

ALU-XP END MILLS








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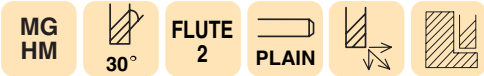
Europa Tool 8TH EDITION

ALU-XP END MILL CONTENTS

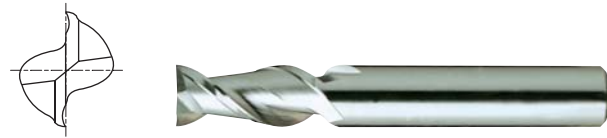
(Carbide for aluminium & other non-ferrous materials)

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2 FLUTE 45° DEG HELIX FOR ALUMINIUM



Series No. 151303



PLAIN SHANK
MICROGRAIN SOLID CARBIDE

Suitable for high speed machining in aluminium and other non-ferrous materials. Excellent surface finishes, superior chip removal.

MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	EUROPA CODE
3	6	8	57	1513030300
4	6	11	57	1513030400
5	6	13	57	1513030500
6	6	13	57	1513030600
8	8	19	63	1513030800
10	10	22	72	1513031000
12	12	26	83	1513031200
14	14	26	83	1513031400
16	16	32	92	1513031600
18	18	32	92	1513031800
20	20	38	104	1513032000

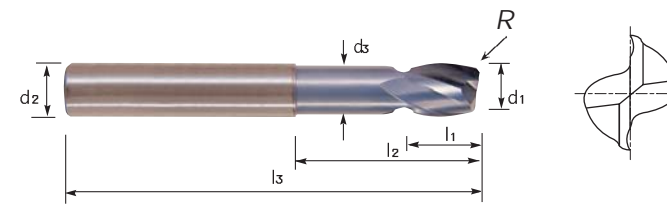
ALL DIMENSIONS ARE IN MM
AVAILABLE IN TIN, TICN & TIALN COATINGS - ON REQUEST

MILL DIA TOLERANCE	SHANK DIA TOLERANCE
0~-0.03	h6

2 FLUTE, CORNER RADIUS FOR ALUMINIUM, TICN COATED



Series No. 155309



PLAIN SHANK
MICROGRAIN SOLID CARBIDE

Excellent cutting qualities on stainless steel, aluminium and copper

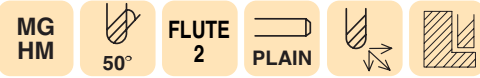
Increased tool life and higher cutting accuracy.

R	MILL DIA. d1(e8)	SHANK DIA. d2(h6)	LENGTH OF CUT l1	LENGTH BELOW SHANK l2	O/ALL LENGTH l3	NECK DIA. d3	EUROPA CODE
R0.3	4	6	5	10	50	3.6	1553090400
R0.5	6	6	8	20	60	5.4	1553090600
R0.6	8	8	10	30	70	7.2	1553090800
R0.8	10	10	12	36	80	9	1553091000
R1.0	12	12	14	40	90	11	1553091200
R1.3	16	16	18	45	100	14.5	1553091600
R1.6	20	20	24	45	100	18	1553092000

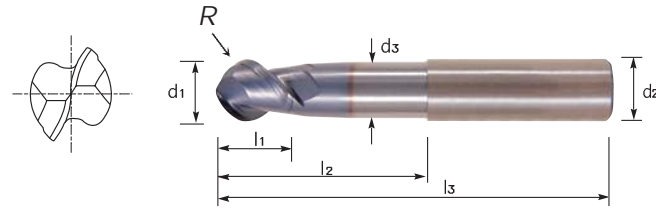
ALL DIMENSIONS ARE IN MM

MILL DIA TOLERANCE	SHANK DIA TOLERANCE
0~-0.03	h6

2 FLUTE BALL NOSED FOR ALUMINIUM, TICN COATED



Series No. 112309



PLAIN SHANK
MICROGRAIN SOLID CARBIDE

Excellent cutting qualities on
aluminium, copper & stainless steel

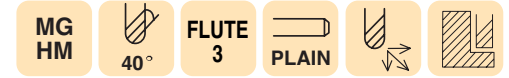
Increased tool life and higher
cutting accuracy.

R +0.01 -0.01	MILL DIA. d1	SHANK DIA. d2(h6)	LENGTH OF CUT l1	LENGTH BELOW SHANK l2	O/ALL LENGTH l3	NECK DIA. d3	EUROPA CODE
R3.0	6	6	5.5	25	55	5.4	1123090600
R4.0	8	8	7	30	65	7.2	1123090800
R5.0	10	10	8.5	35	75	9	1123091000
R6.0	12	12	10.5	40	75	11	1123091200
R8.0	16	16	14	50	90	14.5	1123091600
R10.0	20	20	17	50	100	18	1123092000

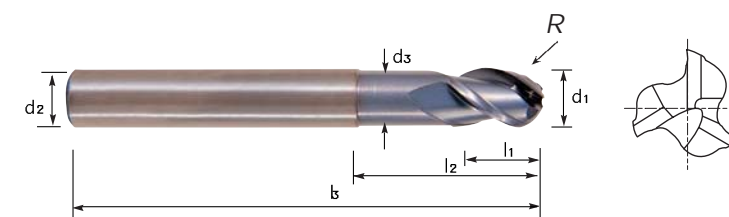
ALL DIMENSIONS ARE IN MM

MILL DIA TOLERANCE	SHANK DIA TOLERANCE
0~-0.03	h6

3 FLUTE BALL NOSED FOR ALUMINIUM, TICN COATED



Series No. 116309



PLAIN SHANK
MICROGRAIN SOLID CARBIDE

Excellent cutting qualities on
stainless steel, aluminium and copper

Increased tool life and higher
cutting accuracy.

R +0.01 -0.01	MILL DIA. d1(e8)	SHANK DIA. d2(h6)	LENGTH OF CUT l1	LENGTH BELOW SHANK l2	O/ALL LENGTH l3	NECK DIA. d3	EUROPA CODE
R1.0	2.0	6	3	5	60	1.9	1163090200
R1.25	2.5	6	4	6	60	2.4	1163090250
R1.5	3.0	6	4.5	6.5	60	2.8	1163090300
R1.75	3.5	6	5	7	65	3.2	1163090350
R2.0	4.0	6	6	8	65	3.7	1163090400
R2.5	5.0	6	7.5	10	65	4.6	1163090500
R3.0	6.0	6	9	12	75	5.6	1163090600
R4.0	8.0	8	12	25	75	7.4	1163090800
R5.0	10.0	10	15	30	80	9.4	1163091000
R6.0	12.0	12	18	36	90	11.4	1163091200
R8.0	16.0	16	24	40	100	15.4	1163091600

ALL DIMENSIONS ARE IN MM

MILL DIA TOLERANCE	SHANK DIA TOLERANCE
0~-0.03	h6

3 FLUTE LONG ROUGHING END MILLS FOR ALUMINIUM



Series No. 125103, 125303



FLATTED SHANK
MICROGRAIN SOLID CARBIDE

MILL DIAMETER h10	SHANK DIAMETER h6	LENGTH OF CUT	OVERALL LENGTH	EUROPA CODE	
				FLAT	PLAIN
6.0	6	16	57	1251030600	1253030600
8.0	8	16	63	1251030800	1253030800
10.0	10	22	72	1251031000	1253031000
12.0	12	26	83	1251031200	1253031200
14.0	14	26	83	1251031400	1253031400
16.0	16	32	92	1251031600	1253031600
20.0	20	38	104	1251032000	1253032000

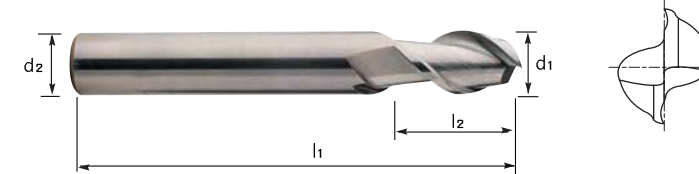
ALL DIMENSIONS ARE IN MM
AVAILABLE IN TIN, TiCN & TiAlN COATINGS - ON REQUEST

MILL DIA TOLERANCE	SHANK DIA TOLERANCE
0--0.03	h6

2 FLUTE, ALUMINIUM, SHORT REACH



Series No. 331303



TWO FLUTE MICRO GRAIN
CARBIDE END MILLS FOR
ALUMINIUM

2 Flute, Helix 45° Center Cutting, with
Straight Shank

VOLLHARTMETAL FRÄSER FÜR
ALUMINIUM

2 Schneiden, Rechtsspirale 45°
Zentrumschneidend, mit Zylinderschaft

FRAISES POUR ALLAGES
CARBURE MONOBLOC

2 Dents, Hélice 45° Coupe au Centre, à
Queue Cylindrique

TWEE GROEVEN MICROKORREL
CARBIDE VINGERFREZEN VOOR
ALUMINIUM

2 groeven, helix 45° centerfrees met rechte
schacht

FRESE PER MACCHINE ELU
SCANALATURE IN CARBURO
MONOBLOCCO

2 Taglienti, Elica 45° Tagliente al Centro
a Codolo Gambo Cilindrico

Mill Dia. h10(d1)	Shank Dia. h6(d2)	Length of Cut l2	Overall Length l1	Carbide	TiAlN Carbide	TiCN Carbide
3.0	3.0	7.0	38.0	3313030300	3313230300	3313090300
3.5	6.0	7.0	57.0	3313030350	3313230350	3313090350
4.0		8.0		3313030400	3313230400	3313090400
4.5		8.0		3313030450	3313230450	3313090450
5.0		10.0		3313030500	3313230500	3313090500
6.0		10.0		3313030600	3313230600	3313090600
8.0	8.0	16.0	63.0	3313030800	3313230800	3313090800
10.0	10.0	19.0	72.0	3313031000	3313231000	3313091000
12.0	12.0	22.0	83.0	3313031200	3313231200	3313091200
14.0	14.0	22.0		3313031400	3313231400	3313091400
16.0	16.0	26.0	92.0	3313031600	3313231600	3313091600
20.0	20.0	32.0	104.0	3313032000	3313232000	3313092000

Tolerances according to DIN 7160 & 7161
Toleranzen nach DIN 7160 & 7161

Toleranzwerte in µm / Tolerance range in µm					
Nennmaßbereich in mm / Nominal-Diameter in mm					
	von 1 bis 3 from 1 to 3	über 3 bis 6 over 3 to 6	über 6 bis 10 over 6 to 10	über 10 bis 18 over 10 to 18	über 18 bis 30 over 18 to 30
h10	0 - 40	0 - 48	0 - 58	0 - 70	0 - 84
h6	0 - 6	0 - 8	0 - 9	0 - 11	0 - 13

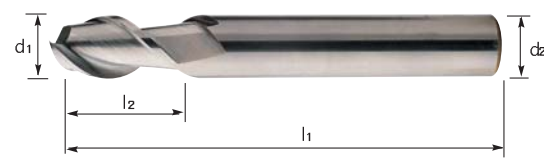
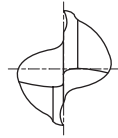
2 FLUTE , STANDARD, STRAIGHT SHANK, FOR ALUMINIUM

MG
HM

N

FLUTE
2

PLAIN



Series No. 531303

Mill Dia. (d ₁)	Shank Dia. h6(d ₂)	Length of Cut l ₂	Overall Length l ₁	Carbide	TiAlN Carbide	TiCN Carbide
1/8	1/8	7/16	1.1/2	5313030080	5313230080	5313090080
3/16	3/16	9/16	2	5313030120	5313230120	5313090120
1/4	1/4	3/4	2.1/2	5313030160	5313230160	5313090160
5/16	5/16	13/16	2.1/2	5313030200	5313230200	5313090200
3/8	3/8	7/8	2.1/2	5313030240	5313230240	5313090240
1/2	1/2	1	3	5313030320	5313230320	5313090320
5/8	5/8	1.1/4	3.1/2	5313030400	5313230400	5313090400
3/4	3/4	1.1/2	4	5313030480	5313230480	5313090480
1	1	1.1/2	4	5313030640	5313230640	5313090640

i Available Whilest Stocks Last.

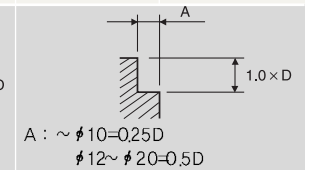
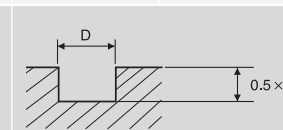
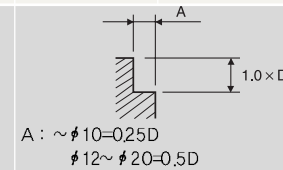
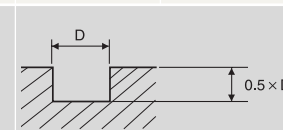
ALU-XP cutting condition

2 FLUTE CORNER RADIUS TiCN COATED

115309



MATERIAL	ALUMINUM ALUMINUM ALLOY				COPPER ALLOY			
	RPM	FEED(mm/min)	RPM	FEED(mm/min)	RPM	FEED(mm/min)	RPM	FEED(mm/min)
R0.3 ×4	13000	1200	13000	1400	3900	300	3900	350
R0.5 ×6	13000	1500	13000	2000	3900	380	3900	500
R0.6 ×8	10000	1800	10000	2300	3000	450	3000	580
R0.8 ×10	10000	2200	10000	2700	3000	550	3000	680
R1.0 ×12	10000	2700	10000	3400	3000	680	3000	850
R1.3 ×16	8000	2500	8000	3100	2400	630	2400	780
R1.6 ×20	5000	2000	5000	2500	1500	500	1500	630

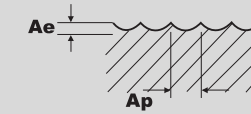
RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE BALL NOSED TiCN COATED

112309



MATERIAL	ALUMINUM ALUMINUM ALLOY		COPPER ALLOY	
	RPM	FEED	RPM	FEED
R3.0 ×6	18000	1750	5500	440
R4.0 ×8	14000	2000	4200	500
R5.0 ×10	14000	2350	4200	580
R6.0 ×12	14000	3000	4200	750
R8.0 ×16	11000	2700	3300	670
R10.0 ×20	7000	2200	2100	550

Ae=0.2 × D
Ap=0.5 × DRPM=REVOLUTION PER MIN.
FEED=mm/min.

ALU-XP cutting condition

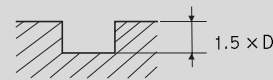
3 FLUTE ROUGHING FOR ALUMINIUM

125103



<Slotting>

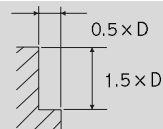
MATERIAL ALUMINUM NONFERROUS METALS		
DIAMETER	RPM	FEED
6	10500	800
8	8000	700
10	6500	750
12	5250	800
16	4000	800
20	3200	800



RPM =rev/min, FEED =mm/min

<Side Cutting>

MATERIAL ALUMINUM NONFERROUS METALS		
DIAMETER	RPM	FEED
6	10500	800
8	8000	700
10	6500	750
12	5250	800
16	4000	800
20	3200	800

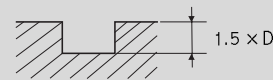


RPM =rev/min, FEED =mm/min

3 FLUTE, ROUGHING for ALUMINIUM, TiCN COATED

<Slotting>

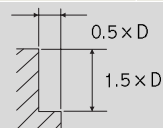
MATERIAL ALUMINUM NONFERROUS METALS		
DIAMETER	RPM	FEED
6	13500	1050
8	10500	900
10	8500	1000
12	6800	1050
16	5200	1050
20	4200	1050



RPM =rev/min, FEED =mm/min

<Side Cutting>

MATERIAL ALUMINUM NONFERROUS METALS		
DIAMETER	RPM	FEED
6	13500	1050
8	10500	900
10	8500	950
12	6800	1050
16	5200	1050
20	4200	1050



RPM =rev/min, FEED =mm/min

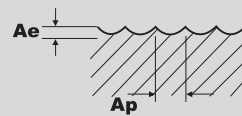
3 FLUTE, BALL NOSED TiCN COATED

116309



MATERIAL	ALUMINUM LOW SILICON ALUMINUM		COPEER ALLOYS	
	DIAMETER	FEED	RPM	FEED
R1.0 x2	27000	950	8000	240
R1.25 x2.5	22000	950	6500	240
R1.5 x3	18000	950	5500	240
R2.0 x4	18000	1250	5500	310
R2.5 x5	18000	1350	5500	340
R3.0 x6	18000	1750	5500	440
R4.0 x8	14000	2000	4200	500
R5.0 x10	14000	2350	4200	580
R6.0 x12	14000	3000	4200	750
R8.0 x16	11000	2700	3300	670

Ae=0.2 x D
Ap=0.5 x D



RPM=REVOLUTION PER MIN., FEED=mm/min.

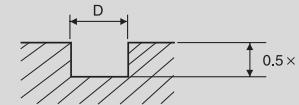
ALU-XP cutting condition

2 FLUTE, 45° HELIX for ALUMINIUM

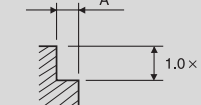
151303



MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
	DIAMETER	RPM	FEED	FEED
3	10000	700	10000	900
4	10000	900	10000	1100
5	10000	1000	10000	1300
6	10000	1200	10000	1500
8	8000	1400	8000	1800
10	8000	1700	8000	2100
12	8000	2100	8000	2600
14	6000	1800	6000	2200
16	6000	1900	6000	2400
18	4000	1400	4000	1800
20	4000	1600	4000	1900



A: φ 3~φ 10=0.25 x D
φ 12~φ 20=0.5 x D



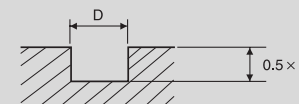
RPM=REVOLUTION PER MIN., FEED=mm/min.

2 FLUTE, 45° HELIX for ALUMINIUM, TiCN COATED

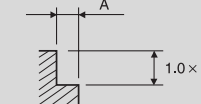
151303



MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
	DIAMETER	RPM	FEED	FEED
3	13000	900	13000	1200
4	13000	1200	13000	1400
5	13000	1300	13000	1700
6	13000	1500	13000	2000
8	10000	1800	10000	2300
10	10000	2200	10000	2700
12	10000	2700	10000	3400
14	8000	2300	8000	2800
16	8000	2500	8000	3100
18	5000	1800	5000	2300
20	5000	2000	5000	2500



A: φ 3~φ 10=0.25 x D
φ 12~φ 20=0.5 x D



RPM=REVOLUTION PER MIN., FEED=mm/min.

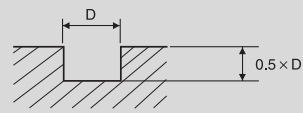
ALU-XP cutting condition

2 FLUTE, 45° HELIX for ALUMINUM

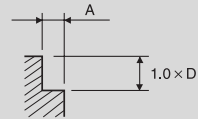
331303, 151303



MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
DIAMETER	RPM	FEED	RPM	FEED
3	10000	700	10000	900
4	10000	900	10000	1100
5	10000	1000	10000	1300
6	10000	1200	10000	1500
8	8000	1400	8000	1800
10	8000	1700	8000	2100
12	8000	2100	8000	2600
14	6000	1800	6000	2200
16	6000	1900	6000	2400
18	4000	1400	4000	1800
20	4000	1600	4000	1900



A: $\phi 3 \sim \phi 10 = 0.25 \times D$
 $\phi 12 \sim \phi 20 = 0.5 \times D$



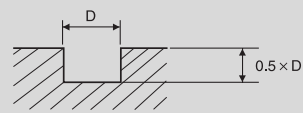
RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, 45° HELIX for ALUMINUM, TiCN-COATED

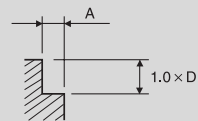
331303, 151303



MATERIAL	ALUMINUM LOW SILICON ALUMINUM			
DIAMETER	RPM	FEED	RPM	FEED
3	13000	900	13000	1200
4	13000	1200	13000	1400
5	13000	1300	13000	1700
6	13000	1500	13000	2000
8	10000	1800	10000	2300
10	10000	2200	10000	2700
12	10000	2700	10000	3400
14	8000	2300	8000	2800
16	8000	2500	8000	3100
18	5000	1800	5000	2300
20	5000	2000	5000	2500



A: $\phi 3 \sim \phi 10 = 0.25 \times D$
 $\phi 12 \sim \phi 20 = 0.5 \times D$



RPM=REVOLUTION PER MIN.
FEED=mm/min.

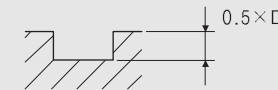
ALU-XP cutting condition

2 FLUTE, STANDARD, STRAIGHT SHANK, FOR ALUMINIUM

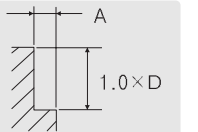
531303



Slotting			Side Cutting		
MATERIAL	ALUMINUM NONFERROUS METALS		MATERIAL	ALUMINUM NONFERROUS METALS	
DIAMETER	RPM	FEED	DIAMETER	RPM	FEED
3	10000	700	3	10000	900
4	10000	900	4	10000	1100
5	10000	1000	5	10000	1300
6	10000	1200	6	10000	1500
8	8000	1400	8	8000	1800
10	8000	1700	10	8000	2100
12	8000	2100	12	8000	2600
14	6000	1800	14	6000	2200
16	6000	1900	16	6000	2400
18	4000	1400	18	4000	1800
20	4000	1600	20	4000	1900



A: $\phi 1/8 \sim \phi 3/8 = 0.25 \times D$
 $\phi 1/2 \sim \phi 13/16 = 0.5 \times D$



※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.

2 FLUTE, STANDARD, STRAIGHT SHANK, FOR ALUMINIUM, TiCN-COATED

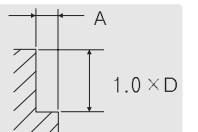
531303



Slotting			Side Cutting		
MATERIAL	ALUMINUM NONFERROUS METALS		MATERIAL	ALUMINUM NONFERROUS METALS	
DIAMETER	RPM	FEED	DIAMETER	RPM	FEED
3	15600	1080	3	12000	1440
4	15600	1440	4	12000	1680
5	15600	1560	5	12000	2040
6	15600	1800	6	12000	2400
8	12000	2160	8	9600	2760
10	12000	2640	10	9600	3240
12	12000	3240	12	9600	4078
14	9600	2760	14	7200	3359
16	9600	3000	16	7200	3722
18	6000	2160	18	4800	2760
20	6000	2400	20	4800	3000



A: $\phi 1/8 \sim \phi 3/8 = 0.25 \times D$
 $\phi 1/2 \sim \phi 13/16 = 0.5 \times D$



※The FEED, in long & extra long types, should be reduced by around 50%

RPM=REVOLUTION PER MIN.
FEED=mm/min.