OVAL Cutter

The original shaped cutter.

- Formation contact area less than standard cutter for given depth of cut.
- Increases point loading due to geometry.
- Delivers less torque than standard cutters for a given ROP.
- Achieves higher ROP for a given WOB.

TRIFORCE Cutter

With leading edge geometry the TRIFORCE cutter is unique and creates a stress point in the formation to pre-fracture the rock.

- Flat portions on either side of the raised ridge produce cuttings or chips just like a regular cutter.
- The ridges not engaging the formation act as chip breakers in soft formations.
- Improves ROP by focusing force on a single point to deeply fracture the formation.
- TRIFORCE requires a slightly greater force to operate as the cutter moves a higher volume of rock.
- Patented index system for mounting.

SCOOP Cutter

A concave shaped cutter, SCOOP, provides lower energy requirements due to the cutter’s efficient shape.

- Progressive back rake with increased depth of cut.
- Better chip removal at the face of the cutter.
- Improved cutter edge cooling by optimizing cutter shape.
- Reduced WOB required to produce the same ROP.
- Provides the same depth of cut with lower normal force.
- Puts rock in tension mode and not compression.

FANG Cutter

A sharp edged cutter designed to be active and pre-fracture the rock as a backup or secondary cutter.

- Designed as an ROP enhancer for already existing designs.
- Less torque generated than traditional secondary cutters.
- Provides more shoulder coverage for improved durability.
- Used in interruptive cutting structures to pre-fracture the rock so the trailing cutter more easily cuts the rock.
- Patented index system for mounting.
FORCE\textsuperscript{3}\textsuperscript{®}

Varel FORCE\textsuperscript{3} cutter technology provides data that allows designers to compare an array of PDC cutters for a specific solution to your drilling needs. As a result you get a bit that is designed for maximum performance for your unique application and ultimate value for your bottom line.

Varel FORCE cutter technology for shaped cutter bits is provided by unconventional VTL testing results. Data is collected that allows engineers to compare shaped PDC cutters in a unique way to meet the drilling needs of the oil and gas industry. As a result you get the best shaped cutter designed for your application. This results in ultimate bit performance and reduced time on bottom for your drilling operations.

Shaped Cutter Code

<table>
<thead>
<tr>
<th>Shaped Cutter Name</th>
<th>Code</th>
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<tbody>
<tr>
<td>TRIFORCE</td>
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<tr>
<td>SCOOP</td>
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<tr>
<td>FANG</td>
<td>F</td>
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<tr>
<td>OVAL</td>
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**Shaped Cutter Code**

- **Shaped Cutter Name Code**
  - TRIFORCE (T)
  - SCOOP (S)
  - FANG (F)
  - OVAL (O)

**Feature Code(s)**

- **2 Digit Cutter Size**
- **1 or 2 Digit Blade Count**
- **Hydra Design**
- **FORCE Shaped Cutter Design**

**Shaped Cutter Code**

- **FORCE**