



SERIES 33

THREE FLUTE END MILLS

Using the latest in engineering design and grinding capabilities, the new Series 33 High Performance End Mills handle slotting of difficult materials such as Stainless Steel, Titanium, and Inconel. Ideal for applications struggling with chip evacuation, this 3-Flute design offers increased chip clearance and a reduction in harmonics.

- Unique 3-Flute design provides more controlled and manageable chip formation.
- Engineered stepped core configuration provides stability for aggressive ramping and rigidity when flute is completely engaged.
- Open structure at the axial end accommodates material flow and load reduction during operations.
- Variable geometry design provides superior chatter and vibration suppression during aggressive milling.
- Available with SGS Patented Jet Stream Technology for precise coolant placement.
- Exclusively coated with Ti-NAMITE-A for superior wear, built up edge resistance and increased tool life.

Ti-NAMITE-A

Series 33 is exclusively available with the most abrasive resistant and hardest coating, Aluminum Titanium Nitride (AlTiN) or Ti-NAMITE-A. With excellent thermal and chemical resistance, Ti-NAMITE-A allows for dry cutting and improvements in performance of carbide. The coating has a high hardness giving ultimate protection against abrasive wear and erosion. Ideal for cast iron, high temperature alloys, titanium, steels, and stainless steel applications.

Hardness (HV): 3300

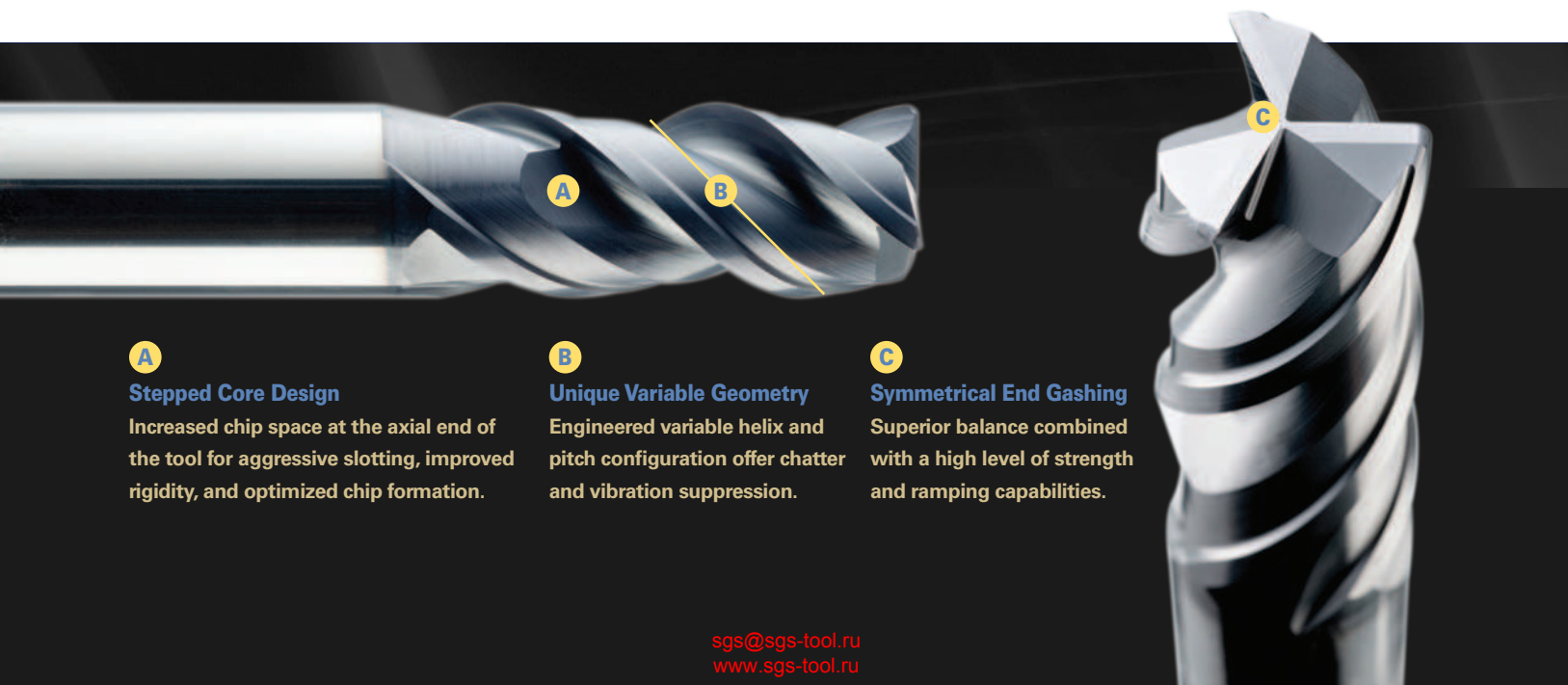
Oxidation Temperature: 800°C - 1472°F

Coefficient of Friction: 0.45

Thickness: 1-4 Microns (based on tool diameter)

THE SERIES 33 IS IDEAL FOR AGGRESSIVE RAMPING, POCKETING AND SLOTTING OF DIFFICULT MATERIALS:

- **Aerospace Structure Components**
- **Medical Replacement Parts**
- **Automotive Performance Components**
- **Stainless Steel Valves**



A

Stepped Core Design

Increased chip space at the axial end of the tool for aggressive slotting, improved rigidity, and optimized chip formation.

B

Unique Variable Geometry

Engineered variable helix and pitch configuration offer chatter and vibration suppression.

C

Symmetrical End Gashing

Superior balance combined with a high level of strength and ramping capabilities.