King Cutter PDC Cutting Technology
Improve ROP with increased depth of cut and strength

Baker Hughes King Cutter™ PDC cutting technology improves the rate of penetration (ROP) with a large 1-in. (25 mm) cutter—the largest in the industry—and greater strength. The larger cutter removes more rock than traditional cutters for increased drilling efficiency in vertical and directional applications.

As an extension of StaySharp™ 2.0 premium polished cutter technology, King Cutter technology has been augmented with the latest high-pressure/high-temperature (HP/HT) technologies for superior wear resistance, toughness, and thermal stability.

The 1-in. (25 mm) cutter diameter increases ROP and enables more efficient drilling when paired with a Talon™ Force high-velocity PDC drill bit by operating at larger depths of cut (DOC)—cutting more rock than traditional smaller cutters. Less cutter density reduces the diamond footprint and also improves ROP by increasing cutter clearance.

King Cutter technology provides cutters that are 53% stronger than ¾-in. (19 mm) StaySharp technology. This improvement leads to added durability for longer runs and the ability to withstand forces associated with drilling at higher depths of cut.

King Cutter technology is also available with Stabilis™ reinforced cutter technology for an even greater performance and strength boost.

In the field, King Cutter technology with Talon Force drill bits has set multiple records in applications throughout the world. Initial deployments have improved ROP by 28% or more and have set numerous records.

Applications
- Vertical and directional applications
  - Rotary or motorized BHA

Features and benefits
- 1-in. cutter
  - Enables larger depth-of-cut potential to increase ROP
  - Removes more rock for increased drilling efficiency
- 53% increase in strength
  - Delivers added durability, improving footage
  - Withstands higher forces associated with drilling at larger depth of cut

Global performance of King Cutter technology compared to offset averages
In Kuwait, King Cutter technology was used on a 12¼-in. Talon Force bit (T806FS) in a vertical application drilling an interval interbedded with sandstone, shale, and limestone. In the initial three deployments, a field ROP record was set with each subsequent run. The third run had an ROP of 289 ft/hr (88 m/hr) compared to the field average of 75 ft/hr (23 m/hr), improving ROP by 287%.

In Italy, a 12¼-in. Talon Force bit (TD806F) with King Cutter technology on a rotary steerable assembly with a hole opener drilled through a claystone interval that included a depleted zone. Offset wells drilled the depleted zone at 6 to 10 ft/hr (2 to 3 m/hr) and required multiple bits, while the bit with King Cutter technology drilled with better MSE and ROP was improved to more than 32 ft/hr (10 m/hr) in one run. The dull condition at the end of the run was excellent and the interval’s ROP was improved by 94%.

King Cutter technology was also used in a 13½-in. section of the DJ Basin of Colorado. In multiple wells, a 12¼-in. Talon Force bit (T806X) improved ROP by 56% compared to the offset average. A green dull condition allowed the bit to be run multiple times before needing a repair.