

HEAL System horizontal enhanced artificial lift system

Improves pump performance in horizontal wells

Where it is used

- Horizontal workovers and completions
- Solids-laden wellbore conditions
- Rod pump, ESP, PCP, and plunger lift pump systems

How it improves wells

- Eliminates slug flow
- Maximizes drawdown
- Reduces capex if transitioning to another artificial lift system
- Decreases opex by efficiently handling solids

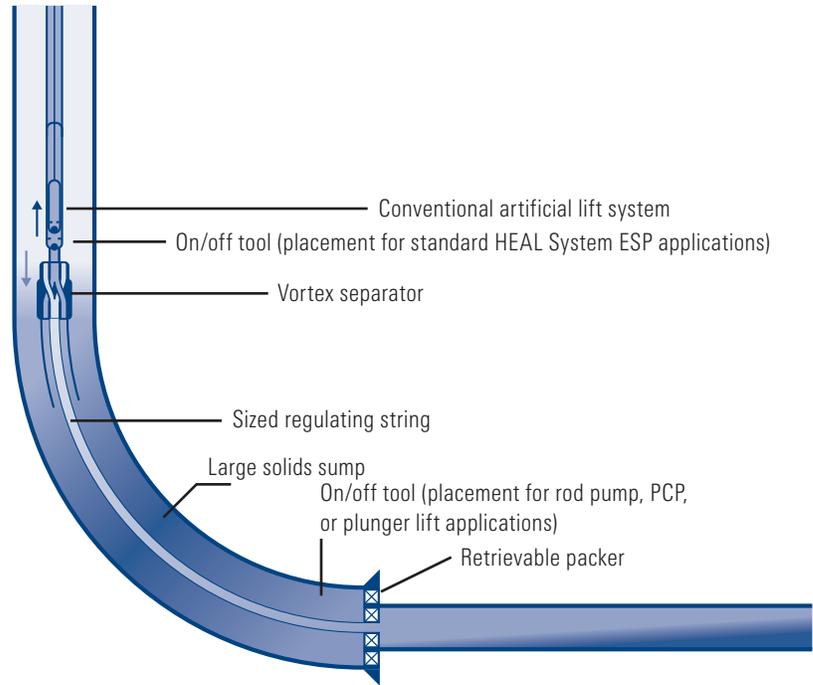
How it works

The HEAL System™ is placed downhole below a conventional artificial lift system. In the lateral, the mixed flow of oil, gas, and water enters the retrievable packer, where it conforms to the narrow diameter of the sized regulating string, tempering and smoothing out the slug. The dampened flow rises into the curve section to the vortex separator, which separates oil and gas. Free gas exits the separator while oil and water are discharged into the annulus, delivering a clean, consistent liquid stream to the downhole pump in the vertical section.

The ESP-enabled HEAL System for unconventional wells adds a pair of shrouds above and below the ESP to minimize the high gas/liquids ratio and consistently deliver liquid to the ESP intake, eliminating shutdowns.

What it replaces

Eliminates or delays the need to transition to another artificial lift system



The HEAL System enhances oil recovery by improving pump performance in horizontal wells, delaying or eliminating the cost of transitioning to alternative artificial lift technologies.

What else I should know

By smoothing the flow, the HEAL System maximizes drawdown and disrupts the solids flow path along the well, leaving solids in the horizontal section where they cannot interfere with the pump. If any solids do get through, the system separates and traps them in the sump area. Reducing solids production increases pump run time and decreases operating costs.

Because horizontal wells usually transition through multiple artificial lift systems, the HEAL System bridges the gap between natural flow or high-volume ESPs and rod pumps with expensive intermediate lifting solutions—reducing the number of transitions required, if at all.

On/off tool for positive seal placement verification

Risk reduction is achieved by a nonrotational on/off auto-J mechanism that verifies a positive seal. The on/off feature is cycled by upwards and downwards axial movement. When latched on, optional splines inside the tool can be engaged for torque to be transferred through the tool, if required. The sealbore is modular in design, enabling sufficient stroke length to be added for individual applications.

On/Off Tool Specifications

Casing OD, in [mm]	Casing Weight, lbm/ft [kg/m]	Min. ID, in [mm]	Tool Body OD, in [mm]	Reentry Shoe OD, in [mm]	Min. Yield Strength, lbm [kg]	Torque Rating, lbf.ft [N.m]	Burst Rating, psi [MPa]	Collapse Rating, psi [MPa]	Temperature Rating, degF [degC]
4.5 [114.3]	9.5–13.5 [14.14–20.09]	1.31 [33.27]	3.75 [95.25]	3.75 [95.25]	50,000 [22,680]	800 [1,084]	10,000 [68.9]	10,000 [68.9]	399 [204]
5.5 [139.7]	13.0–23.0 [19.34–34.23]	1.31 [33.27]	3.75 [95.25]	4.5 [114.30]	50,000 [22,680]	800 [1,084]	10,000 [68.9]	10,000 [68.9]	399 [204]
7 [177.8]	13.0–23.0 [19.34–34.23]	1.31 [33.27]	3.75 [95.25]	5.9 [149.86]	50,000 [22,680]	800 [1,084]	10,000 [68.9]	10,000 [68.9]	399 [204]

HEAL System

Retrievable packer for versatility and low-risk running and retrieving

Standard or conventional tension-set packers unset if tension is relieved, but this tension packer can anchor itself in compression. As with double grip and hydraulic packers, it therefore can be disconnected from and left in place if required. Anchoring in the compression feature enables a HEAL System to be installed in one run regardless of well depth. The packer has three modes for being released: tension shear, compression shear, and rotation. Features to mitigate soft-setting risk while RIH include an extended J-travel and rotational-right-hand release.

Retrievable Packer Specifications

Casing OD, in [mm]	Casing Weight, lbm/ft [kg/m]	Tension Release, lbm [kg]	Compression Release, lbm [kg]	Min. ID, in [mm]	Tool Body OD, in [mm]	Connections, in [mm]	Seal Pressure Rating, psi [MPa]	Tensile Strength, lbm [kg]	Temperature Rating, degF [degC]
5.5 [139.7]	17–23 [25.2–34.2]	63,000 [28,576]	11,000 [4,990]	1.901 [48.29]	3.75 [95.25]	2 $\frac{3}{8}$ EUE [60.3 EUE]	\pm 1,000 [\pm 6.894]	100,000 [45,359]	400 [204]

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