HD and HDL Two-Stage
Non-Lube Gas Compressors

Air
Allene
Ammonia
Argon
Benzene
Bromotrifluormethane
Butadiene
Butane
Carbon Dioxide
Carbon Monoxide
Carbon Tetrachloride
Carbon Tetrafluoride
CFC’s
Chlorine
Chlorodifluromethane
Chloroform
Chlorotrifluoroethylene
Chlorotrifluoromethane
Cyanogen
Cyclohexane
Cyclopropane
Deuterium
Dibromodifluoromethane
Dichlorodifluoromethane
Dichlorofluoromethane
1,2 Dichlorotetra-fluoroethane
1,1 Difuoro 1-Chloroethane
Dimethylamine
Dimethyl Ether
2,2 Dimethylpropane
Ethane
Ethyl 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
Methyl Acetylene Propadiene
Methyl Chloride
Methyl Mercaptan
Monomethylamine
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 others
Typical Applications

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

SPECIFICATIONS

<table>
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<tr>
<th>Model</th>
<th>Double-Seal</th>
<th>Triple-Seal</th>
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<tr>
<td></td>
<td>HD172</td>
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<table>
<thead>
<tr>
<th># Cyl. Per Stage</th>
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<tr>
<td>Bore - in. (mm)</td>
<td></td>
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<tr>
<td>Stage 1</td>
<td>3.0 (76.2)</td>
<td>4.625 (117)</td>
<td>6 (152)</td>
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<tr>
<td>Stage 2</td>
<td>1.75 (44.5)</td>
<td>2.687 (68)</td>
<td>3.25 (83)</td>
</tr>
<tr>
<td>Stroke - in. (mm)</td>
<td>2.5 (63.5)</td>
<td>3.0 (76)</td>
<td>4.0 (102)</td>
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<tr>
<td>MAWP - psia (bar)</td>
<td>615 (42.4)</td>
<td>615 (42.4)</td>
<td>415 (28.6)</td>
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<td>Piston rod dia. - in. (mm)</td>
<td>0.75 (19.1)</td>
<td>0.75 (19.1)</td>
<td>1.25 (31.8)</td>
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<tr>
<td>Min. / Max. Speed (rpm)</td>
<td>350 / 825</td>
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<tr>
<td>Piston Displacement</td>
<td>@ 100 rpm - CFM (m³/hr)</td>
<td>1.02 (1.73)</td>
<td>2.92 (4.96)</td>
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<tr>
<td></td>
<td>@ Min rpm - CFM (m³/hr)</td>
<td>3.57 (6.07)</td>
<td>10.2 (17.3)</td>
</tr>
<tr>
<td></td>
<td>@ Max rpm - CFM (m³/hr)</td>
<td>8.42 (14.3)</td>
<td>24.1 (40.8)</td>
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<tr>
<td>Max. Discharge Temperature *</td>
<td>350°F (176°C)</td>
<td>350°F (176°C)</td>
<td>350°F (176°C)</td>
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<tr>
<td>Max. BHP (kw)</td>
<td>10 (7.5)</td>
<td>15 (11)</td>
<td>40 (30)</td>
</tr>
<tr>
<td>Approx Wt. w/ Flywheel - lb. (kg)</td>
<td>245 (111)</td>
<td>405 (184)</td>
<td>775 (352)</td>
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<tr>
<td>Coolant Connections (HDL only)</td>
<td>1/4&quot; NPT</td>
<td>1/4&quot; NPT x 1/2&quot; NPT</td>
<td>1/4&quot; NPT x 1/2&quot; NPT</td>
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<tr>
<td>Inlet – Stage 1</td>
<td>3/4&quot; NPT, tapped</td>
<td>1.25&quot; NPT, tapped</td>
<td>2&quot; NPT Flange*</td>
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<tr>
<td>Outlet – Stage 1</td>
<td>1/2&quot; NPT, tapped</td>
<td>1&quot; NPT Flange</td>
<td>1&quot; NPT Flange</td>
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<tr>
<td>Inlet – Stage 2</td>
<td>3/4&quot; NPT, tapped</td>
<td>1&quot; NPT, tapped</td>
<td>1.5&quot; NPT Flange*</td>
</tr>
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</table>

*HD* models are air-cooled; *HDL* models are liquid-cooled. For sour gas applications; see CB-311 re *HDS* Series.

* Compression Ratios are normally limited by discharge temperature. High compression ratios and certain gases can cause excessive heat, i.e. over 350°F (176°C). The duty cycle must provide for adequate cooling time between periods of operation to prevent excessive operating temperature.
TYPICAL MOUNTING STYLES

- **CO**  Compressor with flywheel.
- **B**  Compressor mounted on a baseplate with V-belt drive system with guard and motor slide base ready to accept but less motor.
- **TU**  -B Unit plus a mechanical liquid trap, NPT piping and pressure gauges.
- **TC**  -B Unit plus an ASME code liquid trap, high liquid level switch, NPT piping and pressure gauges.
- **TW**  -B Unit plus an ANSI flanged trap, high liquid level switch, welded piping and pressure gauges.

STANDARD FEATURES

Ductile Iron Head & Cylinder provide toughness & strength unmatched by cast iron.

Water-cooled head & cylinders on HDL models reduce operating temperatures and extend wear life.

High efficiency PEEK (Poly Ether Ether Ketone) valve plates provide extended life due to the low mass and self-lubricating qualities of the PEEK material. In addition, the slight 'give' of a plastic versus a metal plate allows it to survive more abuse and provide better sealing throughout the life of the valve. (300, 600 series)

High efficiency stainless steel valve plates with steel seats and bumpers are impregnated with TNT-12, a proprietary mixture of PTFE and Nickel. The result is a self-lubricating valve with excellent corrosion resistance and extremely long life. (100 Series)

Extra thick PTFE piston rings provide more wear surface to provide greater ring life.

O-ring head seals provide positive sealing under all operating conditions. No asbestos to worry about, and materials are available to suit any application.

Triple-Seal (double distance piece), Double-Seal (single distance piece) and Single-Seal (no distance piece) models allow precise leakage control and minimize product contamination.

The center head bolts do not pass through the gas chambers and thus do not require a head bolt gasket. No gasket, no leakage source!

One piece steel or ductile iron pistons are attached to the piston rod via one positive locking nut.

Steel wrist pins ride on steel needle bearings for extra life under severe conditions.

Self-adjusting PTFE piston rod seals provide maximum sealing & minimum friction.

Iron crossheads feature special machined lube channels for maximum lubrication and wear resistance.

Crankcase is pressure lubricated via a self reversing oil pump directly driven by the crankshaft. Oil is fed to all bearing surfaces, including the crosshead. An automotive type spin-on oil filter is standard.

No brass or copper is present in the compressor.
OPTIONS

- TNT-12 corrosion & wear resistant treatment
- Alternate piston ring materials
- Various O-ring materials
- Suction valve unloaders
- Oversized flywheels
- Aluminum or stainless steel belt guards
- Epoxy paint systems
- Pressure switches
- Pressure gauges
- Temperature switches
- Receivers
- Temperature gauges
- Capacity control bypass systems
- Thermowells
- Relief valves
- Vibration switches
- Shutoff Valves - manual or powered
- Level switches
- Inlet strainers
- Control panels and starters
- Aftercoolers - air or water-cooled
- Liquid traps
- Motor or engine drives
- NPT or welded piping systems
- Repair tool kits

MATERIALS OF CONSTRUCTION

- Cylinder & Head: Ductile Iron (A536 65-45-12 Nodular)
- Pistons: Steel
- Piston Rings: Glass & Moly Filled PTFE (Other materials available)
- Piston Rods: BSR Steel (Chrome Oxide Coated avail.)
- Valve Seats & Stops: Steel with TNT-12 Impregnation; SS available (100 series) Ductile Iron: TNT-12 Impregnation (300, 600 series)
- Valve Plates: Stainless Steel (100 series) PEEK (300, 600 series)
- Valve Springs: Stainless Steel
- Rod Packing: PTFE
- Crankshaft: Ductile Iron (A536 80-60-03 Nodular)
- Connecting Rods: Ductile Iron (A536 60-40-18 Nodular)
- Wrist Pin: Steel
- Bearing, Wrist Pin: Steel Needle Bearing
- Bearings, Rod: Babbitt Lined Steel Backed
- Bearings, Crank: Tapered Roller
- O-rings: Buna-N (PTFE, FKM, Neoprene, Ethylene Propylene available)
- Metal Gaskets: Iron
- Other Gaskets: Fiber (non Asbestos)
- Crosshead Guide: Ductile Iron (A536 65-45-12 Nodular)
- Crankcase & Crosshead: Gray Iron
### DIMENSIONS

**HD Air-Cooled Two-Stage Models**

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<th>C</th>
<th>D</th>
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<td>HD172</td>
<td>21.9</td>
<td>29.7*</td>
<td>16.35</td>
<td>¾</td>
<td>¾</td>
<td>7.5</td>
<td>7.38</td>
<td>0.44</td>
<td>5.37</td>
<td>27.37</td>
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<td></td>
<td>(556)</td>
<td>(755*)</td>
<td>(415)</td>
<td>NPT</td>
<td>NPT</td>
<td>(191)</td>
<td>(187)</td>
<td>(11)</td>
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<td>(695)</td>
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<tr>
<td>HD173</td>
<td>23.4</td>
<td>33.89*</td>
<td>16.35</td>
<td>¾</td>
<td>¾</td>
<td>9.12</td>
<td>9.37</td>
<td>0.5</td>
<td>5.88</td>
<td>30.79</td>
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<td>(594)</td>
<td>(861*)</td>
<td>(415)</td>
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<td>(232)</td>
<td>(238)</td>
<td>(12.7)</td>
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<tr>
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** 600 Series: 2"NPT, 1.5"NPT, 2"WELD, & 1.5"WELD Available
## HDL Liquid-Cooled Two-Stage Models

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<th>C (In.)</th>
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