

NIAGARA CUTTER™ PRODUCT SUMMARY

SOLID END MILLING

REDUCE CYCLE TIMES WITH HARD MILLING

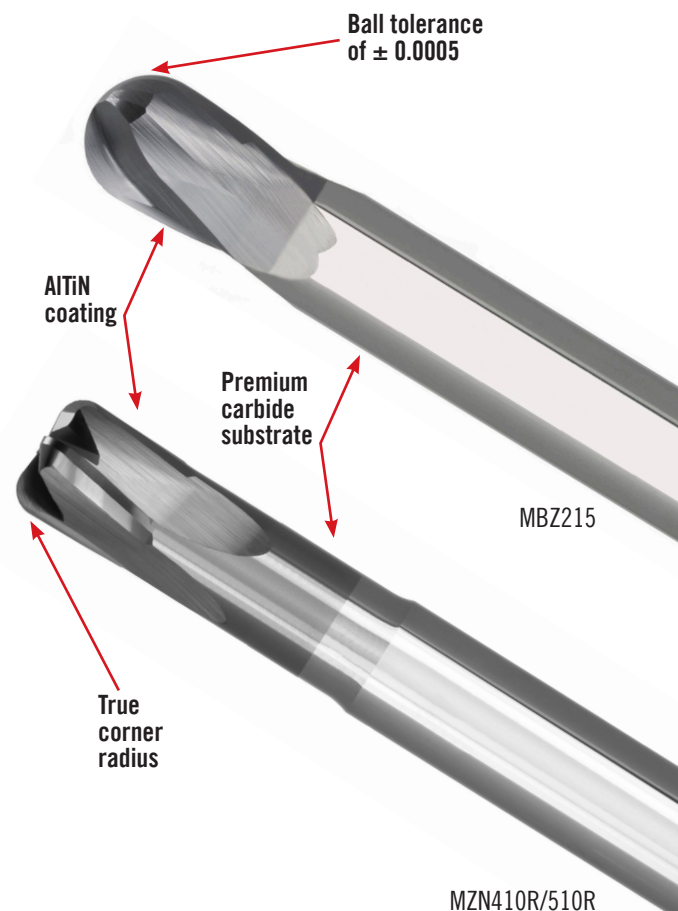
MBZ & MZN

Gain the ability to rough and finish in a single process with Niagara Cutter's MBZ215 and MZN410R for hard milling applications. Instead of traditional methods that require multiple setups, including in some cases Electrical Discharge Machining (EDM), hard milling helps reduce lead times and increase productivity by eliminating the multiple setups and difficult polishing processes.

With the increase in Mold and Die manufacturing in the North American market, there is a growing need for a full metric range of MBZ215 and MZN410R/510R products from Niagara Cutter™. Because of this, we have expanded the range to include ball nose end mills from 0.5 mm up to 12 mm in diameter and high feed end mills from 2 mm up to 12 mm in diameter. Both of these product families are effective in hardened steels from 48-65 HRc, cast irons and nickel-based superalloys. With these recent additions, the product family's versatility has now reached new heights in the high speed hard milling sector.

RANGE OVERVIEW

- **MBZ215M** ball nose series, 2-flute, 1 x diameter flute length, 2 and 4 x diameter straight reach length, 6 x diameter 0.9° tapered reach length, 11 - 37 x diameter long tapered reach, diameters additions from (0.5 - 12 mm), cylindrical shank
- **MZN410RM** high feed series, 4-flute, 0.25 x diameter flute length, 2 and 4 x diameter reach length, diameters range from (2 - 12 mm), cylindrical shank, standard radii available (0.5 mm, 0.75 mm, 1 mm, 1.5 mm, 2 mm and 3 mm)
- **MZN510RM** high feed series, 5-flute, 0.25 x diameter flute length, 2 x diameter reach length, diameters range from (10 - 12 mm), cylindrical shank, standard radii available (2 and 3 mm)





FORGING DIE

INDUSTRY APPLICATIONS

- Mold & Die** - With the increase in difficult to machine hardened tool steels, the MZN410RM torical high feed end mill helps reduce semi-finishing and finishing cycle times. With a true radius the MZN410RM can rough closer to near net shape than a true high feed design tool which in turn reduces and sometimes eliminates semi-finishing operations.

MATERIAL GROUPS
Hardened Steels 48-65 HRC
Steel 5-6
Cast Iron 12-15
Superalloys 21

HIGH SPEED HARD MILLING

The **MBZ215** series of tools were developed to service mold and die hard milling. They are designed for maximum performance in alloy and tool steels from 48 HRC to 65 HRC. They perform best when used in rough or finish copy milling operations. They have a line form tolerance of $\pm 0.0002''$ for diameters under $3/8''$ and 10 mm and $0.0005''$ for larger diameters. These end mills are produced from an advanced micro-grain carbide substrate and offered with high heat and abrasion resistant AlTiN coating. Select diameters available for reconditioning.



HIGH FEED HARD MILLING

The **MZN410R** and **MZN510R** are designed to maximize productivity in hardened steels and superalloys. These end mills feature an optimized substrate, geometry and coating to offer superior performance and process reliability. These AlTiN coated end mills are effective in hardened steels, cast irons and nickel-based superalloys. A typical application for this end mill is when machining hardened tool steels used in mold & die components.



FEATURES	ADVANTAGES	BENEFITS	IMPACT
1 x diameter flute length	Increased stability	Consistent tool life	How important is it in your production to increase process reliability long reach applications?
0.9° tapered neck	Increased strength in long reach applications	Longer tool life	What benefit do you see in maximizing the life of a tool?
Torical high feed design	Near net machining	Reduced semi-finishing and finishing cycle times	Is reducing finishing cycle times important to your production?
AlTiN coating	High heat and abrasion resistant	Predictable tool life	In your production, how important is it to have repeatable tool life?