TiTan series
High-efficiency Single and Two-stage Liquid Ring Vacuum Pumps

Features & Benefits

- Maximum efficiency
- No metal-to-metal contact
- No internal bearings
- Low operating noise level
- Reliable, heavy-duty design
- Choice of materials
- DEKKER support

TiTan single-stage pumps available in capacities from 1.5 - 1,200 CFM (0.25 - 100 HP)

TiTan two-stage pumps available in capacities from 15 - 2,000 CFM (2 - 125 HP)

DEKKER VACUUM TECHNOLOGIES, INC.

www.dekkervacuum.com  888-925-5444

The Experts in Vacuum Solutions
Single-stage, high efficiency liquid ring vacuum pumps offer operation throughout the vacuum range, from 0 - 29" Hg. Available in a capacity range from 1.5 - 1,200 CFM, these pumps can be utilized for most applications.

LIQUID RING VACUUM PUMP PRINCIPLE OF OPERATION

Figure 1: In a cylindrical housing, partially filled with sealing liquid, a multi-blade impeller on a shaft is positioned eccentrically. Port plates with inlet and discharge openings are positioned on either side of the impeller.

Figure 2: A liquid ring is created by the centrifugal force generated by the rotating impeller. This force holds the liquid ring against the inner wall of the pumping chamber. Since the impeller is located eccentric to the pumping chamber, the depth of entry of the blades into the liquid ring decreases and increases as the impeller rotates. This creates increasing impeller cell volume on the inlet port side, creating a vacuum. On the discharge port side, the impeller cell volume decreases as the blades move further into the liquid ring increasing the pressure until discharge takes place through the discharge port. A continuous flow of fresh sealing liquid is supplied to the pump via the sealing liquid inlet.

Two-stage, high-efficiency liquid ring vacuum pumps are designed for operating in the higher vacuum range, from 25 - 29" Hg. Available in a capacity range from 15 - 2,000 CFM, these pumps are utilized for applications operating in the higher vacuum range.

For larger capacity pumps see our brochure.
Detailed Features & Benefits:

Maximum efficiency single-stage design:
DEKKER offers the Titan single-stage high-efficiency liquid ring vacuum pumps, capable of vacuum levels up to 29” Hg. The pump features a variable discharge port design, which adjusts automatically to the internal compression ratio of the vacuum pump resulting in maximum efficiency throughout the vacuum range. Advanced fluid dynamics result in high volumetric efficiency with 50% less seal-liquid requirement.

Maximum efficiency two-stage design:
The DEKKER Titan two-stage liquid ring vacuum pumps offer excellent efficiency when pumping saturated vapors at vacuum levels from 25 to 29” Hg. The two-stage pump operates more efficiently than the single-stage design when pumping mixtures of air and condensable vapors above 25” Hg.

No metal-to-metal contact:
The design of the liquid ring vacuum pump is most noted for its ability to handle soft solids and entrained liquids or vapors without causing damage to the pump. This is because there is no metal-to-metal contact between the rotating parts and the casing, eliminating the need for internal lubrication. Liquid ring pumps may be sealed with a variety of liquids such as water, solvents, oil or other process compatible fluids.

No internal bearings:
Bearing are located external to the pumping chamber and are grease-lubricated. This is a major benefit compared to oil-lubricated vacuum pumps with internal bearings, because of the effect that contaminated lubricants have on the life of bearings and internal pump parts.

Low operating noise level:
Most liquid ring pumps operate at speeds of 1800 RPM or less. For this reason and because the pump has no metal-to-metal contact, liquid ring pumps are among the quietest pumps in the industry with noise levels in the 68 - 80 dBA range.

Reliable, heavy-duty design:
DEKKER liquid ring vacuum pumps are built to ISO9001 quality standards. Rigid impellers fitted on a heavy-duty shaft, supported by oversized radial bearings offer reliable operation under the most adverse conditions. Mechanical shaft seals are standard on DEKKER liquid ring vacuum pumps.

Choice of materials:
DEKKER liquid ring vacuum pumps are offered in a variety of materials to meet most process conditions. Mechanical shaft seals can be selected to fit each application. Double mechanical seals are available upon request. Integrated casing design provides easy assembly and disassembly, with fewer gasket surfaces.

DEKKER Gold Standard Support:
DEKKER liquid ring pumps carry a 2-year warranty on materials and workmanship. Backed by an extensive domestic and global network of service centers, DEKKER offers the support your company needs.

Spare parts & Accessories
DEKKER offers a complete range of accessories, carry a comprehensive inventory of pumps and parts and for emergency repairs takes pride in offering same day shipping of most standard parts.

Call DEKKER: The Experts in Vacuum Solutions at 888-925-5444 for application expertise.

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Performance characteristics single-stage pumps

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<thead>
<tr>
<th>Pump model</th>
<th>Discharge</th>
<th>Static</th>
<th>Max differential</th>
<th>Speed</th>
<th>Volume flow</th>
<th>Efficiency</th>
<th>Seal liquid</th>
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<td>1800 RPM</td>
<td>12”</td>
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Distributed by:

PUMPS

**TITAN-series**
High efficiency single-stage liquid ring vacuum pumps: from 1.5 - 7200 CFM (0.25 - 100 HP)

**MAXIMA-series**
Large capacity single-stage liquid ring vacuum pumps: from 1000 - 18,000 CFM, with vacuum capability up to 29" Hg. Models are available with packed stuffing box or mechanical seals. A variety of materials and special coatings are available.

**DuraVane**
Lubricated rotary vane vacuum pumps:
- from 2 - 720 CFM (0.3 - 40 HP)
- from 9 - 75 CFM (1.25 - 4 HP)
- Oil-free (dry) rotary vane vacuum pumps: from 2-100 CFM (0.25 - 7.5 HP)

**DuraVaneLP**
High vacuum rotary vane vacuum pumps available in capacities from 1 - 12 CFM (0.25 - 1.25 MP) with ultimate pressures down to 6 x 10^-3 Torr.

SYSTEMS

**Vapor and Vacuum**
Liquid ring vacuum pump systems: The only system on the market with a 5-year warranty. Various models feature the patented DX-5 and DX-7 separators and are available in capacities from 20 - 3500 CFM in both air and water-cooled designs.

**Variable Frequency Drive** optional.

**Aquasolv and Aquasolv**
Water-sealed liquid ring vacuum pump systems: packages using water as the seal-liquid, designed for no recovery (NR), partial recovery (PR), or full recovery (FR).

**AquaSeal** condenser-exhauster systems: full-recovery 2-stage packages for the power industry in capacities from 9 - 25 SCFM at 1" Hg.

**Spare Parts and Accessories**
A wide array of spare parts is available for all DEKKER pumps and systems as well as for competitors pumps and systems. In addition DEKKER offers a large assortment of accessories, including those difficult to find parts.

**CUSTOM-ENGINEERED SYSTEMS**
DEKKER offers a wealth of experience in the design of custom-built systems for industrial, chemical and pharmaceutical applications.

**MULTI-STAGE SYSTEMS**
These are combination systems using liquid ring or rotary vane vacuum pumps, air-ejectors and vacuum boosters in series, specifically designed to operate in the lower pressure range from 100 - 1000 Torr. These systems are available in a capacity range from 300 - 10,000 CFM.

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**SERVICE, REPAIR AND MAINTENANCE**
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**Lubricated rotary vane vacuum pump systems:**
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**Rotary vane vacuum pump systems:**
- Packages available in simplex, duplex and triplex configurations for medical (NFPA 99), laboratory and general industrial applications.

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