DRILLING TOOLS® INTERNATIONAL

COMPLETION

FRICTION REDUCTION TOOLS

Advanced technology for hard-to-reach trajectories

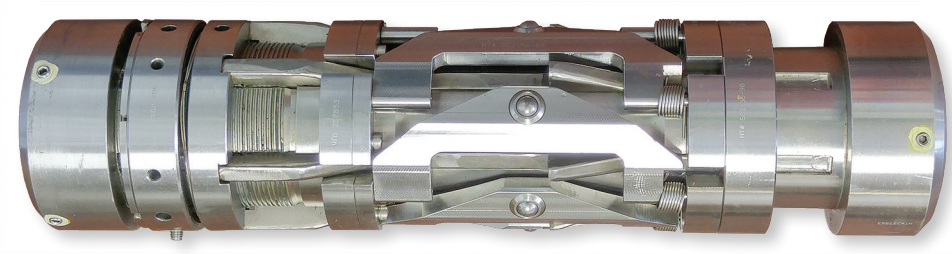
www.drillingtools.com

LET THE GOOD TIMES ROLL

Drilling Tools International offers an alternative solution to the demanding issues of deployment and retrieval of tubing, casing, and/or accessories. We utilize ball transfer systems to help manipulate equipment needing to reach trajectories that are difficult by standard means. The ball transfer systems allow 360° rotation in all directions, helping equipment maintain crucial momentum during movement. Redundancy in the system allows for smoother deployment and retrieval, plus maneuverability of assemblies.

Tools that spin around the competition

- Reduces friction in all planes – vertical, horizontal, and diagonal
- Reduces torque and drag continually
- Helps maintain momentum due to spherical shape – allowing movement to area of least resistance
- No axis (which can shear and add friction when not given into account)
- Reduces wear and integrity damage to surface areas where the balls travel
- Allows for more maneuverability of tools being deployed or retrieved



ADJUSTABLE TENSION CENTRALIZER TOOLS (ATCT)

The Adjustable Tension Centralizer Tool (ATCT) assists toolstrings in getting in and out of wells that require centralization. The ATCTs are versatile enough to accommodate proper placement along a toolstring or workstring. Since tubing and casing sizes and weight vary, the tools need to be flexible, adjustable, and rugged enough to withstand tough deviations while maintaining the ability to maneuver the toolstring or workstring. The mission of the ATCT is to allow toolstring or workstring to ease downhole, and back uphole utilizing a ball transfer system.

Benefits:

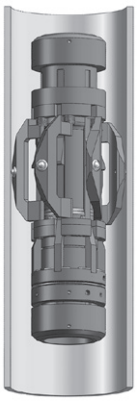
- Attaches at the top and bottom of the centralizer to tools, allowing the mid-section to freely rotate
- Able to cover a range to help eliminate rig downtime should the gauge run become unsuccessful
- Large size is adjustable to cover range of 6.00" to 9.10" (7" to 9⅞").
- Smaller size is adjustable to cover range of 3.90" to 5.50".
- Spring-loaded arms allow small amount of collapse to accommodate "tight spots"– roughly ⅛" to ¼" depending on setting
- Slips over tools and instruments for easy attachment
- Can be adjusted while on the toolstring
- Ball transfer system to allow free rotation in all directions

Adjustable Tension Centralizer Tool
Patent: US 9,399,894 B2

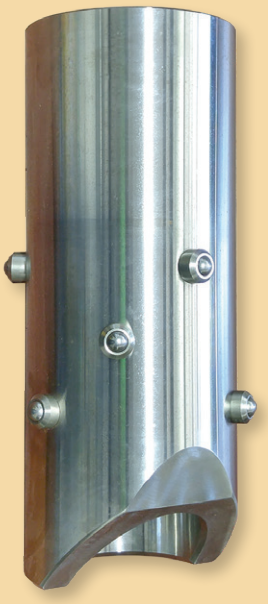
ATCT: a closer look

Drilling Tools' ball transfer system offers the most flexibility in the reduction of torque and drag in vertical, horizontal, and diagonal planes (360°). Conducted tests have shown to be effective in +80° deviated wells. ATCT has also allowed ease with deploying packers and bridge plugs on horizontal wells where the equipment typically had to be pumped down the well. Completion of packer setting and bridge plug setting on electric line also reduces rig downtime and rig costs. It greatly reduces the need to run the equipment using the more expensive work strings and coiled tubing. ATCT will shorten the time needed to set equipment and give a peace of mind when issues of liner damage and debris are of big concern.

ATCT top view in pipe



ATCT cut-out view in pipe



ROLLER SUB MULE SHOE (RSMS)

The Roller Sub Mule Shoe (RSMS) helps ensure integrity of packers and bridge plugs during their deployment. Mostly used in high deviated wells, the RSMS reduces friction and torque. It incorporates a ball transfer system allowing full rotation in all vertical, horizontal, and diagonal directions (360°). Conducted tests have shown to be effective in +80° deviated wells. It has also allowed ease with deploying packers and bridge plugs on horizontal wells where the equipment typically had to be pumped down the well. Completion of packer setting and bridge plug setting on electric line also reduces rig downtime and rig costs. It greatly reduces the need to run the equipment using the more expensive work strings and coiled tubing.

Benefits:

- Can be manufactured with ANY thread. Pin or box. Standard will be EUE 8-rd unless otherwise specified. Some threads may require permission to cut or outsourcing
- Able to cover a range to help eliminate rig downtime should the gauge run become unsuccessful if needed
- Can be manufactured of any material – customer specified
- Available in ¼ mule shoe; ½ mule shoe – standard; and ¾ mule shoe
- Built for top snap out or lower snap out for packer setting operations
- Can be manufactured with threads on the top and bottom (pin by pin, box by box, or a combination) for bridge plug setting operations

TUBULAR ROLLER SUB (TRS)

The Tubular Roller Sub (TRS) helps ensure integrity of tubing and casing during their deployment. Mostly used in high deviated wells, the TRS reduces friction and torque. It incorporates a ball transfer system allowing full rotation and movement in all vertical, horizontal, and diagonal directions (360°). Conducted tests have shown to be effective in +70° deviated wells. Its design allows full integrity without compromising pressure loss or the need to have external centralizers which can break or create fishing problems. Completion of reaching trajectory in a timely manner also reduces rig downtime and rig costs. It greatly reduces the need to run the equipment using weak bow spring centralizers and will shorten the time needed to run tubing or casing.

Benefits:

- Can be manufactured with ANY thread. Pin, box, or combination. Standard will be EUE 8-rd unless otherwise specified. Some threads may require permission to cut or outsourcing
- Able to cover a range to help eliminate rig downtime if needed
- Can be manufactured of any material – customer specified
- Available in wide array of ball transfer placement and amount of ball transfers
- Can be manufactured in smaller versions with threads on the top and bottom (pin or box or combination) for bridge plug setting operations

ROLLER SHIFTING TOOL (RST)

The Roller Shifting Tool provides centralization and flexibility while shifting a profile found in sliding sleeves and side doors. The RST utilizes a ball transfer system, which allows the outside (exposed) ball to roll and rotate against the inner balls. This reduces friction greatly, in comparison to traditional pressed-in ball bearings or bearings housed with racers. The RST removes the need for additional component centralizers, which only centralizes above or below the shifting tool. Since the RST has 3 ball transfers on the core and 3 on the cap, it allows centralization closest to the locating keys. This allows the springs behind the locating keys to exert the same force on both sides and also ensures a smoother shift. The RST is available in sizes of 1.85" (for 1.875" profiles); 2.250" (for 2.313" profiles); 2.700" (for 2.750" profiles), and 2.780" (for 2.813" profiles).

Benefits:

- Allows rotation in a horizontal and diagonal plane to reduce torque
- Allows rolling in a vertical plane to reduce drag
- Reduces the need for lengthy, additional centralizers
- Allows maximum flexibility
- Helps maintain centralization in the tubing and in the sleeve
- Can be used with slickline or coiled tubing

SLICKLINE ROLLER STEM TOOL (SRST)

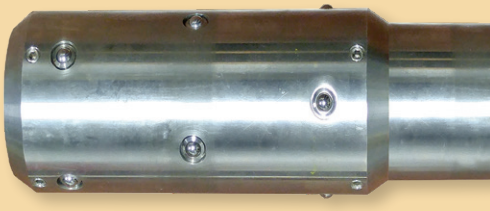
The Slickline Roller Stem Tool provides friction reduction, centralization, and flexibility while deploying and retrieving toolstrings. The SRST utilizes a ball transfer system which allows the outside (exposed) ball to roll and rotate against the inner balls. This reduces friction greatly, in comparison to traditional pressed-in ball bearings or bearings housed with racers. Since the SRST has 6 ball transfer systems on the tool, it allows centralization and the most dynamic flexibility. This allows debris to "roll" off the toolstring to continue in the momentum direction. This also ensures a smoother roll up or down the wells. The SRST provides friction reduction in all planes – vertical, horizontal, and diagonal. It also adds insurance when setting and retrieving plugs and other slickline tools run in the wells. The SRST is available in sizes of 1.25"; 1.500", and 1.750".

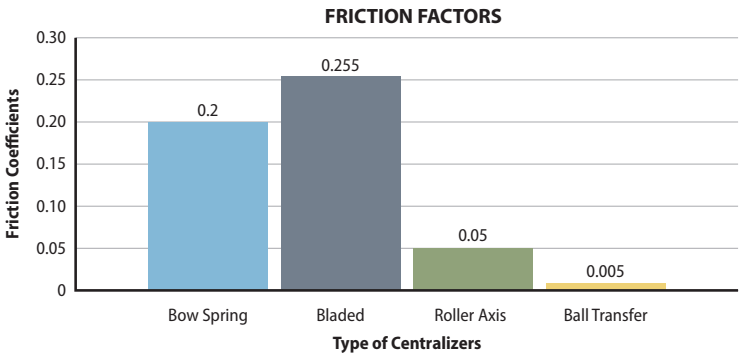
Benefits:

- Allows rotation in a horizontal and diagonal plane to reduce torque where roller wheel systems cannot
- Allows rolling in a vertical plane to reduce drag
- Reduces the need for lengthy, additional centralizers or additional roller stem
- Allows maximum flexibility
- Helps maintain centralization in the tubing and in nipple profiles
- Can be used with slickline or coiled tubing
- Ball transfer system reduces friction in all planes
- When used in conjunction with knuckle joints, allows full and further rotation of the stem(s) independently
- Balls "roll" over or around hard and soft debris while wheel systems "dig" into soft debris and require more force to roll over hard debris

CUSTOMIZED EQUIPMENT

When a job requires specific equipment, Drilling Tools has the solution. Tools can be customized and engineered upon request to meet the demands of each project. We collect vital information prior to engineering and design to ensure a safe and quality product. As with all of our products, we reestablish physics as the ultimate driving tool to enhance mechanical engineered products – not vice versa.





Drilling Tools International, Inc. is a leading provider of downhole tools to the land and offshore drilling markets. For nearly 40 years our company has been guided by the principals of Strength, Innovation and Performance. We consistently deliver world class customer service while providing quality products that meet the demanding drilling applications of today's market.

Our Quality Management System is certified in compliance to ISO 9001, and API Spec Q1 and our manufacturing is licensed to API Spec 7-1. Our Quality Management System governs all of our processes from planning, to process control, to delivery. This ensures that we consistently manufacture products that not only meet API standards but also meet the ever-changing needs of our customers.

Patent Pending

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