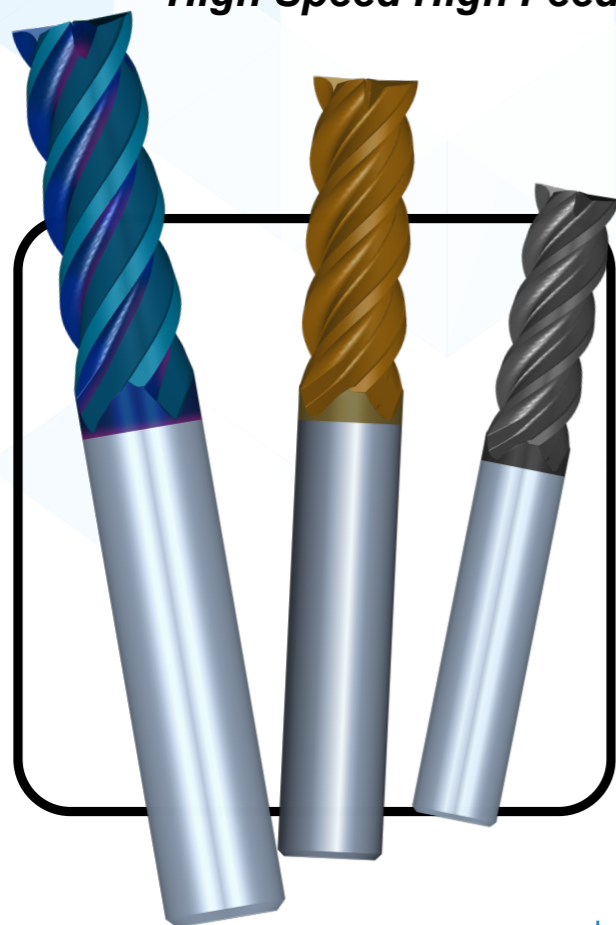


A700⁺ Series

High Speed High Feed & Finishing



UFMG Super Ultrafine Micro Grain Carbide

HRC 65 Suitable for work material ~HRC65

Optional Coating



Optional 3 types of selectable coating

Types of Flute



Types of Uneven Flute



Helix angle

30° / 35° / 40° / 45° / 46° / 55°



Honing Process



Cutting edge protection



Optional DIN Weldon Shank



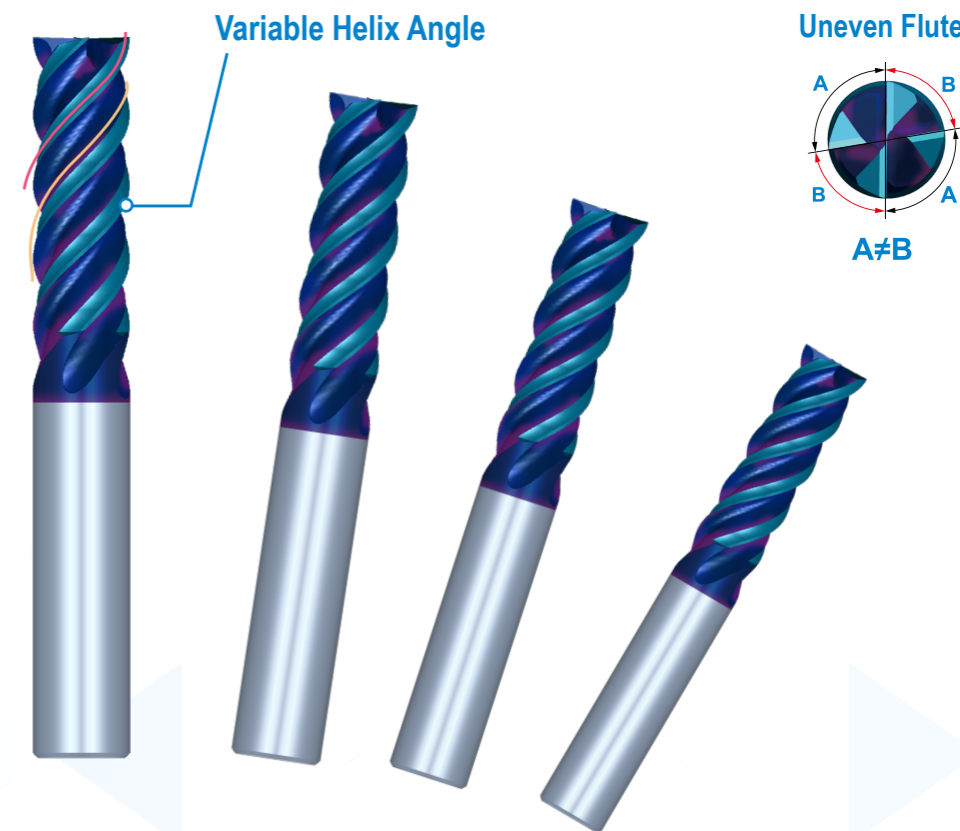
UFMG Carbide - High-Speed Finishing End Mill

A700IE⁺-11454TB



Starter Pack

Experience High-Speed Cutting
One pack for all needs!



Package sizes Ø6, Ø8, Ø10, Ø12

Code No.	CED	CEL	SD	OAL
A700IE ⁺ -11454TB	Ø 6	18	6	50
	Ø 8	24	8	65
	Ø10	30	10	75
	Ø12	36	12	80

Contact us now for more information!

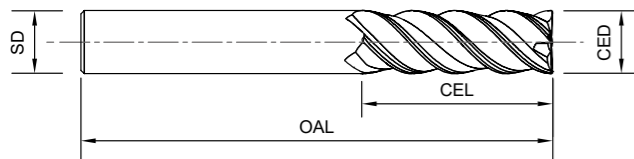
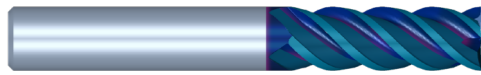
Special & Custom Tooling Services

Customized acceptable!
From **Coating, flute, Helix angle, cutting length, to total length.**

UFMG Carbide - High-Speed End Mill

A700⁺ - 11454TB

- ◆ Square - 4-Flute x 3D
- ◆ Helix 45°



CED Tolerance(mm)	
1~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~12	0~-0.025

h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
A700 ⁺ -11454TB	1	3	4	50	4
	2	6	4	50	
	3	9	4	50	
	4	12	4	50	
	5	15	6	50	
	6	18	6	50	
	8	24	8	65	
	10	30	10	75	
12	36	12	80		

Code No.	CED	CEL	SD	OAL	Flute
A700 ⁺ -11454TB	EU 3	9	6	57	4
	EU 4	12	6	65	
	EU 5	15	6	65	
	EU 6	18	6	65	
	EU 8	24	8	75	
	EU 10	30	10	80	
	EU 12	36	12	93	

※ Customized Special sizes, Coating type and Inches are available to order.

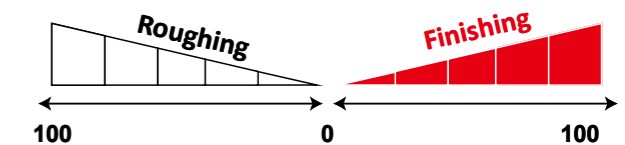
Recommended Cutting Condition

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC																	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min																
CED	$a_p: 1.5D$	$a_e: 0.2D$	$a_p: 1.5D$	$a_e: 0.1D$	$a_p: 1.5D$	$a_e: 0.05D$	$a_p: 1.5D$	$a_e: 0.03D$																
1	33,600	530	30,480	390	24,000	280	19,200	195																
2	20,760	650	17,040	480	13,600	240	10,880	165																
3	15,240	770	12,960	550	10,300	380	8,240	260																
4	11,520	825	9,600	570	7,680	400	6,100	280																
5	9,120	880	7,920	650	6,300	450	5,040	310																
6	7,680	1,100	6,480	770	5,100	540	4,080	380																
8	5,760	1,100	5,040	750	4,000	530	3,200	370																
10	4,560	980	4,080	715	3,200	500	2,560	350																
12	3,840	910	3,480	550	2,700	380	2,160	260																
Depth of cut	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>1.5D</td> <td>0.2D</td> </tr> </table>		a_p	a_e	1.5D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>1.5D</td> <td>0.1D</td> </tr> </table>		a_p	a_e	1.5D	0.1D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>1.5D</td> <td>0.05D</td> </tr> </table>		a_p	a_e	1.5D	0.05D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>1.5D</td> <td>0.03D</td> </tr> </table>		a_p	a_e	1.5D	0.03D
a_p	a_e																							
1.5D	0.2D																							
a_p	a_e																							
1.5D	0.1D																							
a_p	a_e																							
1.5D	0.05D																							
a_p	a_e																							
1.5D	0.03D																							

Work Material

P			H		
G1	G2	G3	G14	G15	G16
●	●	●	●	●	○

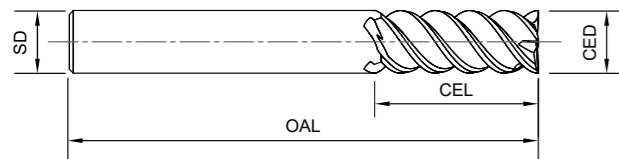


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

UFMG Carbide - High-Speed Finishing End Mill

A700⁺ - 11554TB / 11555TB / 11556TB

- ◆ Square - 4~6-Flute x 2.5D
- ◆ Helix 55°



CED Tolerance(mm)	
4~6	0~-0.018
6~10	0~-0.02
10~16	0~-0.025
16~20	0~-0.03

h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute
A700 ⁺ -11554TB	4	10	4	50	4
	5	13	6	50	
A700 ⁺ -11555TB	6	15	6	50	5
	8	20	8	60	
A700 ⁺ -11556TB	10	25	10	75	6
	12	30	12	75	
	16	40	16	100	
	20	50	20	100	

Code No.	CED	CEL	SD	OAL	Flute
A700 ⁺ -11554TB	EU 4	11	6	57	4
	EU 5	13	6	57	
A700 ⁺ -11555TB	EU 6	13	6	57	5
	EU 8	19	8	63	
A700 ⁺ -11556TB	EU 10	22	10	72	6
	EU 12	26	12	83	

※ Customized Special sizes, Coating type and Inches are available to order.

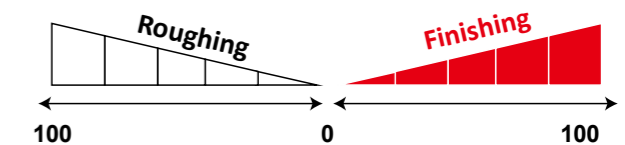
Recommended Cutting Condition

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	$a_p: 1.5D$	$a_e: 0.2D$	$a_p: 1.5D$	$a_e: 0.1D$	$a_p: 1.5D$	$a_e: 0.05D$	$a_p: 1.5D$	$a_e: 0.03D$
4	11,520	825	9,600	570	7,680	400	6,100	280
5	9,120	880	7,920	650	6,300	450	5,040	310
6	7,680	1,100	6,480	770	5,100	540	4,080	380
8	5,760	1,100	5,040	750	4,000	530	3,200	370
10	4,560	980	4,080	715	3,200	500	2,560	350
12	3,840	910	3,480	550	2,700	380	2,160	260
16	2,880	680	2,640	440	2,100	300	1,680	210
20	2,280	550	2,160	300	1,720	210	1,370	150
Depth of cut	 a_p 1.5D a_e 0.2D		a_p 1.5D a_e 0.1D		a_p 1.5D a_e 0.05D		a_p 1.5D a_e 0.03D	

Work Material

P			H		
G1	G2	G3	G14	G15	G16
●	●	●	●	●	●

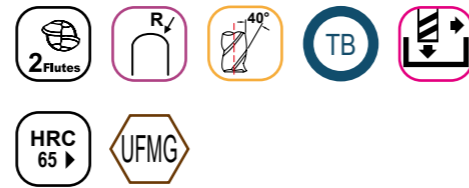
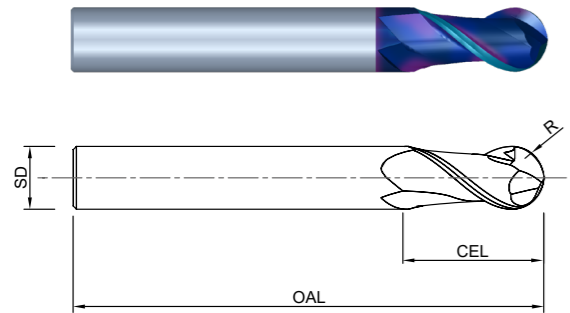


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5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

UFMG Carbide - High-Speed Ball End Mill

A700⁺ - 81402TB

- ♦ Ball Nose - 2-Flute x 2D
- ♦ Helix 40°



CED Tolerance(mm)	
R	±0.02

h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	Flute
A700 ⁺ -81402TB	0.5R	2	4	50	2
	1R	4	4	50	
	1.5R	6	4	50	
	2R	8	4	50	
	2.5R	10	6	50	
	3R	12	6	50	
	4R	16	8	60	
	5R	20	10	75	
6R	24	12	75		

Code No.	Radius	CEL	SD	OAL	Flute
A700 ⁺ -81402TB	EU 1.5R	6	6	57	2
	EU 2R	8	6	57	
	EU 2.5R	10	6	57	
	EU 3R	12	6	57	
	EU 4R	16	8	63	
	EU 5R	20	10	72	
	EU 6R	24	12	83	

※ Customized Special sizes, Coating type and Inches are available to order.

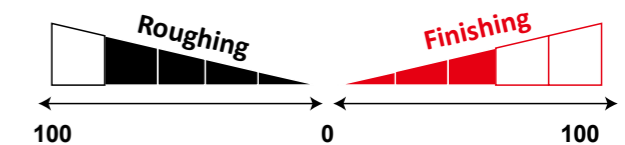
Recommended Cutting Condition

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC																	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min																
R	$a_p: 0.1D$	$a_e: 0.2D$	$a_p: 0.08D$	$a_e: 0.2D$	$a_p: 0.05D$	$a_e: 0.1D$	$a_p: 0.03D$	$a_e: 0.1D$																
0.5R	30,000	600	28,000	360	24,000	290	21,600	220																
1.0R	21,600	870	17,000	520	13,800	350	12,420	260																
1.5R	14,000	840	11,700	540	10,100	430	9,090	310																
2R	10,800	840	9,000	520	7,700	410	6,930	325																
2.5R	8,600	830	7,200	510	6,100	470	5,490	360																
3R	7,200	830	5,800	490	5,100	390	4,590	430																
4R	5,400	810	4,400	490	3,800	550	3,420	430																
5R	4,300	810	3,500	490	3,000	390	2,700	400																
6R	3,600	810	2,900	490	2,500	390	2,250	310																
Depth of cut	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.1D</td> <td>0.2D</td> </tr> </table>		a_p	a_e	0.1D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.08D</td> <td>0.2D</td> </tr> </table>		a_p	a_e	0.08D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.05D</td> <td>0.1D</td> </tr> </table>		a_p	a_e	0.05D	0.1D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.03D</td> <td>0.1D</td> </tr> </table>		a_p	a_e	0.03D	0.1D
a_p	a_e																							
0.1D	0.2D																							
a_p	a_e																							
0.08D	0.2D																							
a_p	a_e																							
0.05D	0.1D																							
a_p	a_e																							
0.03D	0.1D																							

Work Material

P			H		
G1	G2	G3	G14	G15	G16
•	•	•	•	•	•

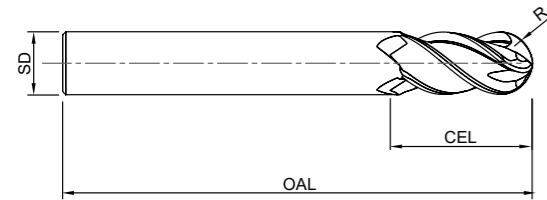


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5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

UFMG Carbide - High-Speed Ball End Mill

A700⁺ - 81454TB

- ♦ Ball Nose - 4-Flute x 2D
- ♦ Helix 45°



CED Tolerance(mm)	
R	±0.02

h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	Flute
A700 ⁺ -81454TB	3R	12	6	50	4
	4R	16	8	60	
	5R	20	10	75	
	6R	24	12	75	
	8R	32	16	100	
	10R	40	20	100	

Code No.	Radius	CEL	SD	OAL	Flute
A700 ⁺ -81454TB	EU 3R	12	6	57	4
	EU 4R	16	8	63	
	EU 5R	20	10	72	
	EU 6R	24	12	83	

※ Customized Special sizes, Coating type and Inches are available to order.

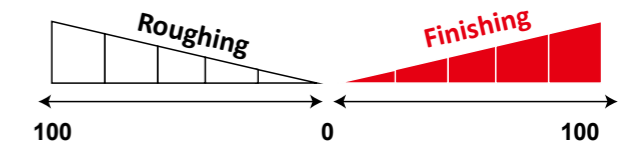
Recommended Cutting Condition

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC																	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min																
R	$a_p: 0.1D$	$a_e: 0.2D$	$a_p: 0.08D$	$a_e: 0.2D$	$a_p: 0.05D$	$a_e: 0.1D$	$a_p: 0.03D$	$a_e: 0.1D$																
3R	8,400	1,400	7,560	1,120	6,000	780	4,800	540																
4R	6,300	1,400	5,670	1,120	4,500	780	3,600	540																
5R	5,000	1,400	4,500	1,120	3,600	780	2,880	540																
6R	4,200	1,400	3,780	1,120	3,000	780	2,400	540																
8R	3,100	1,400	2,790	1,120	2,200	780	1,760	540																
10R	2,500	1,200	2,250	960	1,800	670	1,440	470																
Depth of cut	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.1D</td> <td>0.2D</td> </tr> </table>		a_p	a_e	0.1D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.08D</td> <td>0.2D</td> </tr> </table>		a_p	a_e	0.08D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.05D</td> <td>0.1D</td> </tr> </table>		a_p	a_e	0.05D	0.1D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.03D</td> <td>0.1D</td> </tr> </table>		a_p	a_e	0.03D	0.1D
a_p	a_e																							
0.1D	0.2D																							
a_p	a_e																							
0.08D	0.2D																							
a_p	a_e																							
0.05D	0.1D																							
a_p	a_e																							
0.03D	0.1D																							

Work Material

P			H		
G1	G2	G3	G14	G15	G16
•	•	•	•	•	•

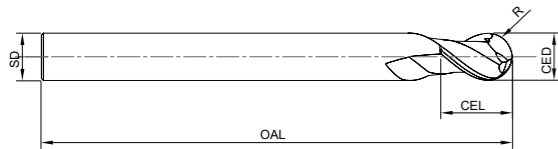


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5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

UFMG Carbide - High-Speed Long Shank Ball End Mill

A700⁺ - 83402TB

- ♦ Ball Nose - 2-Flute x 1D / Long Shank
- ♦ Helix 40°



CED Tolerance(mm)	
R	±0.02

h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	Flute
A700 ⁺ -83402TB	0.5R	1	4	75	2
	1R	2	4	75	
	1.5R	3	4	75	
	2R	4	4	75	
	2.5R	5	6	75	
	3R	6	6	75	
	4R	8	8	100	
	5R	10	10	100	
6R	12	12	100		

Code No.	Radius	CEL	SD	OAL	Flute
A700 ⁺ -83402TB	EU 1.5R	3	6	80	2
	EU 2R	4	6	80	
	EU 2.5R	5	6	80	
	EU 3R	6	6	80	
	EU 4R	8	8	90	
	EU 5R	10	10	100	
	EU 6R	12	12	120	

※ Customized Special sizes, Coating type and Inches are available to order.

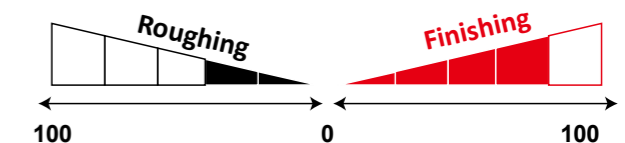
Recommended Cutting Condition

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC																	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min																
R	$a_p: 0.1D$	$a_e: 0.2D$	$a_p: 0.08D$	$a_e: 0.2D$	$a_p: 0.05D$	$a_e: 0.1D$	$a_p: 0.03D$	$a_e: 0.1D$																
0.5R	36,000	680	33,600	400	28,800	320	25,000	240																
1.0R	25,920	900	20,400	540	16,560	380	14,900	280																
1.5R	16,800	920	14,040	550	12,120	470	10,900	340																
2R	12,960	920	10,800	550	9,240	450	8,300	360																
2.5R	10,320	910	8,640	540	7,320	510	6,500	400																
3R	8,640	910	6,960	540	6,120	430	5,500	470																
4R	6,480	890	5,280	530	4,560	600	4,100	470																
5R	5,160	890	4,200	530	3,600	430	3,200	440																
6R	4,320	890	3,480	530	3,000	430	2,700	340																
Depth of cut	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.1D</td> <td>0.2D</td> </tr> </table>		a_p	a_e	0.1D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.08D</td> <td>0.2D</td> </tr> </table>		a_p	a_e	0.08D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.05D</td> <td>0.1D</td> </tr> </table>		a_p	a_e	0.05D	0.1D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.03D</td> <td>0.1D</td> </tr> </table>		a_p	a_e	0.03D	0.1D
a_p	a_e																							
0.1D	0.2D																							
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a_p	a_e																							
0.05D	0.1D																							
a_p	a_e																							
0.03D	0.1D																							

Work Material

P			H		
G1	G2	G3	G14	G15	G16
•	•	•	•	•	•

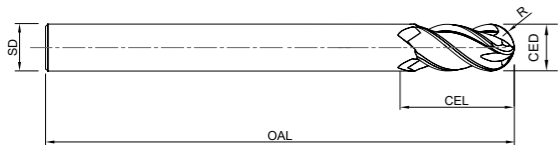


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UFMG Carbide - High-Speed Long Shank Ball End Mill

A700⁺ - 83454TB

- ♦ Ball Nose - 4-Flute x 2D / Long Shank
- ♦ Helix 45°



CED Tolerance(mm)	
R	±0.02

h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	Flute
A700 ⁺ -83454TB	3R	12	6	75	4
	4R	16	8	100	
	5R	20	10	100	
	6R	24	12	100	
	8R	32	16	150	
	10R	40	20	150	

Code No.	Radius	CEL	SD	OAL	Flute
A700 ⁺ -83454TB	EU 3R	12	6	100	4
	EU 4R	16	8	100	
	EU 5R	20	10	100	
	EU 6R	24	12	150	

※ Customized Special sizes, Coating type and Inches are available to order.

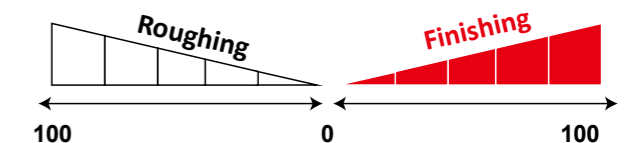
Recommended Cutting Condition

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC																	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min																
R	$a_p: 0.1D$	$a_e: 0.2D$	$a_p: 0.08D$	$a_e: 0.2D$	$a_p: 0.05D$	$a_e: 0.1D$	$a_p: 0.03D$	$a_e: 0.1D$																
3R	8,400	1,400	7,560	1,120	6,000	780	4,800	540																
4R	6,300	1,400	5,670	1,120	4,500	780	3,600	540																
5R	5,000	1,400	4,500	1,120	3,600	780	2,880	540																
6R	4,200	1,400	3,780	1,120	3,000	780	2,400	540																
8R	3,100	1,400	2,790	1,120	2,200	780	1,760	540																
10R	2,500	1,200	2,250	960	1,800	670	1,440	470																
Depth of cut	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.1D</td> <td>0.2D</td> </tr> </table>		a_p	a_e	0.1D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.08D</td> <td>0.2D</td> </tr> </table>		a_p	a_e	0.08D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.05D</td> <td>0.1D</td> </tr> </table>		a_p	a_e	0.05D	0.1D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.03D</td> <td>0.1D</td> </tr> </table>		a_p	a_e	0.03D	0.1D
a_p	a_e																							
0.1D	0.2D																							
a_p	a_e																							
0.08D	0.2D																							
a_p	a_e																							
0.05D	0.1D																							
a_p	a_e																							
0.03D	0.1D																							

Work Material

P			H		
G1	G2	G3	G14	G15	G16
•	•	•	•	•	•

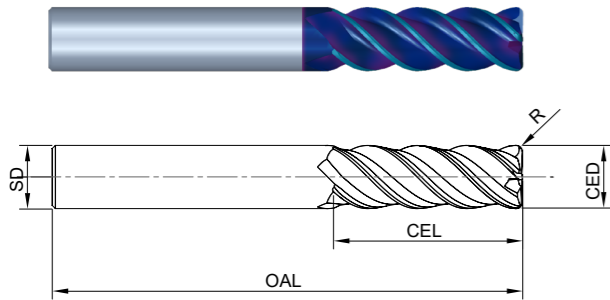


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

UFMG Carbide - High-Speed Corner Radius End Mill

A700⁺ - 21454TB

- ◆ Corner Radius - 4-Flute x 3D
- ◆ Helix 45°



CED Tolerance(mm)	
1~3	0~-0.014
3~6	0~-0.018
6~10	0~-0.02
10~12	0~-0.025

h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Radius	Flute
A700 ⁺ -21454TB	1	3	4	50	0.2R	4
	2	6	4	50	0.2R	
	3	9	4	50	0.2R	
	4	12	4	50	0.2R	
	5	15	6	50	0.2R	
	6	18	6	50	0.2R	
	8	24	8	65	0.2R 0.5R	
	10	30	10	75	0.2R 0.5R	
	12	36	12	80	0.2R 0.5R	

Code No.	CED	CEL	SD	OAL	Radius	Flute
A700 ⁺ -21454TB	EU 3	9	6	57	0.2R	4
	EU 4	12	6	65	0.2R	
	EU 5	15	6	65	0.2R	
	EU 6	18	6	65	0.2R	
	EU 8	24	8	75	0.2R 0.5R	
	EU 10	30	10	80	0.2R 0.5R	
	EU 12	36	12	93	0.2R 0.5R	

※ Customized Special sizes, Coating type and Inches are available to order.

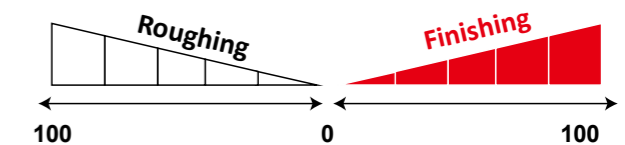
Recommended Cutting Condition

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC																	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min																
CED	$a_p: 1.5D$	$a_e: 0.2D$	$a_p: 1.5D$	$a_e: 0.1D$	$a_p: 1.5D$	$a_e: 0.05D$	$a_p: 1.5D$	$a_e: 0.03D$																
1	33,600	530	30,480	390	24,000	280	19,200	195																
2	20,760	650	17,040	480	13,600	240	10,880	165																
3	15,240	770	12,960	550	10,300	380	8,240	260																
4	11,520	825	9,600	570	7,680	400	6,100	280																
5	9,120	880	7,920	650	6,300	450	5,040	310																
6	7,680	1,100	6,480	770	5,100	540	4,080	380																
8	5,760	1,100	5,040	750	4,000	530	3,200	370																
10	4,560	980	4,080	710	3,200	500	2,560	350																
12	3,840	910	3,480	550	2,700	380	2,160	260																
Depth of cut	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>1.5D</td> <td>0.2D</td> </tr> </table>		a_p	a_e	1.5D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>1.5D</td> <td>0.1D</td> </tr> </table>		a_p	a_e	1.5D	0.1D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>1.5D</td> <td>0.05D</td> </tr> </table>		a_p	a_e	1.5D	0.05D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>1.5D</td> <td>0.03D</td> </tr> </table>		a_p	a_e	1.5D	0.03D
a_p	a_e																							
1.5D	0.2D																							
a_p	a_e																							
1.5D	0.1D																							
a_p	a_e																							
1.5D	0.05D																							
a_p	a_e																							
1.5D	0.03D																							

Work Material

P			H		
G1	G2	G3	G14	G15	G16
●	●	●	●	●	●

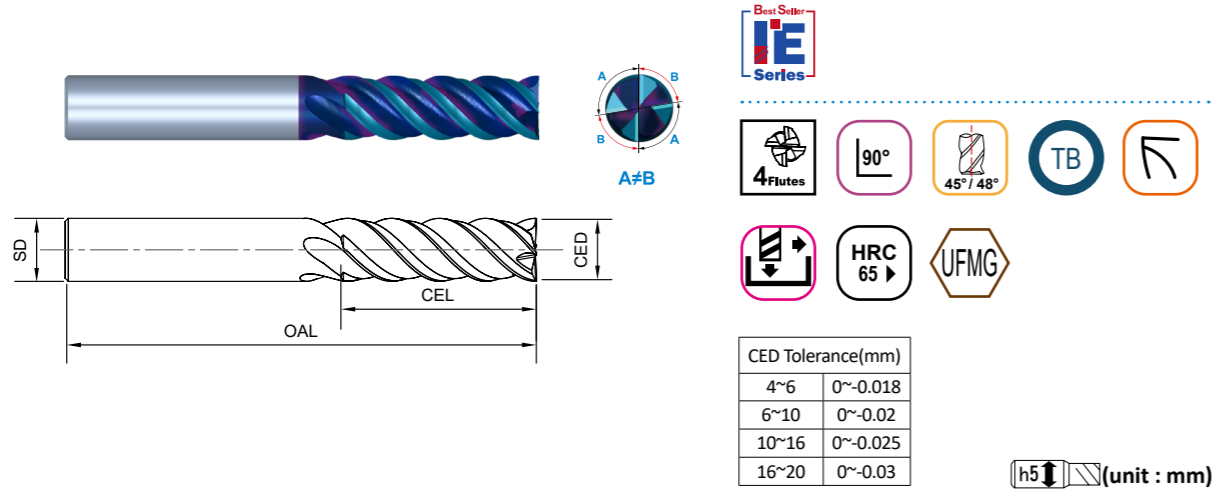


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

UFMG Carbide - High-Speed Finishing End Mill

A700IE⁺ - 11454TB

- ◆ Square - 4-Flute x 3D
- ◆ Uneven Flute / Variable Helix 45° / 48°



Code No.	CED	CEL	SD	OAL	Flute
A700IE ⁺ -11454TB	4	12	4	50	4
	5	15	6	50	
	6	18	6	50	
	8	24	8	65	
	10	30	10	75	
	12	36	12	80	
	16	48	16	100	
	20	60	20	125	

Code No.	CED	CEL	SD	OAL	Flute
A700IE ⁺ -11454TB	EU 4	12	4	65	4
	EU 5	15	6	65	
	EU 6	18	6	65	
	EU 8	24	8	75	
	EU 10	30	10	80	
	EU 12	36	12	93	

※ Customized Special sizes, Coating type and Inches are available to order.

Recommended Cutting Condition

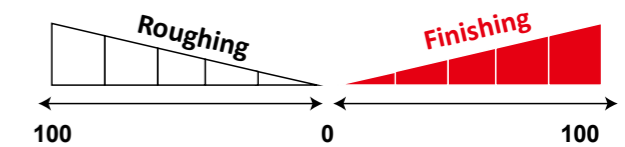
Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	$a_p: 1.5D$	$a_e: 0.2D$	$a_p: 1.5D$	$a_e: 0.1D$	$a_p: 1.5D$	$a_e: 0.05D$	$a_p: 1.5D$	$a_e: 0.03D$
4	10,750	1,000	9,100	850	8,100	680	7,290	400
5	8,599	1,350	7,300	1,150	6,500	910	5,850	540
6	7,150	1,500	6,000	1,270	5,400	1,000	4,860	610
8	5,350	1,600	4,500	1,360	4,000	1,080	3,600	650
10	4,300	1,500	3,650	1,270	3,200	1,010	2,880	610
12	3,600	1,450	3,060	1,200	2,700	980	2,430	580
16	2,700	1,400	2,300	1,200	2,000	950	1,800	570
20	2,150	1,350	1,820	1,150	1,600	910	1,440	540

Depth of cut	a_p a_e		a_p a_e		a_p a_e		a_p a_e	
	1.5D	0.2D	1.5D	0.1D	1.5D	0.05D	1.5D	0.03D

Work Material

P			H		
G1	G2	G3	G14	G15	G16
●	●	●	●	●	●

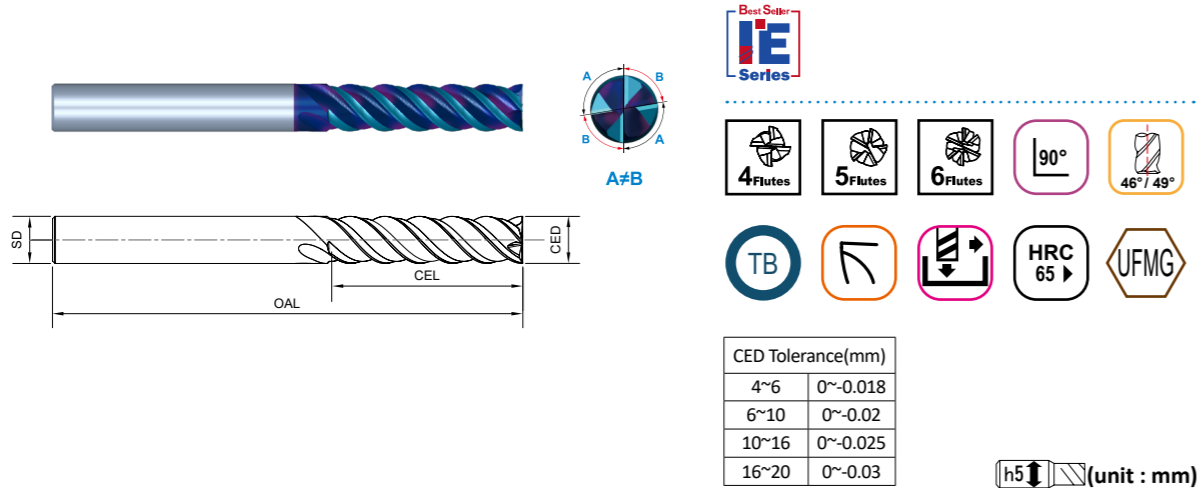


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

UFMG Carbide - High-Speed Finishing Long Flute End Mill

A700IE⁺ - 12464TB / 12465TB / 12466TB

- ◆ Square - 4~6-Flute x 4D / Long Flute
- ◆ Uneven Flute / Variable Helix 46° / 49°



Code No.	CED	CEL	SD	OAL	Flute
A700IE ⁺ -12464TB	4	16	4	60	4
	5	20	6	60	
A700IE ⁺ -12465TB	6	24	6	65	5
	8	32	8	90	
A700IE ⁺ -12466TB	10	40	10	100	6
	12	48	12	110	
	16	64	16	140	
	20	80	20	160	

Code No.	CED	CEL	SD	OAL	Flute
A700IE ⁺ -12464TB	EU 4	16	6	65	4
	EU 5	20	6	65	
A700IE ⁺ -12465TB	EU 6	24	6	65	5
	EU 8	32	8	80	
A700IE ⁺ -12466TB	EU 10	40	10	90	6
	EU 12	48	12	100	

※ Customized Special sizes, Coating type and Inches are available to order.

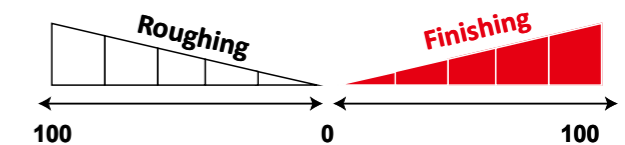
Recommended Cutting Condition

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	$a_p: 2.5D$	$a_e: 0.05D$	$a_p: 2.5D$	$a_e: 0.03D$	$a_p: 2.5D$	$a_e: 0.02D$	$a_p: 2.5D$	$a_e: 0.01D$
4	9,600	900	8,100	760	7,290	610	6,500	360
5	7,700	1,215	6,570	1,000	5,850	810	5,200	480
6	6,400	1,350	5,400	1,100	4,860	910	4,300	450
8	4,800	1,440	4,050	1,200	3,600	970	3,240	580
10	3,870	1,350	3,285	1,140	2,880	910	2,600	550
12	3,240	1,305	2,750	1,080	2,430	880	2,190	520
16	2,430	1,260	2,070	1,080	1,800	855	1,600	510
20	1,900	1,215	1,630	1,030	1,440	820	1,300	480
Depth of cut								

Work Material

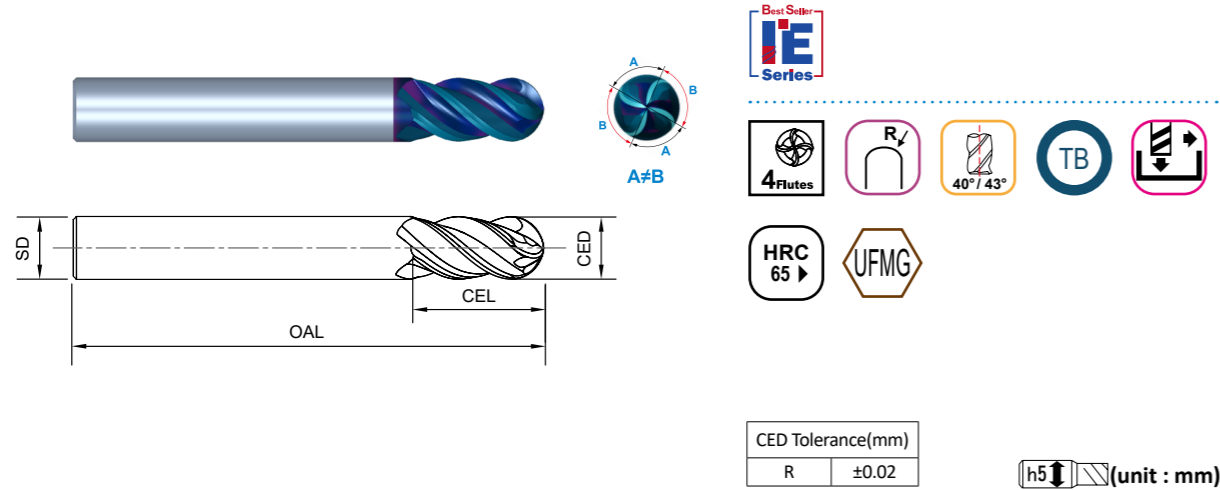
P			H		
G1	G2	G3	G14	G15	G16
●	●	●	●	●	●



1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

A700IE⁺ - 81404TB

- ♦ Ball Nose - 4-Flute x 2D
- ♦ Uneven Flute / Variable Helix 40° / 43°



Code No.	Radius	CEL	SD	OAL	Flute
A700IE ⁺ -81404TB	3R	12	6	50	4
	4R	16	8	60	
	5R	20	10	75	
	6R	24	12	75	
	8R	32	16	100	
	10R	40	20	100	

Code No.	Radius	CEL	SD	OAL	Flute
A700IE ⁺ -81404TB	EU 3R	12	6	57	4
	EU 4R	16	8	63	
	EU 5R	20	10	72	
	EU 6R	24	12	83	

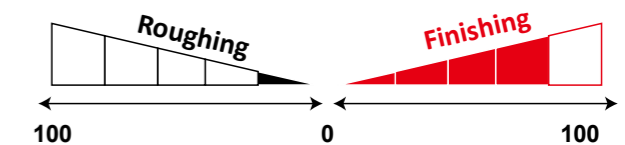
※ Customized Special sizes, Coating type and Inches are available to order.

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
R	$a_p: 0.1D$	$a_e: 0.2D$	$a_p: 0.08D$	$a_e: 0.2D$	$a_p: 0.05D$	$a_e: 0.1D$	$a_p: 0.03D$	$a_e: 0.1D$
3R	10,080	1,820	9,000	1,400	7,200	1,000	5,760	700
4R	7,560	1,820	6,800	1,400	5,400	1,000	4,320	700
5R	6,000	1,820	5,400	1,400	4,320	1,000	3,400	700
6R	5,040	1,820	4,500	1,400	3,600	1,000	2,880	700
8R	3,720	1,820	3,300	1,400	2,640	1,000	2,100	700
10R	3,000	1,560	2,700	1,250	2,160	870	1,700	610
Depth of cut	 a_p a_e 0.1D 0.2D		a_p a_e 0.08D 0.2D		a_p a_e 0.05D 0.1D		a_p a_e 0.03D 0.1D	

Work Material

P			H		
G1	G2	G3	G14	G15	G16
•	•	•	•	•	•

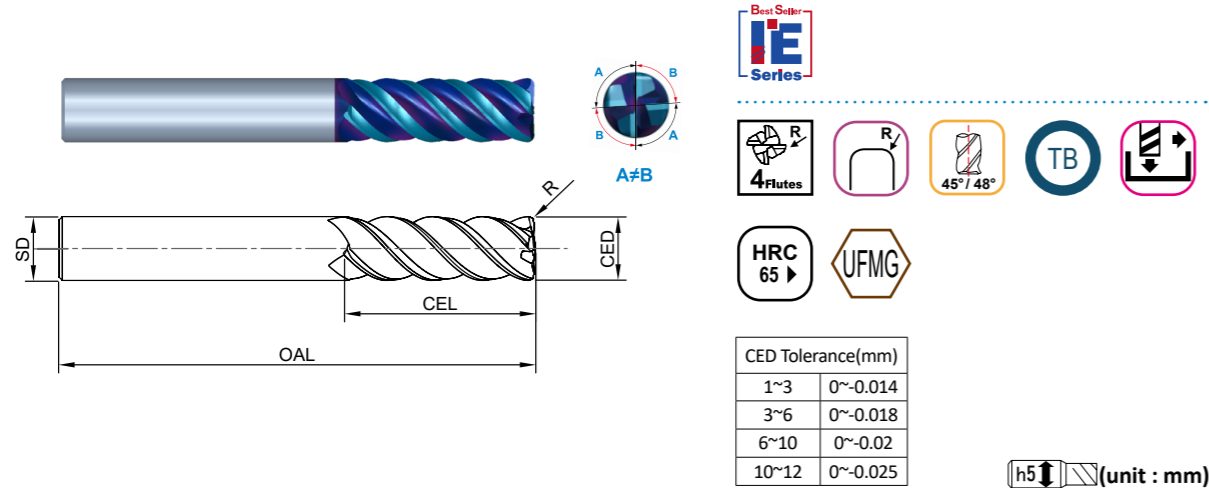


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

UFMG Carbide - High-Speed Finishing Corner Radius End Mill

A700IE⁺ - 21454TB

- ◆ Corner Radius - 4-Flute x 3D
- ◆ Uneven Flute / Variable Helix 45° / 48°



Code No.	CED	CEL	SD	OAL	Radius	Flute
A700IE ⁺ -21454TB	1	3	4	50	0.2R	4
	2	6	4	50	0.2R	
	3	9	4	50	0.2R	
	4	12	4	50	0.2R	
	5	15	6	50	0.2R	
	6	18	6	50	0.2R	
	8	24	8	65	0.2R 0.5R	
	10	30	10	75	0.2R 0.5R	
	12	36	12	80	0.2R 0.5R	

Code No.	CED	CEL	SD	OAL	Radius	Flute
A700IE ⁺ -21454TB	EU 3	9	6	57	0.2R	4
	EU 4	12	6	65	0.2R	
	EU 5	15	6	65	0.2R	
	EU 6	18	6	65	0.2R	
	EU 8	24	8	75	0.2R 0.5R	
	EU 10	30	10	80	0.2R 0.5R	
	EU 12	36	12	93	0.2R 0.5R	

※ Customized Special sizes, Coating type and Inches are available to order.

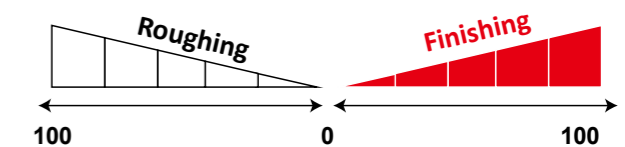
Recommended Cutting Condition

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC																	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min																
CED	a _p : 1.5D	a _e : 0.2D	a _p : 1.5D	a _e : 0.1D	a _p : 1.5D	a _e : 0.05D	a _p : 1.5D	a _e : 0.03D																
1	43,000	500	36,500	420	32,800	330	29,520	200																
2	21,500	600	18,200	510	16,300	400	14,670	240																
3	14,300	850	12,100	720	10,800	570	9,720	340																
4	10,750	1,000	9,100	850	8,100	680	7,290	400																
5	8,600	1,350	7,300	1,150	6,500	910	5,850	540																
6	7,150	1,500	6,000	1,270	5,400	1,000	4,860	610																
8	5,350	1,600	4,500	1,360	4,000	1,080	3,600	650																
10	4,300	1,500	3,650	1,270	3,200	1,010	2,880	610																
12	3,600	1,450	3,060	1,200	2,700	980	2,430	580																
Depth of cut	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>1.5D</td> <td>0.2D</td> </tr> </table>		a _p	a _e	1.5D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>1.5D</td> <td>0.2D</td> </tr> </table>		a _p	a _e	1.5D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>1.5D</td> <td>0.2D</td> </tr> </table>		a _p	a _e	1.5D	0.2D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>1.5D</td> <td>0.2D</td> </tr> </table>		a _p	a _e	1.5D	0.2D
a _p	a _e																							
1.5D	0.2D																							
a _p	a _e																							
1.5D	0.2D																							
a _p	a _e																							
1.5D	0.2D																							
a _p	a _e																							
1.5D	0.2D																							

Work Material

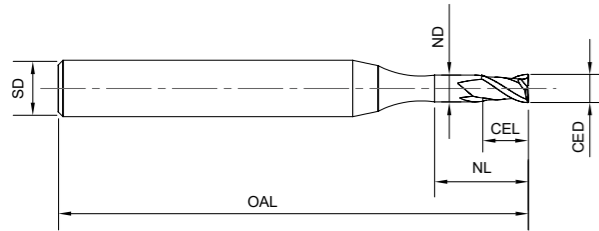
P			H		
G1	G2	G3	G14	G15	G16
●	●	●	●	●	●



1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

RPA700⁺ - 14352TB

- ◆ Square - 2-Flute x 1.5D / Long Neck / Long Shank
- ◆ Helix 35°



CED Tolerance(mm)	
0.5~3	0~-0.014
3~6	0~-0.018

h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	NL	ND	Flute
RPA700 ⁺ -14352TB	0.5	0.7	4	50	4	0.45	2
					6		
					8		
	1	1.5	4	50	6	0.95	
					8		
					10		
	1.5	2.3	4	50	6	1.45	
					8		
					10		
	2	3	4	50	6	1.95	
					8		
					10		
	3	5	6	50	8	2.85	
					10		
					12		
	4	6	6	60	12	3.85	
				60	16		
				70	20		
	5	8	6	60	16	4.8	
				70	20		
				80	30		
	6	9	6	70	20	5.8	
				80	30		
				90	40		

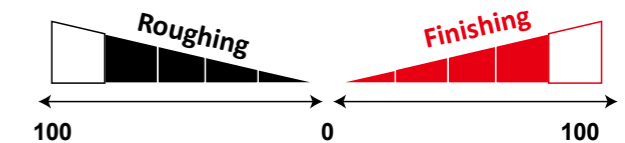
※ Customized Special sizes, Coating type and Inches are available to order.

Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC																	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min																
CED	$a_p: 0.05D$	$a_e: 0.6D$	$a_p: 0.04D$	$a_e: 0.5D$	$a_p: 0.03D$	$a_e: 0.4D$	$a_p: 0.02D$	$a_e: 0.2D$																
0.5	32,000	180	32,000	140	29,000	110	20,000	70																
1	30,000	360	30,000	280	22,000	220	14,960	130																
1.5	17,000	600	17,000	480	13,000	380	9,360	230																
2	15,000	800	14,000	640	11,000	510	7,480	300																
3	10,000	800	10,000	640	8,000	510	5,440	300																
4	7,000	700	7,000	560	6,000	440	4,080	260																
5	6,000	600	5,500	480	5,000	380	3,250	230																
6	5,000	500	4,600	400	4,000	320	2,700	190																
Depth of cut	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.05D</td> <td>0.6D</td> </tr> </table>		a_p	a_e	0.05D	0.6D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.04D</td> <td>0.5D</td> </tr> </table>		a_p	a_e	0.04D	0.5D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.03D</td> <td>0.4D</td> </tr> </table>		a_p	a_e	0.03D	0.4D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.02D</td> <td>0.2D</td> </tr> </table>		a_p	a_e	0.02D	0.2D
a_p	a_e																							
0.05D	0.6D																							
a_p	a_e																							
0.04D	0.5D																							
a_p	a_e																							
0.03D	0.4D																							
a_p	a_e																							
0.02D	0.2D																							

Work Material

P			H		
G1	G2	G3	G14	G15	G16
●	●	●	●	●	●

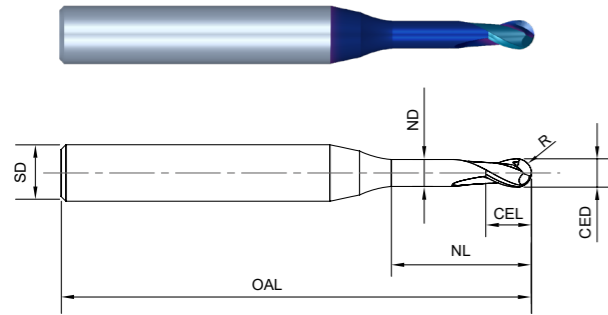


1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

UFMG Carbide - Rib Processing Ball End Mill

RPA700⁺ - 84302TB

- ♦ Ball Nose - 2-Flute x 1.5D / Long Neck / Long Shank
- ♦ Helix 30°



CED Tolerance(mm)	
R	±0.02

h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	NL	ND	Flute
RPA700 ⁺ -84302TB	0.25R	0.7	4	50	4	0.45	2
					6		
					8		
	0.5R	1.5	4	50	6	0.95	
					8		
					10		
	0.75R	2.3	4	50	6	1.45	
					8		
					10		
	1R	3	4	50	6	1.95	
					8		
					10		
	1.5R	5	6	50	8	2.85	
					10		
					12		
	2R	6	6	60	12	3.85	
					60		
					70		
	2.5R	8	6	60	16	4.8	
					70		
					80		
	3R	9	6	70	20	5.8	
					80		
					90		

※ Customized Special sizes, Coating type and Inches are available to order.

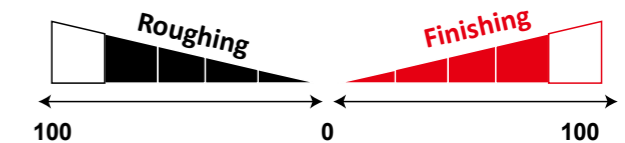
Recommended Cutting Condition

General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC																	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min																
R	$a_p: 0.05D$	$a_e: 0.1D$	$a_p: 0.03D$	$a_e: 0.05D$	$a_p: 0.02D$	$a_e: 0.03D$	$a_p: 0.02D$	$a_e: 0.03D$																
0.25R	32,000	800	32,000	640	29,000	480	20,000	300																
0.5R	30,000	1,300	30,000	1,040	22,000	780	14,960	500																
0.75R	17,000	1,820	17,000	1,456	13,000	1,092	9,360	700																
1R	15,000	1,950	14,000	1,560	11,000	1,170	7,480	760																
1.5R	10,000	2,080	10,000	1,664	8,000	1,248	5,440	800																
2R	7,000	2,080	7,000	1,664	6,000	1,248	4,080	800																
2.5R	6,000	1,820	5,500	1,456	5,000	1,092	3,250	710																
3R	5,000	1,800	4,600	1,440	4,000	1,080	2,700	700																
Depth of cut	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.05D</td> <td>0.1D</td> </tr> </table>		a_p	a_e	0.05D	0.1D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.03D</td> <td>0.05D</td> </tr> </table>		a_p	a_e	0.03D	0.05D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.02D</td> <td>0.03D</td> </tr> </table>		a_p	a_e	0.02D	0.03D	<table border="1"> <tr> <td>a_p</td> <td>a_e</td> </tr> <tr> <td>0.02D</td> <td>0.03D</td> </tr> </table>		a_p	a_e	0.02D	0.03D
a_p	a_e																							
0.05D	0.1D																							
a_p	a_e																							
0.03D	0.05D																							
a_p	a_e																							
0.02D	0.03D																							
a_p	a_e																							
0.02D	0.03D																							

Work Material

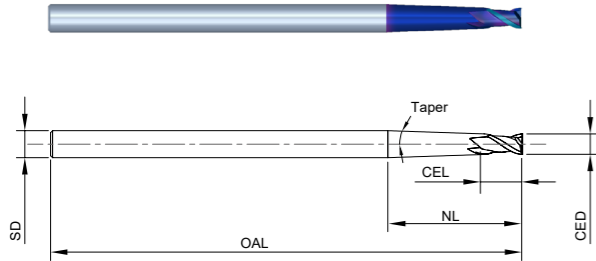
P			H		
G1	G2	G3	G14	G15	G16
●	●	●	●	●	●



1. Please select high rigid tool holder and collet chuck during machining.
2. Please select the suitable coolant fluid.
3. For dry cutting, please use air blow for chip removal and cooling.
4. These cutting data are for reference only. Please adjust the cutting speed according to machine capability and working conditions.
5. If vibrations occur during cutting process, adjust and reduce the cutting speed.

RTA700⁺ - 14352TB

- ◆ Square - 2-Flute x 1.5D / Taper Neck / Long Shank
- ◆ Helix 35°



CED Tolerance(mm)	
0.5~3	0~-0.014
3~6	0~-0.018

h5 (unit : mm)

Code No.	CED	CEL	SD	OAL	Flute	NL	Taper
RTA700 ⁺ -14352TB	0.5	0.7	4	50	2	8	1.5°
	1	1.5	4	50		10	1.5°
	1.5	2.3	4	50		12	1°
	2	3	4	50		14	1°
	3	5	6	70		20	1°
	4	6	6	70		30	1°
	5	8	8	80		40	1°
	6	9	8	90		40	1°

※ Customized Special sizes, Coating type and Inches are available to order.

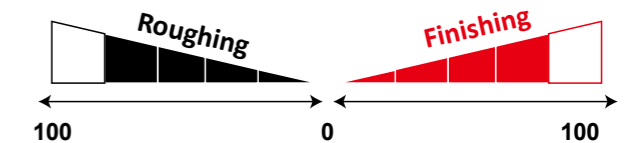
Side Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min
CED	$a_p: 0.05D$	$a_e: 0.6D$	$a_p: 0.04D$	$a_e: 0.5D$	$a_p: 0.03D$	$a_e: 0.4D$	$a_p: 0.02D$	$a_e: 0.2D$
0.5	32,000	180	32,000	140	29,000	110	20,000	70
1	30,000	360	30,000	280	22,000	220	14,960	130
1.5	17,000	600	17,000	480	13,000	380	9,360	230
2	15,000	800	14,000	640	11,000	510	7,480	300
3	10,000	800	10,000	640	8,000	510	5,440	300
4	7,000	700	7,000	560	6,000	440	4,080	260
5	6,000	600	5,500	480	5,000	380	3,250	230
6	5,000	500	4,600	400	4,000	320	2,700	190

Depth of cut	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC	
	a_p	a_e	a_p	a_e	a_p	a_e	a_p	a_e
	0.05D	0.6D	0.04D	0.5D	0.03D	0.4D	0.02D	0.2D

Work Material

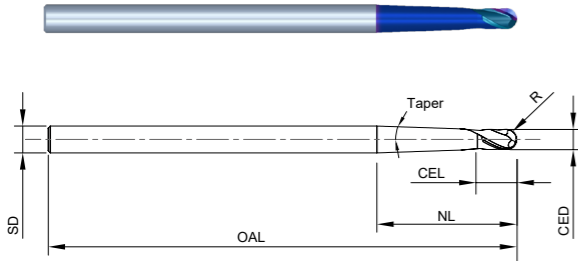
P			H		
G1	G2	G3	G14	G15	G16
●	●	●	●	●	●



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RTA700⁺ - 84302TB

- ♦ Ball Nose - 2-Flute x 1.5D / Taper Neck / Long Shank
- ♦ Helix 30°



CED Tolerance(mm)	
R	±0.02

h5 (unit : mm)

Code No.	Radius	CEL	SD	OAL	Flute	NL	Taper
RTA700 ⁺ -84302TB	0.25R	0.35	4	50	2	8	1°
							2°
	0.5R	0.75	4	50		10	0.5°
							1°
	0.75R	1.1	4	50		12	0.5°
							1°
	1R	1.5	4	50		14	1°
	1.5R	2.25	6	70		20	1°
2R	3	6	70	30	1°		
2.5R	3.75	8	80	40	1°		
3R	4.5	8	90	40	1°		

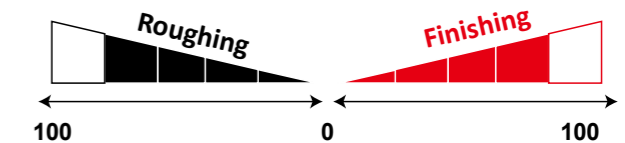
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General Milling

Work Material	Alloyed Steel 25~35HRC		Hardened Steel 35~45HRC		Hardened Steel 45~55HRC		Hardened Steel 55~65HRC																	
	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min	RPM/min	FEED mm/min																
R	$a_p: 0.05D$	$a_e: 0.1D$	$a_p: 0.03D$	$a_e: 0.05D$	$a_p: 0.02D$	$a_e: 0.03D$	$a_p: 0.02D$	$a_e: 0.03D$																
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a_p	a_e																							
0.05D	0.1D																							
a_p	a_e																							
0.03D	0.05D																							
a_p	a_e																							
0.02D	0.03D																							
a_p	a_e																							
0.02D	0.03D																							

Work Material

P			H		
G1	G2	G3	G14	G15	G16
•	•	•	•	•	•



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