Effective Solutions for Long-term Recovery

Hydraulic Lift
Our story is founded on a simple truth:
Life Requires Energy.

We’re focused on unlocking energy with highly engineered products and technologies used to drill for and produce oil and gas efficiently and safely around the world. Our products include a full range of equipment essential to efficient functioning throughout the lifecycle of the wellsite—from drilling to completion to production.

Our products consist of artificial lift equipment and solutions, including rod pumping systems, electric submersible pump systems, progressive cavity pumps and drive systems, plunger lift, gas lift, and hydraulic lift, as well as polycrystalline diamond cutters and bearings for drilling. We provide a full automation offering consisting of equipment, software, and IIoT solutions for downhole monitoring, wellsite productivity enhancement, and asset integrity management. We have operations in eight countries and employ more than 3,100 associates globally.

Whatever your production challenge is, Apergy Artificial Lift has a solution. Our Artificial Lift experts work with you to understand your short-term challenges and long-term goals. We fine tune the right lift solution, drawing from our complete portfolio of Artificial Lift technologies, application expertise, and in-depth analytical tools. For every stage of the field’s operating life, we will help meet our customers production goals quickly, safely, and most cost effectively.
Our Difference in Hydraulic Lift

Hydraulic lift is one of the best ways to achieve consistent production in your ever-changing wells.

Apergy – Hydraulic Lift offers equipment, engineered designs, service, and optimization for many types of hydraulic lift systems. These include hydraulic jet pumps for production, frac fluid recovery or gas well dewatering, along with several other applications. With experience dating back decades, Apergy – Hydraulic Lift provides an offering of integrated and innovative products, world class service, and market leading expertise.

**INDUSTRY LEADING EXPERTISE**
As a worldwide leader in hydraulic jet pumps, we have teams of specialists in manufacturing, engineering, and service.

**TURNKEY OPERATIONS**
We offer complete capabilities within hydraulic pumping systems, ranging from pump manufacturing to system maintenance and engineering.

**ENHANCED PRODUCTION AND OPTIMIZATION**
We offer customized designed systems with the ability to make immediate modifications to surface and downhole equipment, allowing consistent optimization and maximum production.
The Hydraulic Lift System

Apergy – Hydraulic Lift offers an extensive line of hydraulic lift equipment, including a full array of jet pumps and surface pumps to meet even the roughest conditions.

**POWER FLUID SUPPLY**
The power fluid is stored in a vessel or tank for the surface pump. Power fluid is recycled fluid, made of produced water or oil.

**SURFACE PUMP**
The surface pump is the heart of the system, which supplies the power fluid for the downhole pump to operate. This is typically a multiplex pump, which is completely field repairable.

**WELLHEAD**
In addition to its typical duties, the wellhead allows the rerouting of the power fluid. This allows the fluid to push the downhole pump to surface without the need of a workover rig or wireline.

**DOWNHOLE PUMP**
The downhole pump converts energy from the power fluid to draw in formation fluid. The commingled fluid is then pushed to the surface.
How The Hydraulic Jet Pump System Works

1. The jet pump is inserted into the wellhead, pumped down the tubing, and seats in the bottom hole assembly.

2. Power fluid is injected down the tubing, with the surface pump, and is forced through the nozzle of the jet pump, creating the Venturi Effect.

3. Production fluid enters the pump and combines with the high velocity power fluid in the throat. The commingled fluids then enter the diffuser and the production fluid is lifted to the surface.

4. To remove or change the jet pump assembly, power fluid is pumped down the casing annulus and the pump is circulated to the surface, where it is retrieved or changed out.

The Venturi Effect

The Venturi Effect occurs when the high pressure of the power fluid is forced through the jet pump nozzle. The restriction caused by the nozzle increases the velocity of the fluid while decreasing the pressure across the nozzle. As the fluid exits the nozzle, formation fluid is drawn to the low pressure area, generated by the power fluid jet.

The formation fluid combines with the power fluid in the throat and accelerates to an average velocity. The velocity of the commingled fluid then converts back to pressure in the diffuser, exits the jet pump, and returns to the surface.
When Hydraulic Lift is the Right Choice

Hydraulic Lift is an effective form of artificial lift in most scenarios but significantly stands out in wells with deviated and deep wellbores, high concentration of sand and solids, heavy viscous crude, and applications of frac fluid recovery and gas well dewatering. In addition to the standard downhole installation, downhole pumps can be installed in concentric, parallel, and reverse configurations for many solutions.

ADVANTAGES

- No moving parts downhole
- System can be repaired on wellsite
- Effectively handles sands, solids, and gas
- Does not need a rig for servicing
- Lowers operating and maintenance costs
- Wide range of production capabilities
- Controlled draw down to prevent formation damage

Apergy – Hydraulic Lift offers a vast range of jet pump sizes and models. Our line of jet pumps can be designed to fit into 1-1/4” coil tubing all the way up to 4-1/2” tubing. With many different models available, we tailor the system for your specific needs for the most effective solution.

<table>
<thead>
<tr>
<th>TUBING SIZE</th>
<th>JET PUMP STYLE</th>
<th>CAPACITY*</th>
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</thead>
<tbody>
<tr>
<td>1-1/4&quot; CT - 2-1/16&quot; IJ</td>
<td>1-1/4&quot; OR 1-1/2&quot; Standard Jet Pump</td>
<td>50-500 BPD</td>
</tr>
<tr>
<td>2-3/8&quot; Tubing</td>
<td>1-1/2&quot; &amp; 2&quot; Standard Jet Pump</td>
<td>50-1500 BPD</td>
</tr>
<tr>
<td>2-3/8&quot; Tubing</td>
<td>2&quot; High Volume Jet Pump</td>
<td>50-3000 BPD</td>
</tr>
<tr>
<td>2-7/8&quot; Tubing</td>
<td>2-1/2&quot; Standard Jet Pump</td>
<td>50-2500 BPD</td>
</tr>
<tr>
<td>2-7/8&quot; Tubing</td>
<td>2-1/2&quot; High Volume Jet Pump</td>
<td>50-6000 BPD</td>
</tr>
<tr>
<td>3-1/2&quot; Tubing</td>
<td>3&quot; Standard Jet Pump</td>
<td>50-12,000 BPD</td>
</tr>
<tr>
<td>4-1/2&quot; Tubing or larger</td>
<td>4&quot; Standard Jet Pump</td>
<td>50-20,000 BPD</td>
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*Casing sizes must be considered.
Partner with the best team in the business.

Apergy offers a comprehensive line of equipment and services strategically designed to drive the operational excellence of each of our customers.

Apergy products and services are available in the following U.S. locations:

**Administrative & Manufacturing**
Frederick, CO ................................. 720.407.3550

**Alabama**
Citronelle ..................................... 251.866.7099

**California**
Bakersfield ..................................... 661.316.9255

**Colorado**
Evans ........................................... 970.539.9003
Denver ........................................... 720.237.7572
 ........................................... 720.467.2036

**Louisiana**
Broussard ...................................... 337.837.9367

**Mississippi**
Laurel ........................................... 601.649.2551

**New Mexico**
Hobbs ........................................... 575.397.0040

**North Dakota**
Mohall ........................................... 701.756.6934
Watford City ................................... 701.842.2231

**Oklahoma**
Oklahoma City .................................. 405.603.7492

**Texas**
Houston ........................................ 832.691.6907
Pleasanton .................................... 830.299.9745
Odessa (Sales & Service) ..................... 432.582.2335
Odessa (Manufacturing) ....................... 432.334.8580

**Utah**
Roosevelt ...................................... 435.722.4520