SMITH BITS
A Schlumberger Company

AxeBlade

Ridged diamond element bit

APPLICATIONS

- Vertical, curve, and lateral sections
- Any BHA configuration
- Medium to hard formations with unconfined compressive strengths (UCS) greater than 5,000 psi [35 mPa]

BENEFITS

- Saves rig time and costs by delivering faster instantaneous ROP
- Achieves directional objectives in less time and maximizes production zone exposure

FEATURES

- Axe* ridged diamond element combines shearing and crushing actions to cut rock more effectively
- Thicker diamond table on cutter ridge increases cutter durability and maintains desired ROP throughout the run
- Ridge-shaped cutter geometry reduces cutting force requirement for less overall torque, less reactive torque fluctuation, and better toolface control

The latest cutter innovation from Smith Bits, a Schlumberger company, the Axe element features a unique ridge-shaped geometry that combines the shearing action of a conventional PDC cutter with the crushing action of a tungsten carbide insert (TCI). Placing these elements across the bit blade results in the AxeBlade* ridged diamond element bit, which enables significant improvement in ROP in a wide range of applications and improves steerability in directional wells. Field tests have demonstrated up to 29% improvement in ROP compared with premium PDC cutters using the same bit design.

Increased cutting efficiency for instant ROP improvement

Axe cutters employ a unique ridge-shaped geometry that fails rock in a new way—a combination of shearing and crushing. This cutting method achieves at least 22% deeper penetration to provide higher instantaneous ROP using the same weight on bit and rpm applied to conventional PDC cutters.

The ridge-shaped geometry yields a diamond table that is 70% thicker than a conventional cutter and provides higher frontal impact resistance compared with conventional cutters. This feature translates into improved durability and dull conditions for maintained maximum ROP throughout the run.

Enhanced control in directional applications

The reduced cutting force required by Axe elements translates to less overall torque, reduced reactive torque fluctuation, and better toolface control in curve applications. This advantage allows better build rates and higher overall ROPs, helping maximize production zone exposure and minimize drilling time.

Fitted with ridged diamond elements, the AxeBlade bit increases ROP and improves steerability through increased cutting efficiency and less torque fluctuation.

*Mark of Schlumberger

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