

High performance ball-nose end mill

# 2SEB

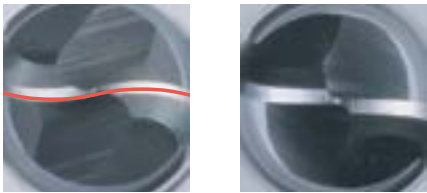
Special cutting edge concept and nano layer coating realizes high precision machining



MEGACOAT NANO is applied

## 1 Sharp cutting with special nose geometry

Arc-like cutting edge distributes the cutting force controls wear progress

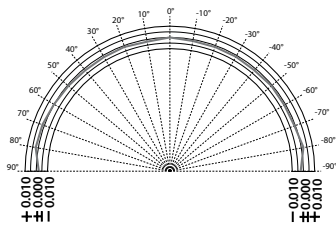


2SEB

Conventional (Internal evaluation)

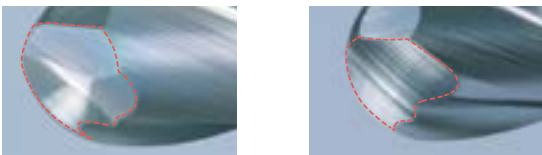
## 2 R-0.005 mm close tolerance edge diameter (R8.0 excluded)

Excellent surface finish quality when using entire cutting edge

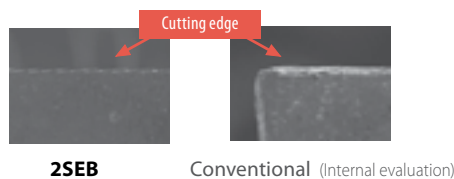
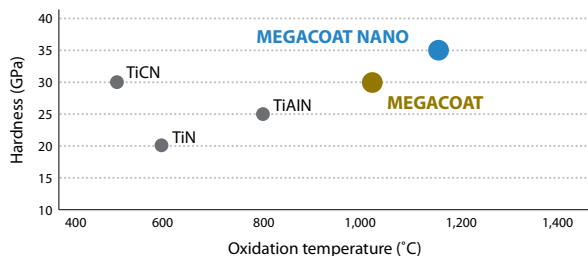


## 3 Large chip pocket

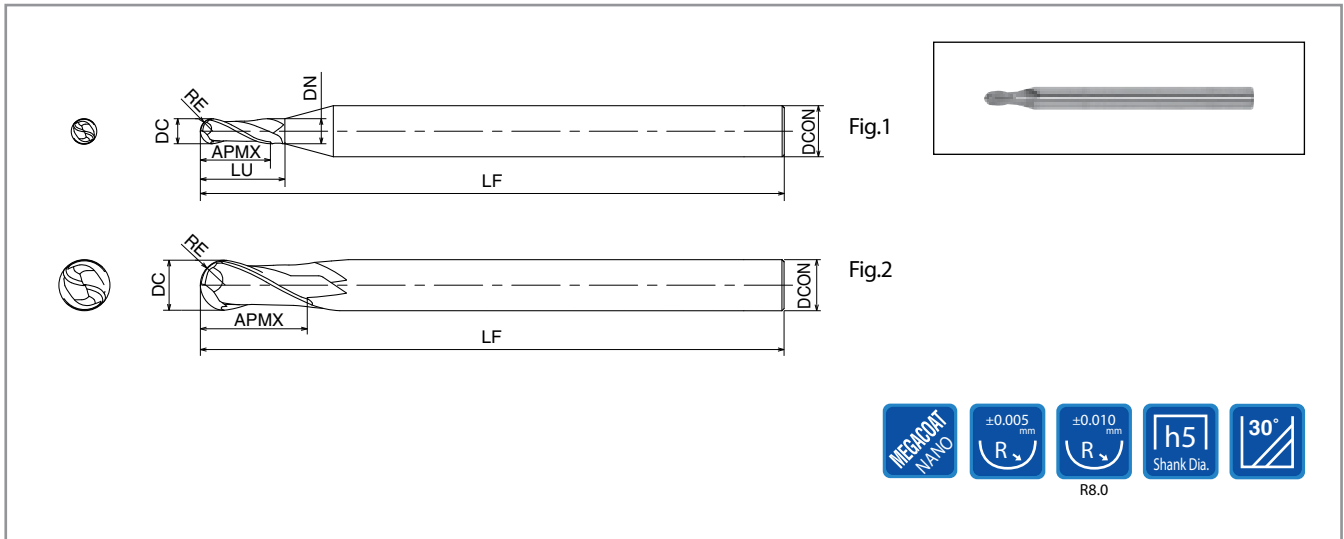
Stable chip evacuation at large depth of cut machining



## 4 Achieves long tool life and stable machining



Smooth and sharp cutting edge with superior wear resistance and adhesion resistance



2SEB (Ball-nose End Mill with 2 Flutes)

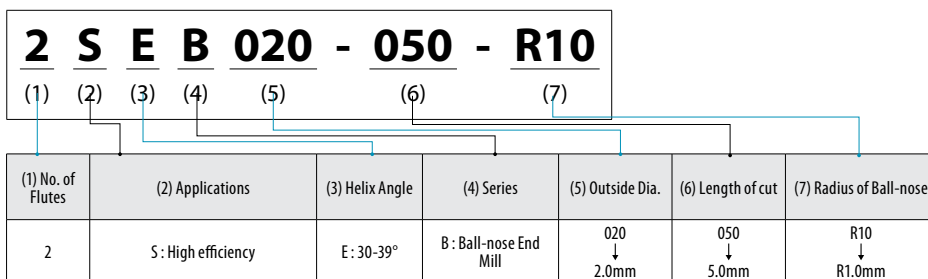
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(Unit : mm)

Description	Availability	Radius of Ball-nose	Radius of Ball-nose Tolerance	Outside Dia.		Length of cut	Neck Dia.	Under Neck Length	Shank Dia.	Overall length	No. of Flutes	Shape
		RE		DC	APMX	DN	LU	DCON	LF	ZEFP		
2SEB020-050-R10	●	1.0	±0.005	2.0	5	2.10	6.6	6	50	2	Fig.1	
2SEB030-080-R15	●	1.5	±0.005	3.0	8	3.15	9.8	6	70	2		
2SEB040-080-R20	●	2.0	±0.005	4.0	8	4.2	10.0	6	70	2		
2SEB050-100-R25	●	2.5	±0.005	5.0	10	5.2	12.4	6	80	2		
2SEB060-120-R30	●	3.0	±0.005	6.0	12	-	-	6	90	2	Fig.2	
2SEB080-140-R40	●	4.0	±0.005	8.0	14	-	-	8	100	2		
2SEB100-180-R50	●	5.0	±0.005	10.0	18	-	-	10	100	2		
2SEB120-220-R60	●	6.0	±0.005	12.0	22	-	-	12	110	2		
2SEB160-300-R80	●	8.0	±0.010	16.0	30	-	-	16	140	2		

● : Available

Solid End Mill Identification System

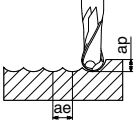


Recommended workpiece materials ★ 1st Choice

<b>P</b> ~30HRC	<b>P</b> 30~40HRC	<b>H</b> ~55HRC	<b>H</b> ~68HRC	<b>M</b> Stainless steel	<b>K</b> Cast Iron
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## 2SEB Cutting conditions

### 2SEB

Applications	Workpiece Material	Depth of Cut (ap x ae) (mm)	Outside Dia. DC (mm)	ø2	ø3	ø4	ø5	ø6	ø8	ø10	ø12	ø16	
 <p>Copying</p>	Carbon Steel, Cast Iron	0.05DC x 0.05DC	Spindle Revolution (min <sup>-1</sup> )	25,900	22,800	21,300	19,700	16,000	14,000	12,800	11,800	9,500	
			Feed Rate (mm/min)	3,910	3,570	3,290	3,070	2,890	2,660	2,540	2,500	2,470	
	Tool Steel, Alloy Steel	0.04DC x 0.04DC	Spindle Revolution (min <sup>-1</sup> )	23,300	20,500	19,100	17,700	15,200	12,600	11,500	10,600	8,500	
			Feed Rate (mm/min)	3,100	2,880	2,670	2,490	2,330	2,110	2,010	1,980	1,970	
	Stainless Steel	0.05DC x 0.05DC	Spindle Revolution (min <sup>-1</sup> )	23,300	20,500	19,100	17,700	15,200	12,600	11,500	10,600	8,500	
			Feed Rate (mm/min)	3,150	2,880	2,660	2,500	2,370	2,190	2,060	1,970	1,920	
	Prehardened Steel	30 ~ 38HRC	0.05DC x 0.05DC	Spindle Revolution (min <sup>-1</sup> )	23,300	20,500	19,100	17,700	15,200	12,600	11,500	10,600	8,500
				Feed Rate (mm/min)	3,150	2,880	2,660	2,500	2,370	2,190	2,060	1,970	1,920
		38 ~ 45HRC	0.03DC x 0.03DC	Spindle Revolution (min <sup>-1</sup> )	20,900	18,500	17,200	15,900	13,700	11,300	10,400	9,500	7,700
				Feed Rate (mm/min)	2,550	2,330	2,170	2,040	1,940	1,800	1,680	1,590	1,550
	45 ~ 55HRC	0.03DC x 0.03DC	Spindle Revolution (min <sup>-1</sup> )	18,600	16,400	15,300	14,200	12,200	10,000	9,200	8,500	6,800	
			Feed Rate (mm/min)	2,060	1,850	1,700	1,600	1,520	1,410	1,320	1,230	1,190	
	Heat Treated Steel	45 ~ 55HRC	0.03DC x 0.03DC	Spindle Revolution (min <sup>-1</sup> )	18,600	16,400	15,300	14,200	12,200	10,000	9,200	8,500	6,800
				Feed Rate (mm/min)	2,060	1,850	1,700	1,600	1,520	1,410	1,320	1,230	1,190
		55 ~ 60HRC	0.03DC x 0.03DC	Spindle Revolution (min <sup>-1</sup> )	14,300	12,600	11,800	10,900	9,400	7,700	7,100	6,500	5,200
				Feed Rate (mm/min)	1,230	1,130	1,030	980	930	850	800	780	760

\* Machining with water soluble coolant is recommended for stainless steel.