

Production monitoring and optimization

Providing remote insights to optimize performance



TechnipFMC Surface

TechnipFMC Surface is a market leader in the design and delivery of systems, 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.

Improve your economics

In the world of production systems, solutions are traditionally designed case by case to adapt to the specific field requirements. This usually generates extended lead times and constant re-engineering.

TechnipFMC presents a unique way to avoid bespoke designs by using pre-engineered, field-proven building blocks that will improve the economics of your production systems.

We have developed a structured portfolio of standard and compact production system modules and products that minimize project costs and meets our clients' highest demands.

Our commitment



Improving project economics



Reducing time to production



Lowering emission



Connecting smarter

► 4,000+ / projects delivered

Our vision

Compact solutions

Offshore, weight and size can be the enemy. Our compact solutions deliver significant cost reductions for host structures such as Floating Production Storage and Offloading units and related installations and logistics. Onshore, weight and size is less critical. But building facilities in remote locations or hazardous areas is costly due to safety constraints and challenging logistics. Our onshore building block portfolio fits within road containers, enabling our system to be assembled, tested and pre-commissioned within our facilities. And that means accelerating time to production.

Modular portfolio

Our modular building blocks have been carefully designed to be integrated and transformed into a complete system in record time. Each block is pre-engineered, optimizing the economic return for our customers. Our pre-established manufacturing, inspection and testing processes allow us to shorten time to production by months.

Vertically integrated

Vertical integration is central to our vision. We produce the majority of our critical products for all our solutions. Our leading technologies and optimized designs are supported by our smart data platforms and service capabilities.

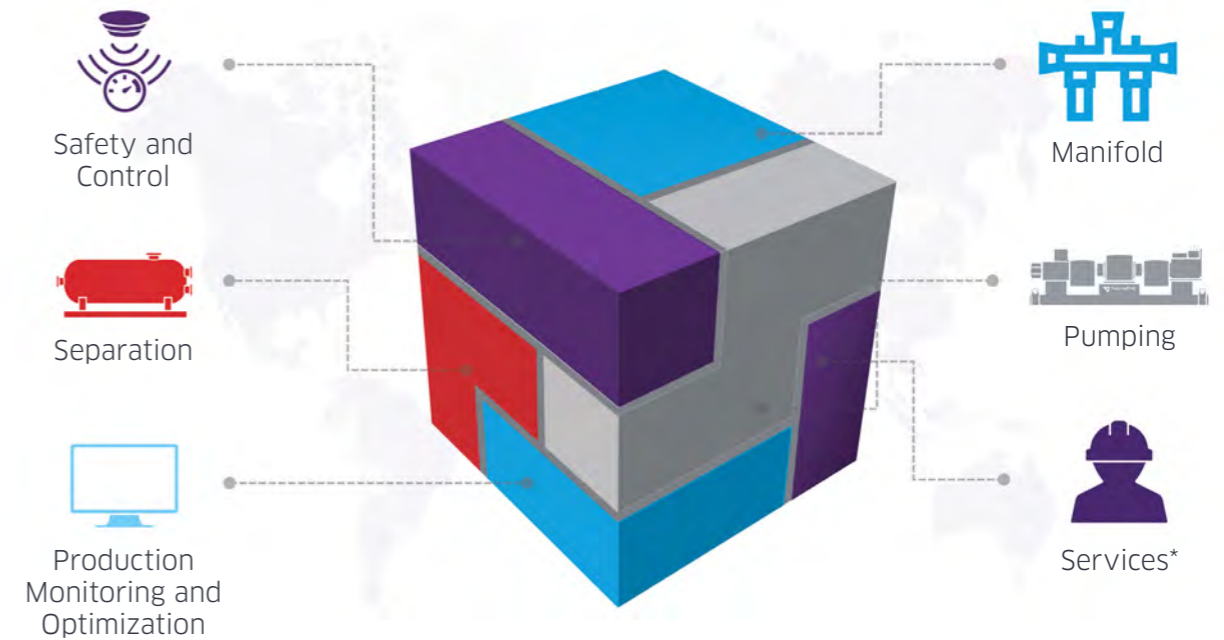
Global expertise and support

More than supplying hardware, we offer an extensive range of services backed by global expertise and local support. As a technology leader, all our solutions are extensively tested by our R&D and qualification programs. We continuously evolve our standards to meet individual needs based on customer feedback.

Backing our standards is a strong engineering team, recognized worldwide for its expertise.

Modular production systems

Our portfolio consists of six main offerings



Our modular offering leverages our smart technologies to deliver fully integrated solutions

*Our unique capability offers integrated solutions across our product portfolio from installation to commissioning through life of field support.

▶ 40+ years of experience



Production monitoring and optimization

Supported by the latest technology, oil and gas production equipment can be remotely and securely monitored, optimized and maintained with minimal effort from the safety of a central office. TechnipFMC offers a comprehensive in-house portfolio of field proven components, products and pre-engineered packages to deploy sophisticated and reliable monitoring systems for a wide range of production equipment. These systems are modular and can be easily configured for different applications with minimal engineering effort.

Monitoring solutions

- ▶ Wellsite monitoring package
- ▶ Tank level monitoring package
- ▶ Sand monitoring package
- ▶ Condition and performance monitoring
- ▶ Configurable monitoring solutions
- ▶ InsiteX

Automation solutions

- ▶ Production system automation
- ▶ Configurable automation solutions

Measurement solutions

- ▶ Single phase meter
- ▶ Surface MPM skid



Flow assurance and optimization

Finding the balance between a field's production value, on one side, and investments and operational costs on the other, is what flow assurance is all about.

The best possible design is found through multivariable analysis on the entire system, requiring an effective approach to narrowing down the scope of simulations. The primary goal of flow assurance is to ensure production of hydrocarbons in a safe and reliable manner and ensure operability through the entire life of field.

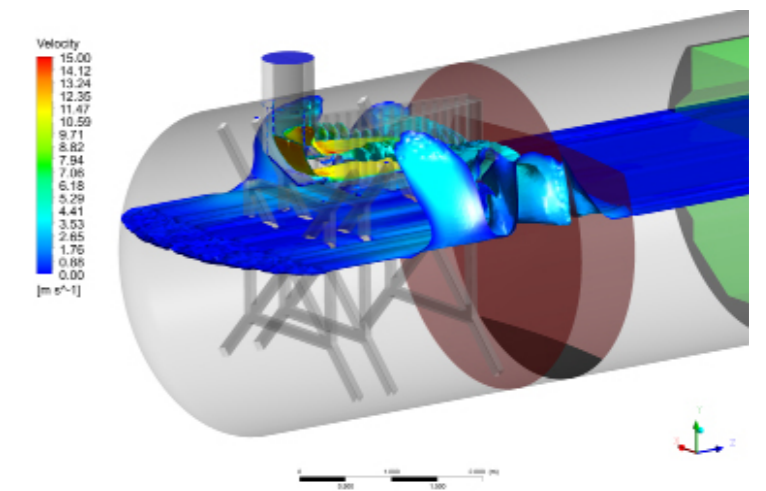
The use of TechnipFMC's FlowManager® can help define and optimize field architecture during early phase planning and design while providing input on increasing recovery through improved production planning and operations. With the combined knowledge of equipment solutions and system mindset, we have developed a production system design and strategies to manage production challenges and to mitigate wax, asphaltene and scale deposits. FlowManager® helps ensure successful and economical flow of hydrocarbon stream from reservoir to the point of sale.

Flow Manager®

Flowmanager® is our real-time multiphase metering and flow analysis system for oil and gas production. Designed for reliability, accuracy and speed, it delivers valuable information to assure and optimize flow and avoid costly operations. Our Flowmanager® product suite offers a variety of services, including online metering, production optimization and flow assurance.

CFD

Computational Fluid Dynamics (CFD) is a discipline allowing numerical simulations to predict fluid flow, heat transfer, mass transfer, chemical reactions and related process phenomena. These models can be used to optimize system design and predicted performance during the design phase without the need for expensive test regimes. Models built during the design phase can be compared and refined using operational data to allow system performance to be understood and to manage production assets in the field more efficiently.



Monitoring solutions

TechnipFMC supplies integrated monitoring solutions, bringing together domain knowledge coupled with a full system stack of equipment and instrumentation, securely reporting to a central cloud portal for display and processing. These systems allow field assets to be monitored from central locations, reducing the need for manual checks and HSE risks and improving operations using real-time data.

We offer tailored made solutions using our in-house components and UCOS software or pre-engineered packages such as :

- ▶ Wellsite monitoring
- ▶ Tank level monitoring
- ▶ Sand monitoring
- ▶ Condition and performance monitoring
- ▶ Valve monitoring

TechnipFMC implements these packages using a broad range of instrumentation solutions, complimented with a distinct set of wireless transmitters that have been specifically designed for the challenges of upstream oil and gas production. The transmitters have long-range transmission capabilities (some models up to 7.5 kilometer range) and long battery lifetime of up to 10 years. The sensors are designed to cover the popular oilfield measurements of pressure, temperature, flow and level. Combinations of these measurements allows varied applications to be prepackaged and delivered as turnkey solutions for easy installation in the field with minimal engineering effort.

The units are certified for hazardous areas (Zone 0 or Class I Div 1) and the battery can be hot-swapped and operated from -40°C to 70°C ambient temperature for many different environments.

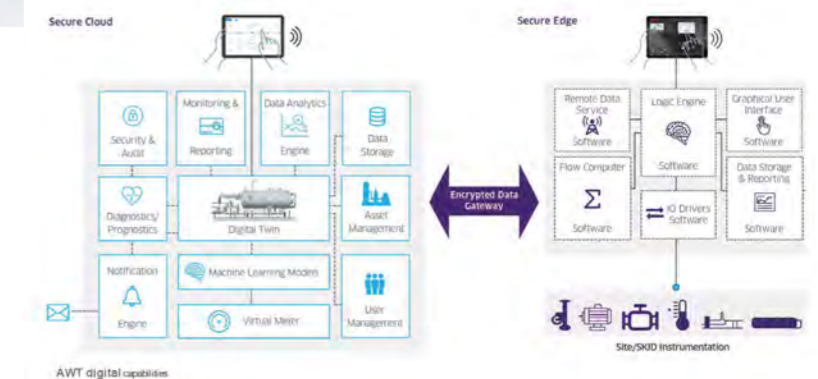
Automated solutions

By combining our proprietary UCOS control system and our comprehensive range of sensors and actuated valves and chokes, TechnipFMC provides innovative solutions to automate existing facilities or new projects.

Our new automated well testing (AWT) package is designed to increase efficiency by leveraging digital technologies that include our lightweight control and automation platform and our cloud-based data monitoring and advanced analytics platform.

THE AWT is equipped with a fully automated package that provides readings of all process variables, valve positions and oil sampling averaging while streaming more than 1,000 different data points in near real time to our cloud-based advanced analytics platform. This web platform gives both the client and internal personnel access to real-time job performance information, asset health information, historical trending, comparative analysis, real-time SMS or email alerts and automated reporting tools.

The AWT uses product components from our various business units. The result is a highly efficient, zero emission compact skid solution, which is safely monitored by technicians outside of the danger zone and fully serviced by our field technicians.

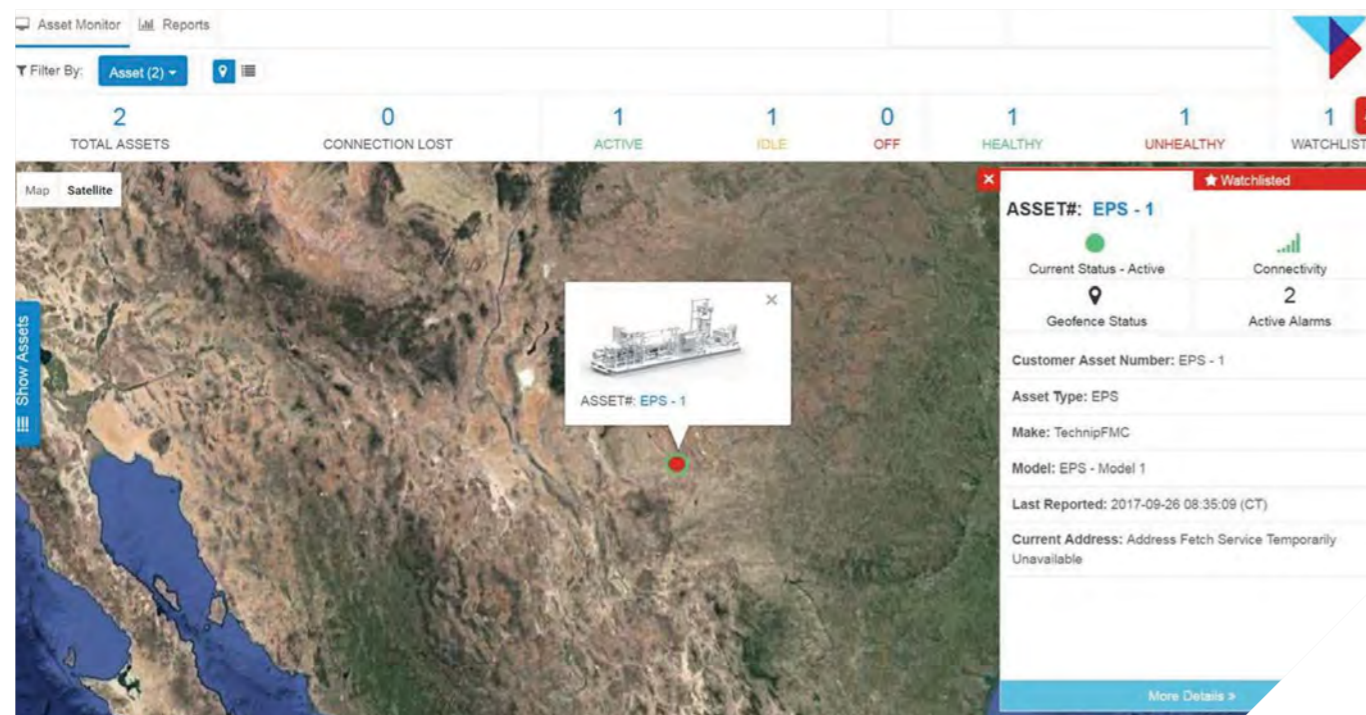
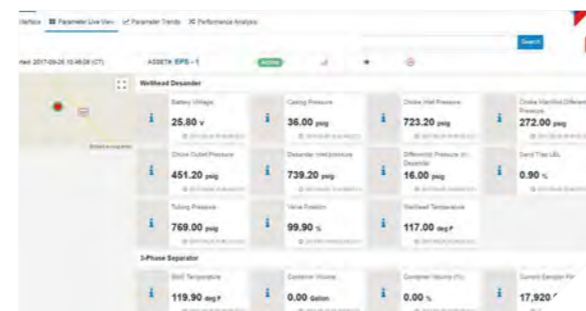


InsiteX

TechnipFMC InsiteX cloud platform allows remote users to easily view measured data from field assets, perform visualization of real-time and historical performance data and provide insight information about equipment condition and performance.

The simple but secure browser interface can be accessed from any public internet access point and allows trends, alarms and automatic reporting functions to be set up per specific user. Multiple assets and asset types can be visualized within the same platform to allow implementation of full field visualization and performance in a single simple interface.

Remote connection with assets can be made using available technology options (mobile data, satellite communications) and communications are secured using the latest cybersecurity software solutions. The platform is specifically designed for surface oil and gas applications and is lightweight and easy to configure.



Measurement solutions

TechnipFMC's modular production systems are complimented by our range of measurement solutions instrumentation packages. A wide range of flowmeters, custody transfer meters and options for other wired instrumentation is available. These meters can be implemented within an integrated modular system to provide high functionality production skids ready for any application.

Single-phase meter

Various flow meter packages can be supplied as part of an integrated production system, including positive displacement meters, ultrasonic meters, turbine meters and other options for upstream and downstream applications. These meters can be combined with the latest flow computers and coupled with automation solutions that can deliver integrated skid packages for many different applications.



Surface MPM skid meter

Surface multiphase skid meters (MPM) are available in a range of sizes and can be supplied on a skid with automation solutions. They can be digitally connected using mobile data or satellite modems to provide remote visibility of system performance in the field.

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 value, service excellence and health, safety and environment helps our clients maximize their potential.

Life-of-Field services (aftermarket)

- ▶ Support from installation to commissioning to life of field
- ▶ Unique capabilities
- ▶ Local integrated solutions
- ▶ Years of experience
- ▶ Extensive technical know-how

Production Process Services

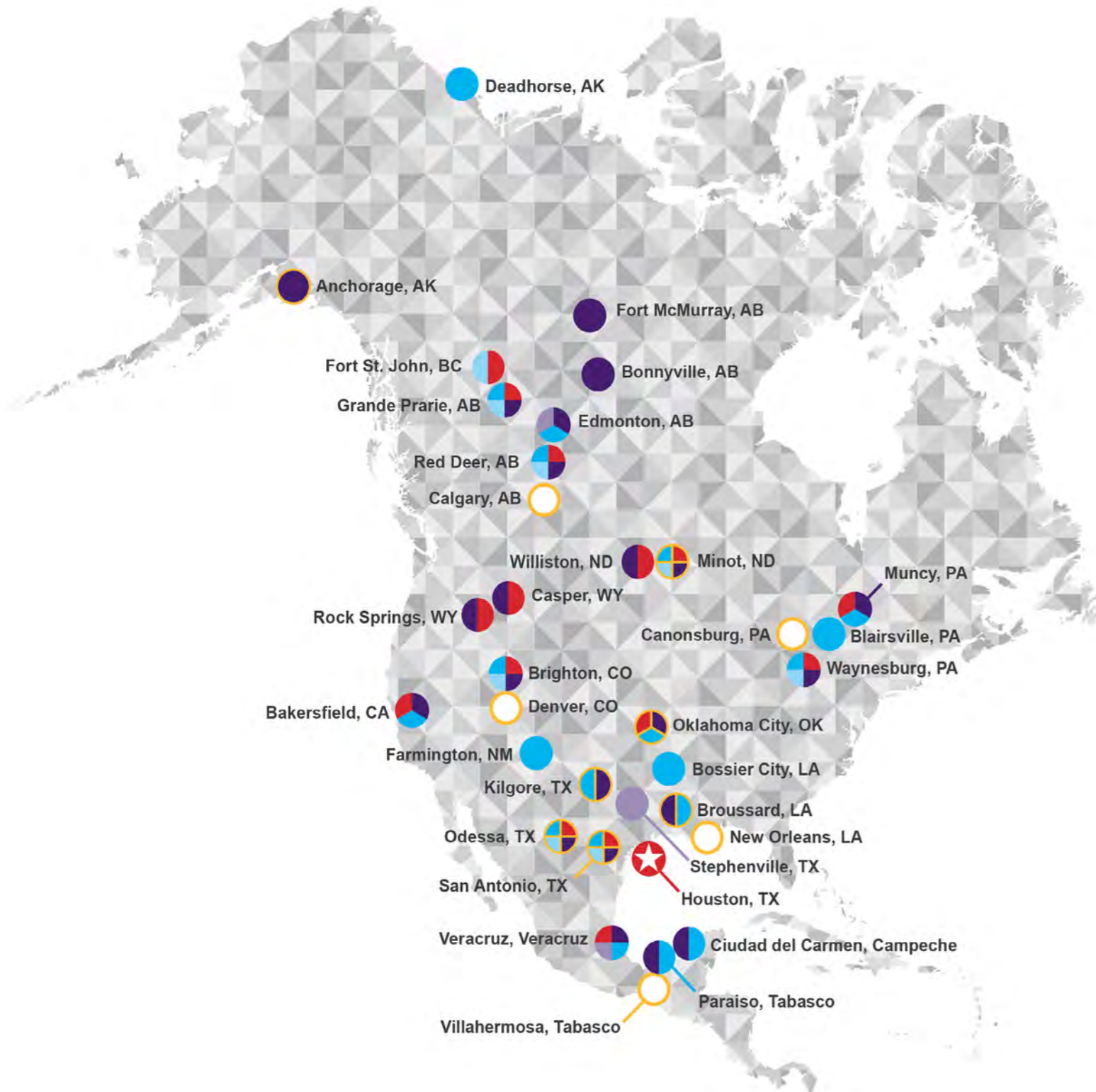
- ▶ On Site Testing and Diagnostics
- ▶ Separator internals retrofit and upgrades
- ▶ Integrated solutions

Workshop services

- ▶ Inventory management
- ▶ Preservation, storage and maintenance
- ▶ Inspection, refurbishment and repair
- ▶ Systems Integration testing



Surface Americas locations



Legend

- Wellhead products and services
- Frac
- Pressure pumping products and services
- Flow testing
- Manufacturing
- Sales office, administrative office
- Headquarters



USA
11740 Katy Freeway
Suite 100
Houston Texas 77079 USA
Tel.: +1 281 591 4000

13460 Lockwood rd.
Houston Texas 77044 USA
Tel.: +1 281 591 4000

TechnipFMC.com

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