

Flexisert* I-PCP Anchor

Reduces downtime and costs by eliminating the requirement to pull tubing

Applications

- Wells completed using production tubing in which insertable progressing cavity pumping (I-PCP) anchors are applicable and no provision for a conventionally deployed nipple-seated insert pump could be provided
- Wells in which a pump seating nipple (PSN) with unknown specifications has been installed or positioned incorrectly

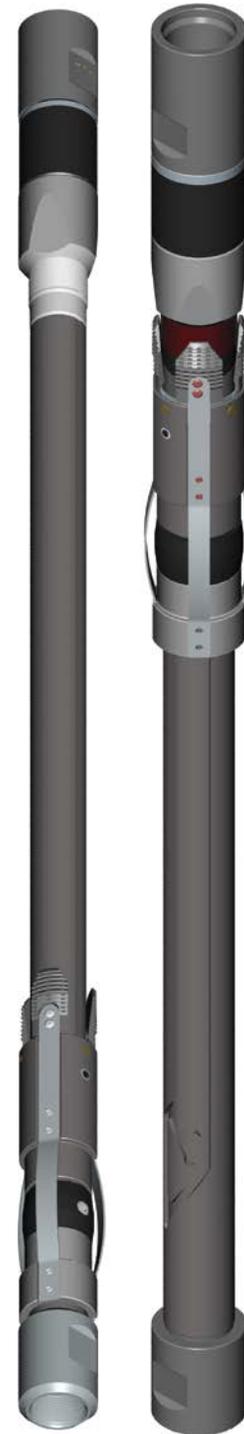
Features and Benefits

- The Flexisert I-PCP anchor enables running in wells that are not equipped with a PSN.
- The anchor allows changes in pump setting depth, pump volume, and lift without pulling the tubing string.
- The anchor can be deployed into the tubing string in one trip.
- The anchor provides a seal and prevents rotation and axial movement, so a separate torque anchor (no-turn tool) is not required.
- Downhole monitoring equipment can remain in place during pump servicing.
- The anchor significantly reduces well servicing time and pump-change costs.
- The new rotor-lock tag bar simplifies installation.

Tool Description

The Weatherford Flexisert I-PCP anchor enables running I-PCP anchors in wells that are not equipped with a PSN. The Flexisert I-PCP anchor can be run, landed, operated, and removed without pulling the tubing string, which saves costs associated with well servicing time and pump changes. This anchor performs critical functions, such as preventing rotation of the pump, providing a seal between the pump intake and high-pressure discharge, and preventing axial movement of the pump caused by pressure differential across the anchor seal.

The Flexisert I-PCP anchor is currently available for 2 7/8-, 3 1/2-, or 4 1/2-in. production tubing and can pass through common tubing restrictions such as a PSN and subsurface safety valves. It is available for most I-PCP models and provides a compact, practical solution for reducing downtime and costs associated with pulling tubing when running a tubing-conveyed PCP.



Flexisert I-PCP anchor



Flexisert™ I-PCP Anchor

Specifications

Tool Configuration	2 7/8	3 1/2	4 1/2 Prototype
Application			
Tubing	2 7/8 in.	3 1/2 in.	4 1/2 in.
T&C non-upset nominal weight (NUE)	6.40 lb/ft (9.52 kg/m)	9.20 lb/ft (13.69 kg/m)	12.600 lb/ft (18.75 kg/m)
T&C upset nominal weight (EUE)	6.50 lb/ft (9.67 kg/m)	9.30 lb/ft (13.84 kg/m)	12.750 lb/ft (18.97 kg/m)
Tubing nominal ID/drift	2.44/2.35 in. (62.00/59.61 mm)	2.99/2.87 in. (75.10/72.82 mm)	3.958/3.833 in. (100.53/97.36 mm)
Critical Dimensions			
Tool assembly length	47 in. (1,194 mm)	50 in. (1,270 mm)	58 in. (1,473 mm)
Maximum tool pump adapter/cone OD	2.290 in. (58.166 mm)	2.750 in. (69.850 mm)	3.750 in. (95.250 mm)
Standard pump adapter head threads	1.660 in. EUE box	1.900 in. EUE box	2-7/8 in. EUE Box
Uncompressed slip/spring assembly OD	2.600 in. (66.04 mm)	3.100 in. (78.74 mm)	4.120 in. (104.65 mm)
Minimum mandrel flow ID	1.12 in. (28.45 mm)	1.50 in. (38.10 mm)	1.87 in. (22.10 mm)
Tool Operating Specifications			
Minimum tubing drift ID ¹	2.310 in. (58.674 mm)	2.780 in. (70.612 mm)	3.810 in. (96.774 mm)
Maximum tubing drift ID ²	2.485 in. (63.12 mm)	3.000 in. (76.2 mm)	4.050 in. (102.9 mm)
Maximum operating or recoil torque	470 ft-lb (637 Nm)	700 ft-lb (949 Nm)	2,000 ft-lb (2,711 Nm)
Maximum differential pump pressure	3,500 psi (24 MPa)	3,500 psi (24 MPa)	3,500 psi (24 MPa)
Maximum downward anchoring resistance ³	16,400 lb (7,438 kg)	24,600 lb (11,158 kg)	43,000 lb (19,504 kg)
Maximum negative differential pump pressure	1,000 psi (6.90 MPa)	1,000 psi (6.90 MPa)	700 psi (4.83 MPa)
Maximum upward anchoring resistance ⁴	4,680 lb (2,123 kg)	7,030 lb (3,189 kg)	8,600 lb (3,909 kg)
Maximum bladder elastomer working temperature	250°F (121°C)	250°F (121°C)	250°F (121°C)
Tool Installation/Removal Specifications			
Minimum downhole seating force to set anchor ⁵	5,000 lb (2,268 kg)	7,500 lb (3,402 kg)	9,500 lb (4,318 kg)
Downhole pull force range to unseat anchor ⁵	5,000 to 6,000 lb (2,268 to 2,722 kg)	7,200 to 8,400 lb (3,175 to 3,810 kg)	9,000 to 11,000 lb (4,091 to 5,000 kg)

¹ Will allow physical tool without causing permanent deformation to bow springs. Only valid for the Flexisert I-PCP anchor.

Please drift pump model prior to installation.

² Maximum ID at which bow springs will not fall under their own weight, causing premature setting

³ Based on maximum pump differential pressure of 3,500 psi

⁴ Based on maximum negative pump differential pressure of 1,000 psi for 2 7/8-in. and 3 1/2-in., or 700 psi for 4 1/2-in.

⁵ Force at the anchor

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