

Surface Technologies

Surface Technologies is a market leader in the design and delivery of products and services to the oil and gas industry. We are defined by technological innovation, reliability, product quality and integrated services, making us the partner of choice.

Technology delivering customer success

Industry leading wellhead technology

TechnipFMC has a proven track record focusing on customers, challenging conventions, minimising non-productive time and delivering sustainable and successful economics with our standardised solutions.



Global capabilities

TechnipFMC is a world class equipment and service provider. We offer the best solutions to help exploration, production, and service companies succeed in achieving their drilling, completion, efficiency and safety goals. We also offer a suite of complementary aftermarket services.

TechnipFMC's extensive commitment to producing the highest-quality equipment and systems through advanced designs and manufacturing techniques is on full display at each of our plants. We use lean principles to deliver zero-defect cost-effective solutions. And we constantly explore new ways to optimise our customers' success by reducing complexity and the cost of ownership.

We have the expertise, contacts and resources worldwide to help our customers 24/7.



Our drilling technology

Experience faster time to production, lower operating costs and reduced non-productive time through field-proven standardised drilling systems

Field proven from cost effective conventional to high performance Uniheads®

TechnipFMC's structured and comprehensive portfolio delivers a broad set of standardised drilling products with cost and time efficient solutions, delivering the perfect balance of functionality and reliability for all our customers' well applications.

The technology is fully validated through rigorous test protocols that align with API standards, and when required exceed those limits providing a greater level of reliability for customer operations coupled with many years of field use, this ensures our technology meets our customer's requirements of reliability and quality.

We continually invest in research and development to meet the evolving needs of our industry. All innovations are subjected to exhaustive laboratory and field tests to ensure their reliability and integrity before they are released to the marketplace.

Safety and reliability

TechnipFMC's standardised equipment and renowned sealing technology help eliminate the threat of working under suspended loads, minimise BOP manipulation, reduce installation risks and improve safety throughout the drilling process.

Our ability to address complex project challenges comes from a strong track record of project management expertise. We deliver projects on time, reducing installation risks and never compromising on quality or safety.

Shorter time to production

Non-productive time (NPT) can have a major impact on well economics. Our drilling technology mitigates risks through our robust design verification and validation program, optimising well integrity and minimising NPT and the risks associated with the drilling and equipment installation process.

TechnipFMC's stocking programs ensure our standard components and sub-assembly products are available and ready to be installed to help boost your productivity and accelerate time to first oil.

We deliver top-rated field execution services 24/7, with trained, competent technicians to make sure the job is done right and safely.

Surface wellhead systems

TechnipFMC offers a fit for purpose range of drilling products covering simple onshore and offshore drilling to complex operations in harsh well conditions and environments

Onshore technologies

- ▶ Conventional wellhead
- ▶ Unihead® (UH-1, UH-2, UH-3, UH-4, UH-5)

Some systems can be installed on land and offshore platforms.

Offshore technologies

- ▶ Conventional wellhead
- ► Unihead® (UH-2, UH-3, UH-4, UH-5)
- ▶ SPAR, TLP and SXS

System	Working pressure	Hanger / packoff retenion	Sealing technology	Nominal sizes	Temperature rating
Conventional	2,000 psi thru 20,000 psi	Lockscrew	Elastomer and Rough Casing Metal Seal (RCMS)	71/16" thru 211/4"	-75° F to 350° F
UH-1	5,000 psi, 10,000 psi	Lockscrew	Elastomer	11", 13-%"	-75° F to 250° F
UH-2	5,000 psi, 10,000 psi	Internal latch	Elastomer	11", 13-%"	-20° F- 250° F
UH-3	5,000 psi, 10,000 psi	Internal latch	Hybrid PI-metal end cap	11", 13-%"	-75° F - 350° F
UH-4	5,000 psi, 10,000 psi	Internal latch	Single metal to metal	13%", 18¾"	-75° F - 250° F
UH-5	5,000 psi, 10,000 psi, 15,000 psi	Internal latch	Dual metal to metal	13%", 18¾"	-75° F - 400° F

Conventional wellhead



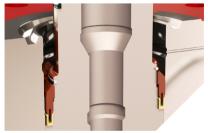
Sealing technology

The foundation of any wellhead system is the sealing technology and its integrity over the productive life of the well

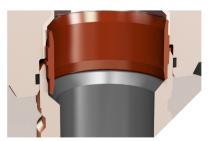
TechnipFMC has solid track record of investing in the development of new seal technologies both metallic and non-metallic to handle all well conditions from low pressure oil wells to high pressure and high temperature gas wells. Our seal technologies are reliable, robust and practical, delivering trouble-free seal integrity throughout the life of the well. Our seal capabilities cover 2,000 psi through 20,000 psi and temperatures from -75°F to 400°F.



FS Seal



Externally Energised Metal Seal (XEMS)



Straight Bore Metal Seal (SBMS)

The conventional product family provides a broad range of non-metallic seal technologies:

- ▶ S and FS Seals for machined and rough casing designed in-house using proprietary elastomer compounds (NBR, HNBR and FKM)
- ▶ Slab packing for our slip hanger portfolio
- ▶ Pressure Intensified packoff bushing for working pressures up to 15,000 psi on rough casing
- ▶ Dovetail, L-Packing and compression packing for installation tooling

When enhanced sealing performance is needed, we offer a wide variety of metal-to-metal seal technology:

- ▶ Industry leading Rough Casing Metal Seal (RCMS) for gas tight sealing on rough casing. High and low tolerances seal elements accommodating the full API tolerance range.
- ▶ Externally Energised Metal Seal (XEMS) for annular sealing on casing and tubing hangers. Activated via the External Thread (ET) lock screws.
- ▶ Straight Bore Metal Seal (SBMS) for gas tight sealing between the tubing hanger neck and Christmas tree.
- ▶ Fire testing on metal-to-metal seals.

Metallic and non-metallic seals have been qualified in accordance with API 6A PR2F.

Conventional wellhead solutions for maximum interchangeability

Well economics that demand trouble free, proven solutions with a high degree of flexibility and ease of installation.

Selecting a conventional wellhead product provides the operator a solution that has the greatest flexibility and interchangeability, lowest CAPEX and highest convenience. With conventional wellheads, complexities are reduced and modular formats fit all casing programs.

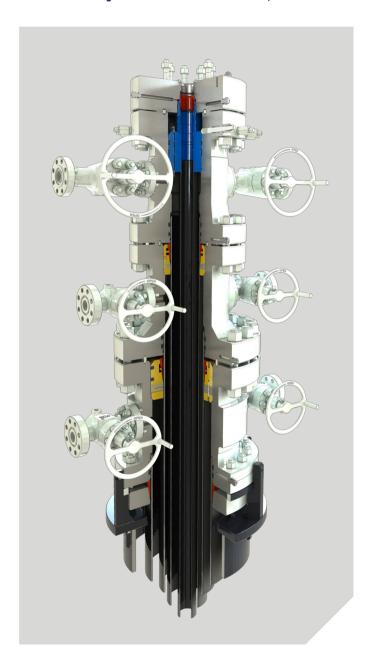
Our standardised approach has provided an agile and global supply chain to deliver our wellhead products in the shortest possible time frame. Stocking programs allow our drilling products to be held in inventory, providing our global customers maximum flexibility for their drilling programs.

Our conventional wellhead products comprising heads, spools, hangers and completion equipment has gained a solid reputation of delivering customer success for more than 80 years. We collaborate with our customers to understand their challenges and provide practical and proven solutions for their drilling and production operations. We deliver simple, robust and reliable systems for both onshore and offshore applications.



Conventional wellhead systems overview

TechnipFMC is a leading supplier of drilling, completion and production wellhead systems for onshore, offshore and shallow water applications.



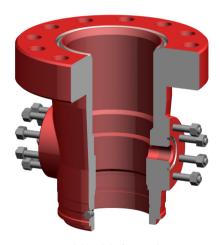
Conventional wellheads can handle challenging well conditions with high pressure and/or high casing loads. Our systems are fully rated to a maximum of 20,000 psi through a temperature range of -75° F to 350° F. Our equipment has been designed and qualified to meet all performance requirements of API 6A up to PR2F.

Casing heads and casing spools

Extensive range

TechnipFMC offers an wide range of C-22 and C-29 casing heads and spools covering multiple flange sizes from $7\frac{1}{16}$ to 30-inches. The maximum rated working pressure ranges from 2,000 psi to 20,000 psi. The equipment is rated for temperatures from -75° F to 350° F.

The casing heads are configured with a common lower profile for the base plate and are available with studded side outlets or line pipe outlets. The lower connection can be configured with a variety of profiles including slip-on-weld, threaded or Slip Loc. For hanger retention, the heads can be configured with external thread (ET) lock screws.



C-22-EG Casing Head



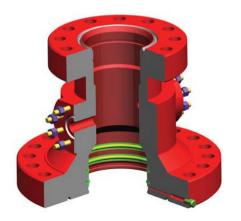
Casing head

For low to medium casing loads, the heads can be configured with the C-22 bowl profile accepting all C-21 and C-22 style slip hangers.

For heavier or more extreme casing string loads, the heads can be equipped with a C-29 bowl allowing all slip hanger options to be used.

Installation is quick and straightforward using either individual running and retrieving tools or combination tools that also allow BOP testing.

The C-22 and C-29 style heads and spools are practical and offer our customers a robust and economical means of drilling wells onshore or offshore.



C-22-EG casing spool



Casing spool

The C-22 Elastomer Groove (EG) profile eliminates the need to lockdown screws to retain the bowl protector. This profile is also common for the C-22 casing heads. The bottom preparation accepts a variety of secondary elastomer or metal to metal seals to achieve annular seal integrity.

Casing hangers



C-22 casing hanger

Standard

Casing suspension is achieved with our standard C-21, C-21F, C-22 and C-29 slip hangers. These hanger options cover a wide range of applications:

- ▶ Casing suspension with individual seal ring
- ▶ Automatic weight set
- ▶ Non-automatic requiring manual energisation of the annular seal

The C-22 and C-29 style hangers use a split packing manufactured from nitrile or HNBR material. These materials cover both sweet and sour service applications (AA thru HH). Our casing hangers meet API 6A's PR1 or PR2 requirements.



C-229 casing hanger



C-100 and C-200 series

For more extreme well conditions where PR2F qualification is required, we have developed the C-100 and C-200 range of slip hangers.

The C-121, C-122 and C-129 are qualified to 80 percent of pipe body yield to API temperature class U.

The C-200 series of slip hanger is designed for extreme casing loads in excess of 1M pounds and temperatures of 300° F. Extensive qualification testing has validated these heavy duty hangers for a variety of casing sizes in accordance with API 6A PR2 Appendix F.

Tubing completion

Offering our customers a practical and flexible well solution

TechnipFMC's Tubing Completion (TC) series provides a versatile, standard and comprehensive set of components to suit a broad range of well completion configurations for onshore and offshore applications.

The completion is the process of making a well ready for production including installation of the tubing head, tubing hanger and production tree with the tubing head adapter.



TCM-ET tubing head

The TC series of tubing heads and tubing hangers offers:

- ▶ A safe, reliable and low CAPEX solution for nominal 71/16-inch through 135/8-inch
- ▶ Available for 2,000 psi to 20,000 psi working pressure between -75° F to 350° F
- ▶ Hanger retention with internal latch or lockdown screws
- ▶ Tubing heads in four basic styles; differences in the number and type of aligning pins
- ▶ Trouble free installation using minimal tool package
- ▶ Lower profile configured with elastomer or Rough Casing Metal Seal (RCMS)
- Accept all bowl profile, including single and dual tubing hangers
- ► Key technology qualified to API 6A, including PR2F, performance requirements
- ▶ Low cost product with fast availability and global supply through local stocking programs

The TC series of tubing heads

- ▶ Available in standardised, simple and robust wrap around TC1-W to full metal-to-metal sealing TC-1A-EMS
- ▶ Continuous or non-continuous control lines
- ▶ Primary sealing can be elastomer or metal-to-metal
- ➤ Common bowl profile accepts all hanger types including duals (aligning pins required for TC-60 dual hanger)
- ▶ Installation tooling simplified: Hangers run on tubing or a dedicated running/retrieving tool
- Group 5 hangers configured with a back pressure valve profile



TC-1A-EMS with XEMS OD seal

Global service and aftermarket support

Service has long been a key differentiator for TechnipFMC. We sustain our customers with a full range of services and aftermarket support 24/7 worldwide.

TechnipFMC supports client operations from our strategically located field bases, providing responsive service, quality equipment and local expertise. Competent technicians deliver superior service including installation, repair, maintenance and asset management. We offer extensive local inventories and rental options.

Our commitment to HSE, value and service excellence helps our clients maximise their potential.



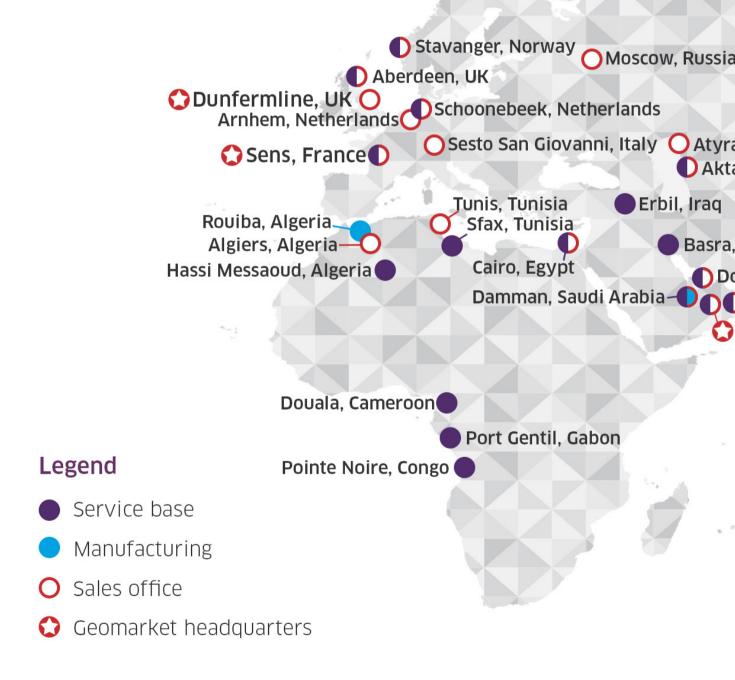
Life-of-Field services

- ▶ Installation and workover support
- ▶ Cold casing cutting
- ▶ Bolting service
- ▶ Asset integrity and maintenance
- ▶ Wellhead and Christmas tree decommissioning

Workshop services

- ▶ Inventory management
- ▶ Preservation, storage and maintenance
- ▶ Inspection, refurbishment and repair
- ▶ Torquing service on hangers and landing strings
- Systems integration testing

Surface international locations





USA

11740 Katy Freeway Suite 100 Houston Texas 77079 USA

South Europe and Africa

Route des Clérimois - ZI des Clérimois CS 10 705, Sens France 89107

North Europe and CIS

Pitreavie Business Park
Dunfermline Scotland KY11 8UD

Asia Pacific

149 Gul Circle Singapore 629605

Middle East

Guardian Tower
Sheikh Sultan bin Zayed First
and Dhafeer Street
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