

TUBULAR RUNNING SERVICES

CONNECTION INTEGRITY MANAGEMENT

Applying global experience
and diverse technology
to prepare your well for a
lifetime of integrity

DRILLING & FORMATION EVALUATION

■ **WELL CONSTRUCTION**

COMPLETION & STIMULATION

PRODUCTION

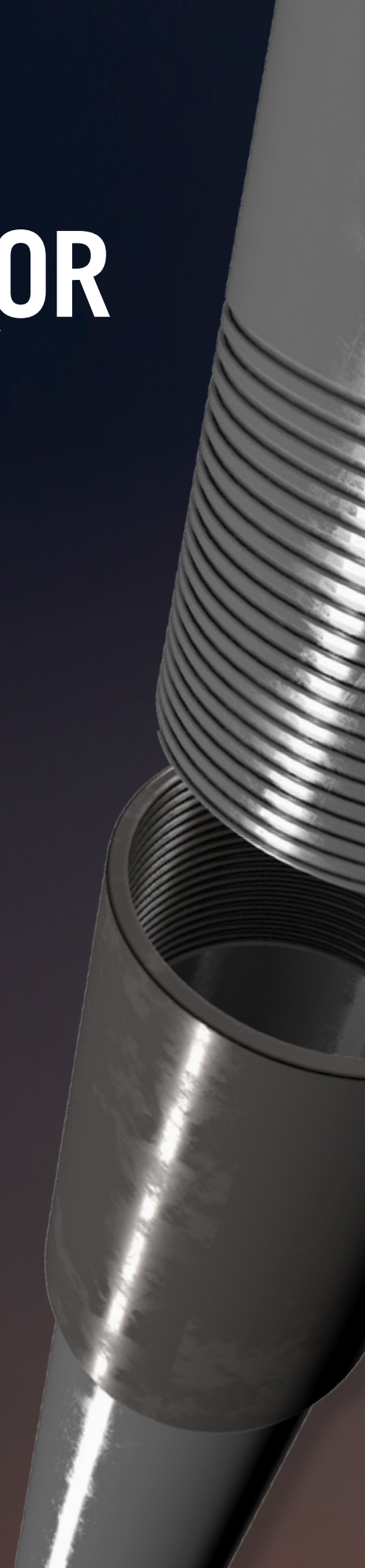


Weatherford®

MAKE ALL THE RIGHT CONNECTIONS FOR WELL INTEGRITY

Each and every tubular string that goes into a well affects overall integrity. A capable service provider and the right technologies can help to make the proper connections and create a well that provides long-term value, dependable isolation, and a lifetime of integrity. As a global leader in tubular running services, Weatherford makes all the right connections to enhance safety, manage risks, and achieve cost efficiency in your operations.

We make virtual connections that enable real-time monitoring, tubular connections that comply with the original equipment manufacturer (OEM) specifications, and physical connections that integrate mechanized equipment into the existing rig infrastructure. With the industry's largest tubular running portfolio, six decades of global experience, and our trained professionals, we can adapt to any operational scenario—whether you work in offshore deepwater or critical onshore wells.





The Makeup of Our Tubular Connections

- NO thread damage
- NO bending or shearing moments
- NO deformation
- NO corrosion damage

The Benefits of Connection Integrity

- Supports proper connection makeup
- Prevents thread-related damage
- Provides thread compensation
- Eliminates bending, shearing, and deformation of the tubular
- Minimizes marking
- Maximizes gripping contact
- Eliminates stress-corrosion cracking



Our torque-monitoring solutions create a virtual connection for monitoring premium-pipe makeup operations. As a result, you can remotely view makeup and breakout to reduce the number of workers on the rig floor. And having fewer people on the rig floor minimizes risks and enhances safety.

Features and Benefits of Virtual Connections

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REAL RESULTS

IMPROVED CASING RUNNING RATE BY 300% with the TorkPro 3 and JAMPro Net systems

Our remote-viewing system and software combination enhanced data access and communication. Executives at the client headquarters collaborated with the rig crew in real time for fast decision making that improved the casing run rate from 3.5 joints per hour to 10 joints per hour—a nearly 300% increase.

LOCATION: NORTH SEA

SAVED \$50,000 FOR EVERY RECORDING ERROR AVOIDED using tubular management services

Our offline services bucked casing in doubles, provided accurate laser tallies of the doubles, and calculated the total string length to eliminate expensive pipe-inventory errors. Integrated with TorkPro 3 software on the rig, the pipe-connection data provided the exact locations of the bucked connections in the string.

LOCATION: PORT FOURCHON, LOUISIANA





TUBULAR CONNECTIONS

made up to OEM specifications with minimal marking



We have the capability to run any pipe, drillpipe, casing, tubing, and even super-chrome pipe for completion running. For all pipe types, we provide technologies that can run each connection into your well in the best condition. Quality connections support pipe performance as intended—a secure mechanical barrier for the life of the well.

Our diverse technologies cover a wide range of connection sizes. All of our power tongs have a unique gated rotary that encircles the tubular to evenly distribute gripping forces and avoid damage. Our tongs also feature our free-floating backup and Micro-Grip* gripping system. These design elements enable handling pipe in a way that preserves it and enhances long-term well integrity.





REAL RESULTS

RAN 321 JOINTS OF 7-IN. PIPE WITH MINIMAL MARKING

by adapting power tongs

Our LinkMaster® tong adaptor helped to integrate various Weatherford tong models with the previously installed tongs from other suppliers. Dressed with Micro-Grip inserts, our 7.6-50 tong enabled making up the 7-in. super-chrome pipe to 25,000 ft-lb (33,896 N-m) with minimal marking.

LOCATION: NORTH SEA

ELIMINATED NPT IN ULTRADEEPWATER WELL

using the AutoCLAMP™ system and RCS-500 completion slips

A custom package with remote-control capabilities and redundant protection systems enhanced efficiency and safety. The RCS-500 completion slips eliminated the need to remove the slips from the rotary table and to work with an open rotary. Used with the slips, our AutoCLAMP system remotely guided and protected 0.5-, 1-, and 2.5-in. control lines while running 4-in. tubulars.

LOCATION: OFFSHORE MEXICO

Features and Benefits of Tubular Connections

- **Mechanized tong portfolio** includes the 7.6-50 tong, 22-150 tong, and 21-300 riser tong to meet your needs.
- **Micro-Grip system**—used in power tong jaws, elevators, and spiders—minimizes die marks on corrosion-resistant alloys.
- **Free-floating backup system** eliminates unwanted forces on tubulars to support connection integrity.
- **Top-drive stand compensator** provides thread compensation when making connections.
- **Completion running capabilities** meet the precise requirements of super-chrome pipe.
- **Hands-free rig technologies** enhance safety and increase productivity.



PHYSICAL CONNECTIONS

made by a competent crew
integrate rig-floor equipment

Rig integration systems can help you to achieve safety and productivity goals that were once impossible in challenging operations. We collaborate with you to design the optimal integrated solution. And we can connect our modular equipment to your existing rig systems in a way that least disrupts the current package and conserves valuable rig-floor space.

The physical connections we make go beyond the rig floor. Widespread physical locations—including regional and office facilities—connect to create our global infrastructure. From these strategic points, we launch reliable connection integrity services with uniform excellence in any geographic region or operating environment. Our tubular running personnel execute these services only after achieving 100 percent mastery in our worldwide training program.

Features and Benefits of Physical Connections

- **Rig integration capabilities** deliver the right solution that connects new and existing equipment.
- **LinkMaster tong adaptor** establishes compatibility between Weatherford tongs and drilling-package positioning devices for tubular running operations.



- **HiPer™ control system** enables remote control of Weatherford mechanized tongs and positioning systems.
- **PowerFrame® tong-positioning system** houses and positions Weatherford mechanized power tongs.
- **TorkWrench® 10-145 iron roughneck** provides up to 145,000 ft-lb (196,594 N·m) of torque for makeup and breakout.
- **Field-ready Weatherford professionals** meet rigorous training and competency standards.
- **Long-term relationship** with premium-pipe OEMs gives us access to the latest specifications for timely equipment updates and accurate connection evaluation.

REAL RESULTS

SAVED \$5.7 MILLION AND ENHANCED SAFETY

with rig interface for casing- and
drillpipe-running transitions

On a mobile offshore drilling unit, the PowerFrame system and TorkWrench iron roughneck enabled safe and efficient switching between casing and drillpipe running—and run rates as high as 19 joints per hour. The hydraulic makeup/breakout unit provided offline work that saved approximately US \$5.7 million in online rig-floor activity over the 20-well campaign.

LOCATION: AUSTRALIA

SAVED MILLIONS WITH ZERO INCIDENTS

for more than 10 years

Weatherford deployed a fully integrated drilling package for hands-free operation from the driller's chair. The TorkWrench iron roughneck enabled efficient makeup and breakdown of bottomhole assembly components and provided reliable joint connections that minimized pipe repairs. Ten years of incident-free operations on this rig represent tens of millions of dollars saved.

LOCATION: GULF OF MEXICO

INTEGRATED NEW AND EXISTING RIG TECHNOLOGY

to improve makeup efficiency for
premium connections

The Weatherford team delivered off-the-shelf equipment and seamlessly integrated it with the operator's equipment, zone management, and anticollision systems. The HiPer control system enabled remote control of the mechanized power tongs, and the TorkPro system precisely applied the correct parameters to premium connections.

LOCATION: NORTH SEA

ENABLED RUNNING >2.6 MILLION FT OF PIPE IN 4 YEARS

with tools and training for operator's crew

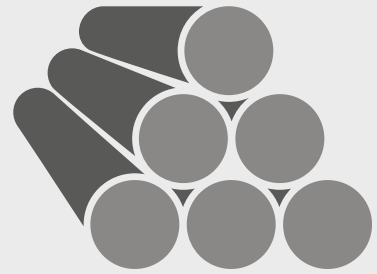
Integrated into the rig, the TorkWrench iron roughneck enabled the client to run more than 497 miles (800 km) of pipe in a multiwell offshore project. Weatherford field technicians provided training and technical support that empowered the client's personnel to independently perform the required inspections.

LOCATION: NORTH SEA



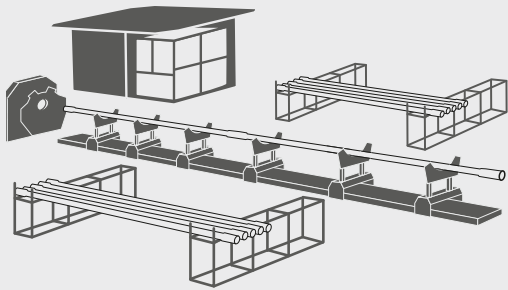
OUR PIPE-MILL TO WELLSITE SERVICES HELP YOU TO **BUILD A BETTER WELL**

As the only tubular running service company in the world to engage in all stages in the life of the tubular, Weatherford is uniquely positioned to help you streamline makeup data, verify connection integrity, and build a secure well.



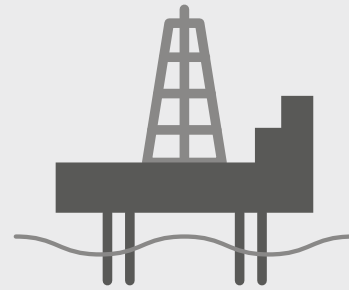
PIPE MILL

Connection integrity begins during the production of oilfield tubulars. Unlike other tubular running service companies, Weatherford is involved in the early life of tubulars. Our bucking units automate the makeup and verification of threaded and coupled connections. Controlled by one operator, these units can produce hundreds of completed connections per hour. Our monitoring software enables verifying the desired makeup parameters and also provides accurate documentation.



OFFLINE MAKEUP FACILITY

Taking tubular preparation offline frees your rig to focus solely on drilling and casing running. Our offline makeup facilities not only make up quality connections away from the rig, but also enable safer handling of joints off the critical path. Using leading technologies, we make up joints in doubles, triples, or quads, and then we deliver them to your wellsite ready to run.



ONSHORE OR OFFSHORE WELLSITE

With decades of rig floor experience, we can deliver safe and efficient tubular running solutions to manage connection integrity. Our interrelated products range from conventional equipment for reliable handling and makeup to innovative technologies for enhanced rig design and capability. This unique combination of knowledge and products enables us to serve you no matter where you operate.



Connect with us for your tubular running solution.

For more than 60 years, we've provided tubular running services and solutions to clients around the world. Please visit weatherford.com/connections to learn more about how we can help you to make all the right connections for well integrity while enhancing safety, reducing risk, and improving efficiency.



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