

Oilfield Tubular Services

LOCATIONS:

HARDBANDING & INSPECTION

Louisiana
Broussard
Shreveport

HARDBANDING

Texas
Houston
Odessa

North Dakota
Williston

Oklahoma
Oklahoma City

Wyoming
Rock Springs



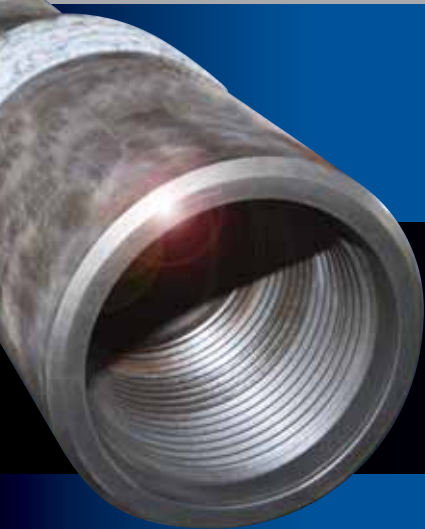
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Knight Oil Tools' objective is to cost-effectively, efficiently and safely help optimize drilling operations around the world.

TRI*DRILL SERVICES



Tri*Drill Services – complete tubular services... anytime, anywhere

INSPECTION SERVICES

- FLUT Inspection
- UTEA Inspection
- EMI Drill Pipe Inspection
- BHA Inspection
- Portable Lathe Refacing
- Water Blasting
- Tubular OD/ID Brushing / Rattling

HARDBANDING APPLICATIONS

- Tri Tanium Hardband
- Tuffband NC
- Smooth X Tungsten
- Armacor M
- C/T
- Duraband NC

Knight Oil Tools' Tri*Drill Services business unit, established in 1996, is a full-service provider of NDT inspections and hardbanding for drill pipe, bottom hole assembly components and heavy lift rig and handling equipment. Tri*Drill Services also offers pipe maintenance services and storage. Inspection units are mobile for both land and offshore drilling operations, while hardbanding units are available for land rig or yard locations.

Our services are available 24/7 with our standard to provide the highest quality service while meeting or exceeding all safety requirements. We continue to upgrade our quality process with programs such as DNV (Det Norske Veritas) and Fearnley Procter NS-1 and NS-2 certifications.

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| <ul style="list-style-type: none"> • Full Length Ultrasonic Inspection (FLUT) of Drill Pipe • Ultrasonic End Area Inspection • EMI Drill Pipe Inspection • Bottom Hole Assembly (BHA) Inspection • Hoisting & Handling NDE Equipment Inspection • Portable Lathe Refacing – Drill Pipe, Hevi-Wate Drill Pipe and Drill Collars | <ul style="list-style-type: none"> • Pipe Maintenance <ul style="list-style-type: none"> – Water Blasting – OD/ID Brushing – OD/ID Coating • Hardbanding <ul style="list-style-type: none"> – Portable Units – Stationary Units • Hardness Testing • Full Machine Shop Services |
|--|--|

Our full-service facility located in Broussard, La. has a 30-acre yard that operates around the clock, seven days a week to service customers in the Gulf Coast, ArkLaTex and Oklahoma regions.

Ensuring Safe Operations

As a recognized leader in safety training and preparedness, Tri*Drill Services has implemented in-house training programs to prepare employees to safely handle every situation from tool preparation to environmental issues. Tri*Drill Services maintains the highest level of safety certification – ASME Section 9.





Accurate and Reliable Inspection and Documentation

- **FLUT Inspection** – The FLUT unit is a pulse echo system that detects transverse, longitudinal and oblique flaws while giving wall thickness reading over 100% of the drill pipe tubes and electronically records all data.
- **UTEA (Ultrasonic End Area) Inspection** – UTEA inspections on drill pipe and surfaces scan 36" on the pin and 48" on the box running towards the tool joints, concentrating heavily on the weld zone. Instrumentation of shear wave with the proper transducers look for imperfections that other NDT inspection methods cannot identify.
- **EMI Drill Pipe Inspection** – EMI units are dual-function units with Hall Effect sensors that provide a full range of pipe inspection. Mobile units are available for rig locations – onshore and offshore.
- **BHA Inspection** – Magnetic particle, black light, dye penetrant and full RSC dimensional inspection methods are used to perform BHA inspections on any drilling component. Mobile units are available for both land and offshore drilling operations.
- **Hoisting and Handling Equipment Inspection** – Tri*Drill Services provides an inspection and electronic documentation program for heavy lift equipment used on drilling rigs.
- **Portable Lathe Refacing** – Portable lathe refacing unit can reface and re-bevel API-type connections with superior results when compared to the sand paper method. The surfaces will be a smooth machine finish with machine shop accuracy, providing a reliable bevel and sealing surface on connections.
- **Water Blasting** – Tri*Drill Services has the capability at our Broussard, LA facility to remove scale, rust, corrosion and cement with pressure up to 20,000 psi. The system is fully contained and all waste is disposed through an EPA-certified company and documentation is maintained.
- **Tubular OD/ID Brushing/ Rattling** – Our brushing unit is designed to remove rust, scale and dried drilling fluid over the entire length of the pipe tube.

***All of the above services are available for Range II, Range III and HDLS (Heavy Duty Landing String) pipe.*

Whether performing inspections on drill pipe, tubing, BHA components or heavy lift rig and handling equipment, Tri*Drill Services ensures accurate, reliable and superior results.

Our level I and level II inspectors are certified and tested according to ASNT guidelines and follow DS-1 specifications. Tri*Drill Services also has an ASNT certified level III on staff who is a current associate member of I.P.I.A.



Tri*Drill Services' Hardbanding Product Line has more than 60 years experience and is an industry leader in applying alloys on drill stem components. Our "casing-friendly" hardbanding extends the life of drill strings by reducing casing wear from 14% without hardbanding to as little as 5% with the application of the appropriate alloy.

Tri*Drill Services' hardbanding process stands apart within the industry – from its unmatched safety standards and equipment to its plasma cutting services – which provide for the smooth removal of previous alloys prior to re-application.

Hardbanding Applications

Knight Oil Tools' Tri*Drill Services business unit offers six hardbanding options – each determined by the downhole environment, the region being drilled and the size and type of pipe.

- **Tri Tanium Hardband** – Application is one of the best wear-resistant alloys in the industry today and is proven to be the most effective option for reducing casing and tool joint wear. This application is appropriate for new or non-hardbanded tool joints only. Tri*Drill Services is NS-1 approved for new applications and reapplications at its Broussard facility.
- **Tuffband NC** – Application is casing friendly and can be applied on most types of existing hardband applications. Unlike most reapplications, to apply Tuffband NC it is not necessary to remove the existing hardband application, making this a cost effective solution. Tungsten Carbide pellets can be added to Tuffband NC to create the ultimate wear resistance for the drill string in the open hole. Tri*Drill Services is NS-1 approved for new applications and reapplications at its Broussard facility.
- **Smooth X Tungsten** – Application is tungsten-based and used on bottomhole assemblies and in abrasive conditions to prevent tool joint wear in severe conditions.
- **Armacor M** – Application is a chromium-based flux core wire used to reduce casing wear. This alloy should be applied on new tool joints or over the existing Armacor M coating.
- **C/T** – Application is a chromium- and tungsten-based powder alloy producing a non-casing-friendly and abrasive wear-resistant application. This application is useful for highly abrasive conditions.
- **Duraband NC** – Application is a casing friendly tool steel, abrasive wear-resistant alloy with a non-cracking application that can be applied over most worn applications. Tri*Drill Services is NS-1 approved for new applications and reapplications at its Broussard facility.

Hardbanding Benefits/Advantages

- Tri*Drill Services' hardband produces a 3/32" raised application on drill stem components, resulting in longer lasting tubulars and reduction of casing wear.
- Portable hardbanding units save pipe transportation costs.
- Tri*Drill Services is one of the few companies in the industry that provide plasma removal along with hardbanding services. The ability to easily and effectively remove existing hardbanding gives customers another cost-effective solution.
- Hardbanding stenciling system provides a history of hardbanding applied by Tri*Drill Services.