

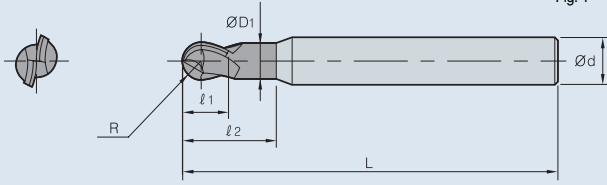
**New**

## HPBE(Ball)

H-Max coated ball endmills for high-speed cutting of rigid material

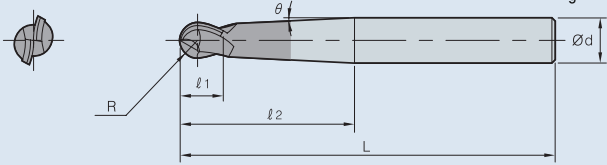
• HPBE2000

Fig. 1



• HPBE2000T

Fig. 2



ØD	Tolerance of Endmill diameter	R tolerance
0.6 ~ 6	0 ~ -0.02	±0.005
7 ~ 16	0 ~ -0.025	±0.010

2 TiAlN Helix Angle 30°

Designation	Stock	R	Ød	l <sub>1</sub>	l <sub>2</sub>	L	θ°	Fig.
HPBE 2006		0.3	6	0.6	1.2	50	0	1
2008		0.4	6	0.8	1.6	50	0	1
2010	●	0.5	6	2	3	50	0	1
2020	●	1	6	3	5	50	0	1
2030	●	1.5	6	4	8	50	0	1
2040	●	2	6	5	10	60	0	1
2050		2.5	6	6	10	60	0	1
2060	●	3	6	7	12	60	0	1
2060L		3	6	8	27	90	0	1
2070		3.5	8	8	20	80	0	1
2070L		3.5	8	9	30	100	0	1
2080S		4	8	9	25	60	0	1
2080	●	4	8	9	25	80	0	1
2080L		4	8	10	35	100	0	1
2090		4.5	10	10	30	80	0	1
2090L		4.5	10	11	40	100	0	1
2100	●	5	10	11	30	80	0	1
2100L		5	10	12	40	100	0	1
2110		5.5	12	12	35	90	0	1
2120	●	6	12	13	36	90	0	1
2140		7	16	15	36	90	0	1
2160		8	16	17	36	100	0	1
2010-T4-16	●	0.5	6	2	16	50	2	2
2010-T2-26		0.5	6	2	26	70	1	2
2020-T4-29	●	1	6	3	29	60	2	2
2020-T2-41		1	6	3	41	80	1	2
2030-T4-29	●	1.5	6	4	29	60	2	2
2030-T2-51		1.5	6	4	51	90	1	2
2040-T4-34	●	2	6	5	34	70	2	2
2040-T2-61		2	6	5	61	90	1	2
2060-T4-35	●	3	8	7	35	90	2	2
2060-T2-63		3	8	7	63	120	1	2
2080-T4-39	●	4	10	11	39	100	2	2
2080-T2-67		4	10	11	67	120	1	2
2100-T4-41	●	5	14	13	41	120	2	2
2100-T2-69		5	14	13	69	140	1	2
2120-T4-43		6	16	15	43	130	2	2
2120-T2-71		6	16	15	71	160	1	2

● : Stock item ○ : Under preparing for stock

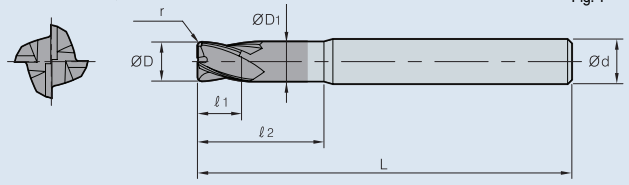
**New**

## HPRE(Corner radius)

H-Max coated corner radius endmills for high-speed cutting of rigid material

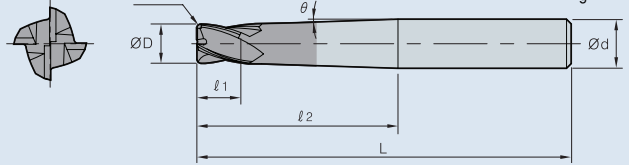
• HPRE2000, 4000

Fig. 1



• HPRE2000T, 4000T

Fig. 2



ØD	Tolerance of Endmill diameter	R tolerance
0.6 ~ 6	0 ~ -0.02	±0.005
7 ~ 16	0 ~ -0.025	±0.010

2 4 TiAlN Helix Angle 30°

Designation	Stock	ØD	Ød	r	l <sub>1</sub>	l <sub>2</sub>	L	θ°	Fig.
HPRE 2020-R0.5		2	6	0.5	3	13	60	0	1
2030-R0.5-T4-13	●	3	6	0.5	4	13	60	2	2
2040-R0.5-T2-18	●	4	6	0.5	5	18	90	1	2
HPRE 4030-R0.5	●	3	6	0.5	4	15	60	0	1
4040-R0.5	●	4	6	0.5	5	20	60	0	1
4060-R1.0	●	6	6	1.0	7	22	60	0	1
4080-R2.0	●	8	8	2.0	9	25	80	0	1
4100-R2.0	●	10	10	2.0	11	28	90	0	1
4120-R2.0	●	12	10	2.0	13	32	100	0	1
4160-R2.0	●	16	16	2.0	17	38	q00	0	2
4020-R0.5-T4-18		2	6	0.5	3	3	60	2	2
4020-R0.5-T2-23		2	6	0.5	3	3	80	1	2
4030-R0.5-T4-19		3	6	0.5	4	4	60	2	2
4030-R0.5-T2-24	●	3	6	0.5	4	4	80	1	2
4040-R0.5-T4-34		4	6	0.5	5	5	70	2	2
4040-R0.5-T2-61	●	4	6	0.5	5	5	90	1	2
4060-R1.0-T4-36		6	8	1.0	7	7	90	2	2
4060-R1.0-T2-63		6	8	1.0	7	7	120	1	2
4080-R2.0-T4-37		8	10	2.0	9	9	100	2	2
4080-R2.0-T2-65		8	10	2.0	9	9	120	1	2
4100-R2.0-T4-40		10	12	2.0	11	11	120	2	2
4100-R2.0-T2-69		10	12	2.0	11	11	140	1	2
4120-R2.0-T4-42		12	14	2.0	13	13	130	2	2
4120-R2.0-T2-71		12	14	2.0	13	13	160	1	2
4160-R2.0-T4-45		16	18	2.0	17	17	130	2	2
4160-R2.0-T2-73		16	18	2.0	17	17	160	1	2

● : Stock item ○ : Under preparing for stock

←  
→

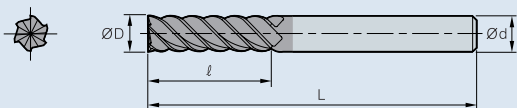
Endmills

Solid Endmills

Brazed Endmills

### HSE2000/4000/6000/8000(Square)

Z-Max coated endmills for high-speed cutting



ØD	Tolerance of Endmill diameter
1 - 6	-0.01 ~ -0.030
7 - 10	-0.015 ~ -0.040
11 - 20	-0.020 ~ -0.050



(mm)

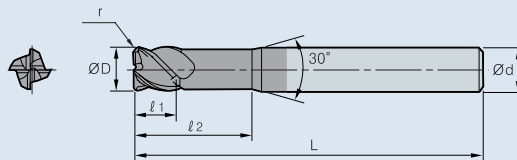
Designation	Stock	ØD	ød	ℓ	L	Remark
HSE 2010		1.0	6	4	45	
2 2015		1.5	6	4	45	
2020		2.0	6	6	45	
2025		2.5	6	6	45	
2030		3.0	6	8	50	
2035		3.5	6	8	50	
2040		4.0	6	10	50	
2045		4.5	6	10	50	
2050		5.0	6	12	50	
2055		5.5	6	12	50	
2060		6.0	6	12	50	
2065		6.5	8	12	50	
2070		7.0	8	16	60	
2080		8.0	8	16	60	
HSE 4030	●	3.0	6	8	50	
4 4035		3.5	6	8	50	
4040	●	4.0	6	10	50	
4045		4.5	6	10	50	
4050	●	5.0	6	12	50	
4055		5.5	6	12	50	
4060		6.0	6	12	50	
4065		6.5	8	12	50	
4070		7.0	8	16	60	
4080		8.0	8	16	60	
4090		9.0	10	20	70	
4100		10.0	10	20	70	
HSE 6060	●	6.0	6	12	50	
6 6065		6.5	8	12	50	
6070		7.0	8	16	60	
6075		7.5	8	16	60	
6080	●	8.0	8	16	60	
6085		8.5	10	20	70	
6090		9.0	10	20	70	
6100	●	10.0	10	20	70	
6110		11.0	12	24	75	
6120	●	12.0	12	24	75	
HSE 8100		10.0	10	20	70	
8 8110		11.0	12	24	75	
8120		12.0	12	24	75	
8130		13.0	16	28	80	
8140		14.0	16	28	80	
8150		15.0	16	32	90	
8160	●	16.0	16	32	90	
8180		18.0	18	35	105	
8200		20.0	20	40	105	

● : Stock item ○ : Under preparing for stock

\* Ordering code for special item : HSE○○○○○ \* Flute length \* Overall length L  
 Ex.1) 6Flutes, Cutting edge diameter : 6.3, Flute length : 15, Overall length : 60  
 → HSE6063 \* 15 \* 60L  
 Ex.2) 6Flutes, Cutting edge diameter : 6.3, Standard type → HSE6063

### HSRE4000(Corner radius)

Z-Max corner radius endmills for high-speed cutting



ØD	Tolerance of Endmill diameter
1 - 6	-0.01 ~ -0.030
7 - 10	-0.015 ~ -0.040
11 - 20	-0.020 ~ -0.050



(mm)

Designation	Stock	ØD	r	ød	ℓ1	ℓ2	L
HSRE 4030	●	3.0	1.0	6	4	9	60
4 4035		3.5	1.0	6	5	10	65
4040	●	4.0	1.0	6	5	10	65
4045		4.5	1.0	6	6	13	65
4050	●	5.0	1.0	6	6	13	65
4055		5.5	1.5	6	7	15	75
4060	●	6.0	1.5	6	7	15	75
4065		6.5	1.5	8	7	15	75
4070		7.0	2.0	8	8	15	75
4075		7.5	2.0	8	8	15	75
4080	●	8.0	2.0	8	9	20	75
4085		8.5	2.0	10	9	20	75
4090		9.0	2.5	10	10	20	80
4095		9.5	2.5	10	10	20	80
4100	●	10.0	2.5	10	11	25	80
4105		10.5	2.5	12	11	25	85
4110		11.0	3.0	12	11	25	85
4115		11.5	3.0	12	13	25	90
4120	●	12.0	3.0	12	13	25	90
4125		12.5	3.0	16	13	25	90
4130		13.0	3.5	16	14	25	95
4135		13.5	3.5	16	14	25	95
4140		14.0	3.5	16	14	25	95
4145		14.5	4.0	16	16	25	95
4150		15.0	4.0	16	16	25	100
4155		15.5	4.0	16	17	32	100
4160	●	16.0	4.0	16	17	32	100
4165		16.5	4.0	18	17	32	105
4170		17.0	4.5	18	17	32	105
4175		17.5	4.5	18	18	32	105
4180		18.0	5.0	18	18	32	110
4185		18.5	5.0	20	20	32	110
4190		19.0	5.5	20	20	32	110
4195		19.5	5.5	20	20	32	115
4200		20.0	6.0	20	25	32	115

● : Stock item ○ : Under preparing for stock

\* Ordering code for special item : HSRE4○○○-R Size \* Flute length \* Overall length L  
 Ex.1) 4Flutes, Cutting edge diameter : 6.3, Corner Radius:0.5, Flute length : 15, Overall length : 60  
 → HSRE4063-R0.5 \* 15 \* 60L  
 Ex.2) 4Flutes, Cutting edge diameter : 6.3, Standard type → HSRE4063



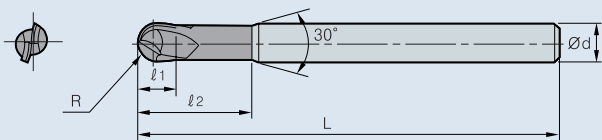
Endmills

Solid Endmills

Brazed Endmills

## HSBE2000/4000(Ball)

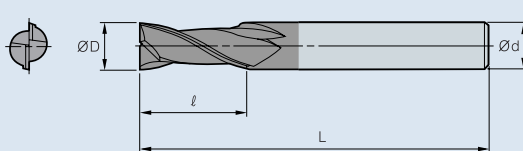
Z-Max ball endmills for high-speed cutting



ØD	Tolerance of Endmill diameter
All items	0 -- 0.03

## SSE2000-Q/3000-Q/4000-Q(Square)

Q-Max coated solid endmills



ØD	Tolerance of Endmill diameter
1 ~ 6	- 0.01 -- 0.030
7 ~ 10	- 0.015 -- 0.040
11 ~ 20	- 0.020 -- 0.050



(mm)

Designation	Stock	R	Ød	l <sub>1</sub>	l <sub>2</sub>	L	Remark
HSBE 2010	●	0.5	6	1	2	60	
2015	●	0.75	6	2	4	60	
2020	●	1	6	2.5	4	60	
2025	●	1.25	6	4	6	60	
2030	●	1.5	6	4	6	60	
2035	●	1.75	6	5	8	65	
2040	●	2	6	5	8	65	
2045	●	2.25	6	6	10	65	
2050	●	2.5	6	6	10	65	
2055	●	2.75	6	7	12	75	
2060	●	3	6	7	12	75	
2065	●	3.25	8	7	15	75	
2070	●	3.5	8	8	20	75	
2080	●	4	8	9	25	75	
2090	●	4.5	10	10	30	80	
2100	●	5	10	11	30	80	
2110	●	5.5	12	12	35	85	
2120	●	6	12	12	36	90	
2130	●	6.5	16	14	36	90	
2140	●	7	16	14	36	90	
2150	●	7.5	16	16	36	90	
2160	●	8	16	16	36	100	
2170	●	8.5	20	18	45	100	
2180	●	9	20	18	45	100	
2190	●	9.5	20	20	53	110	
2200	●	10	20	20	53	110	
HSBE 4080	●	4	8	9	25	75	
4090	●	4.5	10	10	30	80	
4100	●	5	10	11	30	80	
4120	●	6	12	12	36	90	
4130	●	6.5	16	14	36	90	
4140	●	7	16	14	36	90	
4150	●	7.5	16	16	36	90	
4160	●	8	16	16	36	100	
4170	●	8.5	20	18	45	100	
4180	●	9	20	18	45	100	
4190	●	9.5	20	20	53	110	
4200	●	10	20	20	53	110	

● : Stock item ○ : Under preparing for stock

\* Ordering code for special item : HSBE○○○○○ \* Flute length \* Overall length L

Ex.1) 2Flutes, Cutting edge diameter : 6.3, Flute length : 10, Overall length : 60

→ HSBE2063 \* 10 \* 60L

Ex.2) 2Flutes, Cutting edge diameter : 6.3, Standard type → HSBE2063

### • SSE2000 \* Q

\* Ordering code for special item : Coated ; SSE2○○○○-Q \* Flute length \* Overall length L

Non-coated ; SSE2○○○○ \* Flute length \* Overall length L

Ex.1) General use, Coating, Square, 2Flutes, Cutting edge diameter : 6.3, Flute length : 16, Overall length : 90

→ SSE2063-Q \* 16 \* 90L

Ex.2) General use, Coating, Square, 2Flutes, Cutting edge diameter : 6.3, Standard type → SSE2063-Q

### • SSE3000-Q/4000-Q

\* Ordering code for special item : Coated ; SSE○○○○○-Q \* Flute length \* Overall length L

Non-coated ; SSE○○○○○ \* Flute length \* Overall length L

Ex.1) General use, Coating, Square, 3Flutes, Cutting edge diameter : 6.3, Flute length : 16, Overall length : 90

→ SSE3063-Q \* 16 \* 90L

Ex.2) General use, Coating, Square, 3Flutes, Cutting edge diameter : 6.3, Standard type → SSE3063-Q



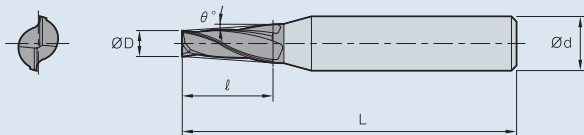
(mm)

Designation	Stock	ØD	Ød	l	L	Remark
SSE 2010-Q	●	1.0	6	3	40	
2015-Q	●	1.5	6	4	40	
2020-Q	●	2.0	6	6	40	
2025-Q	●	2.5	6	8	40	
2030-Q	●	3.0	6	10	45	
2035-Q	●	3.5	6	10	45	
2040-Q	●	4.0	6	12	45	
2045-Q	●	4.5	6	12	45	
2050-Q	●	5.0	6	15	50	
2055-Q	●	5.5	6	15	50	
2060-Q	●	6.0	6	15	50	
2065-Q	●	6.5	8	20	60	
2070-Q	●	7.0	8	20	60	
2075-Q	●	7.5	8	20	60	
2080-Q	●	8.0	8	20	60	
2085-Q	●	8.5	10	20	70	
2090-Q	●	9.0	10	20	70	
2095-Q	●	9.5	10	20	70	
2100-Q	●	10.0	10	25	70	
2105-Q	●	10.5	12	25	75	
2110-Q	●	11.0	12	25	75	
2115-Q	●	11.5	12	25	75	
2120-Q	●	12.0	12	30	75	
2130-Q	●	13.0	16	30	90	
2140-Q	●	14.0	16	35	90	
2150-Q	●	15.0	16	40	90	
2160-Q	●	16.0	16	40	90	
2180-Q	●	18.0	20	45	105	
2200-Q	●	20.0	20	45	106	
SSE 3020-Q	●	2.0	6	6	40	
3030-Q	●	3.0	6	10	45	
3035-Q	●	3.5	6	10	45	
3040-Q	●	4.0	6	12	45	
3050-Q	●	5.0	6	15	50	
3060-Q	●	6.0	6	15	50	
3070-Q	●	7.0	8	20	60	
3080-Q	●	8.0	8	20	60	
3090-Q	●	9.0	10	20	70	
3100-Q	●	10.0	10	25	70	
3110-Q	●	11.0	12	25	75	
3120-Q	●	12.0	12	30	75	
3130-Q	●	13.0	16	30	90	
3140-Q	●	14.0	16	35	90	
3150-Q	●	15.0	16	40	90	
SSE 4025-Q	●	2.5	6	8	40	
4030-Q	●	3.0	6	10	45	
4040-Q	●	4.0	6	12	45	
4050-Q	●	5.0	6	15	50	
4060-Q	●	6.0	6	15	50	
4070-Q	●	7.0	8	20	60	
4080-Q	●	8.0	8	20	60	
4085-Q	●	8.5	10	20	70	
4090-Q	●	9.0	10	20	70	
4100-Q	●	10.0	10	25	70	
4110-Q	●	11.0	12	25	75	
4120-Q	●	12.0	12	30	75	
4130-Q	●	13.0	16	30	90	
4140-Q	●	14.0	16	35	90	
4150-Q	●	15.0	16	40	90	
4160-Q	●	16.0	16	40	90	
4180-Q	●	18.0	20	45	105	
4200-Q	●	20.0	20	45	105	

● : Stock item ○ : Under preparing for stock

### SSTE2000-Q(Taper square)

Q-Max coated solid taper endmills



ØD	Tolerance of Endmill diameter
1 - 6	-0.01 ~ -0.030
7 - 10	-0.015 ~ -0.040
11 - 20	-0.020 ~ -0.050

2 TiAlN Helix Angle 30°

Designation	Stock	ØD	Ød	ℓ	L	θ°	Remark
SSTE 2030-05-Q		3.0	6	10	45	0.5°	
2030-10-Q		3.0	6	10	45	1.0°	
2030-15-Q		3.0	6	10	45	1.5°	
2030-20-Q		3.0	6	10	45	2.0°	
2030-25-Q		3.0	6	10	45	2.5°	
2030-30-Q		3.0	6	10	45	3.0°	
2040-05-Q		4.0	6	12	45	0.5°	
2040-10-Q		4.0	6	12	45	1.0°	
2040-15-Q		4.0	6	12	45	1.5°	
2040-20-Q		4.0	6	12	45	2.0°	
2040-25-Q		4.0	6	12	45	2.5°	
2040-30-Q		4.0	6	12	45	3.0°	
2050-05-Q		5.0	6	15	50	0.5°	
2050-10-Q		5.0	6	15	50	1.0°	
2050-15-Q		5.0	6	15	50	1.5°	
2050-20-Q		5.0	6	15	50	2.0°	
2050-25-Q		5.0	6	15	50	2.5°	
2050-30-Q		5.0	6	15	50	3.0°	
2060-05-Q		6.0	6	15	50	0.5°	
2060-10-Q		6.0	6	15	50	1.0°	
2060-15-Q		6.0	6	15	50	1.5°	
2060-20-Q		6.0	6	15	50	2.0°	
2060-25-Q		6.0	6	15	50	2.5°	
2060-30-Q		6.0	6	15	50	3.0°	
2080-05-Q		8.0	8	20	60	0.5°	
2080-10-Q		8.0	8	20	60	1.0°	
2080-15-Q		8.0	8	20	60	1.5°	
2080-20-Q		8.0	8	20	60	2.0°	
2080-25-Q		8.0	8	20	60	2.5°	
2080-30-Q		8.0	8	20	60	3.0°	
2100-05-Q		10.0	10	25	70	0.5°	
2100-10-Q		10.0	10	25	70	1.0°	
2100-15-Q		10.0	10	25	70	1.5°	
2100-20-Q		10.0	10	25	70	2.0°	
2100-25-Q		10.0	10	25	70	2.5°	
2100-30-Q		10.0	10	25	70	3.0°	
2110-05-Q		11.0	12	25	70	0.5°	
2110-10-Q		11.0	12	25	70	1.0°	
2110-15-Q		11.0	12	25	70	1.5°	
2110-20-Q		11.0	12	25	70	2.0°	
2110-25-Q		11.0	12	25	70	2.5°	
2110-30-Q		11.0	12	25	70	3.0°	
2120-05-Q		12.0	12	30	75	0.5°	
2120-10-Q		12.0	12	30	75	1.0°	
2120-15-Q		12.0	12	30	75	1.5°	
2120-20-Q		12.0	12	30	75	2.0°	
2120-25-Q		12.0	12	30	75	2.5°	
2120-30-Q		12.0	12	30	75	3.0°	
2130-05-Q		13.0	14	30	75	0.5°	
2130-10-Q		13.0	14	30	75	1.0°	
2130-15-Q		13.0	14	30	75	1.5°	
2130-20-Q		13.0	14	30	75	2.0°	
2130-25-Q		13.0	14	30	75	2.5°	
2130-30-Q		13.0	14	30	75	3.0°	

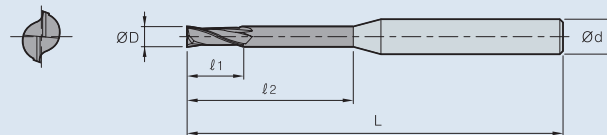
● : Stock item ○ : Under preparing for stock

Designation	Stock	ØD	Ød	ℓ	L	θ°	Remark
SSTE 2140-05-Q		14.0	14	35	80	0.5°	
2140-10-Q		14.0	14	35	80	1.0°	
2140-15-Q		14.0	14	35	80	1.5°	
2140-20-Q		14.0	14	35	80	2.0°	
2140-25-Q		14.0	14	35	80	2.5°	
2140-30-Q		14.0	14	35	80	3.0°	
2150-05-Q		15.0	16	35	80	0.5°	
2150-10-Q		15.0	16	35	80	1.0°	
2150-15-Q		15.0	16	35	80	1.5°	
2150-20-Q		15.0	16	35	80	2.0°	
2150-25-Q		15.0	16	35	80	2.5°	
2150-30-Q		15.0	16	35	80	3.0°	
2160-05-Q		16.0	16	40	90	0.5°	
2160-10-Q		16.0	16	40	90	1.0°	
2160-15-Q		16.0	16	40	90	1.5°	
2160-20-Q		16.0	16	40	90	2.0°	
2160-25-Q		16.0	16	40	90	2.5°	
2160-30-Q		16.0	16	40	90	3.0°	

● : Stock item ○ : Under preparing for stock

### LSSE2000-Q(Long square)

Q-Max coated solid long endmills



ØD	Tolerance of Endmill diameter
1 - 6	-0.01 ~ -0.030
7 - 10	-0.015 ~ -0.040
11 - 20	-0.020 ~ -0.050

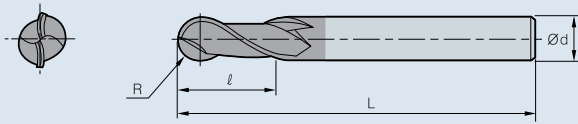
2 TiAlN Helix Angle 30°

Designation	Stock	ØD	Ød	ℓ1	ℓ2	L	Remark
LSSE 2030-Q		3	6	4	35	100	
2040-Q		4	6	6	35	100	
2050-Q		5	8	7	40	115	
2060-Q		6	8	8	45	115	
2070-Q		7	10	10	45	125	
2080-Q		8	10	12	55	125	
2090-Q		9	12	15	65	140	
2100-Q		10	12	15	65	140	
2110-Q		11	16	20	75	150	
2120-Q		12	16	28	75	150	
2130-Q		13	16	32	75	155	
2140-Q		14	16	32	75	155	
2150-Q		15	16	36	75	155	
2160-Q		16	16	36	75	155	
2180-Q		17	20	40	75	155	
2200-Q		20	20	46	75	160	
2220-Q		22	25	50	80	165	
2230-Q		23	25	50	80	165	
2240-Q		24	25	55	85	170	
2250-Q		25	25	55	85	170	

● : Stock item ○ : Under preparing for stock

## SSBE2000-Q/4000-Q(Ball)

Q-Max coated solid ball endmills



ØD	Tolerance of Endmill diameter
All items	0 ~ -0.03

2 4 TiAlN Helix Angle 30°

(mm)

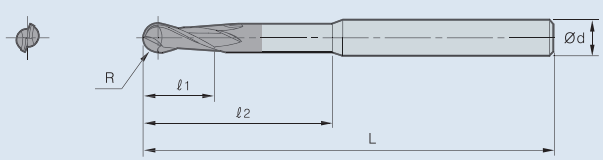
Designation	Stock	R	Ød	l	L	Remark
SSBE 2010-Q	●	0.5	6	3	70	
2013-Q	●	0.65	6	4	70	
2015-Q	●	0.75	6	4	70	
2020-Q	●	1.0	6	6	70	
2025-Q	●	1.25	6	8	70	
2030-Q	●	1.5	6	10	70	
2035-Q	●	1.75	6	10	70	
2040-Q	●	2.0	6	12	70	
2050-Q	●	2.5	6	15	80	
2060-Q	●	3.0	6	15	80	
2070-Q	●	3.5	8	20	90	
2080-Q	●	4.0	8	20	90	
2090-Q	●	4.5	10	25	100	
2100-Q	●	5.0	10	25	100	
2110-Q	●	5.5	12	30	110	
2120-Q	●	6.0	12	30	110	
2130-Q	●	6.5	16	35	120	
2140-Q	●	7.0	16	35	120	
2150-Q	●	7.5	16	40	120	
2160-Q	●	8.0	16	40	120	
2180-Q	●	9.0	20	45	130	
2200-Q	●	10.0	20	45	130	
SSBE 4060-Q	●	3.0	6	15	80	
4070-Q	●	3.5	8	20	90	
4080-Q	●	4.0	8	20	90	
4090-Q	●	4.5	10	25	100	
4100-Q	●	5.0	10	25	100	
4110-Q	●	5.5	12	30	110	
4120-Q	●	6.0	12	30	110	
4130-Q	●	6.5	16	35	120	
4140-Q	●	7.0	16	35	120	
4150-Q	●	7.5	16	40	120	
4160-Q	●	8.0	16	40	120	
4180-Q	●	9.0	20	45	130	
4200-Q	●	10.0	20	45	130	

● : Stock item ○ : Under preparing for stock

\* Ordering code for special item : Coated ; SSBE②③④⑤-Q \* Flute length \* Overall length L  
 Non-coated ; SSBE②③④⑤ \* Flute length \* Overall length L  
 Ex.1) General use, Coating, Ball, 3Flutes, Cutting edge diameter : 6.3, Flute length:16, Overall length : 90 → SSBE3063-Q \* 16 \* 90L  
 Ex.2) General use, Coating, Ball, 3Flutes, Cutting edge diameter : 6.3, Standard type → SSBE3063-Q

## LSBE2000-Q(Long ball)

Q-Max coated solid long ball endmills



ØD	Tolerance of Endmill diameter
All items	0 ~ -0.03

2 TiAlN Helix Angle 30°

(mm)

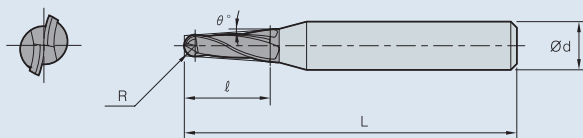
Designation	Stock	R	Ød	l <sub>1</sub>	l <sub>2</sub>	L	Remark
LSBE 2030-Q	●	1.5	6	4	35	100	
2040-Q	●	2.0	6	6	35	100	
2050-Q	●	2.5	8	7	40	115	
2060-Q	●	3.0	8	8	45	115	
2070-Q	●	3.5	10	10	45	125	
2080-Q	●	4.0	10	12	55	125	
2090-Q	●	4.5	12	15	65	140	
2100-Q	●	5.0	12	15	65	140	
2110-Q	●	5.5	16	20	75	150	
2120-Q	●	6.0	16	28	75	150	
2130-Q	●	6.5	16	32	75	155	
2140-Q	●	7.0	16	32	75	155	
2150-Q	●	7.5	16	36	75	155	
2160-Q	●	8.0	16	36	75	155	
2180-Q	●	9.0	20	40	75	155	
2200-Q	●	10.0	20	46	75	160	
2220-Q	●	11.0	25	50	80	165	
2230-Q	●	11.5	25	50	80	165	
2240-Q	●	12.0	25	55	85	170	
2250-Q	●	12.5	25	55	85	170	

● : Stock item ○ : Under preparing for stock

\* Ordering code for special item : Coated; LSBE2000-Q \* Flute length-Neck lengthN \* Overall length L  
 Non-coated; LSBE2000 \* Flute length-Neck lengthN \* Overall length L  
 Ex.1) Coating, Ball, 2Flutes, Cutting edge diameter : 8.3, Flute length : 13, Neck length : 60, Overall length : 130  
 → LSBE2083-Q \* 13-60N \* 130L  
 Ex.2) Coating, Ball, 2Flutes, Cutting edge diameter : 8.3, Standard type → LSBE2083-Q

### STBE2000-Q(Taper ball)

Q-Max coated solid taper ball endmills



∅D	Tolerance of Endmill diameter
All items	0 ~ - 0.03

2 TiAlN Helix Angle 30°

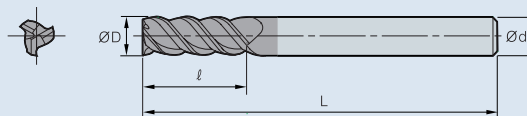
Designation	Stock	R	∅d	ℓ	L	θ°	Remark
STBE 2030-05-Q		1.5	6	10	45	0.5°	
2 2030-10-Q		1.5	6	10	45	1.0°	
2030-15-Q		1.5	6	10	45	1.5°	
2030-20-Q		1.5	6	10	45	2.0°	
2030-25-Q		1.5	6	10	45	2.5°	
2030-30-Q		1.5	6	10	45	3.0°	
2040-05-Q		2.0	6	12	45	0.5°	
2040-10-Q		2.0	6	12	45	1.0°	
2040-15-Q		2.0	6	12	45	1.5°	
2040-20-Q		2.0	6	12	45	2.0°	
2040-25-Q		2.0	6	12	45	2.5°	
2040-30-Q		2.0	6	12	45	3.0°	
2050-05-Q		2.5	6	15	50	0.5°	
2050-10-Q		2.5	6	15	50	1.0°	
2050-15-Q		2.5	6	15	50	1.5°	
2050-20-Q		2.5	6	15	50	2.0°	
2050-25-Q		2.5	6	15	50	2.5°	
2050-30-Q		2.5	6	15	50	3.0°	
2060-05-Q		3.0	6	15	50	0.5°	
2060-10-Q		3.0	6	15	50	1.0°	
2060-15-Q		3.0	6	15	50	1.5°	
2060-20-Q		3.0	6	15	50	2.0°	
2060-25-Q		3.0	6	15	50	2.5°	
2060-30-Q		3.0	6	15	50	3.0°	
2080-05-Q		4.0	8	20	60	0.5°	
2080-10-Q		4.0	8	20	60	1.0°	
2080-15-Q		4.0	8	20	60	1.5°	
2080-20-Q		4.0	8	20	60	2.0°	
2080-25-Q		4.0	8	20	60	2.5°	
2080-30-Q		4.0	8	20	60	3.0°	
2100-05-Q		5.0	10	25	70	0.5°	
2100-10-Q		5.0	10	25	70	1.0°	
2100-15-Q		5.0	10	25	70	1.5°	
2100-20-Q		5.0	10	25	70	2.0°	
2100-25-Q		5.0	10	25	70	2.5°	
2100-30-Q		5.0	10	25	70	3.0°	
2110-05-Q		5.5	12	25	70	0.5°	
2110-10-Q		5.5	12	25	70	1.0°	
2110-15-Q		5.5	12	25	70	1.5°	
2110-20-Q		5.5	12	25	70	2.0°	
2110-25-Q		5.5	12	25	70	2.5°	
2110-30-Q		5.5	12	25	70	3.0°	
2120-05-Q		6.0	12	30	75	0.5°	
2120-10-Q		6.0	12	30	75	1.0°	
2120-15-Q		6.0	12	30	75	1.5°	
2120-20-Q		6.0	12	30	75	2.0°	
2120-25-Q		6.0	12	30	75	2.5°	
2120-30-Q		6.0	12	30	75	3.0°	
2130-05-Q		6.5	14	30	75	0.5°	
2130-10-Q		6.5	14	30	75	1.0°	
2130-15-Q		6.5	14	30	75	1.5°	
2130-20-Q		6.5	14	30	75	2.0°	
2130-25-Q		6.5	14	30	75	2.5°	
2130-30-Q		6.5	14	30	75	3.0°	

Designation	Stock	R	∅d	ℓ	L	θ°	Remark
STBE 2140-05-Q		7.0	14	35	80	0.5°	
2 2140-10-Q		7.0	14	35	80	1.0°	
2140-15-Q		7.0	14	35	80	1.5°	
2140-20-Q		7.0	14	35	80	2.0°	
2140-25-Q		7.0	14	35	80	2.5°	
2140-30-Q		7.0	14	35	80	3.0°	
2150-05-Q		7.5	16	35	80	0.5°	
2150-10-Q		7.5	16	35	80	1.0°	
2150-15-Q		7.5	16	35	80	1.5°	
2150-20-Q		7.5	16	35	80	2.0°	
2150-25-Q		7.5	16	35	80	2.5°	
2150-30-Q		7.5	16	35	80	3.0°	
2160-05-Q		8.0	16	40	90	0.5°	
2160-10-Q		8.0	16	40	90	1.0°	
2160-15-Q		8.0	16	40	90	1.5°	
2160-20-Q		8.0	16	40	90	2.0°	
2160-25-Q		8.0	16	40	90	2.5°	
2160-30-Q		8.0	16	40	90	3.0°	

● : Stock item ○ : Under preparing for stock

### SSES3000-Q(Square)

Solid endmills for difficult-to-cut material(STS)



∅D	Tolerance of Endmill diameter
1 ~ 6	-0.01 ~ - 0.03
7 ~ 10	- 0.015 ~ - 0.040
11 ~ 20	- 0.020 ~ - 0.05

3 TiAlN Helix Angle 55°

Designation	Stock	∅D	θ°	ℓ	L	Remark
SSES 3030-Q	○	3.0	6	10	45	
3 3035-Q	○	3.5	6	10	45	
3040-Q	○	4.0	6	12	45	
3045-Q	○	4.5	6	12	45	
3050-Q	○	5.0	6	15	50	
3055-Q	○	5.5	6	15	50	
3060-Q	○	6.0	6	15	50	
3065-Q	○	6.5	8	20	60	
3070-Q	○	7.0	8	20	60	
3075-Q	○	7.5	8	20	60	
3080-Q	○	8.0	8	20	60	
3085-Q	○	8.5	10	20	70	
3090-Q	○	9.0	10	20	70	
3095-Q	○	9.5	10	20	70	
3100-Q	○	10.0	10	25	70	
3110-Q	○	11.0	12	25	75	
3120-Q	○	12.0	12	30	75	
3130-Q	○	13.0	16	30	90	
3140-Q	○	14.0	16	35	90	
3150-Q	○	15.0	16	40	90	
3160-Q	○	16.0	16	40	90	
3170-Q		17.0	20	40	100	
3180-Q		18.0	20	45	100	
3190-Q		19.0	20	45	110	
3200-Q		20.0	20	45	110	

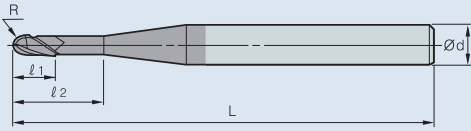
● : Stock item ○ : Under preparing for stock

\* Ordering code for special item : SSES3□□□□-Q \* Flute length \* Overall length L  
 Ex.1) 3Flutes, Cutting edge diameter : 6.3, Flute length : 17, Overall length : 60 → SSES3063-Q \* 17 \* 60L  
 Ex.2) 3Flutes, Cutting edge diameter : 6.3, Standard type → SSES3063-Q

- Features of Korloy endmills for stainless steel
  1. Side cutting and grooving : High rake angle with streamline shape chip pocket controls chip flow. Sharp cutting edge prevents work hardening



## HRB *New* Rib processing ball endmills



Endmill diameter		
R	øD	ød
0	0	-0.004
-0.005	-0.005	-0.008

(mm)

Designation	Stock			R	ød	l <sub>1</sub>	l <sub>2</sub>	L
	PC220G	PC203G	PD3000					
HRB 001L01	○	○		0.05	4	0.12	1	50
001L02	○	○			4		2	50
002L01	○	○		0.10	4	0.25	1	50
002L02	○	○			4		2	50
003L01	○	○		0.15	4	0.4	1	50
003L02	○	○			4		2	50
003L03	○	○		4	3	50		
004L01	○	○		0.20	4	0.5	1	50
004L02	○	○			4		2	50
004L03	○	○		4	3	50		
004L04	○	○		4	4	50		
004L05	○	○		4	5	50		
005L02	○	○	○	0.25	4	0.6	2	50
005L03	○	○	○		4		3	50
005L04	○	○	○	4	4	50		
005L05	○	○	○	4	5	50		
005L06	○	○	○	4	6	50		
005L08	○	○	○	4	8	50		
005L10	○	○	○	4	10	50		
006L02	○	○	○	0.30	4	0.7	2	50
006L03	○	○	○		4		3	50
006L04	○	○	○	4	4	50		
006L05	○	○	○	4	5	50		
006L06	○	○	○	4	6	50		
006L08	○	○	○	4	8	50		
006L10	○	○	○	4	10	50		
007L02	○	○	○	0.35	4	0.8	2	50
007L03	○	○	○		4		3	50
007L04	○	○	○	4	4	50		
007L05	○	○	○	4	5	50		
007L06	○	○	○	4	6	50		
007L08	○	○	○	4	8	50		
007L10	○	○	○	4	10	50		
008L02	○	○	○	0.40	4	0.9	2	50
008L03	○	○	○		4		3	50
008L04	○	○	○	4	4	50		
008L05	○	○	○	4	5	50		
008L06	○	○	○	4	6	50		
008L08	○	○	○	4	8	50		
008L10	○	○	○	4	10	50		
009L03	○	○	○	0.45	4	1.0	3	50
009L04	○	○	○		4		4	50
009L05	○	○	○	4	5	50		
009L06	○	○	○	4	6	50		
009L08	○	○	○	4	8	50		
009L10	○	○	○	4	10	50		
010L02	○	○	○	0.5	4	1.2	2	50
010L03	○	○	○		4		3	50
010L04	○	○	○	4	4	50		
010L05	○	○	○	4	5	50		
010L06	○	○	○	4	6	50		
010L08	○	○	○	4	8	50		
010L10	○	○	○	4	10	50		
010L12	○	○	○	4	12	50		
010L14	○	○	○	4	14	50		
010L16	○	○	○	4	15	60		
010L18	○	○	○	4	18	60		
010L20	○	○	○	4	20	60		
012L03	○	○	○	0.6	4	1.4	3	50
012L04	○	○	○		4		4	50
012L05	○	○	○	4	5	50		
012L06	○	○	○	4	6	50		
012L08	○	○	○	4	8	50		
012L10	○	○	○	4	10	50		
012L12	○	○	○	4	12	50		
012L14	○	○	○	4	14	50		
012L16	○	○	○	4	16	60		
014L04	○	○	○	0.7	4	1.7	4	50
014L05	○	○	○		4		5	50
014L06	○	○	○	4	6	50		
014L08	○	○	○	4	8	50		
014L10	○	○	○	4	10	50		

● : Stock item ○ : Under preparing for stock

## HRB

### Rib Ball endmills (V-Type)

Shows excellent wear resistance in high speed machining for high hardness (hardness HRC 65) workpiece. 2-flute ball endmills(long neck endmills) for high speed machining can be useful for precision machining in the wider range of automotive, mobile phone, electronic molds, and semiconductor parts. Special cutting edge design for chipping resistance is strong enough for grooving, deep radius machining of molds in high efficient and high quality machining.



- PC220G : For general, ~HRC55
- PC203G : For high hardness, ~HRC65
- PD3000 : For copper electrode

(mm)

Designation	Stock			R	ød	l <sub>1</sub>	l <sub>2</sub>	L
	PC220G	PC203G	PD3000					
HRB 014L12	○	○		0.7	4	1.7	12	50
015L04	○	○	○		4		4	50
015L05	○	○	○	0.75	4	1.8	5	50
015L06	○	○	○		4		6	50
015L08	○	○	○	4	8	50		
015L10	○	○	○	4	10	50		
015L12	○	○	○	4	12	50		
015L14	○	○	○	4	14	50		
015L16	○	○	○	4	16	60		
015L18	○	○	○	4	18	60		
015L20	○	○	○	4	20	60		
016L04	○	○	○	0.8	4	1.9	4	50
016L05	○	○	○		4		5	50
016L06	○	○	○	4	6	50		
016L08	○	○	○	4	8	50		
016L10	○	○	○	4	10	50		
016L12	○	○	○	4	12	50		
016L14	○	○	○	4	14	50		
016L16	○	○	○	4	16	60		
016L18	○	○	○	4	18	60		
016L20	○	○	○	4	20	60		
020L04	○	○	○	1.0	4	2.2	4	60
020L06	○	○	○		4		6	60
020L08	○	○	○	4	8	60		
020L10	○	○	○	4	10	60		
020L12	○	○	○	4	12	60		
020L14	○	○	○	4	14	50		
020L16	○	○	○	4	16	60		
020L18	○	○	○	4	18	60		
020L20	○	○	○	4	20	60		
020L22	○	○	○	4	22	60		
020L25	○	○	○	4	25	70		
020L30	○	○	○	4	30	70		
025L10	○	○	○	1.25	6	3	10	50
025L12	○	○	○		6		12	50
025L14	○	○	○	6	14	60		
025L16	○	○	○	6	16	60		
025L20	○	○	○	6	20	60		
025L25	○	○	○	6	25	70		
030L06	○	○	○	1.5	6	3.6	6	50
030L08	○	○	○		6		8	50
030L10	○	○	○	6	10	50		
030L12	○	○	○	6	12	50		
030L14	○	○	○	6	14	60		
030L16	○	○	○	6	16	60		
030L18	○	○	○	6	18	60		
030L20	○	○	○	6	20	60		
030L25	○	○	○	6	25	70		
030L30	○	○	○	6	30	70		
030L35	○	○	○	6	35	80		
040L08	○	○	○	2.0	6	5	8	50
040L10	○	○	○		6		10	50
040L12	○	○	○	6	12	50		
040L14	○	○	○	6	14	60		
040L16	○	○	○	6	16	60		
040L18	○	○	○	6	18	60		
040L20	○	○	○	6	20	60		
040L25	○	○	○	6	25	70		
040L30	○	○	○	6	30	70		
040L35	○	○	○	6	35	80		
040L40	○	○	○	6	40	80		
040L45	○	○	○	6	45	90		
040L50	○	○	○	6	50	90		
050L20	○	○	○	2.5	6	6	20	60
050L25	○	○	○		6		25	60
050L30	○	○	○	6	30	70		
050L35	○	○	○	6	35	80		
050L40	○	○	○	6	40	80		
060L20	○	○	○	3.0	6	7	20	60
060L30	○	○	○		6		30	70
060L40	○	○	○	6	40	80		
060L50	○	○	○	6	50	90		

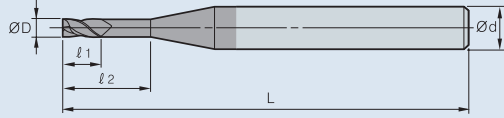
● : Stock item ○ : Under preparing for stock

# RIB Endmills

HRF

**New**

Rib processing endmills



Endmill diameter	
øD	ød
0	-0.004
-0.008	-0.008

HRF

Rib Square endmills.(V-Type)

Shows excellent wear resistance in high speed machining for high hardness (hardness HRC 65) workpiece. 2-flute flat endmills(long neck endmills) for high speed machining can be useful for precision machining in the wider range of automotive, mobile phone, electronic molds, and semiconductor parts. Special cutting edge design for chipping resistance is strong enough for grooving, deep radius machining of molds in high efficient and high quality machining.

- PC220G : For general, ~HRC55
- PC203G : For high hardness, ~HRC65
- PD3000 : For copper electrode

Designation	Stock			øD	ød	l <sub>1</sub>	l <sub>2</sub>	L		
	PC220G	PC203G	PD3000							
HRF 001L01	○	○		0.1	4	0.15	1	50		
001L02	○	○			4		2	50		
002L01	○	○		0.2	4	0.3	1	50		
002L02	○	○			4		2	50		
003L01	○	○		0.3	4	0.4	1	50		
003L02	○	○			4		2	50		
003L03	○	○			4		3	50		
004L01	○	○		0.4	4	0.6	1	50		
004L02	○	○			4		2	50		
004L03	○	○			4		3	50		
004L04	○	○			4		4	50		
004L05	○	○			4		5	50		
005L02	○	○	○	0.5	4	0.8	2	50		
005L03	○	○	○		4		3	50		
005L04	○	○	○		4		4	50		
005L05	○	○	○		4		5	50		
005L06	○	○	○		4		6	50		
005L08	○	○	○		4		8	50		
005L10	○	○	○		4		10	50		
006L02	○	○	○		0.6		4	0.9	2	50
006L03	○	○	○				4		3	50
006L04	○	○	○				4		4	50
006L05	○	○	○	4		5	50			
006L06	○	○	○	4		6	50			
006L08	○	○	○	4		8	50			
006L10	○	○	○	4		10	50			
007L02	○	○	○	0.7		4	1.1		2	50
007L03	○	○	○		4	3		50		
007L04	○	○	○		4	4		50		
007L05	○	○	○		4	5		50		
007L06	○	○	○		4	6		50		
007L08	○	○	○		4	8		50		
007L10	○	○	○		4	10		50		
008L02	○	○	○		0.8	4		1.2	2	50
008L03	○	○	○			4			3	50
008L04	○	○	○			4			4	50
008L05	○	○	○	4		5	50			
008L06	○	○	○	4		6	50			
008L08	○	○	○	4		8	50			
008L10	○	○	○	4		10	50			
009L03	○	○	○	0.9		4	1.4		3	50
009L04	○	○	○			4			4	50
009L05	○	○	○			4			5	50
009L06	○	○	○		4	6		50		
009L08	○	○	○		4	8		50		
009L10	○	○	○		4	10		50		
010L02	○	○	○		1.0	4		1.5	2	50
010L03	○	○	○			4			3	50
010L04	○	○	○	4		4	50			
010L05	○	○	○	4		5	50			
010L06	○	○	○	4		6	50			
010L08	○	○	○	4		8	50			
010L10	○	○	○	4		10	50			
010L12	○	○	○	4		12	50			
010L14	○	○	○	4		14	50			
010L16	○	○	○	4		15	60			
010L18	○	○	○	4		18	60			
010L20	○	○	○	4		20	60			
012L03	○	○	○	1.2		4	1.8		3	50
012L04	○	○	○			4			4	50
012L05	○	○	○		4	5		50		
012L06	○	○	○		4	6		50		
012L08	○	○	○		4	8		50		
012L10	○	○	○		4	10		50		
012L12	○	○	○		4	12		50		
012L14	○	○	○		4	14		50		
012L16	○	○	○		4	16		60		
014L04	○	○	○		1.4	4		2.2	4	50
014L05	○	○	○	4		5	50			
014L06	○	○	○	4		6	50			
014L08	○	○	○	4		8	50			
014L10	○	○	○	4		10	50			

● : Stock item ○ : Under preparing for stock

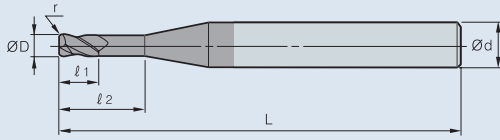
Designation	Stock			øD	ød	l <sub>1</sub>	l <sub>2</sub>	L
	PC220G	PC203G	PD3000					
HRF 014L12	○	○		1.4	4	2.2	12	50
015L04	○	○	○		4		4	50
015L05	○	○	○	1.5	4	2.2	5	50
015L06	○	○	○		4		6	50
015L08	○	○	○		4		8	50
015L10	○	○	○		4		10	50
015L12	○	○	○		4		12	50
015L14	○	○	○		4		14	50
015L16	○	○	○		4		16	60
015L18	○	○	○		4		18	60
015L20	○	○	○		4		20	60
016L04	○	○	○		1.6		4	2.5
016L05	○	○	○	4		5	50	
016L06	○	○	○	4		6	50	
016L08	○	○	○	4		8	50	
016L10	○	○	○	4		10	50	
016L12	○	○	○	4		12	50	
016L14	○	○	○	4		14	50	
016L16	○	○	○	4		16	60	
016L18	○	○	○	4		18	60	
016L20	○	○	○	4		20	60	
020L04	○	○	○	2.0	4	3	4	50
020L06	○	○	○		4		6	50
020L08	○	○	○		4		8	50
020L10	○	○	○		4		10	50
020L12	○	○	○		4		12	50
020L14	○	○	○		4		14	50
020L16	○	○	○		4		16	60
020L18	○	○	○		4		18	60
020L20	○	○	○		4		20	60
020L22	○	○	○		4		22	60
020L25	○	○	○	4	25	70		
020L30	○	○	○	4	30	70		
025L10	○	○	○	2.5	6	3.5	10	50
025L12	○	○	○		6		12	50
025L14	○	○	○		6		14	60
025L16	○	○	○		6		16	60
025L20	○	○	○		6		20	60
025L25	○	○	○		6		25	70
030L06	○	○	○	3.0	6	4	6	50
030L08	○	○	○		6		8	50
030L10	○	○	○		6		10	50
030L12	○	○	○		6		12	50
030L14	○	○	○		6		14	60
030L16	○	○	○		6		16	60
030L18	○	○	○		6		18	60
030L20	○	○	○		6		20	60
030L25	○	○	○		6		25	70
030L30	○	○	○		6		30	70
030L35	○	○	○	6	35	80		
040L08	○	○	○	4.0	6	6	8	50
040L10	○	○	○		6		10	50
040L12	○	○	○		6		12	50
040L14	○	○	○		6		14	60
040L16	○	○	○		6		16	60
040L18	○	○	○		6		18	60
040L20	○	○	○		6		20	60
040L25	○	○	○		6		25	70
040L30	○	○	○		6		30	70
040L35	○	○	○		6		35	80
040L40	○	○	○		6		40	80
040L45	○	○	○		6		45	90
040L50	○	○	○		6		50	90
050L20	○	○	○		5.0		6	7
050L25	○	○	○	6		25	60	
050L30	○	○	○	6		30	70	
050L35	○	○	○	6		35	80	
050L40	○	○	○	6		40	80	
060L20	○	○	○	6.0		6	8	
060L30	○	○	○		6	30		70
060L40	○	○	○		6	40		80
060L50	○	○	○		6	50		90

● : Stock item ○ : Under preparing for stock

Endmills  
Solid Endmills  
Brazed Endmills

## HRNR *New*

Rib processing endmills



Endmill diameter		
r	øD	ød
0	0	-0.004
-0.005	-0.008	-0.008

## HRNR

### Nose-R(radius) endmills.(V-Type)

Shows excellent wear resistance in high speed machining at machining center for high hardness(hardness HRC 65) workpiece.

Rib corner R type 2-flute flat endmills(long neck endmills) for high speed machining can be useful for precision machining in the wider range of automotive, mobile phone, electronic molds, and semiconductor parts. Due to round shape at corner it's very stable during deep copying operation. Its versatile function can be applied for straight and round machining at the same time. Especially, it shows excellent performance in high speed and high efficient machining at corner R for good surface roughness.

- 2**
- PC220G : For general, ~HRC55
  - PC203G : For high hardness, ~HRC65

(mm)

Designation	Stock		øD	ød	r	l <sub>1</sub>	l <sub>2</sub>	L
	PC220G	PC203G						
HRNR 010L04R01	○	○		4			4	50
010L06R01	○	○	1.0	4	0.1	1.5	6	50
010L08R01	○	○		4			8	50
010L04R02	○	○		4			4	50
010L06R02	○	○		4			6	50
010L08R02	○	○	1.0	4	0.2	1.5	8	50
010L10R02	○	○		4			10	50
010L12R02	○	○		4			12	50
010L06R03	○	○		4			6	50
010L10R03	○	○	1.0	4	0.3	1.5	10	50
010L12R03	○	○		4			12	50
015L06R02	○	○		4			6	50
015L08R02	○	○		4	0.2	2.2	8	50
015L10R02	○	○		4			10	50
015L12R02	○	○		4			12	50
015L06R03	○	○		4			6	50
015L08R03	○	○	1.5	4	0.3	2.2	8	50
015L10R03	○	○		4			10	50
020L06R01	○	○		4			6	50
020L08R01	○	○		4	0.1	3	8	50
020L10R01	○	○	2.0	4			10	50
020L12R01	○	○		4			12	50
020L06R02	○	○		4			6	50
020L08R02	○	○		4	0.2	3	8	50
020L10R02	○	○	2.0	4			10	50
020L12R02	○	○		4			12	50
020L06R03	○	○		4			6	50
020L08R03	○	○		4	0.3	3	8	50
020L10R03	○	○	2.0	4			10	50
020L12R03	○	○		4			12	50
020L06R05	○	○		4			6	50
020L08R05	○	○		4			8	50
020L10R05	○	○	2.0	4	0.5	3	10	50
020L12R05	○	○		4			12	50
020L16R05	○	○		4			16	60
030L10R01	○	○		6			10	60
030L12R01	○	○	3.0	6	0.1	4	12	60
030L16R01	○	○		6			16	60

● : Stock item ○ : Under preparing for stock

(mm)

Designation	Stock		øD	ød	r	l <sub>1</sub>	l <sub>2</sub>	L
	PC220G	PC203G						
HRNR 030L10R02	○	○		6			10	60
030L12R02	○	○	3.0	6	0.2	4	12	60
030L16R02	○	○		6			16	60
030L10R03	○	○		6			10	60
030L12R03	○	○	3.0	6	0.3	4	12	60
030L16R03	○	○		6			16	60
030L10R05	○	○		6			10	60
030L12R05	○	○		6			12	60
030L16R05	○	○	3.0	6	0.5	4	16	60
030L20R05	○	○		6			20	60
040L10R01	○	○		6			10	60
040L12R01	○	○	4.0	6	0.1	6	12	60
040L16R01	○	○		6			16	60
040L12R02	○	○	4.0	6	0.2	6	12	60
040L16R02	○	○		6			16	60
040L12R03	○	○		6			12	60
040L16R03	○	○	4.0	6	0.3	6	16	60
040L20R03	○	○		6			20	60
040L12R05	○	○		6			12	60
040L16R05	○	○	4.0	6	0.5	6	16	60
040L20R05	○	○		6			20	60
060L16R01	○	○	6.0	6	0.1	8	16	60
060L20R01	○	○		6			20	60
060L16R02	○	○	6.0	6	0.2	8	16	60
060L20R02	○	○	6.0	6			20	60
060L16R03	○	○	6.0	6	0.3	8	16	60
060L20R03	○	○		6			20	60
060L16R05	○	○	6.0	6	0.5	8	16	60
060L20R05	○	○		6			20	60
060L16R10	○	○		6			16	60
060L20R10	○	○	6.0	6	1.0	8	20	60
060L25R10	○	○		6			25	70
060L30R10	○	○		6			30	70
060L16R15	○	○		6			16	70
060L20R15	○	○	6.0	6	1.5	8	20	70
060L25R15	○	○		6			25	70
060L30R15	○	○		6			30	70

● : Stock item ○ : Under preparing for stock



Endmills

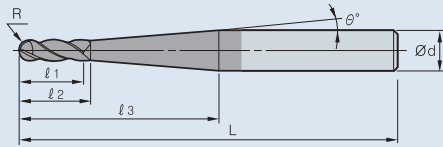
Solid Endmills

Brazed Endmills

## HRTNB

**New**

Rib processing ball endmills



Endmill diameter		
R	φD	φd
0	0	-0.004
-0.005	-0.005	-0.008

## HRTNB

Rib Taper Neck Ball endmills(V-Type)

High rigidity ball endmills, taper shape at the neck, shows excellent wear resistance in high speed and hardness workpiece machining such as hardened steel(HrC 65).

It's suitable for precision machining in the wider range of automotive, mobile phone, electronic molds, and semiconductor parts.

2

- PC220G : For general, ~HrC55
- PC203G : For high hardness, ~HrC65

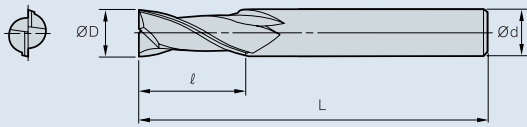
(mm)

Designation	Stock		R	φd	l <sub>1</sub>	l <sub>2</sub>	l <sub>3</sub>	L	θ°
	PC220G	PC203G							
HRTNB 010T130	○	○	0.5	6	2.3	5	23	60	1° 30'
010T300	○	○		6	2.3	5	40	80	3°
010T500	○	○		6	2.3	5	23	60	5°
015T130	○	○	0.75	6	4	7	23	60	1° 30'
015T300	○	○		6	4	7	40	80	3°
015T500	○	○		6	4	7	23	60	5°
020T130	○	○	1.0	6	5	8	23	60	1° 30'
020T300	○	○		6	5	8	40	80	3°
020T500	○	○		6	5	8	25	70	5°
030T130	○	○	1.5	6	8	11	50	90	1° 30'
030T300	○	○		6	8	11	30	80	3°
030T500	○	○		8	8	11	30	80	5°
040T130	○	○	2.0	6	8	11	52	90	1° 30'
040T300	○	○		6	8	11	28	70	3°
040T500	○	○		8	8	11	35	90	5°
050T130	○	○	2.5	8	10	14	60	110	1° 30'
050T300	○	○		8	10	14	40	90	3°
060T130	○	○	3.0	8	12	16	52	100	1° 30'
060T300	○	○		8	12	16	35	90	3°
060T500	○	○		10	12	16	40	90	5°
080T130	○	○	4.0	10	14	19	55	120	1° 30'
080T300	○	○		10	14	19	36	100	3°
100T130	○	○	5.0	12	18	23	58	120	1° 30'
100T300	○	○		12	18	23	40	100	3°
120T130	○	○	6.0	16	22	28	85	150	1° 30'
120T300	○	○		16	22	28	65	150	3°

● : Stock item ○ : Under preparing for stock

## SSE2000/3000(Square)

Carbide solid endmills



ØD	Tolerance of Endmill diameter
1 ~ 6	-0.01 ~ -0.030
7 ~ 10	-0.015 ~ -0.040
11 ~ 20	-0.020 ~ -0.050



(mm)

Designation	Stock	ØD	Ød	ℓ	L	Remark
SSE 2010	●	1.0	6	3	40	
2015	●	1.5	6	4	40	
2020	●	2.0	6	4	40	
2025	●	2.5	6	8	40	
2030	●	3.0	6	10	45	
2035	●	3.5	6	10	45	
2040	●	4.0	6	12	45	
2045	●	4.5	6	12	45	
2050	●	5.0	6	15	50	
2055	●	5.5	6	15	50	
2060	●	6.0	6	15	50	
2065	●	6.5	8	20	60	
2070	●	7.0	8	20	60	
2075	●	7.5	8	20	60	
2080	●	8.0	8	20	60	
2085	●	8.5	10	20	70	
2090	●	9.0	10	20	70	
2095	●	9.5	10	20	70	
2100	●	10.0	10	25	70	
2105	●	10.5	12	25	75	
2110	●	11.0	12	25	75	
2115	●	11.5	12	25	75	
2120	●	12.0	12	30	75	
2130	●	13.0	16	30	90	
2140	●	14.0	16	35	90	
2150	●	15.0	16	40	90	
2160	●	16.0	16	40	90	
2180	●	18.0	20	45	105	
2200	●	20.0	20	45	105	
SSE 3020		2.0	6	6	40	
3030		3.0	6	10	45	
3035		3.5	6	10	45	
3040		4.0	6	12	45	
3050		5.0	6	15	50	
3060		6.0	6	15	50	
3070		7.0	8	20	60	
3080		8.0	8	20	60	
3090		9.0	10	20	70	
3100		10.0	10	25	70	
3110		11.0	12	25	75	
3120		12.0	12	30	75	
3130		13.0	16	30	90	
3140		14.0	16	35	90	
3150		15.0	16	40	90	

● : Stock item ○ : Under preparing for stock

### • SSE2000

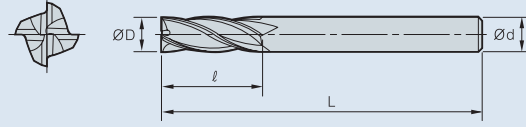
- \* Ordering code for special item : Coated ; SSE2②②②-Q \* Flute length \* Overall length L  
Non-coated ; SSE2②②② \* Flute length \* Overall length L  
Ex.1) General use, Coating, Square, 2Flutes, Cutting edge diameter : 6.3, Flute length : 16, Overall length : 90  
→ SSE2063-Q \* 16 \* 90L  
Ex.2) General use, Coating, Square, 2Flutes, Cutting edge diameter : 6.3, Standard type → SSE2063-Q

### • SSE3000/4000

- \* Ordering code for special item : Coated ; SSE③③③-Q \* Flute length \* Overall length L  
Non-coated ; SSE③③③ \* Flute length \* Overall length L  
Ex.1) General use, Coating, Square, 3Flutes, Cutting edge diameter : 6.3, Flute length : 16, Overall length : 90  
→ SSE3063-Q \* 16 \* 90L  
Ex.2) General use, Coating, Square, 3Flutes, Cutting edge diameter : 6.3, Standard type → SSE3063-Q

## SSE4000(Square)

Carbide solid endmills



ØD	Tolerance of Endmill diameter
1 ~ 6	-0.01 ~ -0.030
7 ~ 10	-0.015 ~ -0.040
11 ~ 20	-0.020 ~ -0.050



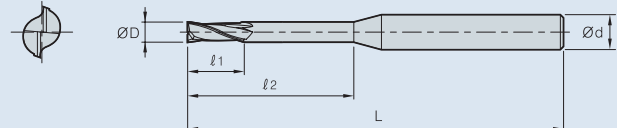
(mm)

Designation	Stock	ØD	Ød	ℓ	L	Remark
SSE 4025		2.5	6	8	40	
4030	●	3.0	6	10	45	
4040	●	4.0	6	12	45	
4050	●	5.0	6	15	50	
4060	●	6.0	6	15	50	
4070	●	7.0	8	20	60	
4080	●	8.0	8	20	60	
4085		8.5	10	20	70	
4090	●	9.0	10	20	70	
4100	●	10.0	10	25	70	
4110	●	11.0	12	25	75	
4120	●	12.0	12	30	75	
4130	●	13.0	16	30	90	
4140		14.0	16	35	90	
4150		15.0	16	40	90	
4160		16.0	16	40	90	
4180		18.0	20	45	105	
4200		20.0	20	45	105	

● : Stock item ○ : Under preparing for stock

## LSSE2000(Long square)

Carbide solid long ball endmills



ØD	Tolerance of Endmill diameter
1 < ØD ≤ 6	-0.01 ~ -0.030
6 < ØD ≤ 10	-0.015 ~ -0.040
10 < ØD ≤ 20	-0.020 ~ -0.050



(mm)

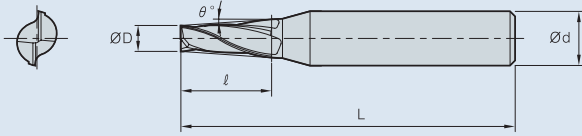
Designation	Stock	ØD	Ød	ℓ <sub>1</sub>	ℓ <sub>2</sub>	L
LSSE 2030		3	6	4	35	100
2040		4	6	6	35	100
2050		5	8	7	40	115
2060		6	8	8	45	115
2070		7	10	10	45	125
2080		8	10	12	55	125
2090		9	12	15	65	140
2100		10	12	15	65	140
2110		11	16	20	75	150
2120		12	16	28	75	150
2130		13	16	32	75	155
2140		14	16	32	75	155
2150		15	16	36	75	155
2160		16	16	36	75	155
2180		18	20	40	75	155
2200		20	20	46	80	160
2220		22	25	50	80	165
2230		23	25	50	80	165
2240		24	25	55	85	170
2250		25	25	55	85	170

● : Stock item ○ : Under preparing for stock

# Carbide Endmills

## SSTE2000(Taper square)

Carbide solid taper endmills



ØD	Tolerance of Endmill diameter
1 ~ 6	-0.01 ~ -0.030
7 ~ 10	-0.015 ~ -0.040
11 ~ 20	-0.020 ~ -0.050

2 Carbide Helix Angle 30°

(mm)

Designation	Stock	ØD	ød	l	L	θ°	Remark
SSTE 2030-05		3.0	6	10	45	0.5°	
2030-10		3.0	6	10	45	1.0°	
2030-15		3.0	6	10	45	1.5°	
2030-20		3.0	6	10	45	2.0°	
2030-25		3.0	6	10	45	2.5°	
2030-30		3.0	6	10	45	3.0°	
2040-05		4.0	6	12	45	0.5°	
2040-10		4.0	6	12	45	1.0°	
2040-15		4.0	6	12	45	1.5°	
2040-20		4.0	6	12	45	2.0°	
2040-25		4.0	6	12	45	2.5°	
2040-30		4.0	6	12	45	3.0°	
2050-05		5.0	6	15	50	0.5°	
2050-10		5.0	6	15	50	1.0°	
2050-15		5.0	6	15	50	1.5°	
2050-20		5.0	6	15	50	2.0°	
2050-25		5.0	6	15	50	2.5°	
2050-30		5.0	6	15	50	3.0°	
2060-05		6.0	6	15	50	0.5°	
2060-10		6.0	6	15	50	1.0°	
2060-15		6.0	6	15	50	1.5°	
2060-20		6.0	6	15	50	2.0°	
2060-25		6.0	6	15	50	2.5°	
2060-30		6.0	6	15	50	3.0°	
2080-05		8.0	8	20	60	0.5°	
2080-10		8.0	8	20	60	1.0°	
2080-15		8.0	8	20	60	1.5°	
2080-20		8.0	8	20	60	2.0°	
2080-25		8.0	8	20	60	2.5°	
2080-30		8.0	8	20	60	3.0°	
2100-05		10.0	10	25	70	0.5°	
2100-10		10.0	10	25	70	1.0°	
2100-15		10.0	10	25	70	1.5°	
2100-20		10.0	10	25	70	2.0°	
2100-25		10.0	10	25	70	2.5°	
2100-30		10.0	10	25	70	3.0°	
2110-05		11.0	12	25	70	0.5°	
2110-10		11.0	12	25	70	1.0°	
2110-15		11.0	12	25	70	1.5°	
2110-20		11.0	12	25	70	2.0°	
2110-25		11.0	12	25	70	2.5°	
2110-30		11.0	12	25	70	3.0°	
2120-05		12.0	12	30	75	0.5°	
2120-10		12.0	12	30	75	1.0°	
2120-15		12.0	12	30	75	1.5°	
2120-20		12.0	12	30	75	2.0°	
2120-25		12.0	12	30	75	2.5°	
2120-30		12.0	12	30	75	3.0°	
2130-05		13.0	14	30	75	0.5°	
2130-10		13.0	14	30	75	1.0°	
2130-15		13.0	14	30	75	1.5°	
2130-20		13.0	14	30	75	2.0°	
2130-25		13.0	14	30	75	2.5°	
2130-30		13.0	14	30	75	3.0°	
2140-05		14.0	14	35	80	0.5°	
2140-10		14.0	14	35	80	1.0°	
2140-15		14.0	14	35	80	1.5°	

● : Stock item ○ : Under preparing for stock

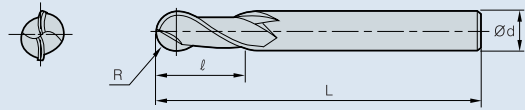
(mm)

Designation	Stock	ØD	ød	l	L	θ°	Remark
SSTE 2140-20		14.0	14	35	80	2.0°	
2140-25		14.0	14	35	80	2.5°	
2140-30		14.0	14	35	80	3.0°	
2150-05		15.0	16	35	80	0.5°	
2150-10		15.0	16	35	80	1.0°	
2150-15		15.0	16	35	80	1.5°	
2150-20		15.0	16	35	80	2.0°	
2150-25		15.0	16	35	80	2.5°	
2150-30		15.0	16	35	80	3.0°	
2160-05		16.0	16	40	90	0.5°	
2160-10		16.0	16	40	90	1.0°	
2160-15		16.0	16	40	90	1.5°	
2160-20		16.0	16	40	90	2.0°	
2160-25		16.0	16	40	90	2.5°	
2160-30		16.0	16	40	90	3.0°	

● : Stock item ○ : Under preparing for stock

## SSBE2000/4000(Ball)

Carbide solid ball endmills



ØD	Tolerance of Endmill diameter
All items	0 ~ -0.03

2 4 Carbide Helix Angle 30°

(mm)

Designation	Stock	R	ød	L	l	Remark
SSBE 2010	●	0.5	6	70	3	
2013		0.65	6	70	4	
2015	●	0.75	6	70	4	
2020	●	1	6	70	6	
2025	●	1.25	6	70	8	
2030	●	1.5	6	70	10	
2035	●	1.75	6	70	10	
2040	●	2	6	70	12	
2050	●	2.5	6	80	15	
2060	●	3	6	80	15	
2070	●	3.5	8	90	20	
2080	●	4	8	90	20	
2090	●	4.5	10	100	25	
2100	●	5	10	100	25	
2110	●	5.5	12	110	30	
2120	●	6	12	110	30	
2130		6.5	16	120	35	
2140		7	16	120	35	
2150		7.5	16	120	40	
2160		8	16	120	40	
2180		9	20	130	45	
2200		10	20	130	45	
SSBE 4060		3.0	6	90	15	
4070		3.5	8	100	20	
4080		4.0	8	100	20	
4090		4.5	10	110	25	
4100		5.0	10	110	25	
4110		5.5	12	120	30	
4120		6.0	12	120	30	
4130		6.5	16	120	35	
4140		7.0	16	120	35	
4150		7.5	16	120	40	
4160		8.0	16	120	40	
4180		9.0	20	130	45	
4200		10.0	20	130	45	

● : Stock item ○ : Under preparing for stock

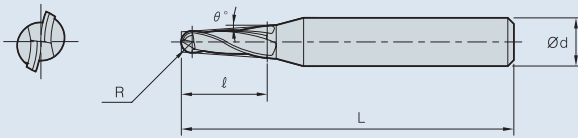
\* Ordering code for special item : Coated ; SSBE○○○○○-Q \* Flute length \* Overall length L  
Non-coated ; SSBE○○○○○ \* Flute length \* Overall length L

Ex.1) General use, Coating, Ball, 3Flutes, Cutting edge diameter : 6.3, Flute length : 16, Overall length : 90  
→ SSBE3063-Q \* 16 \* 90L

Ex.2) General use, Coating, Ball, 3Flutes, Cutting edge diameter : 6.3, Standard type → SSBE3063-Q

## STBE2000(Taper ball)

Carbide solid taper ball endmills



ØD	Tolerance of Endmill diameter
All items	0 - - 0.03

2 Carbide Helix Angle 30°

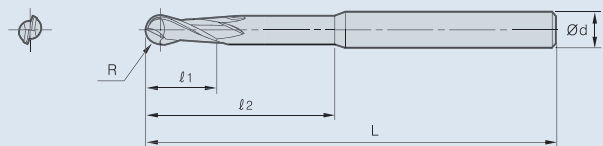
Designation	Stock	R	ød	l	L	θ°	Remark
STBE 2030-05		1.5	6	10	45	0.5°	
2030-10		1.5	6	10	45	1.0°	
2030-15		1.5	6	10	45	1.5°	
2030-20		1.5	6	10	45	2.0°	
2030-25		1.5	6	10	45	2.5°	
2030-30		1.5	6	12	45	3.0°	
2040-05		2.0	6	12	45	0.5°	
2040-10		2.0	6	12	45	1.0°	
2040-15		2.0	6	12	45	1.5°	
2040-20		2.0	6	12	45	2.0°	
2040-25		2.0	6	12	45	2.5°	
2040-30		2.0	6	12	45	3.0°	
2050-05		2.5	6	15	50	0.5°	
2050-10		2.5	6	15	50	1.0°	
2050-15		2.5	6	15	50	1.5°	
2050-20		2.5	6	15	50	2.0°	
2050-25		2.5	6	15	50	2.5°	
2050-30		2.5	6	15	50	3.0°	
2060-05		3.0	6	15	50	0.5°	
2060-10		3.0	6	15	50	1.0°	
2060-15		3.0	6	15	50	1.5°	
2060-20		3.0	6	15	50	2.0°	
2060-25		3.0	6	15	50	2.5°	
2060-30		3.0	6	15	50	3.0°	
2080-05		4.0	8	20	60	0.5°	
2080-10		4.0	8	20	60	1.0°	
2080-15		4.0	8	20	60	1.5°	
2080-20		4.0	8	20	60	2.0°	
2080-25		4.0	8	20	60	2.5°	
2080-30		4.0	8	20	60	3.0°	
2100-05		5.0	10	25	70	0.5°	
2100-10		5.0	10	25	70	1.0°	
2100-15		5.0	10	25	70	1.5°	
2100-20		5.0	10	25	70	2.0°	
2100-25		5.0	10	25	70	2.5°	
2100-30		5.0	10	25	70	3.0°	
2110-05		5.5	12	25	70	0.5°	
2110-10		5.5	12	25	70	1.0°	
2110-15		5.5	12	25	70	1.5°	
2110-20		5.5	12	25	70	2.0°	
2110-25		5.5	12	25	70	2.5°	
2110-30		5.5	12	25	70	3.0°	
2120-05		6.0	14	30	75	0.5°	
2120-10		6.0	14	30	75	1.0°	
2120-15		6.0	14	30	75	1.5°	
2120-20		6.0	14	30	75	2.0°	
2120-25		6.0	14	30	75	2.5°	
2120-30		6.0	14	30	75	3.0°	
2130-05		6.5	14	30	75	0.5°	
2130-10		6.5	14	30	75	1.0°	
2130-15		6.5	14	30	75	1.5°	
2130-20		6.5	14	30	75	2.0°	
2130-25		6.5	14	30	75	2.5°	
2130-30		6.5	14	30	75	3.0°	

Designation	Stock	R	ød	l	L	θ°	Remark
STBE 2140-05		7.0	14	35	80	0.5°	
2140-10		7.0	14	35	80	1.0°	
2140-15		7.0	14	35	80	1.5°	
2140-20		7.0	14	35	80	2.0°	
2140-25		7.0	14	35	80	2.5°	
2140-30		7.0	14	35	80	3.0°	
2150-05		7.5	16	35	80	0.5°	
2150-10		7.5	16	35	80	1.0°	
2150-15		7.5	16	35	80	1.5°	
2150-20		7.5	16	35	80	2.0°	
2150-25		7.5	16	35	80	2.5°	
2150-30		7.5	16	35	80	3.0°	
2160-05		8.0	18	40	90	0.5°	
2160-10		8.0	18	40	90	1.0°	
2160-15		8.0	18	40	90	1.5°	
2160-20		8.0	18	40	90	2.0°	
2160-25		8.0	18	40	90	2.5°	
2160-30		8.0	18	40	90	3.0°	

● : Stock item ○ : Under preparing for stock

## LSBE2000(Long ball)

Carbide solid ball long endmills



ØD	Tolerance of Endmill diameter
All items	0 - - 0.03

2 Carbide

Designation	Stock	R	ød	l <sub>1</sub>	l <sub>2</sub>	L	Remark
LSBE 2030		1.5	6	4	35	100	
2040		2.0	6	6	35	100	
2050		2.5	8	77	40	115	
2060		3.0	8	8	45	115	
2070		3.5	10	10	45	125	
2080		4.0	10	12	55	125	
2090		4.5	12	15	65	140	
2100		5.0	12	15	65	140	
2110		5.5	16	20	75	150	
2120		6.0	16	28	75	150	
2130		6.5	16	32	75	155	
2140		7.0	16	32	75	155	
2150		7.5	16	36	75	155	
2160		8.0	16	36	75	155	
2180		9.0	20	40	75	155	
2200		10.0	20	46	75	160	
2220		11.0	25	50	80	165	
2230		11.5	25	50	80	165	
2240		12.0	25	55	85	170	
2250		12.5	25	55	85	170	

● : Stock item ○ : Under preparing for stock

\* Ordering code for special item :

Coated; LSBE2000-Q \* Flute length \* Neck length N \* Overall length L

Non-coated; LSBE2000 \* Flute length \* Neck length N \* Overall length L

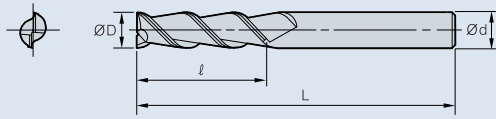
Ex.1) Coating, Ball, 2Flutes, Cutting edge diameter : 8.3, Flute length : 13, Neck length : 60, Overall length : 130  
 → LSBE2083-Q \* 13 \* 60N \* 130L

Ex.2) Coating, Ball, 2Flutes, Cutting edge diameter : 8.3, Standard type → LSBE2083-Q

# Aluminum Machining

## SSEA2000/3000(Square)

Solid endmills for copper & aluminum alloy



ØD	Tolerance of Endmill diameter
1 ~ 6	-0.010 ~ -0.030
7 ~ 10	-0.015 ~ -0.040
11 ~ 20	-0.020 ~ -0.050



(mm)

Designation	Stock		ØD	ød	ℓ	L	Remark
	H01	PD3000					
SSEA 2010	●	●	1.0	6	3	40	
2015	●	●	1.5	6	4	40	
2020	●	●	2.0	6	6	40	
2025	●	●	2.5	6	7	40	
2030	●	●	3.0	6	10	45	
2035	●	●	3.5	6	10	45	
2040	●	●	4.0	6	12	45	
2050	●	●	5.0	6	15	50	
2060	●	●	6.0	6	15	50	
2070	●	●	7.0	8	20	60	
2080	●	●	8.0	8	20	60	
2090	●	●	9.0	10	20	70	
2100	●	●	10.0	10	25	70	
2110	●	●	11.0	12	25	75	
2120	●	●	12.0	12	30	75	
2130	●	●	13.0	16	30	90	
2140	●	●	14.0	16	35	90	
2150	●	●	15.0	16	40	90	
2160	●	●	16.0	16	40	90	
2180	●	●	18.0	18	45	100	
2200	●	●	20.0	20	45	100	
SSEA 3020	●	●	2.0	6	6	40	
3030	●	●	3.0	6	10	45	
3035	●	●	3.5	6	10	45	
3040	●	●	4.0	6	12	45	
3050	●	●	5.0	6	15	50	
3060	●	●	6.0	6	15	50	
3070	●	●	7.0	8	20	60	
3080	●	●	8.0	8	20	60	
3090	●	●	9.0	10	20	70	
3100	●	●	10.0	10	25	70	
3110	●	●	11.0	12	25	75	
3120	●	●	12.0	12	30	75	
3130	●	●	13.0	16	30	90	
3140	●	●	14.0	16	35	90	
3150	●	●	15.0	16	40	90	
3160	●	●	16.0	16	40	90	

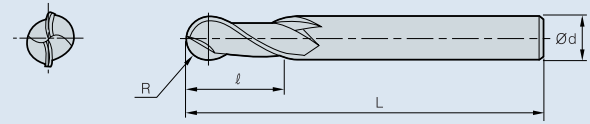
● : Stock item ○ : Under preparing for stock

\* Ordering code for special item : SSEA○○○○○ \* Flute length \* Overall length L  
 Ex.1) 3Flutes, Cutting edge diameter : 6.3, Flute length : 17, Overall length : 60  
 → SSEA3063 \* 17 \* 60L  
 Ex.2) 3Flutes, Cutting edge diameter : 6.3, Standard type → SSEA3063

- Machining properties of Copper & Aluminum alloys
- Despite low cutting load and easy chip control built-up edge happens easily
  - Machining precision can be affected by deformation caused by cutting heat because of its high thermal expansion coefficient
  - Surface finish can be harmed by chips and flank wear affects tool life because their hardness is so low.

## SSBEA2000(Ball)

Solid ball endmills for copper & aluminum alloy



ØD	Tolerance of Endmill diameter
All items	0 ~ -0.03



(mm)

Designation	Stock		R	ød	ℓ	L	Remark
	H01	PD3000					
SSBEA 2010	●	●	0.5	6	3	70	
2015	●	●	0.75	6	4	70	
2020	●	●	1.0	6	6	70	
2025	●	●	1.25	6	8	70	
2030	●	●	1.5	6	10	70	
2035	●	●	1.75	6	10	70	
2040	●	●	2.0	6	12	70	
2045	●	●	2.25	6	15	80	
2050	●	●	2.5	6	15	80	
2055	●	●	2.75	6	15	80	
2060	●	●	3.0	6	15	80	
2065	●	●	3.25	8	20	90	
2070	●	●	3.5	8	20	90	
2075	●	●	3.75	8	20	90	
2080	○	●	4.0	8	20	90	
2085	○	●	4.25	10	25	100	
2090	○	●	4.5	10	25	100	
2100	○	●	5.0	10	25	100	
2110	○	●	5.5	12	30	110	
2120	○	●	6.0	12	30	110	
2130	○	●	6.5	16	35	120	
2140	○	●	7.0	16	35	120	
2150	○	●	7.5	16	40	120	
2160	○	●	8.0	16	40	120	
2170	○	●	8.5	20	40	130	
2180	○	●	9.0	20	45	130	
2190	○	●	9.5	20	45	130	
2200	○	●	10.0	20	45	130	

● : Stock item ○ : Under preparing for stock

\* Ordering code for special item : SSBEA2○○○○ \* Flute length \* Overall length L  
 Ex.1) 2Flutes, Cutting edge diameter : 6.3, Flute length : 17, Overall length : 60  
 → SSBEA2063 \* 17 \* 60L  
 Ex.2) 2Flutes, Cutting edge diameter : 6.3, Standard type → SSBEA2063

- Machining technique of Copper & Aluminum alloys
- Use sharp cutting edge with high rake angle and oil mist during operation to reduce cutting load and built-up edge.
  - High speed machining is favorable for productivity and surface roughness.