Diamond Edge™
SERIES

Varel International's Diamond Edge™ PDC Bit Proven Successful in Multiple Runs

What is the Diamond Edge drill bit?

The Diamond Edge is a patent pending PDC drill bit designed to run at high penetration rates even in applications that call for higher blade and cutter counts.

Its unique cutting structure layout adds another dimension to bit stability and smooth running by combining the penetration rate potential of traditional "single set" cutter layouts with the life extending features of a "plural set" cutter layout. The result is a bit that runs up to 20 percent faster than conventional PDC bits with minimum bit wear.

How does the cutting structure work?

With Diamond Edge, Varel has extended the advantages of an asymmetric blade cutting structure in the control of bit vibration by adding precisely defined plural cutter blade asymmetry.

This proprietary approach enhances both stability and penetration rate. You get more out of the bit, and more out of the diamond on the bit.

What are the benefits of the new design?

Diamond Edge bits work across an extended range of weight on bit, penetrating quickly even at low bit weights in softer rock. When formations firm up, the bits can take added weight with a smooth torque response and maintain higher than competitive rates of penetration.

The technology is a departure from traditional plural set bits that require higher weights to drill even in soft rock, and are generally durable, but slow, even in harder rock. Traditional plural set bits also can produce an erratic torque response when taking additional weight.

The proof is in the performance!

The Diamond Edge PDC bit from Varel International provides a unique cutting structure specially equipped for transitional zones and hard rock drilling. This innovative design allows operators to recognize drilling efficiencies through:

- **Increased rates of penetration**
- **Enhanced stability**
- **Optimum product durability**

VAREL INTERNATIONAL®

Case Study #1

Major Operator – Hill County, Texas
8-3/4" DE713PUX Diamond Edge Bit

Challenge

A major operator drilling in Hill County, Texas, needed a bit that could withstand formations known to be extremely hard and abrasive where roller cone bits have historically been used. Plans in the area called for a kick off deep down hole, requiring a bit that was steerable and durable enough to maintain steerability after enduring abrasive sands. Formation tops are as follows:

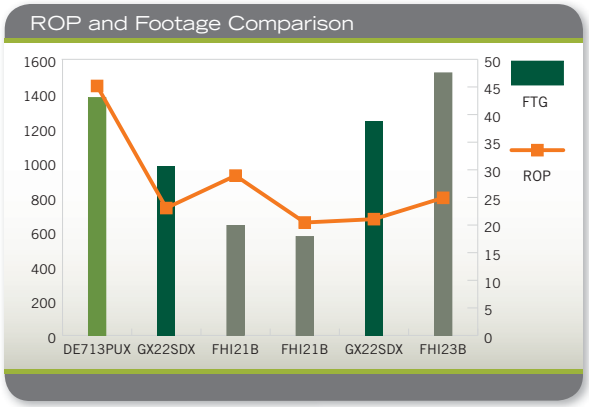
- Bend Conglomerate 5820-7910 feet, Marble Falls 7910-8100 feet, Barnett 8100-8220 feet

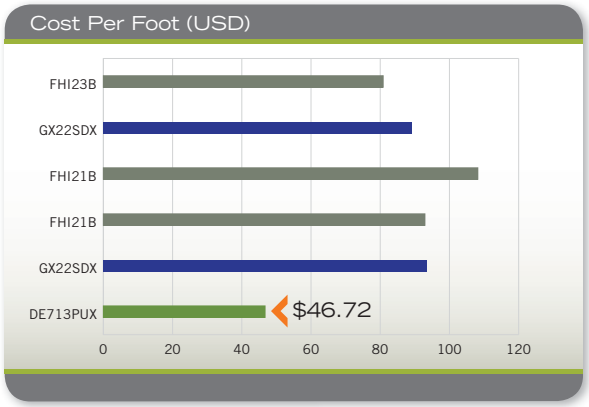
Solution

Varel recommended the DE713PUX Diamond Edge™ PDC bit.

Results

The DE713PUX drilled down to 8,120 feet in 30.5 hours while improving ROP to 45.2 feet per hour. The bit drilled twice as fast as a traditional bit in the section, drilling a typical two-bit interval in just one run.





Case Study #2

Major Operator – Upton County, Texas
7-7/8" DE716X Diamond Edge Bit

Varel International recently recommended a 7-7/8" DE716X Diamond Edge bit to an operator in Upton County, Texas. The bit drilled a total of 5,815 feet to reach the TD of 10,635 feet, with the lowest average weight on bit when compared to other runs in the area.

- Reached TD in 120.5 hours
- Low cost per foot
- 10 percent reduction in WOB with a 7 percent improvement in ROP

- For more information on these runs or other Varel International products or services, please contact your local sales representative. Product information can also be viewed at varelintl.com/oilandgas.