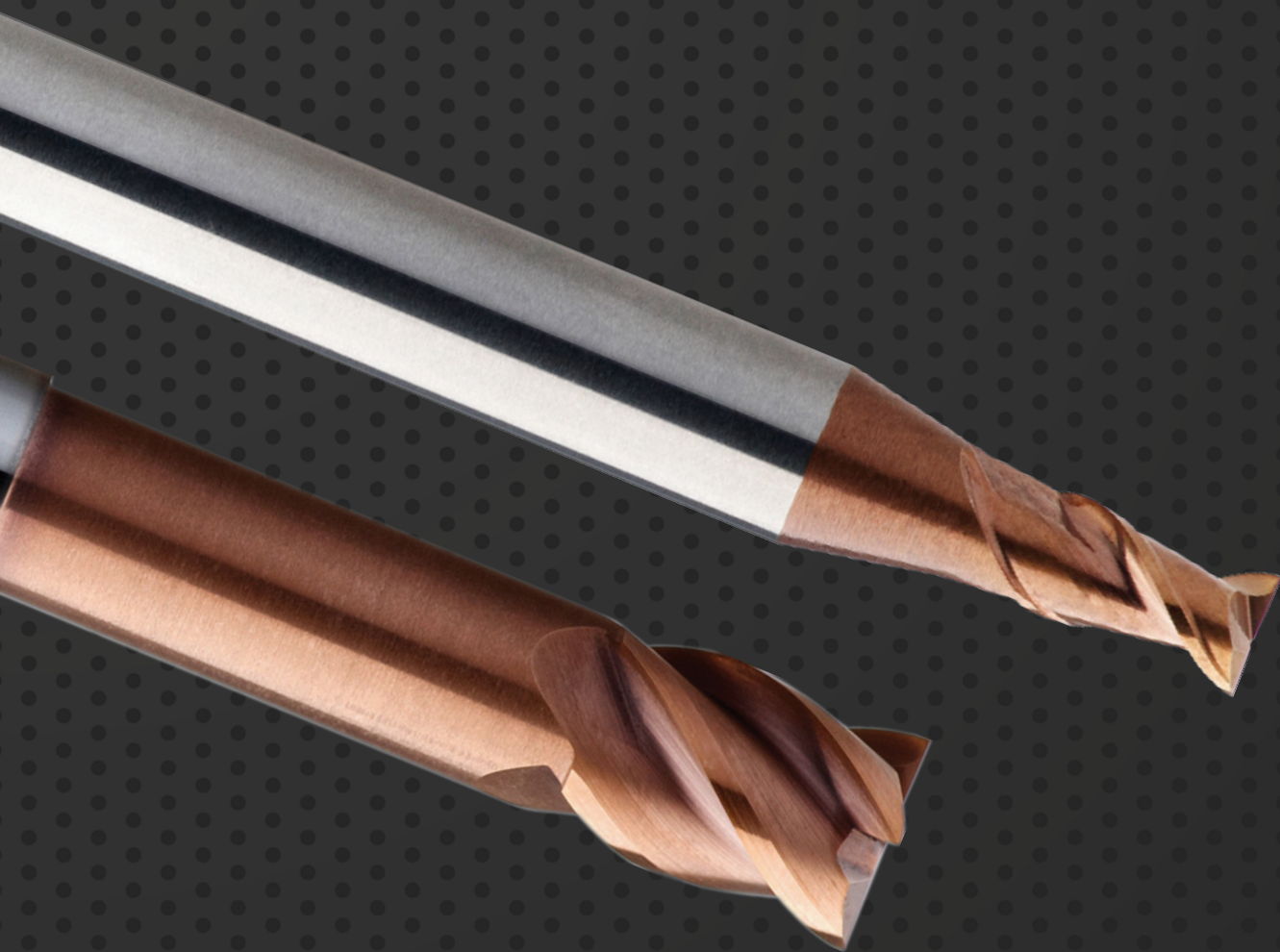




ENDMILLS

SE 60

For general machining

For material application between 53 HRC to 68 HRC

Index SE 60, For 53 – 68 HRC

 Suitable for Material Groups
  Adapté pour les matériaux
  适用于材料
 Geeignet für die Materialgruppen
  Adatto per il materiale

H

EDP Number	Type	No. Z	Helix Angle	Coating	Performance	Page Number
A36	 SE 60 Long	4	40°	B0909	G	253
A37	 SE 60 Extra-Long	4	40°	B0909	G	254
A38	 SE 60 Long Reach Long	4	40°	B0909	G	255
A39	 SE 60 Long Reach Long	4	40°	B0909	G	255
A40	 SE 60 Long Reach Extra-Long	4	40°	B0909	G	256
A41	 SE 60 Long Reach Extra-Long	4	40°	B0909	G	256
A44	 SE 60 Multiflute Long	6/8	50°	B0909	G	257
A45	 SE 60 Multiflute Long	6/8	50°	B0909	G	257
A46	 SE 60 Multiflute Extra-Long	6/8	50°	B0909	G	258
A47	 SE 60 Multiflute Extra-Long	6/8	50°	B0909	G	258
A34	 SE 60 Short Flute	4	45°	B0909	G	259
A48	 SE 60R Short Flute	4	45°	B0909	G	260
A49	 SE 60R Short Flute	4	45°	B0909	G	260
A51	 SE 60R Long Reach Long	4	40°	B0909	G	261
A52	 SE 60R Long Reach Long	4	40°	B0909	G	261
A53	 SE 60R Long Reach Extra-Long	4	40°	B0909	G	262
A54	 SE 60R Long Reach Extra-Long	4	40°	B0909	G	262
A55	 SE 60 Mini	2	40°	B0909	G	263

G - General P - Performance

FEATURES & BENEFITS

SE 60



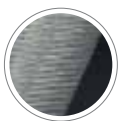
Top View

1 Gash Land Design



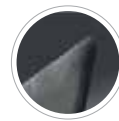
Significantly improves strength and provide great chipping resistance

2 Eccentric Grinding



Optimum eccentric grinding in order to avoid rubbing, while maintaining maximum cutting tool strength.

3 Cutting Edge Preparation



- Enhances tool life
- Less material adhere on the cutting edge for stable machining
- Improves wear resistance and reduces excessive friction

4 Suitable for Material Group

H





1. Stirnschliff Design
Verbessert die Leistung deutlich und bietet Schutz gegen Ausbrüche
2. Exzentrischer Schliff
Optimaler exzentrischer Schliff zur Reduzierung der Reibung unter Beibehaltung der maximalen Schneidenstabilität
3. Schneidkantenbehandlung
Verbessert die Werkzeuglebensdauer
Weniger Materialanhaftungen an der Schneide Für stabile Bearbeitung
Verbessert die Verschleißfestigkeit und reduziert übermäßige Reibung
4. Negativer Spanwinkel
Geeignet für das Materialgruppe H



1. 底刃斜面式设计
显著提高强度, 提供极好的耐崩裂性。
2. 偏心研磨
最佳偏心研磨, 可避免摩擦, 同时保持最大切削刀具强度。
3. 切削刃设置提高刀具寿命
提高刀具寿命。
切削刃上的材料附着少, 加工稳定。
提高耐磨性并减少过度摩擦。
4. 负前角
适用于材料 H。



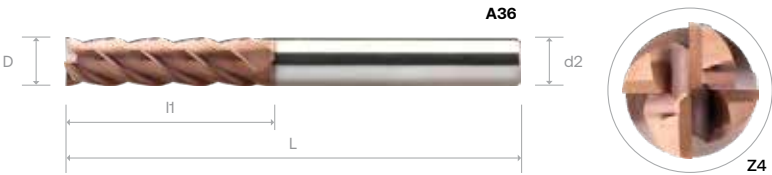
1. Struttura area sgrossatura
Migliora notevolmente la potenza e offre un'eccellente resistenza alle scheggiature
2. Levigatura orbitale
Levigatura orbitale ottimale per evitare sfregatura, garantendo la massima resistenza dello strumento di taglio.
3. Preparazione dell'angolo di taglio
Migliora la durata dello strumento
Meno materiale che aderisce sull'angolo di taglio
Per una lavorazione stabile
Migliora la resistenza all'usura e riduce l'attrito eccessivo
4. Angolo di taglio negativo
Adatto per il materiale H



1. Conception de fraise pour l'usinage general
Améliore considérablement la solidité et apporte une excellente résistance à l'ébarbage
2. Meulage excentrique
Meulage optimal diminuant le coefficient de friction tout en maintenant une bonne acuité de l'arête de coupe
3. Préparation des arêtes de coupes
Améliore la durée de vie de l'outil
Moins de matériau adhère à l'arête tranchante
Pour un usinage stable
Améliore la résistance à l'usure et réduit les frottements excessifs
4. Angle de coupe négatif
Adapté pour les matériaux H

SE 60 LONG ENDMILLS, 4 FLUTES

-  VHM Fräser SE 60, lang, 4 Zähne
-  Frese lunghe SE 60, 4 taglienti
-  Fraises SE 60 Longue, 4 dents
-  整体硬质合金 SE 60 系列 4刀长型平底铣刀



Order Number	Dimension (mm)					B0909
	D	I 1	I 2	L	d2 (h6)	
A36 0300 075 06	3	19		75	6	•
A36 0400 075 06	4			75	6	•
A36 0500	5			60	5	•
A36 0500 075 06				75	6	•
A36 0600	6	31		75	6	•
A36 0800	8			75	8	•
A36 1000 075	10			75	10	•
A36 1000 100		50		100	10	•
A36 1200	12			100	12	•
A36 1400	14	57		125	14	•
A36 1600	16			125	16	•
A36 1800	18			125	18	◦
A36 2000	20			125	20	•

Material Group | Material-Gruppe | Groupe Matiere | Gruppo Materiali | 材质主类

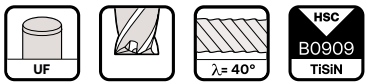
Cutting Parameter

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02	264
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

○ ○

SE 60 EXTRA-LONG ENDMILLS, 4 FLUTES

- VHM SE 60 Fräser, extra-lang, 4 Zähne
- Frese extra-lunghe SE 60, 4 taglienti
- Fraises SE 60 Extra-Longue- 4 dents
- 整体硬质合金 SE 60 系列 4刃加长型平底铣刀



Order Number	Dimension (mm)					B0909
	D	L1	L2	L	d2 (h6)	
A37 0300 100 06	3	25		100	6	•
A37 0400 100 06	4	31		100	6	•
A37 0500 100 06	5			100	6	•
A37 0600	6	38		100	6	•
A37 0800	8	41		100	8	•
A37 1000	10	57		125	10	•
A37 1200	12	75		150	12	•
A37 1400	14			150	14	•
A37 1600	16			150	16	•
A37 1800	18			150	18	•
A37 2000	20			150	20	•

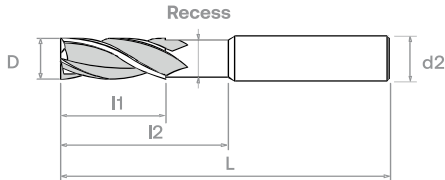
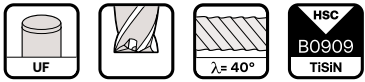
Material Group | Material-Gruppe | Groupe Matiere | Gruppo Materiali | 材质主类

N01N02N03K01K02P01P02P03M01M02S01S02S03H01H02O01O02

264

SE 60 LONG, LONG REACH ENDMILLS WITH SHORT FLUTES / WITH RECESS, 4 FLUTES

- VHM SE 60 LONG REACH Fräser, lang, mit kurzen Nuten, 4 Zähne
- Frese lunghe SE 60 long-reach, con taglienti corti, 4 taglienti
- Fraises SE 60 LONG REACH longues à hélices courtes, 4 dents
- 整体硬质合金 SE 60 系列 4刃长型长颈短刃平底铣刀



Order Number	Dimension (mm)					B0909
	D	I1	I2	L	d2 (h6)	
A38 0300 075 06	3	5		75	6	•
A38 0400 075 06	4	8		75	6	•
A38 0500 075 06	5	9		75	6	•
A38 0600	6	10		75	6	•
A38 0800	8	12		75	8	•
A38 1000 075	10	14		75	10	•
A38 1000 100				100	10	•
A38 1200	12	16		100	12	•
A38 1400	14	22		125	14	•
A38 1600	16			125	16	•
A38 1800	18	26		125	18	•
A38 2000	20			125	20	•

Order Number	Dimension (mm)					B0909
	D	I1	I2	L	d2 (h6)	
A39 0300 075 06	3	5	30	75	6	•
A39 0400 075 06	4	8	32	75	6	•
A39 0500 075 06	5	9	32	75	6	•
A39 0600	6	10	40	75	6	•
A39 0800	8	12	40	75	8	•
A39 1000 075	10	14	40	75	10	•
A39 1000 100			60	100	10	•
A39 1200	12	16	60	100	12	•
A39 1400	14	22	85	125	14	•
A39 1600	16		85	125	16	•
A39 1800	18	26	85	125	18	•
A39 2000	20		85	125	20	•

Material Group | Material-Gruppe | Groupe Matiere | Gruppo Materiali | 材质主类

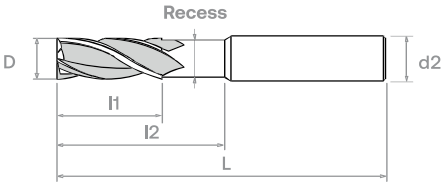
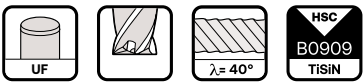
Cutting Parameter

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02	265
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



SE 60 EXTRA-LONG, LONG REACH ENDMILLS, WITH SHORT FLUTES / WITH RECESS, 4 FLUTES

-  VHM SE 60 LONG REACH Fräser, extra-lang, mit kurzen Nuten, 4 Zähne
-  Frese extra-lunghe SE 60 long-reach, con taglienti corti, 4 taglienti
-  Fraises SE 60 LONG REACH extra-longues à hélices courtes, 4 dents
-  整体硬质合金 SE 60 系列 4刃加长型长颈短刃平底铣刀



Order Number	Dimension (mm)					B0909
	D	I 1	I 2	L	d2 (h6)	
A40 0300 100 06	3	5		100	6	•
A40 0400 100 06	4	8		100	6	•
A40 0500 100 06	5	9		100	6	•
A40 0600	6	10		100	6	•
A40 0800	8	12		100	8	•
A40 1000	10	14		125	10	•
A40 1200	12	16		150	12	•
A40 1400	14	22		150	14	•
A40 1600	16			150	16	•
A40 1800	18	26		150	18	•
A40 2000	20			150	20	•

Order Number	Dimension (mm)					B0909
	D	I 1	I 2	L	d2 (h6)	
A41 0300 100 06	3	5	60	100	6	•
A41 0400 100 06	4	8	60	100	6	•
A41 0500 100 06	5	9	60	100	6	•
A41 0600	6	10	60	100	6	•
A41 0800	8	12	60	100	8	•
A41 1000	10	14	85	125	10	•
A41 1200	12	16	110	150	12	•
A41 1400	14	22	110	150	14	•
A41 1600	16		110	150	16	•
A41 1800	18	26	110	150	18	•
A41 2000	20		110	150	20	•

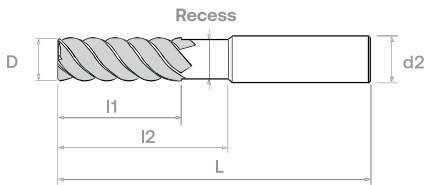
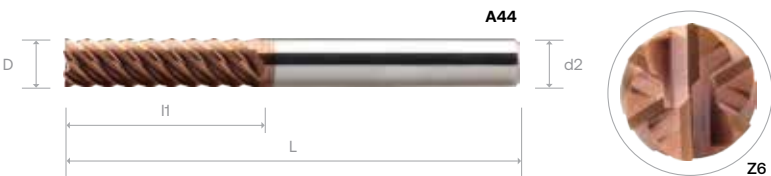
Material Group | Material-Gruppe | Groupe Matiere | Gruppo Materiali | 材质主类

N01N02N03K01K02P01P02P03M01M02S01S02S03H01H02O01O02

266

SE 60 LONG MULTIFLUTE ENDMILLS / WITH RECESS, 6 - 8 FLUTES

- VHM SE 60 Mehrzahnfräser, lang, 6 bzw. 8 Zähne
- Frese multi-taglienti lunghe SE 60, 6 - 8 taglienti
- Fraises Multident SE 60 longues, 6 - 8 dents
- 整体硬质合金 SE 60 系列 6-8刃长型多刃平底铣刀



Order Number	Dimension (mm)						B0909
	D	I1	I2	L	d2 (h6)	Z	
A44 0300 075 06	3	19		75	6	6	•
A44 0400 075 06	4			75	6	6	•
A44 0500 075 06	5			75	6	6	•
A44 0600	6	31		75	6	6	•
A44 0800	8			75	8	6	•
A44 1000	10	45		100	10	6	•
A44 1200	12	50		100	12	6	•
A44 1400	14	57		125	14	6	•
A44 1600	16			125	16	8	•
A44 1800	18			125	18	8	•
A44 2000	20			125	20	8	•

Order Number	Dimension (mm)						B0909
	D	I1	I2	L	d2 (h6)	Z	
A45 0300 075 06	3	19	30	75	6	6	•
A45 0400 075 06	4		32	75	6	6	•
A45 0500 075 06	5		32	75	6	6	•
A45 0600	6	31	40	75	6	6	•
A45 0800	8		40	75	8	6	•
A45 1000	10	45	60	100	10	6	•
A45 1200	12	50	60	100	12	6	•
A45 1400	14	57	85	125	14	6	•
A45 1600	16		85	125	16	8	•
A45 1800	18		85	125	18	8	•
A45 2000	20		85	125	20	8	•

Material Group | Material-Gruppe | Groupe Matiere | Gruppo Materiali | 材质主类

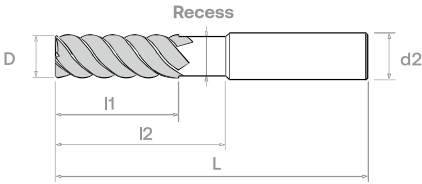
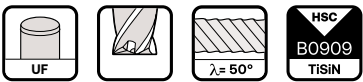
Cutting Parameter

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02	266
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

○ ○

SE 60 EXTRA-LONG MULTIFLUTE ENDMILLS / WITH RECESS, 6 - 8 FLUTES

- VHM SE 60 Mehrzahnfräser, extra-lang, 6 bzw. 8 Zähne
- Frese multi-taglienti extra-lunghe SE 60, 6 - 8 taglienti
- Fraises Multidentés SE 60 extra-longues, 6 - 8 dents
- 整体硬质合金 SE 60 系列 6-8刃加长型多刃平底铣刀



Order Number	Dimension (mm)						B0909
	D	L1	L2	L	d2 (h6)	Z	
A46 0300 100 06	3	25		100	6	6	•
A46 0400 100 06	4	31		100	6	6	•
A46 0500 100 06	5			100	6	6	•
A46 0600	6	38		100	6	6	•
A46 0800	8	41		100	8	6	•
A46 1000	10	57		125	10	6	•
A46 1200	12	75		150	12	6	•
A46 1400	14			150	14	6	•
A46 1600	16			150	16	8	•
A46 1800	18			150	18	8	•
A46 2000	20			150	20	8	•

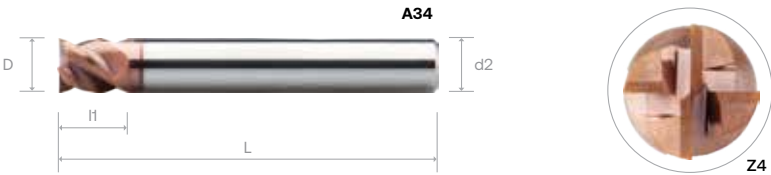
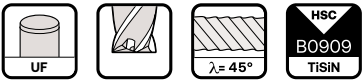
Order Number	Dimension (mm)						B0909
	D	I 1	I 2	L	d2(h6)	Z	
A47 0300 100 06	3	25	60	100	6	6	•
A47 0400 100 06	4	31	60	100	6	6	•
A47 0500 100 06	5		60	100	6	6	•
A47 0600	6	38	60	100	6	6	•
A47 0800	8	41	60	100	8	6	•
A47 1000	10	57	85	125	10	6	•
A47 1200	12	75	110	150	12	6	•
A47 1400	14		110	150	14	6	•
A47 1600	16		110	150	16	8	•
A47 1800	18		110	150	18	8	•
A47 2000	20		110	150	20	8	•

Material Group | Material-Gruppe | Groupe Matiere | Gruppo Materiali | 材质主类

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02	267
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

SE 60 SHORT FLUTES ENDMILLS, 4 FLUTES

- VHM SE 60 Fräser, 4 Zähne
- Frese SE 60, con taglienti corti, 4 taglienti
- Fraises SE 60, 4 dents
- 整体硬质合金 SE 60 系列 4刃平底铣刀



Order Number	Dimension (mm)					B0909
	D	I 1	I 2	L	d2 (h6)	
A34 0300 060 06	3	4		60	6	•
A34 0400 060 06	4	5		60	6	•
A34 0500 060 06	5	6		60	6	•
A34 0600	6	7		60	6	•
A34 0800	8	9		64	8	•
A34 1000	10	11		70	10	•
A34 1200	12	13		75	12	•
A34 1600	16	17		90	16	•

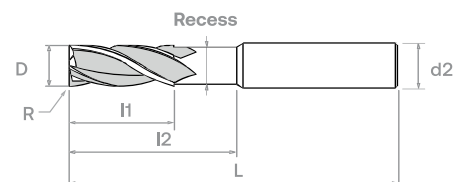
Material Group | Material-Gruppe | Groupe Matiere | Gruppo Materiali | 材质主类

Cutting Parameter

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02	265
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

○ ○

SE 60R TORUS ENDMILLS, SHORT FLUTES / WITH RECESS, 4 FLUTES

 VHM SE 60R Standard Torusfräser, kurzen Nuten, 4 Zähne Frese toroidali SE 60R, con taglienti corti, 4 taglienti Fraises toriques SE 60R, dents courtes, 4 dents 整体硬质合金 SE 60R 系列 4刃短刃圆鼻铣刀

Order Number	Dimension (mm)						B0909	Order Number	Dimension (mm)						B0909
	D	I1	I2	L	d2 (h6)	R			D	I1	I2	L	d2 (h6)	R	
A48 0300 060 0600 030	3	4		60	6	0.3	•	A49 0300 060 0600 030	3	4	14	60	6	0.3	•
A48 0300 060 0600 050				60	6	0.5	•	A49 0300 060 0600 050			14	60	6	0.5	•
A48 0400 060 0600 030	4	5		60	6	0.3	•	A49 0400 060 0600 030	4	5	16	60	6	0.3	•
A48 0400 060 0600 050				60	6	0.5	•	A49 0400 060 0600 050			16	60	6	0.5	•
A48 0500 060 0600 030	5	6		60	6	0.3	•	A49 0500 060 0600 030	5	6	18	60	6	0.3	•
A48 0500 060 0600 050				60	6	0.5	•	A49 0500 060 0600 050			18	60	6	0.5	•
A48 0600 060 0600 030	6	7		60	6	0.3	•	A49 0600 060 0600 030	6	7	20	60	6	0.3	•
A48 0600 060 0600 050				60	6	0.5	•	A49 0600 060 0600 050			20	60	6	0.5	•
A48 0600 060 0600 100	8	9		60	6	1.0	•	A49 0600 060 0600 100	8	9	20	60	6	1.0	•
A48 0800 064 0800 030				64	8	0.3	•	A49 0800 064 0800 030 *			26	64	8	0.3	•
A48 0800 064 0800 050	10	11		64	8	0.5	•	A49 0800 064 0800 050 *	10	11	26	64	8	0.5	•
A48 0800 064 0800 100				64	8	1.0	•	A49 0800 064 0800 100 *			26	64	8	1.0	•
A48 1000 070 1000 050	12	13		70	10	0.5	•	A49 1000 070 1000 050	12	13	31	70	10	0.5	•
A48 1000 070 1000 100				70	10	1.0	•	A49 1000 070 1000 100			31	70	10	1.0	•
A48 1000 070 1000 200	16	17		70	10	2.0	•	A49 1000 070 1000 200	16	17	31	70	10	2.0	•
A48 1200 075 1200 050				75	12	0.5	•	A49 1200 075 1200 050			37	75	12	0.5	•
A48 1200 075 1200 100	43	90		75	12	1.0	•	A49 1200 075 1200 100	43	90	37	75	12	1.0	•
A48 1200 075 1200 200				75	12	2.0	•	A49 1200 075 1200 200			37	75	12	2.0	•
A48 1600 090 1600 050	43	90		90	16	0.5	•	A49 1600 090 1600 050	43	90	43	90	16	0.5	•
A48 1600 090 1600 100				90	16	1.0	•	A49 1600 090 1600 100			43	90	16	1.0	•
A48 1600 090 1600 200	43	90		90	16	2.0	•	A49 1600 090 1600 200	43	90	43	90	16	2.0	•
A48 1600 090 1600 300				90	16	3.0	•	A49 1600 090 1600 300			43	90	16	3.0	•

* - DIN 6535

Material Group | Material-Gruppe | Groupe Matiere | Gruppo Materiali | 材质主类

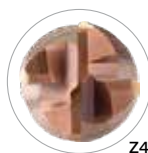
Cutting Parameter

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

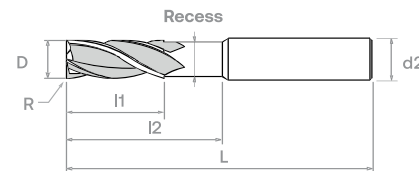
265

SE 60R LONG REACH TORUS ENDMILLS, SHORT FLUTES - LONG / WITH RECESS, 4 FLUTES

-  VHM SE 60R LONG REACH Fräser, lang, mit kurzen Nuten, 4 Zähne
-  Frese torodali lunghe SE 60R LONG REACH, con taglienti corti, 4 taglienti
-  Fraises SE 60R LONG REACH toriques longues, dents courtes, 4 dents
-  整体硬质合金 SE 60R 系列 4刃长型长颈短刃圆鼻铣刀



Z4



Order Number	Dimension (mm)						B0909	Order Number	Dimension (mm)						B0909	
	D	I1	I2	L	d2 (h6)	R			D	I1	I2	L	d2 (h6)	R		
A51 0200 075 0600 020	2	4		75	6	0.2	•	A52 0200 075 0600 020 *	2	4	30	75	6	0.2	•	
A51 0200 075 0600 030				75	6	0.3	•	A52 0200 075 0600 030 *			30	75	6	0.3	•	
A51 0300 075 0600 020	3	5		75	6	0.2	•	A52 0300 075 0600 020	3	5	30	75	6	0.2	•	
A51 0300 075 0600 030				75	6	0.3	•	A52 0300 075 0600 030			30	75	6	0.3	•	
A51 0300 075 0600 050				75	6	0.5	•	A52 0300 075 0600 050			30	75	6	0.5	•	
A51 0400 075 0600 020	4	8		75	6	0.2	•	A52 0400 075 0600 020	4	8	32	75	6	0.2	•	
A51 0400 075 0600 030				75	6	0.3	•	A52 0400 075 0600 030			32	75	6	0.3	•	
A51 0400 075 0600 050				75	6	0.5	•	A52 0400 075 0600 050			32	75	6	0.5	•	
A51 0500 075 0600 020	5	9		75	6	0.2	•	A52 0500 075 0600 020	5	9	32	75	6	0.2	•	
A51 0500 075 0600 030				75	6	0.3	•	A52 0500 075 0600 030			32	75	6	0.3	•	
A51 0500 075 0600 050				75	6	0.5	•	A52 0500 075 0600 050			32	75	6	0.5	•	
A51 0600 075 0600 020	6	10		75	6	0.2	•	A52 0600 075 0600 020	6	10	40	75	6	0.2	•	
A51 0600 075 0600 030				75	6	0.3	•	A52 0600 075 0600 030			40	75	6	0.3	•	
A51 0600 075 0600 050				75	6	0.5	•	A52 0600 075 0600 050			40	75	6	0.5	•	
A51 0600 075 0600 100	8	12		75	6	1	•	A52 0600 075 0600 100	8	12	40	75	6	1	•	
A51 0800 075 0800 020				75	8	0.2	•	A52 0800 075 0800 020			40	75	8	0.2	•	
A51 0800 075 0800 030				75	8	0.3	•	A52 0800 075 0800 030			40	75	8	0.3	•	
A51 0800 075 0800 050	10	14		75	8	0.5	•	A52 0800 075 0800 050	10	14	40	75	8	0.5	•	
A51 0800 075 0800 100				75	8	1	•	A52 0800 075 0800 100			40	75	8	1	•	
A51 1000 075 1000 020				75	10	0.2	•	A52 1000 075 1000 020			40	75	10	0.2	•	
A51 1000 075 1000 030	12	16		75	10	0.3	•	A52 1000 075 1000 030	12	16	40	75	10	0.3	•	
A51 1000 075 1000 050				75	10	0.5	•	A52 1000 075 1000 050			40	75	10	0.5	•	
A51 1000 075 1000 100				75	10	1	•	A52 1000 075 1000 100			40	75	10	1	•	
A51 1000 075 1000 200	16	22		75	10	2	•	A52 1000 075 1000 200	16	22	40	75	10	2	•	
A51 1000 100 1000 020				100	10	0.2	•	A52 1000 100 1000 020 *			60	100	10	0.2	•	
A51 1000 100 1000 030				100	10	0.3	•	A52 1000 100 1000 030 *			60	100	10	0.3	•	
A51 1000 100 1000 050	12	16		100	10	0.5	•	A52 1000 100 1000 050 *	12	16	60	100	10	0.5	•	
A51 1000 100 1000 100				100	10	1	•	A52 1000 100 1000 100 *			60	100	10	1	•	
A51 1000 100 1000 200				100	10	2	•	A52 1000 100 1000 200 *			60	100	10	2	•	
A51 1200 100 1200 020	16	22		100	12	0.2	•	A52 1200 100 1200 020	16	22	60	100	12	0.2	•	
A51 1200 100 1200 030				100	12	0.3	•	A52 1200 100 1200 030			60	100	12	0.3	•	
A51 1200 100 1200 050				100	12	0.5	•	A52 1200 100 1200 050			60	100	12	0.5	•	
A51 1200 100 1200 100	16	22		100	12	1	•	A52 1200 100 1200 100	16	22	60	100	12	1	•	
A51 1200 100 1200 200				100	12	2	•	A52 1200 100 1200 200			60	100	12	2	•	
A51 1600 125 1600 030				125	16	0.3	•	A52 1600 125 1600 030			85	125	16	0.3	•	
A51 1600 125 1600 050	16	22		125	16	0.5	•	A52 1600 125 1600 050	16	22	85	125	16	0.5	•	
A51 1600 125 1600 100				125	16	1	•	A52 1600 125 1600 100			85	125	16	1	•	
A51 1600 125 1600 200				125	16	2	•	A52 1600 125 1600 200			85	125	16	2	•	
A51 1600 125 1600 300		125	16	3	•	A52 1600 125 1600 300			85	125	16	3	•			

* - DIN 6535

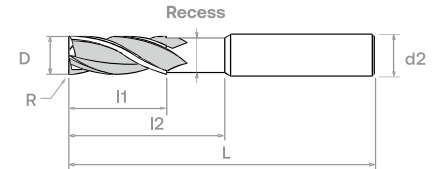
Material Group | Material-Gruppe | Groupe Matiere | Gruppo Materiali | 材质主类

Cutting Parameter

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02	265
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

SE 60R TORUS SHORT FLUTES LONG REACH ENDMILLS - EXTRA-LONG / WITH RECESS, 4 FLUTES

- 🇩🇪 VHM SE 60R LONG REACH Fräser, extra-lang, mit kurzen Nuten, 4 Zähne
- 🇮🇹 Frese torodali extra-lunghe SE 60R long-reach, con taglienti corti, 4 taglienti
- 🇫🇷 Fraises toriques SE 60R LONG REACH extra-longues, dents courtes, 4 dents
- 🇨🇳 整体硬质合金 SE 60R 系列 4刀加长型长颈短刃圆鼻铣刀



Order Number	Dimension (mm)						B0909	Order Number	Dimension (mm)						B0909	
	D	I1	I2	L	d2 (h6)	R			D	I1	I2	L	d2 (h6)	R		
A53 0200 100 0600 020	2	4		100	6	0.2	•	A54 0200 100 0600 020	2	4		60	100	6	0.2	•
A53 0200 100 0600 030				100	6	0.3	•	A54 0200 100 0600 030				60	100	6	0.3	•
A53 0300 100 0600 020				100	6	0.2	•	A54 0300 100 0600 020				60	100	6	0.2	•
A53 0300 100 0600 030	3	5		100	6	0.3	•	A54 0300 100 0600 030	3	5		60	100	6	0.3	•
A53 0300 100 0600 050				100	6	0.5	•	A54 0300 100 0600 050				60	100	6	0.5	•
A53 0300 100 0600 100				100	6	1	•	A54 0300 100 0600 100				60	100	6	1	•
A53 0400 100 0600 020	4	8		100	6	0.2	•	A54 0400 100 0600 020 *	4	8		60	100	6	0.2	•
A53 0400 100 0600 030				100	6	0.3	•	A54 0400 100 0600 030 *				60	100	6	0.3	•
A53 0400 100 0600 050				100	6	0.5	•	A54 0400 100 0600 050 *				60	100	6	0.5	•
A53 0400 100 0600 100	5	9		100	6	1	•	A54 0400 100 0600 100 *	5	9		60	100	6	1	•
A53 0500 100 0600 020				100	6	0.2	•	A54 0500 100 0600 020				60	100	6	0.2	•
A53 0500 100 0600 030				100	6	0.3	•	A54 0500 100 0600 030				60	100	6	0.3	•
A53 0500 100 0600 050	6	10		100	6	0.5	•	A54 0500 100 0600 050	6	10		60	100	6	0.5	•
A53 0500 100 0600 100				100	6	1	•	A54 0500 100 0600 100				60	100	6	1	•
A53 0600 100 0600 020				100	6	0.2	•	A54 0600 100 0600 020				60	100	6	0.2	•
A53 0600 100 0600 030	8	12		100	6	0.3	•	A54 0600 100 0600 030	8	12		60	100	6	0.3	•
A53 0600 100 0600 050				100	6	0.5	•	A54 0600 100 0600 050				60	100	6	0.5	•
A53 0600 100 0600 100				100	6	1	•	A54 0600 100 0600 100				60	100	6	1	•
A53 0600 125 0600 020	10	14		125	6	0.2	•	A54 0600 125 0600 020	10	14		60	125	6	0.2	•
A53 0600 125 0600 030				125	6	0.3	•	A54 0600 125 0600 030				60	125	6	0.3	•
A53 0600 125 0600 050				125	6	0.5	•	A54 0600 125 0600 050				60	125	6	0.5	•
A53 0600 125 0600 100	12	16		125	6	1	•	A54 0600 125 0600 100	12	16		60	125	6	1	•
A53 0800 100 0800 020				100	8	0.2	•	A54 0800 100 0800 020				60	100	8	0.2	•
A53 0800 100 0800 030				100	8	0.3	•	A54 0800 100 0800 030				60	100	8	0.3	•
A53 0800 100 0800 050	8	12		100	8	0.5	•	A54 0800 100 0800 050	8	12		60	100	8	0.5	•
A53 0800 100 0800 100				100	8	1	•	A54 0800 100 0800 100				60	100	8	1	•
A53 0800 100 0800 200				100	8	2	•	A54 0800 100 0800 200				60	100	8	2	•
A53 0800 125 0800 020	10	14		125	8	0.2	•	A54 0800 125 0800 020	10	14		60	125	8	0.2	•
A53 0800 125 0800 030				125	8	0.3	•	A54 0800 125 0800 030				60	125	8	0.3	•
A53 0800 125 0800 050				125	8	0.5	•	A54 0800 125 0800 050				60	125	8	0.5	•
A53 0800 125 0800 100	12	16		125	8	1	•	A54 0800 125 0800 100	12	16		60	125	8	1	•
A53 0800 125 0800 200				125	8	2	•	A54 0800 125 0800 200				60	125	8	2	•
A53 1000 125 1000 020				125	10	0.2	•	A54 1000 125 1000 020 *				85	125	10	0.2	•
A53 1000 125 1000 030	10	14		125	10	0.3	•	A54 1000 125 1000 030 *	10	14		85	125	10	0.3	•
A53 1000 125 1000 050				125	10	0.5	•	A54 1000 125 1000 050 *				85	125	10	0.5	•
A53 1000 125 1000 100				125	10	1	•	A54 1000 125 1000 100 *				85	125	10	1	•
A53 1000 125 1000 200	12	16		125	10	2	•	A54 1000 125 1000 200 *	12	16		85	125	10	2	•
A53 1000 150 1000 020				150	10	0.2	•	A54 1000 150 1000 020				85	150	10	0.2	•
A53 1000 150 1000 030				150	10	0.3	•	A54 1000 150 1000 030				85	150	10	0.3	•
A53 1000 150 1000 050	16	22		150	10	0.5	•	A54 1000 150 1000 050	16	22		85	150	10	0.5	•
A53 1000 150 1000 100				150	10	1	•	A54 1000 150 1000 100				85	150	10	1	•
A53 1000 150 1000 200				150	10	2	•	A54 1000 150 1000 200				85	150	10	2	•
A53 1200 150 1200 020	12	16		150	12	0.2	•	A54 1200 150 1200 020	12	16		110	150	12	0.2	•
A53 1200 150 1200 030				150	12	0.3	•	A54 1200 150 1200 030				110	150	12	0.3	•
A53 1200 150 1200 050				150	12	0.5	•	A54 1200 150 1200 050				110	150	12	0.5	•
A53 1200 150 1200 100	16	22		150	12	1	•	A54 1200 150 1200 100	16	22		110	150	12	1	•
A53 1200 150 1200 200				150	12	2	•	A54 1200 150 1200 200				110	150	12	2	•
A53 1600 150 1600 030				150	16	0.3	•	A54 1600 150 1600 030				110	150	16	0.3	•
A53 1600 150 1600 050	16	22		150	16	0.5	•	A54 1600 150 1600 050	16	22		110	150	16	0.5	•
A53 1600 150 1600 100				150	16	1	•	A54 1600 150 1600 100				110	150	16	1	•
A53 1600 150 1600 200				150	16	2	•	A54 1600 150 1600 200				110	150	16	2	•
A53 1600 150 1600 300				150	16	3	•	A54 1600 150 1600 300				110	150	16	3	•

* - DIN 6535

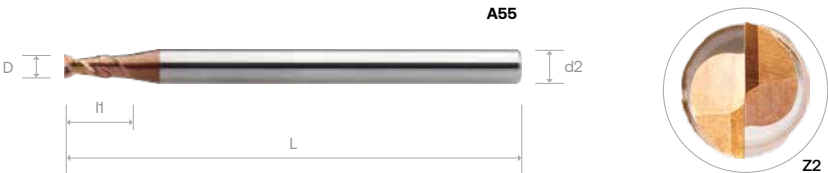
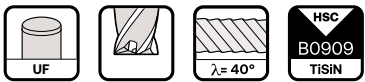
Material Group | Material-Gruppe | Groupe Matiere | Gruppo Materiali | 材质主类

Cutting Parameter

N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02	266
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

SE 60 MINIATURE ENDMILLS, 2 FLUTES

-  VHM SE 60 Kleinstfräser, 2 Zähne
-  Micro-frese SE 60, 2 taglienti
-  Micro-Fraises SE 60, 2 dents
-  整体硬质合金 SE 60 系列 微小径2刀平底铣刀



Order Number	Dimension (mm)					B0909
	D	I1	I2	L	d2 (h6)	
A55 0010 03	0.1	0.2		40	3	•
A55 0010 04				40	4	•
A55 0020 03	0.2	0.4		40	3	•
A55 0020 04				40	4	•
A55 0030 03	0.3	0.6		40	3	•
A55 0030 04				40	4	•
A55 0040 03	0.4	0.8		40	3	•
A55 0040 04				40	4	•
A55 0050 03	0.5	1.0		40	3	•
A55 0050 04				40	4	•
A55 0060 03	0.6	1.2		40	3	•
A55 0060 04				40	4	•
A55 0070 03	0.7	1.4		40	3	•
A55 0070 04				40	4	•
A55 0080 03	0.8	1.6		40	3	•
A55 0080 04				40	4	•
A55 0090 03	0.9	1.8		40	3	•
A55 0090 04				40	4	•

D mm	Tol. µm
0.1 ~ 0.7	0 / -12
0.7 ~ 4.0	0 / -20

Material Group | Material-Gruppe | Groupe Matiere | Gruppo Materiali | 材质主类

Cutting Parameter

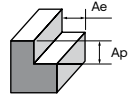
N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02	267
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



Note: These recommended cutting data indicators are just for reference. They should be adjusted according to the different cutting condition

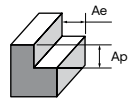


SE 60 Long Endmills, 4 Flutes - A36



Side Milling	H			
Working Material	Hardened steel		Hardened steel	
Properties	45 ≤ HRC < 52		52 ≤ HRC < 68	
Cutting depth, ap	1.50 × D		1.50 × D	
Cutting Width, ae	0.12 × D		0.08 × D	
D	Vc	Fz	Vc	Fz
3	90	0.014	60	0.010
4		0.020		0.013
5		0.024		0.017
6		0.030		0.020
8		0.041		0.028
10		0.052		0.035
12		0.063		0.044
14		0.072		0.050
16		0.082		0.057
18		0.091		0.061
20		0.101		0.068
20		0.101		0.068

SE 60 Extra-Long Endmills, 4 Flutes - A37



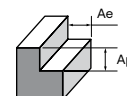
Side Milling	H			
Working Material	Hardened steel		Hardened steel	
Properties	45 ≤ HRC < 52		52 ≤ HRC < 68	
Cutting depth, ap	2.00 × D		2.00 × D	
Cutting Width, ae	0.08 × D		0.05 × D	
D	Vc	Fz	Vc	Fz
3	80	0.015	50	0.008
4		0.020		0.011
5		0.026		0.014
6		0.031		0.018
8		0.042		0.024
10		0.053		0.031
12		0.065		0.039
14		0.074		0.044
16		0.085		0.051
18		0.094		0.054
20		0.104		0.059

Note: These recommended cutting data indicators are just for reference. They should be adjusted according to the different cutting condition



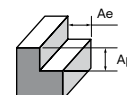
H

SE 60 Short Flutes Endmills, 4 Flutes - A34, A48, A49



Side Milling	H			
Working Material	Hardened steel		Hardened steel	
Properties	45 ≤ HRC < 52		52 ≤ HRC < 68	
Cutting depth, ap	0.30 × D		0.25 × D	
Cutting Width, ae	0.40 × D		0.40 × D	
D	Vc	Fz	Vc	Fz
3	100	0.016	70	0.011
4		0.021		0.014
5		0.027		0.018
6		0.032		0.022
8		0.043		0.029
10		0.054		0.038
12		0.066		0.047
14		0.076		0.053
16		0.085		0.061

SE 60 Short Flutes Long Reach Long Endmills, 4 Flutes - A38, A39, A51, A52

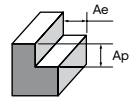


Side Milling	H			
Working Material	Hardened steel		Hardened steel	
Properties	45 ≤ HRC < 52		52 ≤ HRC < 68	
Cutting depth, ap	0.25 × D		0.20 × D	
Cutting Width, ae	0.35 × D		0.35 × D	
D	Vc	Fz	Vc	Fz
2	90	0.009	60	0.006
3		0.014		0.010
4		0.020		0.013
5		0.024		0.017
6		0.030		0.020
8		0.041		0.028
10		0.052		0.035
12		0.063		0.044
14		0.072		0.050
16		0.082		0.057
18		0.091		0.061
20		0.101		0.068

Note: These recommended cutting data indicators are just for reference. They should be adjusted according to the different cutting condition

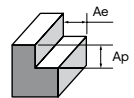


SE 60 Short Flutes Long Reach Extra-Long Endmills, 4 Flutes - A40, A41, A53, A54



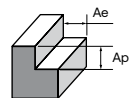
Side Milling	H			
Working Material	Hardened steel		Hardened steel	
Properties	45 ≤ HRC < 52		52 ≤ HRC < 68	
Cutting depth, ap	0.23 × D		0.18 × D	
Cutting Width, ae	0.32 × D		0.32 × D	
D	Vc	Fz	Vc	Fz
2	80	0.010	50	0.005
3		0.015		0.008
4		0.020		0.011
5		0.026		0.014
6		0.031		0.018
8		0.042		0.024
10		0.053		0.031
12		0.065		0.039
14		0.074		0.044
16		0.085		0.051
18		0.094		0.054
20		0.104		0.059

SE 60 MultiFlutes Long Endmills, 6 Flutes - A44, A45



Side Milling	H			
Working Material	Hardened steel		Hardened steel	
Properties	45 ≤ HRC < 52		52 ≤ HRC < 68	
Cutting depth, ap	1.50 × D		1.50 × D	
Cutting Width, ae	0.06 × D		0.05 × D	
D	Vc	Fz	Vc	Fz
3	95	0.011	65	0.008
4		0.016		0.011
5		0.020		0.014
6		0.024		0.017
8		0.033		0.023
10		0.041		0.030
12		0.049		0.038
14		0.057		0.043

SE 60 MultiFlutes Long Endmills, 8 Flutes - A44, A45



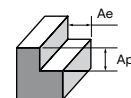
Side Milling	H			
Working Material	Hardened steel		Hardened steel	
Properties	45 ≤ HRC < 52		52 ≤ HRC < 68	
Cutting depth, ap	1.50 × D		1.50 × D	
Cutting Width, ae	0.06 × D		0.05 × D	
D	Vc	Fz	Vc	Fz
16	95	0.062	65	0.047
18		0.069		0.052
20		0.076		0.057

Note: These recommended cutting data indicators are just for reference. They should be adjusted according to the different cutting condition



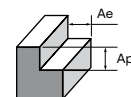
H

SE 60 MultiFlutes Extra-Long Endmills, 6 Flutes - A46, A47



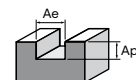
Side Milling	H			
Working Material	Hardened steel		Hardened steel	
Properties	45 ≤ HRC < 52		52 ≤ HRC < 68	
Cutting depth, ap	2.00 × D		2.00 × D	
Cutting Width, ae	0.04 × D		0.03 × D	
D	Vc	Fz	Vc	Fz
3	80	0.010	50	0.007
4		0.014		0.010
5		0.018		0.013
6		0.022		0.016
8		0.030		0.022
10		0.038		0.028
12		0.047		0.036
14		0.054		0.041

SE 60 MultiFlutes Extra-Long Endmills, 8 Flutes - A46, A47



Side Milling	H			
Working Material	Hardened steel		Hardened steel	
Properties	45 ≤ HRC < 52		52 ≤ HRC < 68	
Cutting depth, ap	2.00 × D		2.00 × D	
Cutting Width, ae	0.04 × D		0.03 × D	
D	Vc	Fz	Vc	Fz
16	80	0.060	50	0.045
18		0.066		0.050
20		0.072		0.053

SE 60 Miniature Endmills, 2 Flutes - A55



Slotting	H					
Working Material	Hardened steel			Hardened steel		
Properties	45 ≤ HRC < 52			52 ≤ HRC < 68		
D	Ap	N	Fz	Ap	N	Fz
0.1	0.020	50000	0.002		50000	0.002
0.2	0.040	50000	0.003	0.020	50000	0.002
0.3	0.060	50000	0.003	0.030	50000	0.002
0.4	0.080	50000	0.003	0.040	40000	0.003
0.5	0.100	50000	0.003	0.050	32000	0.003
0.6	0.120	48000	0.004	0.060	26500	0.005
0.7	0.140	41100	0.005	0.070	22700	0.006
0.8	0.160	35700	0.006	0.080	20000	0.007
0.9	0.180	32000	0.007	0.090	17800	0.008