Thread Head Beacon Housing
The Ditch Witch organization's Thread Head beacon housing was developed as a more durable, versatile, and productive alternative to the tapered-head beacon housings previously offered by the company. These solid, rugged tools are designed with meticulous attention to the unique rigors of directional drilling.

Designed for use with most Ditch Witch directional drills, Thread Head beacon housings have many features exclusive to the horizontal directional drilling (HDD) industry, including:

- *Exceptional hole-boring efficiency.* The Thread Head beacon housing is compatible with the Ditch Witch Talon Bit, a four-bit drilling head that can cut a smoother, rounder hole than a standard three-bit head can. With a smaller, more precise hole, less drilling fluid is required because there are fewer cuttings to remove, saving time on cleanup. Also, Talon Bit bores can be finished faster, reducing stress on the machine and electronics.
- *Straight thread pattern*. All threads have full contact at all times, providing an exceptionally solid connection.
- *Recessed lid.* This design feature reinforces the integrity of the Thread Head beacon housing and reduces the possibility of the housing breaking off downhole, improving overall productivity.
- *Interchangeable thread-in drill heads*. Thread-in heads, as opposed to the bolt-on variety, enable the operator to use different bits (to adjust to different soil conditions) on the same housing.
- *Easiest assembly, disassembly on the market.* Benefits are less time on the shop table and more time downhole.
- *Check valve between the bit and the housing*. This feature prevents backflow of mud, sand, etc., into the housing, protecting the electronics.
- *Beacon Buddy*. If the housing overheats, the patented Beacon Buddy melts and flows around the beacon to protect it from overheating.

BITS
Ditch Witch bits are engineered to the same rigorous, exacting standards as the HDD equipment that drives them. They are specifically designed and manufactured to provide long-lasting productivity, and are part of a complete line of high-quality Ditch Witch downhole tools.

- **Aggressive Talon Bit** - A multi-use bit designed for a variety of soil conditions, including sandstone, shale, and chunk rock. Originally featuring a tapered head beacon housing, the new and improved Aggressive Talon Bit has a thread-on shank that provides greater reliability and durability in tough conditions. In front of the tool are four replaceable, carbide-tipped cutting teeth. The angle of the cutting teeth enables the Aggressive Talon Bit to more effectively carve into rock, and carbide buttons in its abrasion-resistant, steel-bit body reduce wear when working in tough conditions.
- **Barracuda Bit** - Made of abrasion-resistant steel, the Barracuda Bit is designed with tungsten carbide chips in a special weld bead matrix along the front edge, for

improved performance and wear. The Barracuda Bit can be used in all soil conditions, especially cobble, chunk rock, and glacial till.

- **Durabit Bit** - The Durabit Bit is designed to provide extended wear in all non-rock soil formations. Tungsten carbide segments along the leading edge and an abrasion-resistant steel body combine to make the Durabit Bit ideal for most soil types.
- **Glacier Bit** - With its streamlined design—steep, large steering surface and small nose—the Glacier Bit enables you to push and steer better in hard formations. Strategically placed carbides prolong the life of this bit and protect the leading edge of the housing. The Glacier bit is available for use with threaded high-flow housing or patented Taper Head housing.
- **Grade Bit** - The Grade Bit is designed to help the drill head stay on grade. Shorter and narrower than our standard bits, the Grade Bit allows steering corrections to be executed more gradually. The Barracuda version can be used in all soil conditions, especially cobble, chunk rock, and glacial till. The long-wearing Tuff Bit version is ideal for all soil conditions including hard, compacted soils or soft, sedimentary rock.
- **Hard Surface Bit** - Made of abrasion-resistant steel with a weld bead of very hard, chip-resistant material, the Hard Surface Bit is used in cobble and chunk rock conditions.
- **Rhino Rock Bit** - Available as a bolt-on or to fit patented taper head housing, the Rhino Rock Bit is designed for use in soft to medium rock that is beyond the capabilities of standard bits. It also is effective for drilling in soil, eliminating the need for frequent bit changes as soil conditions change.
- **Sand Bit** - With its square nose, the Sand Bit is ideal for soft soil and sandy conditions.
- **Steep Taper Bit** - Designed with a pointed triangle-shaped nose, the Steep Taper Bit can be used in highly compacted soil, light rock and cobble.
- **Steep Taper Tuff Bit** - Designed for hard, compacted soils and soft, sedimentary rock, The Steep Taper Tuff Bit features a pointed triangle-shaped nose. The Tuff bit segments along the leading edge have the strength and stability to handle the pounding and vibration of drilling in rock.
- **Taper Head Glacier Bit** - With its streamlined design—steep, large steering surface and small nose—the Taper Head Glacier Bit enables you to push and steer better in hard formations. Strategically placed carbides increase its durability.
- **Taper Head Rhino Rock Bit** - The Taper Head Rhino Rock Bit produces a 4.5"-diameter hole in soft to medium rock—beyond the capability of standard bits. This bit plugs into the beacon housing in the correct orientation and eliminates changing the isolators for clocking the beacon. Tungsten carbide inserts on the bit body protect the beacon housing, and the two jets help prevent nozzle plugging.
- **Tornado Bit** - This long-lasting, all-purpose bit is designed for use in a variety of soils, including sandstone, chunk rock, and hard soils. There are nine Tornado Bits, from the 3-inch up to a 6.4-inch, designed for use with nearly all Ditch Witch directional drills.
- **Tri-Cone Bit (Mill Tooth)** - Used with a jetting assembly, these bits feature mill tooth cones designed to cut in hard, compacted soils and soft to medium rock.

Both new and rerun bits are available. Certain sizes of the Tri-Cone bits are used on our All-Terrain systems, too.

- **Tri-Cone Bit (TCI)** - Used with a jetting assembly, this bit is designed to cut in medium to hard rock. Both new and rerun bits are available. Certain sizes of the Tri-Cone bits are used on our All-Terrain systems, too.
- **Tuff Bit** - The Tuff Bit is the ultimate long-wearing bit for all soil conditions, including hard, compacted soils or soft sedimentary rock. The Tuff Bit segments along the leading edge have the strength and stability to handle the pounding and vibration of drilling in rock, and the Barracuda material down the sides reduces wear on the nose of the housing.

BACKREAMERS

Ditch Witch backreamers are designed to handle a wide range of job conditions. From the cutting and expanding requirements of extreme soil conditions like rock, chunk rock, and cobble, to the challenge of managing the spoils of long bores, Ditch Witch backreamers are engineered to be flexible and productive.

- **Beavertail Backreamer** - Low-weight design, low-resistance profile, and efficient fluid handling requires far less horsepower for rotation in a variety of soil conditions.
- **Compact Fluted Backreamer** - Used for cutting and compacting the hole in medium to tough soil conditions. Nozzles over the entire body provide good mixing action and efficient lubrication in the soil.
- **Fluted Cone Backreamer** - Designed for cutting and compacting the hole in medium to tough soil conditions, the Fluted Cone Backreamer is manufactured using modern casting technology that creates products that are strong, durable, lighter in weight and more economical than solid steel. This tool has a built-in swivel and carbide-faced Shark Tooth cutters for maximum productivity and durability. Fluid ports are positioned for efficient fluid mixing and for lubrication of hole, tool and the product being installed.
- **Kodiak Cobble Backreamer** - Designed for extreme soil conditions—such as rock, chunk rock, and cobble—where a paddle-type reamer could not survive. Spiraling flutes provide a cutting surface that allows cuttings and fluid to flow behind the reamer and over the product.
- **Rockmaster Backreamer** - Designed for heavy or solid rock bores, the Rockmaster is available in three reamer body sizes with replaceable mill tooth or TCI Cutters. Hole diameters range from 6" (152 mm) to 14" (355 mm), depending on the reamer body used. Certain sizes of the Tri-Cone bits are used on our All-Terrain systems, too.
- **Three-Wing Rock Backreamer** - Designed for low torque pressures, excellent fluid mixing and flow, the Three-Winged Rock Backreamer enables you to backream in extreme soil conditions such as hard, compacted soils, sandstone and softer limestones.
- **Water Wing Backreamer** - Features an innovative and durable three-wing cutter design. Fluid is delivered on each wing at the cutting edge, which keeps the cuttings flowing out instead of balling up on the reamer.