



PRODUCT CATALOGUE

longhorntools.com

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COMPANY PROFILE - DEVELOPMENT

DEVELOPMENT

The Fill Drill casing landing tool began development in 2009, with the purpose of developing a new technology to assist in casing landing operations. With the invention of horizontal and directional drilling, many technological advancements have been made in the oil and gas industry over the last 25 years; however, these advancements have been geared toward drilling these often difficult and technical wells, and overcoming the challenges faced by an increasing desire to drill deeper, farther and faster.

Once the well is drilled, running casing has proven to be increasingly problematic, as these wells have become much more technical through the years, very little has been done to address these problems. The Fill Drill, our first product, was developed with these issues in mind. The first prototype was constructed in June 2010, and the first trial run was conducted for Encana August 17th, 2010. Since then, Longhorn Casing Tools has conducted approximately 190 tool runs and achieved an impressive 98% success rate landing casing at the desired depth.

CONCEPT AND TOOL FUNCTION

The Fill Drill was designed to provide rotation at the end of the casing string by reciprocating the casing string, rather than rotating the string at surface, to overcome torque build-up issues. Using hydraulic pressure provided by the mud pump, or in some cases through mechanical force, the lower assembly of the tool rotates around the helical mandrel, extending into an extended "open" position. By setting weight on the tool, the lower assembly travels up the mandrel, causing right hand rotation on the lower assembly. By picking up the casing string, the hydraulic or mechanical force induces left hand rotation on the lower assembly. By rotating in both directions, the tool is effectively torque neutral, causing no torsional translation up the casing string.

THIS ROTATION CAN BE USED TO:

- Agitate fill and bridges so that it can be broken up and circulated to surface
- Assist in keeping cuttings suspended through non-linear flow, decreasing fall off
- Ream tight spots caused by swelling shales and other geological issues
- Navigate ledges, washouts and doglegs



CASING LANDING - PRODUCTION

THE Fill Drill

RECIPROCATING CASING LANDING TOOL



The Fill Drill was designed to provide a mechanical solution to address obstacles that interfere with getting your production casing string to bottom. Featuring an all steel design, the tool is designed to provide maximum revolutions to facilitate reaming, agitating of fill and debris, as well as deflection off of ledges, obstructions and washouts. By using a simple, well-engineered design, and top quality manufacturing, the Fill Drill provides an effective and reliable solution without sacrificing quality or strength; it is designed to be the strongest part of any casing string, and that equates to peace of mind for our customers. Cost effective, the Fill Drill is currently a staple for many oil and gas majors.

Applications: Surface, Intermediate & Production Casing

Non - Drillable

Available In: 4.5" 5.5" 7" 9 5/8"

Bit OD Adjustable To Client Spec



AUTO-SET



The Auto-Set was developed to assist in running casing and liners in applications where hydraulic pressure cannot be induced to the bit, or where circulation through the casing is impossible. By using a high tensile spring design, the tool is reset to the open position by reducing weight on bit, rather than hydraulic pressure. This tool has been used in SAGD, polymer flood, slotted liner, and lost circulation applications to excellent results, and can be used in any size or application that does not require the tool to be drilled out. The Auto-Set is also perfect for Single and Multi-Stage packer completions, as it provides downhole solutions without relying on internal hydraulic pressure. The tool is also sealed to prevent the production of sand, cuttings and paraffins through the tool, both during the casing run as well as during production.



AUTO-SET With Sleeve (Cut-Away)

Applications: Production Casing, Slotted Liners, Multi-Stage Packers, SAGD, Lost Circulation Zones

Non - Drillable

Available In: 4.5" 5.5" 7"

CASING LANDING - SURFACE & INTERMEDIATE

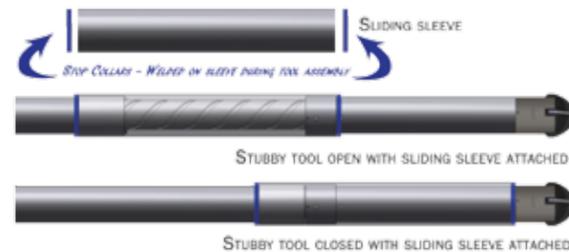


After the success and early adoption of the Fill Drill Casing Tool, a demand arose for a PDC drillable version for surface and intermediate casing strings. Shortly after, the "Stubby" was born, named for the shortened stroke length in order to reduce drill-out time. The Stubby internals are made from industrial grade aluminum alloy and bronze components, both of which lend to the strength and durability of the tool in tough downhole conditions, and facilitate smooth clean drill-outs without causing damage to the PDC drill out bit. The 7" Stubby quickly became our strongest seller, and has over 100 runs to date. The Stubby boasts a 98% success rate of getting casing to TD, and has been pitted against sand, swelling shales, coal seams, ledges and washouts all over the world.

Applications: Surface, Intermediate & Production Casing

PDC Drillable

Available In: 4.5" 5.5" 7" 9 5/8"



The LedgeMaster was designed with a specific application in mind: Dealing with extreme ledges and doglegs in wells where AFE constraints require cost effective solutions. Fully PDC drillable, the LedgeMaster series casing landing tool utilizes a 1 foot stroke to provide $\frac{3}{4}$ of a revolution, enough to orient an eccentric bit to find the open hole. Not meant for applications that require extreme fill removal or reaming, the LedgeMaster can be equipped with a more aggressive eccentric bit should fill or reaming be necessary. By reducing the overall stroke length, we also effectively cut the drill-out time to 20-30 minutes. There is no better or more cost effective self-orientating PDC Drillable eccentric casing shoe on the market today.

Applications: Surface, Intermediate & Production Casing, Ledges, Doglegs and Washouts, Minor Fill Removal

PDC Drillable

Available In: 4.5" 5.5" 7"

CASING LANDING BITS

NEGOTIATOR



The Negotiator bit was designed with a rounded bullnose profile to deflect off of ledges, washouts and doglegs. Featuring an all steel construction, the bit is equipped with 4 stabilizers tipped with tungsten carbide to facilitate reaming, cutting and agitation. The first trial run was conducted for Encana August 17th, 2010. Since then, Longhorn has conducted approximately 190 tool runs and achieved an impressive 98% success rate landing casing at the desired depth.

ALUMINUM NEGOTIATOR



The Drillable Variant of the Negotiator, the Aluminum Negotiator has the same general profile of its steel counterpart.

BRONZE BRIDGE BREAKER



Designed to handle coal seams and swelling shales, the outer row of cutters is designed to cut the exposed shales and coal into large pieces, which are then further broken down by a row of inside cutters for easy removal by circulation. The Bridge Breaker was upgraded to all bronze construction which makes it completely drillable, and is outfitted with tungsten carbide buttons to resist wear, and tungsten carbide clusterite to increase its cutting and agitation power.

CASING PILOT



The Casing Pilot is a PDC drillable bit made completely out of bronze, with tungsten carbide cutting faces and tungsten buttons on the OD, helping to reduce wear through friction. The Casing Pilot was designed to be the best all-around bit, suitable for reaming and bridge removal regardless of geology. The profile of the Casing Pilot maintains a long taper, allowing for deflection off of ledges, washouts, and doglegs.

SLIDER ECCENTRIC



The slider eccentric bit is a cost effective solution for situations involving extreme washouts, ledging and doglegs. Through rotation provided by the casing landing tools, the long eccentric nose of the bit is aligned towards the open hole, acting as a guide to deflect off of the obstructions and continue past quickly. It features a smooth profile that excels at sliding, but is not designed for fill agitation. The Slider is made of aluminum composite, and is completely PDC drillable.

RHINO ECCENTRIC



The Rhino eccentric bit is a heavy duty bronze drillable eccentric bit featuring a similar profile to the Slider bit, however is equipped with stabilizers and a cutting face to assist with bridges and reaming as well. The long, eccentric profile seeks out open hole through rotation provided by the casing landing tools. Despite the eccentric shape, it provides 3600 reaming capability along the OD, and is equipped with tungsten carbide cutting faces and tungsten carbide buttons along the OD to resist wear.

SMART BIT - REAMING SHOES

SMART BIT

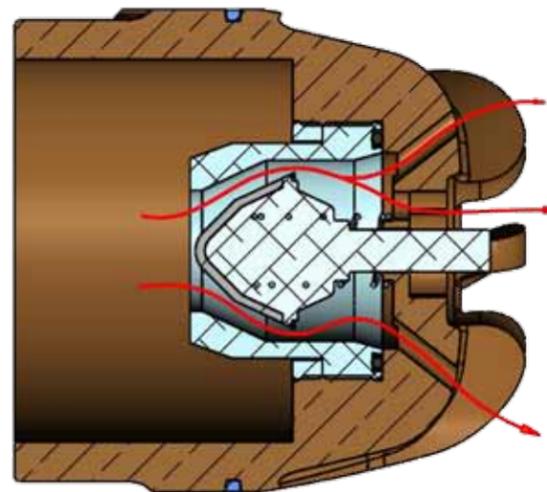
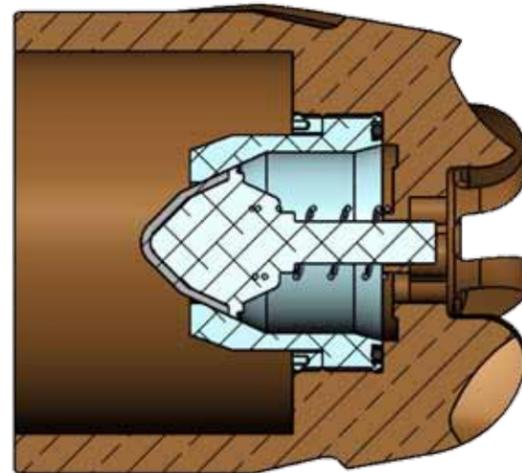
In instances where the client elects to rotate their casing string as a part of their standard operating procedures (such as vertical wells, or when premium casing threads and torque rings are necessary), the Smart Bit can be used in place of a standard casing shoe. Available in any of the Longhorn casing bit profiles, Smart Bit allows the customer to select the profile that suits the expected downhole conditions.

Completely drillable, the Smart Bit is designed to incorporate an internal float assembly in the ID of the bit for cementing operations. The float assembly is made of industrial aluminum alloy, and the plunger is thermal polymer coated to resist abrasion and heat issues, while providing an exceptional seal and sturdy construction. Compared to many reaming casing shoes on the market, Smart Bit is economical, durable, and specialized to insure the best chance at successfully landing the casing string at TD.

Applications: Replace Standard Float Shoe

Bit OD Range: Customizable to Customer Requirements

Available In: Drillable and Non - Drillable



WELL BORE CLEANOUT



sandworm
DOWNHOLE CLEANING TOOL



The Sandworm cleanout tool features a similar design to the casing tools, but is specifically designed to cleanout produced sands and paraffins from producing wells. Available in a variety of sizes, the sandworm can be equipped to clean tubing and casing from 2 3/8" to 9 5/8" ID. When used on a service rig, reciprocation of the tubing along with pump pressure actuates the tool, providing a mechanical solution to cleanout production hampering debris. When used with Coil Tubing, the tool uses the increased hydraulic pressure to auger its way through the obstruction, and the coil is run in to close and reset the tool; this technique is used to minimize reciprocation, saving expensive meterage charges and wear on the coil stubbing string.

Applications: Coil Tubing Cleanout, Service Rig Cleanout

Bit OD Range: 2 3/8" - 9 5/8"

Available In: 2 3/8" 2 7/8" 4.5" 9 5/8"





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