

Axe SR scribe-ridged diamond element

Scribe-ridged design reduces WOB for same depth of cut

Where it is used

The Axe SR* scribe-ridged diamond element is used with PDC matrix and steel-bodied bits to drill unconventional well intervals, including the vertical, curve, and lateral. Our ridged diamond elements are compatible with any BHA configuration. Bits using the Axe* ridged diamond element family improve ROP in medium to hard formations with unconfined compressive strengths (UCS) greater than 5,000 psi [35 MPa].

How it improves wells

The Axe SR element extends bit life for longer intervals and sustains the performance of the classic Axe element. The ridged shape reduces the cutting force required by AxeBlade* ridged diamond element bits, which lessens overall torque, reduces reactive torque fluctuation, and enables better toolface control in curve applications. This advantage yields better build rates and higher overall ROPs, helping maximize production zone exposure and minimize drilling time.

How it works

The Axe SR element complements the benefits of the ridged shape with a scribe shape. Like the Axe element, Axe SR elements combine the shearing action of a conventional PDC cutter with the crushing action of a tungsten carbide insert (TCI), achieving at least 22% deeper penetration to provide higher instantaneous ROP. But when the Axe SR element is strategically placed in the cone of the bit, it uses less WOB and rpm than bits using conventional PDC cutters.

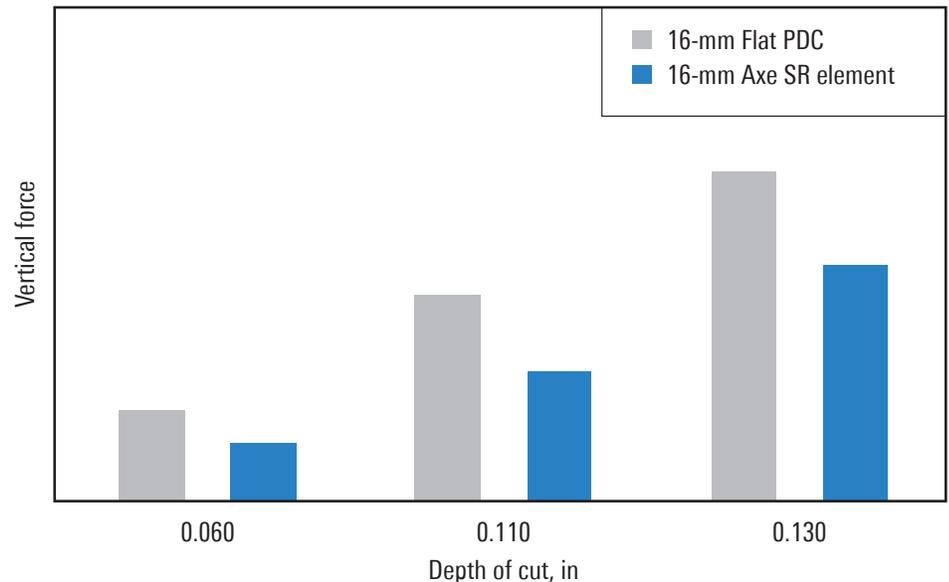
What it replaces

Conventional flat surface cutters

What else I should know

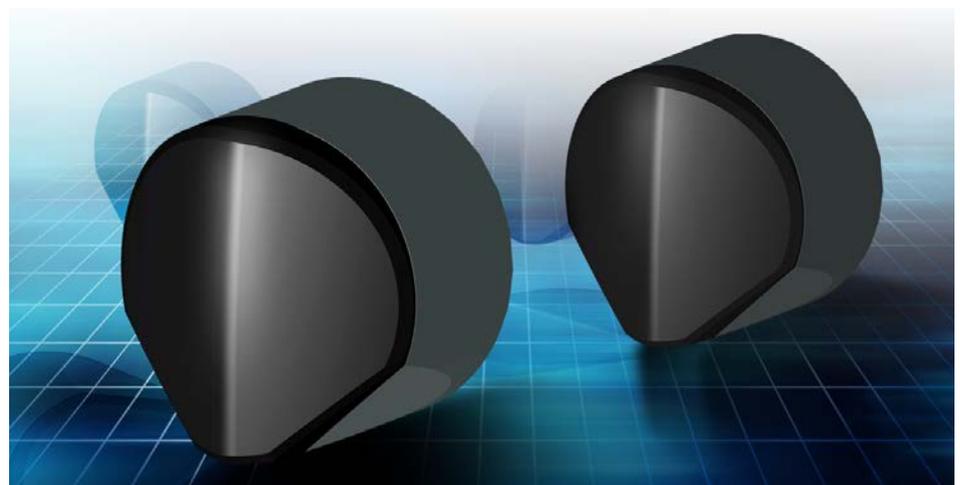
Smith Bits is continually recognized for advancement in bit technology, having earned the Hart Energy's Special Meritorious Awards for Engineering Innovation for drillbit technology in 2014, 2015, and 2017 and the *World Oil* Award for Best Drilling Technology in 2014.

Cutting Performance at Less Applied Force



Axe SR scribe-ridged diamond element requires less WOB than bits using flat cutters and Axe elements.

Additionally, Smith Bits has a 20-year record for achieving more world records than any other drillbit company. Since 1999, Hart Energy has documented drillbit records data for different types and sizes of bits in three categories—single-run footage, cumulative footage, and ROP. Data is verified by bit run sheets from drilling contractors and operators. In a recent review, Smith Bits set 53% of the global records in the drillbit industry—more than all other bit companies combined—with 595 of the 1,123 world records.



The Axe SR scribe-ridged element uses less WOB and rpm than conventional PDC cutters.