

# S-Wing Endmill **NEW**

For Stainless Steels

## Characteristics

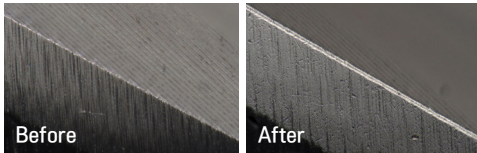
- Suitable for machining difficult-to-cut materials such as stainless steel and titanium through variable Helix
- New coatings with high oxidation resistance and surface hardness
- Advanced surface roughness with improved chip emission and deposition resistance

## Features

- Stable high speed processing with minimum vibration, unequal index and optimal rake angle
- High processability and low vibration by applying unequal index in cutting edge
- Minimum vibration through optimized helix angle and R gash, enhanced chip emission with stiffness supplementation
- Reduced friction resistance and improved chip emission by applying new coatings with high surface hardness oxidation resistance
- Enhanced chipping resistance and deposition resistance with new strengthened flute

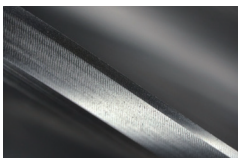
### Cutting edge

- Improved initial chipping resistance for high-hardness steels
- Enhancing wear resistance and inducing stable processing
- High quality by stabilizing cutting edge



### Additional finishing edge

- Improved surface roughness by enhancing the first O.D grinding roughness
- High quality of cutting edge and improved deposition resistance



### Raw-material for high performance

- Chipping resistance and working stability through high performance raw-material



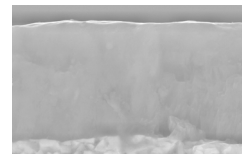
### Unequal Index / R gash

- High chip emission through R gash shape
- Stability when shouldering machining



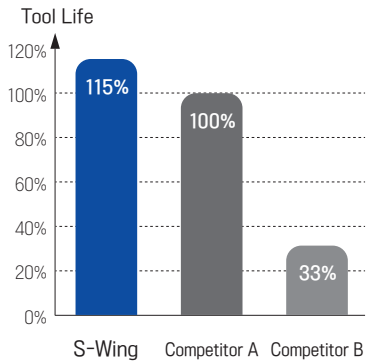
### AlCrN coating

- Improved lubrication through containing Cr
- Improved heat resistance

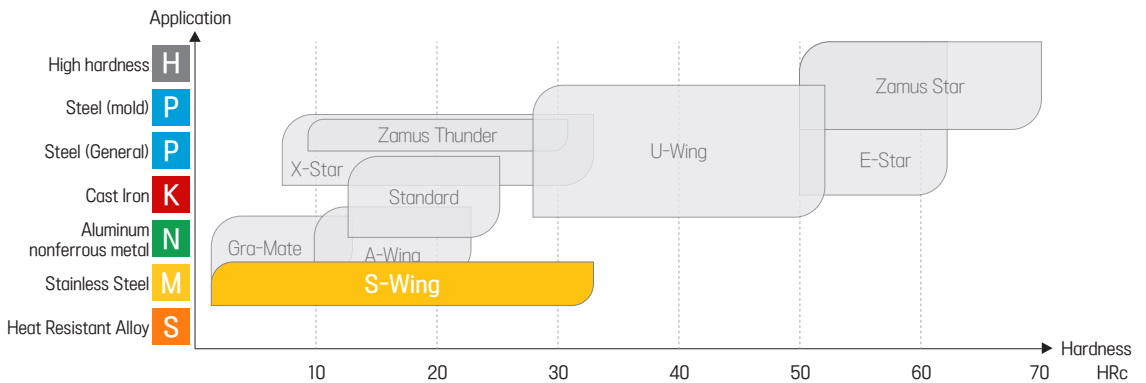


## Case Study

### ► 4 Flutes D6.0 Square End Mill



## Applications



# S-Wing Endmill NEW

For Stainless Steels

## Contents

Section		EDP No	Geometry	Product	Diameter(DC)		Page
Shape	Flute				Min	Max	
Square	2F	SE502		2 Flutes Square End Mill	1	20	343
	3F	SE503		3 Flutes Square End Mill	1	20	344
	4F	SE504		4 Flutes Square End Mill	1	20	345
	6F	SE506		6 Flutes Square End Mill	6	20	347
Radius	4F	SR504		4 Flutes Radius End Mill	1	20	348
	5F	SR505		5 Flutes Chip Breaker Type Radius End Mill	6	20	350
	7F	SR507		7 Flutes Chip Breaker Type Radius End Mill	6	20	351
Ball	2F	SB502		2 Flutes Ball End Mill	1	12	352
	4F	SB504		4 Flutes Ball End Mill	3	20	353
Roughing	3~5F	SF51H		3~5 Flutes Roughing End Mill	3	20	354

## EDP No. System

\*If expressed as an integer, the decimal point is omitted.

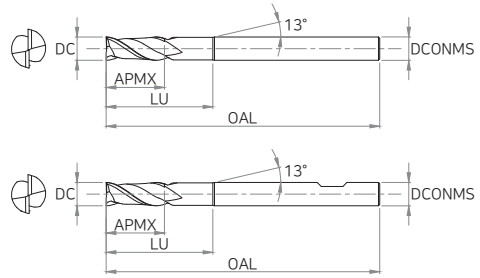


①	②	③	④	⑤	⑥	⑦	⑧
Section	Appearance	Grade	Length, Shank Type	Flutes	Cutting Dia	Corner R	Helix
S : STS high Performance	E : Square	5 : Grade	0 : Standard	2 : 2 Flutes	1	0.1	H : High Helix
	R : Radius		1 : Straight, Neck	3 : 3 Flutes	~	~	
	B : Ball		4 : 4 Flutes	20	2		
	F : Roughing		5 : 5 Flutes				
			6 : 6 Flutes				
			7 : 7 Flutes				

EX) 4 Flute / Cutting Dia  $\phi 2$  / Corner R 0.3 / Shank Dia  $\phi 4$  / 50 Grade / Corner Radius Standard Type STS high Performance End Mill

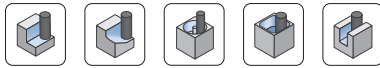
# SE502 2 Flutes Square End Mill

\* The tools of DIN standard are made to order



► Tolerance

DC		Shank Dia
Ø1 ~ Ø5	0 ~ -0.015	
Ø6	0 ~ -0.02	
Ø8 ~ Ø20	0 ~ -0.03	h5



EDP No		DC	APMX	LU	OAL	DCONMS
JIS	DIN					
SE502 010	SE502 010F	1	2.5	7.5	50	6
SE502 012	SE502 012F	1.2	3	8	50	6
SE502 015	SE502 015F	1.5	4	9	50	6
SE502 020	SE502 020F	2	6	11	50	6
SE502 025	SE502 025F	2.5	7	12	50	6
SE502 030	SE502 030F	3	8	13	55	6
SE502 040	SE502 040F	4	10	15	55	6
SE502 050	SE502 050F	5	15	20	55	6
SE502 060	SE502 060F	6	15	22	60	6
SE502 080	SE502 080F	8	20	32	70	8
SE502 100	SE502 100F	10	25	33	75	10
SE502 120	SE502 120F	12	30	35	80	12
SE502 140	SE502 140F	14	35	42	90	16
SE502 160	SE502 160F	16	42	52	100	16
SE502 180	-	18	45	-	100	16
SE502 200	SE502 200F	20	48	50	100	20

► Applicable Working Material

○ : GOOD ◎ : EXCELLENT

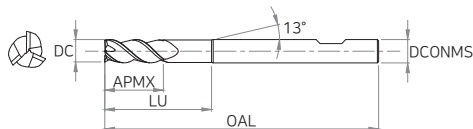
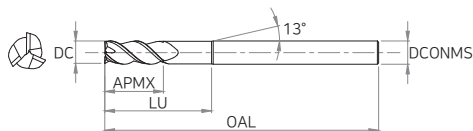
H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRc55	SKD11 HRc55~	~HB225	HB225 ~325	HRc30~50	~FCD500					
		○	○	○					◎	○

# SE503

## 3 Flutes Square End Mill

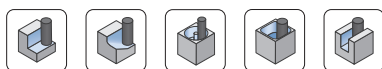
\* The tools of DIN standard are made to order

Endmill



► Tolerance

DC		Shank Dia
Ø1 ~ Ø5	0 ~ -0.015	
Ø6	0 ~ -0.02	
Ø8 ~ Ø20	0 ~ -0.03	



	EDP No		DC	APMX	LU	OAL	DCONMS
	JIS	DIN					
	SE503 010	SE503 010F	1	2.5	7.5	50	6
	SE503 012	SE503 012F	1.2	3	8	50	6
	SE503 015	SE503 015F	1.5	4	9	50	6
	SE503 020	SE503 020F	2	6	11	50	6
	SE503 025	SE503 025F	2.5	7	12	50	6
	SE503 030	SE503 030F	3	8	13	55	6
	SE503 03010	SE503 03010F	3	10	15	60	6
	SE503 040	SE503 040F	4	10	15	55	6
	SE503 04012	SE503 04012F	4	12	17	60	6
	SE503 050	SE503 050F	5	13	18	55	6
	SE503 060	SE503 060F	6	15	22	60	6
	SE503 06020	SE503 06020F	6	20	27	65	6
	SE503 080	SE503 080F	8	20	32	70	8
	SE503 08030	SE503 08030F	8	30	42	80	8
	SE503 100	SE503 100F	10	25	33	75	10
	SE503 10035	SE503 10035F	10	35	43	85	10
	SE503 120	SE503 120F	12	30	35	80	12
	SE503 12040	SE503 12040F	12	40	45	90	12
	SE503 140	SE503 140F	14	35	42	90	16
	SE503 160	SE503 160F	16	42	52	100	16
	SE503 180	-	18	45	-	100	16
	SE503 200	SE503 200F	20	48	50	100	20

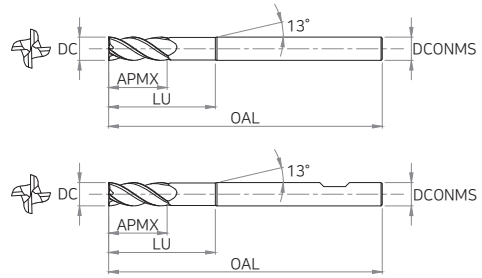
► Applicable Working Material

○ : GOOD ◎ : EXCELLENT

H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRC55	SKD11 HRC55~	Steel ~HB225	Alloy Steel HB225 ~325	Prehardened Steel HRC30~50	Cast Iron ~FCD500	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
		○	○	○					◎	○

# SE504 4 Flutes Square End Mill

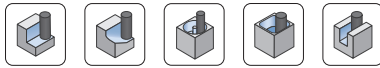
\* The tools of DIN standard are made to order



► Tolerance

DC		Shank Dia
Ø1 ~ Ø5.5	0 ~ -0.015	
Ø6 ~ Ø7	0 ~ -0.02	
Ø8 ~ Ø20	0 ~ -0.03	

h5



EDP No		DC	APMX	LU	OAL	DCONMS
JIS	DIN					
SE504 010	SE504 010F	1	2.5	7.5	50	6
SE504 012	SE504 012F	1.2	3	8	50	6
SE504 015	SE504 015F	1.5	4	9	50	6
SE504 020	SE504 020F	2	6	11	50	6
SE504 025	SE504 025F	2.5	7	12	50	6
SE504 030	SE504 030F	3	8	13	55	6
SE504 03010	SE504 03010F	3	10	15	60	6
SE504 035	SE504 035F	3.5	10	15	55	6
SE504 040	SE504 040F	4	10	15	55	6
SE504 04012	SE504 04012F	4	12	17	60	6
SE504 045	SE504 045F	4.5	12	17	55	6
SE504 050	SE504 050F	5	15	20	55	6
SE504 055	SE504 055F	5.5	15	20	60	6
SE504 060	SE504 060F	6	15	22	60	6
SE504 06020	SE504 06020F	6	20	27	65	6
SE504 065	SE504 065F	6.5	15	22	60	8
SE504 070	SE504 070F	7	20	42	80	8
SE504 080	SE504 080F	8	20	32	70	8
SE504 08025	SE504 08025F	8	25	32	70	8
SE504 08030	SE504 08030F	8	30	42	80	8

► Applicable Working Material

○ : GOOD ◎ : EXCELLENT

H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRc55	SKD11 HRc55~	~HB225	HB225 ~325	HRc30~50	~FCD500					
		○	○	○					◎	○

# SE504

## 4 Flutes Square End Mill

\* The tools of DIN standard are made to order

Endmill

EDP No		DC	APMX	LU	OAL	DCONMS
JIS	DIN					
SE504 085	SE504 085F	8.5	20	28	70	10
SE504 090	SE504 090F	9	25	38	80	10
SE504 100	SE504 100F	10	25	33	75	10
SE504 10035	SE504 10035F	10	35	43	85	10
SE504 120	SE504 120F	12	30	35	80	12
SE504 12040	SE504 12040F	12	40	45	90	12
SE504 140	SE504 140F	14	35	42	90	16
SE504 160	SE504 160F	16	42	52	100	16
SE504 180	-	18	45	-	100	16
SE504 200	SE504 200F	20	48	50	100	20

Zamus Star

E-Star

U-Wing

Zamus Thunder

X-Star

S-Wing

A-Wing

Standard

Copper-Mate

Gra-Mate

### ▶ Applicable Working Material

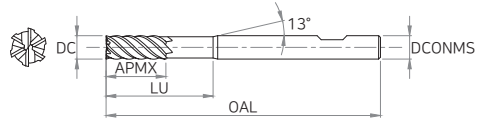
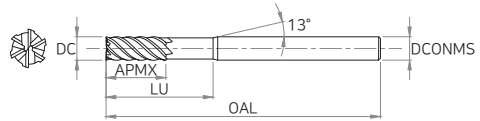
○ : GOOD ◎ : EXCELLENT

H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRC55	SKD11 HRC55~	~HB225	HB225 ~325	HRc30~50	~FCD500					
		○	○	○					◎	○

# SE506

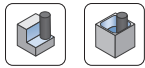
## 6 Flutes Square End Mill

\* The tools of DIN standard are made to order



► Tolerance

DC		Shank Dia
Ø6	0 ~ -0.02	
Ø8 ~ Ø20	0 ~ -0.03	h5



EDP No		DC	APMX	LU	OAL	DCONMS
JIS	DIN					
SE506 060	SE506 060F	6	15	22	60	6
SE506 080	SE506 080F	8	20	32	70	8
SE506 100	SE506 100F	10	25	33	75	10
SE506 120	SE506 120F	12	30	35	80	12
SE506 160	SE506 160F	16	42	52	100	16
SE506 200	SE506 200F	20	48	50	100	20

► Applicable Working Material

○ : GOOD ◎ : EXCELLENT

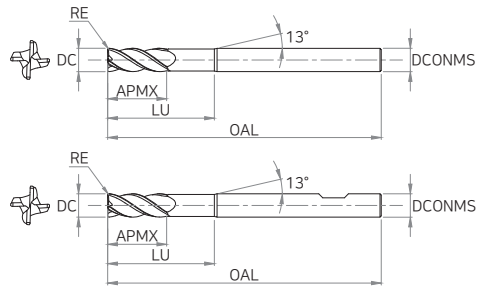
H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRc55	SKD11 HRc55~	~HB225	HB225 ~325	Steel HRc30~50	~FCD500					
		○	○	○					◎	○



# SR504 4 Flutes Radius End Mill

\* The tools of DIN standard are made to order

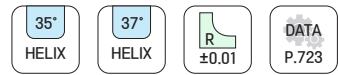
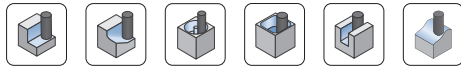
Endmill



► Tolerance

DC		Shank Dia
Ø1 ~ Ø5	0 ~ -0.015	
Ø6 ~ Ø7	0 ~ -0.02	
Ø8 ~ Ø20	0 ~ -0.03	

h5



	EDP No		DC	RE	APMX	LU	OAL	DCONMS
	JIS	DIN						
Zamus Thunder	SR504 01001	SR504 01001F	1	0.1	2.5	7.5	50	6
	SR504 01002	SR504 01002F	1	0.2	2.5	7.5	50	6
X-Star	SR504 01201	SR504 01201F	1.2	0.1	3	8	50	6
	SR504 01501	SR504 01501F	1.5	0.1	4	9	50	6
	SR504 01502	SR504 01502F	1.5	0.2	4	9	50	6
S-Wing	SR504 02001	SR504 02001F	2	0.1	6	11	50	6
	SR504 02002	SR504 02002F	2	0.2	6	11	50	6
	SR504 02502	SR504 02502F	2.5	0.2	7	12	50	6
A-Wing	SR504 03002	SR504 03002F	3	0.2	8	13	55	6
	SR504 03003	SR504 03003F	3	0.3	8	13	55	6
	SR504 03005	SR504 03005F	3	0.5	8	13	55	6
	SR504 04002	SR504 04002F	4	0.2	10	15	55	6
	SR504 04003	SR504 04003F	4	0.3	10	15	55	6
Standard	SR504 04005	SR504 04005F	4	0.5	10	15	55	6
	SR504 05002	SR504 05002F	5	0.2	15	20	55	6
	SR504 05003	SR504 05003F	5	0.3	15	20	55	6
Copper-Mate	SR504 05005	SR504 05005F	5	0.5	15	20	55	6
	SR504 06003	SR504 06003F	6	0.3	15	22	60	6
	SR504 06005	SR504 06005F	6	0.5	15	22	60	6
	SR504 06010	SR504 06010F	6	1	15	22	60	6
Gra-Mate	SR504 07003	SR504 07003F	7	0.3	15	22	60	8

► Applicable Working Material

○ : GOOD ◎ : EXCELLENT

H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRc55	SKD11 HRc55~	Steel ~HB225	HB225 ~325	Steel HRc30-50	~FCD500					
		○	○	○					◎	○

# SR504

## 4 Flutes Radius End Mill

\* The tools of DIN standard are made to order

Endmill

EDP No		DC	RE	APMX	LU	OAL	DCONMS
JIS	DIN						
SR504 08002	SR504 08002F	8	0.2	20	32	70	8
SR504 08003	SR504 08003F	8	0.3	20	32	70	8
SR504 08005	SR504 08005F	8	0.5	20	32	70	8
SR504 08010	SR504 08010F	8	1	20	32	70	8
SR504 10003	SR504 10003F	10	0.3	25	33	75	10
SR504 10005	SR504 10005F	10	0.5	25	33	75	10
SR504 10010	SR504 10010F	10	1	25	33	75	10
SR504 10015	SR504 10015F	10	1.5	25	33	75	10
SR504 10020	SR504 10020F	10	2	25	33	75	10
SR504 10030	SR504 10030F	10	3	25	33	75	10
SR504 12003	SR504 12003F	12	0.3	30	35	80	12
SR504 12005	SR504 12005F	12	0.5	30	35	80	12
SR504 12010	SR504 12010F	12	1	30	35	80	12
SR504 12015	SR504 12015F	12	1.5	30	35	80	12
SR504 12020	SR504 12020F	12	2	30	35	80	12
SR504 12030	SR504 12030F	12	3	30	35	80	12
SR504 12040	SR504 12040F	12	4	30	35	80	12
SR504 14005	SR504 14005F	14	0.5	35	42	90	16
SR504 14010	SR504 14010F	14	1	35	42	90	16
SR504 14020	SR504 14020F	14	2	35	42	90	16
SR504 14030	SR504 14030F	14	3	35	42	90	16
SR504 14040	SR504 14040F	14	4	35	42	90	16
SR504 16005	SR504 16005F	16	0.5	42	52	100	16
SR504 16010	SR504 16010F	16	1	42	52	100	16
SR504 16020	SR504 16020F	16	2	42	52	100	16
SR504 16030	SR504 16030F	16	3	42	52	100	16
SR504 16040	SR504 16040F	16	4	42	52	100	16
SR504 16050	SR504 16050F	16	5	42	52	100	16
SR504 18005	-	18	0.5	45	-	100	16
SR504 20005	SR504 20005F	20	0.5	48	50	100	20
SR504 20010	SR504 20010F	20	1	48	50	100	20
SR504 20020	SR504 20020F	20	2	48	50	100	20
SR504 20030	SR504 20030F	20	3	48	50	100	20
SR504 20040	SR504 20040F	20	4	48	50	100	20
SR504 20050	SR504 20050F	20	5	48	50	100	20

Zamus Star

E-Star

U-Wing

Zamus Thunder

X-Star

S-Wing

A-Wing

Standard

Copper-Mate

Gra-Mate

### ► Applicable Working Material

○ : GOOD ◎ : EXCELLENT

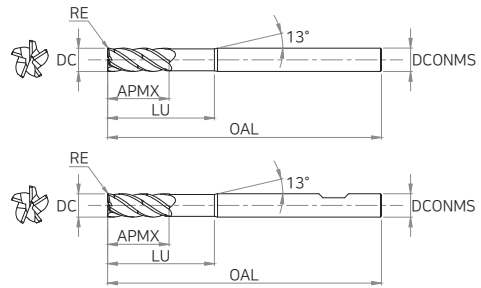
H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRc55	SKD11 HRc55~	~HB225	HB225 ~325	Steel HRc30~50	~FCD500					
		○	○	○					◎	○

# SR505

5 Flutes Chip Breaker Type  
Radius End Mill

\* The tools of DIN standard  
are made to order

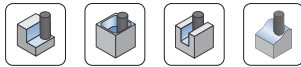
Endmill



► Tolerance

DC		Shank Dia
∅6	0 ~ -0.02	
∅8 ~ ∅20	0 ~ -0.03	

h5



	EDP No		DC	RE	APMX	LU	OAL	DCONMS
	JIS	DIN						
Zamus Thunder	SR505 06005	SR505 06005F	6	0.5	15	22	60	6
	SR505 0602405	SR505 0602405F	6	0.5	24	32	70	6
X-Star	SR505 08005	SR505 08005F	8	0.5	20	32	70	8
	SR505 0803205	SR505 0803205F	8	0.5	32	52	90	8
S-Wing	SR505 10005	SR505 10005F	10	0.5	25	33	75	10
	SR505 1004005	SR505 1004005F	10	0.5	40	58	100	10
	SR505 12005	SR505 12005F	12	0.5	30	35	80	12
A-Wing	SR505 12010	SR505 12010F	12	1	30	35	80	12
	SR505 12020	SR505 12020F	12	2	30	35	80	12
	SR505 12030	SR505 12030F	12	3	30	35	80	12
Standard	SR505 1204805	SR505 1204805F	12	0.5	48	63	110	12
	SR505 16005	SR505 16005F	16	0.5	42	52	100	16
	SR505 16010	SR505 16010F	16	1	42	52	100	16
Copper-Mate	SR505 16020	SR505 16020F	16	2	42	52	100	16
	SR505 16030	SR505 16030F	16	3	42	52	100	16
	SR505 16040	SR505 16040F	16	4	42	52	100	16
Gra-Mate	SR505 1606505	SR505 1606505F	16	0.5	65	80	130	16
	SR505 20005	SR505 20005F	20	0.5	48	58	110	20
	SR505 2006505	SR505 2006505F	20	0.5	65	78	130	20

► Applicable Working Material

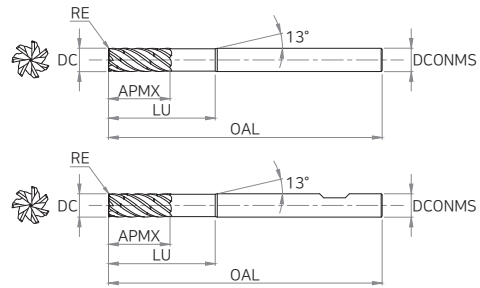
○ : GOOD ◎ : EXCELLENT

H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRC55	SKD11 HRC55~	Steel ~HB225	HB225 ~325	Steel HRc30~50	~FCD500					
		○	○	○					◎	○

# SR507

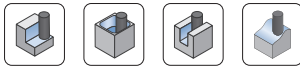
7 Flutes Chip Breaker Type  
Radius End Mill

\* The tools of DIN standard  
are made to order



► Tolerance

DC		Shank Dia
ø6	0 ~ -0.02	
ø8 ~ ø20	0 ~ -0.03	



EDP No		DC	RE	APMX	LU	OAL	DCONMS
JIS	DIN						
SR507 06005	SR507 06005F	6	0.5	15	22	60	6
SR507 0602405	SR507 0602405F	6	0.5	24	32	70	6
SR507 08005	SR507 08005F	8	0.5	20	32	70	8
SR507 0803205	SR507 0803205F	8	0.5	32	52	90	8
SR507 10005	SR507 10005F	10	0.5	25	33	75	10
SR507 1004005	SR507 1004005F	10	0.5	40	58	100	10
SR507 12005	SR507 12005F	12	0.5	30	35	80	12
SR507 12010	SR507 12010F	12	1	30	35	80	12
SR507 12020	SR507 12020F	12	2	30	35	80	12
SR507 12030	SR507 12030F	12	3	30	35	80	12
SR507 12040	SR507 12040F	12	4	30	35	80	12
SR507 1204805	SR507 1204805F	12	0.5	48	63	110	12
SR507 16005	SR507 16005F	16	0.5	42	52	100	16
SR507 16010	SR507 16010F	16	1	42	52	100	16
SR507 16020	SR507 16020F	16	2	42	52	100	16
SR507 16030	SR507 16030F	16	3	42	52	100	16
SR507 16040	SR507 16040F	16	4	42	52	100	16
SR507 16050	SR507 16050F	16	5	42	52	100	16
SR507 1606505	SR507 1606505F	16	0.5	65	80	130	16
SR507 20005	SR507 20005F	20	0.5	48	58	110	20
SR507 2006505	SR507 2006505F	20	0.5	65	78	130	20

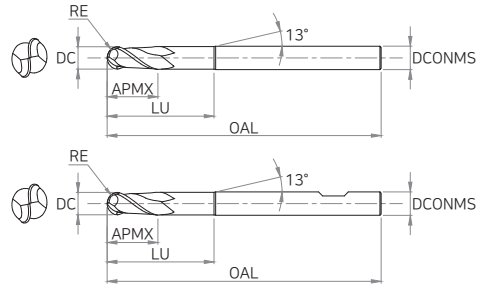
► Applicable Working Material

○ : GOOD ◎ : EXCELLENT

H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRc55	SKD11 HRc55~	~HB225	HB225 ~325	HRc30~50	~FCD500					
		○	○	○					◎	○

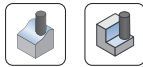
# SB502 2 Flutes Ball End Mill

\* The tools of DIN standard are made to order



► Tolerance

DC		Shank Dia
Ø1 ~ Ø5	0 ~ -0.015	
Ø6	0 ~ -0.02	
Ø8 ~ Ø20	0 ~ -0.03	



	EDP No		DC	RE	APMX	LU	OAL	DCONMS
	JIS	DIN						
Zamus Star	SB502 010	SB502 010F	1	0.5	3	8	50	6
	SB502 020	SB502 020F	2	1	6	11	50	6
E-Star	SB502 030	SB502 030F	3	1.5	8	13	50	6
	SB502 030L	SB502 030LF	3	1.5	8	13	70	6
	SB502 040	SB502 040F	4	2	10	15	50	6
	SB502 040L	SB502 040LF	4	2	10	15	70	6
S-Wing	SB502 050	SB502 050F	5	2.5	13	18	50	6
	SB502 050L	SB502 050LF	5	2.5	13	18	80	6
	SB502 060	SB502 060F	6	3	13	20	50	6
A-Wing	SB502 060L	SB502 060LF	6	3	13	52	90	6
	SB502 080	SB502 080F	8	4	19	24	60	8
	SB502 080L	SB502 080LF	8	4	19	62	100	8
Standard	SB502 100	SB502 100F	10	5	22	30	70	10
	SB502 100L	SB502 100LF	10	5	22	58	100	10
	SB502 120	SB502 120F	12	6	26	30	75	12
Copper-Mate	SB502 120L	SB502 120LF	12	6	26	63	110	12

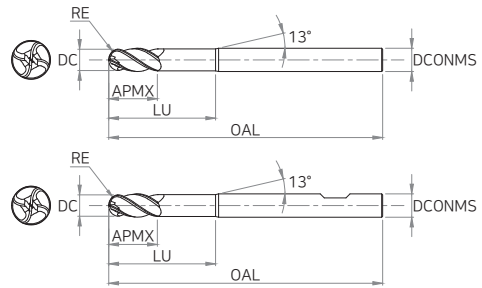
► Applicable Working Material

○ : GOOD ◎ : EXCELLENT

H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRc55	SKD11 HRc55~	Steel ~HB225	HB225 ~325	Steel HRc30~50	~FCD500					
		○	○	○					◎	○

# SB504 4 Flutes Ball End Mill

\* The tools of DIN standard are made to order



► Tolerance

DC		Shank Dia
ø3 ~ ø5	0 ~ -0.015	
ø6	0 ~ -0.02	
ø8 ~ ø20	0 ~ -0.03	h5



EDP No		DC	RE	APMX	LU	OAL	DCONMS
JIS	DIN						
SB504 030	SB504 030F	3	1.5	8	13	60	6
SB504 040	SB504 040F	4	2	8	13	70	6
SB504 050	SB504 050F	5	2.5	12	17	80	6
SB504 060	SB504 060F	6	3	12	52	90	6
SB504 080	SB504 080F	8	4	16	62	100	8
SB504 100	SB504 100F	10	5	20	58	100	10
SB504 120	SB504 120F	12	6	25	53	100	12
SB504 160	SB504 160F	16	8	30	50	100	16
SB504 200	SB504 200F	20	10	38	48	100	20

► Applicable Working Material

○ : GOOD ◎ : EXCELLENT

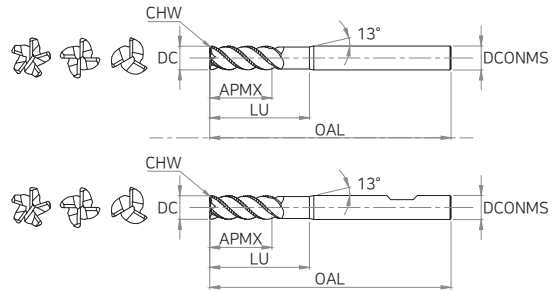
H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRc55	SKD11 HRc55~	~HB225	HB225 ~325	Steel HRc30~50	~FCD500					
		○	○	○					◎	○

# SF51H

3~5 Flutes Roughing End Mill

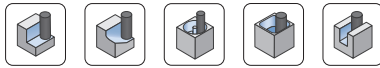
\* The tools of DIN standard are made to order

Endmill



► Tolerance

DC		Shank Dia
ø3 ~ ø20	0 ~ -0.05	h5



	EDP No		DC	CHW	APMX	LU	OAL	DCONMS	NOF
	JIS	DIN							
Zamus Thunder	SF51 303002H	SF51 303002HF	3	0.2	8	13	50	6	3
	SF51 304002H	SF51 304002HF	4	0.2	10	15	50	6	3
X-Star	SF51 405002H	SF51 405002HF	5	0.3	13	18	50	6	4
	SF51 406002H	SF51 406002HF	6	0.3	13	22	60	6	4
	SF51 406002NH	SF51 406002NHF	6	0.3	10	22	60	6	4
S-Wing	SF51 407002H	SF51 407002HF	7	0.4	18	32	70	8	4
	SF51 408002H	SF51 408002HF	8	0.4	19	32	70	8	4
	SF51 408002NH	SF51 408002NHF	8	0.4	12	32	70	8	4
	SF51 409003H	SF51 409003HF	9	0.4	20	28	70	10	4
A-Wing	SF51 410003H	SF51 410003HF	10	0.4	22	33	75	10	4
	SF51 410003NH	SF51 410003NHF	10	0.4	15	33	75	10	4
	SF51 411003H	SF51 411003HF	11	0.5	25	33	80	12	4
Standard	SF51 412003H	SF51 412003HF	12	0.5	26	35	80	12	4
	SF51 412003NH	SF51 412003NHF	12	0.5	20	35	80	12	4
	SF51 506002H	SF51 506002HF	6	0.5	13	22	60	6	5
Copper-Mate	SF51 508002H	SF51 508002HF	8	0.5	19	27	65	8	5
	SF51 510003H	SF51 510003HF	10	0.5	22	30	70	10	5
	SF51 512003H	SF51 512003HF	12	0.5	26	35	80	12	5
	SF51 514005H	SF51 514005HF	14	0.5	28	40	90	16	5
Gra-Mate	SF51 516005H	SF51 516005HF	16	0.5	32	50	100	16	5

► Applicable Working Material

○ : GOOD ◎ : EXCELLENT

H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRC55	SKD11 HRC55~	Steel ~HB225 ~HB225	HB225 ~325	HRc30~50	~FC500					
		○	○	○					◎	○

# SF51H

## 3-5 Flutes Roughing End Mill

\* The tools of DIN standard are made to order

Endmill

EDP No		DC	CHW	APMX	LU	OAL	DCONMS	NOF
JIS	DIN							
SF51 51600542H	SF51 51600542HF	16	0.5	42	52	100	16	5
SF51 520005H	SF51 520005HF	20	0.5	38	48	100	20	5
SF51 52000545H	SF51 52000545HF	20	0.5	45	50	100	20	5

Zamus Star

E-Star

U-Wing

Zamus Thunder

X-Star

S-Wing

A-Wing

Standard

Copper -Mate

Gra -Mate

### ► Applicable Working Material

○ : GOOD ◎ : EXCELLENT

H		P			K	N			M	S
Hardened Steel		Carbon Steel	Alloy Steel	Prehardened Steel	Cast Iron	Copper	Graphite	Aluminum	Stainless Steel	Heat Resistant Alloy
SKD61 ~HRc55	SKD11 HRc55~	~HB225	HB225 ~325	Steel HRc30~50	~FCD500					
		○	○	○					◎	○