

To enhance gage holding and seal protection, Varel roller cone bits provide value with a variety of shirrtail protection packages for high-angle drilling, abrasive formations and steerable applications. These shirrtail protection packages can be used to tailor bits to meet your drilling needs.

## MOTOR HARDFACING (M FEATURE)

For demanding motor applications, a generous application of tungsten carbide hardfacing is applied to the shirrtail edge and leading edge of the bit leg to provide enhanced seal protection.

## LEADING EDGE SHIRTTAIL INSERTS (S FEATURE)\*

Tungsten carbide inserts are placed along the leading edge of the shirrtail providing additional wear resistance in motor applications commanding high RPM or where additional shirrtail protection is needed.

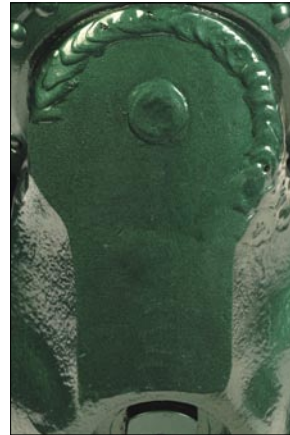
## STABILIZATION INSERTS (R FEATURE)\*

Stabilization inserts enhance standard shirrtail patterns by providing bit stabilization and additional protection to the pressure compensator in high-angle applications or in deviation-prone formations.

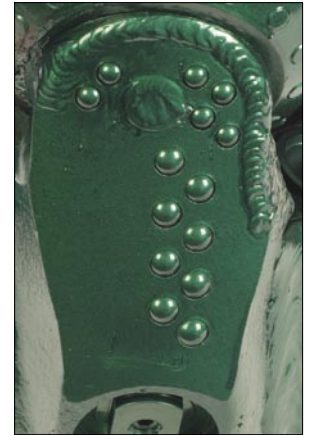
## DIAMOND ENHANCED SHIRTTAIL INSERTS (Z FEATURE)\*

In Varel's premium shirrtail protection package PCD-capped inserts replace tungsten carbide inserts (TCI) in strategic locations to provide maximum shirrtail protection in abrasive formations or directional applications.

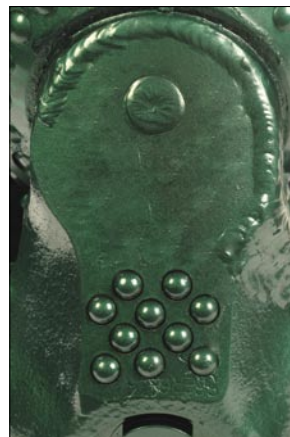
\*optional features are available at extra cost



*Motor Hardfacing —  
M Feature*



*Leading Edge and Hardfacing —  
S Feature\**



*Stabilization and Hardfacing —  
R Feature\**



*Diamond Enhanced and  
Hardfacing — Z Feature\**

