



- Endmills for various work materials (~HRC52), pre-hardened steel, carbon steel, mold steel.
- Good wear resistance by high quality Si-based PVD coating.
- Suitable shape is designed for tooling in wide areas.
- Maximize the manufacturing cost saving with low price of products.
- Minimize fracturing by high TRS fine(0.5 μm) WC grade.



D Size	D Tolerance
Ø0.2 ~ 5	+0 ~ -0.01 mm
Ø6 ~ 12	-0.005 ~ -0.015 mm
Ø16	-0.01 ~ -0.02 mm

## 2HCBE

### Cutting Condition

• RPM: rev./min • Feed: mm/min

Material	Alloy Steels				Prehardened Steels				Hardened Steels			
	30 ~ 40HRC				40 ~ 50HRC				50 ~ 52HRC			
Hardness												
Corner Radius	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth	RPM	FEED	Ap Axial Depth	Ae Radial Depth
R 0.15	35,100	728	0.100	0.015	31,200	598	0.093	0.015	25,740	364	0.088	0.015
R 0.2	35,100	936	0.200	0.020	31,200	728	0.186	0.020	25,740	468	0.176	0.020
R 0.25	35,100	1456	0.300	0.025	31,200	1144	0.279	0.025	25,740	728	0.264	0.025
R 0.3	35,100	1872	0.350	0.030	31,200	1482	0.326	0.030	23,400	832	0.308	0.030
R 0.35	31,200	2288	0.400	0.040	23,400	1534	0.372	0.040	19,500	962	0.352	0.040
R0.4	30,420	2704	0.450	0.045	21,684	1716	0.419	0.045	17,706	1066	0.396	0.045
R0.5	29,640	2964	0.450	0.050	19,890	1872	0.419	0.050	15,990	1118	0.396	0.050
R0.75	24,960	3250	0.525	0.075	16,770	2028	0.488	0.075	13,650	1235	0.462	0.075
R 1	20,280	3536	0.600	0.100	13,650	2184	0.558	0.100	11,310	1352	0.528	0.100
R1.25	16,887	3536	0.700	0.125	11,310	2184	0.651	0.125	9,360	1352	0.616	0.125
R1.5	13,494	3536	0.800	0.150	8,970	2184	0.744	0.150	7,410	1352	0.704	0.150
R2	10,296	3640	1.000	0.200	6,864	2288	0.930	0.200	5,616	1404	0.880	0.200
R2.5	9,750	4186	1.200	0.250	6,474	2600	1.116	0.250	4,992	1482	1.056	0.250
R3	8,073	4004	1.500	0.300	5,382	2496	1.395	0.300	4,134	1456	1.320	0.300
R4	6,084	3744	2.000	0.400	4,056	2314	1.860	0.400	3,120	1326	1.760	0.400
R5	4,797	3536	2.500	1.000	3,198	2158	2.325	1.000	2,496	1248	2.200	1.000
R6	4,095	3536	3.000	1.200	2,730	2158	2.790	1.200	2,067	1248	2.640	1.200
R8	3,385	3172	4.000	1.600	2,028	1872	3.720	1.600	1,435	935	3.520	1.600

Depth of Cut

Ap : Axial Depth (mm)

Ae : Radial Depth (mm)

D : Outside Diameter (mm)

n : Speed (min<sup>-1</sup>)

Vf : Feed (mm/min)

- When milling workpiece HRC over 52 hardened steel , reduce 20% of the RPM and feed compared to the same diameter.
- If the effective length of your tool does not show above the table, use the shorten effective length of parameter and reduce the parameters in the same proportion.
- In case of long effective length, reduce the RPM and feed in same proportion.
- Air blow or oil mist is recommended for smooth chip emission, and dry milling is recommended for copper material.
- Use this table for your reference. Adjust the parameters depending on your machining geometry, machining purpose and CNC.
- Use a machine with low vibration and good rigidity (  $\phi 1$  or less, the vibration tolerance management should be within 5 μm).
- During the chip evacuation, note for heat and ignition.