Choose automatic, self-mitigating MazeFlo technology—and *just say no* to sand-related failures.

- No surveillance required
- No control system needed
- No moving parts
- No sand-ingress interventions
- No interruptions in well production

Say yes to the benefits of a self-healing sand-retention system.

- Improved operating costs
- Less risk of failure
- More reliable flow assurance
- More consistent production
- Increased revenue

Weatherford is dedicated to providing innovative sand-control solutions, tailored to the unique needs of your completion design. For more information about our full range of sand-control solutions, contact your local Weatherford representative, or visit us online at **weatherford.com/sandcontrol.**

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MazeFlo™ Self-Mitigating Sand-Control Screen

Advancing sand control to a whole new level—with exclusive, self-choking screen technology

MazeFlo™ Self-Mitigating Sand-Control Screen

Enhanced sand control, in three easy steps.

1 **Install MazeFlo screens.**

Installation parameters are the same as for conventional screens.

2 **Let MazeFlo technology take it from there.**

With no monitoring or intervention required, it self-mitigates by responding automatically to screen damage. Only the damaged screen is choked, rather than the entire well.

3 **Reap the rewards.**

Optimized well production, improved operating costs, increased revenue, and decreased risk over the life of the well.

MazeFlo screens deliver what conventional screens can't: automatic, self-mitigating sand retention.

The MazeFlo screen is the first self-mitigating sand-control system in the industry, patented by ExxonMobil Upstream Research Company and jointly developed with and licensed to Weatherford. It increases reliability in sand-control completions by incorporating a maze design that automatically constrains the local sand ingress that can result from screen damage. The system has no moving parts and requires no extra monitoring, no costly intervention, and no interruptions in well production. Better still, it has the same operating and installation parameters as a conventional screen—so it doesn't require special handling, installation, or running procedures.

SIMPLE, RELIABLE FLOW ASSURANCE.

A new approach to sand mitigation, based on three key points:

- Adapting to downhole uncertainties
- Self-mitigating local screen damage
- Enhancing sand-retention performance

Applications

Weatherford MazeFlo screens deliver exceptional performance in:

- New openhole wells—oil or gas
- Remedial sand-control applications in horizontal and extended-reach wells
  - – Open hole
  - – Predrilled liner

Offshore West Africa – horizontal predrilled liner completion

48 MAZEFLO SCREENS.
3 COMPARTMENTS PER SCREEN.

Reworked a completion in a dry tree well with a history of high sand production and repeat remedial operations.

INITIAL FLOW AFTER REWORK WAS TWICE THE PRIOR RATE.

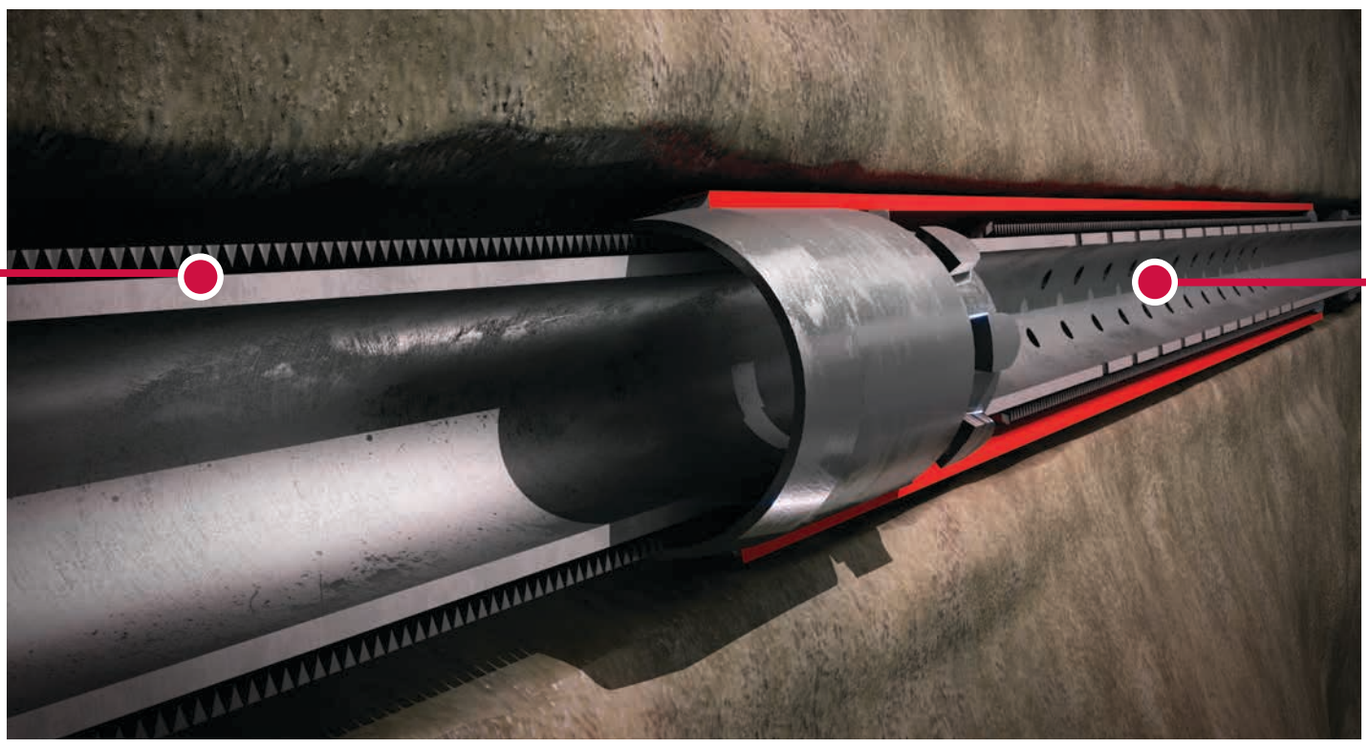
Less water cut. Lower GOR. Zero sand production.

How it works:

The unique MazeFlo screen design uses a direct-wrap screen and features a series of subcompartments along a selectively perforated base pipe, with perforations under the secondary screen only. This provides a path for well fluid to transition to the secondary screen compartment. A housing isolates the secondary screen from direct communication with the reservoir.

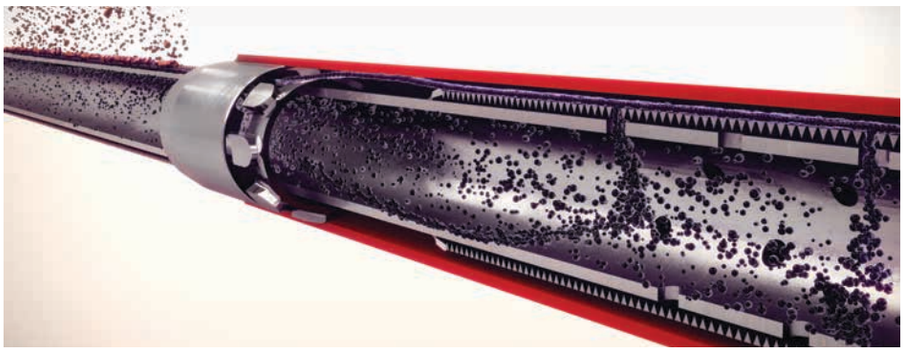
1 Primary wire-wrap screen, above nonperforated base pipe

2 Secondary compartment, with protected housing and perforated base pipe



MAZEFLO PATH FOR NORMAL PRODUCTION:

- **Fluid passes through primary screen**
- **Travels above base pipe, into secondary chamber**
- **Flows through secondary screen and perforated base pipe**
- **Continues, uninterrupted, up the well**

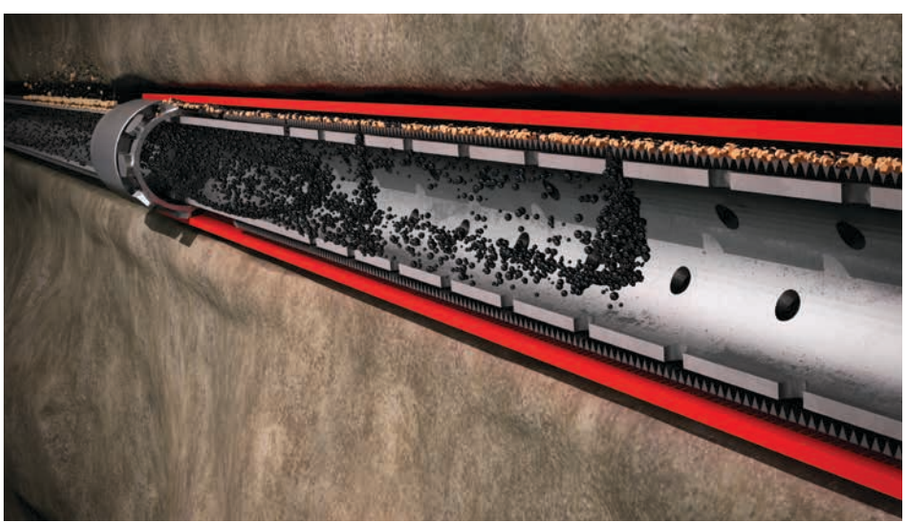


Production mode

During regular production, the MazeFlo screen operates the same as any wire-wrap screen, with only a negligible pressure drop across the screen. Produced fluids flow through the first screen, which provides primary sand control. From there, the fluid travels between the screen and the nonperforated section of base pipe, until it is redistributed by the flow baffles. The fluid, now flowing more uniformly, travels through the housing and into the secondary screen, and then through the perforated base pipe. There, it mixes with produced fluid from other compartments and continues up the well.

MAZEFLO PATH TO MITIGATE SAND INGRESS:

- **Sand infiltrates the eroded primary screen**
- **Is directed into second compartment**
- **Accumulates above secondary screen, while fluid flows past**
- **Creates growing pressure loss and choke effect across screen**
- **Diverts production to adjacent, sand-free compartments**



Self-mitigating mode

If the primary screen is damaged and loses sand control, the sand is automatically directed into the housing compartment, where it accumulates on the secondary screen and creates resistance to flow in the problematic compartment. The produced fluid is then diverted to adjacent, undamaged screen compartments. The MazeFlo screen automatically chokes production only at sand breakthrough locations, and this self-healing adaptation occurs automatically, without the need for surveillance or a control system.

Stands up to the toughest screen testing.

Like all Weatherford products, MazeFlo screens undergo a series of stringent tests—so you know you can rely on them when it counts.

To confirm hydraulic and mechanical performance capabilities, the MazeFlo system passes the following tests with flying colors:

- Burst and collapse
- Maximum set-down weight
- Maximum tensile load
- Maximum bend angle
- Maximum torque

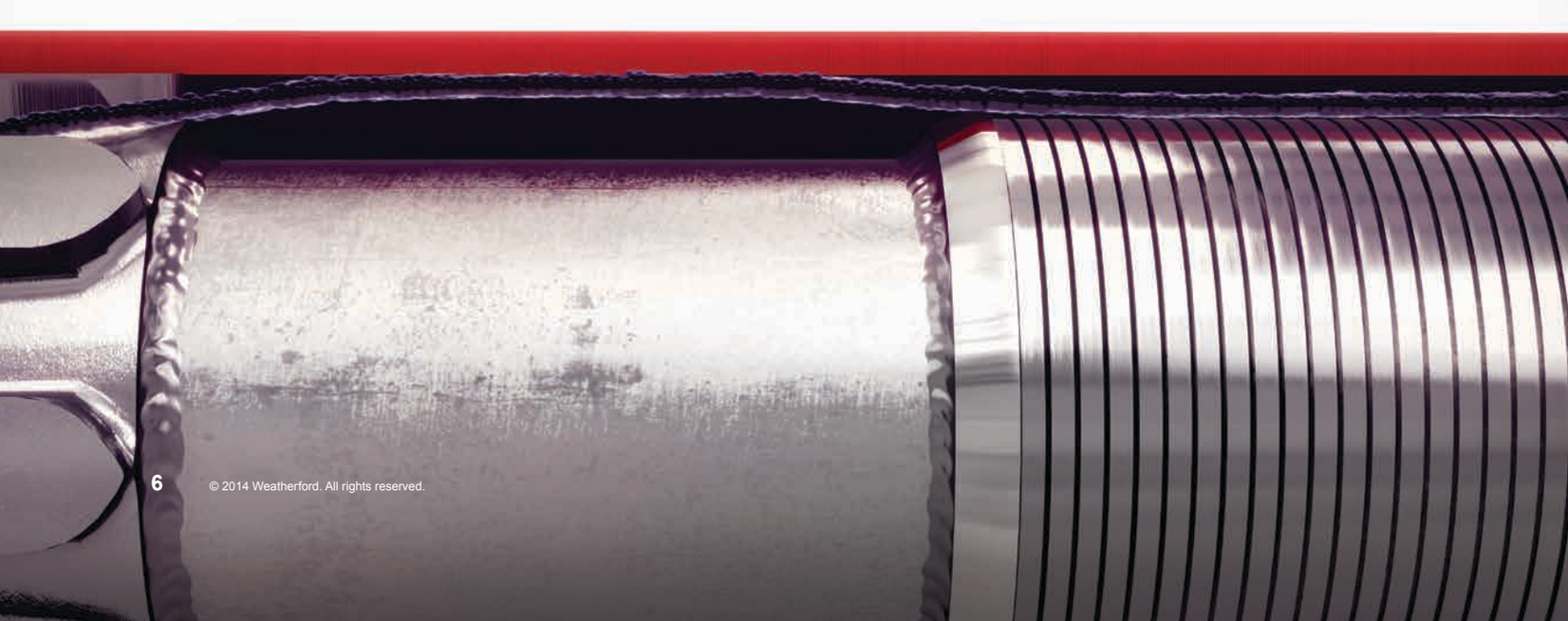
Fully functional ICD integration.

MazeFlo screens are designed to integrate seamlessly with the trusted Weatherford FloReg™ inflow-control device (ICD).

- Easy setup
- Simple, robust design
- Tungsten carbide tips
- Handles multiple pressure drops
- No loss of sand-screen functionality

A complete offering of reliable sand-control solutions.

MazeFlo screen systems are part of the expansive Weatherford completion portfolio, backed by our team of in-house experts and world-class laboratory facilities. From our industry-leading ESS® expandable sand screens, FloReg™ ICDs, and tube technology to a wide range of stand-alone well screens and gravel-pack equipment, we are focused on designing, developing, and continuously improving sand-control technology. Around the world—and for every type of completion—Weatherford delivers an unsurpassed combination of products and expertise.



Draw a line in the sand against screen failures and related interventions.

MazeFlo™ technology gives you a new tool in the fight against sand production.

High-rate production. High pressures and temperatures. Deep water. Remote locations. Long intervals. Multiple zones. As drilling and completion operations continue to expand into formerly inaccessible frontiers, there are many new challenges to consider. Your exposure to downhole uncertainties grows, with greater demands on all well completion equipment.

In conditions like these, sand control becomes increasingly critical to your success. However, despite improvements in sand-control technology, screen failure remains a significant risk to ensuring completion integrity and maintaining steady production. And while conventional preventive and reactive methods can help reduce the risk of sand production, they can't eliminate it.

The MazeFlo screen takes sand control to a whole new level. Your flow assurance improves, and difficult and expensive sand-control interventions are no longer necessary. Reactive responses, such as choking the well production or shutting in the well, are a thing of the past.