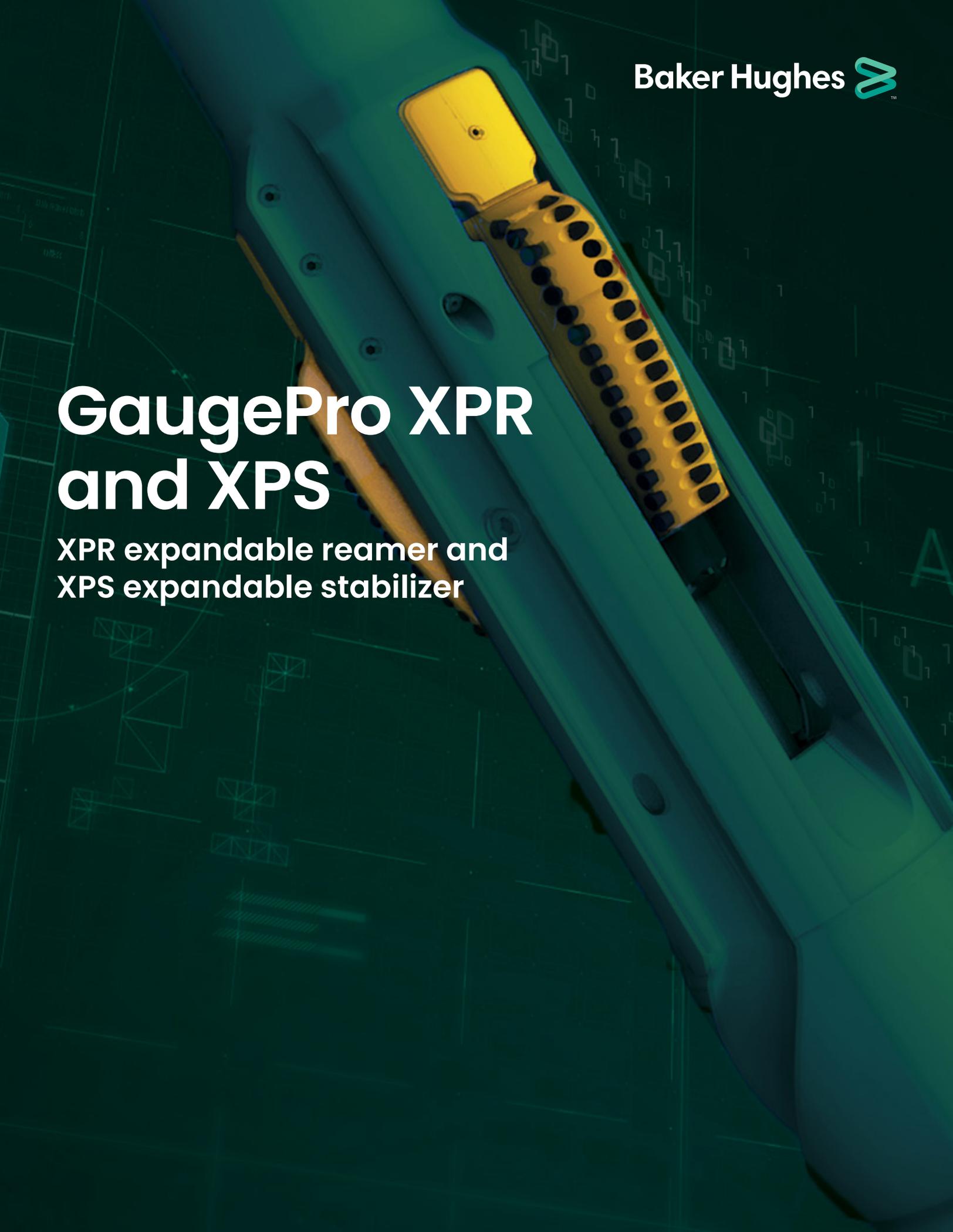


# GaugePro XPR and XPS

XPR expandable reamer and  
XPS expandable stabilizer



# GaugePro XPR

The **GaugePro™ concentric expandable reamer (XPR)**, from Baker Hughes, eliminates the chronic reamer problems facing the industry: complexity, activation, downhole failures, and vibration/stability dysfunction. The concentric reamer remains closed until triggered, opens on command, reams an in-gauge hole, and closes and comes out of the hole properly. With the pilot bit design synchronized to the expandable reamer in a fit-for-purpose drilling assembly, you'll have an exceptional drill and hole opening tool.

## Simplified tool design

- Minimal number of parts and no complex tool mechanisms improve functional reliability and reduce operational risk
- Compatibility with all MWD/LWD systems, RSS, and performance motor-drilling assemblies

## Positive drop-ball tool activation

- Activation mechanism does not depend upon WOB, flow, or BHA pressure, eliminating premature triggering risk
- Positive, shear-screw triggering with a large, predictable (+/-5%) pressure signal that indicates activation
- After seating, ball retained by patented catch sleeve

## Cutter blade designed to use natural down-drilling forces and provide fail-safe retraction

- Blade activation enhanced by the down-drilling force, ensuring consistent cutting loads and a full-gauge hole with improved wellbore quality
- No minimum WOB required to hold blades out. Blade motion tilted upward at low angle to ensure fail-safe blade retraction

## Optimized design and thoroughly testing

- Optimized cutting structure design using advanced analytical software
- Technology thoroughly proven at Baker Hughes world-class drilling rig and laboratory test facilities

## Engineered cutter layout

- Proven parabolic profiles with premium cutter technology
- Ample blade area for large down-drill and backreaming cutting structures
- Designed for stability
- Designed with proprietary **BHASysPro™ software** for improved drilling dynamics
- Stabilization sub below cutter blades provides enhanced BHA stability and reduced vibration

## One-piece, high-tensile steel tool bodies with no welding

- Specialized body material selected for high strength and fracture resistance
- Comprehensive FEA analysis performed for confidence in overpull, bending fatigue, and torsion
- No welding or brazing on tool body leaves no heat-affected zones, improving tool life and integrity

## System synchronization

- Exceptionally smooth drilling with synchronized bit and GaugePro XPR design
- Pilot bit vibration reduction using **EZSteer™ depth-of-cut control technology**

## Reamer hydraulics

- Proprietary reamer hydraulics software predicts tool pressure drop before and after activation
- Nozzle locations and tilts designed using CFD to optimize hydraulics



# GaugePro XPS

The **GaugePro concentric expandable stabilizer (XPS)**, from Baker Hughes increases drilling efficiency by providing BHA stabilization in the enlarged wellbore. This expandable stabilizer is designed on the same simple, robust and reliable principle as the GaugePro XPR expandable reamer. The stabilizer, when run in combination with the expandable reamer, significantly reduces upper BHA whirl, thus reducing BHA damage and further enhancing the downhole operating environment and drilling performance.

The GaugePro XPS improves performance results compared to traditional pass-thru stabilizers used above an expandable reamer.

- Increased drilling efficiency
- Reduced lateral vibration
- Minimized reamer and upper BHA
- Increased ROP for a given WOB

## Benefits:

- More surface WOB to bottom using the XPS
- Reduced BHA whirl and lateral vibration, less risk of tool joint failure above the reamer



Backreaming cutters

Double bevel/radius

All of the GaugePro XPS stabilizer blades have cutters on the back ream section. This feature helps cleaning the enlarged well bore during back reaming operations. The stabilizer blades have a double bevel/radius to assist in the prevention of drag. The stabilizer blades are  $\frac{1}{8}$ -in. under gauge of the hole enlargement size of the GaugePro XPR reamer.

GaugePro XPS stabilizer



