

COMPLETION & STIMULATION

OFFSHORE COMPLETION CAPABILITIES

Completing wells efficiently
while minimizing costs, reducing
risks, and optimizing production

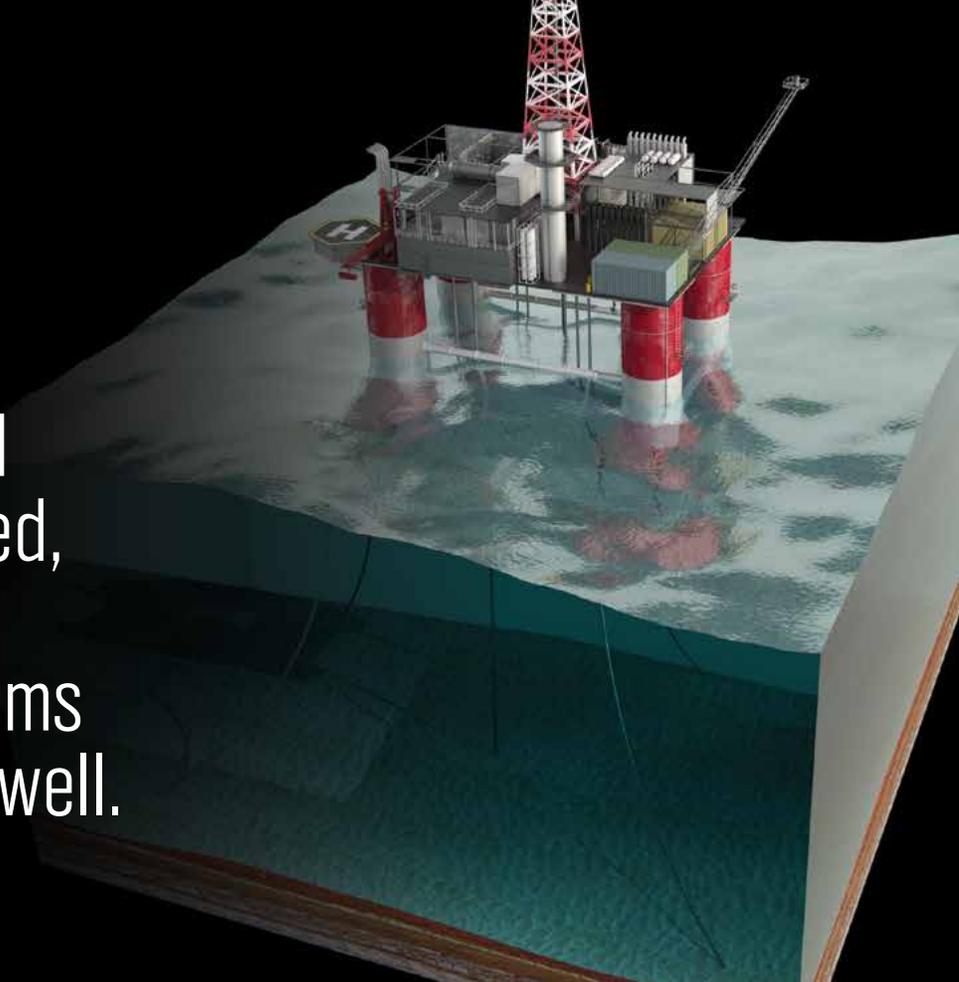
DRILLING & FORMATION EVALUATION
WELL CONSTRUCTION
COMPLETION & STIMULATION
PRODUCTION

 Weatherford®

COMPLETE SOLUTIONS FOR **DEEPWATER RELIABILITY**

Modern technology with a
consultative approach

Rather than adapting older technologies for new applications, we have created an extensive portfolio of completion technologies—designed in the 21st century for the complex, ever-deeper wells drilled today. Our best-in-class systems are manufactured to the highest quality, tested beyond required standards, and field proven in enhancing efficiency, reducing risks, optimizing production, and minimizing completion costs—as well as helping to lower full field-development costs. With our global presence, our technologies are ready for deployment anywhere in the world. And we partner with you to deliver completion systems that are tailored to the unique needs of specific wells. With Weatherford, you get a complete and deeply reliable solution for any offshore well.



From the top of the well to the toe, Weatherford provides advanced, fully integrated completion systems for any offshore well.

Innovative Engineering

A successful completion begins with a talented team to design and install it. Our approximately 180 completion engineers include industry leaders with demonstrated expertise in designing a breadth of technologies. In fact, our engineers have a collective 3,600 years of product-design experience. From the outset of your project, our personnel collaborate with you to identify the optimal completion solution for your wells. Our personnel are highly competent and trained to handle any situation at the wellsite. Additionally, all of our new engineers undergo an extensive 2-year training program.

Strict Quality Control

To better manage product quality and provide robust performance, Weatherford controls the manufacturing process for our completions technologies. With 17 manufacturing plants conveniently located around the world, we produce the majority of our technologies in house and conduct all assembly and testing internally. Our global footprint enables us to deliver technologies to your job site as quickly as you need them.

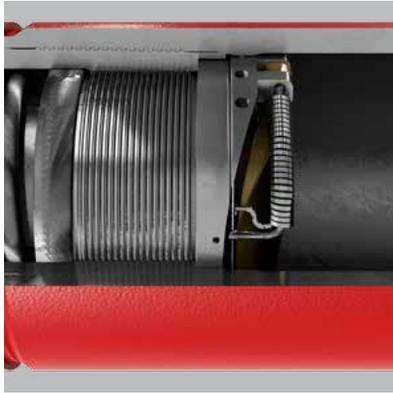
Rigorous Testing

Weatherford has two main testing and R&D facilities in Houston, Texas, and Aberdeen, UK. At our testing facilities, we simulate real-life operating conditions as accurately as possible to verify that our systems perform as intended under the toughest and harshest subsea conditions. We also frequently test our technologies at third-party facilities to enhance the objectivity of the testing and further improve our confidence in the performance of our technologies. In many cases, we test our technologies well beyond minimum API and ISO requirements.

Consistent Service Quality

All of our completion technologies help to mitigate nonproductive time and well-control incidents that can be disastrous and costly. Additionally, Weatherford has our Eight GEMS (Getting Everyone to Manage Safety), HSE (Health, Safety, and Environmental) Excellence, and OEPS (Operational Excellence and Performance System) programs to improve the reliability of our service and to enhance safety at your job site, in accordance with all international management-system standards.

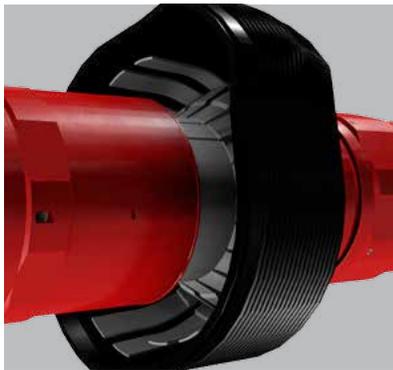
FEATURED COMPLETION TECHNOLOGIES



Optimax™ Series Safety Valves

The safety of your people, assets, and the environment can depend on your safety valve. We've eliminated points of failure in other valve designs and tested beyond API 14A standards to deliver a highly reliable barrier against catastrophic loss of well control. To date, we've deployed more than 7,000 safety valves with 20,000 years of cumulative service life—and zero failures attributed to the design.

More recently, we added super-slim valves and deep-set valves to our portfolio. Compared to curved-flapper safety valves of an equivalent size, our super-slim flappers have a reduced outside diameter. As a result, you can use smaller casing strings to reduce completion costs and still have space for bypass lines. Our deep-set valves provide fail-safe closure at depths greater than 12,000 ft (3,658 m)—without being affected by tubing pressure or relying on long-term storage of nitrogen.



TerraForm® Openhole Packer System

Made for your most critical deepwater wells, the TerraForm openhole packer gives you cased-hole functionality in openhole environments. The TerraForm packer uses proprietary cup-seal technology to conform to non-uniform wellbores and provide life-of-well zonal isolation. The cup seals on the TerraForm packer are tension set, which enables them to maintain form throughout thermal cycles. A unique clutch mechanism eliminates the possibility of the packer harming the reservoir or creating microfractures. By not casing the openhole zone, cementing the lower wellbore, or perforating, you can save several days of rig time valued at millions of dollars.



Sand Screens

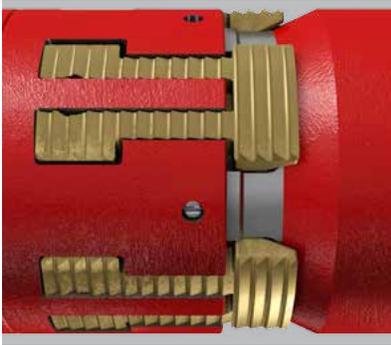
As the market leader in sand-screen technology, we have a comprehensive sand-screen portfolio that includes any type of screen you may need to complete your well. One example of our technologies is the MazeFlo™ self-mitigating screen, which filters out sand ingress caused by screen damage without the need for any moving parts, interruptions to well production, costly interventions, or extra monitoring. The industry's first self-mitigating sand-control technology, the MazeFlo screen is patented by ExxonMobil Upstream Research Company and jointly developed and licensed to Weatherford.

The Ultra-Grip™ screen is the most highly evolved wrapped-on-pipe screen. Designed to perform in both openhole and cased-hole environments, the UltraGrip screen is shrink-fit to pipe to deliver enhanced tensile, torque, and collapse strength compared to conventional slip-on screens.



WFX0 Gravel Pack System

The first fully integrated, V0-rated gravel-pack system, the WFX0 system combines the gravel-pack string with a deep-set barrier. The system incorporates an ISO/V0-rated WFX0 packer, WFX0 quick connect, and WFX0 gravel-pack sliding sleeve. Designed to run with the TerraForm packer, shunt-tube screens, and the OptiBarrier™ ball valve, the WFX0 system eliminates the need for a dedicated deep-set barrier run with an additional packer and ball valve. This can save two to three days of rig time valued at millions of dollars by enabling single-trip gravel packing across multiple zones.

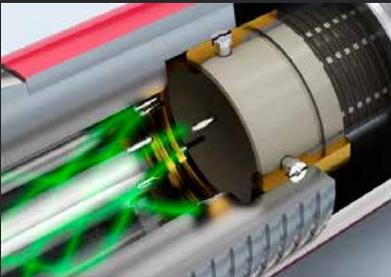


OptiPkr™ Production Packer

Exceeding ISO 14310 standards, the OptiPkr production packer combines the robust performance of a permanent packer with the flexibility of a retrievable packer. Comprised of minimal components for reduced complexity, the OptiPkr production packer provides a reliable, V0-rated seal between production tubing and casing in the most demanding wells.

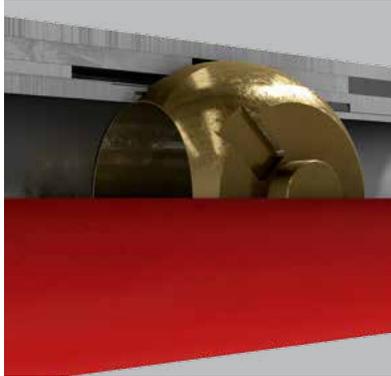
SAVE TRIPS AND MITIGATE INTERVENTIONS WITH RFID TECHNOLOGY

We are the industry's sole provider of downhole technologies enabled by radio-frequency-identification (RFID) technology. Virtually all of our completion technologies are compatible with RFID technology, which gives you the power to operate your tools remotely and on demand. You simply drop an RFID tag downhole, which delivers commands to individual tools at different points along the completion string to open, close, or change operating modes. RFID technology provides greater operational flexibility by saving you trips in and out of hole and mitigating interventions. By streamlining your operations, you can reduce rig time and costs.



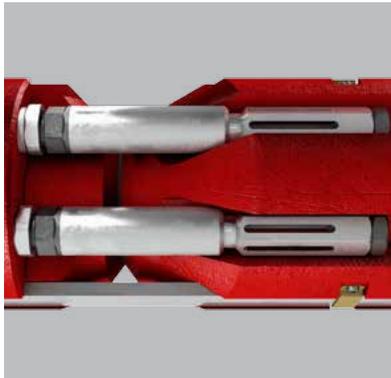
One example of a technology that relies on RFID is the annular safety valve (ASV) system. Incorporating three field-proven technologies—the high-pressure-rated OptiPkr+™ production packer, the Optimax series ASV, and the RFID-enabled hydraulic communication sub—the ASV system helps to prevent unplanned gas releases during gas-lift operations. The ASV system offers multiple setting options and easy packer retrieval. Designed for high-risk offshore operations, the ASV system enables you to achieve the performance associated with tubing-retrievable safety valves without the need for a tubing intervention.

FEATURED COMPLETION TECHNOLOGIES



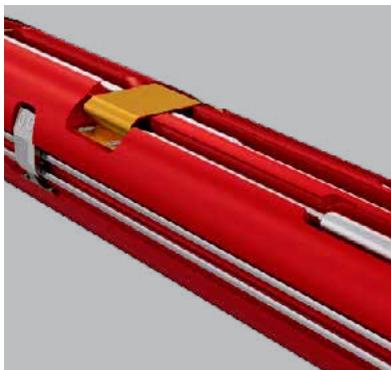
OptiBarrier™ Ball Valve

Offering enhanced functionality, the OptiBarrier ball valve is a tubing-mounted, bidirectional ball valve that can be opened and closed mechanically an unlimited number of times using industry-standard shifting tools or a stinger module assembled into the upper completion. It can also be opened and closed hydraulically or remotely using an RFID-enabled control module. Tested beyond ISO 28781 V1 standards, the bidirectional sealing mechanism provides a reliable downhole barrier. When open, the fullbore inside diameter maximizes flow area and enables access to the formation. The OptiBarrier ball valve can be manufactured in a range of metallurgies from basic 4140 to high-nickel premium alloys.



UltraLift™ Deepwater Gas-Lift System

In deepwater gas-lift operations, safety, efficiency, and reliability are critical. By combining the Ultra-HP™ gas-lift valve with the DVX™ side-pocket mandrel, the UltraLift gas-lift system provides the ultimate configuration for delivering consistent, long-term performance in ultra-high-pressure applications. The dual-bellows design of the Ultra-HP valve withstands dome pressures up to 5,000 psi (34.5 MPa) and differential-submergence pressures up to 10,000 psi (68.9 MPa). The DVX mandrel has a unique, external, dual-check-valve system that prevents corrosive well fluids from entering the casing annulus. This provides a second and third protective barrier for the casing string against hazards. The mandrel can be configured to meet the API 19G1 V1 certification, the highest standard in the industry. All system components pass rigorous testing to demonstrate tolerance for extreme conditions.



OmniWell™ Reservoir Monitoring System

Our OmniWell system monitors the performance of your reservoir in real time for the life of your wells. The system includes three types of in-well monitoring solutions: nGAUGE™ optical and quartz pressure and temperature (P/T) sensors, which operate in conditions up to 30,000 psi (206 MPa) and 572°F (300°C); nTHERMAL™ optical distributed and multi-point Fiber Bragg Grating monitoring sensors, which provide the industry's most comprehensive portfolio for thermal-monitoring applications; and nPHASE™ optical flow-metering sensors, which enable fullbore flow and can be configured for single-, two-, or three-phase flow. The durable sensors, which are vetted through a comprehensive series of environmental stress tests, communicate with the surface using our nLINK™ electrical or optical cable. Data is processed and integrated at the surface using our scalable nFORM™ data-acquisition systems.

REAL RESULTS

LOCATION: OFFSHORE NETHERLANDS

Surface-controlled safety valves

**ELIMINATED \$50 MILLION
IN WORKOVER EXPENSES**

over a 2-year period for 27 wells with blocked or damaged control lines

LOCATION: OFFSHORE WESTERN AUSTRALIA

Ultra-Grip sand screen was used for the

**LONGEST SAND-SCREEN
INSTALLATION IN THE WORLD,**

which helped to reduce water coning and improve reservoir drainage

LOCATION: GULF OF MEXICO

TerraForm packer

**SAVED \$20 MILLION AND
20 DAYS OF RIG TIME**

in a deepwater well by eliminating the need to case, cement, and perforate

LOCATION: CASPIAN SEA

RFID ASV eliminated intervention runs and reduced completion time in

**33 DEEPWATER WELLS
AND SAVED \$25 MILLION**





Supported by our engineering expertise, strict manufacturing controls, and extensive testing programs, Weatherford has a broad portfolio of completion technologies that are field proven in enhancing efficiency, lowering costs, mitigating risks, and optimizing production in offshore wells around the world. To learn more about our offshore completion technologies, visit weatherford.com/offshore



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