



ALU LINE

- Wide range of carbide endmills
- For Aluminium and non-ferrous materials

This series includes endmills and ballnose



AL SE Single Flute Endmills

		EDP	Ø	N° Z	Helix Angle	Flute Polished	T ... n	H2600	RC	Weldon	Operation			Page
	AL SE Einzahn Fräser													
	Frese AL SE 1 tagliente													
	Fraises AL SE à une dent													
	AL SE 系列 立铣刀- 1 刃													
		788					o							58
		924	2 - 12	1	25°		o							58

AL SE Standard Endmills

		EDP	Ø	N° Z	Helix Angle	Flute Polished	T ... n	H2600	RC	Weldon	Operation			Page
	Standard AL SE Fräser													
	Frese AL SE Standard													
	Fraises AL SE Standard													
	AL SE 系列 立铣刀 标准长度													
		301		2	50°		o							60
		303		3			o							66
		G49		2	40°		o							59
		G50		3			o							64

AL SE Standard DP Endmills

		EDP	Ø	N° Z	Helix Angle	Flute Polished	T ... n	H2600	RC	Weldon	Operation			Page
	Standard DP AL SE Fräser													
	Frese AL SE DP Standard													
	Fraises AL SE DP Standard													
	AL SE DP 系列 立铣刀 标准长度													
		K30		3	40°		o							67
		K31	1 - 16				o							67

AL SE Standard Endmills

		EDP	Ø	N° Z	Helix Angle	Flute Polished	T ... n	H2600	RC	Weldon	Operation			Page
	Standard AL SE fräser													
	Frese AL SE Standard													
	Fraises 2 tailles AL SE Standard													
	AL SE 系列 立铣刀 标准长度													
		G52		2	30°		o							61
		G53	2 - 20				o		√					61

AL SE Endmills - Long

		EDP	Ø	N° Z	Helix Angle	Flute Polished	T ... n	H2600	RC	Weldon	Operation			Page
	AL SE fräser, lang													
	Frese AL SE lunghe													
	Fraises 2 tailles AL SE longues													
	AL SE 系列 立铣刀 - 中长													
		G56		2	30°		o							62
		G57	6 - 20				o		√					62

AL SE DP Standard Endmills with Differential Pitch

<div style="display: flex; justify-content: space-between;"> AL SE DP Standard Fräser mit ungleicher Teilung Frese AL SE DP Standard in metallo duro, passo differenziale </div>		EDP	Ø	N° Z	Helix Angle	Flute Polished	T ... n	H2600	RC	Weldon	Operation			Page
<div style="display: flex; justify-content: space-between;"> Fraises 2 tailles AL SE DP Standard à pas décalés AL SE DP 系列 立铣刀 标准长度 </div>														
		G69	2-16	3	30°	°	°				°	°		68
		G70									°	°		
		C45	3-20	4	40°	°	°			√	°	°		71
		C51									°	°		
		S42				°	°				°	°		70

AL SE DP Torus Roughing Endmills

<div style="display: flex; justify-content: space-between;"> AL SE DP Torus Schruppfräser Frese per sgrossare AL SE DP toroidali </div>		EDP	Ø	N° Z	Helix Angle	Flute Polished	T ... n	H2600	RC	Weldon	Operation			Page
<div style="display: flex; justify-content: space-between;"> Fraises ébauches 2 tailles AL SE DP toriques AL SE DP 系列 粗皮 立铣刀 - 标准长度 </div>														
		G72	6-20	3	40°	°	°				°	°		69
		G73									°	°		


AL SE Endmills Reduce Shank

<div style="display: flex; justify-content: space-between;"> AL SE Fräser Frese AL SE </div>		EDP	Ø	N° Z	Helix Angle	Flute Polished	T ... n	H2600	RC	Weldon	Operation			Page
<div style="display: flex; justify-content: space-between;"> Fraises 2 tailles AL SE AL SE 系列 立铣刀 - 标准长度 </div>														
		G71	3.2-20.3	2	30°	°	°				°	°		63


AL SE Miniature Endmills with Long Neck

<div style="display: flex; justify-content: space-between;"> AL SE Kleinstfräser mit langem Hals Micro-frese AL SE in metallo duro integrale con collo lungo </div>		EDP	Ø	N° Z	Helix Angle	Flute Polished	T ... n	H2600	RC	Weldon	Operation			Page
<div style="display: flex; justify-content: space-between;"> Micro-fraises AL SE 2 tailles en carbure monobloc avec cou long AL SE DP 系列 长颈短刃 立铣刀 </div>														
		G68	0.2-4	2	40°	°	°				°	°		73

AL BN Ballnose Cutters Standard

<div style="display: flex; align-items: center; gap: 5px;"> 🇩🇪 AL BN Radiuschaftfräser Standard </div>	EDP	Ø	N° Z	Helix Angle	Flute Polished	T ... n	H2600	RC	Weldon	Tolerance		Page
<div style="display: flex; align-items: center; gap: 5px;"> 🇮🇹 Frese cilindrica a raggio AL BN standard </div>										Diameter	Tol. µm	
<div style="display: flex; align-items: center; gap: 5px;"> 🇫🇷 Fraises à bout hémisphérique AL BN standard </div>												
<div style="display: flex; align-items: center; gap: 5px;"> 🇨🇳 AL SE 系列 球头 立铣刀 </div>												
	G74	3 - 20	2	30°		°				~Ø2.5	0 / -20	78
	G75									•	√	Ø3.0 - Ø6.0
										> 3Ø6.0	0 / -30	

AL BN Miniature Ballnose Cutters with Long Neck

<div style="display: flex; align-items: center; gap: 5px;"> 🇩🇪 Kleinst-Radiusfräser AL BN mit langem Hals </div>	EDP	Ø	N° Z	Helix Angle	Flute Polished	T ... n	H2600	RC	Weldon	Tolerance		Page
<div style="display: flex; align-items: center; gap: 5px;"> 🇮🇹 Micro-frese cilindrica AL BN a raggio con collo lungo </div>										Diameter	Tol. µm	
<div style="display: flex; align-items: center; gap: 5px;"> 🇫🇷 Micro-fraises AL BN en carbure monobloc avec bout hémisphérique et cou long </div>												
<div style="display: flex; align-items: center; gap: 5px;"> 🇨🇳 AL SE 系列 长颈短刃 球头 立铣刀 </div>												
	G76	0.2 - 4	2	30°		•				Ø0.1 - Ø2.0	0 / -20	79
										Ø3.0 - Ø6.0	0 / -25	
										Ø6.0 - Ø30.0	0 / -30	

AL SE SINGLE FLUTE ENDMILLS



ALU LINE

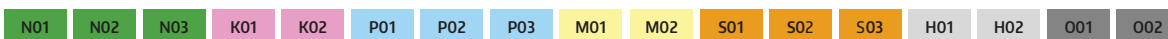
VHM AL SE Einzahn Fräser	Fraises AL SE en carbure monobloc à une dent
Frese AL SE in metallo duro integrale ad 1 taglienti	整体硬质合金 AL SE 系列 立铣刀 1 刃 - 标准长度



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)					788 *	924 *
	D	l 1	l 2	L	d2 (h6)	Normal	Flute Polished
						T ... n	T ... n
0200	2	10		40	2	•	◦
0300	3	12		40	3	•	◦
0400	4	15		50	4	•	◦
0500	5	16		50	5	•	◦
0600	6	20		60	6	•	◦
0800	8	22		63	8	•	◦
1000	10	25		72	10	•	◦
1200	12	30		83	12	•	◦

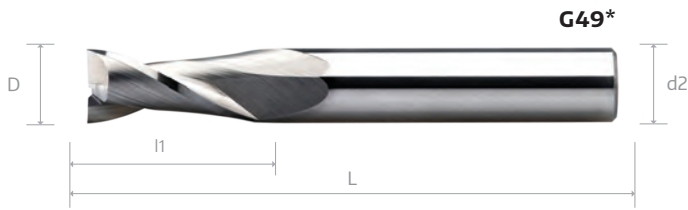
Material Group | Material-Gruppe | Groupe Matière | Gruppo Materiali | 材质主类

Cutting Parameter



83

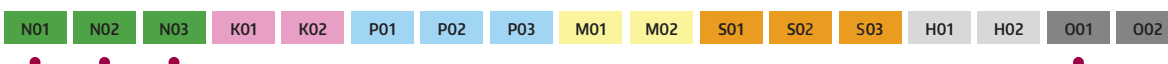
VHM AL SE Standard Fräser, 2 Zähne	Fraises 2 tailles AL SE standard - 2 dents, en carbure monobloc
Frese AL SE in metallo duro integrale, 2 taglienti	整体硬质合金 AL SE 系列 立铣刀 2 刃 - 标准长度



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)					G49 *
	D	L1	L2	L	d2 (h6)	
= * + Ø data						T ... n
0100 040 04	1	3		40	4	•
0150 040 04	1.5	4.5		40	4	•
0200 040 04	2	6.5		40	4	•
0250 040 04	2.5	6.5		40	4	•
0300	3	9		40	3	•
0300 050 06	3	9		50	6	•
0400	4	12		50	4	•
0400 050 06	4	12		50	6	•
0500 050 06	5	15		50	6	•
0600 050	6	16		50	6	•
0600 060	6	20		60	6	•
0800	8	20		64	8	•
1000 070	10	22		70	10	•
1000 075	10	31		75	10	•
1200	12	25		75	12	•
1400	14	32		90	14	•
1600	16	32		90	16	•
2000	20	38		100	20	•

Ø mm	Tol. µm
0.1-2.9	-0/ -20
3.0-6.0	-0/ -25
6.0-30.0	-0/ -30

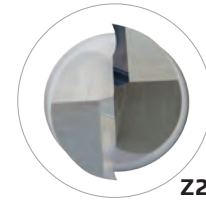
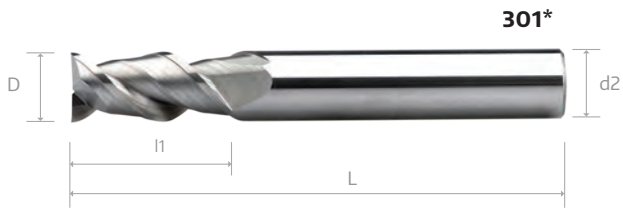
Material Group | Material-Gruppe | Groupe Matière | Gruppo Materiali | 材质主类



Cutting Parameter

83

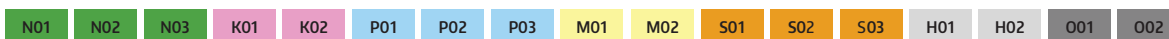
VHM AL SE Standard Fräser, 2 Zähne	Fraises 2 tailles AL SE standard - 2 dents, en carbure monobloc
Frese AL SE in metallo duro integrale, 2 taglienti	整体硬质合金 AL SE 系列 立铣刀 2 刃 - 标准长度



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)					301 *
	D	l1	l2	L	d2 (h6)	T ... n
= * + Ø data						
0100 040 03	1	3		40	3	•
0100 040 04	1	3		40	4	•
0150 040 03	1.5	4.5		40	3	•
0150 040 04	1.5	4.5		40	4	•
0200 040 03	2	6.5		40	3	•
0200 040 04	2	6.5		40	4	•
0250 040 03	2.5	6.5		40	3	•
0250 040 04	2.5	6.5		40	4	•
0300	3	9		40	3	•
0300 050 06	3	9		50	6	•
0400	4	12		50	4	•
0400 050 06	4	12		50	6	•
0500	5	15		50	5	•
0500 050 06	5	15		50	6	•
0600 050	6	16		50	6	•
0600 060	6	20		60	6	•
0800	8	20		64	8	•
1000 070	10	22		70	10	•
1000 075	10	22		75	10	•
1200	12	25		75	12	•
1400	14	32		90	14	•
1600	16	32		90	16	•
1800	18	38		100	18	•
2000	20	38		100	20	•

CNC Repeatability
 Ø1 - Ø3 within 10µm
 Ø4 - Ø8 within 15µm
 ≥ Ø10 within 20µm

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



Cutting Parameter

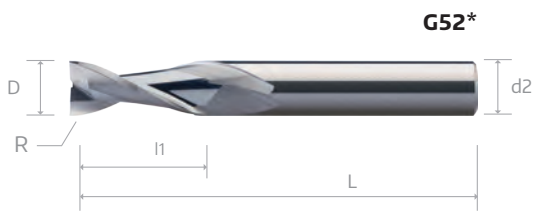
83

AL SE STANDARD ENDMILLS (EDGE PROTECTION)



ALU LINE

VHM AL SE Standard Fräser, 2 Zähne	Fraises 2 tailles AL SE standard - 2 dents, en carbure monobloc
Frese AL SE in metallo duro integrale, 2 taglienti	整体硬质合金 AL SE 系列 立铣刀 2 刃 - 标准长度

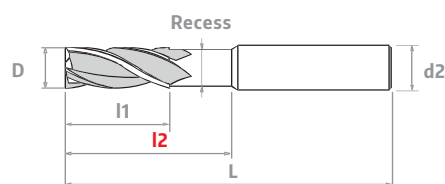


EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)							G52 *
	D	l1	l2	d3	L	d2 (h6)	R	
0200	2	6.5		2.8	40	4	0.1	o
0200 050 06	2	6.5		2.8	50	6	0.1	o
0300	3	9	15	2.8	40	3	0.1	o
0300 050 06	3	9	15	2.8	50	6	0.1	o
0400	4	12	20	3.7	50	4	0.1	o
0400 050 06 06	4	6	12	3.7	50	6	0.1	o
0400 050 06	4	12	20	3.7	50	6	0.1	o
0500 050 06	5	15	20	4.6	50	6	0.1	o
0600 060 09	6	9	18	5.5	60	6	0.1	o
0600 060	6	20	30	5.5	60	6	0.1	o
0800 12	8	12	24	7.4	64	8	0.1	o
0800	8	20	30	7.4	64	8	0.1	o
1000 15	10	15	32	9.2	75	10	0.1	o
1000	10	22	32	9.2	75	10	0.1	o
1200 18	12	18	37	11	75	12	0.1	o
1200	12	25	37	11	75	12	0.1	o
1400	14	32	44	13	90	14	0.1	o
1600 24	16	24	40	15	90	16	0.1	o
1600	16	32	46	15	90	16	0.1	o
2000	20	38	60	19	100	20	0.1	o

G53*

Tools with recess upon request

Fräser mit Freistellung auf Bestellung	Outils a vec dégagement sur demande
Utensilli con riduzione gambo su richiesta	密齿立铣刀带颈位特别要求



CNC Repeatability
Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

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

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

83

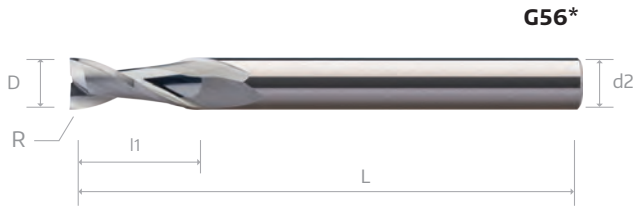
Modifiche Tecniche possibili senza preavviso

AL SE LONG ENDMILLS (EDGE PROTECTION)



ALU LINE

VHM AL SE fräser, lang, 2 Zähne	Fraises 2 tailles AL SE longues - 2 dents, en carbure monobloc
Frese AL SE lunghe in metallo duro integrale, 2 taglienti	整体硬质合金 AL SE 系列 立铣刀 2 刃 - 中长

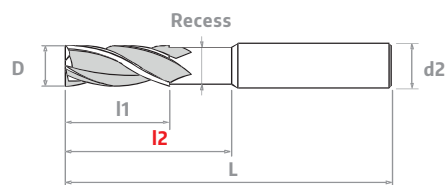


EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)							G56 *
	D	l1	l2	d3	L	d2 (h6)	R	
0600	6	16	40	5.5	80	6	0.1	°
0800	8	20	40	7.4	80	8	0.1	°
1000	10	22	60	9.2	100	10	0.1	°
1200	12	25	60	11	100	12	0.1	°
1400	14	32	75	13	125	14	0.1	°
1600	16	32	75	15	125	16	0.1	°
2000	20	38	75	19	125	20	0.1	°

G57*

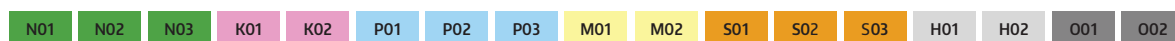
Tools with recess upon request

Fräser mit Freistellung auf Bestellung	Outils avec dégagement sur demande
Utensilli con riduzione gambo su richiesta	密齿立铣刀带颈位特别要求



CNC Repeatability
Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

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



Cutting Parameter

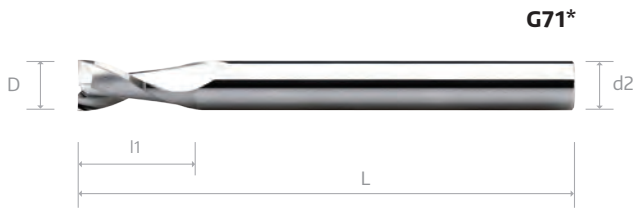
84

AL SE ENDMILLS with Reduce Shank



ALU LINE

VHM AL SE Torusfräser, lang, 2 Zähne	Fraises 2 tailles AL SE toriques longues - 2 dents, en carbure monobloc
Frese AL SE toroidali lunghe in metallo duro integrale, 2 taglianti	整体硬质合金 AL SE 系列 立铣刀 2 刃 - 中长



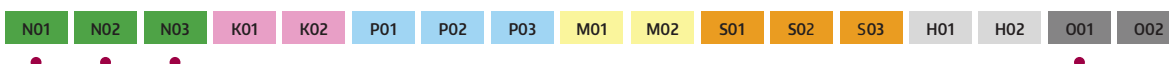
EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)						G71*
	D	l1	l2	L	d2 (h6)	R	Flute Polished T ... n
0320 075	3.2	4		75	3	0.1	○
0420 075	4.2	5		75	4	0.1	○
0520 075	5.2	6		75	5	0.1	○
0620 075	6.2	8		75	6	0.1	●
0620 100	6.2	8		100	6	0.1	●
0820 075	8.2	10		75	8	0.1	●
0820 100	8.2	10		100	8	0.1	●
1030 100	10.3	14		100	10	0.1	●
1030 125	10.3	14		125	10	0.1	●
1230 100	12.3	16		100	12	0.1	●
1230 125	12.3	16		125	12	0.1	●
1630 125	16.3	20		125	16	0.1	●
2030 125	20.3	25		125	20	0.1	●



All tools grinded with small radius to reduce line marked during step milling.

CNC Repeatability
Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

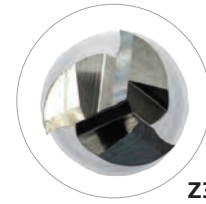
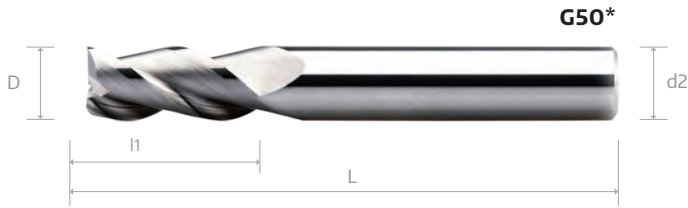
Material Group | Material-Gruppe | Groupe Matière | Gruppo Materiali | 材质主类



Cutting Parameter

83

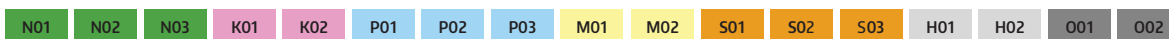
VHM AL SE Standard Fräser, 3 Zähne	Fraises 2 tailles AL SE standard - 3 dents, en carbure monobloc
Frese AL SE in metallo duro integrale, 3 taglienti	整体硬质合金 AL SE 系列 立铣刀 3 刃 - 标准长度



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)					G50 *
	D	l1	l2	L	d2 (h6)	
= * + Ø data						T ... n
0100 040 04	1	3		40	4	•
0150 040 04	1.5	4.5		40	4	•
0200 040 04	2	6.5		40	4	•
0250 040 04	2.5	6.5		40	4	•
0300	3	9		40	3	•
0300 050 06	3	9		50	6	•
0400	4	12		50	4	•
0400 050 06	4	12		50	6	•
0500 050 06	5	15		50	6	•
0600 050	6	16		50	6	•
0600 060	6	20		60	6	•
0800	8	20		64	8	•
1000 070	10	22		70	10	•
1000 075	10	31		75	10	•
1200	12	25		75	12	•
1400	14	32		90	14	•
1600	16	32		90	16	•
2000	20	38		100	20	•

Ø mm	Tol. µm
0.1-2.9	-0/ -20
3.0-6.0	-0/-25
6.0-30.0	-0/-30

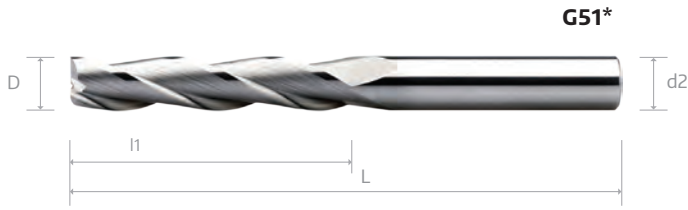
Material Group | Material-Gruppe | Groupe Matière | Gruppo Materiali | 材质主类



Cutting Parameter

85

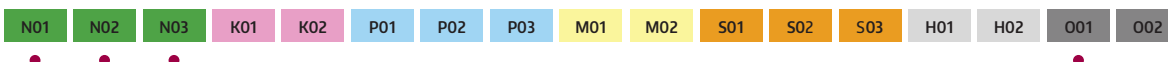
VHM AL SE Fräser, lang, 3 Zähne	Fraises 2 tailles AL SE longues - 3 dents, en carbure monobloc
Frese AL SE lunghe in metallo duro integrale, 3 taglienti	整体硬质合金 AL SE 系列 立铣刀 3 刃 - 中长



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)					G51 *
	D	l 1	l 2	L	d2 (h6)	
= * + Ø data						T ... n
0300	3	19		60	3	•
0300 075 06	3	19		75	6	•
0400	4	19		60	4	•
0400 075 06	4	19		75	6	•
0500	5	19		75	6	•
0600 075	6	31		75	6	•
0600 100	6	38		100	6	•
0800 075	8	31		75	8	•
0800 100	8	41		100	8	•
1000 100	10	50		100	10	•
1000 125	10	57		125	10	•
1200 100	12	50		100	12	•
1200 150	12	75		150	12	•
1400	14	57		125	14	•
1600	16	57		125	16	•

Ø mm	Tol. µm
0.1~2.9	-0/ -20
3.0~6.0	-0/ -25
6.0~30.0	-0/ -30

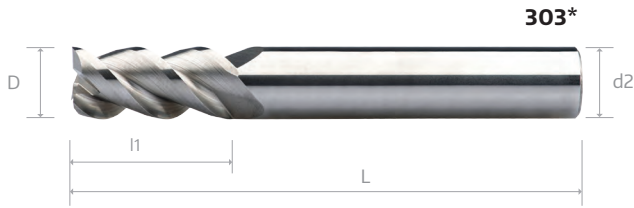
Material Group | Material-Gruppe | Groupe Matière | Gruppo Materiali | 材质主类



Cutting Parameter

86

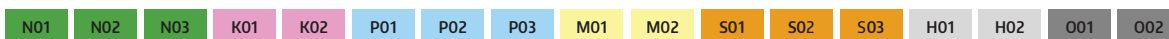
VHM AL SE Standard Fräser, 3 Zähne	Fraises 2 tailles AL SE standard - 3 dents, en carbure monobloc
Frese AL SE in metallo duro integrale, 3 taglienti	整体硬质合金 AL SE 系列 立铣刀 3 刃 - 标准长度



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)					303 *
	D	l1	l2	L	d2 (h6)	T ... n
= * + Ø data						
0100 040 03	1	3		40	3	•
0100 040 04	1	3		40	4	•
0150 040 03	1.5	4.5		40	3	•
0150 040 04	1.5	4.5		40	4	•
0200 040 03	2	6.5		40	3	•
0200 040 04	2	6.5		40	4	•
0250 040 03	2.5	6.5		40	3	•
0250 040 04	2.5	6.5		40	4	•
0300	3	9		40	3	•
0300 050 06	3	9		50	6	•
0400	4	12		50	4	•
0400 050 06	4	12		50	6	•
0500	5	15		50	5	•
0500 050 06	5	15		50	6	•
0600 050	6	16		50	6	•
0600 060	6	20		60	6	•
0800	8	20		64	8	•
1000 070	10	22		70	10	•
1000 075	10	22		75	10	•
1200	12	25		75	12	•
1400	14	32		90	14	•
1600	16	32		90	16	•
1800	18	38		100	18	•
2000	20	38		100	20	•

CNC Repeatability
 Ø1 - Ø3 within 10µm
 Ø4 - Ø8 within 15µm
 ≥ Ø10 within 20µm

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



Cutting Parameter

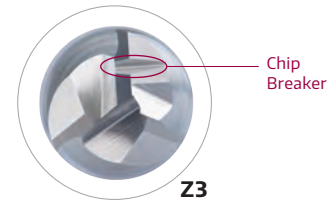
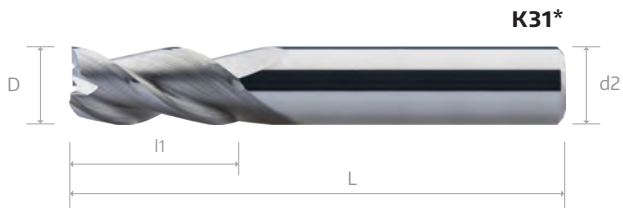
85

AL SE STANDARD DP ENDMILLS



ALU LINE

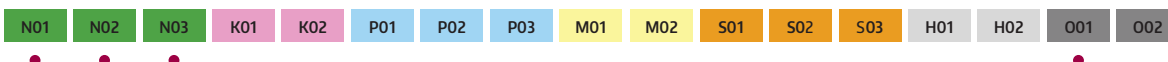
VHM AL SE Standard DP Fräser, 3 Zähne	Fraises 2 tailles AL SE standard DP - 3 dents, en carbure monobloc
Frese AL SE DP in metallo duro integrale, 3 taglienti	整体硬质合金 AL SE 系列 立铣刀 3 刃 - 标准长度



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)					K30 *	K31 *
	D	L1	L2	L	d2 (h6)	T ... n	H2600
= * + Ø data							
0100 040 04	1	3		40	4	•	•
0150 040 04	1.5	4.5		40	4	•	•
0200 040 04	2	6.5		40	4	•	•
0250 040 04	2.5	6.5		40	4	•	•
0300	3	9		40	3	•	•
0300 050 06	3	9		50	6	•	•
0400	4	12		50	4	•	•
0400 050 06	4	12		50	6	•	•
0500 050 06	5	15		50	6	•	•
0600 050	6	16		50	6	•	•
0600 060	6	20		60	6	•	•
0800	8	20		64	8	•	•
1000 070	10	22		70	10	•	•
1000 075	10	31		75	10	•	•
1200	12	25		75	12	•	•
1600	16	32		90	16	•	•

Ø mm	Tol. µm
0.1~2.9	-0/ -20
3.0~6.0	-0/ -25
6.0~30.0	-0/ -30

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



Cutting Parameter

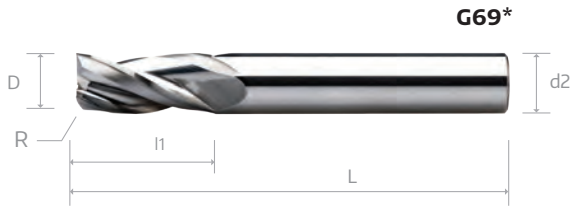
85

AL SE DP STANDARD ENDMILLS (EDGE PROTECTION)



ALU LINE

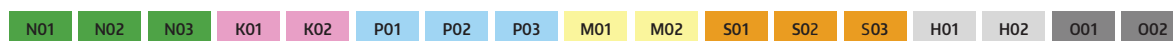
VHM Standard AL SE DP fräser, 3 Zähne	Fraises 2 tailles AL SE DP standard - 2 dents, en carbure monobloc
Frese AL SE DP in metallo duro integrale, 2 taglienti	整体硬质合金 AL SE DP 系列 立铣刀 2 刃 - 标准长度



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)						G70 *	G69 *
	D	l1	l2	L	d2 (h6)	R	Normal	Flute Polished
							T ... n	T ... n
0200	2	6.5		40	4	0.1	•	○
0200 050 06	2	6.5		50	6	0.1	•	○
0300	3	9		40	3	0.1	•	○
0300 050 06	3	9		50	6	0.1	•	○
0400	4	12		50	4	0.1	•	○
0400 050 06	4	12		50	6	0.1	•	○
0500 050 06	5	15		50	6	0.1	•	○
0600 060	6	20		60	6	0.1	•	○
0800	8	20		64	8	0.1	•	○
1000	10	22		75	10	0.1	•	○
1200	12	25		75	12	0.1	•	○
1400	14	32		90	14	0.1	•	○
1600	16	32		90	16	0.1	•	○

CNC Repeatability
 Ø1 - Ø3 within 10µm
 Ø4 - Ø8 within 15µm
 ≥ Ø10 within 20µm

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



Cutting Parameter

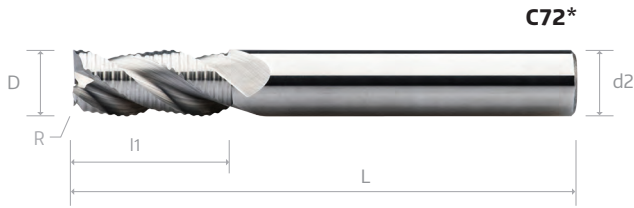
85

AL SE DP TORUS ROUGHING ENDMILLS



ALU LINE

VHM AL SE DPR Torusfräser mit ungleicher Teilung, 3 Zähne	Fraises 2 tailles AL SE DPR toriques à pas décalés
Frese AL SE DPR toriche, in metallo duro integrale, passo differenziale, 3 taglienti	整体硬质合金 AL SE DP 系列 立铣刀 3 刃 - 标准长度

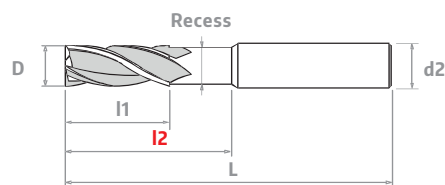


EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)							G72 *
	D	l1	l2	d3	L	d2 (h6)	R	
0600	6	13	24	5.5	60	6	0.1	•
0600 075	6	13	40	5.5	75	6	0.1	•
0800	8	20	28	7.4	64	8	0.1	•
0800 075	8	20	40	7.4	75	8	0.1	•
1000 075	10	22	35	9.2	75	10	0.1	•
1000 100	10	22	60	9.2	100	10	0.1	•
1200 075	12	26	40	11	75	12	0.12	•
1200 100	12	26	60	11	100	12	0.12	•
1600 090	16	32	40	15	90	16	0.16	•
1600 125	16	32	75	15	125	16	0.16	•
2000 100	20	40	50	19	100	20	0.2	•
2000 150	20	40	100	19	150	20	0.2	•

G73*

Tools with recess upon request

Fräser mit Freistellung auf Bestellung	Outils a vec dégagement sur demande
Utensilli con riduzione gambo su richiesta	密齿立铣刀带颈位特别要求



CNC Repeatability
Ø1 - Ø3 within 10µm
Ø4 - Ø8 within 15µm
≥ Ø10 within 20µm

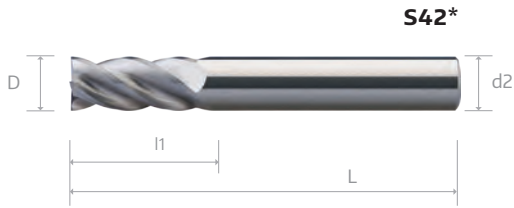
Material Group | Material-Gruppe | Groupe Matière | Gruppo Materiali | 材质主类

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

86

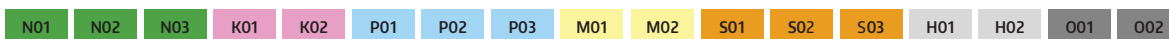
VHM AL SE DP Standard Fräser, 4 Zähne	Fraises 2 tailles AL SE DP standard - 4 dents, en carbure monobloc
Frese AL SE DP in metallo duro integrale, 4 taglienti	整体硬质合金 AL SE DP 系列 立铣刀 4 刃 - 标准长度



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)					S42*
	D	l1	l2	L	d2 (h6)	T ... n
0300 057 06	3	9		57	6	•
0400 057 06	4	12		57	6	•
0500 057 06	5	13		57	6	•
0600 057	6	13		57	6	•
0800 064	8	20		64	8	•
1000 072	10	22		72	10	•
1200 083	12	26		83	12	•
1400 090	14	32		90	14	•
1600 092	16	32		92	16	•
2000 104	20	38		104	20	•

CNC Repeatability
 Ø1 - Ø3 within 10µm
 Ø4 - Ø8 within 15µm
 ≥ Ø10 within 20µm

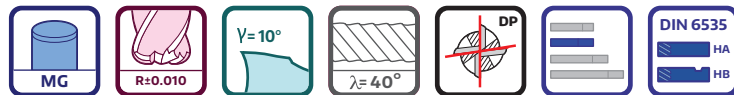
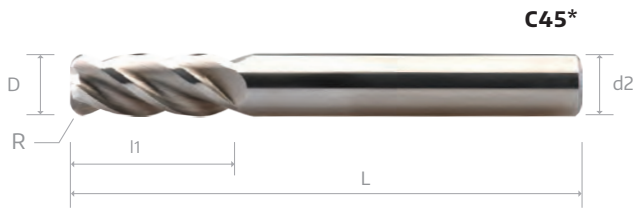
Material Group | Material-Gruppe | Groupe Matiere | Gruppo Materiali | 材质主类



Cutting Parameter

87

VHM AL SE DPR Torusfräser mit ungleicher Teilung, 4 Zähne	Fraises 2 tailles AL SE DPR toriques à pas décalés
Frese AL SE DPR toriche, in metallo duro integrale, passo differenziale, 4 taglienti	整体硬质合金 AL SE DP 系列 立铣刀 4 刃 - 标准长度

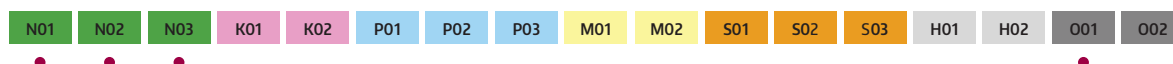


EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)						C45 *	C51 *
	D	l1	l2	L	d2 (h6)	R	HA	HB
= * + Ø data							T ... n	T ... n
0300 057 0600 030	3	9		57	6	0.3	•	•
0300 057 0600 050	3	9		57	6	0.5	•	•
0400 057 0600 030	4	12		57	6	0.3	•	•
0400 057 0600 050	4	12		57	6	0.5	•	•
0500 057 0600 030	5	15		57	6	0.3	•	•
0500 057 0600 050	5	15		57	6	0.5	•	•
0600 057 0600 030	6	16		57	6	0.3	•	•
0600 057 0600 050	6	16		57	6	0.5	•	•
0600 057 0600 100	6	16		57	6	1	•	•
0800 064 0800 030	8	20		64	8	0.3	•	•
0800 064 0800 050	8	20		64	8	0.5	•	•
0800 064 0800 100	8	20		64	8	1	•	•
0800 064 0800 150	8	20		64	8	1.5	•	•
0800 064 0800 200	8	20		64	8	2	•	•
1000 072 1000 030	10	22		72	10	0.3	•	•
1000 072 1000 050	10	22		72	10	0.5	•	•
1000 072 1000 100	10	22		72	10	1	•	•
1200 083 1200 030	12	26		83	12	0.3	•	•
1200 083 1200 050	12	26		83	12	0.5	•	•
1200 083 1200 100	12	26		83	12	1	•	•
1200 083 1200 200	12	26		83	12	2	•	•
1200 083 1200 250	12	26		83	12	2.5	•	•
1200 083 1200 300	12	26		83	12	3	•	•
1400 083 1400 050	14	32		83	14	0.5	•	•
1400 083 1400 100	14	32		83	14	1	•	•
1400 083 1400 150	14	32		83	14	1.5	•	•

cont'd ►

CNC Repeatability	
Ø1 - Ø3	within 10µm
Ø4 - Ø8	within 15µm
≥ Ø10	within 20µm

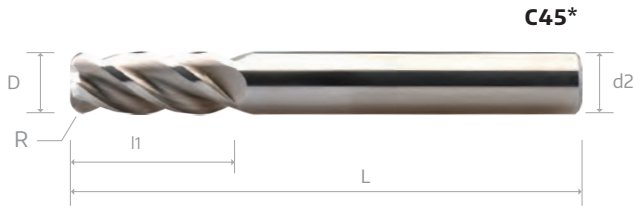
Material Group | Material-Gruppe | Groupe Matière | Gruppo Materiali | 材质主类



Cutting Parameter

87

VHM AL SE DPR Torusfräser mit ungleicher Teilung, 4 Zähne	Fraises 2 tailles AL SE DPR toriques à pas décalés
Frese AL SE DPR toriche, in metallo duro integrale, passo differenziale, 4 taglienti	整体硬质合金 AL SE DP 系列 立铣刀 4 刃 - 标准长度



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)						C45 *		C51 *	
	D	l1	l2	L	d2 (h6)	R	HA	HB	T ... n	T ... n
= * + Ø data										
1400 083 1400 200	14	32		83	14	2	•	•		
1400 083 1400 300	14	32		83	14	3	•	•		
1600 092 1600 030	16	32		92	16	0.3	•	•		
1600 092 1600 050	16	32		92	16	0.5	•	•		
1600 092 1600 100	16	32		92	16	1	•	•		
1600 092 1600 200	16	32		92	16	2	•	•		
1600 092 1600 250	16	32		92	16	2.5	•	•		
1600 092 1600 300	16	32		92	16	3	•	•		
1600 092 1600 400	16	32		92	16	4	•	•		
2000 104 2000 030	20	38		104	20	0.3	•	•		
2000 104 2000 050	20	38		104	20	0.5	•	•		
2000 104 2000 100	20	38		104	20	1	•	•		
2000 104 2000 200	20	38		104	20	2	•	•		
2000 104 2000 250	20	38		104	20	2.5	•	•		
2000 104 2000 300	20	38		104	20	3	•	•		
2000 104 2000 400	20	38		104	20	4	•	•		

Material Group | Material-Gruppe | Groupe Matière | 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
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

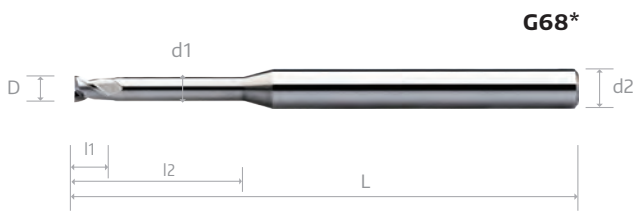
87

AL SE MINIATURE ENDMILLS - with Long Neck



ALU LINE

VHM AL SE Kleinstfräser mit langem Hals, 2 Zähne	Micro-fraises AL SE 2 tailles en carbure monobloc avec cou long, 2 dents
Micro-frese AL SE in metallo duro integrale con collo lungo, 2 taglienti	整体硬质合金 AL SE 系列 长颈短刃 立铣刀 2 刃

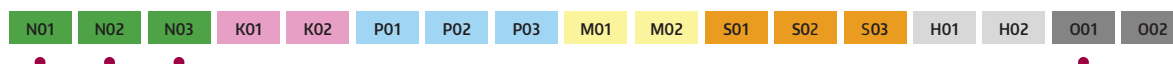


EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)						G68*
	D	l1	l2	L	d1	d2 (h6)	
0020 050 0400	0.2	0.3	-	50	-	4	•
0020 050 0400 005	0.2	0.3	0.5	50	0.17	4	•
0020 050 0400 010	0.2	0.3	1	50	0.17	4	•
0020 050 0400 015	0.2	0.3	1.5	50	0.17	4	•
0030 050 0400	0.3	0.4	-	50	-	4	•
0030 050 0400 010	0.3	0.4	1	50	0.27	4	•
0030 050 0400 020	0.3	0.4	2	50	0.27	4	•
0030 050 0400 030	0.3	0.4	3	50	0.27	4	•
0040 050 0400	0.4	0.6	-	50	-	4	•
0040 050 0400 020	0.4	0.6	2	50	0.37	4	•
0040 050 0400 030	0.4	0.6	3	50	0.37	4	•
0040 050 0400 040	0.4	0.6	4	50	0.37	4	•
0040 050 0400 050	0.4	0.6	5	50	0.37	4	•
0050 050 0400	0.5	0.7	-	50	-	4	•
0050 050 0400 020	0.5	0.7	2	50	0.45	4	•
0050 050 0400 040	0.5	0.7	4	50	0.45	4	•
0050 050 0400 060	0.5	0.7	6	50	0.45	4	•
0050 050 0400 080	0.5	0.7	8	50	0.45	4	•
0060 050 0400	0.6	0.9	-	50	-	4	•
0060 050 0400 020	0.6	0.9	2	50	0.55	4	•
0060 050 0400 040	0.6	0.9	4	50	0.55	4	•
0060 050 0400 060	0.6	0.9	6	50	0.55	4	•
0060 050 0400 080	0.6	0.9	8	50	0.55	4	•
0060 050 0400 100	0.6	0.9	10	50	0.55	4	•
0070 050 0400	0.7	1.0	-	50	-	4	•
0070 050 0400 020	0.7	1.0	2	50	0.65	4	•
0070 050 0400 040	0.7	1.0	4	50	0.65	4	•
0070 050 0400 060	0.7	1.0	6	50	0.65	4	•
0070 050 0400 080	0.7	1.0	8	50	0.65	4	•
0070 050 0400 100	0.7	1.0	10	50	0.65	4	•

cont'd ►

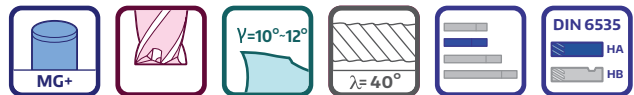
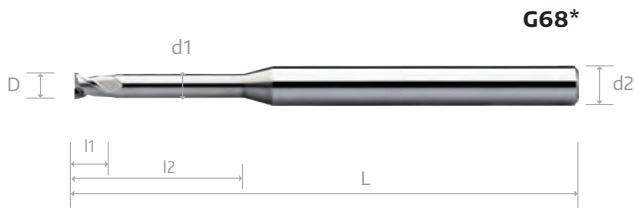
Material Group | Material-Gruppe | Groupe Matière | Gruppo Materiali | 材质主类

Cutting Parameter



92

VHM AL SE Kleinstfräser mit langem Hals, 2 Zähne	Micro-fraises AL SE 2 tailles en carbure monobloc avec cou long, 2 dents
Micro-frese AL SE in metallo duro integrale con collo lungo, 2 taglienti	整体硬质合金 AL SE 系列 长颈短刃 立铣刀 2 刃



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)						G68*
	D	l1	l2	L	d1	d2 (h6)	
0080 050 0400	0.8	1.2	-	50	-	4	•
0080 050 0400 040	0.8	1.2	4	50	0.75	4	•
0080 050 0400 060	0.8	1.2	6	50	0.75	4	•
0080 050 0400 080	0.8	1.2	8	50	0.75	4	•
0080 050 0400 100	0.8	1.2	10	50	0.75	4	•
0080 050 0400 120	0.8	1.2	12	50	0.75	4	•
0090 050 0400	0.9	1.4	-	50	-	4	•
0090 050 0400 060	0.9	1.4	6	50	0.85	4	•
0090 050 0400 080	0.9	1.4	8	50	0.85	4	•
0090 050 0400 100	0.9	1.4	10	50	0.85	4	•
0090 050 0400 150	0.9	1.4	15	50	0.85	4	•
0100 050 0400	1.0	1.5	-	50	-	4	•
0100 050 0400 060	1.0	1.5	6	50	0.9	4	•
0100 050 0400 080	1.0	1.5	8	50	0.9	4	•
0100 050 0400 100	1.0	1.5	10	50	0.9	4	•
0100 050 0400 120	1.0	1.5	12	50	0.9	4	•
0100 050 0400 140	1.0	1.5	14	50	0.9	4	•
0100 050 0400 160	1.0	1.5	16	50	0.9	4	•
0120 050 0400	1.2	1.8	-	50	-	4	•
0120 050 0400 060	1.2	1.8	6	50	1.1	4	•
0120 050 0400 080	1.2	1.8	8	50	1.1	4	•
0120 050 0400 100	1.2	1.8	10	50	1.1	4	•
0120 050 0400 120	1.2	1.8	12	50	1.1	4	•
0140 050 0400	1.4	2.1	-	50	-	4	•
0140 050 0400 060	1.4	2.1	6	50	1.3	4	•
0140 050 0400 080	1.4	2.1	8	50	1.3	4	•
0140 050 0400 100	1.4	2.1	10	50	1.3	4	•
0140 050 0400 120	1.4	2.1	12	50	1.3	4	•
0140 050 0400 140	1.4	2.1	14	50	1.3	4	•
0140 050 0400 160	1.4	2.1	16	50	1.3	4	•

cont'd ►

Material Group | Material-Gruppe | Groupe Matière | 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
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

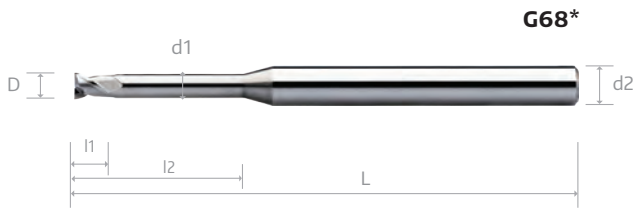
92

AL SE MINIATURE ENDMILLS - with Long Neck



ALU LINE

VHM AL SE Kleinstfräser mit langem Hals, 2 Zähne	Micro-fraises AL SE 2 tailles en carbure monobloc avec cou long, 2 dents
Micro-frese AL SE in metallo duro integrale con collo lungo, 2 taglienti	整体硬质合金 AL SE 系列 长颈短刃 立铣刀 2 刃

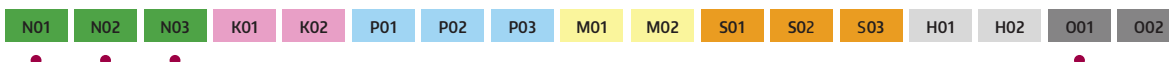


EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)						G68*
	D	l1	l2	L	d1	d2 (h6)	
0150 050 0400	1.5	2.3	-	50	-	4	•
0150 050 0400 060	1.5	2.3	6	50	1.4	4	•
0150 050 0400 080	1.5	2.3	8	50	1.4	4	•
0150 050 0400 100	1.5	2.3	10	50	1.4	4	•
0150 050 0400 120	1.5	2.3	12	50	1.4	4	•
0150 050 0400 140	1.5	2.3	14	50	1.4	4	•
0150 050 0400 160	1.5	2.3	16	50	1.4	4	•
0150 060 0400	1.5	2.3	-	60	-	4	•
0150 060 0400 180	1.5	2.3	18	60	1.4	4	•
0150 060 0400 200	1.5	2.3	20	60	1.4	4	•
0160 050 0400	1.6	2.4	-	50	-	4	•
0160 050 0400 060	1.6	2.4	6	50	1.5	4	•
0160 050 0400 080	1.6	2.4	8	50	1.5	4	•
0160 050 0400 100	1.6	2.4	10	50	1.5	4	•
0160 050 0400 120	1.6	2.4	12	50	1.5	4	•
0160 050 0400 140	1.6	2.4	14	50	1.5	4	•
0160 050 0400 160	1.6	2.4	16	50	1.5	4	•
0160 060 0400	1.6	2.4	-	60	-	4	•
0160 060 0400 180	1.6	2.4	18	60	1.5	4	•
0160 060 0400 200	1.6	2.4	20	60	1.5	4	•
0180 050 0400	1.8	2.7	-	50	-	4	•
0180 050 0400 060	1.8	2.7	6	50	1.7	4	•
0180 050 0400 080	1.8	2.7	8	50	1.7	4	•
0180 050 0400 100	1.8	2.7	10	50	1.7	4	•
0180 050 0400 120	1.8	2.7	12	50	1.7	4	•
0180 050 0400 140	1.8	2.7	14	50	1.7	4	•
0180 050 0400 160	1.8	2.7	16	50	1.7	4	•
0180 060 0400	1.8	2.7	-	60	-	4	•
0180 060 0400 180	1.8	2.7	18	60	1.7	4	•
0180 060 0400 200	1.8	2.7	20	60	1.7	4	•

cont'd ►

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

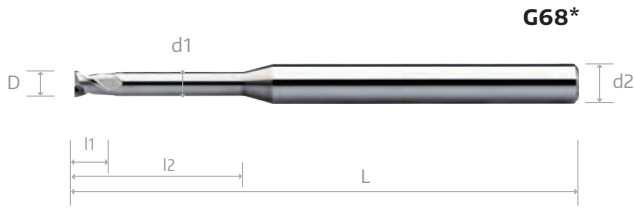
Cutting Parameter



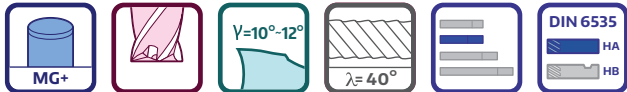
92

Spécifications techniques sujettes à changement sans avis préalable

VHM AL SE Kleinstfräser mit langem Hals, 2 Zähne	Micro-fraises AL SE 2 tailles en carbure monobloc avec cou long, 2 dents
Micro-frese AL SE in metallo duro integrale con collo lungo, 2 taglienti	整体硬质合金 AL SE 系列 长颈短刃 立铣刀 2 刃



G68*



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)						G68*
	D	l1	l2	L	d1	d2 (h6)	
0200 050 0400	2	3	-	50	-	4	•
0200 050 0400 060	2	3	6	50	1.9	4	•
0200 050 0400 080	2	3	8	50	1.9	4	•
0200 050 0400 100	2	3	10	50	1.9	4	•
0200 050 0400 120	2	3	12	50	1.9	4	•
0200 050 0400 140	2	3	14	50	1.9	4	•
0200 050 0400 160	2	3	16	50	1.9	4	•
0200 060 0400	2	3	-	60	-	4	•
0200 060 0400 180	2	3	18	60	1.9	4	•
0200 060 0400 200	2	3	20	60	1.9	4	•
0200 075 0400	2	3	-	75	-	4	•
0200 075 0400 250	2	3	25	75	1.9	4	•
0200 075 0400 300	2	3	30	75	1.9	4	•
0250 050 0400	2.5	3.7	-	50	-	4	•
0250 050 0400 080	2.5	3.7	8	50	2.4	4	•
0250 050 0400 100	2.5	3.7	10	50	2.4	4	•
0250 050 0400 120	2.5	3.7	12	50	2.4	4	•
0250 050 0400 140	2.5	3.7	14	50	2.4	4	•
0250 050 0400 160	2.5	3.7	16	50	2.4	4	•
0250 060 0400	2.5	3.7	-	60	-	4	•
0250 060 0400 180	2.5	3.7	18	60	2.4	4	•
0250 060 0400 200	2.5	3.7	20	60	2.4	4	•
0250 060 0400 250	2.5	3.7	25	60	2.4	4	•
0250 075 0400	2.5	3.7	-	75	-	4	•
0250 075 0400 300	2.5	3.7	30	75	2.4	4	•
0300 050 0600	3	4.5	-	50	-	6	•
0300 050 0600 080	3	4.5	8	50	2.8	6	•
0300 050 0600 100	3	4.5	10	50	2.8	6	•
0300 050 0600 120	3	4.5	12	50	2.8	6	•
0300 050 0600 140	3	4.5	14	50	2.8	6	•

cont'd ►

Material Group | Material-Gruppe | Groupe Matière | 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
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

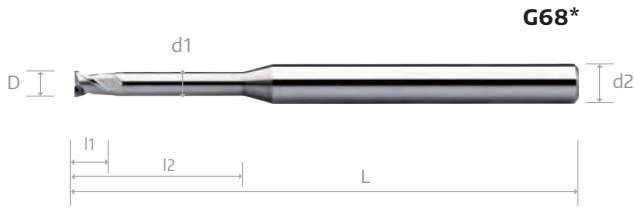
92

AL SE MINIATURE ENDMILLS - with Long Neck



ALU LINE

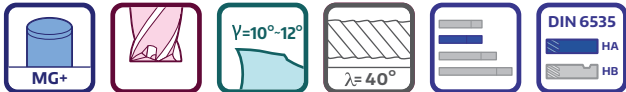
VHM AL SE Kleinstfräser mit langem Hals, 2 Zähne	Micro-fraises AL SE 2 tailles en carbure monobloc avec cou long, 2 dents
Micro-frese AL SE in metallo duro integrale con collo lungo, 2 taglienti	整体硬质合金 AL SE 系列 长颈短刃 立铣刀 2 刃



G68*



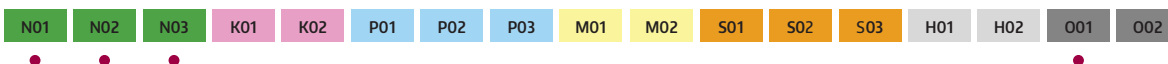
Z2



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)						G68*
	D	l1	l2	L	d1	d2 (h6)	
0300 060 0600	3	4.5	-	60	-	6	•
0300 060 0600 160	3	4.5	16	60	2.8	6	•
0300 060 0600 180	3	4.5	18	60	2.8	6	•
0300 060 0600 200	3	4.5	20	60	2.8	6	•
0300 075 0600	3	4.5	-	75	2.8	6	•
0300 075 0600 250	3	4.5	25	75	2.8	6	•
0400 060 0600	4	4.5	-	60	-	6	•
0400 060 0600 100	4	4.5	10	60	3.7	6	•
0400 060 0600 150	4	4.5	15	60	3.7	6	•
0400 060 0600 200	4	4.5	20	60	3.7	6	•
0400 075 0600	4	4.5	-	75	3.7	6	•
0400 075 0600 250	4	4.5	25	75	3.7	6	•
0400 075 0600 300	4	4.5	30	75	3.7	6	•
0400 075 0600 400	4	4.5	40	75	3.7	6	•

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

Cutting Parameter



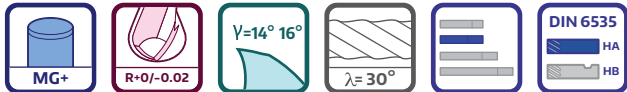
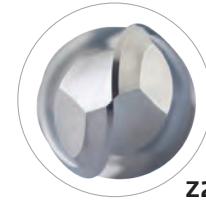
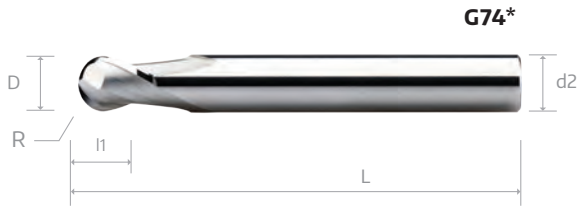
92

AL BN STANDARD BALLNOSE CUTTERS



ALU LINE

VHM Standard AL-BN Radiusschaftfräser, 2 Zähne	Fraises AL-BN Standard en carbure monobloc, à bout hémisphérique, 2 dents
Frese cilindriche a raggio in metallo duro integrale, tipo AL-BN Standard, 2 taglienti	整体硬质合金 AL-BN 系列 球头 立铣刀 2 刃 - 标准长度

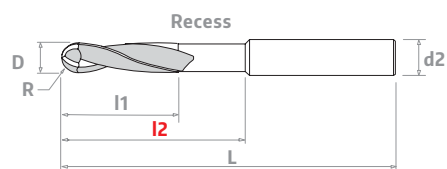


EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)							G74*
	D	R	l1	l2	d3	L	d2 (h6)	
0300	3	1.5	5	20	2.8	57	6	•
0400	4	2	6	20	3.7	57	6	•
0500	5	2.5	7	20	4.6	57	6	•
0600	6	3	8	20	5.5	57	6	•
0800	8	4	10	25	7.4	64	8	•
1000	10	5	12	35	9.2	75	10	•
1200	12	6	14	35	11	75	12	•
1600	16	8	18	45	15	90	16	•
2000	20	10	22	50	19	100	20	•

G75*

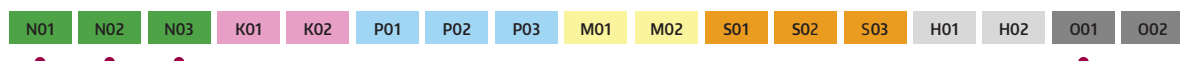
Tools with recess upon request

Fräser mit Freistellung auf Bestellung	Outils a vec dégagement sur demande
Utensilli con riduzione gambo su richiesta	密齿立铣刀带颈位特别要求



Ø mm	Tol. µm
- Ø 2.5	+0/-0.020
Ø 3 ~ Ø 6	+0/-0.025
>Ø 6	+0/-0.030

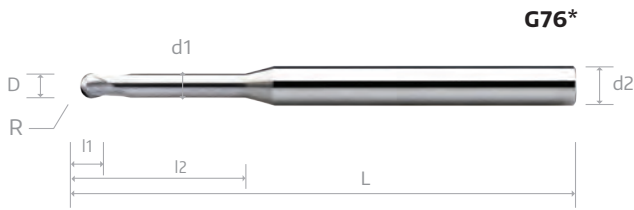
Material Group | Material-Gruppe | Groupe Matière | Gruppo Materiali | 材质主类



Cutting Parameter

88

VHM Kleinst-Radiusfräser AL BN mit langem Hals, 2 Zähne	Micro-fraises AL BN en carbure monobloc avec bout hémisphérique et cou long, 2 dents
Micro-frese cilindriche AL BN a raggio con collo lungo in metallo duro integrale, 2 taglienti	整体硬质合金 AL BN 系列 长颈短刀 球头 立铣刀 2 刃

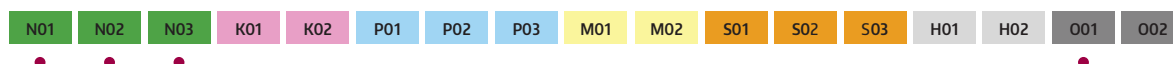


EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)							G76*
	D	R	I 1	I 2	L	d1	d2 (h6)	
= * + Ø data								
0020 050 0400	0.2	0.10	0.2	-	50	-	4	•
0020 050 0400 005	0.2	0.10	0.2	0.5	50	0.17	4	•
0020 050 0400 010	0.2	0.10	0.2	1	50	0.17	4	•
0020 050 0400 015	0.2	0.10	0.2	1.5	50	0.17	4	•
0030 050 0400	0.3	0.15	0.3	-	50	-	4	•
0030 050 0400 010	0.3	0.15	0.3	1	50	0.27	4	•
0030 050 0400 020	0.3	0.15	0.3	2	50	0.27	4	•
0030 050 0400 030	0.3	0.15	0.3	3	50	0.27	4	•
0040 050 0400	0.4	0.20	0.4	-	50	-	4	•
0040 050 0400 010	0.4	0.20	0.4	1	50	0.37	4	•
0040 050 0400 020	0.4	0.20	0.4	2	50	0.37	4	•
0040 050 0400 030	0.4	0.20	0.4	3	50	0.37	4	•
0040 050 0400 040	0.4	0.20	0.4	4	50	0.37	4	•
0040 050 0400 050	0.4	0.20	0.4	5	50	0.37	4	•
0050 050 0400	0.5	0.25	0.4	-	50	-	4	•
0050 050 0400 020	0.5	0.25	0.4	2	50	0.45	4	•
0050 050 0400 030	0.5	0.25	0.4	3	50	0.45	4	•
0050 050 0400 040	0.5	0.25	0.4	4	50	0.45	4	•
0050 050 0400 050	0.5	0.25	0.4	5	50	0.45	4	•
0050 050 0400 060	0.5	0.25	0.4	6	50	0.45	4	•
0050 050 0400 080	0.5	0.25	0.4	8	50	0.45	4	•
0060 050 0400	0.6	0.30	0.5	-	50	-	4	•
0060 050 0400 020	0.6	0.30	0.5	2	50	0.55	4	•
0060 050 0400 030	0.6	0.30	0.5	3	50	0.55	4	•
0060 050 0400 040	0.6	0.30	0.5	4	50	0.55	4	•
0060 050 0400 050	0.6	0.30	0.5	5	50	0.55	4	•
0060 050 0400 060	0.6	0.30	0.5	6	50	0.55	4	•
0060 050 0400 080	0.6	0.30	0.5	8	50	0.55	4	•
0080 050 0400	0.8	0.40	0.6	-	50	-	4	•
0080 050 0400 020	0.8	0.40	0.6	2	50	0.75	4	•

cont'd ▶

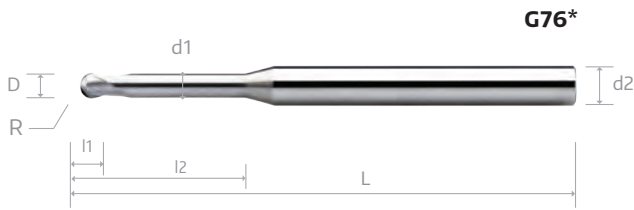
Material Group | Material-Gruppe | Groupe Matière | Gruppo Materiali | 材质主类

Cutting Parameter



89

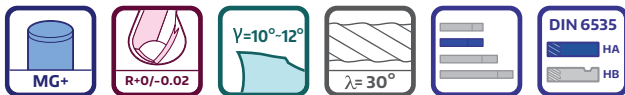
VHM Kleinst-Radiusfräser AL BN mit langem Hals, 2 Zähne	Micro-fraises AL BN en carbure monobloc avec bout hémisphérique et cou long, 2 dents
Micro-frese cilindriche AL BN a raggio con collo lungo in metallo duro integrale, 2 taglienti	整体硬质合金 AL BN 系列 长颈短刀 球头 立铣刀 2 刃



G76*



Z2



EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)							G76*
	D	R	l1	l2	L	d1	d2 (h6)	
= * + Ø data								
0080 050 0400 040	0.8	0.40	0.6	4	50	0.75	4	•
0080 050 0400 050	0.8	0.40	0.6	5	50	0.75	4	•
0080 050 0400 060	0.8	0.40	0.6	6	50	0.75	4	•
0080 050 0400 070	0.8	0.40	0.6	7	50	0.75	4	•
0080 050 0400 080	0.8	0.40	0.6	8	50	0.75	4	•
0080 050 0400 100	0.8	0.40	0.6	10	50	0.75	4	•
0100 050 0400	1.0	0.50	0.8	-	50	-	4	•
0100 050 0400 030	1.0	0.50	0.8	3	50	0.9	4	•
0100 050 0400 040	1.0	0.50	0.8	4	50	0.9	4	•
0100 050 0400 050	1.0	0.50	0.8	5	50	0.9	4	•
0100 050 0400 060	1.0	0.50	0.8	6	50	0.9	4	•
0100 050 0400 070	1.0	0.50	0.8	7	50	0.9	4	•
0100 050 0400 080	1.0	0.50	0.8	8	50	0.9	4	•
0100 050 0400 090	1.0	0.50	0.8	9	50	0.9	4	•
0100 050 0400 100	1.0	0.50	0.8	10	50	0.9	4	•
0100 050 0400 120	1.0	0.50	0.8	12	50	0.9	4	•
0100 050 0400 140	1.0	0.50	0.8	14	50	0.9	4	•
0100 050 0400 160	1.0	0.50	0.8	14	50	0.9	4	•
0100 060 0400	1.0	0.50	0.8	-	60	-	4	•
0100 060 0400 200	1.0	0.50	0.8	20	60	0.9	4	•
0120 050 0400	1.2	0.60	1.0	-	50	-	4	•
0120 050 0400 060	1.2	0.60	1.0	6	50	1.1	4	•
0120 050 0400 080	1.2	0.60	1.0	8	50	1.1	4	•
0120 050 0400 100	1.2	0.60	1.0	10	50	1.1	4	•
0120 050 0400 120	1.2	0.60	1.0	12	50	1.1	4	•
0140 050 0400	1.4	0.70	1.1	-	50	-	4	•
0140 050 0400 080	1.4	0.70	1.1	8	50	1.3	4	•
0140 050 0400 120	1.4	0.70	1.1	12	50	1.3	4	•
0140 050 0400 160	1.4	0.70	1.1	16	50	1.3	4	•
0150 050 0400	1.5	0.75	1.2	-	50	-	4	•

cont'd ►

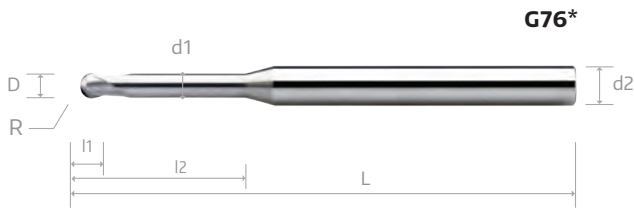
Material Group | Material-Gruppe | Groupe Matière | Gruppo Materiali | 材质主类

Cutting Parameter

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

89

VHM Kleinst-Radiusfräser AL BN mit langem Hals, 2 Zähne	Micro-fraises AL BN en carbure monobloc avec bout hémisphérique et cou long, 2 dents
Micro-frese cilindriche AL BN a raggio con collo lungo in metallo duro integrale, 2 taglienti	整体硬质合金 AL BN 系列 长颈短刀 球头 立铣刀 2 刃

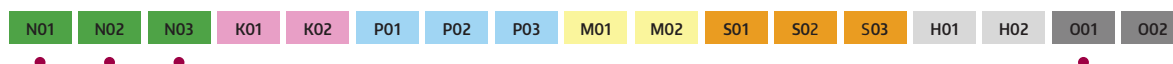


EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)							G76*
	D	R	l1	l2	L	d1	d2 (h6)	
0150 050 0400 080	1.5	0.75	1.2	8	50	1.4	4	•
0150 050 0400 120	1.5	0.75	1.2	12	50	1.4	4	•
0150 050 0400 160	1.5	0.75	1.2	16	50	1.4	4	•
0150 060 0400	1.5	0.75	1.2	-	60	1.4	4	•
0150 060 0400 180	1.5	0.75	1.2	18	60	1.4	4	•
0160 050 0400	1.6	0.80	1.3	-	50	-	4	•
0160 050 0400 080	1.6	0.80	1.3	8	50	1.5	4	•
0160 050 0400 120	1.6	0.80	1.3	12	50	1.5	4	•
0160 050 0400 160	1.6	0.80	-	16	50	1.5	4	•
0160 060 0400	1.6	0.80	1.3	-	60	1.5	4	•
0160 060 0400 200	1.6	0.80	1.3	20	60	1.5	4	•
0180 050 0400	1.8	0.90	1.4	-	50	-	4	•
0180 050 0400 080	1.8	0.90	1.4	8	50	1.7	4	•
0180 050 0400 120	1.8	0.90	1.4	12	50	1.7	4	•
0180 050 0400 160	1.8	0.90	1.4	16	50	1.7	4	•
0180 060 0400 200	1.8	0.90	1.4	20	60	1.7	4	•
0200 050 0400	2	1	1.6	-	50	-	4	•
0200 050 0400 040	2	1	1.6	4	50	1.9	4	•
0200 050 0400 060	2	1	1.6	6	50	1.9	4	•
0200 050 0400 080	2	1	1.6	8	50	1.9	4	•
0200 050 0400 100	2	1	1.6	10	50	1.9	4	•
0200 050 0400 120	2	1	1.6	12	50	1.9	4	•
0200 050 0400 140	2	1	1.6	14	50	1.9	4	•
0200 050 0400 160	2	1	1.6	16	50	1.9	4	•
0200 060 0400	2	1	1.6	-	60	-	4	•
0200 060 0400 180	2	1	1.6	18	60	1.9	4	•
0200 060 0400 200	2	1	1.6	20	60	1.9	4	•
0200 060 0400 220	2	1	1.6	22	60	-	4	•
0200 075 0400	2	1	1.6	-	75	1.9	4	•
0200 075 0400 250	2	1	1.6	25	75	1.9	4	•

cont'd ►

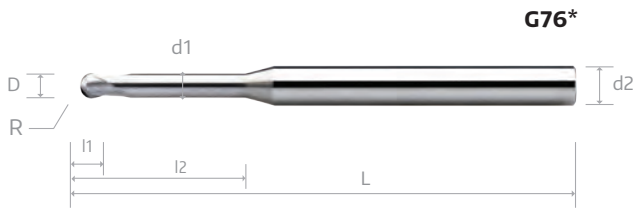
Material Group | Material-Gruppe | Groupe Matière | Gruppo Materiali | 材质主类

Cutting Parameter



89

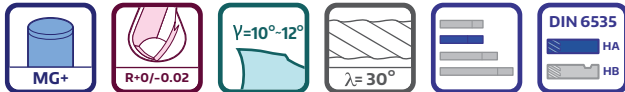
VHM Kleinst-Radiusfräser AL BN mit langem Hals, 2 Zähne	Micro-fraises AL BN en carbure monobloc avec bout hémisphérique et cou long, 2 dents
Micro-frese cilindriche AL BN a raggio con collo lungo in metallo duro integrale, 2 taglienti	整体硬质合金 AL BN 系列 长颈短刀 球头 立铣刀 2 刃



G76*



Z2



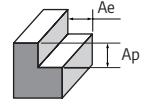
EDP No. / EDV-Nr. / CODE usine / Codice EDP	Dimension (mm)							G76*
	D	R	l1	l2	L	d1	d2 (h6)	
= * + Ø data								
0200 075 0400 300	2	1	1.6	30	75	1.9	4	•
0300 050 0600	3	1.5	2.4	-	50	-	6	•
0300 050 0600 080	3	1.5	2.4	8	50	2.8	6	•
0300 050 0600 100	3	1.5	2.4	10	50	2.8	6	•
0300 060 0600	3	1.5	2.4	-	60	-	6	•
0300 060 0600 160	3	1.5	2.4	16	60	2.8	6	•
0300 060 0600 200	3	1.5	2.4	20	60	2.8	6	•
0300 075 0600	3	1.5	2.4	-	75	-	6	•
0300 075 0600 250	3	1.5	2.4	25	75	2.8	6	•
0300 075 0600 300	3	1.5	2.4	30	75	2.8	6	•
0300 075 0600 350	3	1.5	2.4	35	75	2.8	6	•
0400 050 0600	4	2	3.2	-	50	-	6	•
0400 050 0600 100	4	2	3.2	10	50	3.7	6	•
0400 060 0600	4	2	3.2	-	60	-	6	•
0400 060 0600 160	4	2	3.2	16	60	3.7	6	•
0400 060 0600 200	4	2	3.2	20	60	3.7	6	•
0400 075 0600	4	2	3.2	-	75	-	6	•
0400 075 0600 250	4	2	3.2	25	75	3.7	6	•
0400 075 0600 300	4	2	3.2	30	75	3.7	6	•
0400 075 0600 350	4	2	3.2	35	75	3.7	6	•
0400 100 0600	4	2	3.2	-	100	-	6	•
0400 100 0600 400	4	2	3.2	40	100	3.7	6	•
0400 100 0600 450	4	2	3.2	45	100	3.7	6	•
0400 100 0600 500	4	2	3.2	50	100	3.7	6	•

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

Cutting Parameter

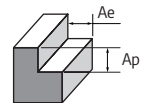
N01	N02	N03	K01	K02	P01	P02	P03	M01	M02	S01	S02	S03	H01	H02	O01	O02
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89



Single Flute Endmills

Side Milling	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	1.00 × D		1.00 × D		1.00 × D		1.00 × D	
Cutting Width, Ae (mm)	0.40 × D		0.40 × D		0.40 × D		0.40 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
2	400	0.016	300	0.017	350	0.012	350	0.016
3		0.028		0.030		0.024		0.030
4		0.044		0.046		0.040		0.045
5		0.063		0.065		0.060		0.063
6		0.085		0.091		0.080		0.086
8		0.126		0.138		0.120		0.129
10		0.173		0.189		0.170		0.180
12		0.226		0.251		0.220		0.242



Standard Endmills 2 Flutes

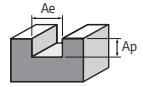
Side Milling	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	1.00 × D		1.00 × D		1.00 × D		1.00 × D	
Cutting Width, Ae (mm)	0.40 × D		0.40 × D		0.40 × D		0.40 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
1	400	0.004	300	0.004	350	0.002	350	0.004
2		0.008		0.009		0.006		0.009
3		0.015		0.016		0.013		0.015
4		0.023		0.024		0.020		0.023
5		0.032		0.034		0.028		0.033
6		0.044		0.047		0.040		0.044
8		0.064		0.071		0.060		0.066
10		0.088		0.097		0.084		0.092
12		0.115		0.129		0.110		0.124
14		0.135		0.150		0.130		0.145
16		0.160		0.180		0.152		0.172
20		0.200		0.225		0.192		0.215



Recommended Cutting Data

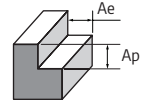
Note: These recommended cutting conditions indicate just references. It should be adjusted due to different cutting conditions.

Standard Endmills 2 Flutes



Slotting	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	0.50 × D		0.50 × D		0.50 × D		0.50 × D	
Cutting Width, Ae (mm)	1.00 × D		1.00 × D		1.00 × D		1.00 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
1	250	0.004	200	0.004	220	0.003	230	0.004
2		0.009		0.009		0.008		0.008
3		0.014		0.014		0.012		0.013
4		0.020		0.019		0.017		0.019
5		0.029		0.026		0.024		0.026
6		0.040		0.035		0.032		0.035
8		0.059		0.054		0.050		0.052
10		0.080		0.072		0.068		0.072
12		0.102		0.092		0.088		0.094
14		0.131		0.115		0.110		0.118
16		0.161		0.146		0.140		0.148
20		0.201		0.182		0.175		0.191

Torus Long Endmills 2 Flutes

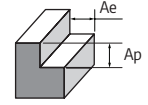


Side Milling	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	1.00 × D		1.00 × D		1.00 × D		1.00 × D	
Cutting Width, Ae (mm)	0.40 × D		0.40 × D		0.40 × D		0.40 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
6	400	0.035	300	0.038	350	0.030	350	0.036
8		0.052		0.057		0.045		0.053
10		0.071		0.078		0.065		0.074
12		0.092		0.103		0.085		0.099
14		0.108		0.120		0.100		0.116
16		0.128		0.144		0.120		0.138
20		0.160		0.180		0.152		0.172



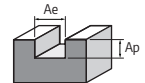
Recommended Cutting Data

Note: These recommended cutting conditions indicate just references. It should be adjusted due to different cutting conditions.



Standard Endmills 3 Flutes

Side Milling	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	1.00 × D		1.00 × D		1.00 × D		1.00 × D	
Cutting Width, Ae (mm)	0.40 × D		0.40 × D		0.40 × D		0.40 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
1	400	0.002	300	0.003	350	0.002	350	0.003
2		0.006		0.006		0.004		0.006
3		0.010		0.011		0.008		0.011
4		0.016		0.017		0.014		0.016
5		0.022		0.024		0.020		0.022
6		0.030		0.032		0.026		0.031
8		0.044		0.049		0.040		0.045
10		0.060		0.066		0.055		0.063
12		0.079		0.088		0.075		0.084
14		0.092		0.103		0.086		0.098
16		0.109		0.123		0.100		0.117
20		0.136		0.154		0.130		0.147



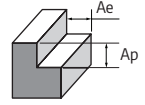
Standard Endmills 3 Flutes

Slotting	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	0.50 × D		0.50 × D		0.50 × D		0.50 × D	
Cutting Width, Ae (mm)	1.00 × D		1.00 × D		1.00 × D		1.00 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
1	250	0.003	200	0.003	220	0.002	230	0.003
2		0.006		0.006		0.004		0.006
3		0.010		0.010		0.008		0.010
4		0.014		0.014		0.012		0.014
5		0.020		0.018		0.016		0.018
6		0.028		0.025		0.022		0.025
8		0.041		0.038		0.035		0.036
10		0.056		0.051		0.046		0.050
12		0.070		0.065		0.060		0.066
14		0.090		0.081		0.075		0.082
16		0.111		0.101		0.095		0.102
20		0.138		0.127		0.120		0.132



Recommended Cutting Data

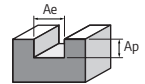
Note: These recommended cutting conditions indicate just references. It should be adjusted due to different cutting conditions.



DP Torus Roughing Endmills 3 Flutes

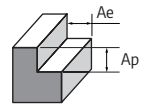
Side Milling	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	1.00 × D		1.00 × D		1.00 × D		1.00 × D	
Cutting Width, Ae (mm)	0.40 × D		0.40 × D		0.40 × D		0.40 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
6	400	0.033	300	0.036	350	0.030	350	0.034
8		0.048		0.054		0.042		0.050
10		0.066		0.073		0.060		0.069
12		0.086		0.097		0.080		0.093
16		0.120		0.135		0.115		0.129
20		0.150		0.169		0.145		0.161

DP Torus Roughing Endmills 3 Flutes



Slotting	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	0.50 × D		0.50 × D		0.50 × D		0.50 × D	
Cutting Width, Ae (mm)	1.00 × D		1.00 × D		1.00 × D		1.00 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
6	250	0.030	200	0.028	220	0.025	230	0.027
8		0.045		0.042		0.036		0.040
10		0.061		0.056		0.052		0.055
12		0.077		0.071		0.067		0.072
16		0.122		0.112		0.108		0.112
20		0.152		0.139		0.135		0.145

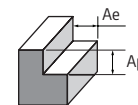
Long Endmills 3 Flutes



Side Milling	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	1.00 × D		1.00 × D		1.00 × D		1.00 × D	
Cutting Width, Ae (mm)	0.40 × D		0.40 × D		0.40 × D		0.40 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
3	400	0.008	300	0.009	350	0.007	350	0.009
4		0.013		0.013		0.011		0.013
5		0.018		0.019		0.016		0.018
6		0.024		0.026		0.021		0.024
8		0.035		0.039		0.031		0.036
10		0.048		0.053		0.044		0.050
12		0.063		0.070		0.060		0.068
14		0.073		0.082		0.068		0.079
16		0.087		0.098		0.085		0.094



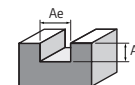
Recommended Cutting Data
 Note: These recommended cutting conditions indicate just references. It should be adjusted due to different cutting conditions.



Standard Endmills 4 Flutes

Side Milling	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	1.00 × D		1.00 × D		1.00 × D		1.00 × D	
Cutting Width, Ae (mm)	0.40 × D		0.40 × D		0.40 × D		0.40 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
3	400	0.008	300	0.009	350	0.007	350	0.009
4		0.013		0.014		0.010		0.013
5		0.018		0.019		0.016		0.018
6		0.024		0.026		0.020		0.024
8		0.035		0.039		0.030		0.036
10		0.047		0.052		0.042		0.049
12		0.061		0.069		0.058		0.066
14		0.071		0.081		0.068		0.077
16		0.085		0.096		0.080		0.092
20		0.106		0.120		0.100		0.114

Standard Endmills 4 Flutes

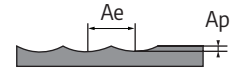


Slotting	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	0.50 × D		0.50 × D		0.50 × D		0.50 × D	
Cutting Width, Ae (mm)	1.00 × D		1.00 × D		1.00 × D		1.00 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
3	250	0.008	200	0.009	220	0.007	230	0.008
4		0.012		0.012		0.010		0.012
5		0.017		0.016		0.014		0.015
6		0.023		0.021		0.018		0.021
8		0.033		0.032		0.029		0.030
10		0.045		0.042		0.040		0.041
12		0.057		0.053		0.050		0.053
14		0.072		0.066		0.060		0.066
16		0.088		0.082		0.078		0.082
20		0.110		0.103		0.100		0.106



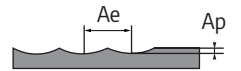
Recommended Cutting Data

Note: These recommended cutting conditions indicate just references. It should be adjusted due to different cutting conditions.



Standard Ballnose 2 Flutes

Finishing	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	0.05 × D		0.05 × D		0.05 × D		0.05 × D	
Cutting Width, Ae (mm)	0.05 × D		0.05 × D		0.05 × D		0.05 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
3	250	0.063	200	0.063	220	0.060	230	0.062
4		0.084		0.084		0.080		0.082
5		0.134		0.134		0.130		0.131
6		0.195		0.195		0.188		0.190
8		0.193		0.193		0.185		0.189
10		0.196		0.196		0.190		0.192
12		0.195		0.195		0.188		0.190
16		0.156		0.156		0.150		0.152
20		0.156		0.156		0.150		0.152



Standard Ballnose 2 Flutes

Roughing	N						O	
Working Material	Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties	Si < 9%		Si ≥ 9%		-		-	
Cutting Depth, Ap (mm)	0.10 × D		0.10 × D		0.10 × D		0.10 × D	
Cutting Width, Ae (mm)	0.20 × D		0.20 × D		0.20 × D		0.20 × D	
D (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
3	250	0.063	200	0.063	220	0.060	230	0.062
4		0.084		0.084		0.080		0.082
5		0.134		0.134		0.128		0.131
6		0.195		0.195		0.186		0.190
8		0.193		0.193		0.184		0.189
10		0.196		0.196		0.190		0.192
12		0.195		0.195		0.188		0.190
16		0.156		0.156		0.150		0.152
20		0.156		0.156		0.150		0.152



Recommended Cutting Data

Note: These recommended cutting conditions indicate just references. It should be adjusted due to different cutting conditions.

Miniature Ballnose with Long Neck 2 Flutes

Slotting			N						O	
Working material			Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties			Si < 9%		Si ≥ 9%		Si ≥ 9%		-	
D (mm)	Effective Length	Ap (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
0.2	0.5	0.030	25	0.006	25	0.006	28	0.006	25	0.009
	1	0.017	25	0.006	25	0.006	28	0.005	25	0.009
	1.5	0.010	25	0.004	25	0.004	28	0.003	25	0.006
0.3	1	0.026	38	0.009	38	0.009	41	0.008	38	0.013
	2	0.020	38	0.008	38	0.008	41	0.007	38	0.011
	3	0.014	38	0.006	38	0.006	41	0.006	38	0.009
0.4	1	0.050	50	0.012	50	0.012	55	0.011	50	0.018
	2	0.034	50	0.009	50	0.009	55	0.008	48	0.014
	3	0.028	50	0.008	50	0.008	55	0.007	46	0.012
	4	0.020	50	0.006	50	0.006	55	0.006	43	0.011
	5	0.014	50	0.005	50	0.005	55	0.005	41	0.009
0.5	2	0.100	63	0.013	63	0.013	69	0.011	60	0.017
	3	0.080	63	0.012	63	0.012	69	0.011	57	0.016
	4	0.060	63	0.011	63	0.011	69	0.010	54	0.015
	5	0.045	63	0.011	63	0.011	69	0.010	51	0.014
	6	0.030	63	0.011	63	0.011	69	0.010	48	0.013
	8	0.020	63	0.010	63	0.010	69	0.009	47	0.012
0.6	2	0.120	75	0.019	75	0.019	83	0.017	72	0.024
	3	0.095	75	0.018	75	0.018	83	0.016	69	0.023
	4	0.070	75	0.018	75	0.018	83	0.016	65	0.022
	5	0.055	75	0.017	75	0.017	83	0.016	61	0.023
	6	0.040	75	0.017	75	0.017	83	0.015	58	0.024
	8	0.030	75	0.015	75	0.015	83	0.014	54	0.024
0.8	2	0.180	101	0.024	101	0.024	111	0.021	99	0.024
	4	0.160	101	0.023	101	0.023	111	0.020	97	0.024
	5	0.130	101	0.021	101	0.021	111	0.019	92	0.023
	6	0.100	101	0.020	101	0.020	111	0.018	87	0.022
	7	0.075	101	0.020	101	0.020	111	0.018	87	0.022
	8	0.050	101	0.020	101	0.020	111	0.018	87	0.022
	10	0.040	101	0.019	101	0.019	111	0.017	84	0.019

cont' d ►



Recommended Cutting Data

Note: These recommended cutting conditions indicate just references. It should be adjusted due to different cutting conditions.

Miniature Ballnose with Long Neck 2 Flutes

Slotting			N						O	
Working material			Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties			Si < 9%		Si ≥ 9%		Si ≥ 9%		-	
D (mm)	Effective Length	Ap (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
1.0	3	0.250	126	0.031	126	0.031	138	0.028	113	0.034
	4	0.200	126	0.031	126	0.031	138	0.028	109	0.035
	5	0.180	126	0.031	126	0.031	138	0.027	106	0.035
	6	0.160	126	0.030	126	0.030	138	0.027	103	0.034
	7	0.140	126	0.029	126	0.029	138	0.026	101	0.033
	8	0.120	126	0.028	126	0.028	138	0.025	98	0.032
	9	0.100	126	0.028	126	0.028	138	0.025	94	0.031
	10	0.080	126	0.027	126	0.026	138	0.024	90	0.030
	12	0.060	126	0.027	126	0.025	138	0.022	87	0.028
	14	0.040	126	0.025	126	0.024	138	0.021	83	0.025
1.2	6	0.180	126	0.023	126	0.022	138	0.020	81	0.023
	8	0.160	151	0.032	151	0.031	166	0.028	132	0.034
	10	0.120	151	0.031	151	0.029	166	0.026	128	0.033
	12	0.100	151	0.030	151	0.028	166	0.025	124	0.033
1.4	8	0.190	151	0.029	151	0.027	166	0.024	121	0.032
	12	0.185	176	0.033	176	0.031	194	0.028	132	0.038
	16	0.150	176	0.031	176	0.029	194	0.026	125	0.036
1.5	16	0.150	176	0.029	176	0.028	194	0.025	117	0.037
	8	0.200	189	0.036	189	0.033	207	0.030	125	0.033
	12	0.180	189	0.034	189	0.030	207	0.027	114	0.032
	16	0.135	189	0.031	182	0.029	200	0.026	107	0.031
1.6	18	0.090	189	0.028	171	0.028	188	0.025	101	0.028
	8	0.210	201	0.036	201	0.034	221	0.031	133	0.035
	12	0.190	201	0.034	201	0.032	221	0.029	121	0.036
	16	0.170	201	0.031	186	0.032	205	0.029	115	0.035
1.8	20	0.120	186	0.031	176	0.031	194	0.028	108	0.035
	8	0.250	226	0.034	226	0.031	249	0.028	147	0.035
	12	0.210	223	0.033	218	0.031	240	0.027	136	0.035
	16	0.205	209	0.033	201	0.030	221	0.027	127	0.033
20	0.150	181	0.033	178	0.031	196	0.028	119	0.035	

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Recommended Cutting Data

Note: These recommended cutting conditions indicate just references. It should be adjusted due to different cutting conditions.

Miniature Ballnose with Long Neck 2 Flutes

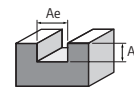
Slotting			N						O	
Working material			Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties			Si < 9%		Si ≥ 9%		Si ≥ 9%		-	
D (mm)	Effective Length	Ap (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
2.0	4	0.480	245	0.046	229	0.047	252	0.042	152	0.044
	6	0.440	239	0.046	223	0.045	245	0.041	140	0.045
	8	0.400	238	0.045	214	0.045	235	0.041	127	0.047
	10	0.360	232	0.043	209	0.043	229	0.039	123	0.047
	12	0.320	226	0.041	203	0.041	223	0.037	120	0.046
	14	0.280	220	0.038	198	0.038	218	0.035	117	0.045
	16	0.240	214	0.036	192	0.036	212	0.032	114	0.043
	18	0.210	208	0.035	187	0.035	206	0.032	111	0.042
	20	0.180	202	0.035	182	0.035	200	0.032	107	0.041
	22	0.150	196	0.035	177	0.035	194	0.031	104	0.039
	25	0.120	190	0.034	171	0.034	188	0.031	101	0.038
3.0	30	0.090	187	0.033	164	0.032	180	0.028	99	0.035
	8	0.650	283	0.074	264	0.075	290	0.068	150	0.061
	10	0.600	271	0.075	244	0.075	269	0.068	145	0.059
	16	0.520	262	0.073	237	0.073	260	0.065	140	0.058
	20	0.440	254	0.070	228	0.070	251	0.063	135	0.056
	25	0.360	244	0.068	220	0.068	242	0.061	130	0.054
	30	0.320	231	0.066	207	0.067	228	0.060	118	0.056
4.0	35	0.300	217	0.065	198	0.065	218	0.059	113	0.054
	10	0.850	364	0.076	264	0.094	290	0.084	151	0.102
	16	0.800	260	0.100	234	0.100	257	0.090	145	0.100
	20	0.694	251	0.097	226	0.097	249	0.087	140	0.097
	25	0.587	243	0.094	219	0.094	241	0.084	134	0.094
	30	0.480	234	0.090	211	0.090	232	0.081	131	0.089
	35	0.420	227	0.089	205	0.089	225	0.080	126	0.091
	40	0.360	221	0.088	199	0.088	218	0.079	122	0.090
	45	0.300	215	0.087	194	0.086	213	0.078	118	0.090
50	0.240	209	0.085	187	0.085	206	0.077	114	0.090	



Recommended Cutting Data

Note: These recommended cutting conditions indicate just references. It should be adjusted due to different cutting conditions.

Miniature Endmills with Long Neck 2 Flutes



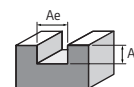
Slotting			N						O	
Working Material			Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties			Si < 9%		Si ≥ 9%		Si ≥ 9%		-	
D (mm)	Effective Length	Ap (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
0.2	0.5	0.100	25	0.008	23	0.008	25	0.008	24	0.008
	1	0.040	24	0.007	21	0.007	22	0.007	22	0.007
	1.5	0.028	22	0.007	20	0.007	21	0.007	21	0.007
0.3	1	0.100	38	0.010	34	0.010	36	0.011	36	0.010
	2	0.050	33	0.009	30	0.009	32	0.009	31	0.009
	3	0.030	28	0.007	25	0.008	27	0.008	26	0.007
0.4	2	0.080	47	0.011	42	0.011	45	0.012	45	0.011
	3	0.058	44	0.010	39	0.011	42	0.012	42	0.010
	4	0.040	37	0.009	33	0.009	35	0.009	35	0.009
	5	0.033	34	0.008	31	0.008	33	0.008	32	0.008
0.5	2	0.125	63	0.014	57	0.014	61	0.015	60	0.014
	4	0.063	51	0.011	46	0.011	49	0.012	48	0.011
	6	0.043	42	0.009	38	0.009	41	0.009	40	0.009
	8	0.033	34	0.008	31	0.008	33	0.008	33	0.007
0.6	2	0.200	75	0.017	68	0.017	73	0.018	72	0.017
	4	0.100	66	0.015	59	0.015	63	0.016	62	0.015
	6	0.060	56	0.013	50	0.013	54	0.014	53	0.013
	8	0.045	51	0.011	46	0.012	49	0.013	48	0.011
	10	0.038	41	0.009	37	0.009	40	0.009	39	0.009
0.7	2	0.350	88	0.019	79	0.019	85	0.020	84	0.019
	4	0.140	82	0.018	74	0.018	79	0.019	78	0.018
	6	0.088	71	0.015	64	0.015	68	0.016	67	0.015
	8	0.063	65	0.014	59	0.014	63	0.015	62	0.014
	10	0.050	54	0.012	48	0.012	51	0.013	51	0.012
0.8	4	0.160	94	0.020	85	0.020	91	0.021	89	0.020
	6	0.115	87	0.018	79	0.018	85	0.019	83	0.018
	8	0.080	74	0.016	67	0.016	72	0.017	71	0.015
	10	0.068	68	0.014	61	0.014	65	0.015	65	0.014
	12	0.053	61	0.013	55	0.013	59	0.014	58	0.013
0.9	6	0.150	98	0.020	89	0.020	95	0.021	94	0.020
	8	0.113	91	0.018	82	0.018	88	0.019	87	0.018
	10	0.083	84	0.017	75	0.017	80	0.018	79	0.017
	15	0.058	62	0.013	55	0.013	59	0.014	59	0.013
1	6	0.168	109	0.022	98	0.022	105	0.023	104	0.022
	8	0.125	101	0.020	91	0.020	97	0.021	96	0.020
	10	0.100	93	0.019	84	0.019	90	0.020	88	0.019
	12	0.083	85	0.017	76	0.017	81	0.018	81	0.017
	14	0.073	77	0.015	69	0.015	74	0.016	73	0.015
	16	0.063	68	0.014	62	0.014	66	0.015	65	0.014

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Recommended Cutting Data

Note: These recommended cutting conditions indicate just references. It should be adjusted due to different cutting conditions.



Miniature Endmills with Long Neck 2 Flutes

Slotting			N						O	
Working Material			Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties			Si < 9%		Si ≥ 9%		Si ≥ 9%		-	
D (mm)	Effective Length	Ap (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
1.2	6	0.240	141	0.028	127	0.028	136	0.029	134	0.028
	8	0.200	131	0.026	118	0.026	126	0.027	125	0.026
	10	0.150	121	0.024	109	0.024	117	0.025	115	0.024
	12	0.120	112	0.022	100	0.022	107	0.023	106	0.022
1.4	6	0.350	176	0.034	158	0.034	169	0.036	167	0.034
	8	0.280	165	0.032	148	0.032	158	0.034	156	0.032
	10	0.200	153	0.030	138	0.030	148	0.032	146	0.030
	12	0.175	142	0.027	128	0.027	137	0.028	135	0.027
	14	0.140	130	0.025	117	0.025	125	0.026	124	0.025
	16	0.128	130	0.025	117	0.025	125	0.026	124	0.025
1.5	6	0.375	189	0.036	170	0.036	182	0.038	179	0.036
	8	0.300	176	0.034	159	0.034	170	0.036	167	0.034
	10	0.250	164	0.031	148	0.031	158	0.033	156	0.031
	12	0.188	152	0.029	137	0.029	147	0.030	144	0.029
	14	0.168	152	0.029	137	0.029	147	0.030	144	0.029
	16	0.150	140	0.027	125	0.027	134	0.028	132	0.027
	18	0.125	127	0.024	115	0.024	123	0.025	121	0.024
	20	0.115	127	0.024	115	0.024	123	0.025	121	0.024
1.6	6	0.533	201	0.038	181	0.038	194	0.040	191	0.038
	8	0.320	188	0.036	169	0.035	181	0.037	178	0.036
	10	0.268	175	0.033	157	0.033	168	0.035	166	0.033
	12	0.228	175	0.033	157	0.033	168	0.035	166	0.033
	14	0.200	162	0.031	146	0.031	156	0.033	154	0.031
	16	0.160	149	0.028	134	0.028	143	0.029	141	0.028
	18	0.145	149	0.028	134	0.028	143	0.029	141	0.028
	20	0.133	136	0.026	121	0.026	129	0.027	131	0.025
1.8	6	0.600	226	0.043	204	0.043	218	0.045	215	0.043
	8	0.450	226	0.043	204	0.043	218	0.045	215	0.043
	10	0.360	212	0.040	191	0.040	204	0.042	201	0.040
	12	0.300	197	0.037	177	0.037	189	0.039	187	0.037
	14	0.258	197	0.037	177	0.037	189	0.039	187	0.037
	16	0.225	182	0.035	164	0.035	175	0.037	173	0.035
	18	0.180	167	0.032	150	0.032	161	0.034	159	0.032
	20	0.163	167	0.032	150	0.032	161	0.034	159	0.032

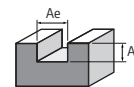
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Recommended Cutting Data

Note: These recommended cutting conditions indicate just references. It should be adjusted due to different cutting conditions.

Miniature Endmills with Long Neck 2 Flutes



Slotting			N						O	
Working Material			Wrought Aluminium		Cast Aluminium		Copper Alloy		Thermoplastics	
Properties			Si < 9%		Si ≥ 9%		Si ≥ 9%		-	
D (mm)	Effective Length	Ap (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)	Vc (m/min)	Fz (mm)
2	6	0.668	251	0.047	226	0.047	242	0.049	239	0.047
	8	0.500	251	0.047	226	0.047	242	0.049	239	0.047
	10	0.400	235	0.044	212	0.044	227	0.046	223	0.044
	12	0.333	219	0.041	197	0.041	211	0.043	208	0.041
	14	0.285	219	0.041	197	0.041	211	0.043	208	0.041
	16	0.250	202	0.038	182	0.038	195	0.040	192	0.038
	18	0.223	202	0.038	182	0.038	195	0.040	192	0.038
	20	0.200	186	0.035	167	0.035	179	0.037	177	0.035
	25	0.168	170	0.032	153	0.032	164	0.034	161	0.032
2.5	30	0.133	153	0.029	138	0.029	148	0.030	146	0.029
	8	0.833	314	0.058	283	0.058	303	0.061	298	0.058
	10	0.625	314	0.058	283	0.058	303	0.061	298	0.058
	12	0.625	314	0.058	283	0.058	303	0.061	298	0.058
	14	0.500	294	0.054	265	0.054	284	0.057	279	0.054
	16	0.418	273	0.050	246	0.050	263	0.053	260	0.050
	18	0.358	273	0.050	246	0.050	263	0.053	260	0.050
	20	0.313	253	0.047	228	0.047	244	0.049	240	0.047
	25	0.250	233	0.043	209	0.043	224	0.045	221	0.043
3	30	0.208	212	0.039	191	0.039	204	0.041	202	0.039
	8	1.500	377	0.068	339	0.068	363	0.071	358	0.068
	10	1.000	377	0.068	339	0.068	363	0.071	358	0.068
	12	0.750	377	0.068	339	0.068	363	0.071	358	0.068
	14	0.750	377	0.068	339	0.068	363	0.071	358	0.068
	16	0.600	353	0.064	318	0.064	340	0.067	335	0.064
	18	0.500	328	0.059	295	0.059	316	0.062	312	0.059
	20	0.500	328	0.059	295	0.059	316	0.062	312	0.059
	25	0.375	304	0.055	273	0.055	292	0.058	288	0.055
4	10	2.000	450	0.096	405	0.096	433	0.101	427	0.096
	15	1.333	450	0.096	405	0.096	433	0.101	427	0.096
	20	0.800	421	0.089	380	0.089	407	0.093	400	0.089
	25	0.668	392	0.083	353	0.083	378	0.087	372	0.083
	30	0.573	392	0.083	353	0.083	378	0.087	372	0.083
	40	0.400	333	0.071	300	0.071	321	0.075	317	0.071



Recommended Cutting Data

Note: These recommended cutting conditions indicate just references. It should be adjusted due to different cutting conditions.