

Keep your marginal wells producing beyond their prime

Plunger lift is typically a highly effective method for removing liquids from a well. However, there are instances when a single plunger lift system is not enough. A particularly deep well, low gas velocity or any other number of factors can contribute to a low gas-to-liquid ratio. In these situations, a multi-stage tool can be utilized to create multiple plunger lift systems in one well. By lifting the liquid load in stages, the well is able to more efficiently utilize its own energy to remove liquids.

Functioning like an intermediary standing valve, the multi-stage tool is set above a plunger lift system, allowing the placement of yet another plunger lift system above it. A spring is attached at the bottom end of the tool to receive the lower plunger's impact as it rises. A free-floating spring is also positioned above. As fluids travel up the tubing, they are carried through the bottom spring to a chamber equipped with a one-way valve. The liquids and gas are trapped until the upper plunger arrives. They are released through the flow cage and top spring, then carried upward by the upper plunger. All multi-stage tools essentially perform this way.

At PCS, we make sure our equipment does more than just the basics.

Having encountered dozens of unique well situations in our more than 20 years in this business, we have created and continue to perfect solutions for a multitude of production challenges. The PCS Multi-Stage Tool represents the next generation of our plunger lift systems and our continued commitment to leading the industry in production optimization.

Our commitment to optimizing production, even in less-than-ideal situations, is evidenced in the PCS Multi-Stage Tool:

- > **Resettable packer allows the tool to easily be set and removed for maintenance and plunger replacement**
- > **Unique design performs successfully in conditions as low as one-to-one gas-to-liquid ratios on marginal wells**
- > **Seal element (pack off) seals tight to retain fluids in the flow cage and prevent liquid slippage**

Choosing an artificial lift system is a big decision. Take a closer look at the PCS Multi-Stage Tool, and it's plain to see that a PCS Plunger Lift system isn't just the best choice, it's the only choice.



MULTI-STAGE TOOL



- 1 BALL & SEAT (FLOW CAGE)**
 - > Maintains the one-way flow of liquids up the tubing
 - > Retains the fluids the lower plunger delivered until the top plunger retrieves the fluids for delivery to the surface
- 2 SEAL ELEMENT (PACK OFF)**
 - > Seals tight as fluids are delivered
 - > Retains fluids above the flow cage, preventing liquid slippage
- 3 RESETTABLE LOCKING MECHANISM**
 - > Holds the tool in the “open position” allowing for easy installation
 - > Easily sets into the closed position once the appropriate depth is reached
- 4 COLLAR STOP**
 - > Easier to set and release than typical tubing stop
 - > Easily removable
 - > More reliable than shear pin construction
- 5 HEAVY-DUTY BUMPER SPRING**
 - > Absorbs impact of arriving plunger and allows flow-through of liquids
 - > Engineered one-piece construction is stronger and more durable

Patent Pending

THE SPECIFICATIONS

Multi-Stage Tool

Tubing Size	Weight
2 ¹ / ₁₆ "	3.25 #/ft
2 ³ / ₈ "	4.70 #/ft
2 ⁷ / ₈ "	6.50, 7.90, 8.70 #/ft
3 ¹ / ₂ "	9.30, 12.59 #/ft



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FOR MORE INFORMATION, PLEASE CONTACT YOUR LOCAL
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