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, a GE company (BHGE), 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, BHGE 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.

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, BHGE has vastly expanded its resources from a personnel and capability standpoint, almost tripling cutter research resources since 2010. In addition, BHGE 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.

Stabilis reinforced cutters
The new Stabilis™ PDC reinforced cutters from BHGE 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.

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.

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.

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

Talon Force bit nomenclature

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

T – Talon
F – Force

Cutter size
Blade count
X – backup cutters

T D 5 06 F S X

S – steel nody
Blank – matrix

2–5/16 in.  8 mm
3–7/16 in.  11 mm
4–1/2 in.  13 mm
5–5/8 in.  16 mm
6–3/4 in.  19 mm
8–1 in.  25 mm

• 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