

Sand management technologies

Boosting efficiency, reducing costs and accelerating schedules





TechnipFMC
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TechnipFMC

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TechnipFMC is a global leader in oil and gas products, technologies, systems and services. Our offerings range from individual products and services to fully integrated solutions with a single interface to ensure seamless execution. By bringing together complementary skills and innovative technologies, we can boost efficiency, reduce costs and accelerate schedules. We provide expertise across three distinct segments: subsea, onshore/offshore and surface.

TechnipFMC's exclusive sand management surface products and services include the Desander Pro, Wellhead Desander and Automated Dump System. Conventional solid removal units have less than 50 percent efficiency in the removal of solids, causing clogged flowlines, choke and flowline erosion and sand accumulation in separator vessels, resulting in continuous monitoring requirements, and often intervention. This leads to costly repairs and throwaways, operational shutdowns, additional manpower and parts, and the carryover of solids into water and oil streams after separation.

Our revolutionary products have been developed using subsea sand separation technology designed by the TechnipFMC Separation Innovation and Research Center (SIRC) in Arnhem, The Netherlands.



TechnipFMC Wellhead Desander connected to the Automated Dump System

Desander Pro

TechnipFMC's solids removal technology is innovative and designed to accommodate different flowback stages, reservoir considerations and fluid properties. The Desander Pro offers field-proven cyclonic technology that can be used during drill-out applications. In qualification trials of the Desander Pro, 700-plus stages were completed with minimal erosion. During the qualification of the technology, results showed 90 to 95 percent efficiencies in our solids separation.

- ▶ Meets all U.S. and Canadian pressure vessel regulations
- ▶ Designed and fabricated in accordance ASME Section VIII, Division 2
- ▶ Available with Canadian Registration Number (CRN)
- ▶ 90 - 95% efficient at removing sand during drill-out at concentrations up to 50% v/v
- ▶ Reduces downstream flow iron part replacement during drill-out jobs

Without Desander Pro:

Replace ~50 parts on 500 stages of drill-out

With Desander Pro:

Replace 1 part on 500 stages of drill-out



Technical Data	
Design code	ASME, Section VIII, Division 2, U2-Stamped
Maximum working pressure	10,000 PSI
Design temperature range	-50°F - 250°F
Service	Sour
Dimensions	100L x 81W x 209D
Weight	~37,000 lbs
Connections	3-1/16 API flange with wing unions
Flow range (gas + water + oil)	5,000 to 18,000 BPD

Wellhead Desander

TechnipFMC's Wellhead Desander is land-based, compact and mobile. The Wellhead Desander is proven technology with a track record for both well testing (flowback) and production applications for hundreds of wells in all major US Shale plays with over 20 operators. Conventional sand traps have a 50 percent efficiency rating, limiting the sand removed from the flow stream and presenting an erosion threat to downstream equipment such as manifolds, chokes and valves. The solids removal efficiency of the Desander has been proven to be in the range 90%-99%* with 100 mesh frac proppant during well testing and production.

* Depending on variables such as solids particle size, well pressure, oil properties and gas/liquid flowrates

- ▶ Meets all U.S. and Canadian pressure vessel regulations.
- ▶ Designed and fabricated in accordance ASME Section VIII, Division 2
- ▶ Maximum working pressure: 10,000 PSI
- ▶ Available with Canadian Registration Number (CRN)
- ▶ Customized liners (internals) accommodate specific flow ranges:
 - 4" Liner** - 4525 to 13575 BPD
 - 3" Liner** - 2260 to 6780 BPD
 - 2" Liner** - 1130 to 3394 BPD



Benefits

Incorporates mobile skid design used in flow testing and production applications

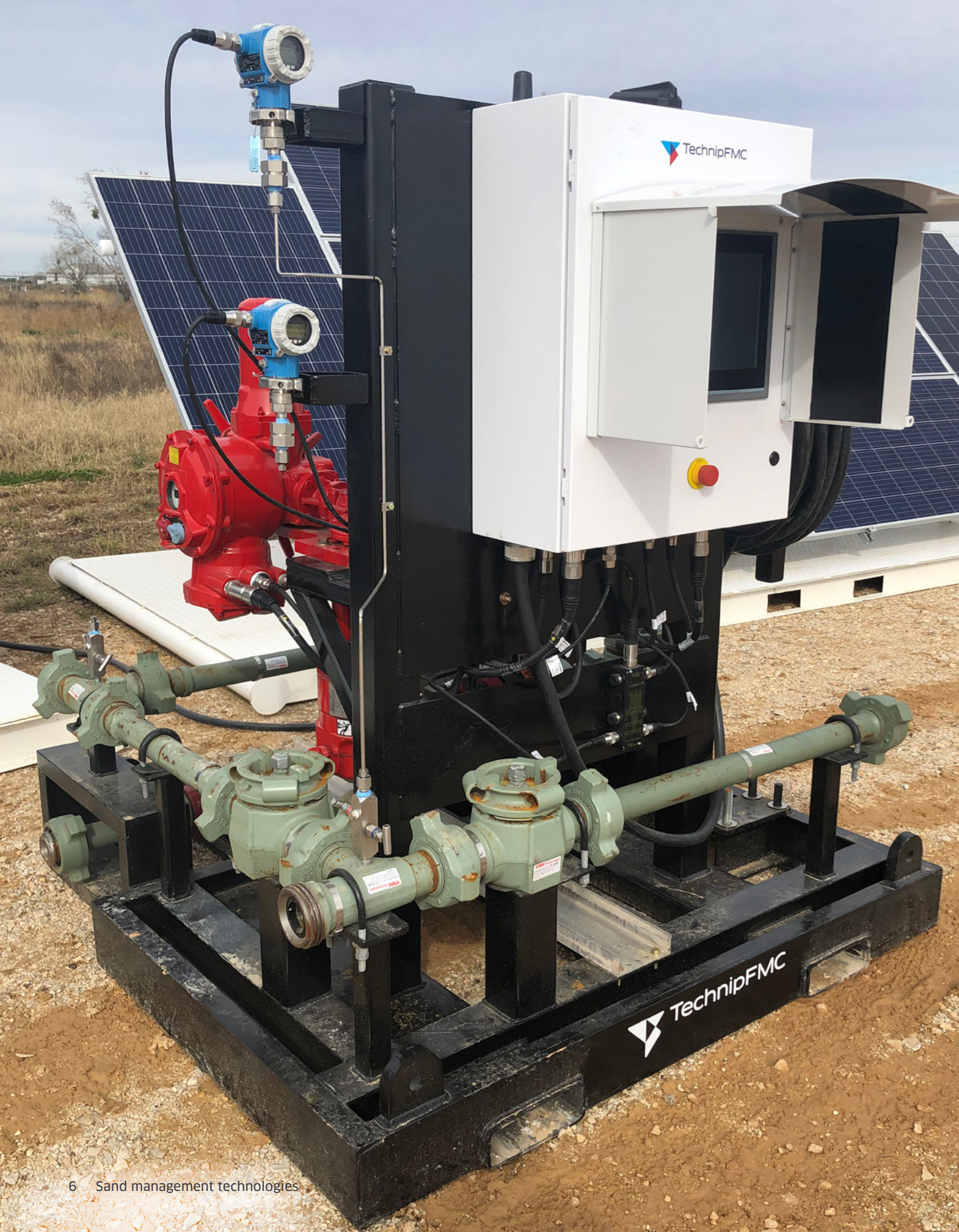
Reduces downstream equipment erosion, driving major cost savings

Improves the efficiency of oil and water separation

Accelerates time to production by potentially reducing flow testing durations

Eliminates potential safety and environmental hazards related to choke breakdown and the need for interventions to maintain or operate equipment

Minimizes sand in production facilities and ensures optimal performance of process equipment



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