
VENOM
PERFORMANCE INJECTED
CUTTER TECHNOLOGY
The VENOM™ Cutter methodology identifies the right PDC cutter to solve the key challenges within the application. Using the right diamond and diamond shape helps eliminate risk and maximizes value. Ensuring the correct diamond attributes are emphasized is the key to delivering consistent and reliable performance while keeping the cutters sharp and engaged.
Sharp cutters drill faster – ALWAYS!
Cutter Attributes:
Key diamond attributes can be optimized to better match the demanding need. Varel's ability to quantify diamond by key attributes enables the proper cutter selection for the specific application.
• Abrasion
• Impact
• Thermally Stable
• Cutting Efficiency
• Cutter Strength
VAREL
ENERGY SOLUTIONS

VENOM

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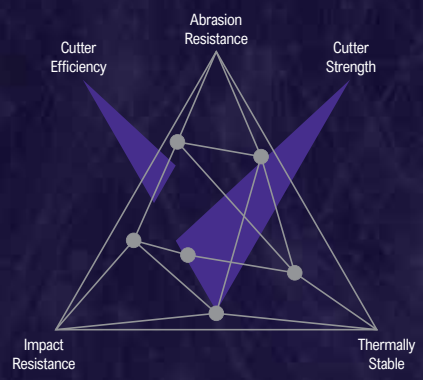
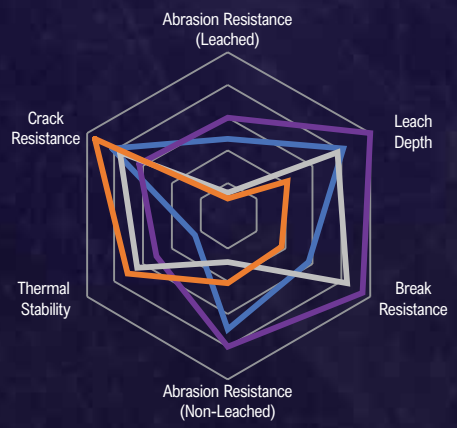
Cutter Attributes



Diamond Attributes



Five proprietary cutter technologies born from precision manufacturing processes – delivering robust, abrasion-resistant, and thermal cutting solutions:

Venom cutting efficiency is maximized by enhancing the base diamond material with specifically engineered shapes. These shapes are focused on improving drilling speed and/or durability.

ROUND: The original cutter geometry and the foundation of all Venom product. Standard cutters are offered in a variety of chamfer sizes to match the application.

ARTIMIS: Leading edge geometry creates a stress point in the formation to pre-fracture the rock. Application is hard formation with heavy transitions. Can be setup to attack chert.

FANG: A sharp-edged cutter to be active and pre-fracture the rock as a backup or secondary cutter. Used to get higher ROP's with lower energy requirements.

COBRA: A combination of the Fang shape blended with Artimis ridge. This layout is useful in lateral runs to increase both speed and durability.

PHARAOH: The original shaped cutter. Blends the toughness of a large diamond face with the sharp edge of a smaller cutter. Maximizes cutter exposure to get high depth of cut.

- **Abrasion**: Enhancing the abrasion attribute will target the hard sandstone and siltstone drilling environments. Modifying the diamond properties allows Venom cutters to stay sharper longer.
- **Impact**: Impact damage can abruptly stop a successful run. Diamond that does not crack or break is critical to achieving longer bit life.
- **Thermally Stable**: Focus on the thermal attribute allows cutters to endure higher temperatures for longer. This is a key for long runs with high friction heat generation due to the rock and parameters.
- **Cutting Efficiency**: Modification of the physical shape of the cutter can enhance the cutting efficiency. This upgrade can allow for improved ROP and/or durability.
- **Cutter Strength**: Cutters have to be able to hold up to the extreme conditions they are exposed to. This includes shock and extreme temperatures as well as performing in erosion and corrosion environments. Matching this attribute to the need makes for consistent bit runs.

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