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Leading Brands. Leading Solutions.

Apergy’s artificial lift division is a team of industry-leading companies that utilize their collective resources to help oil and gas producers optimize revenues, profitability, safety, and environmental compliance through high-quality production, completion, gathering and control systems.

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.

Vision Statement
Our vision is to improve the lives of our customers, employees, shareholders, and those in our communities. Working toward that vision—through our actions, our products, and our commitments—is why we get out of bed in the morning. Unlocking Energy is the economic engine that will support us as we improve lives and achieve relevance in the marketplace.

Core Values
We have no interest in being just an ordinary company. We’re committed to creating a positive culture that improves lives. Our goal is to make Apergy a customer’s collaborative partner and a rewarding place to work. We strive to maintain a unique culture that values and encourages honesty, unity, respect, hard work, friendship, and an entrepreneurial spirit.
Apergy – Gas Lift

Gas lift is an efficient, simple, and widely used method of artificial lift for oil and gas wells where liquid loading occurs. Capable of producing wells with a range of flow rates, Apergy – Gas Lift is an extremely flexible artificial lift solution that can be used throughout the life of the well. Gas lift is both an effective and economical solution when:

- Producing wells that can’t flow naturally
- Initially unloading a well that will flow
- Increasing the production rate of a flowing well
- Accommodating deviated and horizontal well bores
- Removing solids by back flowing
- Producing wells with sand and scale problems

Gas lift uses a high-pressure source to inject gas into the production string. The gas is injected through gas lift valves, which are housed in gas lift mandrels. The mandrels are installed at specific intervals in the tubing as determined by the design of the system, downward to the lowest point possible.

The gas lift valves open and close based on preset pressure settings. When open, they allow gas to be injected into the production string. They also allow liquids to escape the casing when using gas lift to initially unload a well.

As the gas flows to the surface, it also expands, reducing the density and column weight of the fluid. By reducing the flowing tubing pressure, differential pressure between the reservoir and the well bore is created, allowing the well to flow.
Eight Facts About Gas Lift

Gas lift can produce almost any oil or gas well that requires artificial lift.

Gas lift is limited only by the availability of gas.

Gas lift can unload and kick-off wells that flow on their own.

Gas lift can increase the rate of flowing wells.

Gas lift can increase the velocity in a gas well to ensure produced fluids are recovered at the surface.

Large tubing or annular flow gas lift can be utilized to produce extremely high rates.

Intermittent gas lift can produce wells with low production rates or low reservoir pressure.

Side pocket gas lift mandrels can be installed with dummy valves in the initial completion when the well may flow on its own. Later, when the well has loading problems, gas lift valves can be installed with wireline to enable the gas lift system.

Advantages of Gas Lift

Gas Lift vs. Other Artificial Lift Methods

- Gas lift installations can generally handle the flowing conditions throughout the life of the well. Changing reservoir pressures, water cuts, and formation gas rates can be taken into account with the initial design.
- Gas lift equipment is durable and has few moving parts. A longer life can be expected compared to other means of artificial lift.
- Low initial installation cost.
- Low maintenance cost.
- Operator can control production rates from the surface.
- Produced sand has little effect on gas lift equipment.
- Gas lift is well suited for high deviations and horizontal well bores.
Tubing Retrievable Equipment

Economical and efficient, the tubing retrievable gas lift system of mandrels and valves is installed integrally with the tubing string. This type of gas lift is most commonly used onshore.

Mandrels

The SR Series and JR Series gas lift mandrels are tubing retrievable mandrels installed as an integral component of the tubing. The external ported lug of the mandrels is used to carry tubing retrievable gas lift and orifice valves. Both mandrels can be used in either a single or dual string completion. Several mandrels may be installed in the tubing while maintaining post completion operations through the bore of the mandrel.

- Full, open flow area (same as tubing I.D.)
- Guard plates and lug protect valve from damage during installation
- Various materials and thread connections provide compatibility with all current production tubing
- Drift I.D. compatible with tubing connection drift in most tubing thread types, sizes, and weights
- Available in various materials for standard, H2S service, and hostile well environments
- Available in standard sizes from 2½" to 4½" O.D. (production string); other sizes on request
- Valve retaining mandrel available for larger casing sizes.

SR Series

The mandrel’s external ported lug is configured for 1½" O.D. tubing retrievable gas lift equipment.

JR Series

The mandrel’s external ported lug is configured for 1" O.D. tubing retrievable gas lift equipment.

<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>2¾₈</td>
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<td>SR</td>
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<td>51</td>
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</tbody>
</table>

* O.D. and length dimensions include coupling
** Mandrel Drift I.D. may vary according to the type of thread connection
**LM Series**
The mandrel’s external ported lug is configured for 5/8” O.D. tubing retrievable gas lift equipment.

**IM Series**
These mandrels are also installed as an integral component of the tubing string, but unlike the SR and JR Series, they feature internally mounted gas lift and check valves. The IM mandrel has the same O.D. dimensions as the tubing, making it ideal for special applications:

- **Wells with limited clearance between tubing and casing**
- **In the injection string for casing flow**
- **In the production string for tubing flow with a reverse flow valve**
- **Available in standard sizes from 1” to 2⅛” O.D. (production string); other sizes on request**
Gas Lift and Check Valves

Apergy – Gas Lift offers a comprehensive line of valves for either injection pressure or production pressure operation. Designed to anticipate changes in well characteristics and manufactured to the highest quality standards, our gas lift and check valves offer exceptional performance and reliability over the life of the well.

**TP Series Gas Lift Valves**

The TP Series gas lift valves are tubing retrievable, injection pressure operated valves with a nitrogen charged dome and bellows configuration. The valve's dome charge pressure is calculated for proper valve operation at the designed depth and temperature of operation. The dome pressure charge is preset prior to installation in the gas lift mandrel. These normally closed valves are opened after the gas lift injection pressure overcomes the downward force of the dome charge pressure above the bellows.

TP Series gas lift valves are designed for intermittent or continuous flow applications with tubing retrievable gas lift mandrels. Smaller size valves are available for use with the IM and CT-IM special application mandrels for packoff, special clearance, and smaller diameter installations.

- Large dome volume improves operating efficiency
- Port sizes from \( \frac{1}{8} \) to \( \frac{1}{2} \) for optimum gas passage
- Reverse flow check valve (TP-1 and TP-1.5 models)
- Mechanical travel stop increases the cycle life of the bellows
- Three-ply Monel® bellows extends life
- Silicon fluid bellows protection
- Replaceable floating Monel® seat (tungsten material available)
- Silver-brazed bellows connections
- Stainless steel or Monel® materials available
- Pressure rating up to 1800 psi Ptro maximum
- Temperature rating of 280º F (standard service)
- Available in \( \frac{5}{8} \), 1" or 1½" O.D.

**TP Valve Series**

- The TP-625 model is a \( \frac{5}{8} \)" O.D. valve
- The TP-1 model is a 1" O.D. valve
- The TP-1.5 model is a 1½" O.D. valve

### TP Series Specification Guide

<table>
<thead>
<tr>
<th>Valve Series Model</th>
<th>AB Effective Bellows Area (sq.in.)</th>
<th>Port Size (in.)</th>
<th>AP* Area of Port (sq.in.)</th>
<th>Ap/Ab Ratio</th>
<th>1-(Ap/Ab)</th>
<th>PPEF Ap/Ab 1-(Ap/Ab)</th>
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<tbody>
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<td>0.12</td>
<td>( \frac{5}{32} )</td>
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<td>0.072</td>
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<tr>
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<tr>
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<td>0.2610</td>
<td>0.7390</td>
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</table>
The TC Series valves are tubing retrievable, spring loaded check valves with an NPT bottom connection. Used in conjunction with tubing retrievable injection valves that do not have an integral check valve, these valves provide casing protection from back flow through the injection valve. When the gas flow is permitted into the tubing through the valve, the check dart is depressed. When flow is from tubing to casing, the check valve seats. A metal-to-metal seal is established as differential pressure is increased.

These valves are used with tubing retrievable gas lift valves that do not have an integral check valve, such as the TP-1 and TP-1.5 gas lift valves. A primary application for these valves is preventing back flow from the injection valve which may damage the casing. Other applications include preventing production commingling in dual gas lift installations and improving pressure integrity during acidizing and circulation operations.

- Eliminates the need to re-unload casing liquid by preventing casing fill-up during shut down
- Stainless steel or Monel® material
- Inconel® spring
- Combination resilient and metal-to-metal seat for bubble-tight seal
- Check valves can be stacked for additional protection
- Seal system options available

**TC Valve Series**
- The TC-1 model is a 1” O.D. check valve
- The TC-1.5 model is a 1½” O.D. check valve
Wireline Retrievable Equipment
The wireline retrievable gas lift system utilizes side pocket mandrels that are installed integrally in the tubing string, but the gas lift valves and latches can be retrieved and replaced with wireline to avoid costly workover operations.

Side Pocket Mandrels
Apergy – Gas Lift offers a comprehensive line of side pocket mandrels for a variety of well completion applications. Our engineering, manufacturing, and quality processes represent years of experience and dedication to providing top quality side pocket mandrels with enhanced features and specifications to meet the most demanding requirements.

Our family of side pocket mandrels includes both oval and round body configurations. The oval body mandrels, with either machined or forged pocket designs, are typically used in dual string completions. The round body mandrels are full opening mandrels commonly used in high pressure environments and special clearance applications.

Each mandrel features a standard side pocket profile to receive gas lift valves, chemical injection valves, circulating valves, dummy valves, dump kill valves, and related equipment. Several different pocket porting configurations are available for applications such as waterflood injection, chamber lift, chemical injection, and annular (casing) flow.
D and F Series Oval Body Side Pocket Mandrels

The D and F Series mandrels are used as an internal receiver for the installation and retrieval of gas lift valves and related equipment without having to pull or rerun the tubing string. They can be installed in deviated or straight well bores depending upon the mandrel model type. The external shape of these oval body mandrels makes them ideal for dual completion applications.

- Machined pocket and guards (D Series)
- One-piece forged pocket detector (F Series)
- Models with and without a slotted orienting sleeve to accommodate setting and retrieving in straight and deviated well bores
- Tubing string connection threaded on both swaged sections with appropriate terminal threads
- Accepts standard gas lift equipment for pocket configuration
- Variety of pocket configurations for specialized applications
- Drift I.D. compatible with tubing connection drift in most tubing thread types, sizes, and weights
- Available in standard or H2S service
- 4130 material for standard and H2S service, with other materials available upon request

D Series Side Pocket Mandrels
The mandrels in this series feature machined pockets and guards. Several mandrel configurations with 1” and 1½” I.D. pockets are available.

F Series Side Pocket Mandrels
This series features a one-piece forged pocket deflector, 1” pocket I.D., and a 180° latch pocket profile.
R, H, and U Series Round Body Side Pocket Mandrels

The R, H, and U Series side pocket mandrels feature a round body design with machined pocket and guards. These mandrels are installed as a component of the tubing string, and the pocket acts as a landing nipple for retrievable gas lift equipment. The mandrel pocket is offset from the bore of the tubing, allowing post completion tools to pass through the mandrel without restriction.

The round body design offers higher burst and collapse pressure ratings than most oval body designs. Special clearance and high pressure features are incorporated into specific series and models. All configurations include an integral orienting sleeve to orient the kickover tool to the mandrel side pocket for precise alignment and installation of devices. Mandrels with an orienting sleeve can be installed in both straight and deviated well bores. Mandrels without an orienting sleeve can only be installed in straight well bores.

These side pocket mandrels are primarily used in single completions. Dependent upon the mandrel series, special applications include high burst and collapse pressure ratings, deep or high pressure applications, and special clearance requirements.

- Round body design and variety of pocket configurations ideal for special applications
- Orienting sleeve to provide positive alignment to the pocket during wireline operations
- Available in various materials and hardness ranges to meet a variety of service environments
- Machined pocket and guards
- Models available with and without a slotted orienting sleeve to accommodate setting and retrieving in straight and deviated well bores
- Deep and/or high pressure applications (H Series)
- Special clearance O.D. for installation in small casing sizes where standard O.D. mandrels may not be practical (U Series)
- Tubing-string connection threaded on both swaged sections with appropriate terminal threads. Special clearance applications may require special thread connections
- Drift I.D. compatible with tubing-connection drift in most tubing thread types, sizes, and weights
- 4130 material for standard and H2S service, with other materials available upon request
- Accept all standard 1" and 1½" gas lift equipment
**R Series Side Pocket Mandrels**
These round body mandrels with 1" and 1½" I.D. pockets are available in several configurations.

**H Series Side Pocket Mandrels**
These high pressure mandrels have a 1" pocket I.D. and feature an enhanced burst and collapse pressure rating design for compatibility with most heavyweight tubulars. This series is primarily used for deep and/or high pressure applications.

**U Series Side Pocket Mandrels**
These mandrels have a 1" pocket I.D. and feature a special clearance O.D. for installation in small casing sizes where standard O.D. mandrels may not be practical. The 1H high pressure model features a 1" I.D. pocket and no orienting sleeve.

**Side Pocket Mandrel Selection Guide**
Most of the special features for a side pocket mandrel are identified in the product nomenclature. The chart below will assist in selecting the appropriate mandrel for a given size and application.

---

**Product Identification**

<table>
<thead>
<tr>
<th>Tubing Size</th>
<th>Valve Size</th>
<th>Body Pipe Shape</th>
<th>Configuration Options</th>
<th>Type Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>XX/XX</td>
<td>-XX</td>
<td>-XX</td>
<td>-XX</td>
<td></td>
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</tbody>
</table>

The following is an example of a round body mandrel with 1.5" pocket I.D., 180° G-type Latch Pocket Profile and Integral Orienting Sleeve. EXAMPLE: 3 ½" – 1.5RSO

<table>
<thead>
<tr>
<th>Tubing Size</th>
<th>Valve Size</th>
<th>Body Pipe Shape</th>
<th>Type Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per customer requirements</td>
<td>1</td>
<td>R Round</td>
<td>CI Chemical Injection</td>
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<tr>
<td>1.5</td>
<td>1.5&quot; Valve Outside Diameter</td>
<td>H High Pressure</td>
<td>CIS Chemical Injection with Snorkel</td>
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<tr>
<td>F</td>
<td>Oval Forged Pocket</td>
<td>U Special Clearance - Round</td>
<td>E Chamberlift Installation</td>
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<td>D</td>
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<td>G “G” 180° Latch Profile</td>
<td>EC Casing Flow</td>
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<td></td>
<td></td>
<td>SO Selective - Orienting with Guards</td>
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<tr>
<td></td>
<td></td>
<td>W Waterflood</td>
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WP Series Gas Lift Valves

The WP Series gas lift valves are retrievable, injection pressure operated valves with a nitrogen charged dome and bellows configuration. Since the charge pressure above the bellows is affected by temperature, it is important to use accurate operating depth temperature information when calculating the set pressure. The nitrogen dome pressure is preset at a reference temperature and corrected to an operating depth temperature for the desired application. The valve is held on seat by the downward force of the nitrogen charge inside the bellows.

For intermittent or continuous gas lift, WP Series valves can be used in tubing or casing flow applications, depending on pocket porting configurations.

- Maximum travel stop increases the cycle life of the bellows
- Integral reverse flow check valve to prevent tubing-to-casing communication
- Three-ply Monel® bellows
- Compatible with all common top latches
- Silicon dampening fluid minimizes throttling effects
- Replaceable floating Monel® or tungsten carbide seat
- Silver-brazed bellows connections
- Guidance system designed to prevent corkscrew of the bellows
- Stainless steel or Monel® materials available
- Pressure rating up to 1800 psi Ptro maximum
- Temperature rating of 280º F (standard service)
- Port sizes from ¼" to ½"
- Standard Viton® packing element system with other packing materials available

WP Valve Series
- The WP-1 model is a 1" O.D. valve
- The WP-1.5 model is a 1½" O.D. valve
Latches for Side Pocket Mandrels

Apergy – Gas Lift offers a wide range of latches for installing wireline retrievable gas lift and chemical injection equipment in side pocket mandrels. Latches are designed to lock in place. To retrieve a latch and attached valve, upward jarring of the tool string shears the release shear pin, permitting the locking mechanism to disengage from the latch pocket profile.

180° G-type Latch Pocket Profile
Latches for a 180° latch pocket profile have a spring loaded, ring style locking mechanism. A ported I.D. is included in some designs for applications requiring a communication path between the latch and attached valve.

BK-2 Latch Series
- BK-2 and BK-2-P are used to secure a 1" valve or dummy valve in a side pocket mandrel with a 1" I.D. pocket
- The BK-2-P model has a ported I.D.

RK Latch Series
- RK and RK-P are used to secure a 11/2" valve or dummy valve in a side pocket mandrel with a 11/2" I.D. pocket
- The RK-P model has a ported I.D.
WD Series Dummy Valves

The WD Series dummy valves are retrievable, isolation tools installed in a side pocket mandrel to block the mandrel’s injection ports. The valve with appropriate latch may be installed or retrieved prior to or after completion of various procedures.

Used to seal off the pocket of a side pocket mandrel, the dummy valve prevents communication between the casing and tubing. These valves are also used to blank off the tubing for production until gas lift valves are required. Other applications include pressurizing the tubing in various procedures, isolating tubing and casing flow during single alternative production, and isolating tubing and casing flow for test purposes during multi point water or gas injection floods.

- Stainless steel or Monel® materials available
- Two sets of packing to straddle and pack off casing ports
- Accepts most common top latches
- Installs in most mandrel pockets depending on valve model

WD Series Dummy Valves
- The WD-1 model is a 1” O.D. valve
- The WD-1.5 model is a 1½” O.D. valve

WO Series Orifice Valves

The WO Series valves are retrievable, single point injection orifices. A replaceable orifice controls the volume of gas through the open valve into the production conduit. A spring loaded, reverse flow check valve is incorporated as an integral part of both valve series.

Used to establish communication from the annulus to the tubing during circulating operations, these valves are installed in their respective side pocket mandrels and utilized in single point, continuous flow completions. These valves have no closing function and are commonly used to control stable injection at the operating valve depth.

- Stainless steel or Monel® materials available
- Orifice sizes from ⅛” to ½” diameter ports
- Flow capacity governed by orifice size
- Replaceable floating orifice
- Spring loaded, reverse flow check valve

WO Series Orifice Valves
- The WO-1 model is a 1” O.D. valve
- The WO-1.5 model is a 1½” O.D. valve

<table>
<thead>
<tr>
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<td>Valve Series Model</td>
<td>Valve O.D.(in.)</td>
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<tr>
<td>WD-1.5</td>
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</tbody>
</table>
WF Series Gas Lift Valves

The WF Series gas lift valves are spring loaded, production pressure operated valves for installations using tubing pressure to open and close the valve. Since the force of the preset spring tension holds the valve stem on seat, there is virtually no downhole temperature effect on the operation of the valve. The integral reverse flow check valve provides protection from production fluid flow into the casing. Tubing pressure is communicated to the bellows through a crossover seat. For intermittent or continuous gas lift, the WF Series valves are an excellent choice for dual gas lift systems and applications where injection pressure is unstable.

- Spring loaded non-temperature sensitive valve
- Maximum travel stop increases cycle life of bellows
- Integral reverse flow check valve to prevent tubing-to-casing communication
- Three-ply Monel® bellows extends life
- Accepts all common top latches
- Silicon dampering fluid minimizes throttling effects
- Replaceable floating Monel® or tungsten carbide seat
- Silver-brazed bellows connections
- Guidance system designed to prevent corkscrew of the bellows
- Stainless steel or Monel® materials available
- Pressure rating up to 1800 psi Ptro maximum
- Temperature rating of 280° F (standard service)
- Port sizes from ½" to ¼"
- Standard Viton® packing element system with other packing materials available
- High pressure spring available for high set pressures

WF Valve Series
- The WF-1 model is a 1" O.D. valve

<table>
<thead>
<tr>
<th>WF Series Specifications Guide</th>
</tr>
</thead>
<tbody>
<tr>
<td>-----------------------</td>
</tr>
<tr>
<td>WF-1</td>
</tr>
<tr>
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*Port diameter based on port size plus .006" for lapped seat
Additional Gas Lift Equipment

Apergy – Gas Lift offers a complete host of products designed to fit your specific well conditions. We help you select the best packers, on/off tools, stingers, pump-out plugs, and nipples to ensure top performance of your gas lift installation.

Arrowset Style Packer

This mechanically set retrievable packer may be used in any production application. The packer is suited for treating, testing, or injecting pumping or flowing wells both deep and shallow. It can be left in tension or compression, depending on well conditions and the application. A large internal bypass reduces swabbing when running and retrieving. The by-pass closes when the packer is set and, when retrieving, it opens prior to releasing the upper slips to allow pressure equalization. The design allows easy setting and releasing.

- Bypass below upper slips to wash debris when valve is open
- Bypass is opened before upper slips are released
- Can be set with tension for shallow wells
- Can be left in tension, compression or neutral
- ¼ turn right-hand set, right-hand release
- Additional arrangements available

Available Upgrades:

- Carbide slips
- Premium elastomers
- Premium metals

Model R Single Grip Packer

This packer is used in production as a conventional long stroke packer. It features a proven three element packing system and a large bypass area through the packer.

- Single or double grip
- Sets securely in any hardness casing, including premium grades
- Three piece packing element system
- Large bypass area
- Surface controlled combination bypass and equalizing valve
- Rocker-type slips
- Parts are interchangeable with other manufacturers

Available Upgrades:

- Carbide slips
- Premium elastomers
- Premium metals
ASI-X Packer

The ASI-X Single String Double-Grip Production Packer is the most versatile of the mechanically set retrievable packers and may be used in any production application. This packer is suited for treating, testing, or injection applications, in pumping or flowing wells, either deep or shallow. This packer can be left in tension or compression depending on well conditions and the required application.

- Wireline or tubing set
- Bypass below upper slips to wash debris when valve is opened
- Bypass is opened before upper slips are released
- Can be set with tension for shallow well applications
- Can be left in tension, compression, or neutral
- ¼ turn right-hand set, ¼ turn right-hand release
- Rated for 7,000 or 10,000 psi working pressure

VSI-X Packer

This packer is a modification of the ASI-X Packer with the advantage of being able to set on electric line or hydraulically.

- Wireline set
- Sequentially released upper slip system
- Bypass valve opens before upper slips are released
- Available in shear release
- Easily converts to ASI-X version - ¼ turn to set, ¼ turn to release
- Rated for 7,000 or 10,000 psi working pressure
AS-III Packer

The AS-III is a sing-grip packer with no upper hold-down for use where no differential pressure from below is present. This packer also features a large bypass area to prevent swabbing when running or retrieving. The AS-III is ideal for isolating casing holes or perforations.

- Large internal bypass
- ¼ turn set / straight pick-up release
- Additional J-slot arrangements available

ASI-X Tubing Anchor

The ASI-X Anchor is a mechanically set double grip tubing anchor designed to be exceptionally durable and debris tolerant. This anchor is based on the proven ASI-X Packer design, but has been shortened, simplified and does not have a sealing element. This anchor is suited for treating, testing, injecting, pumping wells, and flowing wells, deep or shallow. This anchor is built using durable ASI-X Packer parts making redress both quick and economical.

- Based on proven ASI-X Packer design
- Can be set with tension for shallow well applications
- Can be left in tension, compression or neutral
- ¼ turn right-hand set, ¼ turn right-hand release
- Adjustable emergency shear release
Baker Tubing Anchor Catcher

The Baker Model Tubing Anchor Catcher (TAC) performs two important functions: it anchors the tubing string and catches the tubing if it should part. Unlike most anchor catchers, which are set as tubing anchors and rely upon movement of the parted tubing string to set them as catchers, the Baker TAC is simultaneously set in anchoring and catching positions at all times.

- Vertical movement of the tubing during the pump cycle at the anchor is prevented by the slips
- The tension applied to the tubing when the anchor is set will not increase which keeps tubing stress at safe levels
- The anchor will protect the tubing from impact of parted rods and cyclic stress caused by pump pounding and breathing
- The cone of the anchor does not move in relation to the slips once the anchor catcher is set
- Variable shear pin design permits emergency release with an upward pull when normal release is impossible

Slimline Tubing Anchor Catcher

The Slimline Tubing Anchor Catcher (TAC) is designed with a smaller diameter, providing greater area for improved flow from the well, allowing the well to “breathe” easier and operate more efficiently. The reduced diameter also allows the anchor to be set in or below the perforations, anchoring the entire tubing string.

- Overall reduced diameter than standard TAC
- Increased flow through annulus
- Reduced gas locking
- Top and bottom flow subs to reduce flow turbulence
- Fits inside a mill shoe
- Significantly reduces cut over time
Stingers

Stingers are part of the on/off tool assembly and are connected to the top of the packer. The stinger is often left on top of the packer with a plug in place to keep the well from flowing while the tubing is installed.

Wireline Re-entry Guides

Wireline re-entry guides are used for safe re-entry of wireline tools from the casing into the tubing string. Threaded on the top end only, they attach to the bottom end of the production string and are designed with a beveled guide and a full open internal diameter.

Nipples

Nipples are designed to allow common slickline plugs and equipment to be placed successfully downhole. API and Premium threads can be cut on the nipples to reduce crossovers.

- Seating Nipple, F-Nipple, X-Nipple, R-Nipple, and XN-Nipple available
- ID profiles made to specifications needed
- API and Premium threads available
- CRA trim available
Pump-out Plugs

Pump-out plugs act as a temporary bridge that isolates the tubing from the annulus in order to set a packer. Available in a variety of configurations, the plug is removed by simply applying pressure to the tubing.

- Ball seat available
- Adjustable shear value

Ceramic Pump-out Plugs

MagnumDisk™ ceramic pump-out plugs are run on the bottom of the tubing and/or below a packer BHA to isolate the tubing and act as a barrier to set hydraulic set packers. Once the disks are removed, the wellbore fluids can then be produced up the production tubing.

- Used as barrier to set hydraulic packers
- Economical alternative to profile nipple with a plug
- Full bore opening to tubing ID after MagnumDisk™ are removed
- Can be run in hostile environments (H2S and CO2) and rated to 400°F (204°C)
- Can be run in heavy mud environment
- Little to no interfering debris left in the wellbore

On/Off Tools

The On/Off Tool is a tubing seal receptacle which allows isolation of a lower zone by use of a wireline blanketing plug. It allows the packer to stay in the well, even when the tubing string must be removed from the well for maintenance. When re-run, the tubing string automatically re-engages to the stinger, and the blanketing plug can be retrieved by wireline. It is designed to run above an ASI-X Packer or a Permanent Packer with a latch stinger.

- Blanketing plug seats in top of stinger to prevent debris build-up
- Bonded seal allows disconnects and re-connects
- Right-hand or left-hand release
- Milling shoe allows rotation through debris
Service Tools
Apergy – Gas Lift offers service tools for completions where well control or remedial work is needed.

**HD Retrievable Packer**

The HD Retrievable Packer is a heavy duty service packer ideally suited for all types of squeeze cementing, formation fracturing and high pressure acidizing. It is a large opening compression set packer with hydraulic button-type hold down. This packer withstands high pressure from above or below and uses a 3-element packing system, J-slot, and a drag block mechanism for easy setting. This packer has a built-in unloader which circulates across the hold down buttons to improve retrievability and run in performance.

- Large internal bypass
- Built in pressure-balanced unloader
- ¼ turn set-straight pick up release (standard)
- Equalizing ports directly above elements
- Additional J-slot arrangements available
- Rated at 10,000 psi working pressure
Crest III Packer

The Crest III Packer is a weight set service packer for high-pressure remedial work such as acidizing, fracturing, and squeeze cementing. It sets with minimal tubing manipulation and will withstand differential pressure from above or below.

- Large integral fluid bypass
- No rotation required
- Fully enclosed slips with carbide inserts
- Carbide tipped stainless steel drag blocks
- Covered J-Slot system
- Rated at 10,000 psi working pressure
AS/TS Retrievable Bridge Plug

The AS Retrievable Bridge Plug is a high pressure plug for multiple zone and selective single zone operations such as acidizing, fracturing, cementing, and testing. It features a large internal bypass to reduce swabbing when running and retrieving. The bypass closes during the setting of the plug and opens prior to releasing the upper slips to equalize pressure when unsetting. The bypass is located directly below the upper slips to help wash debris when the bypass is open.

- ¼ right-hand set and release (standard)
- Pressure equalization before release
- High pressure rating
- Set mechanically in tension or compression
- ASW Bridge Plug version can be set using wireline or hydraulic setting tool
- Rated at 10,000 psi working pressure

WLTC Retrievable Bridge Plug

The WLTC Retrievable Bridge Plug is designed to perform all tasks normally required of a tubing run packer-type bridge plug and can be quickly converted to run and set on wireline. The WLTC Plug can be run and set on wireline in a way that allows the tool to be re-set with tubing in a different location before removing it from the well. It is designed to be rugged and compact, and has a 10,000 psi working pressure rating.
Partner with the best team in the business.

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

- Decades of experience recommending and servicing lift systems to accommodate changing well conditions
- Unrivaled expertise in plunger lift, gas lift, hydraulic lift, well control, and well unloading
- The best performing, highest quality, and safest products designed, engineered, and manufactured in-house
- Experienced and responsive field support staff with extensive local knowledge
- The highest commitment to the protection and safety of our employees, our customers, and the environment
- Comprehensive customer training and product support

**Apergy – Gas Lift products and services are available in the following North American locations:**

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

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

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

**Canada**
- Calgary, AB ...................................... 403.464.5782
- Edson, AB ......................................... 780.723.2759
- Grande Prairie, AB ........................... 780.532.0804
- Red Deer, AB ................................. 403.464.5782

**Colorado**
- Evans .............................................. 970.539.9003
- Denver ............................................ 903.216.3750

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

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

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

**Texas**
- Karnes City ..................................... 830.299.8508
- Pleasanton ...................................... 830.299.9745
- Odessa ............................................ 432.582.2335
- Tomball .......................................... 713.922.3597
- Tyler ............................................... 903.533.8266

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