

Innovative Advantage of Victory™ Grades



Surface Conventional End Mill		Surface Victory™ End Mill		View: 1st and 2nd relief
				Eliminates sharp corner for superior coating adhesion
				Eliminates grinding damage

<p>WP15PE™</p> <p>W = WIDIA™</p> <p>P = Steels</p> <p>15 = Application Range (Medium to Roughing)</p> <p>P = Carbide + PVD</p> <p>E = Solid End Mills</p>	<p>WS15PE™</p> <p>W = WIDIA™</p> <p>S = High-Temp Alloys</p> <p>15 = Application Range (Medium to Roughing)</p> <p>P = Carbide + PVD</p> <p>E = Solid End Mills</p>
<p>Primary Materials</p> <p>P0 through P4 Steels</p> <p>M1 through M3 Austenitic Stainless Steels</p> <p>K1 through K3 Cast Irons</p> <p>H1 Hardened Steels</p>	<p>Primary Materials</p> <p>S1 through S4 High-Temp Alloys</p> <p>P5 through P6 Ferritic and Martensitic Stainless Steels</p> <p>H1 Hardened Steels</p>
<p>Secondary Materials</p> <p>S1 through S4 High-Temp Alloys</p> <p>H2 Hardened Steels</p>	<p>Secondary Materials</p> <p>M1 through M3 Austenitic Stainless Steels</p> <p>H2 Hardened Steels</p>

The new Victory grades are spread across the high-performance offering, including high-performance roughers, high-performance finishers, and select VariMill™ platforms.



Metric	series	Victory Grade		<input type="radio"/> first choice <input type="radio"/> alternate choice					
		WP15PE	WS15PE	P	M	K	N	S	H
				●	●	●	●	●	●
VariMill I™	4777, 47N0	✓		●	●	●		○	○
VariMill II™	577C	✓		●	●	●		○	○
VariMill II™	57NC		✓	○	○			●	○
VariMill II™ ER	577E, 57NE		✓	○	○			●	○
HP Roughers	DQ13, 4976, 4U40, 4U70	✓		●	●	●		○	○
HP Finishers	4001JJ, 4503JJ, D507, D518	✓		●	●	●		○	○

High-Performance Solid Carbide End Mills •

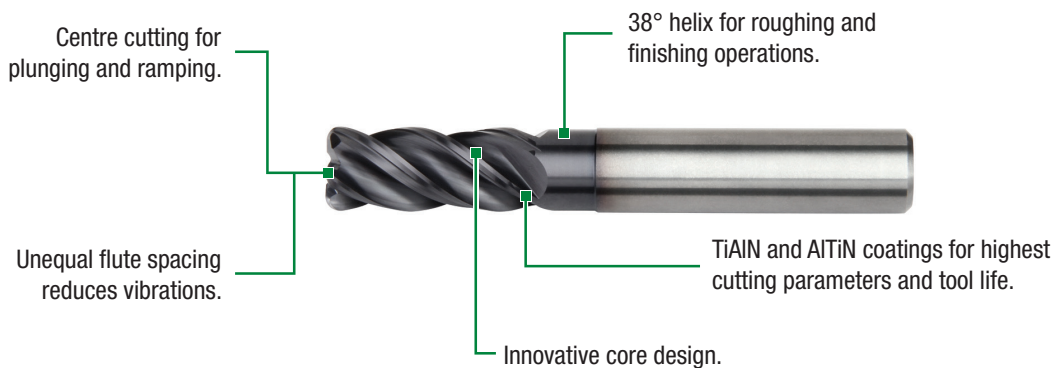
VariMill I™

VariMill I



VariMill I offers plunging, slotting, and profiling at the highest possible feed rates for a wide range of materials. They are designed to provide maximum Metal Removal Rates (MRR) and to achieve superior surface conditions. A wide range of diameters and corner configurations, such as chamfer, radii, and sharp edges, are available from stock.

- High-performance universal tools for almost all workpiece materials.
- Roughing and finishing with one tool.
- Various length-of-cut, long reach and necked versions, ball nose, corner chamfer, and corner radius available.



VariMill I™ Series

- Increase your output with less tool changes and increased Metal Removal Rates (MRR).
- No specific tools for roughing and finishing required.
- Less passes due to 1 x D slotting capability (not recommended for 4717 and 4727).

4777 Series

- High metal removal rates and tool life in:
 - Stainless steels, steels, and alloyed steels.
 - High-temperature alloys and titanium.



4778 AiTiN Series

- Titanium geometry design.
- Corner radii.



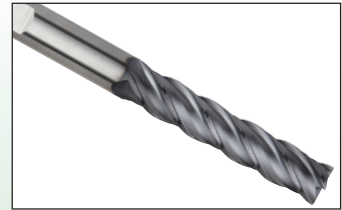
4717 Series

- Stainless steel and steel geometry design.
- 3,5 x D length-of-cut.
- Less passes necessary for long wall machining.



4727 TiAlN Series

- Stainless steel and steel geometry design.
- 5–6 x D length-of-cut.
- Less passes necessary for long wall machining.



47N7 TiAlN Series

- Stainless steel and steel geometry design.
- Radii corner and neck design for cutting depths requiring additional passes.



47N7 AiTiN Series

- Titanium and stainless steel geometry design.
- Radii corner and neck design for cutting depths requiring additional passes.



47N6 Series

- Stainless steel and steel geometry design.
- Benefit from long reach and neck design for deep cavities.



47N0 Series

- Stainless steel and steel geometry design.
- Centre cutting ball nose.



High-Performance Solid Carbide End Mills •

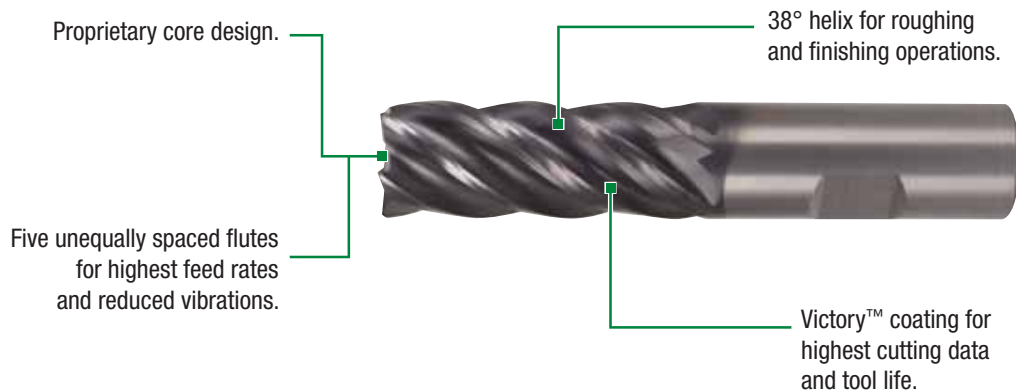
VariMill II™

VariMill II



VariMill II end mills are the proven leader in the field of high-performance, chatter-free machining. They are designed to provide maximum metal removal rates and to achieve supreme surface conditions. Utilising an innovative and proprietary design with unequal flute spacing, VariMill II carbide end mills provide users with the most versatile technology available, capable of outperforming other high-performance tools.

- 1 x D slotting in titanium and stainless steels with five unequally spaced flutes.
- Roughing and finishing with one tool.
- Various lengths-of-cut; necked and corner radius versions available.



WIDIA
VICTORY

VariMill II™ Series

- Five unequally spaced flutes boosting your output with higher feed rates.
- Centre cutting.
- Roughing and finishing with one tool.
- Less passes due to 1 x D slotting capability on almost all materials, including titanium.

577C Series

- Highest metal removal rates and tool life in:
 - Stainless steels, steels, and alloyed steels.
 - Cast iron.
 - High-temperature alloys and titanium.
- Corner radii and sharp edges.



57NC Series

- Titanium and stainless steel geometry design.
- Radii corner and neck design for depths requiring additional passes.



High-Performance Solid Carbide End Mills •

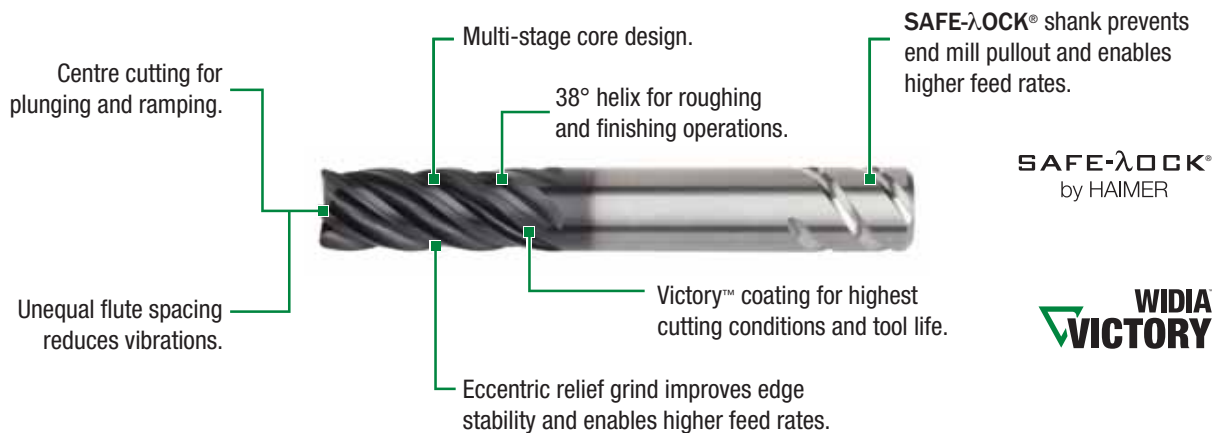
VariMill II™ ER

VariMill II ER



Engineered with Eccentric Relief (ER) grind at the cutting edges for greater edge strength, enabling higher metal removal rates and increased productivity. The new VariMill II ER is the first WIDIA™ off-the-shelf end mill available with **SAFE-λOCK®** by HAIMER, providing excellent stability, eliminating end mill pullout, and increasing concentric tool clamping. Though primarily designed for roughing and finishing applications in the aerospace industry, VariMill II ER can be used as a solution for any titanium or stainless steel application and is capable of slotting, ramping, and plunging.

- High-performance tools for titanium and stainless steel workpiece materials.
- Roughing and finishing with one tool, lowering tool costs.
- Various radius and necked versions available.
- Standard offering with **SAFE-λOCK®** by HAIMER.



VariMill II™ ER Series

- Unique geometry providing increased tool life and higher metal removal rates in difficult-to-machine workpiece materials.
- Increased output due to fewer tool changes and higher metal removal rates.
- Roughing and finishing with one tool, lowering tool costs.
- 1 x D slotting capability requires less passes, increasing productivity.

577E Series

- Eccentric relief for edge stability and strength.
- Extensive radii corner offering.



57NE Series

- Eccentric relief for edge stability and strength.
- Extensive radii corner offering.
- Neck design for depths requiring additional passes.



Application Example

Side milling of INCONEL® 718 component.

Workpiece material: INCONEL 718

Tool: D = 16mm

Cutting data: $a_p = 27,43\text{mm}$

$a_e = 1,3\text{mm}$

$vc = 19,8\text{ m/min}$

$fz = 0,05\text{ mm/th}$

Result: Increased tool life from 2 years to 5.

High-Performance Solid Carbide End Mills •

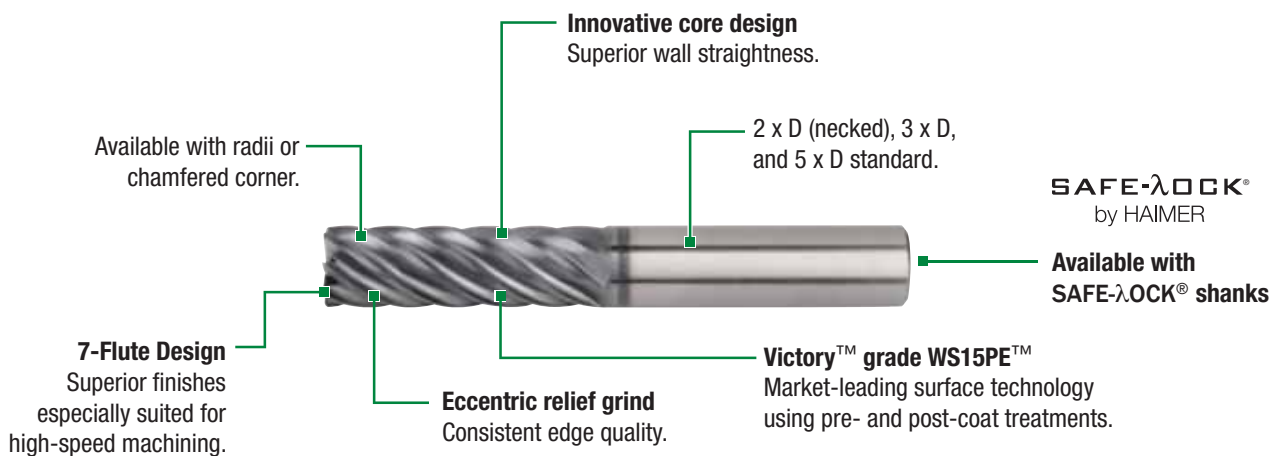
VariMill III™ ER

VariMill III ER



The trend towards more efficiency and increased productivity using high-speed machining techniques such as trochoidal and peel milling will continue to be a focus for aerospace components. The new VariMill III ER is designed to provide the highest Metal Removal Rates (MRR) and extended tool life in the most demanding materials in the aerospace industry. VariMill III ER is designed to be applied in titanium and stainless steel workpiece materials for both semi-finishing and finishing applications.

- 7-flute eccentric relief design provides edge strength along with high productivity.
- Superior surface finishes and wall straightness capability from specialised core.
- Finishing and semi-finishing at up to 30% of the diameter with one tool.
- First choice for high-speed machining in difficult-to-cut workpiece materials.



VariMill III™ ER Series

- Seven unequally spaced flutes provide the maximum output and surface quality.
- Eccentric relief for edge strength and stability.
- Semi-finishing and finishing with one tool.
- Victory™ grade WS15PE™ for increased heat and wear resistance.

77NE Series

- Titanium and stainless steel geometry design.
- Corner radii and chamfered corners.
- 2 x D length of cut.
- Necked 5 x D reach.
- Centre cutting.



772E Series

- Titanium and stainless steel geometry design.
- Corner radii and chamfered corners.
- 5 x D length of cut.
- Centre cutting.
- SAFE-λ.OCK®.



771E Series

- Titanium and stainless steel geometry design.
- Corner radii and chamfered corners.
- 3 x D length of cut.
- Centre cutting.

