

Talon Force high-velocity PDC drill bits

Taking PDC bit performance
to the next level



Designed for improved performance

Since its introduction in 2012, the **Talon™ family of bits**, from Baker Hughes has been proven as the industry standard for PDC bits, delivering high-performance cutting, mechanical, and hydraulic efficiency. Both the Talon and Talon 3D products still deliver superior directional control and high build-up (BUR) and penetration rates (ROP) in challenging environments.

The newest advancement in bit technology—the Talon Force PDC bit—builds upon this foundation by introducing improvements to cutting and mechanical efficiency through:

- Next-generation cutter technology
- Cutter geometry enhancements
- Optimized cutter layouts
- Lateral stability improvements



Cutting efficiency

Advanced diamond technology helps cutters stay sharper longer to increase ROP and footage

Mechanical efficiency

Stable, efficient, and durable designs deliver superior performance

Hydraulic efficiency

Optimized hydraulic energy at the bit ensures maximum cuttings evacuation to boost ROP

The Talon Force high-velocity PDC bit

StaySharp 2.0 cutter

Next-generation family of cutters stays sharper longer for increased ROP and footage.

Stabilis reinforced cutter

Novel cutter geometry improves durability and reduces torsional oscillations.

Talon Force bit profiles

Application-specific bit profile boosts ROP and run life, improving mechanical efficiency and durability while minimizing vibration.

Optimized cutter and blade layouts

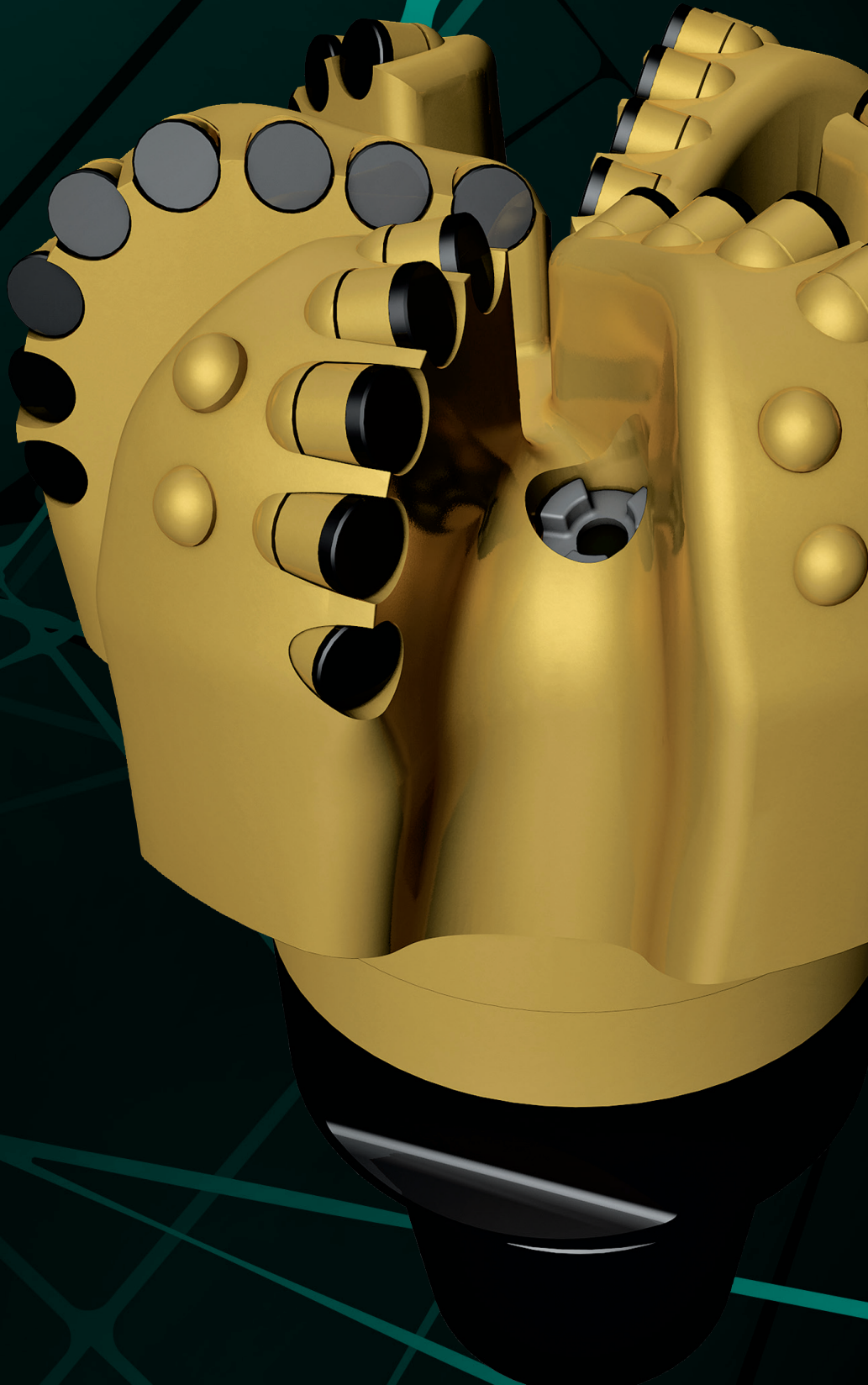
Designs maximize stability and drilling efficiency.

Shaped gauge pad

Tungsten carbide and thermally stable PDC materials protect gauge pads and keep bits in gauge longer. Geometry optimizes maximum cuttings evacuation.

Short shank

Decreases make-up length for higher levels of control in conventional directional drilling. Increases bit side force on rotary steerable systems.

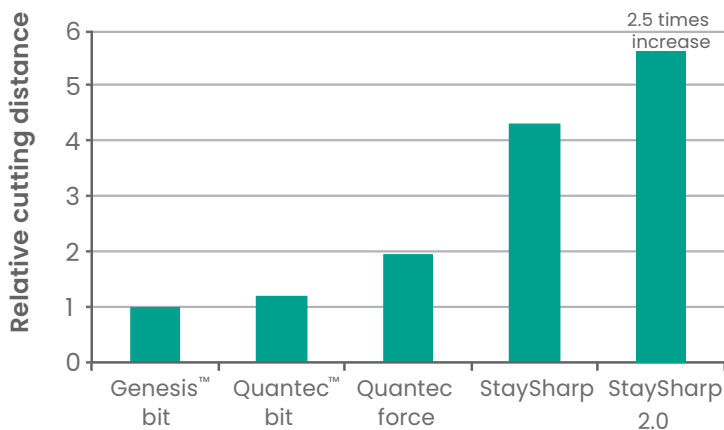


New technologies for every drilling need

StaySharp 2.0 PDC cutters

Through extensive laboratory and field testing, Baker Hughes has developed the next generation of PDC cutters. **StaySharp™ 2.0 cutters** have been augmented with the latest high-pressure/high-temperature synthesis technologies for superior wear resistance, toughness, and thermal stability.

StaySharp 2.0 wear resistance

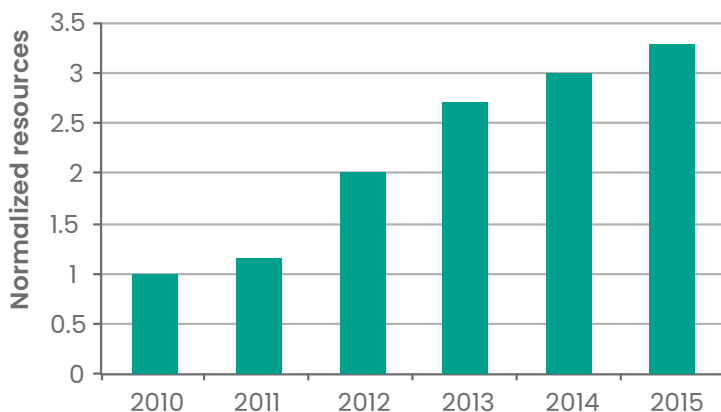


In order to provide industry leading technology for our PDC bits, our cutter laboratory continually drives rapid prototype development and learnings, having cut more than 10 million ft (3 million m) of rock in the last three years with experimental cutter technology on our vertical turret lathe.

Over the past several years, Baker Hughes has vastly expanded its resources from a personnel and capability standpoint, almost tripling cutter research resources since 2010. In addition, Baker Hughes has invested in state-of-the-art laboratory equipment and analysis tools.

By combining our lab and development resources with the latest manufacturing breakthroughs, we've been able to design the new StaySharp 2.0 cutters to deliver industry-leading results.

Cutter research growth

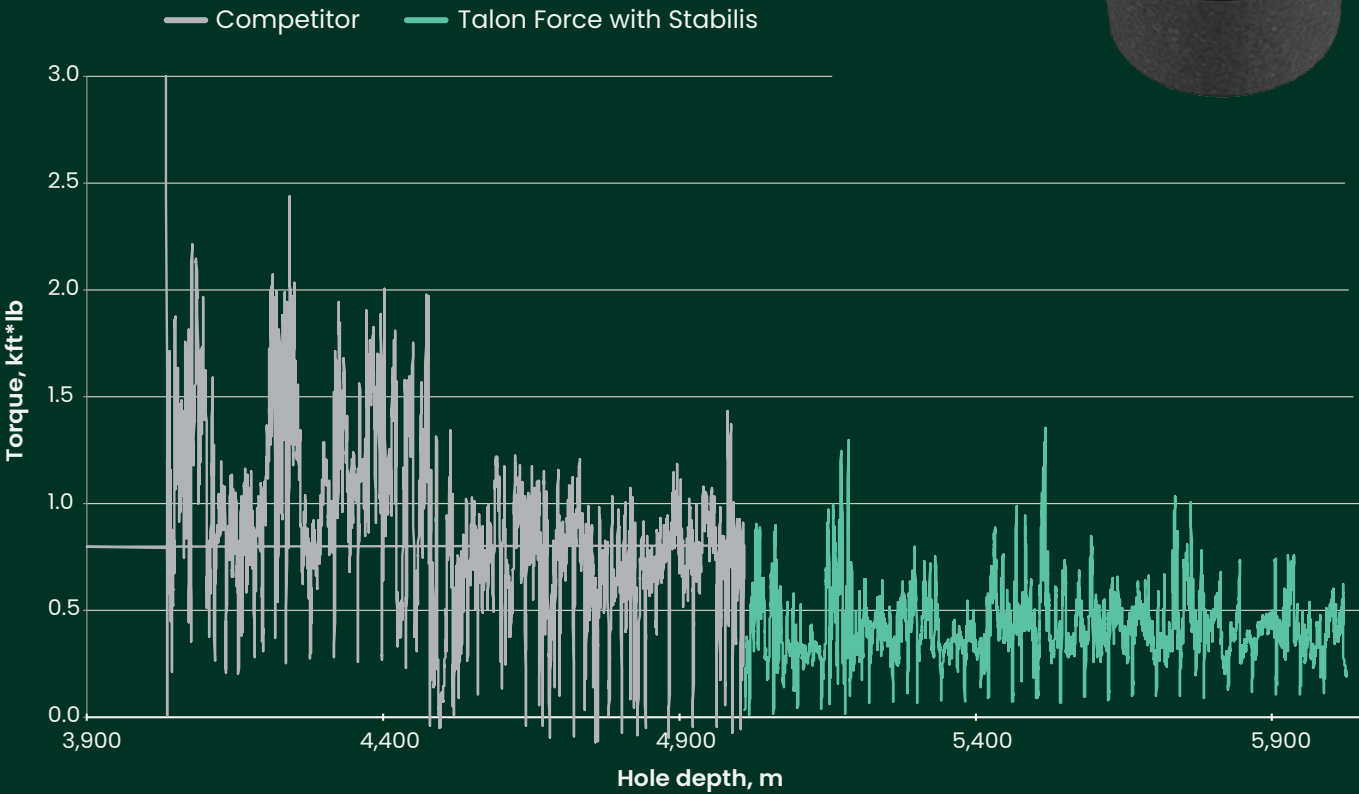
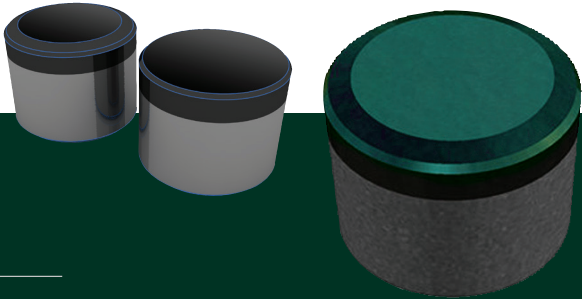
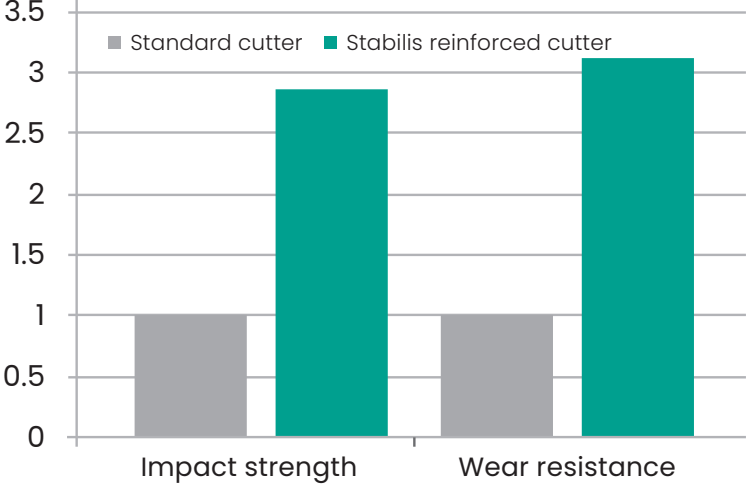


Stabilis reinforced cutters

The new **Stabilis™ PDC reinforced cutters** from Baker Hughes improve torsional stability and increase cutter durability, delivering longer runs and higher ROP in the most challenging applications. Where traditional PDC cutters fail due to abrasion or breakage, a new geometric design protects the cutters while maintaining performance. In a lab environment, Stabilis cutter testing has shown a 185% improvement in impact strength when compared with standard cutters. Overall cutting distance prior to failure was tripled when using this technology compared to a standard cutter.

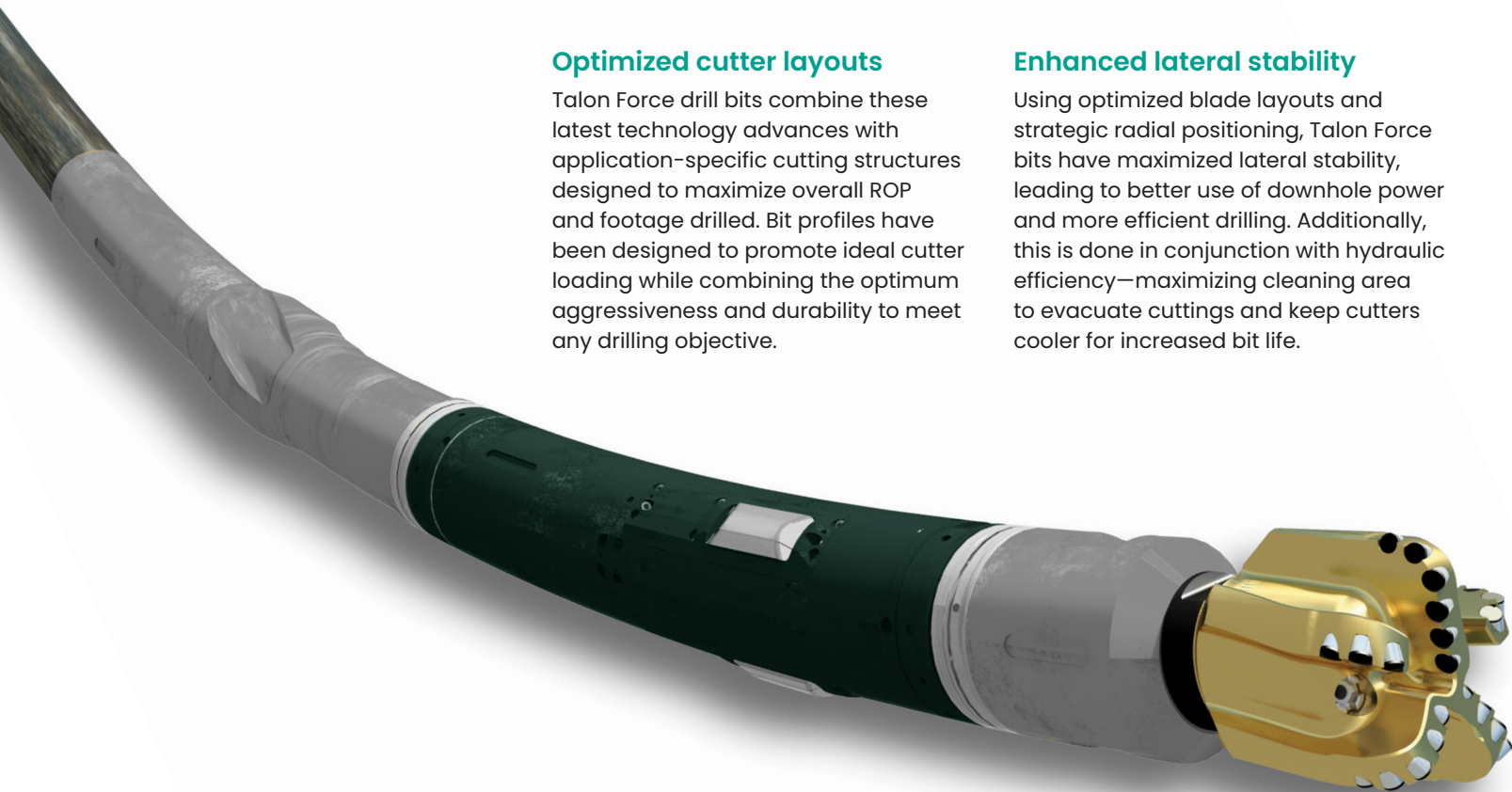
Stabilis cutters have set new performance benchmarks in highly interbedded formations—drilling through conglomerates, chert, and pyrite inclusions with ease.

Relative performance comparison



Stabilis reinforced cutters not only add durability, but they also offer benefits in torsional stability. A bit using these cutters sees a decrease in torque fluctuations while drilling. Controlling torsional oscillations leads to smoother, more stable drilling resulting in higher ROP and improved overall performance of the run.

In an application with up to 50% chert layered throughout the interval, Stabilis cutters generated lower and more consistent torque and reduced weight on bit requirements—significantly improving drilling efficiency and increasing ROP.



Optimized cutter layouts

Talon Force drill bits combine these latest technology advances with application-specific cutting structures designed to maximize overall ROP and footage drilled. Bit profiles have been designed to promote ideal cutter loading while combining the optimum aggressiveness and durability to meet any drilling objective.

Enhanced lateral stability

Using optimized blade layouts and strategic radial positioning, Talon Force bits have maximized lateral stability, leading to better use of downhole power and more efficient drilling. Additionally, this is done in conjunction with hydraulic efficiency—maximizing cleaning area to evacuate cuttings and keep cutters cooler for increased bit life.

Talon Force bit nomenclature

Standard product – blank
D-Technology™ – D
Talon Select – S

F – Force

S – steel nody
Blank – matrix

T – Talon – T D 5 06 F S X

Cutter size

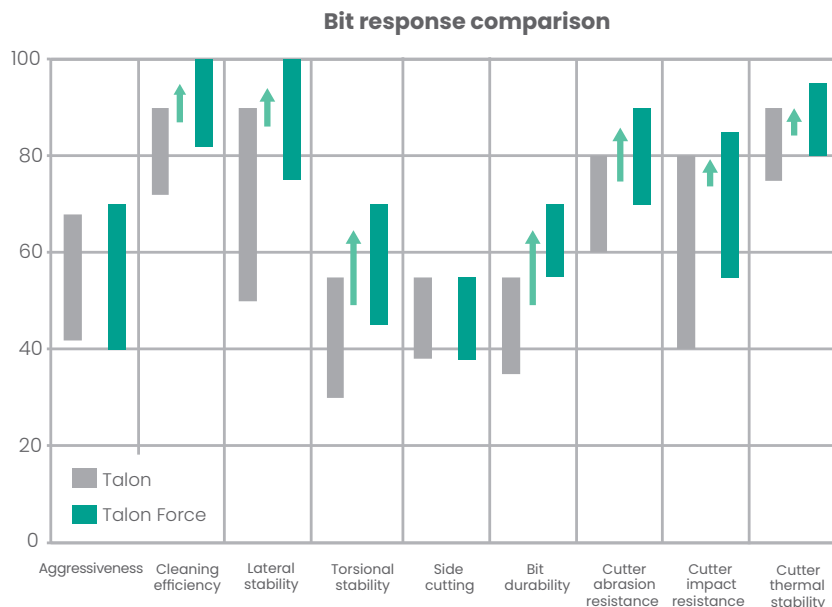
Blade count

X – backup cutters

2 – $\frac{5}{16}$ in.	8 mm
3 – $\frac{7}{16}$ in.	11 mm
4 – $\frac{1}{2}$ in.	13 mm
5 – $\frac{5}{8}$ in.	16 mm
6 – $\frac{3}{4}$ in.	19 mm
8 – 1 in.	25 mm

Improved ROP and distance drilled

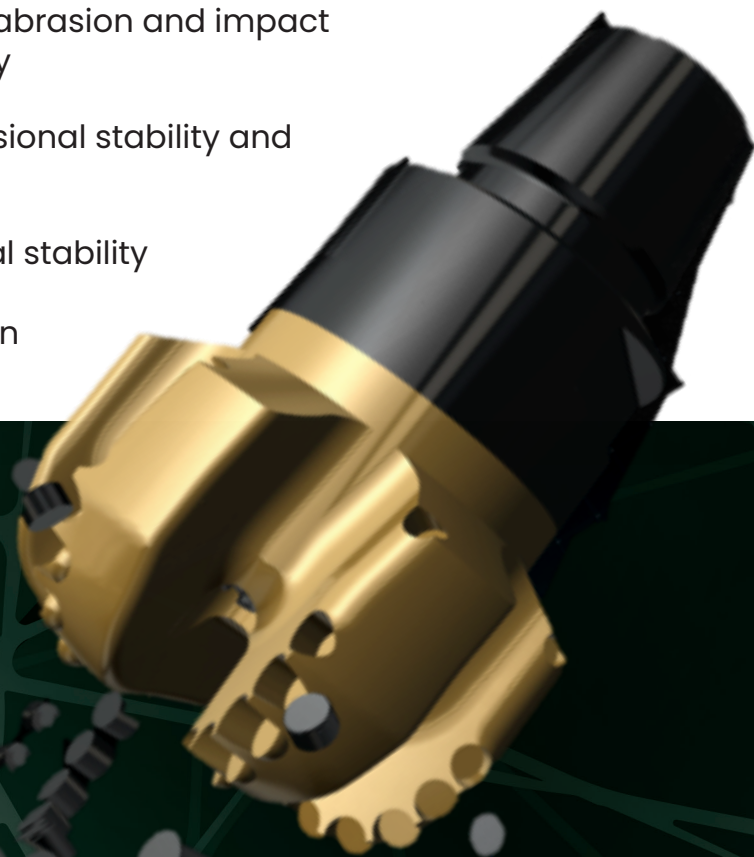
The improved behaviors of the Talon Force bit compared to standard Talon products is evident with our proprietary bit response software, the **BitGenie™ drill bit selection tool**. By capitalizing on cutting and mechanical efficiency gains, Talon Force solutions improve overall ROP and footage to maximize performance.



Stay Sharp 2.0 cutter: improve cutter abrasion and impact resistance and cutter thermal stability

Stabilis reinforced cutter: improve torsional stability and bit durability

Frame enhancements: improve lateral stability and cleaning efficiency and optimize aggressiveness for a given application



For more information on how Talon Force bits can take your drilling to the next level, contact your local Baker Hughes representative or visit bakerhughes.com.

