

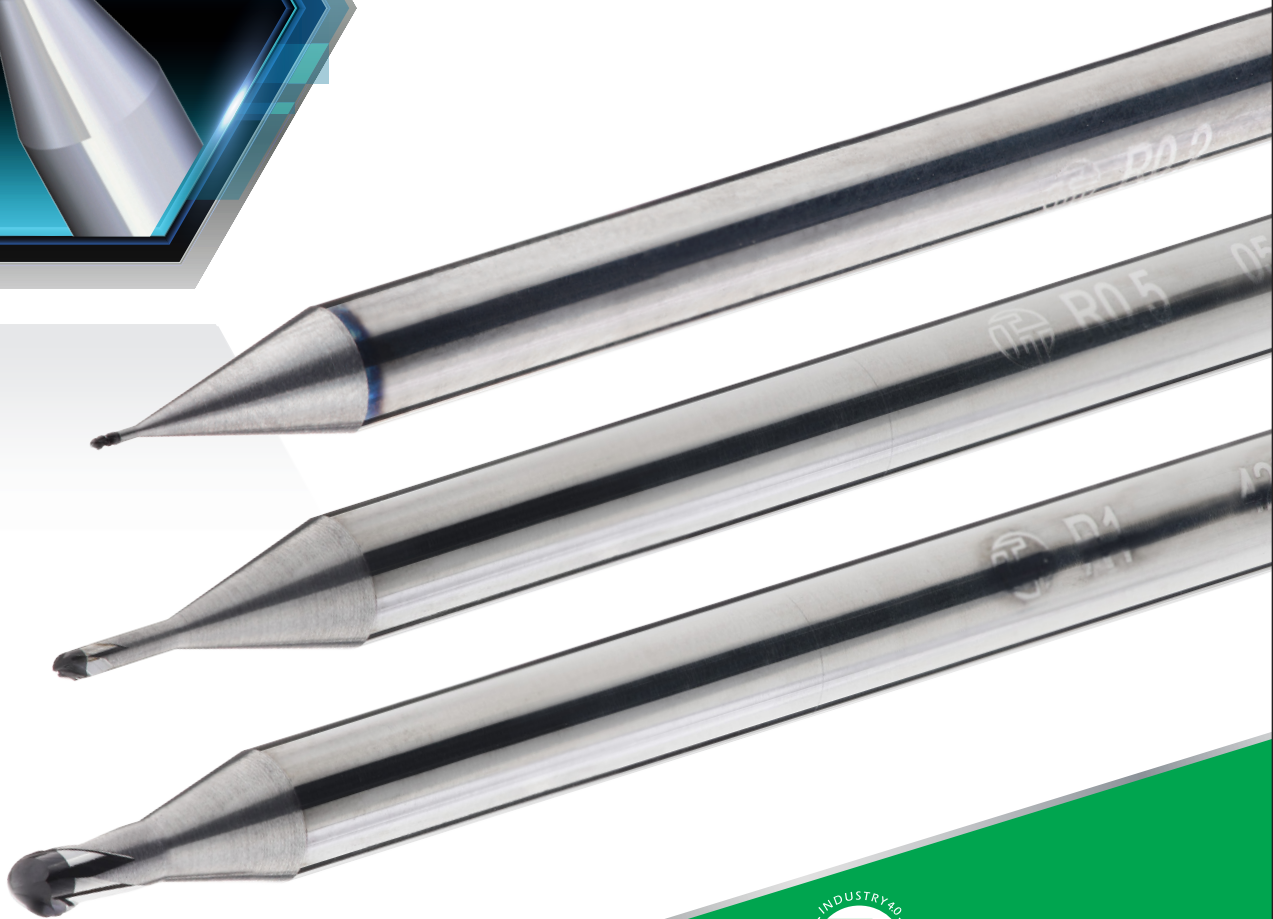
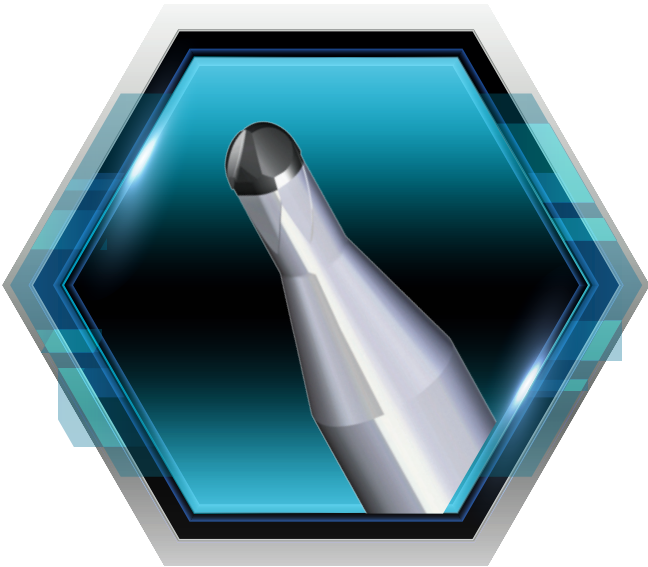
# NPA

New Product Announcement No. 2019-51



## HARDMILL

### New CBN Ball End Mill for Machining High-hardness Materials



## KEY POINT

**Newly launched CBN ball end mill by TaeguTec enables the machining of high-hardness materials.**

TaeguTec now has a CBN ball end mill specifically tailored for high-hardness materials machining and provides excellent surface roughness and improved productivity in high-speed cutting conditions. With a helix geometry, it is characterized by low cutting resistance, which is especially appropriate in high-hardness steel machining of materials rated HRC 60 or higher.

The new CBN ball end mill is recommended for applications requiring high-precision surface roughness such as heat treated small size components in mold machining, or in finishing operations that must be completed without changing the tool, and where both tool life as well as productivity improvement in high-hardness materials are necessary.

For further technical assistance, please contact the product manager.

### Features

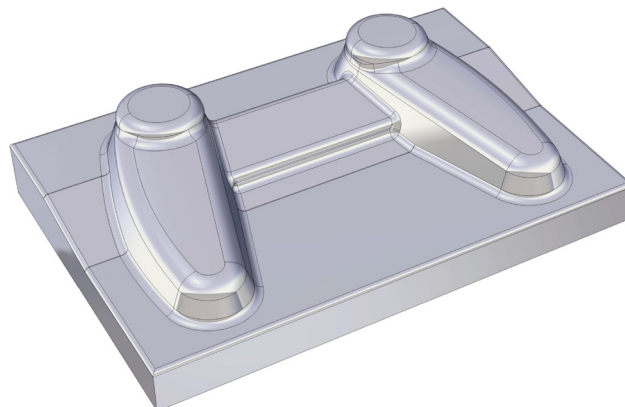
- High-speed machining means improved surface roughness and productivity
- CBN grade for increased tool life in high-hardness steel machining
- Low cutting resistance due to the CBN ball helix geometry cutting edge
- Suitable for high-hardness steel machining of HRC 60 or higher

### Recommended applications

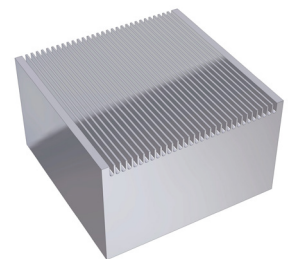
- High-precision surface roughness
- Heat treated small size mold machining
- Suitable for finishing operations that must be completed without changing the tool
- Tool life and productivity improvement in high-hardness materials operations



Direct milling on small sized high-hardened steel material

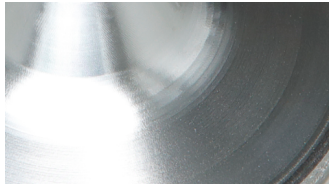
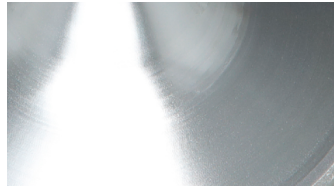


Finish profiling for general mold and die applications



RIB processing

## Surface roughness comparison

		Competitor	TaeguTec
Material		DIN 1.2379, X155CrMoV12 (HRC62)	
End mill		Carbide ball end mill (Ø2, 2z)	HSB 2CBN 2020-4.0 KB90 (Ø2, 2z)
Cutting Speed	V (m/min)	130	130
Feed	f (mm/tooth)	0.025	0.025
Depth of cut	ap (mm)	0.013	0.013
Width of cut	ae (mm)	0.05	0.05
Coolant		Oil mist	Oil mist
Surface roughness			

## Case study 1

		Competitor	TaeguTec
Material		DIN 1.2379, X155CrMoV12 (HRC62)	
End mill		Carbide ball end mill (Ø1, 2z)	HSB 2CBN 2010-2.5 KB90 (Ø1, 2z)
Cutting Speed	V (m/min)	50	125
Feed	f (mm/tooth)	0.05	0.03
Depth of cut	ap (mm)	0.02	0.02
Width of cut	ae (mm)	0.06	0.06
Coolant		Oil mist	Oil mist
Tool life (pcs)		0.5	1



### Availability

In stock

### Price

Available in the GAL system

Sincerely,  
TaeguTec



**Cho Yeo-myeong**

Rotating General PM

Sincerely,  
TaeguTec



**Choi Chul-won**

Milling Product Manager



## Recommended Cutting Conditions

### Semi-finishing

(Unit: mm)

D	HRC -55				HRC 55-65				HRC 65-68			
	V	fz	ap	ae	V	fz	ap	ae	V	fz	ap	ae
0.4	50	0.010	0.005	0.020	48	0.009	0.005	0.015	46	0.008	0.005	0.015
	45	0.010	0.005	0.015	43	0.008	0.005	0.015	41	0.007	0.005	0.010
0.6	75	0.020	0.015	0.040	73	0.018	0.015	0.035	70	0.016	0.010	0.030
0.8	95	0.025	0.017	0.050	93	0.023	0.015	0.045	90	0.020	0.015	0.040
1	115	0.030	0.030	0.100	110	0.028	0.025	0.090	105	0.025	0.025	0.080
	110	0.030	0.020	0.070	105	0.028	0.015	0.070	100	0.025	0.015	0.055
	100	0.030	0.015	0.050	95	0.028	0.015	0.045	90	0.025	0.010	0.040
1.5	135	0.030	0.025	0.080	130	0.028	0.025	0.075	125	0.025	0.020	0.065
2	175	0.050	0.050	0.150	170	0.040	0.050	0.145	160	0.035	0.045	0.130
4	210	0.045	0.040	0.120	205	0.040	0.040	0.120	200	0.030	0.035	0.110

### Finishing

(Unit: mm)

D	HRC -55				HRC 55-65				HRC 65-68			
	V	fz	ap	ae	V	fz	ap	ae	V	fz	ap	ae
0.4	50	0.008	0.005	0.015	48	0.007	0.005	0.015	46	0.006	0.005	0.010
	45	0.007	0.005	0.012	43	0.006	0.005	0.010	41	0.005	0.005	0.010
0.6	75	0.015	0.010	0.025	73	0.013	0.010	0.025	70	0.011	0.005	0.020
0.8	95	0.020	0.010	0.030	93	0.018	0.010	0.025	90	0.016	0.010	0.025
1	115	0.025	0.020	0.050	110	0.022	0.015	0.045	105	0.020	0.015	0.040
	110	0.025	0.020	0.050	105	0.022	0.015	0.045	100	0.020	0.015	0.040
	100	0.025	0.015	0.045	95	0.022	0.010	0.040	90	0.020	0.010	0.035
1.5	135	0.025	0.020	0.060	130	0.023	0.015	0.055	125	0.020	0.015	0.045
2	175	0.035	0.025	0.070	170	0.032	0.020	0.060	160	0.030	0.020	0.055
4	210	0.040	0.030	0.090	205	0.035	0.030	0.090	200	0.025	0.025	0.080