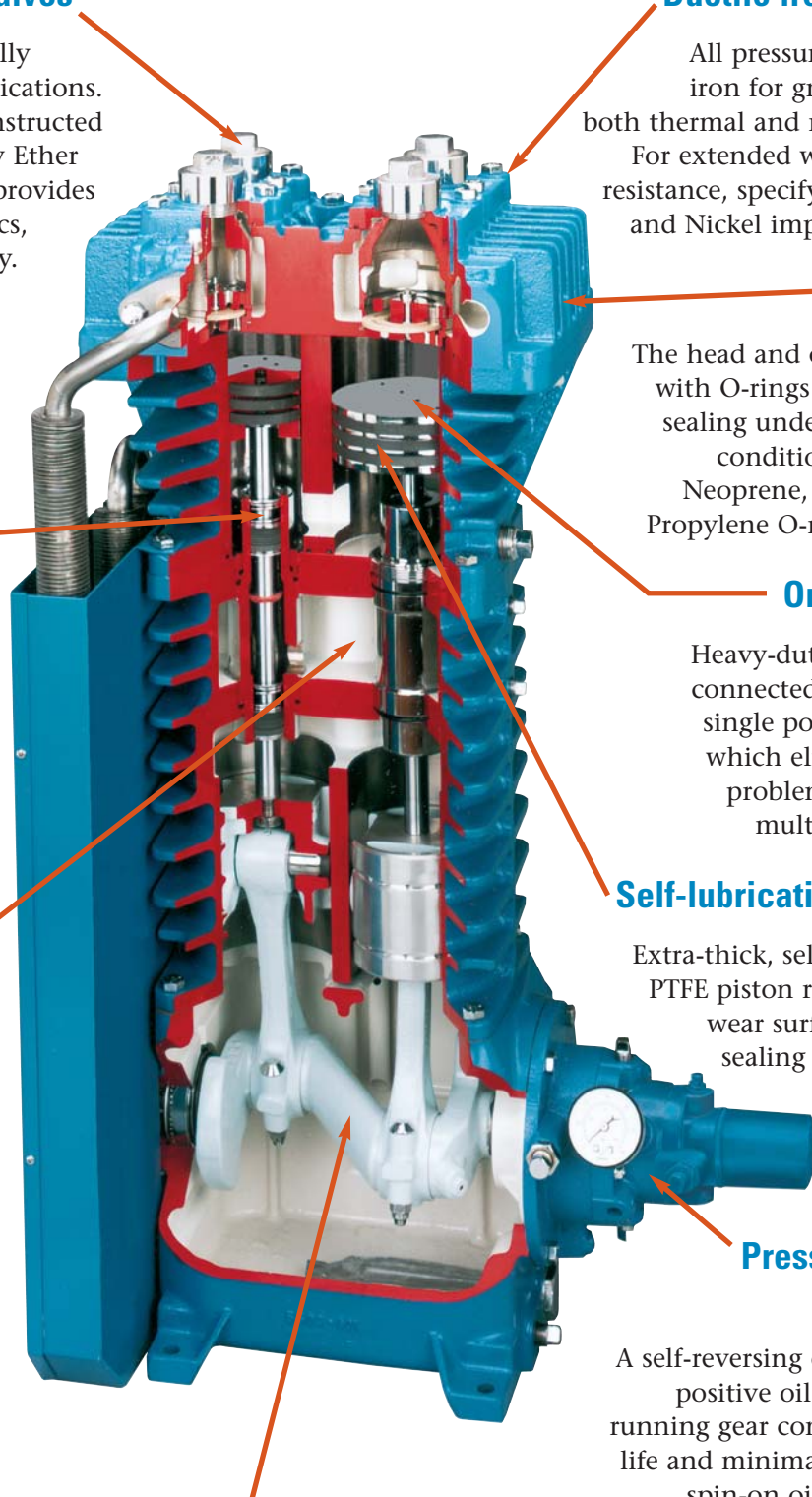
Extra-thick, self-lubricating filled PTFE piston rings provide more wear surface for maximum sealing and extended life.

Pressure lubricated crankcase

A self-reversing oil pump provides positive oil distribution to all running gear components for long life and minimal wear. A full-flow spin-on oil filter is standard.

ANSI flanges

Many models are available with ANSI flanges for compatibility with CPI and refinery industry standards.





Blackmer Oil-Free Gas Compressors

Heavy-Duty, High Efficiency, Low Maintenance And Quiet Operation

Highly Efficient Compressors

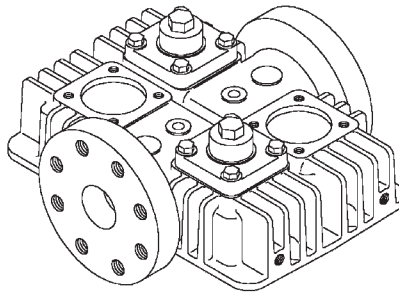
Blackmer process compressors provide efficient and quiet delivery of oil-free gas or air. These heavy-duty single and two-stage compressors combine advanced design technology and state-of-the-art materials to give maximum performance with minimum maintenance.

These compressors are well suited for handling a wide range of industrial gases, including propane, butane, butadiene, propylene, vinyl chloride and chemical intermediates as well as many others, such as ammonia, carbon dioxide, refrigerants, air and nitrogen.

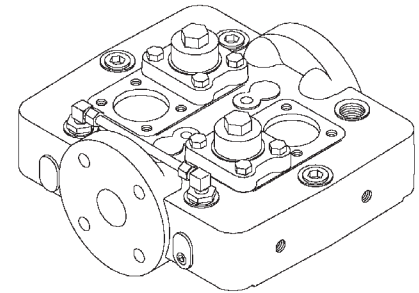
Models Available

Single-Stage and Two-Stage Models

Single-stage models are available in 7 sizes with piston displacements to 125 cfm (212 m³/hr) and working pressures to 765 psia (52.74 Bar) for use on low to moderate compression ratio applications. Three sizes of two-stage models are available for higher compression ratio requirements.



HD Air-Cooled Head



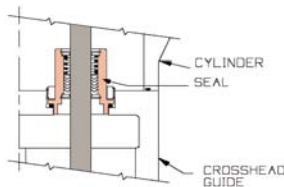
HDL Liquid-Cooled Head

Air-Cooled and Liquid-Cooled Models

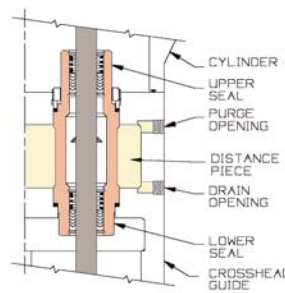
The HD air-cooled models are suitable for most applications, especially for operation at lower compression ratios and for liquefied gas transfer applications. HDL models have a liquid-cooled head and cylinder for more demanding applications.

Single, Double & Triple Seal Models.

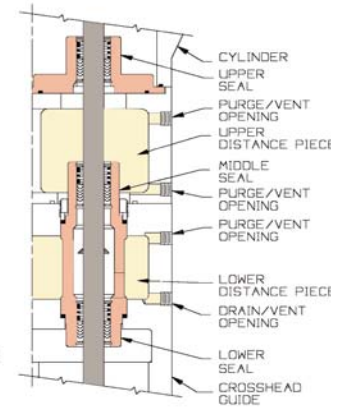
The standard double-seal models are constructed with a single distance piece between two sets of piston rod seals. The distance piece provides leakage control and prevents oil contamination of the compressed gas stream. Triple-seal models use two distance pieces for maximum leakage control and are well suited for handling toxic, hazardous or corrosive gases. Ports are provided in each distance piece chamber for purging, pressurizing, or venting. Single-seal models are also available.



Single Seal



Double Seal



Triple Seal



Oil-Free Compressors

HD Models are air-cooled

HDL Models have liquid-cooled head and cylinders

Single-Stage Models

Single-Seal Double-Seal Triple-Seal	HD161 HD162 HD163	HDL322	HDL342 HDL343	HD361 HD362/HDL362 HD363/HDL363	HDL642 HDL643	HD601 HD602/HDL602 HD603/HDL603	HD942/HDL942
Number of Cylinders	2	2	2	2	2	2	2 (Double Acting)
Bore - in. (mm)	3.0 (76)	2.0 (51)	2.69 (68)	4.0 (102)	3.25 (83)	4.625 (117)	4.625 (117)
Stroke in. (mm)	2.5 (64)	3.0 (76)	3.0 (76)	3.0 (76)	4.0 (102)	4.0 (102)	4.0 (102)
Maximum Allowable Working Pressure - psia (BAR)	350 (24.1)	1,000 (51.7)	750 (24.1)	350 (24.1)	750 (51.7)	350 (24.1)	350 (24.1)
Minimum/Maximum RPM	350 / 825	350 / 825	350 / 825	350 / 825	350 / 825	350 / 825	350 / 825
Piston Displacement @100 rpm - CFM (m ³ /hr) @Min rpm - CFM (m ³ /hr) @Max rpm - CFM (m ³ /hr)	2.05 (3.48) 7.16 (12.2) 16.9 (28.7)	1.09 (2.80) 3.81 (9.8) 9.00 (23.1)	1.97 (3.34) 6.89 (11.71) 16.25 (27.61)	4.36 (7.41) 15.3 (26.0) 36.0 (61.2)	3.84 (6.5) 13.4 (22.8) 31.7 (53.8)	7.78 (13.2) 27.2 (46.3) 64.2 (109.0)	14.99 (25.47) 52.46 (89.1) 125.2 (212)
Max. BHP (kw)	10 (7.5)	15 (11)	15 (11)	15 (11)	40 (30)	40 (30)	50 (37)
Wt. w/Flywheel - lb. (kg)	-225 (102)	~385 (175)	~375 (170)	~365 (166)	~705 (320)	~705 (320)	~905 (410)
Inlet / Outlet Connections	0.75" NPT	1.5" 600# ANSI	1.5" 600# ANSI	1.5" 300# ANSI	2" 600# ANSI	2" 300# ANSI	2" 300# ANSI

Two-Stage Models

Double-Seal Triple-Seal	HD172 / HDL172 HD173 / HDL173		HD372 / HDL372 HD373 / HDL373		HD612 / HDL612 HD613 / HDL613	
	1 st Stage	2 nd Stage	1 st Stage	2 nd Stage	1 st Stage	2 nd Stage
# Cyl. per Stage	1	1	1	1	1	1
Bore - in. (mm)	3.0 (76.2)	1.75 (44.5)	4.625 (117)	2.687 (68)	6 (152)	3.25 (.83)
Stroke in. (mm)	2.5 (63.5)		3.0 (76)		4.0 (102)	
Maximum Allowable Working Pressure - psia (BAR)		615 (42.4)		615 (42.4)		415 (28.6)
Minimum/Maximum RPM	350 / 825		350 / 825		350 / 825	
Displacement @100 rpm - CFM (m ³ /hr) @Min rpm - CFM (m ³ /hr) @Max rpm - CFM (m ³ /hr)	1.02 (1.73) 3.57 (6.07) 8.42 (14.3)		2.92 (4.96) 10.2 (17.3) 26.1 (40.8)		6.54 (11.1) 22.9 (38.9) 53.7 (91.2)	
Max. BHP (kw)	10 (7.5)		15 (11)		40 (30)	
Wt. w/Flywheel - lb. (kg)	~290 (132)		~405 (184)		~775 (352)	
Inlet / Outlet NPT-in.	0.75/0.75		1.25/1.00		2.00*/1.50* <small>*Weld type flanges avail.</small>	

Compression Ratios are normally limited by discharge temperature. High compression ratios and certain gases can cause excessive heat, i.e. over 350°F (177°C). The duty cycle must provide for adequate cooling time between periods of operation to prevent excessive operating temperature.

Note: HDS series compressors are now available for sour natural gas applications. Consult factory for additional information.



HD Industrial Gas Compressors

Industrial Gases

Air, Allene, Ammonia, Argon, Benzene, Bromotrifluoromethane, Butadiene, Butane, Carbon Dioxide, Carbon Monoxide, Carbon Tetrachloride, Carbon Tetrafluoride, CFC's, Chlorine, Chlorodifluoromethane, Chloroform, Chlorotrifluoroethylene, Chlorotrifluoromethane, Cyanogen, Cyclohexane, Cyclopropane, Deuterium, Dibromodifluoromethane, Dichlorodifluoromethane, Dichlorofluoromethane, 1,2 Dichlorotetrafluoroethane, 1,1 Difluoro, 1-Chloroethane, Dimethylamine, Dimethyl Ether, 2,2 Dimethylpropane, EthaneEthyl Alcohol, Ethyl Chloride, Ethylene, Ethylene Oxide, HCFC's, Helium, n-Heptane, n-Hexane, Hydrogen, Hydrogen Chloride, Hydrogen Sulfide, Isobutane, Isobutene, Isobutylene, Isopentane, Methane, Methanol, Methyl Acetylene, Propadiene, Methyl Chloride, Methyl Mercaptan, Monoethylamine, Natural Gas, Neon, Nitrogen, Nitrogen Dioxide, Nitrous Oxide, Oxygen, Ozone, n-Octane, n-Pentane, Propane, Propylene, Refrigerants, Sulfur Dioxide, Sulfur Hexafluoride, Trichloroethane, Tetrafluorethylene, Trimethylamine, Vinyl Chloride, Xenon...and other gases.



Application Versatility

Blackmer can provide the compressor, accessories and expertise needed to put together the best solution for a wide variety of applications.

- Vapor Recovery
- Gas Gathering
- Gas Transfer
- Gas Evacuation
- Enhanced Recovery
- Gas Blanketing
- Pressure Boosting
- Flare Elimination
- Leak Test Recovery
- Liquefied Gas Transfer



HD362C-LC pkg



HD172C-B pkg



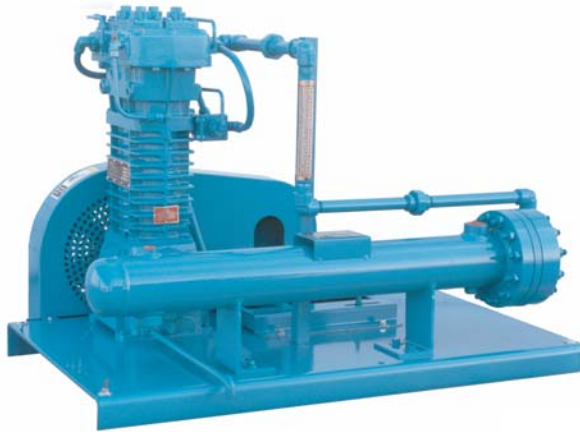
Custom Made Units

Packages Offered

Complete custom packages are available. Engineering, fabrication and drawings are all provided per specifications to meet the application requirements.



HD942 compressor with explosion-proof control panel and electrically actuated 4-way flow control valve for LPG transfer.



HDL372 two-stage water-cooled compressor with water-cooled aftercooler for Helium recovery service.



Duplex HD613 two-stage triple-seal compressors with control panel for natural gas pressure boosting operation.



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Options

Wear and Corrosion-Resistant Components: TNT-12 impregnated parts; stainless steel Hoerbiger valves; electroless nickel coated air-cooled intercoolers on air-cooled two-stage models.

Safety Switches: Automatic pressure and temperature shut-down or alarm switches, with adjustable ranges.

Suction Valve Unloader: Loadless starting and constant speed unloading packages available with control systems.

Belt Guards: heavy-duty 14-gauge steel, stainless steel or non-sparking aluminum construction.

Poly-Filled PTFE Piston Rings: For dry gas service.

Alternate O-Ring Materials: Fluorocarbon (FKM), Neoprene, PTFE or Ethylene-Propylene.

Extended Crankshaft: For direct drive mounting.

Vapor Strainer Assembly: Features a 30-mesh replaceable stainless steel screen and ductile iron body.

Liquid Traps: Available with a mechanical valve or electric float switch, or both. ASME code construction also available.

Piping: Threaded or welded steel piping systems.

Heat Exchangers: Pre-coolers, inter-coolers and after-coolers are available in either air-cooled or liquid-cooled versions.

Four-Way Valve: With handle and easy-to-read flow direction indicator. Available with electric or pneumatic actuators for remote operation.

Base Plates: Formed steel or fabricated skid type.

Motors: Standard voltage and readily available.

Control Panels: Explosion Proof or Weather Proof. Complete with starter, indicator lights, logic circuits and wiring to the control switches. Custom built per customer requirements.

Paint: Two part epoxy paint is standard.

Tests: A standard test certificate is available for each compressor. Also available are hydrostatic tests, nitrogen tests, nitrogen purge, and special cleaning.



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