

STINGER

Rotary Lock Traveling Valve



Operation

The Stinger is a rotary lock traveling valve used in artificial lift wells which utilizes rod pump configurations. Replacing the traditional ball and seat traveling valve, the Stinger's upper threads connect directly to the valve rod, and the lower threads interface with standard plungers.

Benefits

- Eliminates all gas lock
- Increases production
- Allows pumping under extreme bottom pressure without loss of fluid efficiency
- Reduces operation and well servicing costs
- Oversized internal ports allow solids to pass through valve
- Reduces fluid pound

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Advantages

Fluid Efficiency

- Engineered rotary locking action prevents high bottom pressure blow-by on upstroke
- No ball displacement due to high bottom pressure
- Prevents loss of fluid recovery by locking open on down stroke

Design Features

- Main Body
 - 17-4 stainless steel
 - Inconel upgrade available for high H2S application
- Internal Rotating Assembly
 - Rod Gearing Mechanism – 17-4 stainless steel
 - Seat and Rotary Surface – Laser clad anti-friction coating
 - Ball Bearings – Ceramic
 - Spring – Elgiloy rated to 454°F

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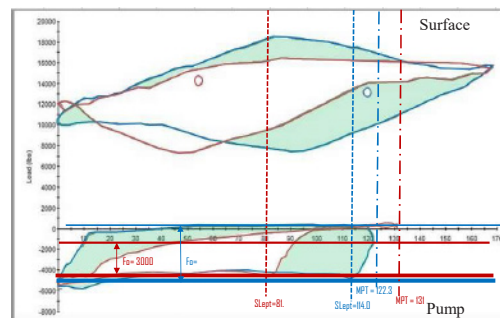
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Dynometer Card Output



Rod Pump Dyno Statistics Trend

	Ball Valve	Stinger
SL _{ept}	81.1	114.0
F _o	3000	5200
MPT	131	122.3

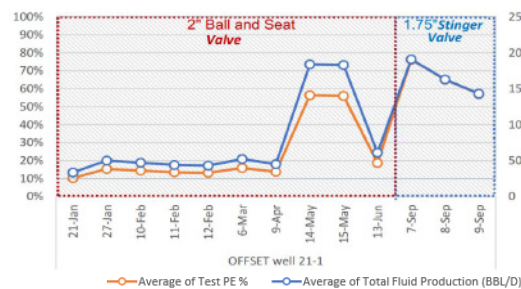
GREEN SHADED AREA = Increased Efficiencies

Dynometer card output chart based on rough estimation from graph provided to DTI by the operator.

Graphical overlay of test well dyno cards, before and after install of the Stinger valve.

RED = 2" Ball and Seat Valve **BLUE** = 1.75" Stinger Valve **GREEN** shaded areas highlight well improvements

Pump Efficiency vs. Pump Volume



Results

Following installation of the Stinger valve on Sept. 7th, the average Pump Efficiency (PE) increased from 22% to 66%. Gas interference issues have been eliminated by Stinger valve due to mechanical operation.

Average fluid production greatly increased despite change from 2" Ball and Seat to 1.75" Stinger.

The Stinger valve will be continually monitored under test conditions for a period of six months. Graphs will be updated as new data is received.

Drilling Tools International, Inc. is a leading provider of downhole tools to the land and offshore drilling markets. For more than 30 years our company has been guided by the principals of Strength, Innovation and Performance. We consistently deliver world class customer service while providing quality products that meet the demanding drilling applications of today's market.

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