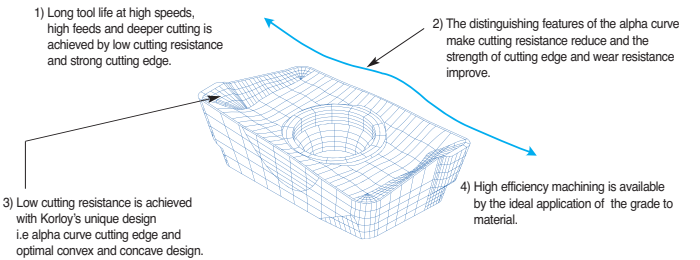
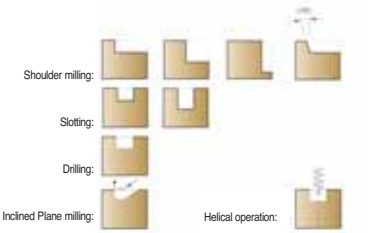
Technical Guide for Alpha Mill

Alpha Mill Multifunctional Insert



Inserts Feature & Application

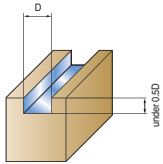
- Innovative curve cutting edge and chip-breaker design ensures ideal 90 degree cutting and lower cutting resistance
- Various applications are available with multi-functional cutters(Facing, Slotting, Square shoulder milling etc.)
- Improved inserts life time with optimised per each application
- Excellent performance ensured at large depth of cutting operations due to strong cutting edge and low cutting resistance



Chip breaker	Cutting Edge Shape		Recommendation C/B and Grades (●:1st Choice)									
			Low carbon steels Soft Steels		High carbon steels Alloy Steels		Stainless steels		Cast Irons		Aluminum alloys	
			C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade	C/B	Grade
MF		Low cutting Resistance Type	●	○NCM325 ○PC3535 ●NCM335		●NCM325 ○PC3535 ○NCM335	●	○NCM325 ○PC9530 ●NCM335	●	○NCM310K ●NCM320K ○PC215K	-	-
MM		Reinforced Cutting Edge Type		○NCM325 ○PC3535 ●NCM335	●	●NCM325 ○PC3535 ○NCM335	●	○NCM325 ○PC9530 ●NCM335	●	○NCM310K ●NCM320K ○PC215K	-	-
MA2		Sharp Cutting Edge Type	-	-	-	-	-	-	-	-	●	●H01 ○G10

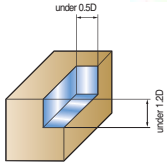
Recommended Depth of Cuts

(D : Cutting Diameter)



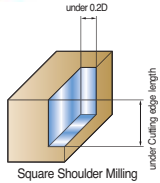
Slotting

1



Square Shoulder Milling

2



Square Shoulder Milling

3

Recommended Conditions (for Multi Edge Type)

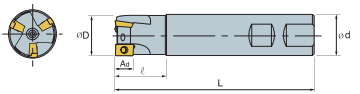
Work-piece Material	Grade	Cutting Form	Cutting Diameter							
			Ø20, Ø25		Ø32, Ø40		Ø50, Ø63		Ø80, Ø100	
			V(m/min)	fz(mm/tooth)	V(m/min)	fz(mm/tooth)	V(m/min)	fz(mm/tooth)	V(m/min)	fz(mm/tooth)
Low Carbon Steels, Soft Steels	NCM325 PC3535	1	80~100	0.05~0.08	100~120	0.05~0.08	100~120	0.05~0.08	100~120	100~120
		2	100~120	0.08~0.1	120~140	0.08~0.1	120~140	0.08~0.1	120~140	120~140
		3	100~120	0.1~0.15	120~140	0.1~0.15	120~140	0.1~0.15	130~150	130~150
High Carbon Steels, Alloy Steels	NCM325 PC3535	1	60~80	0.05	80~100	0.05	80~100	0.05	80~100	80~100
		2	80~100	0.05~0.08	100~120	0.08~0.1	100~120	0.08~0.1	100~120	100~120
		3	80~100	0.1~0.15	110~130	0.1~0.15	100~120	0.1~0.15	110~130	110~130
Alloy Tool Steels	NCM335 PC3535	1	50~70	0.05	70~90	0.05	70~90	0.05	70~90	70~90
		2	60~80	0.05~0.08	90~120	0.05~0.08	100~120	0.05~0.08	100~120	100~120
		3	90~110	0.12~0.18	100~130	0.1~0.15	100~120	0.1~0.15	110~130	110~130
Stainless Steels	NCM335 PC9530	1	50~70	0.054	70~90	0.05	70~90	0.05	70~90	70~90
		2	60~80	0.05~0.08	90~120	0.05~0.08	100~120	0.05~0.08	100~120	100~120
		3	90~110	0.1~0.15	100~130	0.1~0.15	110~130	0.1~0.15	110~130	110~130
Cast irons	NCM320K PC215K	1	70~90	0.1~0.12	70~90	0.1~0.12	90~120	0.1~0.12	90~120	90~120
		2	80~100	0.12	90~120	0.12	100~140	0.12	100~140	100~140
		3	80~100	0.15~0.2	100~130	0.15~0.2	120~150	0.15~0.2	120~150	120~150
Aluminum Alloy	H01	1	200~800	0.1~0.2	300~900	0.1~0.2	400~1,000	0.1~0.2	400~1,000	400~1,000
		2	250~900	0.15~0.3	300~950	0.15~0.3	400~1,000	0.1~0.4	400~1,000	400~1,000
		3	250~90	0.15~0.3	300~950	0.15~0.3	400~1,000	0.1~0.4	400~1,000	400~1,000

Recommended Cutting Conditions (for Single Edge Type)

Work-piece Material	Grade	Cutting Diameter							
		Ø10, Ø15		Ø16, Ø25		Ø32, Ø63		Ø80, Ø100	
		V(m/min)	fz(mm/tooth)	V(m/min)	fz(mm/tooth)	V(m/min)	fz(mm/tooth)	V(m/min)	fz(mm/tooth)
Low Carbon Steels, Soft Steels	NCM325 PC3535	60~120	0.05~0.15	80~180	0.1~0.15	120~250	0.1~0.15	150~250	0.1~0.15
High Carbon Steels, Alloy Steels	NCM325 PC3535	50~100	0.05~0.15	80~150	0.1~0.15	100~200	0.1~0.15	100~200	0.1~0.15
Stainless Steels	NCM335 PC9530	50~100	0.05~0.15	80~150	0.1~0.15	100~180	0.1~0.15	100~180	0.1~0.15
Cast irons	NCM320K PC215K	80~120	0.08~0.2	100~130	0.15~0.2	120~200	0.15~0.2	120~200	0.15~0.2
Aluminum Alloy	H01	250~900	0.15~0.3	300~950	0.15~0.3	400~1,000	0.1~0.4	400~1,000	0.1~0.4

(Standard for side cutting, reduce condition 20~30% for slotting)

AMS2000S/3000S (90°)



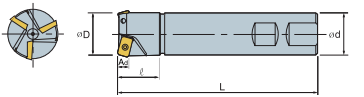
(mm)

Designation		2007 £	ØD	Ød	ℓ	L		Ad	AR	RR
AMS	2010S	**19.56**	10	10	20	85	1	11	3°	-25°
	2012S	**19.56**	12	16	25	85	1	11	5°	-24°
	2014S	**23.90**	14	16	25	90	1	11	7°	-15°
	2016S	**23.90**	16	16	25	90	2	11	7°	-15°
	2018S	**26.00**	18	16	25	90	2	11	7°	-14°
	2020S	**26.00**	20	20	30	100	2	11	9°	-13°
	2022S	**30.00**	22	20	35	115	3	11	9°	-13°
	2025S	**30.00**	25	25	35	115	3	11	9°	-12°
	2032S	**40.50**	32	32	40	125	4	11	9°	-11°
	2040S	**49.00**	40	32	42	130	5	11	9°	-10°
	2050S	**67.00**	50	32	45	135	6	11	9°	-9°
	2063S	**95.00**	63	32	45	135	8	11	9°	-8°
AMS	3025S	**38.40**	25	25	35	115	2	16	14°	-18°
	3032S	**49.00**	32	32	40	125	3	16	14°	-14°
	3040S	**62.50**	40	32	42	130	4	16	14°	-12°
	3050S	**82.85**	50	32	45	135	5	16	14°	-11°
	3063S	**83.75**	63	32	45	135	6	16	14°	-10°

* AA:0°

For inserts see pages 84 - 85

AMS2000SE/3000SE (15°)



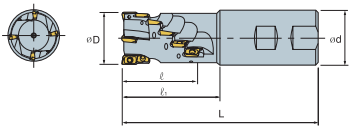
(mm)

Designation		2007 £	ØD	Ød	ℓ	L		Ad	AR	RR
AMS	2025SE	**49.00**	25	25	30	115	2	4	-1°	
	2032SE	**63.00**	32	32	40	125	3	4	-1°	
	2040SE	**69.00**	40	32	40	130	3	4	-1°	
	2050SE	**87.00**	50	32	40	135	4	4	-1°	
	2063SE	**99.00**	63	32	40	135	5	4	-1°	
AMS	3050SE	**75.00**	50	32	45	135	3	6	-1°	
	3063SE	**89.00**	63	32	45	135	4	6	-1°	

For inserts see pages 84 - 85

Holder	Insert	Screw	Wrench
			
AMS 2000S(Ø10~Ø63) **AMS 3000S(Ø25~Ø63)**	APXT 11T3~ APXT 1604~ Pages 84 - 85	FTKA 02565S FTKA 0408 FTKA 0410	TW 08S TW 15S

AMS2000M



(mm)

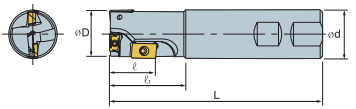
Designation		2007 £	øD	ød	ℓ	ℓ1	L	Number of flute		RR
AMS	2020M	89.00	20	20	29.4	45	120	1	3	-13°
	2025M	175.00	25	25	38.9	55	130	2	8	-12°
	2032M	199.00	32	32	48.5	65	140	2	10	-11°
	2040M	249.00	40	42	58.0	75	150	2	14	-10°

* AR:7°~9°, RR:-12°~10°

Holder	Insert	Screw	Wrench
			
AMS 2000M	APXT 11T3~	FTKA 02565S	TW 08S

For full insert range please see pages 84 - 85

AMS2000MH/3000MH



(mm)

Designation		2007 £	øD	ød	ℓ	ℓ1	L		APXT11T3~	APXT1604~
AMS	2025MH	45.00	25	25	20	40	130	3	3	-
	2032MH	55.00	32	32	30	50	140	3	1	2
AMS	3040MH	89.00	40	32	40	60	150	4	-	4

* AR:7°~9°, RR:-12°~10°

Holder	Insert	Screw	Wrench
			
AMS 2025MH	APXT 11T3~	FTKA 02565S	TW 08S
AMS 2032MH	APXT 11T3~ Pages 84 - 85	FTKA 02565S	TW 08S
AMS 3040MH	APXT 1604~	FTKA 0410	TW 15S

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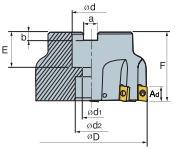
AMCM2000S/3000S (90°)



(mm)

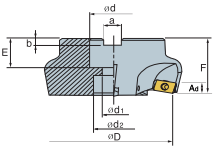
Designation		2007 £	ØD	Ød	Ød1	Ød2	a	b	E	F		Ad
AMCM	2040S	**99.00**	40	16	9	14	8.4	5.5	18	40	5	11
	2050S	**99.00**	50	22	11	18	10.4	6.3	20	40	6	11
	2063S	**125.00**	63	22	11	18	10.4	6.3	20	40	8	11
	2080S	**139.00**	80	27	13	20	12.4	7.0	22	50	8	11
	2100S	**165.00**	100	32	-	45	14.4	8.0	28	50	10	11
AMCM	3040S	**85.00**	40	16	9	14	8.4	5.6	18	40	4	16
	3050S	**99.00**	50	22	11	18	10.4	6.3	20	40	5	16
	3063S	**115.00**	63	22	11	18	10.4	6.3	20	40	6	16
	3080S	**135.00**	80	27	13	20	12.4	7.0	25	50	7	16
	3100S	**156.00**	100	32	-	45	14.4	8.0	32	50	8	16

* AR:7°~9°, RR:12°~10°

For inserts see pages 84 - 85

Holder	Insert	Screw	Wrench
			
AMCM 2000S **AMCM 3000S**	APXT 11T3~ APXT 1604~ Pages 84 - 85	FTKA 02565S FTKA 0410	TW 08S TW 15S

AMCM2000SE/3000SE (15°)



(mm)

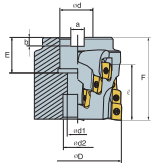
Designation		2007 £	ØD	Ød	Ød1	Ød2	a	b	E	F		Ad
AMCM	2080SE	**99.00**	80	27	13	20	12.4	7.0	22	50	5	4
	2100SE	**125.00**	100	32	-	45	14.4	8.0	28	50	6	4
AMCM	3080SE	**95.00**	80	27	13	20	12.4	7.0	22	50	4	6
	3100SE	**120.00**	100	32	-	45	14.4	8.0	28	50	5	6

* AA:15°, AR:-1°~-5°, RR:0°

For inserts see pages 84 - 85

Holder	Insert	Screw	Wrench
			
AMCM 2000SE **AMCM 3000SE**	APXT 11T3~ APXT 1604~ Pages 84 - 85	FTKA 02565S FTKA 0410	TW 08S TW 15S

AMCM2000M



(mm)

Designation		2007 £	ØD	l	Ød	Ød1	Ød2	a	b	E	F	Number of flute		RR	Available Arbor
AMCM	2050M	**285.00**	50	39	22	11	18	10.4	6.3	21	58	4	16	-9°	BT□□-SMA22.225(BT□□-FMC22)
	2063M	**295.00**	63	39	27	13.5	20	12.4	7.0	25	58	4	16	-8°	BT□□-FMA25.4(BT□□-FMC27)
	2080M	**399.00**	80	39	32	-	45	14.4	8.0	28	63	5	20	-7°	BT□□-FMA31.75(BT□□-FMC32)
	2100M	**475.00**	100	39	40	-	56	16.4	9.0	30	63	6	24	-5°	BT□□-FMA38.1(BT□□-FMB40)

* AA:0°, AR:9°, ( ) : data for Metric size tool

Holder	Insert	Screw	Wrench
			
AMCM 2000M	APXT 11T3~ Page 85	FTKA 02565S	TW 08S

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