PosiSet mechanical plugback tool

Achieve effective, rigless through-tubing recompletions

Applications
- Rigless through-tubing recompletions
- Sealing off nonproductive zones
- Sealing off water-producing zones below productive zones
- Base for a sand plug
- Low-pressure acid base plug
- Positive depth-control plug

Benefits
- Enables a one-day operation
- Eliminates the need for a workover rig to save costs

Features
- Positive anchoring with upper and lower slips
- Accurate depth control
- Nonexplosive deployment
- Ability to set in deviated holes, including horizontal, as well as in open hole, across perforations, or in gravel-pack screens

Effectively plug back zones with a firm elastomer seal

The PosiSet* mechanical plugback tool is used in through-tubing recompletion applications with a mast or crane to eliminate the need for a workover rig, saving costs. The tool runs through tubing and is set in casing to plug off fluid flow in the casing below the plug.
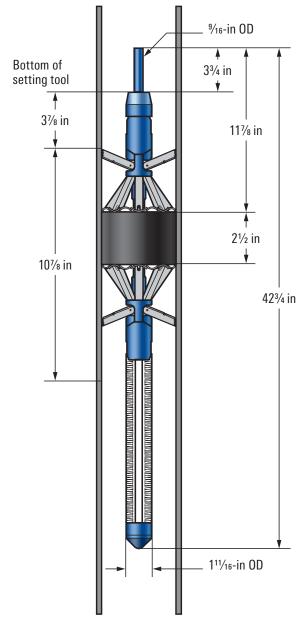
The casing seal is similar to that produced by a cast-iron plug, but instead of an explosive charge, a downhole electric motor within the mechanical plugback tool setting unit (MPSU) is used to contract the elastomer sealing assembly to form a firm seal against the casing wall. The expansion ratio is typically 3:1. An anchoring system keeps the tool in place and enables it to withstand higher differential pressure while cement is placed on top of the plug to a height of 10 ft [3 m] or more.

Because the PosiSet tool does not need a vent, it eliminates a slickline run that vented plugs require and increases reliability. The PosiSet tool is drillable. The smallest tool can withstand 25,000-lbf [111,205-N] force. The largest (9 5/8-in [24.45-cm]) plug can withstand 90,000-lbf [400,340-N] force.

The PosiSet tool can be set in open hole, across perforations, and in gravel-pack screens.

With a temperature rating of 302 degF [150 degC], the positive displacement dump bailer is used to place the required cement plug on top of the PosiSet tool. Release of a weight bar displaces cement from the bailer sections.

The PosiSet tool can be pressure tested 24 hours after the last bailer run, when the cement is at approximately 90% of its ultimate compressive strength.

4½-in or 5-in PosiSet mechanical plugback tool with 1 11/16-in OD.

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PosiSet Tool Specifications for 4½-, 5-, 5½-, 7⅝-, and 9⅝-in Casing

PosiSet tool number	H345225	H345226	H345042	H403320	H345700
Casing size, in	4½	5	5½	7⅝	9⅝
Casing ID range, in [mm]	3.5–4.02 [88.9–102.1]	4–4.52 [101.6–114.81]	4.5–5.02 [114.3–127.5]	6.5–7.02 [165.1–178.3]	8.43–9.01 [214.1–228.9]
Key dimension ratings					
A: Seal length, in [mm]	2.7 [68.58]	2.5 [63.5]	3 [756.2]	4.1 [104.1]	5.5 [139.7]
B: Tool bottom distance to seal, in [mm]	8.1 [205.74]	8.1 [205.74]	8.1 [205.74]	22 [558.8]	21 [533.4]
C: Anchor to anchor, in [mm]	11.1 [281.94]	10.9 [276.9]	14.5 [368.3]	22 [558.8]	21 [533.4]
D: Set length without cement, in [mm]	39 [990.6]	39 [990.6]	31 [787.4]	47.6 [1,209]	31.8 [807.7]
Tool ratings					
Temperature, degF [degC]	340 [171]	340 [171]	300 [149]	275 [135]	275 [135]
Pressure, psi [MPa]	1,000 [6.89]	1,000 [6.89]	500 [3.45]	1,000 [6.89]	500 [3.45]
Running OD, in [mm]	1.688 [42.9]	1.688 [42.9]	1.688 [42.9]	2.1 [53.34]	2.6 [66.04]
Minimum restriction, in [mm]	1.77 [45]	1.77 [45]	1.77 [45]	2.18 [55.37]	2.75 [69.85]
Anchor slip force, lbf [N]	25,000 [111,206]	25,000 [111,206]	25,000 [111,206]	50,000 [222,411]	50,000 [222,411]
Other properties					
Delivery length, ft [m]	7.5 [2.29]	7.5 [2.29]	10.83 [3.3]	10.42 [3.18]	12.08 [44.2]
Air weight, lbm [kg]	28 [12.7]	28 [12.7]	37 [16.8]	56 [25.4]	67 [30.4]
Setting time (approximate), min	17	17	60	60	90
Shelf life at 80 degF [27 degC], year	4	4	2	2	2
Set in perforations	Yes	Yes	Yes	Yes	Yes
Set in screen	Yes	Yes	Yes	Yes	Yes
Set in crossflow	Yes	Yes	Up only	Yes	Yes
Set in open hole	Yes†	Yes†	Yes†	Yes†	Yes†
Cement recommended	Yes	Yes	Yes	Yes	Yes
MPSU AA/BA set	Yes	Yes	Yes	Yes	No
MPSU CA set (2⅛)	Yes	Yes	Yes	Yes	Yes

All specifications are subject to change without notice.

† Hole must be circular. Actual hole diameter required. Pressure rating may not apply. Differential pressure is dependent on formation strength.

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PosiSet Tool Specifications for 7-in Casing					
PosiSet tool number	**H405500**	**H405501**	**H405502**	**H345099**	**H345100**
Casing size, in	7	7	7	7	7
Casing ID range, in [mm]	5.88–6.12 [149.4–155.4]	6.12–6.33 [155.4–160.8]	6.33–6.53 [160.8–165.9]	5.88–6.25 [149.4–158.8]	6.25–6.62 [158.8–168.1]
Key dimension ratings					
A: Seal length, in [mm]	4.5 [114.3]	4.4 [111.8]	4.3 [109.2]	2.25 [57.15]	2.25 [57.15]
B: Tool bottom distance to seal, in [mm]	19 [482.6]	19 [482.6]	23.5 [596.9]	9 [228.6]	9 [228.6]
C: Anchor to anchor, in [mm]	14.6 [370.8]	14.5 [368.3]	23.5 [596.9]	16.25 [412.8]	16.25 [412.8]
D: Set length without cement, in [mm]	39.8 [1,010.9]	39.8 [1,010.9]	49.8 [1,264.9]	41.75 [1,060.5]	41.75 [1,060.5]
Tool ratings					
Temperature, degF [degC]	340 [171]	340 [171]	340 [171]	300 [149]	300 [149]
Pressure, psi [MPa]	1,500 [10.3]	1,500 [10.3]	1,500 [10.3]	500 [3.45]	500 [3.45]
Running OD, in [mm]	2.125	2.125	2.125	1.688	1.688
Minimum restriction, in [mm]	2.18 [55.37]	2.18 [55.37]	1.77 [45]	1.77 [45]	1.77 [45]
Anchor slip force, lbf [N]	50,000 [222,411]	50,000 [222,411]	50,000 [222,411]	37,000 [164,584]	37,000 [164,584]
Other properties					
Delivery length, ft [m]	9.17 [2.8]	9.17 [2.8]	10.25 [3.12]	11.17 [3.4]	11.17 [3.4]
Air weight, lbm [kg]	45 [20.4]	45 [20.4]	54 [24.5]	40 [18.1]	40 [18.1]
Setting time (approximate), min	60	60	60	41	41
Shelf life at 80 degF [27 degC], year	4	4	4	4	4
Set in perforations	Yes	Yes	Yes	Yes	Yes
Set in screen	Yes	Yes	Yes	Yes	Yes
Set in crossflow	Yes	Yes	Up only	Yes	Yes
Set in open hole	Yes†	Yes†	Yes†	Yes†	Yes†
Cement recommended	Yes	Yes	Yes	Yes	Yes
MPSU AA/BA set	Yes	Yes	Yes	Yes	No
MPSU CA set (2⅛)	Yes	Yes	Yes	Yes	Yes

All specifications are subject to change without notice.

† Hole must be circular. Actual hole diameter required. Pressure rating may not apply. Differential pressure is dependent on formation strength.

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