

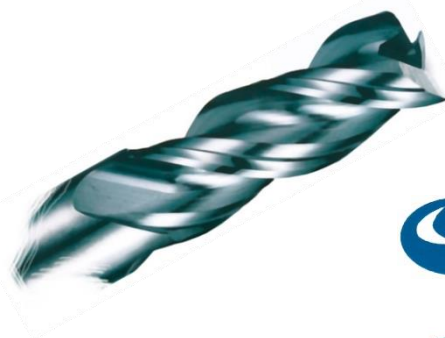
# ALU MIRROR HIGH-END FINISHING

Speziell ausgelegt für das einfache Erreichen von Hochglanz-Oberflächen in der Aluminium & Platin Bearbeitung.

Ungleicher Helix, komplett polierter Schneidenbereich und polierte Spankammern sind der Garant um seitliche sowie Front-Bearbeitungen in feinsten Oberflächen-Qualität zu fertigen.

XANU Fräser von JANPO sind die perfekte Wahl, wenn Oberflächen mit einem excellenten Ra-Wert gefragt sind.

Oberflächen Rauheit von Ra 0.08-0.18 sind ohne Probleme erreichbar.



 **JANPO**

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# ALU MIRROR ECKRADIUS-FRÄSER



Speziell ausgelegter ungleicher 40° Helix mit abgesetzter Geometrie um einen erstklassigen Spänefluss zu garantieren.

Eine ungleich ausgelegte, feinstpolierte Schneidengeometrie, garantiert erstklassige Ra-Werte und verhindert Aufbauschneiden.

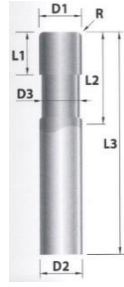


Bestell-Code	Ø D1	SL – L1	eff.SL – L2	TL – L3	Ø D2	ER
XANU0203-05	2.00	6	9	50	6	0.5
XANU0303-05	3.00	6	9	50	6	0.5
XANU0403-05	4.00	8	12	50	6	0.5
XANU0503-05	5.00	10	15	50	6	0.5
XANU0603-05	6.00	12	18	50	6	0.5
XANU0603-10	6.00	12	18	50	6	1.0
XANU0803-05	8.00	16	24	60	8	0.5
XANU0803-10	8.00	16	24	60	8	1.0
XANU0803-20	8.00	16	24	60	8	2.0
XANU1003-05	10.00	20	30	75	10	0.5
XANU1003-10	10.00	20	30	75	10	1.0
XANU1003-20	10.00	20	30	75	10	2.0
XANU1203-05	12.00	24	36	75	12	0.5
XANU1203-10	12.00	24	36	75	12	1.0
XANU1203-20	12.00	24	36	75	12	2.0
XANU1603-05	16.00	32	48	100	16	0.5
XANU1603-10	16.00	32	48	100	16	1.0
XANU1603-20	16.00	32	48	100	16	2.0

Oberflächen Rauheit von Ra 0.08-0.18 - sprich Spiegelflächen - sind ohne Probleme erreichbar.

# ALU MIRROR ECKRADIUS-FRÄSER

lange Ausführung



Speziell ausgelegter ungleicher 40° Helix mit abgesetzter Geometrie um einen erstklassigen Spänefluss zu garantieren.

Eine ungleich ausgelegte, feinstpolierte Schneidengeometrie, garantiert erstklassige Ra-Werte und verhindert Aufbauschneiden.



Bestell-Code	Ø D1	SL – L1	eff.SL – L2	TL – L3	Ø D2	ER
XANLU0603-05	6.00	12	30	60	6	0.5
XANLU0603-10	6.00	12	30	60	6	1.0
XANLU0803-05	8.00	16	40	80	8	0.5
XANLU0803-10	8.00	16	40	80	8	1.0
XANLU0803-20	8.00	16	40	80	8	2.0
XANLU1003-05	10.00	20	50	100	10	0.5
XANLU1003-10	10.00	20	50	100	10	1.0
XANLU1003-20	10.00	20	50	100	10	2.0
XANLU1203-05	12.00	24	60	120	12	0.5
XANLU1203-10	12.00	24	60	120	12	1.0
XANLU1203-20	12.00	24	60	120	12	2.0
XANLU1603-05	16.00	32	80	160	16	0.5
XANLU1603-10	16.00	32	80	160	16	1.0
XANLU1603-20	16.00	32	80	160	16	2.0

Oberflächen Rauheit von Ra 0.08-0.18 - sprich Spiegelflächen - sind ohne Probleme erreichbar.

# ALU MIRROR SCHAFTFRÄSER



Speziell ausgelegter Helix +/- 40° mit abgesetzter Geometrie um einen erstklassigen Spänefluss zu garantieren.

Eine ungleich ausgelegte, feinstpolierte Schneidengeometrie, garantiert erstklassige Ra-Werte und verhindert Aufbauschneiden.



Bestell-Code	Ø D1	SL – L1	eff.SL – L2	TL – L3	Ø D2	ER
XANU0203	2.00	4	6	50	6	-
XANU0303	3.00	6	9	50	6	-
XANU0403	4.00	8	12	50	6	-
XANU0503	5.00	10	15	50	6	-
XANU0603	6.00	12	18	50	6	-
XANU0803	8.00	16	24	60	8	-
XANU1003	10.00	20	30	75	10	-
XANU1203	12.00	24	36	75	12	-
XANU1603	16.00	32	48	100	16	-



Oberflächen Rauheit von Ra 0.08-0.18 - sprich Spiegelflächen - sind ohne Probleme erreichbar.

# ALU MIRROR SCHAFTFRÄSER



Speziell ausgelegter Helix +/- 40° mit abgesetzter Geometrie um einen erstklassigen Spänefluss zu garantieren.

Eine ungleich ausgelegte, feinstpolierte Schneidengeometrie, garantiert erstklassige Ra-Werte und verhindert Aufbauschneiden.



Bestell-Code	Ø D1	SL – L1	eff.SL – L2	TL – L3	Ø D2	ER
XAU-0203	2.00	6	-	50	6	-
XAU-0303	3.00	9	-	50	6	-
XAU-0403	4.00	12	-	50	6	-
XAU-0503	5.00	15	-	50	6	-
XAU-0603	6.00	18	-	50	6	-
XAU0803	8.00	24	-	60	8	-
XAU-1003	10.00	30	-	75	10	-
XAU-1203	12.00	36	-	75	12	-
XAU-1603	16.00	50	-	100	16	-



Oberflächen Rauheit von Ra 0.08-0.18 - sprich Spiegelflächen - sind ohne Probleme erreichbar.

# Richtwert-Tabelle für Erreichen der Spiegel-Oberfläche mit den Fräser-Typen

## XANU-ER / XANLU-ER / XANU / XAU

Material	Aluminium / Alu-Legierungen / Kupfer 5052 / 6061 / 7075							
	WZ - Ø	Auskraglänge	m/min	Drehzahl	Vorschub mm/min	Schnitt Tiefe (Aa)	Versatz (Ap)	Kühlung
Ø 2 ALU	20	95	8-12000	450-550	0.05-0.07	2.4	nass	Front
Ø 2 C	20	95	8-12000	450-550	0.05-0.07	2.4	nass	Front
Ø 2 ALU	20	95	8-12000	400-550	6	0.05-0.1	nass	Seiten
Ø 2 Cu	20	85	5-10000	400-550	6	0.05-0.1	nass	Seiten
Ø 3 ALU	20	95	8-12000	450-550	0.05-0.07	2.4	nass	Front
Ø 3 Cu	20	95	8-12000	450-550	0.05-0.07	2.4	nass	Front
Ø 3 ALU	20	95	8-12000	400-550	6	0.05-0.1	nass	Seiten
Ø 3 Cu	20	85	8-10000	400-550	6	0.05-0.1	nass	Seiten
Ø 4 ALU	20	125	8-12000	450-550	0.05-0.08	3.2	nass	Front
Ø 4 Cu	20	125	8-12000	450-550	0.05-0.08	3.2	nass	Front
Ø 4 ALU	20	125	8-12000	400-550	8	0.05-0.1	nass	Seiten
Ø 4 Cu	20	115	8-10000	400-550	8	0.05-0.1	nass	Seiten
Ø 5 ALU	20	160	8-12000	450-550	0.1	4	nass	Front
Ø 5 Cu	20	160	8-12000	450-550	0.1	4	nass	Front
Ø 5 ALU	20	160	8-12000	400-550	10	0.1	nass	Seiten
Ø 5 Cu	20	140	8-10000	400-550	10	0.1	nass	Seiten
Ø 6 ALU	20	190	8-12000	450-550	0.01	4.8	nass	Front
Ø 6 Cu	20	190	8-12000	450-550	0.1	4.8	nass	Front
Ø 6 ALU	20	190	8-12000	400-550	12	0.1	nass	Seiten
Ø 6 Cu	20	170	8-10000	400-550	12	0.1	nass	Seiten
Ø 8 ALU	26	250	8-12000	450-550	0.1	6.4	nass	Front
Ø 8 Cu	26	250	8-12000	450-550	0.1	6.4	nass	Front
Ø 8 ALU	26	250	8-12000	400-550	16	0.1	nass	Seiten
Ø 8 Cu	26	190	6-9000	400-550	16	0.1	nass	Seiten
Ø 10 ALU	32	315	8-12000	450-550	0.1	8	nass	Front
Ø 10 Cu	32	220	6-8000	450-550	0.1	8	nass	Front
Ø 10 ALU	32	315	8-12000	400-550	20	0.1	nass	Seiten
Ø 10 Cu	32	220	6-8000	400-550	20	0.1	nass	Seiten
Ø 12 ALU	37	340	8-10000	450-550	0.1	9.6	nass	Front
Ø 12 Cu	37	265	6-8000	450-550	0.1	9.6	nass	Front
Ø 12 ALU	37	340	8-10000	400-550	25	0.1	nass	Seiten
Ø 12 Cu	37	190	4-6000	400-550	25	0.1	nass	Seiten
Ø 16 ALU	52	360	6.5-8000	450-550	0.1	12.8	nass	Front
Ø 16 Cu	52	290	5-6500	450-550	0.1	12.8	nass	Front
Ø 16 ALU	52	300	5.5-6500	400-550	30	0.1	nass	Seiten
Ø 16 Cu	52	200	3-5000	400-550	30	0.1	nass	Seiten

# ALU SCHAFTFRÄSER **heavy duty**



Speziell ausgelegter Helix +/- 40° mit abgesetzter Geometrie.  
Eine ungleich ausgelegte, Schneidengeometrie mit polierten Spankammern, garantiert einen excellenten Spänefluss und verhindert Aufbauschneiden.

## **Die Wunderwaffe im schweren Schrubb-Einsatz in Alu und Alu-Legierungen**



Bestell-Code	Ø D1	SL – L1	eff.SL – L2	TL – L3	Ø D2	ER
XAHP-0603	6.00	15	-	50	6	-
XAHP-0803	8.00	20	-	60	8	-
XAHP-1003	10.00	25	-	75	10	-
XAHP-1203	12.00	30	-	75	12	-
XAHP-1603	16.00	40	-	100	16	-

## Parameter für Alu- und Kunststoff-Bearbeitung Gültig für alle XAHP Alu-Fräser

Umfangfräsen				Vollnutfräsen		
Ø mm	fz mm	ap mm	ae mm	fz mm	ap mm	ae mm
2	0.08	2.8	0.6	0.06	1	2
3	0.08	3.0	0.9	0.07	1.5	3
4	0.09	5.6	1.2	0.08	2	4
5	0.09	7.0	1.5	0.09	2.5	5
6	0.1	8.0	1.8	0.09	3	6
8	0.12	11.0	2.4	0.1	4	8
10	0.15	14	3	0.11	5	10
12	0.17	16	3.6	0.12	6	12
16	0.22	22	4.8	0.14	8	16

Umfangfräsen			
Material	Al>6% Si	Al<12% Si	Kunststoff
Vc / m/min	225	190	250
Vollnutfräsen			
Material	Al>6% Si	Al<12% Si	Kunststoff
Vc / m/min	190	140	225



## Specification

Bestell-Code	Fräs-Ø	Schneidenlänge	Nutzlänge	Total-Länge	Schaft-Ø	Schneidenzahl
S-AUE0603 TB	6	10	15	50	6	3
S-AUE0803 TB	8	13	20	60	8	3
S-AUE1003 TB	10	16	25	75	10	3
S-AUE1203 TB	12	19	30	75	12	3

# AUE PLUS

SERIES

## High Feed U-Type Aluminum End Mill For Slotting

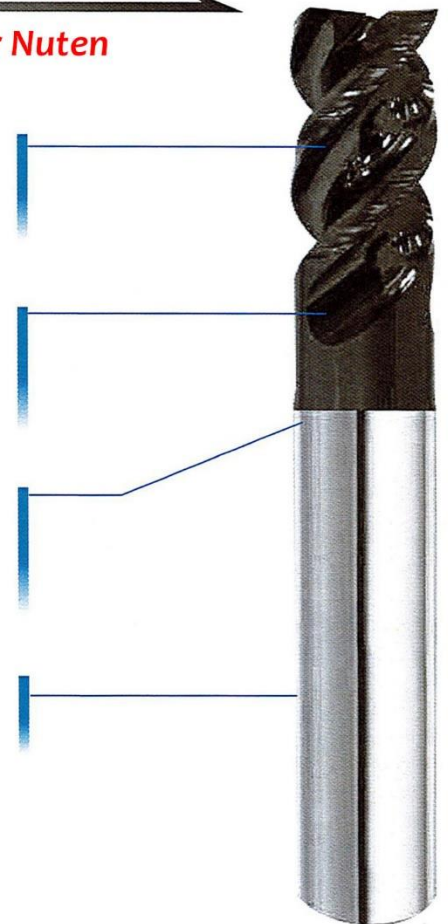
**HIGH-FEED U-Typ Aluminium Schaftfräser speziell für Nuten**

Spezielle TB Tetrabond Diamant Beschichtung mit  
excellentem Schmiereffekt. Dadurch perfekter Spanfluss  
und sehr lange Standzeiten

Spezielles U-Typ Design für einen super Spänefluss, gepaart  
mit feinstem Oberflächen-Finish, ergibt einen einzigartigen  
und sicheren Span-Abtransport

Sehr starke Schneidenzähne mit Doppel-Relief-Winkeln.  
Exzellente Einsatzwerte, basierend auf der Werkzeughärte  
kombiniert mit den speziell ausgelegten Relief-Winkeln

Extrem scharfes Zahnprofil, ausgelegt für Schrupp- und  
Schlichteinsätze im Trocken-Einsatz



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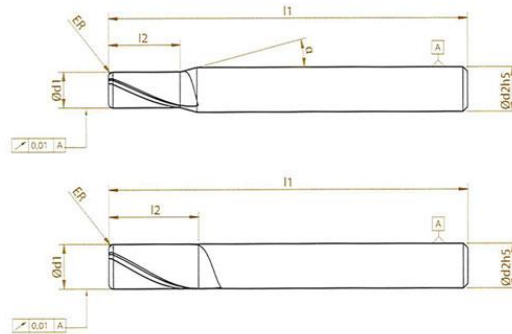
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N

# VHM ECKENRADIUSFRÄSER für Al-Legierungen

SOLID CARBIDE CORNER RADIUS END MILLS for aluminium alloys



Art. Nr.	Ød1	Ød2	l1	l2	ER	Z	α	UMFANGFRÄSEN			VOLLNUTFRÄSEN			VC (korrekt)*
								fz mm	ap mm	ae mm	fz mm	ap mm	ae mm	
ALSR040 02002-Z2	2	4	40	4	0,2	2	15°	0,04	3	0,3	0,02	2	2	0,42
ALSR040 02005-Z2	2	4	40	4	0,5	2	15°	0,04	3	0,3	0,02	2	2	0,42
ALSR050 03002-Z2	3	4	50	6	0,2	2	15°	0,045	4,5	0,45	0,025	3	3	0,63
ALSR050 03005-Z2	3	4	50	6	0,5	2	15°	0,045	4,5	0,45	0,025	3	3	0,63
ALSR060 04002-Z2	4	4	60	8	0,2	2	-	0,05	6	0,6	0,03	4	4	0,84
ALSR060 04005-Z2	4	4	60	8	0,5	2	-	0,05	6	0,6	0,03	4	4	0,84
ALSR060 04010-Z2	4	4	60	8	1	2	-	0,05	6	0,6	0,03	4	4	0,84
ALSR060 05002-Z2	5	6	60	10	0,2	2	15°	0,055	7,5	0,75	0,04	5	5	-
ALSR060 05005-Z2	5	6	60	10	0,5	2	15°	0,055	7,5	0,75	0,04	5	5	-
ALSR060 05010-Z2	5	6	60	10	1	2	15°	0,055	7,5	0,75	0,04	5	5	-
ALSR070 06002-Z2	6	6	70	12	0,2	2	-	0,06	9	0,9	0,055	6	6	-
ALSR070 06005-Z2	6	6	70	12	0,5	2	-	0,06	9	0,9	0,055	6	6	-
ALSR070 06010-Z2	6	6	70	12	1	2	-	0,06	9	0,9	0,055	6	6	-
ALSR070 06015-Z2	6	6	70	12	1,5	2	-	0,06	9	0,9	0,055	6	6	-
ALSR070 06020-Z2	6	6	70	12	2	2	-	0,06	9	0,9	0,055	6	6	-
ALSR070 08002-Z2	8	8	70	16	0,2	2	-	0,08	12	1,2	0,07	8	8	-
ALSR070 08005-Z2	8	8	70	16	0,5	2	-	0,08	12	1,2	0,07	8	8	-
ALSR070 08010-Z2	8	8	70	16	1	2	-	0,08	12	1,2	0,07	8	8	-
ALSR070 08015-Z2	8	8	70	16	1,5	2	-	0,08	12	1,2	0,07	8	8	-
ALSR070 08020-Z2	8	8	70	16	2	2	-	0,08	12	1,2	0,07	8	8	-
ALSR070 10002-Z2	10	10	70	20	0,2	2	-	0,1	15	1,5	0,08	10	10	-
ALSR070 10005-Z2	10	10	70	20	0,5	2	-	0,1	15	1,5	0,08	10	10	-
ALSR070 10010-Z2	10	10	70	20	1	2	-	0,1	15	1,5	0,08	10	10	-
ALSR070 10015-Z2	10	10	70	20	1,5	2	-	0,1	15	1,5	0,08	10	10	-
ALSR070 10020-Z2	10	10	70	20	2	2	-	0,1	15	1,5	0,08	10	10	-
ALSR090 12002-Z2	12	12	90	24	0,2	2	-	0,12	18	1,8	0,1	12	12	-
ALSR090 12005-Z2	12	12	90	24	0,5	2	-	0,12	18	1,8	0,1	12	12	-
ALSR090 12010-Z2	12	12	90	24	1	2	-	0,12	18	1,8	0,1	12	12	-
ALSR090 12015-Z2	12	12	90	24	1,5	2	-	0,12	18	1,8	0,1	12	12	-
ALSR090 12020-Z2	12	12	90	24	2	2	-	0,12	18	1,8	0,1	12	12	-
ALSR090 14002-Z2	14	14	90	28	0,2	2	-	0,14	21	2,1	0,12	14	14	-
ALSR090 14005-Z2	14	14	90	28	0,5	2	-	0,14	21	2,1	0,12	14	14	-
ALSR090 14010-Z2	14	14	90	28	1	2	-	0,14	21	2,1	0,12	14	14	-

\* in Bezug auf n=30000U/min

**UMFANGFRÄSEN    VOLLNUTFRÄSEN**

Art. Nr.									UMFANGFRÄSEN			VOLLNUTFRÄSEN			vc (korrekt)*
	Ød1	Ød2	l1	l2	ER	Z	α	fz mm	ap mm	ae mm	fz mm	ap mm	ae mm		
ALSR090 14015-Z2	14	14	90	28	1,5	2	-	0,14	21	2,1	0,12	14	14	-	
ALSR090 14020-Z2	14	14	90	28	2	2	-	0,14	21	2,1	0,12	14	14	-	
ALSR090 16002-Z2	16	16	90	32	0,2	2	-	0,15	24	2,4	0,13	16	16	-	
ALSR090 16005-Z2	16	16	90	32	0,5	2	-	0,15	24	2,4	0,13	16	16	-	
ALSR090 16010-Z2	16	16	90	32	1	2	-	0,15	24	2,4	0,13	16	16	-	
ALSR090 16015-Z2	16	16	90	32	1,5	2	-	0,15	24	2,4	0,13	16	16	-	
ALSR090 16020-Z2	16	16	90	32	2	2	-	0,15	24	2,4	0,13	16	16	-	
ALSR090 20002-Z2	20	20	90	40	0,2	2	-	0,18	30	3	0,14	20	20	-	
ALSR090 20005-Z2	20	20	90	40	0,5	2	-	0,18	30	3	0,14	20	20	-	
ALSR090 20010-Z2	20	20	90	40	1	2	-	0,18	30	3	0,14	20	20	-	
ALSR090 20015-Z2	20	20	90	40	1,5	2	-	0,18	30	3	0,14	20	20	-	
ALSR090 20020-Z2	20	20	90	40	2	2	-	0,18	30	3	0,14	20	20	-	

\* in Bezug auf n=30000U/min

**UMFANGFRÄSEN SIDE MILLING**

Material	Al < 6% Si	Al < 12% Si	Kunststoff
vc [m/min]	450	380	500

**VOLLNUTFRÄSEN FULL SLOT MILLING**

Material	Al < 6% Si	Al < 12% Si	Kunststoff
vc [m/min]	380	280	380

**TOLERANZEN TOLERANCES**

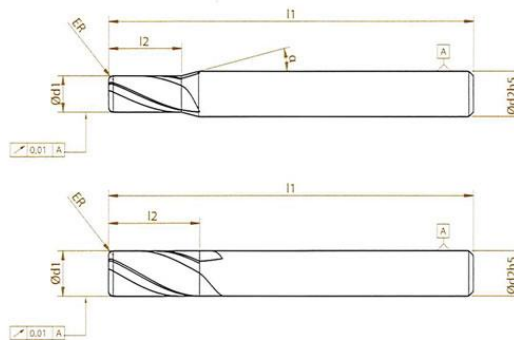
Ød1 < d2	Ød1 = d2 ≤ Ø12	Ød1 = d2 > Ø12	ER ≤ 1	ER > 1
+0,00 / -0,01	-0,01 / -0,02	-0,01 / -0,025	± 0,005	± 0,01



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# VHM ECKENRADIUSFRÄSER für Al-Legierungen

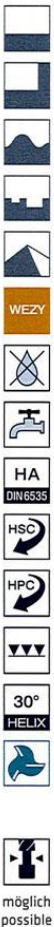
SOLID CARBIDE CORNER RADIUS END MILLS for aluminium alloys



## UMFANGFRÄSEN VOLLNUTFRÄSEN

Art. Nr.	Ød1	Ød2	l1	l2	ER	Z	α	fz mm	ap mm	ae mm	fz mm	ap mm	ae mm	vc (korrekt)*
ALSR040 02002-Z3	2	4	40	4	0,2	3	30°	0,04	3	0,3	0,02	2	2	0,42
ALSR040 02005-Z3	2	4	40	4	0,5	3	30°	0,04	3	0,3	0,02	2	2	0,42
ALSR050 03002-Z3	3	4	50	6	0,2	3	30°	0,045	4,5	0,45	0,025	3	3	0,63
ALSR050 03005-Z3	3	4	50	6	0,5	3	30°	0,045	4,5	0,45	0,025	3	3	0,63
ALSR060 04002-Z3	4	4	60	8	0,2	3	-	0,05	6	0,6	0,03	4	4	0,84
ALSR060 04005-Z3	4	4	60	8	0,5	3	-	0,05	6	0,6	0,03	4	4	0,84
ALSR060 04010-Z3	4	4	60	8	1	3	-	0,05	6	0,6	0,03	4	4	0,84
ALSR060 05002-Z3	5	6	60	10	0,2	3	30°	0,055	7,5	0,75	0,04	5	5	-
ALSR060 05005-Z3	5	6	60	10	0,5	3	30°	0,055	7,5	0,75	0,04	5	5	-
ALSR060 05010-Z3	5	6	60	10	1	3	30°	0,055	7,5	0,75	0,04	5	5	-
ALSR070 06002-Z3	6	6	70	12	0,2	3	-	0,06	9	0,9	0,055	6	6	-
ALSR070 06005-Z3	6	6	70	12	0,5	3	-	0,06	9	0,9	0,055	6	6	-
ALSR070 06010-Z3	6	6	70	12	1	3	-	0,06	9	0,9	0,055	6	6	-
ALSR070 06015-Z3	6	6	70	12	1,5	3	-	0,06	9	0,9	0,055	6	6	-
ALSR070 06020-Z3	6	6	70	12	2	3	-	0,06	9	0,9	0,055	6	6	-
ALSR070 08002-Z3	8	8	70	16	0,2	3	-	0,08	12	1,2	0,07	8	8	-
ALSR070 08005-Z3	8	8	70	16	0,5	3	-	0,08	12	1,2	0,07	8	8	-
ALSR070 08010-Z3	8	8	70	16	1	3	-	0,08	12	1,2	0,07	8	8	-
ALSR070 08015-Z3	8	8	70	16	1,5	3	-	0,08	12	1,2	0,07	8	8	-
ALSR070 08020-Z3	8	8	70	16	2	3	-	0,08	12	1,2	0,07	8	8	-
ALSR070 10002-Z3	10	10	70	20	0,2	3	-	0,1	15	1,5	0,08	10	10	-
ALSR070 10005-Z3	10	10	70	20	0,5	3	-	0,1	15	1,5	0,08	10	10	-
ALSR070 10010-Z3	10	10	70	20	1	3	-	0,1	15	1,5	0,08	10	10	-
ALSR070 10015-Z3	10	10	70	20	1,5	3	-	0,1	15	1,5	0,08	10	10	-
ALSR070 10020-Z3	10	10	70	20	2	3	-	0,1	15	1,5	0,08	10	10	-
ALSR090 12002-Z3	12	12	90	24	0,2	3	-	0,12	18	1,8	0,1	12	12	-
ALSR090 12005-Z3	12	12	90	24	0,5	3	-	0,12	18	1,8	0,1	12	12	-
ALSR090 12010-Z3	12	12	90	24	1	3	-	0,12	18	1,8	0,1	12	12	-
ALSR090 12015-Z3	12	12	90	24	1,5	3	-	0,12	18	1,8	0,1	12	12	-
ALSR090 12020-Z3	12	12	90	24	2	3	-	0,12	18	1,8	0,1	12	12	-
ALSR090 14002-Z3	14	14	90	28	0,2	3	-	0,14	21	2,1	0,12	14	14	-
ALSR090 14005-Z3	14	14	90	28	0,5	3	-	0,14	21	2,1	0,12	14	14	-
ALSR090 14010-Z3	14	14	90	28	1	3	-	0,14	21	2,1	0,12	14	14	-

\* in Bezug auf n=30000U/min



Art. Nr.	UMFANGFRÄSEN							VOLLNUTFRÄSEN						
	Ød1	Ød2	l1	l2	ER	Z	α	fz mm	ap mm	ae mm	fz mm	ap mm	ae mm	vc (korrekt)*
ALSR090 14015-Z3	14	14	90	28	1,5	3	-	0,14	21	2,1	0,12	14	14	-
ALSR090 14020-Z3	14	14	90	28	2	3	-	0,14	21	2,1	0,12	14	14	-
ALSR090 16002-Z3	16	16	90	32	0,2	3	-	0,15	24	2,4	0,13	16	16	-
ALSR090 16005-Z3	16	16	90	32	0,5	3	-	0,15	24	2,4	0,13	16	16	-
ALSR090 16010-Z3	16	16	90	32	1	3	-	0,15	24	2,4	0,13	16	16	-
ALSR090 16015-Z3	16	16	90	32	1,5	3	-	0,15	24	2,4	0,13	16	16	-
ALSR090 16020-Z3	16	16	90	32	2	3	-	0,15	24	2,4	0,13	16	16	-
ALSR090 20002-Z3	20	20	90	40	0,2	3	-	0,18	30	3	0,14	20	20	-
ALSR090 20005-Z3	20	20	90	40	0,5	3	-	0,18	30	3	0,14	20	20	-
ALSR090 20010-Z3	20	20	90	40	1	3	-	0,18	30	3	0,14	20	20	-
ALSR090 20015-Z3	20	20	90	40	1,5	3	-	0,18	30	3	0,14	20	20	-
ALSR090 20020-Z3	20	20	90	40	2	3	-	0,18	30	3	0,14	20	20	-

\* in Bezug auf n=30000U/min

#### UMFANGFRÄSEN SIDE MILLING

Material	Al < 6% Si	Al < 12% Si	Kunststoff
vc [m/min]	450	380	500

#### VOLLNUTFRÄSEN FULL SLOT MILLING

Material	Al < 6% Si	Al < 12% Si	Kunststoff
vc [m/min]	380	280	380

#### TOLERANZEN TOLERANCES

Ød1 < d2	Ød1 = d2 ≤ Ø12	Ød1 = d2 > Ø12	ER ≤ 1	ER > 1
+0,00 / -0,01	-0,01 / -0,02	-0,01 / -0,025	± 0,005	± 0,01

# AEW VHM Schafffräser mit Wellenschliff heavy-duty, 3-Lp.



Aluminium, Alu-Legierungen, Kupfer, Kunststoff, non ferrous



Order-No.	Dia	SL	TL	Schaft	Order-No.	Dia	SL	TL	Shaft
AEW0603	6.0	16	50	6					
AEW0803	8.0	20	60	8					
AEW0803L	8.0	25	80	8					
AEW1003	10.0	22	75	10					
AEW1003L	10.0	30	80	10					
AEW1203	12.0	26	75	12					
AEW1203L	12.0	35	100	12					
AEW1603	16.0	40	100	16					
AEW1603L	16.0	50	120	16					
AEW2003	20.0	45	100	20					
AEW2003L	20.0	55	120	20					

# AES VHM Schafffräser, 3-Lp.



Aluminium, Alu-Legierungen, Kupfer, Kunststoff, non ferrous



Order-No.	Dia	SL	TL	Schaft	Order-No.	Dia	SL	TL	Schaft
AES0203S	2.0	6	50	4	AES1003	10.0	25	75	10
AES0203	2.0	6	50	6	AES1003L	10.0	50	100	10
AES0303S	3.0	8	50	4	AES1203	12.0	30	75	12
AES0303	3.0	8	50	6	AES1203L	12.0	55	100	12
AES0403S	4.0	1	50	4	AES1603	16.0	40	100	16
AES0403	4.0	1	50	6	AES1603L	16.0	50	120	16
AES0503	5.0	13	50	6	AES2003	20.0	45	100	20
AES0603	6.0	16	50	6	AES2003L	20.0	60	120	20
AES0603L	6.0	32	75	6					
AES0803	8.0	20	60	8					
AES0803L	8.0	45	100	8					

# AESR VHM Eckradiusfräser mit mit Hinterschliff, 3-Lp.



Aluminium, Alu-Legierungen, Kupfer, Kunststoff, non ferrous



Order-No.	Dia	ER	SL	eff.NL	TL	Schaft	Order-No.	Dia	ER	SL	eff.NL	TL	Shaft
AESR0305	3.0	0.5	4.5	9	50	6	AESR2005	20.0	0.5	30	50	120	20
AESR0405	4.0	0.5	6	12	50	6	AESR2010	20.0	1	30	50	120	20
AESR0605	6.0	0.5	9	18	60	6	AESR2030	20.0	3	30	50	120	20
AESR0610	6.0	1	9	18	60	6							
AESR0805	8.0	0.5	12	24	60	8							
AESR0810	8.0	1	12	24	60	8							
AESR1005	10.0	0.5	15	30	75	10							
AESR1010	10.0	1	15	30	75	10							
AESR1205	12.0	0.5	18	36	75	12							
AESR1210	12.0	1	18	36	75	12							
AESR1605	16.0	0.5	24	40	120	16							
AESR1610	16.0	1	24	40	120	16							
AESR1630	16.0	3	24	40	120	16							

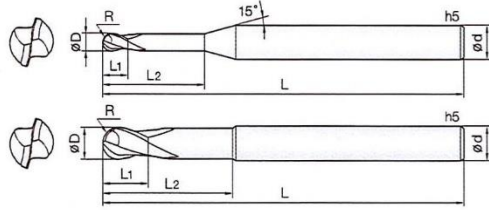
# AER VHM Eckradiusfräser, 3-Lp.



Aluminium, Alu-Legierungen, Kupfer, Kunststoff, non ferrous



Order-No.	Dia	ER	SL	TL	Schaft	Order-No.	Dia	SL	TL	Schaft
AER0202	2.0	0.2	6	50	6					
AER0302	3.0	0.2	10	50	6					
AER0402	4.0	0.2	12	50	6					
AER0603	6.0	0.3	18	50	6					
AER0805	8.0	0.5	20	60	8					
AER1005	10.0	0.5	30	75	10					



- Endmills for Aluminum, AL alloy, copper, copper alloy, non-ferrous and non-metallic materials.
- Applied fine WC grade for excellent surface finish.
- Minimize fracturing by high TRS fine (0.5µm) WC grade.
- High speed, feed applicable by 45° degree helix and deep chip pocket design



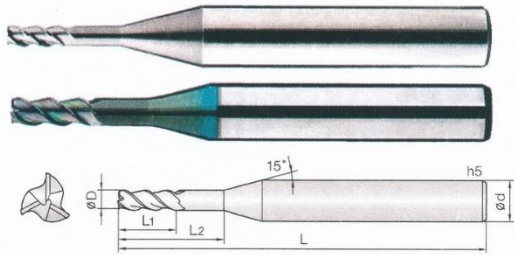
D Size	D Tolerance
Ø 0.5 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.005 ~ -0.015mm
Ø 16	-0.01 ~ -0.02mm

Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2ALB 005 010 S04	0.25R X 0.5	0.7	1	45	4
2ALB 005 020 S04	0.25R X 0.5	0.7	2	45	4
2ALB 005 030 S04	0.25R X 0.5	0.7	3	45	4
2ALB 005 040 S04	0.25R X 0.5	0.7	4	45	4
2ALB 005 050 S04	0.25R X 0.5	0.7	5	45	4
2ALB 005 060 S04	0.25R X 0.5	0.7	6	45	4
2ALB 006 020 S04	0.3R X 0.6	0.9	2	45	4
2ALB 006 030 S04	0.3R X 0.6	0.9	3	45	4
2ALB 006 040 S04	0.3R X 0.6	0.9	4	45	4
2ALB 006 050 S04	0.3R X 0.6	0.9	5	45	4
2ALB 006 060 S04	0.3R X 0.6	0.9	6	45	4
2ALB 006 080 S04	0.3R X 0.6	0.9	8	45	4
2ALB 006 100 S04	0.3R X 0.6	0.9	10	45	4
2ALB 008 020 S04	0.4R X 0.8	1.2	2	45	4
2ALB 008 030 S04	0.4R X 0.8	1.2	3	45	4
2ALB 008 040 S04	0.4R X 0.8	1.2	4	45	4
2ALB 008 060 S04	0.4R X 0.8	1.2	6	45	4
2ALB 008 080 S04	0.4R X 0.8	1.2	8	45	4
2ALB 008 100 S04	0.4R X 0.8	1.2	10	45	4
2ALB 008 120 S04	0.4R X 0.8	1.2	12	45	4
2ALB 010 030 S04	0.5R X 1	1.5	3	50	4
2ALB 010 050 S04	0.5R X 1	1.5	5	50	4
2ALB 010 080 S04	0.5R X 1	1.5	8	50	4
2ALB 010 100 S04	0.5R X 1	1.5	10	50	4
2ALB 010 120 S04	0.5R X 1	1.5	12	50	4
2ALB 010 160 S04	0.5R X 1	1.5	16	50	4
2ALB 010 200 S04	0.5R X 1	1.5	20	50	4
2ALB 012 030 S04	0.6R X 1.2	1.8	3	50	4
2ALB 012 040 S04	0.6R X 1.2	1.8	4	50	4
2ALB 012 060 S04	0.6R X 1.2	1.8	6	50	4
2ALB 012 080 S04	0.6R X 1.2	1.8	8	50	4
2ALB 012 100 S04	0.6R X 1.2	1.8	10	50	4
2ALB 012 120 S04	0.6R X 1.2	1.8	12	50	4
2ALB 015 050 S04	0.75R X 1.5	2	5	50	4
2ALB 015 080 S04	0.75R X 1.5	2	8	50	4
2ALB 015 100 S04	0.75R X 1.5	2	10	50	4
2ALB 015 120 S04	0.75R X 1.5	2	12	50	4
2ALB 015 160 S04	0.75R X 1.5	2	16	50	4
2ALB 015 200 S04	0.75R X 1.5	2	20	50	4
2ALB 020 050 S06	1R X 2	3	5	50	6
2ALB 020 080 S06	1R X 2	3	8	50	6
2ALB 020 100 S06	1R X 2	3	10	50	6
2ALB 020 120 S06	1R X 2	3	12	60	6
2ALB 020 160 S06	1R X 2	3	16	60	6
2ALB 020 200 S06	1R X 2	3	20	60	6
2ALB 020 250 S06	1R X 2	3	25	65	6
2ALB 025 060 S06	1.25R X 2.5	4	6	50	6
2ALB 025 100 S06	1.25R X 2.5	4	10	50	6
2ALB 025 120 S06	1.25R X 2.5	4	12	60	6
2ALB 025 160 S06	1.25R X 2.5	4	16	60	6





Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2ALB 025 200 S06	1.25R X 2.5	4	20	60	6
2ALB 030 080 S06	1.5R X 3	4.5	8	60	6
2ALB 030 120 S06	1.5R X 3	4.5	12	60	6
2ALB 030 160 S06	1.5R X 3	4.5	16	60	6
2ALB 030 200 S06	1.5R X 3	4.5	20	60	6
2ALB 030 250 S06	1.5R X 3	4.5	25	70	6
2ALB 030 300 S06	1.5R X 3	4.5	30	70	6
2ALB 030 400 S06	1.5R X 3	4.5	40	80	6
2ALB 040 100 S06	2R X 4	6	10	60	6
2ALB 040 160 S06	2R X 4	6	16	60	6
2ALB 040 200 S06	2R X 4	6	20	60	6
2ALB 040 250 S06	2R X 4	6	25	70	6
2ALB 040 300 S06	2R X 4	6	30	70	6
2ALB 040 400 S06	2R X 4	6	40	80	6
2ALB 050 160 S06	2.5R X 5	8	16	80	6
2ALB 050 200 S06	2.5R X 5	8	20	80	6
2ALB 050 250 S06	2.5R X 5	8	25	80	6
2ALB 060 150 S06	3R X 6	9	15	90	6
2ALB 060 300 S06	3R X 6	9	30	90	6
2ALB 060 400 S06	3R X 6	9	40	90	6
2ALB 080 200 S08	4R X 8	12	20	100	8
2ALB 100 250 S10	5R X 10	15	25	100	10
2ALB 120 300 S12	6R X 12	18	30	110	12
2ALB 160 600 S16	8R X 16	30	60	160	16



- Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.
- Applied fine WC grade for excellent surface finish.
- Applied short flute length for various applications.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Minimize built up edge by double edge and deep pocket design.



D Size	D Tolerance
ø0.8 ~ 20	+0 ~ -0.01mm

FOR ALUMINUM

Order Number		Diameter	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	비코팅 Un coated	코팅 Coated
비코팅 Un coated	RTAC 코팅 RTAC Coated	D	L1	L2	L	d	비코팅 Un coated	코팅 Coated
3ALR 008 016 S04	3ALRC 008 016 S04	0.8	1.6	-	50	4		
3ALR 008 030 S04	3ALRC 008 030 S04	0.8	1.6	3	50	4		
3ALR 008 040 S04	3ALRC 008 040 S04	0.8	1.6	4	50	4		
3ALR 008 050 S04	3ALRC 008 050 S04	0.8	1.6	5	50	4		
3ALR 008 060 S04	3ALRC 008 060 S04	0.8	1.6	6	50	4		
3ALR 008 080 S04	3ALRC 008 080 S04	0.8	1.6	8	50	4		
3ALR 008 100 S04	3ALRC 008 010 S04	0.8	1.6	10	50	4		
3ALR 008 120 S04	3ALRC 008 012 S04	0.8	1.6	12	50	4		
3ALR 010 020 S06	3ALRC 010 020 S06	1	2	-	60	6		
3ALR 010 040 S06	3ALRC 010 040 S06	1	2	4	60	6		
3ALR 010 060 S06	3ALRC 010 060 S06	1	2	6	60	6		
3ALR 010 080 S06	3ALRC 010 080 S06	1	2	8	60	6		
3ALR 010 100 S06	3ALRC 010 100 S06	1	2	10	60	6		
3ALR 010 120 S06	3ALRC 010 120 S06	1	2	12	60	6		
3ALR 010 140 S06	3ALRC 010 140 S06	1	2	14	60	6		
3ALR 010 160 S06	3ALRC 010 160 S06	1	2	16	60	6		
New 3ALR 010 180 S06		1	2	18	60	6		
New 3ALR 010 200 S06		1	2	20	60	6		
3ALR 015 030 S06	3ALRC 015 030 S06	1.5	3	-	60	6		
3ALR 015 060 S06	3ALRC 015 060 S06	1.5	3	6	60	6		
3ALR 015 080 S06	3ALRC 015 080 S06	1.5	3	8	60	6		
3ALR 015 100 S06	3ALRC 015 100 S06	1.5	3	10	60	6		
3ALR 015 120 S06	3ALRC 015 120 S06	1.5	3	12	60	6		
3ALR 015 140 S06	3ALRC 015 140 S06	1.5	3	14	60	6		
3ALR 015 160 S06	3ALRC 015 160 S06	1.5	3	16	60	6		
3ALR 015 180 S06	3ALRC 015 180 S06	1.5	3	18	60	6		
3ALR 015 200 S06	3ALRC 015 200 S06	1.5	3	20	60	6		
New 3ALR 015 220 S06		1.5	3	22	65	6		
New 3ALR 015 250 S06		1.5	3	25	65	6		
3ALR 020 040 S06	3ALRC 020 040 S06	2	4	-	60	6		
3ALR 020 080 S06	3ALRC 020 080 S06	2	4	8	60	6		
3ALR 020 100 S06	3ALRC 020 100 S06	2	4	10	60	6		
3ALR 020 120 S06	3ALRC 020 120 S06	2	4	12	60	6		
3ALR 020 140 S06	3ALRC 020 140 S06	2	4	14	60	6		
3ALR 020 160 S06	3ALRC 020 160 S06	2	4	16	60	6		
3ALR 020 200 S06	3ALRC 020 200 S06	2	4	20	60	6		
3ALR 020 220 S06	3ALRC 020 220 S06	2	4	22	60	6		
3ALR 020 250 S06	3ALRC 020 250 S06	2	4	25	65	6		
New 3ALR 020 280 S06		2	4	28	70	6		
New 3ALR 020 300 S06		2	4	30	70	6		
3ALR 025 050 S06	3ALRC 025 050 S06	2.5	5	-	60	6		
3ALR 025 100 S06	3ALRC 025 100 S06	2.5	5	10	60	6		
3ALR 025 150 S06	3ALRC 025 150 S06	2.5	5	15	60	6		
3ALR 025 200 S06	3ALRC 025 200 S06	2.5	5	20	60	6		
3ALR 025 250 S06	3ALRC 025 250 S06	2.5	5	25	65	6		
3ALR 025 300 S06	3ALRC 025 300 S06	2.5	5	30	70	6		
New 3ALR 025 350 S06		2.5	5	35	80	6		
New 3ALR 025 400 S06		2.5	5	40	90	6		
3ALR 030 060 S06	3ALRC 030 060 S06	3	6	-	60	6		
3ALR 030 100 S06	3ALRC 030 100 S06	3	6	10	60	6		



3 Flutes 45° Helix Rib End Mills for Aluminum

VHM 3-Lp. Schaftfräser, 45° Helix, Hinterschliff, Alu, non ferrous

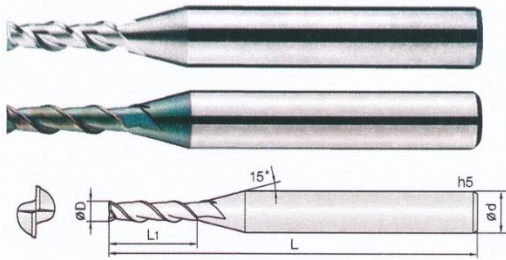
Order Number		Diameter	Length of cut	Effective Length	Overall Length	Shank Dia	비코팅 Un coated	코팅 Coated
비코팅 Un coated	RTAC 코팅 RTAC Coated	D	L1	L2	L	d	비코팅 Un coated	코팅 Coated
3ALR 030 150 S06	3ALRC 030 150 S06	3	6	15	60	6		
3ALR 030 200 S06	3ALRC 030 200 S06	3	6	20	70	6		
3ALR 030 250 S06	3ALRC 030 250 S06	3	6	25	70	6		
3ALR 030 300 S06	3ALRC 030 300 S06	3	6	30	80	6		
3ALR 030 350 S06	3ALRC 030 350 S06	3	6	35	80	6		
3ALR 030 400 S06	3ALRC 030 400 S06	3	6	40	90	6		
New 3ALR 030 450 S06		3	6	45	90	6		
New 3ALR 030 500 S06		3	6	50	100	6		
3ALR 040 080 S06	3ALRC 040 080 S06	4	8	-	70	6		
3ALR 040 100 S06	3ALRC 040 100 S06	4	8	10	70	6		
3ALR 040 150 S06	3ALRC 040 150 S06	4	8	15	70	6		
3ALR 040 200 S06	3ALRC 040 200 S06	4	8	20	70	6		
3ALR 040 250 S06	3ALRC 040 250 S06	4	8	25	70	6		
3ALR 040 300 S06	3ALRC 040 300 S06	4	8	30	80	6		
3ALR 040 350 S06	3ALRC 040 350 S06	4	8	35	80	6		
3ALR 040 400 S06	3ALRC 040 400 S06	4	8	40	90	6		
New 3ALR 040 450 S06		4	8	45	90	6		
New 3ALR 040 500 S06		4	8	50	100	6		
3ALR 050 100 S06	3ALRC 050 100 S06	5	10	-	80	6		
3ALR 050 200 S06	3ALRC 050 200 S06	5	10	20	80	6		
3ALR 050 300 S06	3ALRC 050 300 S06	5	10	30	80	6		
3ALR 050 400 S06	3ALRC 050 400 S06	5	10	40	90	6		
3ALR 050 500 S06	3ALRC 050 500 S06	5	10	50	100	6		
New 3ALR 050 600 S06		5	10	60	110	6		
3ALR 060 200 S06	3ALRC 060 200 S06	6	12	20	80	6		
3ALR 060 400 S06	3ALRC 060 400 S06	6	12	40	80	6		
3ALR 060 600 110	3ALRC 060 600 110	6	12	60	110	6		
New 3ALR 060 800 120		6	12	80	120	6		
3ALR 080 400 S08	3ALRC 080 400 S08	8	16	40	100	8		
3ALR 080 600 110	3ALRC 080 600 110	8	16	60	110	8		
New 3ALR 080 800 120		8	16	80	120	8		
3ALR 100 500 S10	3ALRC 100 500 S10	10	20	50	110	10		
3ALR 100 700 120	3ALRC 100 700 120	10	20	70	120	10		
New 3ALR 100 900 150		10	20	90	150	10		
3ALR 120 500 S12	3ALRC 120 500 S12	12	24	50	110	12		
3ALR 120 700 130	3ALRC 120 700 130	12	24	70	130	12		
New 3ALR 120 900 150		12	24	90	150	12		
New 3ALR 140 600 110		14	28	60	110	14		
New 3ALR 140 800 120		14	28	80	120	14		
New 3ALR 160 800 130		16	32	80	130	16		
New 3ALR 160 1000 160		16	32	100	160	16		
New 3ALR 200 800 130		20	40	80	130	20		
New 3ALR 200 1200 160		20	40	120	160	20		
New 3ALR 200 1500 200		20	40	150	200	20		

FOR ALUMINUM



## 2 Flutes 45° Helix End Mills for Aluminum

VHM 2-Lp. Schafffräser, 45° Helix, Alu, non ferrous



### Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.

- Applied fine WC grade for excellent surface finish.
- Various flute length design for covering wide range application.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Minimize built up edge by double edge and deep pocket design.



D Size	D Tolerance
ø0.5 - 20	+0 - -0.01mm

FOR ALUMINUM

Order Number		Diameter	Length of cut	Overall Length	Shank Dia		
비코팅 Un coated	RTAC 코팅 RTAC Coated	D	L1	L	d	비코팅 Un coated	코팅 Coated
2ALE 005 005 S04	2ALEC 005 005 S04	0.5	0.5	40	4		
2ALE 005 010 S04	2ALEC 005 010 S04	0.5	1	40	4		
2ALE 005 015 S04	2ALEC 005 015 S04	0.5	1.5	40	4		
2ALE 005 020 S04	2ALEC 005 020 S04	0.5	2	40	4		
New 2ALE 005 025 S04		0.5	2.5	40	4		
New 2ALE 005 030 S04		0.5	3	40	4		
2ALE 006 006 S04	2ALEC 006 006 S04	0.6	0.6	40	4		
2ALE 006 012 S04	2ALEC 006 012 S04	0.6	1.2	40	4		
2ALE 006 020 S04	2ALEC 006 020 S04	0.6	2	40	4		
New 2ALE 006 030 S04		0.6	3	40	4		
New 2ALE 006 040 S04		0.6	4	40	4		
2ALE 007 007 S04	2ALEC 007 007 S04	0.7	0.7	40	4		
2ALE 007 014 S04	2ALEC 007 014 S04	0.7	1.4	40	4		
2ALE 007 020 S04	2ALEC 007 020 S04	0.7	2	40	4		
New 2ALE 007 030 S04		0.7	3	40	4		
New 2ALE 007 040 S04		0.7	4	40	4		
2ALE 008 008 S04	2ALEC 008 008 S04	0.8	0.8	40	4		
2ALE 008 016 S04	2ALEC 008 016 S04	0.8	1.6	40	4		
2ALE 008 020 S04	2ALEC 008 020 S04	0.8	2	40	4		
New 2ALE 008 030 S04		0.8	3	40	4		
New 2ALE 008 040 S04		0.8	4	40	4		
2ALE 009 009 S04	2ALEC 009 009 S04	0.9	0.9	40	4		
2ALE 009 018 S04	2ALEC 009 018 S04	0.9	1.8	40	4		
2ALE 009 025 S04	2ALEC 009 025 S04	0.9	2.5	40	4		
New 2ALE 009 040 S04		0.9	4	40	4		
2ALE 010 015 S04	2ALEC 010 015 S04	1	1.5	40	4		
2ALE 010 015 S06	2ALEC 010 015 S06	1	1.5	40	6		
2ALE 010 025 S04	2ALEC 010 025 S04	1	2.5	40	4		
2ALE 010 025 S06	2ALEC 010 025 S06	1	2.5	40	6		
2ALE 010 035 S04	2ALEC 010 035 S04	1	3.5	40	4		
2ALE 010 035 S06	2ALEC 010 035 S06	1	3.5	40	6		
2ALE 010 050 S06	2ALEC 010 050 S06	1	5	45	6		
2ALE 010 060 S06	2ALEC 010 060 S06	1	6	45	6		
2ALE 010 080 S06	2ALEC 010 080 S06	1	8	45	6		
2ALE 010 100 S06	2ALEC 010 100 S06	1	10	45	6		
New 2ALE 010 120 S06		1	12	45	6		
2ALE 012 030 S06	2ALEC 012 030 S06	1.2	3	40	6		
2ALE 012 040 S06	2ALEC 012 040 S06	1.2	4	40	6		
2ALE 012 060 S06	2ALEC 012 060 S06	1.2	6	40	6		
New 2ALE 012 080 S06		1.2	8	45	6		
New 2ALE 012 100 S06		1.2	10	45	6		
2ALE 015 040 S06	2ALEC 015 040 S06	1.5	4	40	6		
2ALE 015 060 S06	2ALEC 015 060 S06	1.5	6	40	6		
2ALE 015 080 S06	2ALEC 015 080 S06	1.5	8	45	6		
2ALE 015 100 S06	2ALEC 015 100 S06	1.5	10	50	6		
2ALE 015 120 S06	2ALEC 015 120 S06	1.5	12	50	6		
2ALE 015 150 S06	2ALEC 015 150 S06	1.5	15	55	6		
New 2ALE 015 180 S06		1.5	18	60	6		
2ALE 020 050 S06	2ALEC 020 050 S06	2	5	45	6		
2ALE 020 070 S06	2ALEC 020 070 S06	2	7	45	6		



Order Number		Diameter	Length of cut	Overall Length	Shank Dia	비코팅 Un coated	코팅 Coated
비코팅 Un coated	RTAC 코팅 RTAC Coated	D	L1	L	d	Un coated	Coated
2ALE 020 100 S06	2ALEC 020 100 S06	2	10	50	6		
2ALE 020 120 S06	2ALEC 020 120 S06	2	12	50	6		
2ALE 020 140 S06	2ALEC 020 140 S06	2	14	50	6		
2ALE 020 160 S06	2ALEC 020 160 S06	2	16	60	6		
New 2ALE 020 180 S06		2	18	60	6		
New 2ALE 020 200 S06		2	20	60	6		
2ALE 025 080 S06	2ALEC 025 080 S06	2.5	8	45	6		
2ALE 025 120 S06	2ALEC 025 120 S06	2.5	12	50	6		
2ALE 025 150 S06	2ALEC 025 150 S06	2.5	15	60	6		
New 2ALE 025 180 S06		2.5	18	60	6		
New 2ALE 025 200 S06		2.5	20	60	6		
2ALE 030 080 S06	2ALEC 030 080 S06	3	8	45	6		
2ALE 030 100 S06	2ALEC 030 100 S06	3	10	45	6		
2ALE 030 120 S06	2ALEC 030 120 S06	3	12	50	6		
2ALE 030 150 S06	2ALEC 030 150 S06	3	15	50	6		
2ALE 030 200 S06	2ALEC 030 200 S06	3	20	60	6		
2ALE 030 250 S06	2ALEC 030 250 S06	3	25	65	6		
New 2ALE 030 300 S06		3	30	70	6		
2ALE 035 100 S06	2ALEC 035 100 S06	3.5	10	45	6		
2ALE 035 150 S06	2ALEC 035 150 S06	3.5	15	50	6		
New 2ALE 035 200 S06		3.5	20	60	6		
2ALE 040 120 S06	2ALEC 040 120 S06	4	12	50	6		
2ALE 040 150 S06	2ALEC 040 150 S06	4	15	55	6		
2ALE 040 180 S06	2ALEC 040 180 S06	4	18	55	6		
2ALE 040 250 S06	2ALEC 040 250 S06	4	25	65	6		
2ALE 040 300 S06	2ALEC 040 300 S06	4	30	70	6		
New 2ALE 040 350 S06		4	35	75	6		
New 2ALE 040 400 S06		4	40	80	6		
2ALE 045 120 S06	2ALEC 045 120 S06	4.5	12	50	6		
2ALE 045 180 S06	2ALEC 045 180 S06	4.5	18	55	6		
New 2ALE 045 220 S06		4.5	22	65	6		
New 2ALE 045 250 S06		4.5	25	70	6		
2ALE 050 150 S06	2ALEC 050 150 S06	5	15	50	6		
2ALE 050 200 S06	2ALEC 050 200 S06	5	20	60	6		
2ALE 050 250 S06	2ALEC 050 250 S06	5	25	65	6		
2ALE 050 300 S06	2ALEC 050 300 S06	5	30	70	6		
New 2ALE 050 400 S06		5	40	80	6		
2ALE 055 150 S06	2ALEC 055 150 S06	5.5	15	50	6		
2ALE 060 150 S06	2ALEC 060 150 S06	6	15	50	6		
2ALE 060 200 S06	2ALEC 060 200 S06	6	20	60	6		
2ALE 060 250 S06	2ALEC 060 250 S06	6	25	65	6		
2ALE 060 300 S06	2ALEC 060 300 S06	6	30	70	6		
2ALE 060 350 S06	2ALEC 060 350 S06	6	35	75	6		
2ALE 060 400 S06	2ALEC 060 400 S06	6	40	80	6		
New 2ALE 060 450 S06		6	45	90	6		
New 2ALE 060 500 S06		6	50	100	6		
2ALE 070 200 S08	2ALEC 070 200 S08	7	20	60	8		
2ALE 070 300 S08	2ALEC 070 300 S08	7	30	70	8		
2ALE 080 200 S08	2ALEC 080 200 S08	8	20	60	8		
2ALE 080 250 S08	2ALEC 080 250 S08	8	25	65	8		

FOR ALUMINIUM



2 Flutes 45° Helix End Mills for Aluminum

VHM 2-Lp. Schaftfräser, 45° Helix, Alu, non ferrous

Order Number		Diameter D	Length of cut L1	Overall Length L	Shank Dia d	비코팅 Un coated	코팅 Coated
비코팅 Un coated	RTAC 코팅 RTAC Coated						
	2ALE 080 300 S08	8	30	70	8		
	2ALE 080 400 S08	8	40	80	8		
	2ALE 080 450 S08	8	45	90	8		
New	2ALE 080 500 S08	8	50	100	8		
	2ALE 100 250 S10	10	25	70	10		
	2ALE 100 300 S10	10	30	75	10		
	2ALE 100 350 S10	10	35	80	10		
	2ALE 100 450 S10	10	45	90	10		
	2ALE 100 500 S10	10	50	100	10		
New	2ALE 100 600 S10	10	60	110	10		
	2ALE 120 300 S12	12	30	75	12		
	2ALE 120 350 S12	12	35	80	12		
	2ALE 120 400 S12	12	40	90	12		
	2ALE 120 450 S12	12	45	100	12		
	2ALE 120 500 S12	12	50	100	12		
	2ALE 120 600 S12	12	60	110	12		
New	2ALE 120 700 S12	12	70	120	12		
	2ALE 140 300 S14	14	30	80	14		
New	2ALE 140 500 S14	14	50	90	14		
New	2ALE 140 600 S14	14	60	110	14		
	2ALE 160 400 S16	16	40	90	16		
	2ALE 160 550 S16	16	55	110	16		
	2ALE 160 700 S16	16	70	120	16		
New	2ALE 160 900 S16	16	90	150	16		
	2ALE 200 450 S20	20	45	100	20		
	2ALE 200 650 S20	20	65	120	20		
	2ALE 200 800 S20	20	80	135	20		
New	2ALE 200 1000 S20	20	100	160	20		

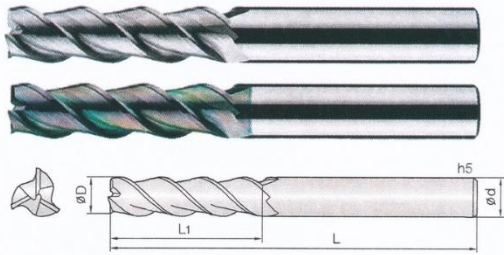
FOR ALUMINIUM





### 3 Flutes 45° Helix End Mills for Aluminum

VHM 3-Lp. Schaftfräser, 45° Helix, Alu, non ferrous



- Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.
- Applied fine WC grade for excellent surface finish.
- Various flute length design for covering wide range application.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Minimize built up edge by double edge and deep pocket design.



D Size	D Tolerance
ø0.8 ~ 20	+0 ~ -0.01mm

FOR ALUMINUM

Order Number		Diameter	Length of cut	Overall Length	Shank Dia	비코팅 Un coated	코팅 Coated
비코팅 Un coated	RTAC 코팅 RTAC Coated	D	L1	L	d	비코팅 Un coated	코팅 Coated
New	3ALE 008 012 S04	0.8	1.2	40	4		
New	3ALE 008 020 S04	0.8	2	40	4		
New	3ALE 008 030 S04	0.8	3	40	4		
New	3ALE 008 040 S04	0.8	4	40	4		
	3ALE 010 015 S06	1	1.5	40	6		3ALEC 010 015 S06
	3ALE 010 030 S06	1	3	40	6		3ALEC 010 030 S06
	3ALE 010 050 S06	1	5	45	6		3ALEC 010 050 S06
	3ALE 010 060 S06	1	6	45	6		3ALEC 010 060 S06
	3ALE 010 080 S06	1	8	45	6		3ALEC 010 080 S06
	3ALE 010 100 S06	1	10	45	6		3ALEC 010 100 S06
New	3ALE 010 120 S06	1	12	50	6		
New	3ALE 010 140 S06	1	14	50	6		
	3ALE 012 030 S06	1.2	3	40	6		3ALEC 012 030 S06
	3ALE 012 040 S06	1.2	4	40	6		3ALEC 012 040 S06
	3ALE 012 060 S06	1.2	6	45	6		3ALEC 012 060 S06
New	3ALE 012 080 S06	1.2	8	45	6		
New	3ALE 012 100 S06	1.2	10	45	6		
New	3ALE 012 120 S06	1.2	12	50	6		
	3ALE 015 025 S06	1.5	2.5	40	6		3ALEC 015 025 S06
	3ALE 015 040 S06	1.5	4	40	6		3ALEC 015 040 S06
	3ALE 015 060 S06	1.5	6	45	6		3ALEC 015 060 S06
	3ALE 015 080 S06	1.5	8	45	6		3ALEC 015 080 S06
	3ALE 015 100 S06	1.5	10	50	6		3ALEC 015 100 S06
	3ALE 015 120 S06	1.5	12	50	6		3ALEC 015 120 S06
	3ALE 015 150 S06	1.5	15	50	6		3ALEC 015 150 S06
New	3ALE 015 180 S06	1.5	18	60	6		
New	3ALE 015 200 S06	1.5	20	60	6		
	3ALE 020 030 S06	2	3	45	6		3ALEC 020 030 S06
	3ALE 020 050 S06	2	5	45	6		3ALEC 020 050 S06
	3ALE 020 070 S06	2	7	45	6		3ALEC 020 070 S06
	3ALE 020 100 S06	2	10	50	6		3ALEC 020 100 S06
	3ALE 020 120 S06	2	12	50	6		3ALEC 020 120 S06
	3ALE 020 140 S06	2	14	60	6		3ALEC 020 140 S06
	3ALE 020 160 S06	2	16	60	6		3ALEC 020 160 S06
	3ALE 020 180 S06	2	18	60	6		3ALEC 020 180 S06
	3ALE 020 200 S06	2	20	60	6		3ALEC 020 200 S06
New	3ALE 020 220 S06	2	22	60	6		
New	3ALE 020 250 S06	2	25	65	6		
	3ALE 025 040 S06	2.5	4	45	6		3ALEC 025 040 S06
	3ALE 025 080 S06	2.5	8	45	6		3ALEC 025 080 S06
	3ALE 025 120 S06	2.5	12	50	6		3ALEC 025 120 S06
	3ALE 025 150 S06	2.5	15	60	6		3ALEC 025 150 S06
New	3ALE 025 200 S06	2.5	20	60	6		
New	3ALE 025 250 S06	2.5	25	65	6		
	3ALE 030 045 S06	3	4.5	45	6		3ALEC 030 045 S06
	3ALE 030 080 S06	3	8	45	6		3ALEC 030 080 S06
	3ALE 030 120 S06	3	12	50	6		3ALEC 030 120 S06
	3ALE 030 150 S06	3	15	50	6		3ALEC 030 150 S06
	3ALE 030 200 S06	3	20	55	6		3ALEC 030 200 S06
	3ALE 030 250 S06	3	25	60	6		3ALEC 030 250 S06





3 Flutes 45° Helix End Mills for Aluminum

VHM 3-Lp. Schaftfräser, 45°Helix, Alu, non ferrous

Order Number		Diameter	Length of cut	Overall Length	Shank Dia	비코팅 Un-coated	코팅 Coated
비코팅 Un-coated	RTAC 코팅 RTAC Coated	D	L1	L	d	비코팅 Un-coated	코팅 Coated
	3ALE 030 300 S06	3ALEC 030 300 S06	3	30	65	6	
New	3ALE 030 350 S06		3	35	75	6	
New	3ALE 030 400 S06		3	40	80	6	
	3ALE 035 055 S06	3ALEC 035 055 S06	3.5	5.5	45	6	
	3ALE 035 100 S06	3ALEC 035 100 S06	3.5	10	45	6	
	3ALE 035 150 S06	3ALEC 035 150 S06	3.5	15	50	6	
	3ALE 035 200 S06	3ALEC 035 200 S06	3.5	20	55	6	
	3ALE 035 250 S06	3ALEC 035 250 S06	3.5	25	60	6	
	3ALE 035 300 S06	3ALEC 035 300 S06	3.5	30	65	6	
New	3ALE 035 350 S06		3.5	35	75	6	
	3ALE 040 060 S06	3ALEC 040 060 S06	4	6	45	6	
	3ALE 040 110 S06	3ALEC 040 110 S06	4	11	45	6	
	3ALE 040 160 S06	3ALEC 040 160 S06	4	16	50	6	
	3ALE 040 200 S06	3ALEC 040 200 S06	4	20	55	6	
	3ALE 040 250 S06	3ALEC 040 250 S06	4	25	60	6	
	3ALE 040 300 S06	3ALEC 040 300 S06	4	30	65	6	
New	3ALE 040 350 S06		4	35	75	6	
New	3ALE 040 400 S06		4	40	80	6	
	3ALE 045 120 S06	3ALEC 045 120 S06	4.5	12	50	6	
	3ALE 045 180 S06	3ALEC 045 180 S06	4.5	18	55	6	
	3ALE 045 250 S06	3ALEC 045 250 S06	4.5	25	60	6	
	3ALE 045 300 S06	3ALEC 045 300 S06	4.5	30	65	6	
	3ALE 050 075 S06	3ALEC 050 075 S06	5	7.5	50	6	
	3ALE 050 130 S06	3ALEC 050 130 S06	5	13	50	6	
	3ALE 050 200 S06	3ALEC 050 200 S06	5	20	55	6	
	3ALE 050 250 S06	3ALEC 050 250 S06	5	25	60	6	
	3ALE 050 300 S06	3ALEC 050 300 S06	5	30	65	6	
	3ALE 050 350 S06	3ALEC 050 350 S06	5	35	70	6	
	3ALE 050 400 S06	3ALEC 050 400 S06	5	40	75	6	
New	3ALE 050 450 S06		5	45	80	6	
	3ALE 055 150 S06	3ALEC 055 150 S06	5.5	15	50	6	
	3ALE 055 200 S06	3ALEC 055 200 S06	5.5	20	55	6	
	3ALE 055 250 S06	3ALEC 055 250 S06	5.5	25	60	6	
	3ALE 060 090 050	3ALEC 060 090 050	6	9	50	6	
	3ALE 060 150 050	3ALEC 060 150 050	6	15	50	6	
	3ALE 060 200 055	3ALEC 060 200 055	6	20	55	6	
	3ALE 060 250 060	3ALEC 060 250 060	6	25	60	6	
	3ALE 060 300 070	3ALEC 060 300 070	6	30	70	6	
	3ALE 060 350 070	3ALEC 060 350 070	6	35	70	6	
	3ALE 060 400 075	3ALEC 060 400 075	6	40	75	6	
	3ALE 060 450 080	3ALEC 060 450 080	6	45	80	6	
	3ALE 060 500 090	3ALEC 060 500 090	6	50	90	6	
	3ALE 070 200 060	3ALEC 070 200 060	7	20	60	8	
	3ALE 070 300 075	3ALEC 070 300 075	7	30	75	8	
	3ALE 070 400 090	3ALEC 070 400 090	7	40	90	8	
	3ALE 080 120 060	3ALEC 080 120 060	8	12	60	8	
	3ALE 080 200 060	3ALEC 080 200 060	8	20	60	8	
	3ALE 080 250 065	3ALEC 080 250 065	8	25	65	8	
	3ALE 080 300 070	3ALEC 080 300 070	8	30	70	8	
	3ALE 080 350 075	3ALEC 080 350 075	8	35	75	8	

FOR ALUMINUM



Order Number		Diameter D	Length of cut L1	Overall Length L	Shank Dia d		
비코팅 Un coated	RTAC 코팅 RTAC Coated					비코팅 Un coated	코팅 Coated
3ALE 080 400 080	3ALEC 080 400 080	8	40	80	8		
3ALE 080 450 090	3ALEC 080 450 090	8	45	90	8		
3ALE 080 500 090	3ALEC 080 500 090	8	50	90	8		
3ALE 080 550 100	3ALEC 080 550 100	8	55	100	8		
3ALE 080 600 110	3ALEC 080 600 110	8	60	110	8		
3ALE 080 700 120	3ALEC 080 700 120	8	70	120	8		
3ALE 100 150 070	3ALEC 100 150 070	10	15	70	10		
3ALE 100 250 070	3ALEC 100 250 070	10	25	70	10		
3ALE 100 300 075	3ALEC 100 300 075	10	30	75	10		
3ALE 100 350 080	3ALEC 100 350 080	10	35	80	10		
3ALE 100 400 090	3ALEC 100 400 090	10	40	90	10		
3ALE 100 450 090	3ALEC 100 450 090	10	45	90	10		
3ALE 100 500 100	3ALEC 100 500 100	10	50	100	10		
3ALE 100 550 100	3ALEC 100 550 100	10	55	100	10		
3ALE 100 600 110	3ALEC 100 600 110	10	60	110	10		
3ALE 100 650 110	3ALEC 100 650 110	10	65	110	10		
3ALE 100 700 120	3ALEC 100 700 120	10	70	120	10		
3ALE 100 800 130	3ALEC 100 800 130	10	80	130	10		
3ALE 120 180 075	3ALEC 120 180 075	12	18	75	12		
3ALE 120 260 075	3ALEC 120 260 075	12	26	75	12		
3ALE 120 350 080	3ALEC 120 350 080	12	35	80	12		
3ALE 120 400 090	3ALEC 120 400 090	12	40	90	12		
3ALE 120 450 090	3ALEC 120 450 090	12	45	90	12		
3ALE 120 500 100	3ALEC 120 500 100	12	50	100	12		
3ALE 120 550 100	3ALEC 120 550 100	12	55	100	12		
3ALE 120 650 110	3ALEC 120 650 110	12	65	110	12		
3ALE 120 700 120	3ALEC 120 700 120	12	70	120	12		
3ALE 120 800 130	3ALEC 120 800 130	12	80	130	12		
3ALE 140 300 080	3ALEC 140 300 080	14	30	80	14		
3ALE 140 450 110	3ALEC 140 450 110	14	45	110	14		
New 3ALE 140 600 120		14	60	120	14		
3ALE 160 300 090	3ALEC 160 300 090	16	30	90	16		
3ALE 160 500 110	3ALEC 160 500 110	16	50	110	16		
3ALE 160 650 120	3ALEC 160 650 120	16	65	120	16		
3ALE 160 800 130	3ALEC 160 800 130	16	80	130	16		
3ALE 160 1000 160	3ALEC 160 1000 160	16	100	160	16		
3ALE 200 500 100	3ALEC 200 500 100	20	50	100	20		
3ALE 200 750 130	3ALEC 200 750 130	20	75	130	20		
3ALE 200 1000 160	3ALEC 200 1000 160	20	100	160	20		
3ALE 200 1300 200	3ALEC 200 1300 200	20	130	200	20		
3ALE 200 1500 220	3ALEC 200 1500 220	20	150	220	20		

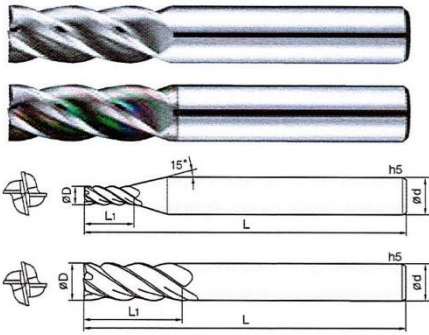
FOR ALUMINUM

# 4ALE

4 Flutes 38° Helix End Mills for Aluminum

4-Lp. 38° Helix, Schafffräser für Aluminium

**New**



- Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.
- The powerful anti-chattering design minimizes the vibration of the endmill during side milling.
- Excellent performance in semi-finishing and roughing by applying a double cutting edge.
- the poket is deeply designed to adsorption.



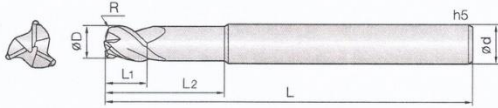
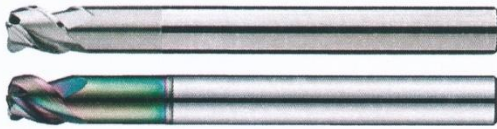
D Size	D Tolerance
Ø 3 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.01 ~ -0.025mm
Ø 16 ~ 20	-0.015 ~ -0.03mm

Order Number		Diameter	Length of cut	Overall Length	Shank Dia
비코팅 Un coated	RTAC 코팅 RTAC Coated	D	L1	L	d
4ALE 030 120 S06	4ALEC 030 120 S06	3	12	50	6
4ALE 030 150 S06	4ALEC 030 150 S06	3	15	50	6
4ALE 030 150 070	4ALEC 030 150 070	3	15	70	6
4ALE 030 200 S06	4ALEC 030 200 S06	3	20	55	6
4ALE 040 110 S06	4ALEC 040 110 S06	4	11	50	6
4ALE 040 160 S06	4ALEC 040 160 S06	4	16	50	6
4ALE 040 160 070	4ALEC 040 160 070	4	16	70	6
4ALE 040 200 S06	4ALEC 040 200 S06	4	20	55	6
4ALE 050 130 S06	4ALEC 050 130 S06	5	13	50	6
4ALE 050 200 S06	4ALEC 050 200 S06	5	20	55	6
4ALE 050 200 080	4ALEC 050 200 080	5	20	80	6
4ALE 050 250 S06	4ALEC 050 250 S06	5	25	60	6
4ALE 060 150 S06	4ALEC 060 150 S06	6	15	50	6
4ALE 060 200 S06	4ALEC 060 200 S06	6	20	55	6
4ALE 060 200 080	4ALEC 060 200 080	6	20	80	6
4ALE 060 250 S06	4ALEC 060 250 S06	6	25	60	6
4ALE 060 300 S06	4ALEC 060 300 S06	6	30	70	6
4ALE 080 200 S08	4ALEC 080 200 S08	8	20	60	8
4ALE 080 250 S08	4ALEC 080 250 S08	8	25	65	8
4ALE 080 250 090	4ALEC 080 250 090	8	25	90	8
4ALE 080 300 S08	4ALEC 080 300 S08	8	30	70	8
4ALE 080 350 S08	4ALEC 080 350 S08	8	35	75	8
4ALE 100 250 S10	4ALEC 100 250 S10	10	25	70	10
4ALE 100 300 S10	4ALEC 100 300 S10	10	30	75	10
4ALE 100 300 100	4ALEC 100 300 100	10	30	100	10
4ALE 100 350 S10	4ALEC 100 350 S10	10	35	80	10
4ALE 100 400 S10	4ALEC 100 400 S10	10	40	90	10
4ALE 120 260 S12	4ALEC 120 260 S12	12	26	75	12
4ALE 120 350 S12	4ALEC 120 350 S12	12	35	80	12
4ALE 120 350 110	4ALEC 120 350 110	12	35	110	12
4ALE 120 400 S12	4ALEC 120 400 S12	12	40	90	12
4ALE 120 450 S12	4ALEC 120 450 S12	12	45	90	12
4ALE 160 300 S16	4ALEC 160 300 S16	16	30	90	16
4ALE 160 500 S16	4ALEC 160 500 S16	16	50	110	16
4ALE 160 500 150	4ALEC 160 500 150	16	50	150	16
4ALE 160 650 S16	4ALEC 160 650 S16	16	65	120	16
4ALE 160 800 S16	4ALEC 160 800 S16	16	80	130	16
4ALE 200 500 S20	4ALEC 200 500 S20	20	50	110	20
4ALE 200 750 S20	4ALEC 200 750 S20	20	75	130	20
4ALE 200 750 160	4ALEC 200 750 160	20	75	160	20
4ALE 200 1000 S20	4ALEC 200 1000 S20	20	100	160	20



### 3 Flutes 45° Helix Coner Radius End Mills for Aluminum

VHM 3-Lp. Eckradiusfräser, 45°Helix, Hinterschliff, Alu, non ferrous



**Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.**

- Applied fine WC grade for excellent surface finish.
- Minimize built up edge by double edge and deep pocket design.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- High speed, feed applicable by 3 flute 45° degree helix and short flute design.

3

WC  
마립자

RTAC  
Coating

R  
±0.005  
R0.5

R  
±0.01  
R1 - 1.5

R  
±0.015  
R2 - 5

45°  
Helix Angle

CUTTING  
DATA

361P

D Size	D Tolerance
ø3 ~ 20	+0 ~ -0.015mm

Order Number		Diameter	Length of cut	Effective Length	Overall Length	Shank Dia			
		D × R	L1	L2	L	d	비코팅 Un coated	코팅 Coated	
New	3ALC 030 005 050	New	3ALCC 030 005 050	3 X R0.5	10	-	50	6	
New	3ALC 030 005 060	New	3ALCC 030 005 060	3 X R0.5	10	15	60	6	
New	3ALC 030 010 050	New	3ALCC 030 010 050	3 X R1	10	-	50	6	
New	3ALC 030 010 060	New	3ALCC 030 010 060	3 X R1	10	15	60	6	
New	3ALC 040 005 050	New	3ALCC 040 005 050	4 X R0.5	12	-	50	6	
New	3ALC 040 005 060	New	3ALCC 040 005 060	4 X R0.5	12	20	60	6	
New	3ALC 040 010 050	New	3ALCC 040 010 050	4 X R1	12	-	50	6	
New	3ALC 040 010 060	New	3ALCC 040 010 060	4 X R1	12	20	60	6	
New	3ALC 050 005 050	New	3ALCC 050 005 050	5 X R0.5	15	-	50	6	
New	3ALC 050 005 060	New	3ALCC 050 005 060	5 X R0.5	15	20	60	6	
New	3ALC 050 010 050	New	3ALCC 050 010 050	5 X R1	15	-	50	6	
New	3ALC 050 010 060	New	3ALCC 050 010 060	5 X R1	15	20	60	6	
	3ALC 060 005 050		3ALCC 060 005 050	6 X R0.5	15	-	50	6	
	3ALC 060 005 070		3ALCC 060 005 070	6 X R0.5	7	20	70	6	
	3ALC 060 010 050		3ALCC 060 010 050	6 X R1	15	-	50	6	
	3ALC 060 010 070		3ALCC 060 010 070	6 X R1	7	20	70	6	
	3ALC 080 005 060		3ALCC 080 005 060	8 X R0.5	20	-	60	8	
	3ALC 080 005 080		3ALCC 080 005 080	8 X R0.5	9	25	80	8	
	3ALC 080 010 060		3ALCC 080 010 060	8 X R1	20	-	60	8	
	3ALC 080 010 080		3ALCC 080 010 080	8 X R1	9	25	80	8	
	3ALC 080 020 060		3ALCC 080 020 060	8 X R2	20	-	60	8	
	3ALC 080 020 080		3ALCC 080 020 080	8 X R2	9	25	80	8	
	3ALC 080 025 080		3ALCC 080 025 080	8 X R2.5	9	25	80	8	
	3ALC 100 005 070		3ALCC 100 005 070	10 X R0.5	25	-	70	10	
	3ALC 100 005 100		3ALCC 100 005 100	10 X R0.5	11	30	100	10	
	3ALC 100 010 070		3ALCC 100 010 070	10 X R1	25	-	70	10	
	3ALC 100 010 100		3ALCC 100 010 100	10 X R1	11	30	100	10	
	3ALC 100 015 070		3ALCC 100 015 070	10 X R1.5	25	-	70	10	
	3ALC 100 015 100		3ALCC 100 015 100	10 X R1.5	11	30	100	10	
	3ALC 100 020 070		3ALCC 100 020 070	10 X R2	25	-	70	10	
	3ALC 100 020 100		3ALCC 100 020 100	10 X R2	11	30	100	10	
	3ALC 100 025 100		3ALCC 100 025 100	10 X R2.5	11	30	100	10	
	3ALC 120 005 075		3ALCC 120 005 075	12 X R0.5	30	-	75	12	
	3ALC 120 005 110		3ALCC 120 005 110	12 X R0.5	13	36	110	12	
	3ALC 120 010 075		3ALCC 120 010 075	12 X R1	30	-	75	12	
	3ALC 120 010 110		3ALCC 120 010 110	12 X R1	13	36	110	12	
New	3ALC 120 015 075	New	3ALCC 120 015 075	12 X R1.5	30	-	75	12	
	3ALC 120 015 110		3ALCC 120 015 110	12 X R1.5	13	36	110	12	
	3ALC 120 020 075		3ALCC 120 020 075	12 X R2	30	-	75	12	
	3ALC 120 020 110		3ALCC 120 020 110	12 X R2	13	36	110	12	
	3ALC 120 025 110		3ALCC 120 025 110	12 X R2.5	13	36	110	12	
	3ALC 120 030 075		3ALCC 120 030 075	12 X R3	30	-	75	12	
	3ALC 120 030 110		3ALCC 120 030 110	12 X R3	13	36	110	12	
	3ALC 120 040 075		3ALCC 120 040 075	12 X R4	30	-	75	12	
	3ALC 120 040 110		3ALCC 120 040 110	12 X R4	13	36	110	12	
	3ALC 160 005 130		3ALCC 160 005 130	16 X R0.5	17	50	130	16	
	3ALC 160 010 090		3ALCC 160 010 090	16 X R1	35	-	90	16	
	3ALC 160 010 130		3ALCC 160 010 130	16 X R1	17	50	130	16	
	3ALC 160 020 090		3ALCC 160 020 090	16 X R2	35	-	90	16	
	3ALC 160 020 130		3ALCC 160 020 130	16 X R2	17	50	130	16	

FOR ALUMINUM

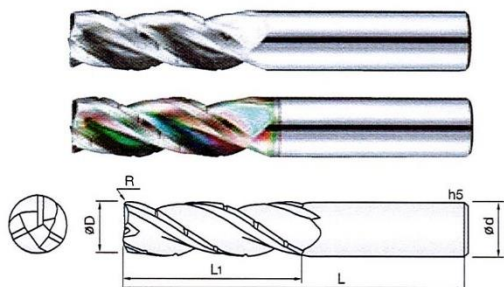




### 3 Flutes Chip Breaker End Mills for Aluminum



3-Lp. Schafffräser, Spanbrecher, R=0.2 Eckenradius



- Endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.
- The powerful anti-chattering design minimizes the vibration of the end mill during side milling.
- Excellent performance in semi-finishing and roughing by applying a double cutting edge.
- The pocket is deeply designed to minimize adsorption.



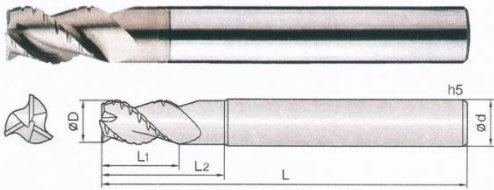
D Size	D Tolerance
Ø 3 ~ 5	+0 ~ -0.01mm
Ø 6 ~ 12	-0.01 ~ -0.025mm
Ø 16 ~ 20	-0.015 ~ -0.03mm

Order Number		Diameter	Length of cut	Overall Length	Shank Dia
비코팅 Un coated	RTAC 코팅 RTAC Coated	D × R	L1	L	d
3ALCB 030 080 S06	3ALCBC 030 080 S06	3 X R0.2	8	55	6
3ALCB 030 110 S06	3ALCBC 030 110 S06	3 X R0.2	11	55	6
3ALCB 040 100 S06	3ALCBC 040 100 S06	4 X R0.2	10	55	6
3ALCB 040 130 S06	3ALCBC 040 130 S06	4 X R0.2	13	55	6
3ALCB 050 120 S06	3ALCBC 050 120 S06	5 X R0.2	12	55	6
3ALCB 050 170 S06	3ALCBC 050 170 S06	5 X R0.2	17	55	6
3ALCB 060 170 S06	3ALCBC 060 170 S06	6 X R0.2	17	60	6
3ALCB 060 250 S06	3ALCBC 060 250 S06	6 X R0.2	25	80	6
3ALCB 080 220 S08	3ALCBC 080 220 S08	8 X R0.2	22	70	8
3ALCB 080 300 S08	3ALCBC 080 300 S08	8 X R0.2	30	90	8
3ALCB 100 270 S10	3ALCBC 100 270 S10	10 X R0.2	27	75	10
3ALCB 100 400 S10	3ALCBC 100 400 S10	10 X R0.2	40	100	10
3ALCB 120 350 S12	3ALCBC 120 350 S12	12 X R0.2	35	80	12
3ALCB 120 500 S12	3ALCBC 120 500 S12	12 X R0.2	50	110	12
3ALCB 160 420 S16	3ALCBC 160 420 S16	16 X R0.2	42	100	16
3ALCB 160 520 S16	3ALCBC 160 520 S16	16 X R0.2	52	150	16
3ALCB 200 480 S20	3ALCBC 200 480 S20	20 X R0.2	48	100	20
3ALCB 200 550 S20	3ALCBC 200 550 S20	20 X R0.2	55	160	20

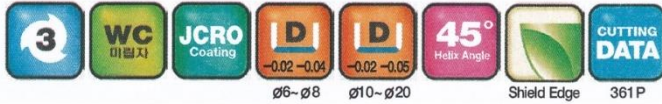
# 3ARE

## 3 Flutes Semi-Finishing & Roughing End Mills for Aluminum

VHM 3-Lp. Schaft-Feinschruppfräser, Alu, non ferrous



- High speed semi finishing and roughing endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize built up edge by chip braker and deep pocket design.
- Minimize fracturing by high TRS fine(0.5 μm) WC grade.
- Good surface integrity differently from competitor's AL roughing endmills.



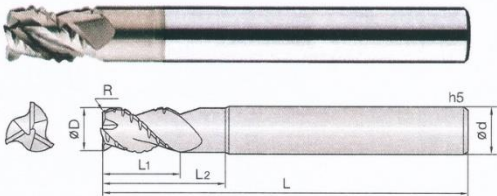
D Size	D Tolerance
ø6 ~ 8	-0.02 ~ -0.04mm
ø10 ~ 20	-0.02 ~ -0.05mm

Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
3ARE 060 150 S06	6	10	15	50	6	3ARE 200 500 S20	20	35	50	110	20
3ARE 060 200 S06	6	15	20	70	6	3ARE 200 600 S20	20	45	60	120	20
3ARE 080 200 S08	8	15	20	60	8						
3ARE 080 250 S08	8	20	25	80	8						
3ARE 100 250 S10	10	18	25	70	10						
3ARE 100 300 S10	10	23	30	90	10						
3ARE 120 300 S12	12	20	30	80	12						
3ARE 120 400 S12	12	30	40	100	12						
3ARE 160 350 S16	16	25	35	110	16						
3ARE 160 500 S16	16	35	50	120	16						

# 3ARC

## 3 Flutes Semi-Finishing & Roughing Corner Radius End Mills for Aluminum

VHM 3-Lp. Eckradius-Feinschruppfräser, Alu, non ferrous



- High speed semi finishing and roughing endmills for Aluminum, AL alloy, non-ferrous and non-metallic materials.
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize built up edge by chip braker and deep pocket design.
- Minimize fracturing by high TRS fine(0.5 μm) WC grade.
- Good surface integrity differently from competitor's AL roughing endmills.

FOR ALUMINUM



D Size	D Tolerance
ø6 ~ 8	-0.02 ~ -0.04mm
ø10 ~ 20	-0.02 ~ -0.05mm

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
3ARC 060 005 S06	6 X R0.5	9	15	65	6	3ARC 200 020 S20	20 X R2	30	50	110	20
3ARC 060 010 S06	6 X R1	9	15	65	6	3ARC 200 030 S20	20 X R3	30	50	110	20
3ARC 080 005 S08	8 X R0.5	12	20	70	8						
3ARC 080 010 S08	8 X R1	12	20	70	8						
3ARC 100 010 S10	10 X R1	15	25	75	10						
3ARC 100 020 S10	10 X R2	15	25	75	10						
3ARC 120 010 S12	12 X R1	20	30	80	12						
3ARC 120 020 S12	12 X R2	20	30	80	12						
3ARC 120 030 S12	12 X R3	20	30	80	12						
3ARC 160 010 S16	16 X R1	25	35	110	16						
3ARC 160 020 S16	16 X R2	25	35	110	16						
3ARC 160 030 S16	16 X R3	25	35	110	16						

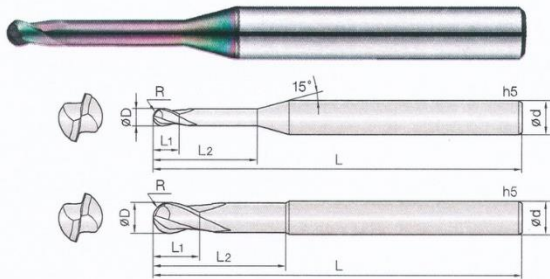






## 2 Flutes G-TAC Coated Rib Ball End Mills for Non-Ferrous Metal

VHM 2-Lp. Kugelfräser, Tetrabond beschichtet, non ferrous



- Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Minimize fracturing by high TRS fine(0.5 μm) WC grade.
- High precise edge tolerance.



D Size	D Tolerance
ø0.1 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm

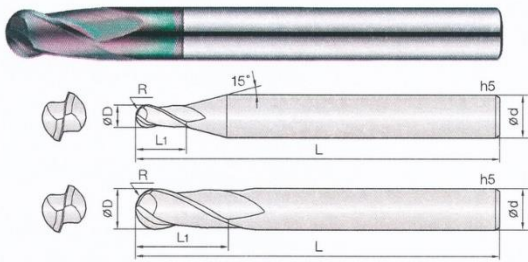
G-TAC

Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2DRB 001 003 S04	0.05R X 0.1	0.3	-	45	4	2DRB 030 160 S06	1.5R X 3	4	16	60	6
2DRB 002 005 S04	0.1R X 0.2	0.5	-	45	4	2DRB 030 200 S06	1.5R X 3	4	20	60	6
2DRB 002 010 S04	0.1R X 0.2	0.2	1	45	4	2DRB 030 250 S06	1.5R X 3	4	25	65	6
2DRB 002 015 S04	0.1R X 0.2	0.2	1.5	45	4	2DRB 030 300 S06	1.5R X 3	4	30	70	6
2DRB 002 020 S04	0.1R X 0.2	0.2	2	45	4	2DRB 030 400 S06	1.5R X 3	4	40	80	6
2DRB 003 010 S04	0.15R X 0.3	0.3	1	45	4	2DRB 040 120 S06	2R X 4	5	12	50	6
2DRB 003 015 S04	0.15R X 0.3	0.3	1.5	45	4	2DRB 040 160 S06	2R X 4	5	16	60	6
2DRB 003 020 S04	0.15R X 0.3	0.3	2	45	4	2DRB 040 200 S06	2R X 4	5	20	60	6
2DRB 004 010 S04	0.2R X 0.4	0.4	1	45	4	2DRB 040 250 S06	2R X 4	5	25	65	6
2DRB 004 020 S04	0.2R X 0.4	0.4	2	45	4	2DRB 040 300 S06	2R X 4	5	30	70	6
2DRB 004 030 S04	0.2R X 0.4	0.4	3	45	4	2DRB 050 200 S06	2.5R X 5	6	20	60	6
2DRB 004 040 S04	0.2R X 0.4	0.4	4	45	4	2DRB 050 400 S06	2.5R X 5	6	40	80	6
2DRB 004 050 S04	0.2R X 0.4	0.4	5	45	4	2DRB 060 200 S06	3R X 6	8	20	60	6
2DRB 005 020 S04	0.25R X 0.5	0.5	2	45	4	2DRB 060 300 S06	3R X 6	8	30	90	6
2DRB 005 040 S04	0.25R X 0.5	0.5	4	45	4	2DRB 080 200 S08	4R X 8	10	20	70	8
2DRB 005 060 S04	0.25R X 0.5	0.5	6	45	4	2DRB 100 250 S10	5R X 10	12	25	80	10
2DRB 005 080 S04	0.25R X 0.5	0.5	8	45	4	2DRB 120 250 S12	6R X 12	14	25	80	12
2DRB 005 100 S04	0.25R X 0.5	0.5	10	45	4						
2DRB 006 020 S04	0.3R X 0.6	0.6	2	45	4						
2DRB 006 040 S04	0.3R X 0.6	0.6	4	45	4						
2DRB 006 060 S04	0.3R X 0.6	0.6	6	45	4						
2DRB 006 080 S04	0.3R X 0.6	0.6	8	45	4						
2DRB 006 100 S04	0.3R X 0.6	0.6	10	45	4						
2DRB 008 020 S04	0.4R X 0.8	0.8	2	45	4						
2DRB 008 040 S04	0.4R X 0.8	0.8	4	45	4						
2DRB 008 060 S04	0.4R X 0.8	0.8	6	45	4						
2DRB 008 080 S04	0.4R X 0.8	0.8	8	45	4						
2DRB 008 100 S04	0.4R X 0.8	0.8	10	45	4						
2DRB 008 120 S04	0.4R X 0.8	0.8	12	45	4						
2DRB 010 040 S04	0.5R X 1	1	4	45	4						
2DRB 010 060 S04	0.5R X 1	1	6	45	4						
2DRB 010 080 S04	0.5R X 1	1	8	45	4						
2DRB 010 100 S04	0.5R X 1	1	10	45	4						
2DRB 010 120 S04	0.5R X 1	1	12	45	4						
2DRB 010 160 S04	0.5R X 1	1	16	50	4						
2DRB 015 060 S04	0.75R X 1.5	1.5	6	45	4						
2DRB 015 080 S04	0.75R X 1.5	1.5	8	45	4						
2DRB 015 100 S04	0.75R X 1.5	1.5	10	45	4						
2DRB 015 120 S04	0.75R X 1.5	1.5	12	45	4						
2DRB 015 160 S04	0.75R X 1.5	1.5	16	50	4						
2DRB 015 200 S04	0.75R X 1.5	1.5	20	50	4						
2DRB 020 060 S04	1R X 2	3	6	45	4						
2DRB 020 080 S04	1R X 2	3	8	45	4						
2DRB 020 100 S04	1R X 2	3	10	45	4						
2DRB 020 120 S04	1R X 2	3	12	45	4						
2DRB 020 160 S04	1R X 2	3	16	50	4						
2DRB 020 200 S04	1R X 2	3	20	50	4						
2DRB 020 250 S04	1R X 2	3	25	60	4						
2DRB 020 300 S04	1R X 2	3	30	70	4						
2DRB 030 120 S06	1.5R X 3	4	12	50	6						

# 2DLB

## 2 Flutes G-TAC Coated Ball End Mills for Non-Ferrous Metal

VHM 2-Lp. Kugelfräser, Tetrabond beschichtet, non ferrous



- Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Minimize fracturing by high TRS fine(0.5  $\mu$ m) WC grade.
- High precise edge tolerance.

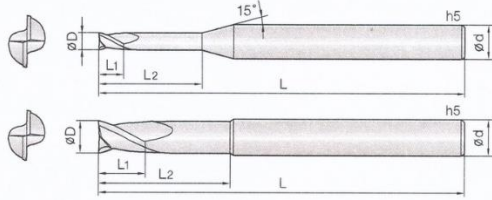
2	WC 마립자	G-TAC Coating	R $\pm 0.005$ 0.1 ~ 2.5R	R $\pm 0.01$ 3 ~ 6R	30° Helix Angle	CUTTING DATA 357P
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D Size	D Tolerance
$\phi 2 \sim 5$	+0 - -0.01mm
$\phi 6 \sim 12$	-0.005 - -0.015mm

Order Number	Diameter R x D	Length of cut L1	Overall Length L	Shank Dia d	Order Number	Diameter R x D	Length of cut L1	Overall Length L	Shank Dia d
2DLB 002 004 S04	0.1R X 0.2	0.4	45	4					
2DLB 003 006 S04	0.15R X 0.3	0.6	45	4					
2DLB 004 008 S04	0.2R X 0.4	0.8	45	4					
2DLB 005 010 S04	0.25R X 0.5	1	45	4					
2DLB 006 012 S04	0.3R X 0.6	1.2	45	4					
2DLB 008 020 S04	0.4R X 0.8	2	50	4					
2DLB 010 025 S04	0.5R X 1	2.5	50	4					
2DLB 012 030 S04	0.6R X 1.2	3	50	4					
2DLB 015 040 S04	0.75R X 1.5	4	50	4					
2DLB 020 050 S04	1R X 2	5	50	4					
2DLB 025 060 S04	1.25R X 2.5	6	50	4					
2DLB 030 080 S06	1.5R X 3	8	60	6					
2DLB 040 080 S06	2R X 4	8	70	6					
2DLB 050 100 S06	2.5R X 5	10	80	6					
2DLB 060 120 090	3R X 6	12	90	6					
2DLB 080 140 100	4R X 8	14	100	8					
2DLB 100 180 100	5R X 10	18	100	10					
2DLB 120 220 110	6R X 12	22	110	12					

G-TAC

VHM 2-Lp. Schaftfräser, Tetrabond beschichtet, non ferrous



- Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.

2

WC  
마립자

GTAC  
Coating

D  
+0 -0.005

D  
+0 -0.01

D  
-0.01 -0.025

30°  
Helix Angle

Sharp Edge

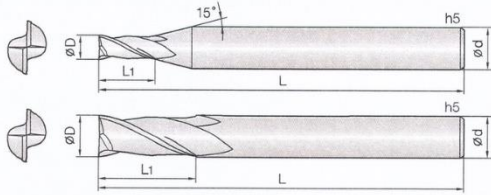
CUTTING  
DATA

D Size	D Tolerance
ø0.1	+0 ~ -0.005mm
ø0.2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm

G-TAC

Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2DRE 001 003 S04	0.1	0.3	-	45	4	2DRE 030 200 S06	3	4.5	20	60	6
2DRE 001 005 S04	0.1	0.5	-	45	4	2DRE 030 250 S06	3	4.5	25	65	6
2DRE 002 005 S04	0.2	0.5	-	45	4	2DRE 030 300 S06	3	4.5	30	70	6
2DRE 002 010 S04	0.2	0.3	1	45	4	2DRE 030 400 S06	3	4.5	40	80	6
2DRE 002 015 S04	0.2	0.3	1.5	45	4	2DRE 040 120 S06	4	6	12	50	6
2DRE 002 020 S04	0.2	0.3	2	45	4	2DRE 040 160 S06	4	6	16	60	6
2DRE 003 010 S04	0.3	0.5	1	45	4	2DRE 040 200 S06	4	6	20	60	6
2DRE 003 015 S04	0.3	0.5	1.5	45	4	2DRE 040 250 S06	4	6	25	65	6
2DRE 003 020 S04	0.3	0.5	2	45	4	2DRE 040 300 S06	4	6	30	70	6
2DRE 004 010 S04	0.4	0.6	1	45	4	2DRE 040 400 S06	4	6	40	80	6
2DRE 004 020 S04	0.4	0.6	2	45	4	2DRE 050 200 S06	5	6	20	60	6
2DRE 004 030 S04	0.4	0.6	3	45	4	2DRE 050 400 S06	5	6	40	80	6
2DRE 004 040 S04	0.4	0.6	4	45	4	2DRE 060 200 S06	6	8	20	60	6
2DRE 004 050 S04	0.4	0.6	5	45	4	2DRE 060 300 S06	6	8	30	90	6
2DRE 005 020 S04	0.5	0.7	2	45	4	2DRE 080 200 S08	8	12	20	70	8
2DRE 005 040 S04	0.5	0.7	4	45	4	2DRE 100 250 S10	10	15	25	80	10
2DRE 005 060 S04	0.5	0.7	6	45	4	2DRE 120 300 S12	12	18	30	80	12
2DRE 005 080 S04	0.5	0.7	8	45	4						
2DRE 005 100 S04	0.5	0.7	10	45	4						
2DRE 006 020 S04	0.6	0.9	2	45	4						
2DRE 006 040 S04	0.6	0.9	4	45	4						
2DRE 006 060 S04	0.6	0.9	6	45	4						
2DRE 006 080 S04	0.6	0.9	8	45	4						
2DRE 006 100 S04	0.6	0.9	10	45	4						
2DRE 008 020 S04	0.8	1.2	2	45	4						
2DRE 008 040 S04	0.8	1.2	4	45	4						
2DRE 008 060 S04	0.8	1.2	6	45	4						
2DRE 008 080 S04	0.8	1.2	8	45	4						
2DRE 008 100 S04	0.8	1.2	10	45	4						
2DRE 008 120 S04	0.8	1.2	12	45	4						
2DRE 010 040 S04	1	1.5	4	45	4						
2DRE 010 060 S04	1	1.5	6	45	4						
2DRE 010 080 S04	1	1.5	8	45	4						
2DRE 010 100 S04	1	1.5	10	45	4						
2DRE 010 120 S04	1	1.5	12	45	4						
2DRE 010 160 S04	1	1.5	16	50	4						
2DRE 015 060 S04	1.5	2.3	6	45	4						
2DRE 015 080 S04	1.5	2.3	8	45	4						
2DRE 015 100 S04	1.5	2.3	10	45	4						
2DRE 015 120 S04	1.5	2.3	12	45	4						
2DRE 015 160 S04	1.5	2.3	16	50	4						
2DRE 015 200 S04	1.5	2.3	20	50	4						
2DRE 020 060 S04	2	3	6	45	4						
2DRE 020 080 S04	2	3	8	45	4						
2DRE 020 100 S04	2	3	10	45	4						
2DRE 020 120 S04	2	3	12	45	4						
2DRE 020 160 S04	2	3	16	50	4						
2DRE 020 200 S04	2	3	20	50	4						
2DRE 030 120 S06	3	4.5	12	50	6						
2DRE 030 160 S06	3	4.5	16	60	6						





- Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.

358P

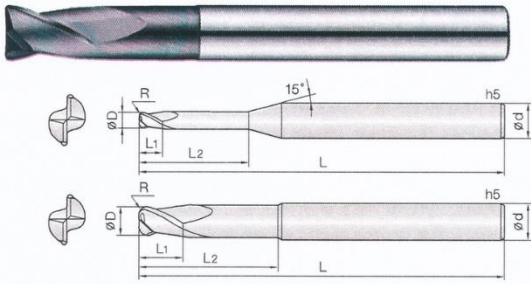
D Size	D Tolerance
ø0.4 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm

G-TAC

Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d
2DLE 004 008 S04	0.4	0.8	45	4					
2DLE 005 010 S04	0.5	1	45	4					
2DLE 006 012 S04	0.6	1.2	45	4					
2DLE 007 014 S04	0.7	1.4	45	4					
2DLE 008 016 S04	0.8	1.6	45	4					
2DLE 010 025 S04	1	2.5	45	4					
2DLE 010 040 S04	1	4	45	4					
2DLE 012 040 S04	1.2	4	45	4					
2DLE 015 040 S04	1.5	4	45	4					
2DLE 020 060 S04	2	6	45	4					
2DLE 020 080 S04	2	8	45	4					
2DLE 025 080 S04	2.5	8	50	4					
2DLE 030 100 S06	3	10	50	6					
2DLE 030 120 S06	3	12	50	6					
2DLE 035 100 S06	3.5	10	50	6					
2DLE 040 120 S06	4	12	60	6					
2DLE 050 150 S06	5	15	60	6					
2DLE 060 150 S06	6	15	60	6					
2DLE 060 240 S06	6	24	60	6					
2DLE 080 200 S08	8	20	65	8					
2DLE 100 250 S10	10	25	70	10					
2DLE 120 300 S12	12	30	80	12					



VHM 2-Lp. Eckradiusfräser, Tetrabond beschichtet, non ferrous



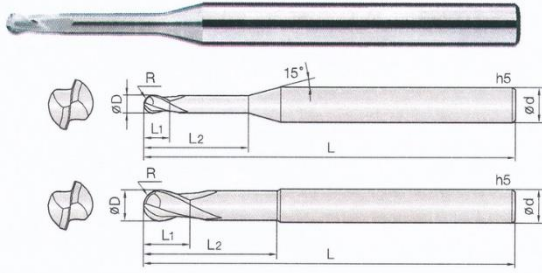
- Endmills for Aluminum, Aluminum alloy, copper, copper alloy, CFRP, glass/carbon fiber, nonferrous and non-metallic materials.
- Tetrabond TAC coating provides excellent work surface finish by high hardness and low friction.
- Reinforced edge design for preventing edge chipping.
- High precise edge tolerance.



D Size	D Tolerance
ø1 ~ 4	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2DLC 010 001 040	1 X R0.1	1.5	4	45	4	2DLC 040 010 120	4 X R1	6	12	50	6
2DLC 010 001 060	1 X R0.1	1.5	6	45	4	2DLC 040 010 160	4 X R1	6	16	60	6
2DLC 010 001 080	1 X R0.1	1.5	8	45	4	2DLC 040 010 200	4 X R1	6	20	60	6
2DLC 010 001 100	1 X R0.1	1.5	10	45	4	2DLC 040 010 250	4 X R1	6	25	65	6
2DLC 010 002 040	1 X R0.2	1.5	4	45	4	2DLC 040 010 300	4 X R1	6	30	70	6
2DLC 010 002 060	1 X R0.2	1.5	6	45	4	2DLC 060 003 200	6 X R0.3	9	20	60	6
2DLC 010 002 080	1 X R0.2	1.5	8	45	4	2DLC 060 005 200	6 X R0.5	9	20	60	6
2DLC 010 002 100	1 X R0.2	1.5	10	45	4	2DLC 060 010 200	6 X R1	9	20	60	6
2DLC 015 001 060	1.5 X R0.1	2.3	6	45	4	2DLC 080 003 250	8 X R0.3	12	25	65	8
2DLC 015 001 080	1.5 X R0.1	2.3	8	45	4	2DLC 080 005 250	8 X R0.5	12	25	65	8
2DLC 015 001 100	1.5 X R0.1	2.3	10	45	4	2DLC 080 010 250	8 X R1	12	25	65	8
2DLC 015 001 120	1.5 X R0.1	2.3	12	50	4	2DLC 100 005 300	10 X R0.5	15	30	70	10
2DLC 015 002 060	1.5 X R0.2	2.3	6	45	4	2DLC 100 010 300	10 X R1	15	30	70	10
2DLC 015 002 080	1.5 X R0.2	2.3	8	45	4	2DLC 120 005 320	12 X R0.5	18	32	80	12
2DLC 015 002 100	1.5 X R0.2	2.3	10	45	4	2DLC 120 010 320	12 X R1	18	32	80	12
2DLC 015 002 120	1.5 X R0.2	2.3	12	50	4						
2DLC 020 002 080	2 X R0.2	3	8	45	4						
2DLC 020 002 100	2 X R0.2	3	10	45	4						
2DLC 020 002 120	2 X R0.2	3	12	50	4						
2DLC 020 002 160	2 X R0.2	3	16	50	4						
2DLC 020 005 080	2 X R0.5	3	8	45	4						
2DLC 020 005 100	2 X R0.5	3	10	45	4						
2DLC 020 005 120	2 X R0.5	3	12	50	4						
2DLC 020 005 160	2 X R0.5	3	16	50	4						
2DLC 030 002 100	3 X R0.2	4.5	10	50	6						
2DLC 030 002 120	3 X R0.2	4.5	12	50	6						
2DLC 030 002 160	3 X R0.2	4.5	16	60	6						
2DLC 030 002 200	3 X R0.2	4.5	20	60	6						
2DLC 030 002 250	3 X R0.2	4.5	25	65	6						
2DLC 030 002 300	3 X R0.2	4.5	30	70	6						
2DLC 030 003 100	3 X R0.3	4.5	10	50	6						
2DLC 030 003 120	3 X R0.3	4.5	12	50	6						
2DLC 030 003 160	3 X R0.3	4.5	16	60	6						
2DLC 030 003 200	3 X R0.3	4.5	20	60	6						
2DLC 030 003 250	3 X R0.3	4.5	25	65	6						
2DLC 030 003 300	3 X R0.3	4.5	30	70	6						
2DLC 030 005 100	3 X R0.5	4.5	10	50	6						
2DLC 030 005 120	3 X R0.5	4.5	12	50	6						
2DLC 030 005 160	3 X R0.5	4.5	16	60	6						
2DLC 030 005 200	3 X R0.5	4.5	20	60	6						
2DLC 030 005 250	3 X R0.5	4.5	25	65	6						
2DLC 030 005 300	3 X R0.5	4.5	30	70	6						
2DLC 040 002 120	4 X R0.2	6	12	50	6						
2DLC 040 002 160	4 X R0.2	6	16	60	6						
2DLC 040 002 200	4 X R0.2	6	20	60	6						
2DLC 040 005 120	4 X R0.5	6	12	50	6						
2DLC 040 005 160	4 X R0.5	6	16	60	6						
2DLC 040 005 200	4 X R0.5	6	20	60	6						
2DLC 040 005 250	4 X R0.5	6	25	65	6						
2DLC 040 005 300	4 X R0.5	6	30	70	6						





- Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Minimize chattering by short flute design.
- Excellent tool rigidity by short flute design at high speed, feed machining.
- Reinforced edge design for preventing edge chipping.
- Excellent wear resistance by applying fine WC grade.



D Size	D Tolerance
ø0.2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm

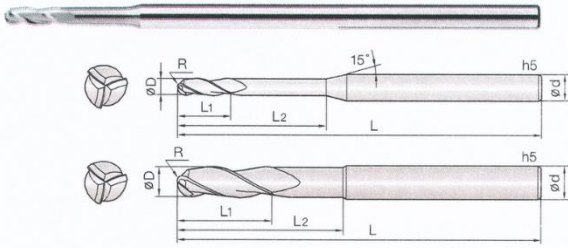
Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2MRB 002 005 S04	0.1R X 0.2	0.3	0.5	40	4	2MRB 015 060 S04	0.75R X 1.5	3	6	50	4
2MRB 002 010 S04	0.1R X 0.2	0.3	1	40	4	2MRB 015 100 S04	0.75R X 1.5	3	10	50	4
2MRB 002 015 S04	0.1R X 0.2	0.3	1.5	40	4	2MRB 015 140 S04	0.75R X 1.5	3	14	50	4
2MRB 002 020 S04	0.1R X 0.2	0.3	2	40	4	2MRB 015 160 S04	0.75R X 1.5	3	16	50	4
2MRB 003 010 S04	0.15R X 0.3	0.45	1	40	4	2MRB 015 200 S04	0.75R X 1.5	3	20	60	4
2MRB 003 020 S04	0.15R X 0.3	0.45	2	40	4	2MRB 015 250 S04	0.75R X 1.5	3	25	60	4
2MRB 003 030 S04	0.15R X 0.3	0.45	3	40	4	2MRB 015 300 S04	0.75R X 1.5	3	30	70	4
2MRB 003 050 S04	0.15R X 0.3	0.45	5	40	4	2MRB 016 060 S04	0.8R X 1.6	3.2	6	50	4
2MRB 004 020 S04	0.2R X 0.4	0.6	2	40	4	2MRB 020 080 S04	1R X 2	4	8	50	4
2MRB 004 030 S04	0.2R X 0.4	0.6	3	40	4	2MRB 020 100 S04	1R X 2	4	10	50	4
2MRB 004 040 S04	0.2R X 0.4	0.6	4	40	4	2MRB 020 120 S04	1R X 2	4	12	50	4
2MRB 004 050 S04	0.2R X 0.4	0.6	5	40	4	2MRB 020 140 S04	1R X 2	4	14	50	4
2MRB 004 060 S04	0.2R X 0.4	0.6	6	40	4	2MRB 020 160 S04	1R X 2	4	16	50	4
2MRB 005 020 S04	0.25R X 0.5	1	2	45	4	2MRB 020 180 S04	1R X 2	4	18	50	4
2MRB 005 040 S04	0.25R X 0.5	1	4	45	4	2MRB 020 200 S04	1R X 2	4	20	60	4
2MRB 005 060 S04	0.25R X 0.5	1	6	45	4	2MRB 020 250 S04	1R X 2	4	25	60	4
2MRB 005 080 S04	0.25R X 0.5	1	8	45	4	2MRB 020 300 S04	1R X 2	4	30	70	4
2MRB 005 100 S04	0.25R X 0.5	1	10	45	4	2MRB 020 350 S04	1R X 2	4	35	80	4
2MRB 006 020 S04	0.3R X 0.6	1.2	2	45	4	2MRB 020 400 S04	1R X 2	4	40	80	4
2MRB 006 040 S04	0.3R X 0.6	1.2	4	45	4	2MRB 025 120 S04	1.25R X 2.5	5	12	60	4
2MRB 006 060 S04	0.3R X 0.6	1.2	6	45	4	2MRB 025 200 S04	1.25R X 2.5	5	20	60	4
2MRB 006 080 S04	0.3R X 0.6	1.2	8	45	4	2MRB 030 080 S06	1.5R X 3	6	8	70	6
2MRB 006 100 S04	0.3R X 0.6	1.2	10	45	4	2MRB 030 120 S06	1.5R X 3	6	12	70	6
2MRB 007 040 S04	0.35R X 0.7	1.4	4	45	4	2MRB 030 160 S06	1.5R X 3	6	16	70	6
2MRB 007 060 S04	0.35R X 0.7	1.4	6	45	4	2MRB 030 200 S06	1.5R X 3	6	20	70	6
2MRB 007 080 S04	0.35R X 0.7	1.4	8	45	4	2MRB 030 250 S06	1.5R X 3	6	25	70	6
2MRB 007 100 S04	0.35R X 0.7	1.4	10	45	4	2MRB 030 300 S06	1.5R X 3	6	30	80	6
2MRB 008 040 S04	0.4R X 0.8	1.6	4	45	4	2MRB 030 400 S06	1.5R X 3	6	40	90	6
2MRB 008 060 S04	0.4R X 0.8	1.6	6	45	4	2MRB 030 450 S06	1.5R X 3	6	45	90	6
2MRB 008 080 S04	0.4R X 0.8	1.6	8	45	4	2MRB 040 120 S06	2R X 4	8	12	70	6
2MRB 008 100 S04	0.4R X 0.8	1.6	10	45	4	2MRB 040 160 S06	2R X 4	8	16	70	6
2MRB 008 120 S04	0.4R X 0.8	1.6	12	45	4	2MRB 040 200 S06	2R X 4	8	20	70	6
2MRB 009 060 S04	0.45R X 0.9	1.8	6	45	4	2MRB 040 250 S06	2R X 4	8	25	70	6
2MRB 009 100 S04	0.45R X 0.9	1.8	10	45	4	2MRB 040 300 S06	2R X 4	8	30	70	6
2MRB 009 120 S04	0.45R X 0.9	1.8	12	45	4	2MRB 040 350 S06	2R X 4	8	35	80	6
2MRB 010 060 S04	0.5R X 1	2	6	50	4	2MRB 040 400 S06	2R X 4	8	40	80	6
2MRB 010 080 S04	0.5R X 1	2	8	50	4	2MRB 040 500 S06	2R X 4	8	50	100	6
2MRB 010 100 S04	0.5R X 1	2	10	50	4	2MRB 050 160 S06	2.5R X 5	10	16	80	6
2MRB 010 120 S04	0.5R X 1	2	12	50	4	2MRB 050 250 S06	2.5R X 5	10	25	80	6
2MRB 010 160 S04	0.5R X 1	2	16	50	4	2MRB 050 350 S06	2.5R X 5	10	35	80	6
2MRB 010 200 S04	0.5R X 1	2	20	60	4	2MRB 060 250 S06	3R X 6	12	25	80	6
2MRB 010 250 S04	0.5R X 1	2	25	60	4	2MRB 060 350 S06	3R X 6	12	35	80	6
2MRB 012 060 S04	0.6R X 1.2	2.4	6	50	4	2MRB 060 500 S06	3R X 6	12	50	120	6
2MRB 012 080 S04	0.6R X 1.2	2.4	8	50	4	2MRB 060 600 S06	3R X 6	12	60	120	6
2MRB 012 100 S04	0.6R X 1.2	2.4	10	50	4						
2MRB 012 120 S04	0.6R X 1.2	2.4	12	50	4						
2MRB 012 160 S04	0.6R X 1.2	2.4	16	50	4						
2MRB 014 060 S04	0.7R X 1.4	2.8	6	50	4						
2MRB 014 100 S04	0.7R X 1.4	2.8	10	50	4						
2MRB 014 160 S04	0.7R X 1.4	2.8	16	50	4						

FOR A.B.S



### 3 Flutes Micro Rib Ball End Mills

VHM 3-Lp. Kugelfräser, Alu, non ferrous



• Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.

- Minimize chattering by short flute design.
- Excellent tool rigidity by short flute design at high speed, feed machining.
- Reinforced edge design for preventing edge chipping.
- Excellent wear resistance by applying fine WC grade.



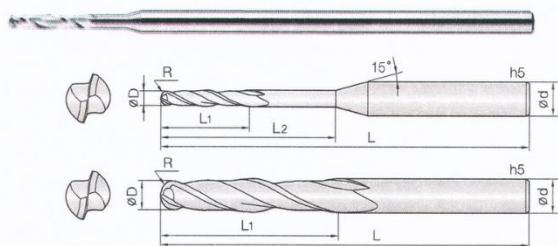
D Size	D Tolerance
ø1 ~ 4	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm
ø16	-0.01 ~ -0.02mm

Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
3MRB 010 050 S04	0.5R X 1	3	5	70	4
3MRB 010 100 S04	0.5R X 1	3	10	70	4
3MRB 010 150 S04	0.5R X 1	3	15	70	4
3MRB 010 200 S04	0.5R X 1	3	20	70	4
3MRB 010 250 S04	0.5R X 1	3	25	70	4
3MRB 015 100 S04	0.75R X 1.5	4.5	10	70	4
3MRB 015 150 S04	0.75R X 1.5	4.5	15	70	4
3MRB 015 200 S04	0.75R X 1.5	4.5	20	70	4
3MRB 015 250 S04	0.75R X 1.5	4.5	25	70	4
3MRB 015 300 S04	0.75R X 1.5	4.5	30	70	4
3MRB 020 100 S04	1R X 2	6	10	70	4
3MRB 020 150 S04	1R X 2	6	15	70	4
3MRB 020 200 S04	1R X 2	6	20	70	4
3MRB 020 250 S04	1R X 2	6	25	70	4
3MRB 020 300 S04	1R X 2	6	30	70	4
3MRB 030 200 080	1.5R X 3	15	20	80	3
3MRB 030 200 S04	1.5R X 3	9	20	80	4
3MRB 030 300 100	1.5R X 3	15	30	100	3
3MRB 030 300 S04	1.5R X 3	9	30	80	4
3MRB 040 200 080	2R X 4	12	20	80	4
3MRB 040 300 100	2R X 4	12	30	100	4
3MRB 060 300 100	3R X 6	18	30	100	6
3MRB 060 400 150	3R X 6	18	40	150	6
3MRB 080 400 120	4R X 8	24	40	120	8
3MRB 080 500 150	4R X 8	24	50	150	8
3MRB 100 500 120	5R X 10	30	50	120	10
3MRB 100 600 150	5R X 10	30	60	150	10
3MRB 120 600 150	6R X 12	36	60	150	12
3MRB 160 700 160	8R X 16	54	70	160	16

Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d

FOR A.B.S





- **Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.**
- Minimize chattering by even run-out and tolerance control.
- Long flute helps chip control in deep groove machining.
- Excellent wear resistance by applying fine WC grade.



D Size	D Tolerance
∅0.2 ~ 5	+0 -0.01mm
∅6 ~ 12	-0.005 - -0.015mm
∅16	-0.01 - -0.02mm

Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2MLB 002 010 S03	0.1R X 0.2	0.4	1	40	3	2MLB 010 300 S04	0.5R X 1	5	30	80	4
2MLB 002 015 S03	0.1R X 0.2	0.4	1.5	40	3	2MLB 010 350 S04	0.5R X 1	5	35	100	4
2MLB 002 020 S03	0.1R X 0.2	0.4	2	40	3	2MLB 010 400 S04	0.5R X 1	5	40	100	4
2MLB 003 010 S03	0.15R X 0.3	1	-	45	3	2MLB 015 100 S03	0.75R X 1.5	10	-	80	3
2MLB 003 015 S03	0.15R X 0.3	1	1.5	45	3	2MLB 015 100 S04	0.75R X 1.5	10	-	80	4
2MLB 003 018 S03	0.15R X 0.3	1.8	-	45	3	2MLB 015 150 S03	0.75R X 1.5	10	15	80	3
2MLB 003 020 S03	0.15R X 0.3	1	2	45	3	2MLB 015 150 S04	0.75R X 1.5	10	15	80	4
2MLB 003 025 S03	0.15R X 0.3	1	2.5	45	3	2MLB 015 200 S03	0.75R X 1.5	10	20	80	3
2MLB 003 030 S03	0.15R X 0.3	1	3	45	3	2MLB 015 200 S04	0.75R X 1.5	10	20	80	4
2MLB 003 040 S03	0.15R X 0.3	1	4	45	3	2MLB 015 250 S03	0.75R X 1.5	10	25	80	3
2MLB 004 012 S03	0.2R X 0.4	1.2	-	45	3	2MLB 015 250 S04	0.75R X 1.5	10	25	80	4
2MLB 004 020 S03	0.2R X 0.4	2	-	45	3	2MLB 015 300 S03	0.75R X 1.5	10	30	80	3
2MLB 004 030 S03	0.2R X 0.4	1.2	3	45	3	2MLB 015 300 S04	0.75R X 1.5	10	30	80	4
2MLB 004 040 S03	0.2R X 0.4	1.2	4	45	3	2MLB 015 350 S04	0.75R X 1.5	10	35	100	4
2MLB 004 050 S03	0.2R X 0.4	1.2	5	45	3	2MLB 015 400 S04	0.75R X 1.5	10	40	100	4
2MLB 005 015 S03	0.25R X 0.5	1.5	-	50	3	2MLB 020 100 S03	1R X 2	10	-	80	3
2MLB 005 020 S03	0.25R X 0.5	2	-	50	3	2MLB 020 100 S04	1R X 2	10	-	80	4
2MLB 005 030 S03	0.25R X 0.5	1.5	3	50	3	2MLB 020 150 S03	1R X 2	10	15	80	3
2MLB 005 040 S03	0.25R X 0.5	1.5	4	50	3	2MLB 020 150 S04	1R X 2	10	15	80	4
2MLB 005 050 S03	0.25R X 0.5	1.5	5	50	3	2MLB 020 200 S03	1R X 2	10	20	80	3
2MLB 005 060 S03	0.25R X 0.5	1.5	6	50	3	2MLB 020 200 S04	1R X 2	10	20	80	4
2MLB 005 080 S03	0.25R X 0.5	1.5	8	50	3	2MLB 020 250 S03	1R X 2	10	25	80	3
2MLB 005 100 S03	0.25R X 0.5	1.5	10	50	3	2MLB 020 250 S04	1R X 2	10	25	80	4
2MLB 006 030 S03	0.3R X 0.6	3	-	50	3	2MLB 020 300 S03	1R X 2	10	30	80	3
2MLB 006 060 S03	0.3R X 0.6	3	6	50	3	2MLB 020 300 S04	1R X 2	10	30	80	4
2MLB 006 080 S03	0.3R X 0.6	3	8	50	3	2MLB 020 350 S03	1R X 2	10	35	80	3
2MLB 006 100 S03	0.3R X 0.6	3	10	50	3	2MLB 020 350 S04	1R X 2	10	35	100	4
2MLB 007 030 S03	0.35R X 0.7	3	-	50	3	2MLB 020 400 S03	1R X 2	10	40	80	3
2MLB 007 070 S03	0.35R X 0.7	3	7	50	3	2MLB 020 400 S04	1R X 2	10	40	100	4
2MLB 007 100 S03	0.35R X 0.7	3	10	50	3	2MLB 025 100 S03	1.25R X 2.5	10	-	80	3
2MLB 007 120 S03	0.35R X 0.7	3	12	50	3	2MLB 025 150 S03	1.25R X 2.5	15	-	80	3
2MLB 008 040 S03	0.4R X 0.8	4	-	50	3	2MLB 025 200 S03	1.25R X 2.5	15	20	80	3
2MLB 008 080 S03	0.4R X 0.8	4	8	50	3	2MLB 030 100 060	1.5R X 3	10	-	60	3
2MLB 008 100 S03	0.4R X 0.8	4	10	50	3	2MLB 030 200 080	1.5R X 3	20	-	80	3
2MLB 008 120 S03	0.4R X 0.8	4	12	50	3	2MLB 030 200 100	1.5R X 3	20	-	100	3
2MLB 009 040 S03	0.45R X 0.9	4	-	50	3	2MLB 030 200 120	1.5R X 3	20	-	120	3
2MLB 009 060 S03	0.45R X 0.9	4	6	50	3	2MLB 030 150 S06	1.5R X 3	15	-	100	6
2MLB 009 080 S03	0.45R X 0.9	4	8	50	3	2MLB 030 200 S06	1.5R X 3	15	20	100	6
2MLB 009 100 S03	0.45R X 0.9	4	10	50	3	2MLB 030 250 S06	1.5R X 3	15	25	100	6
2MLB 010 050 S03	0.5R X 1	5	-	80	3	2MLB 030 300 S06	1.5R X 3	15	30	100	6
2MLB 010 050 S04	0.5R X 1	5	-	80	4	2MLB 030 400 S06	1.5R X 3	15	40	100	6
2MLB 010 100 S03	0.5R X 1	5	10	80	3	2MLB 040 200 080	2R X 4	20	-	80	4
2MLB 010 100 S04	0.5R X 1	5	10	80	4	2MLB 040 200 100	2R X 4	20	-	100	4
2MLB 010 150 S03	0.5R X 1	5	15	80	3	2MLB 040 200 130	2R X 4	20	-	130	4
2MLB 010 150 S04	0.5R X 1	5	15	80	4	2MLB 040 200 S06	2R X 4	20	-	100	6
2MLB 010 200 S03	0.5R X 1	5	20	80	3	2MLB 040 250 S06	2R X 4	20	25	100	6
2MLB 010 200 S04	0.5R X 1	5	20	80	4	2MLB 040 300 S06	2R X 4	20	30	100	6
2MLB 010 250 S03	0.5R X 1	5	25	80	3	2MLB 040 400 S06	2R X 4	20	40	120	6
2MLB 010 250 S04	0.5R X 1	5	25	80	4	2MLB 040 500 S06	2R X 4	20	50	120	6
2MLB 010 300 S03	0.5R X 1	5	30	80	3	2MLB 050 300 100	2.5R X 5	30	-	100	5

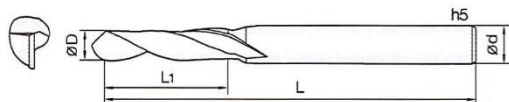


# 2 Flutes Micro Long Ball End Mills

VHM 2-Lp. Kugelfräser, lang, Alu, non ferrous

Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter R x D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2MLB 050 300 120	2.5R X 5	30	-	120	5						
2MLB 060 300 080	3R X 6	30	-	80	6						
2MLB 060 400 100	3R X 6	40	-	100	6						
2MLB 060 400 120	3R X 6	40	-	120	6						
2MLB 060 400 150	3R X 6	40	-	150	6						
2MLB 080 450 120	4R X 8	45	-	120	8						
2MLB 080 450 150	4R X 8	45	-	150	8						
2MLB 100 500 120	5R X 10	50	-	120	10						
2MLB 100 500 150	5R X 10	50	-	150	10						
2MLB 120 550 130	6R X 12	55	-	130	12						
2MLB 120 550 150	6R X 12	55	-	150	12						
2MLB 160 700 160	8R X 16	70	-	160	16						

FOR A/B/S



- Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Excellent chip removing by a helix 1flute design. Optimum for cut-off and wall machining.
- Excellent wear resistance by applying fine WC grade.

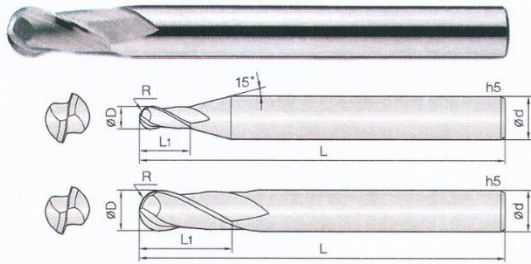


D Size	D Tolerance
Ø 1 - 5	+0 ~ -0.01mm
Ø 6 - 12	-0.005 ~ -0.015mm
Ø 16	-0.01 ~ -0.02mm

Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d
1MBE 010 040 S03	0.5R X 1	4	40	3					
1MBE 015 060 S03	0.75R X 1.5	6	40	3					
1MBE 020 060 S03	1R X 2	6	40	3					
1MBE 020 100 S06	1R X 2	10	60	6					
1MBE 020 120 S06	1R X 2	12	60	6					
1MBE 030 120 040	1.5R X 3	12	40	3					
1MBE 030 120 S06	1.5R X 3	12	60	6					
1MBE 030 150 S06	1.5R X 3	15	60	6					
1MBE 040 150 S60	2R X 4	15	60	6					
1MBE 040 150 080	2R X 4	15	80	6					
1MBE 050 160 S06	2.5R X 5	16	60	6					
1MBE 060 200 060	3R X 6	20	60	6					
1MBE 060 250 080	3R X 6	25	80	6					
1MBE 060 300 100	3R X 6	30	100	6					
1MBE 080 300 080	4R X 8	30	80	8					
1MBE 080 350 120	4R X 8	35	120	8					
1MBE 100 350 100	5R X 10	35	100	10					
1MBE 100 450 120	5R X 10	45	120	10					
1MBE 100 550 150	5R X 10	55	150	10					
1MBE 120 450 110	6R X 12	45	110	12					
1MBE 120 550 130	6R X 12	55	130	12					
1MBE 120 600 150	6R X 12	60	150	12					
1MBE 160 550 160	8R X 16	55	160	16					
1MBE 160 650 200	8R X 16	65	200	16					

# 2MBE 2 Flutes Ball End Mills

VHM 2-Lp. Kugelfräser, Alu, non ferrous



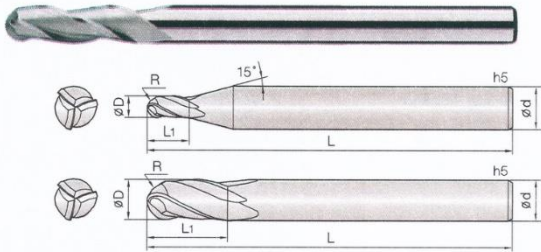
- Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Minimize chattering by even run-out and tolerance control.
- Very nice work surface finish.
- Excellent wear resistance by applying fine WC grade.



D Size	D Tolerance
Ø0.1 ~ 0.15	+0 ~ -0.005mm
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.005 ~ -0.015mm

Order Number	Diameter R x D	Length of cut L1	Overall Length L	Shank Dia d	Order Number	Diameter R x D	Length of cut L1	Overall Length L	Shank Dia d
2MBE 001 002 S03	0.05R X 0.1	0.2	40	3					
2MBE 0015 003 S03	0.075R X 0.15	0.3	40	3					
2MBE 002 004 S03	0.1R X 0.2	0.4	40	3					
2MBE 003 006 S03	0.15R X 0.3	0.6	40	3					
2MBE 004 008 S03	0.2R X 0.4	0.8	40	3					
2MBE 005 010 S03	0.25R X 0.5	1	40	3					
2MBE 006 012 S03	0.3R X 0.6	1.2	40	3					
2MBE 007 014 S03	0.35R X 0.7	1.4	40	3					
2MBE 008 016 S03	0.4R X 0.8	1.6	40	3					
2MBE 009 018 S03	0.45R X 0.9	1.8	40	3					
2MBE 010 025 S03	0.5R X 1	2.5	50	3					
2MBE 010 025 S06	0.5R X 1	2.5	50	6					
2MBE 010 025 100	0.5R X 1	2.5	100	6					
2MBE 011 025 S03	0.55R X 1.1	2.5	50	3					
2MBE 012 030 S03	0.6R X 1.2	3	50	3					
2MBE 015 040 S03	0.75R X 1.5	4	50	3					
2MBE 015 040 100	0.75R X 1.5	4	100	6					
2MBE 020 050 S03	1R X 2	5	50	3					
2MBE 020 050 S06	1R X 2	5	50	6					
2MBE 020 050 100	1R X 2	5	100	6					
2MBE 025 060 S03	1.25R X 2.5	6	50	3					
2MBE 025 060 100	1.25R X 2.5	6	100	6					
2MBE 030 080 S03	1.5R X 3	8	60	3					
2MBE 030 080 S06	1.5R X 3	8	60	6					
2MBE 030 080 100	1.5R X 3	8	100	6					
2MBE 035 080 S06	1.75R X 3.5	8	65	6					
2MBE 040 080 S06	2R X 4	8	70	6					
2MBE 040 080 120	2R X 4	8	120	6					
2MBE 050 120 S06	2.5R X 5	12	75	6					
2MBE 060 120 080	3R X 6	12	80	6					
2MBE 060 120 100	3RX 6	12	100	6					
2MBE 080 140 090	4R X 8	14	90	8					
2MBE 080 140 110	4RX 8	14	110	8					
2MBE 100 180 100	5R X 10	18	100	10					
2MBE 100 180 120	5RX 10	18	120	10					
2MBE 120 220 110	6R X 12	22	110	12					
2MBE 120 220 130	6RX 12	22	130	12					

FOR A.B.S



- Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Minimize chattering by even run-out and tolerance control.
- Very nice work surface finish.
- Excellent wear resistance by applying fine WC grade.

3

WC  
마질치

R  
±0.005

R  
±0.01

30°  
Helix Angle

CUTTING  
DATA

0.15R ~ 2R      3R      370P

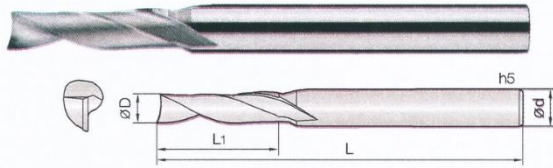
D Size	D Tolerance
ø0.3 ~ 4	+0 ~ -0.01mm
ø6	-0.005 ~ -0.015mm

Order Number	Diameter R × D	Length of cut L1	Overall Length L	Shank Dia d	Order Number	Diameter R × D	Length of cut L1	Overall Length L	Shank Dia d
3MBE 003 008 S04	0.15R X 0.3	0.8	40	4					
3MBE 003 012 S04	0.15R X 0.3	1.2	40	4					
3MBE 004 010 S04	0.2R X 0.4	1	40	4					
3MBE 004 015 S04	0.2R X 0.4	1.5	40	4					
3MBE 005 013 S04	0.25R X 0.5	1.3	45	4					
3MBE 005 020 S04	0.25R X 0.5	2	45	4					
3MBE 006 015 S04	0.3R X 0.6	1.5	45	4					
3MBE 006 024 S04	0.3R X 0.6	2.4	45	4					
3MBE 007 018 S04	0.35R X 0.7	1.8	45	4					
3MBE 007 028 S04	0.35R X 0.7	2.8	45	4					
3MBE 008 020 S04	0.4R X 0.8	2	45	4					
3MBE 008 032 S04	0.4R X 0.8	3.2	45	4					
3MBE 009 025 S04	0.45R X 0.9	2.5	50	4					
3MBE 009 036 S04	0.45R X 0.9	3.6	50	4					
3MBE 010 025 S04	0.5R X 1	2.5	50	4					
3MBE 010 040 S04	0.5R X 1	4	50	4					
3MBE 010 060 S04	0.5R X 1	6	60	4					
3MBE 012 030 S04	0.6R X 1.2	3	50	4					
3MBE 012 050 S04	0.6R X 1.2	5	50	4					
3MBE 012 070 S04	0.6R X 1.2	7	60	4					
3MBE 015 040 S04	0.75R X 1.5	4	50	4					
3MBE 015 060 S04	0.75R X 1.5	6	50	4					
3MBE 015 090 S04	0.75R X 1.5	9	60	4					
3MBE 020 050 S04	1R X 2	5	50	4					
3MBE 020 080 S04	1R X 2	8	50	4					
3MBE 020 100 S04	1R X 2	10	60	4					
3MBE 025 060 S04	1.25R X 2.5	6	50	4					
3MBE 025 100 S04	1.25R X 2.5	10	60	4					
3MBE 025 150 S04	1.25R X 2.5	15	70	4					
3MBE 030 080 S04	1.5R X 3	8	50	4					
3MBE 030 120 S04	1.5R X 3	12	60	4					
3MBE 030 150 S04	1.5R X 3	15	80	4					
3MBE 040 100 S04	2R X 4	10	60	4					
3MBE 040 150 S04	2R X 4	15	80	4					
3MBE 060 200 S06	3R X 6	20	80	6					
3MBE 060 300 S06	3R X 6	30	110	6					

FOR A.B.S

# 1MEM 1 Flute End Mills

VHM 1-Lp. Schaftfräser, Alu, non ferrous



- Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Excellent chip removing by a helix 1flute design. Optimum for cut-off and wall machining.
- Excellent wear resistance by applying fine WC grade.



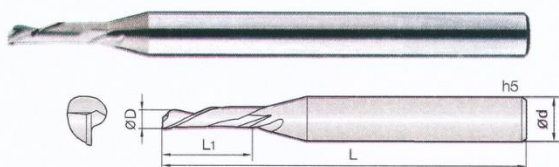
D Size	D Tolerance
ø0.2 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm

Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d
1MEM 002 004 S04	0.2	0.4	40	4	1MEM 050 130 S06	5	13	60	6
1MEM 002 005 S04	0.2	0.5	40	4	1MEM 050 200 S06	5	20	60	6
1MEM 003 006 S04	0.3	0.6	40	4	1MEM 050 250 S06	5	25	60	6
1MEM 003 009 S04	0.3	0.9	40	4	1MEM 050 300 S06	5	30	75	6
1MEM 004 008 S04	0.4	0.8	40	4	1MEM 060 150 S06	6	15	60	6
1MEM 004 012 S04	0.4	1.2	40	4	1MEM 060 200 S06	6	20	60	6
1MEM 005 010 S04	0.5	1	40	4	1MEM 060 250 S06	6	25	60	6
1MEM 005 015 S04	0.5	1.5	40	4	1MEM 060 300 S06	6	30	70	6
1MEM 006 012 S04	0.6	1.2	40	4	1MEM 060 410 S06	6	41	90	6
1MEM 006 018 S04	0.6	1.8	40	4	1MEM 080 190 S08	8	19	70	8
1MEM 007 014 S04	0.7	1.4	40	4	1MEM 080 250 S08	8	25	75	8
1MEM 007 021 S04	0.7	2.1	40	4	1MEM 080 300 S08	8	30	80	8
1MEM 008 016 S04	0.8	1.6	40	4	1MEM 080 410 S08	8	41	90	8
1MEM 008 024 S04	0.8	2.4	40	4	1MEM 100 220 S10	10	22	75	10
1MEM 009 018 S04	0.9	1.8	40	4	1MEM 100 300 S10	10	30	80	10
1MEM 009 027 S04	0.9	2.7	40	4	1MEM 100 410 S10	10	41	100	10
1MEM 010 025 S06	1	2.5	45	6	1MEM 120 260 S12	12	26	75	12
1MEM 010 030 S06	1	3	45	6	1MEM 120 350 S12	12	35	90	12
1MEM 010 035 S06	1	3.5	45	6	1MEM 120 510 S12	12	51	110	12
1MEM 010 045 S06	1	4.5	45	6					
1MEM 010 060 S06	1	6	50	6					
1MEM 010 070 S06	1	7	50	6					
1MEM 012 030 S06	1.2	3	45	6					
1MEM 012 050 S06	1.2	5	45	6					
1MEM 012 060 S06	1.2	6	50	6					
1MEM 015 040 S06	1.5	4	45	6					
1MEM 015 060 S06	1.5	6	50	6					
1MEM 015 080 S06	1.5	8	50	6					
1MEM 015 100 S06	1.5	10	50	6					
1MEM 015 120 S06	1.5	12	50	6					
1MEM 020 060 S06	2	6	50	6					
1MEM 020 080 S06	2	8	50	6					
1MEM 020 100 S06	2	10	50	6					
1MEM 020 120 S06	2	12	50	6					
1MEM 020 140 S06	2	14	55	6					
1MEM 020 160 S06	2	16	60	6					
New 1MEM 025 080 S06	2.5	8	50	6					
New 1MEM 025 100 S06	2.5	10	50	6					
New 1MEM 025 120 S06	2.5	12	50	6					
New 1MEM 025 160 S06	2.5	16	60	6					
1MEM 030 080 S06	3	8	50	6					
1MEM 030 120 S06	3	12	50	6					
1MEM 030 150 S06	3	15	50	6					
1MEM 030 200 S06	3	20	60	6					
1MEM 030 250 S06	3	25	70	6					
1MEM 040 100 S06	4	10	50	6					
1MEM 040 150 S06	4	15	50	6					
1MEM 040 200 S06	4	20	60	6					
1MEM 040 250 S06	4	25	70	6					
1MEM 040 300 S06	4	30	75	6					

FOR A.B.S

# 1REM 1 Flute Reverse Edge End Mills

VHM 1-Lp. Schafffräser, rechts-links Drill, Alu, non ferrous



- Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Downward chip direction by reverse helix design helps chip control.
- No burr in work materials.
- Optimum for unstable work clamping.
- Excellent wear resistance by applying fine WC grade.



D Size	D Tolerance
Ø0.5 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm

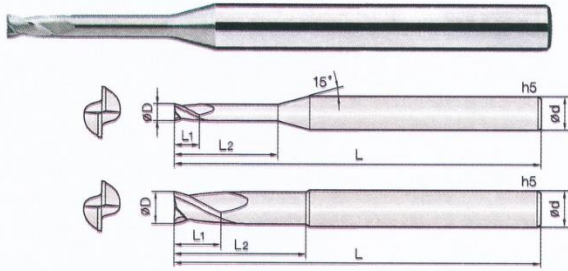
Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d
1REM 005 010 S04	0.5	1	45	4					
1REM 005 015 S04	0.5	1.5	45	4					
1REM 005 020 S04	0.5	2	45	4					
1REM 006 012 S04	0.6	1.2	45	4					
1REM 006 018 S04	0.6	1.8	45	4					
1REM 006 025 S04	0.6	2.5	45	4					
1REM 007 014 S04	0.7	1.4	45	4					
1REM 007 021 S04	0.7	2.1	45	4					
1REM 008 016 S04	0.8	1.6	45	4					
1REM 008 024 S04	0.8	2.4	45	4					
1REM 008 030 S04	0.8	3	45	4					
1REM 009 018 S04	0.9	1.8	45	4					
1REM 010 030 S06	1	3	50	6					
1REM 010 040 S06	1	4	50	6					
1REM 010 050 S06	1	5	50	6					
1REM 010 060 S06	1	6	60	6					
1REM 012 040 S06	1.2	4	50	6					
1REM 012 060 S06	1.2	6	50	6					
1REM 015 040 S06	1.5	4	50	6					
1REM 015 060 S06	1.5	6	50	6					
1REM 015 080 S06	1.5	8	50	6					
1REM 020 060 S06	2	6	60	6					
1REM 020 080 S06	2	8	60	6					
1REM 020 100 S06	2	10	60	6					
1REM 020 120 S06	2	12	60	6					
1REM 025 060 S06	2.5	6	60	6					
1REM 025 080 S06	2.5	8	60	6					
1REM 025 100 S06	2.5	10	60	6					
1REM 030 080 S06	3	8	60	6					
1REM 030 120 S06	3	12	65	6					
1REM 030 160 S06	3	16	70	6					
1REM 040 120 S06	4	12	65	6					
1REM 040 160 S06	4	16	70	6					
1REM 040 200 S06	4	20	70	6					
1REM 050 150 S06	5	15	70	6					
1REM 050 220 S06	5	22	75	6					
1REM 060 270 S06	6	27	75	6					
1REM 080 260 S08	8	26	80	8					
1REM 080 320 S08	8	32	90	8					
1REM 100 300 S10	10	30	90	10					
1REM 120 350 S12	12	35	100	12					

FOR A.B.S



## 2 Flutes Micro Rib End Mills

VHM 2-Lp. Schaftfräser, Alu, non ferrous



- Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Minimize chattering by short flute design.
- Excellent tool rigidity by short flute design at high speed, feed machining.
- Reinforced edge design for preventing edge chipping.
- Excellent wear resistance by applying fine WC grade.

2 WC D D 30° Sharp Edge CUTTING DATA  
 диаметр D D Helix Angle Sharp Edge 372P

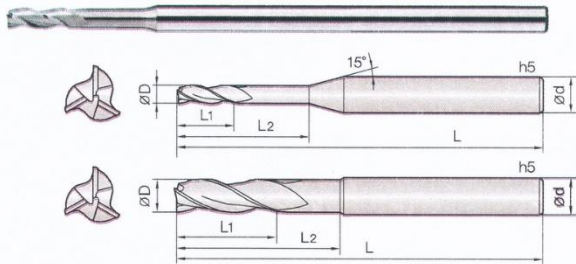
D Size	D Tolerance
ø0.2 ~ 5	+0 ~ -0.01mm
ø6	-0.01 ~ -0.025mm

Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2MRE 002 005 S04	0.2	0.3	0.5	40	4	2MRE 015 060 S04	1.5	3	6	50	4
2MRE 002 010 S04	0.2	0.3	1	40	4	2MRE 015 100 S04	1.5	3	10	50	4
2MRE 002 015 S04	0.2	0.3	1.5	40	4	2MRE 015 140 S04	1.5	3	14	50	4
2MRE 002 020 S04	0.2	0.3	2	40	4	2MRE 015 160 S04	1.5	3	16	50	4
2MRE 003 010 S04	0.3	0.45	1	40	4	2MRE 015 200 S04	1.5	3	20	60	4
2MRE 003 020 S04	0.3	0.45	2	40	4	2MRE 015 250 S04	1.5	3	25	60	4
2MRE 003 030 S04	0.3	0.45	3	40	4	2MRE 015 300 S04	1.5	3	30	70	4
2MRE 003 050 S04	0.3	0.45	5	40	4	2MRE 016 060 S04	1.6	3.2	6	50	4
2MRE 004 020 S04	0.4	0.6	2	40	4	2MRE 020 080 S04	2	4	8	50	4
2MRE 004 030 S04	0.4	0.6	3	40	4	2MRE 020 100 S04	2	4	10	50	4
2MRE 004 040 S04	0.4	0.6	4	40	4	2MRE 020 120 S04	2	4	12	50	4
2MRE 004 050 S04	0.4	0.6	5	40	4	2MRE 020 140 S04	2	4	14	50	4
2MRE 004 060 S04	0.4	0.6	6	40	4	2MRE 020 160 S04	2	4	16	50	4
2MRE 005 020 S04	0.5	1	2	45	4	2MRE 020 180 S04	2	4	18	50	4
2MRE 005 040 S04	0.5	1	4	45	4	2MRE 020 200 S04	2	4	20	60	4
2MRE 005 060 S04	0.5	1	6	45	4	2MRE 020 250 S04	2	4	25	60	4
2MRE 005 080 S04	0.5	1	8	45	4	2MRE 020 300 S04	2	4	30	70	4
2MRE 005 100 S04	0.5	1	10	45	4	2MRE 020 350 S04	2	4	35	80	4
2MRE 006 020 S04	0.6	1.2	2	45	4	2MRE 020 400 S04	2	4	40	80	4
2MRE 006 040 S04	0.6	1.2	4	45	4	2MRE 025 120 S04	2.5	5	12	60	4
2MRE 006 060 S04	0.6	1.2	6	45	4	2MRE 025 200 S04	2.5	5	20	60	4
2MRE 006 080 S04	0.6	1.2	8	45	4	2MRE 030 080 S06	3	6	8	70	6
2MRE 006 100 S04	0.6	1.2	10	45	4	2MRE 030 120 S06	3	6	12	70	6
2MRE 007 040 S04	0.7	1.4	4	45	4	2MRE 030 160 S06	3	6	16	70	6
2MRE 007 060 S04	0.7	1.4	6	45	4	2MRE 030 200 S06	3	6	20	70	6
2MRE 007 080 S04	0.7	1.4	8	45	4	2MRE 030 250 S06	3	6	25	70	6
2MRE 007 100 S04	0.7	1.4	10	45	4	2MRE 030 300 S06	3	6	30	80	6
2MRE 008 040 S04	0.8	1.6	4	45	4	2MRE 030 400 S06	3	6	40	90	6
2MRE 008 060 S04	0.8	1.6	6	45	4	2MRE 030 450 S06	3	6	45	90	6
2MRE 008 080 S04	0.8	1.6	8	45	4	2MRE 040 120 S06	4	8	12	70	6
2MRE 008 100 S04	0.8	1.6	10	45	4	2MRE 040 160 S06	4	8	16	70	6
2MRE 008 120 S04	0.8	1.6	12	45	4	2MRE 040 200 S06	4	8	20	70	6
2MRE 009 060 S04	0.9	1.8	6	45	4	2MRE 040 250 S06	4	8	25	70	6
2MRE 009 100 S04	0.9	1.8	10	45	4	2MRE 040 300 S06	4	8	30	70	6
2MRE 009 120 S04	0.9	1.8	12	45	4	2MRE 040 350 S06	4	8	35	80	6
2MRE 010 060 S04	1	2	6	50	4	2MRE 040 400 S06	4	8	40	80	6
2MRE 010 080 S04	1	2	8	50	4	2MRE 040 500 S06	4	8	50	100	6
2MRE 010 100 S04	1	2	10	50	4	2MRE 050 160 S06	5	10	16	80	6
2MRE 010 120 S04	1	2	12	50	4	2MRE 050 250 S06	5	10	25	80	6
2MRE 010 160 S04	1	2	16	50	4	2MRE 050 350 S06	5	10	35	80	6
2MRE 010 200 S04	1	2	20	60	4	2MRE 060 250 S06	6	12	25	80	6
2MRE 010 250 S04	1	2	25	60	4	2MRE 060 350 S06	6	12	35	80	6
2MRE 012 060 S04	1.2	2.4	6	50	4	2MRE 060 500 S06	6	12	50	120	6
2MRE 012 080 S04	1.2	2.4	8	50	4	2MRE 060 600 S06	6	12	60	120	6
2MRE 012 100 S04	1.2	2.4	10	50	4						
2MRE 012 120 S04	1.2	2.4	12	50	4						
2MRE 012 160 S04	1.2	2.4	16	50	4						
2MRE 014 060 S04	1.4	2.8	6	50	4						
2MRE 014 100 S04	1.4	2.8	10	50	4						
2MRE 014 160 S04	1.4	2.8	16	50	4						



# 3MRE 3 Flutes Micro Rib End Mills

VHM 3-Lp. Schafffräser, Alu, non ferrous



### • Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.

- Minimize chattering by short flute design.
- Excellent tool rigidity by short flute design at high speed, feed machining.
- Reinforced edge design for preventing edge chipping.
- Excellent wear resistance by applying fine WC grade.

3

WC  
이합자

D  
+0 -0.01

D  
-0.01 -0.025

D  
-0.015 -0.03

30°  
Helix Angle

Sharp Edge

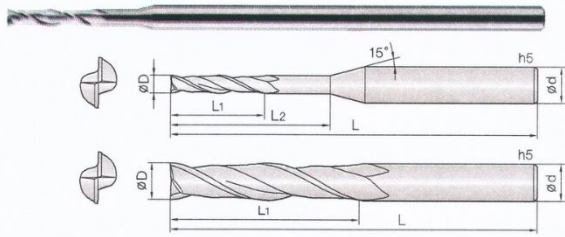
CUTTING  
DATA

ø1 ~ 4
ø6 ~ 12
ø16
371P

D Size	D Tolerance
ø1 ~ 4	+0 ~ -0.01mm
ø6 ~ 12	-0.01 ~ -0.025mm
ø16	-0.015 ~ -0.03mm

Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
3MRE 010 050 S04	1	3	5	70	4						
3MRE 010 100 S04	1	3	10	70	4						
3MRE 010 150 S04	1	3	15	70	4						
3MRE 010 200 S04	1	3	20	70	4						
3MRE 010 250 S04	1	3	25	70	4						
3MRE 015 100 S04	1.5	4.5	10	70	4						
3MRE 015 150 S04	1.5	4.5	15	70	4						
3MRE 015 200 S04	1.5	4.5	20	70	4						
3MRE 015 250 S04	1.5	4.5	25	70	4						
3MRE 015 300 S04	1.5	4.5	30	70	4						
3MRE 020 100 S04	2	6	10	70	4						
3MRE 020 150 S04	2	6	15	70	4						
3MRE 020 200 S04	2	6	20	70	4						
3MRE 020 250 S04	2	6	25	70	4						
3MRE 020 300 S04	2	6	30	70	4						
3MRE 030 200 080	3	15	20	80	3						
3MRE 030 200 S04	3	9	20	80	4						
3MRE 030 300 100	3	15	30	100	3						
3MRE 030 300 S04	3	9	30	80	4						
3MRE 040 200 080	4	12	20	80	4						
3MRE 040 300 100	4	12	30	100	4						
3MRE 060 300 100	6	18	30	100	6						
3MRE 060 400 150	6	18	40	150	6						
3MRE 080 400 120	8	24	40	120	8						
3MRE 080 500 150	8	24	50	150	8						
3MRE 100 500 120	10	30	50	120	10						
3MRE 100 600 150	10	30	60	150	10						
3MRE 120 600 150	12	36	60	150	12						
3MRE 160 700 160	16	54	70	160	16						

FOR A.B.S



- Endmills for Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Minimize chattering by even run-out and tolerance control.
- Long flute helps chip control in deep groove machining.
- Reinforced edge design for preventing edge chipping.
- Excellent wear resistance by applying fine WC grade.



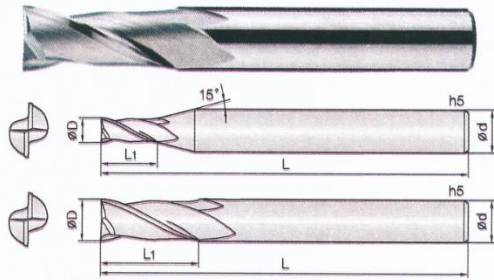
D Size	D Tolerance
$\phi 0.2 - 5$	+0 ~ -0.01mm
$\phi 6 - 12$	-0.01 ~ -0.025mm
$\phi 16$	-0.015 ~ -0.03mm

Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2MLE 002 010 S03	0.2	0.4	1	40	3	2MLE 010 300 S04	1	5	30	80	4
2MLE 002 015 S03	0.2	0.4	1.5	40	3	2MLE 010 350 S04	1	5	35	100	4
2MLE 002 020 S03	0.2	0.4	2	40	3	2MLE 010 400 S04	1	5	40	100	4
2MLE 003 010 S03	0.3	1	-	45	3	2MLE 015 100 S03	1.5	10	-	80	3
2MLE 003 015 S03	0.3	1	1.5	45	3	2MLE 015 100 S04	1.5	10	-	80	4
2MLE 003 018 S03	0.3	1.8	-	45	3	2MLE 015 150 S03	1.5	10	15	80	3
2MLE 003 020 S03	0.3	1	2	45	3	2MLE 015 150 S04	1.5	10	15	80	4
2MLE 003 025 S03	0.3	1	2.5	45	3	2MLE 015 200 S03	1.5	10	20	80	3
2MLE 003 030 S03	0.3	1	3	45	3	2MLE 015 200 S04	1.5	10	20	80	4
2MLE 003 040 S03	0.3	1	4	45	3	2MLE 015 250 S03	1.5	10	25	80	3
2MLE 004 012 S03	0.4	1.2	-	45	3	2MLE 015 250 S04	1.5	10	25	80	4
2MLE 004 020 S03	0.4	2	-	45	3	2MLE 015 300 S03	1.5	10	30	80	3
2MLE 004 030 S03	0.4	1.2	3	45	3	2MLE 015 300 S04	1.5	10	30	80	4
2MLE 004 040 S03	0.4	1.2	4	45	3	2MLE 015 350 S04	1.5	10	35	100	4
2MLE 004 050 S03	0.4	1.2	5	45	3	2MLE 015 400 S04	1.5	10	40	100	4
2MLE 005 015 S03	0.5	1.5	-	50	3	2MLE 020 100 S03	2	10	-	80	3
2MLE 005 020 S03	0.5	2	-	50	3	2MLE 020 100 S04	2	10	-	80	4
2MLE 005 030 S03	0.5	1.5	3	50	3	2MLE 020 150 S03	2	10	15	80	3
2MLE 005 040 S03	0.5	1.5	4	50	3	2MLE 020 150 S04	2	10	15	80	4
2MLE 005 050 S03	0.5	1.5	5	50	3	2MLE 020 200 S03	2	10	20	80	3
2MLE 005 060 S03	0.5	1.5	6	50	3	2MLE 020 200 S04	2	10	20	80	4
2MLE 005 080 S03	0.5	1.5	8	50	3	2MLE 020 250 S03	2	10	25	80	3
2MLE 005 100 S03	0.5	1.5	10	50	3	2MLE 020 250 S04	2	10	25	80	4
2MLE 006 030 S03	0.6	3	-	50	3	2MLE 020 300 S03	2	10	30	80	3
2MLE 006 060 S03	0.6	3	6	50	3	2MLE 020 300 S04	2	10	30	80	4
2MLE 006 080 S03	0.6	3	8	50	3	2MLE 020 350 S03	2	10	35	80	3
2MLE 006 100 S03	0.6	3	10	50	3	2MLE 020 350 S04	2	10	35	100	4
2MLE 007 030 S03	0.7	3	-	50	3	2MLE 020 400 S03	2	10	40	80	3
2MLE 007 070 S03	0.7	3	7	50	3	2MLE 020 400 S04	2	10	40	100	4
2MLE 007 100 S03	0.7	3	10	50	3	2MLE 025 100 S03	2.5	10	-	80	3
2MLE 007 120 S03	0.7	3	12	50	3	2MLE 025 150 S03	2.5	15	-	80	3
2MLE 008 040 S03	0.8	4	-	50	3	2MLE 025 200 S03	2.5	15	20	80	3
2MLE 008 080 S03	0.8	4	8	50	3	2MLE 030 100 060	3	10	-	60	3
2MLE 008 100 S03	0.8	4	10	50	3	2MLE 030 200 080	3	20	-	80	3
2MLE 008 120 S03	0.8	4	12	50	3	2MLE 030 200 100	3	20	-	100	3
2MLE 009 040 S03	0.9	4	-	50	3	2MLE 030 200 120	3	20	-	120	3
2MLE 009 060 S03	0.9	4	6	50	3	2MLE 030 150 S06	3	15	-	100	6
2MLE 009 080 S03	0.9	4	8	50	3	2MLE 030 200 S06	3	15	20	100	6
2MLE 009 100 S03	0.9	4	10	50	3	2MLE 030 250 S06	3	15	25	100	6
2MLE 010 050 S03	1	5	-	80	3	2MLE 030 300 S06	3	15	30	100	6
2MLE 010 050 S04	1	5	-	80	4	2MLE 040 200 080	4	20	-	80	4
2MLE 010 100 S03	1	5	10	80	3	2MLE 040 200 100	4	20	-	100	4
2MLE 010 100 S04	1	5	10	80	4	2MLE 040 200 130	4	20	-	130	4
2MLE 010 150 S03	1	5	15	80	3	2MLE 040 200 S06	4	20	-	100	6
2MLE 010 150 S04	1	5	15	80	4	2MLE 040 250 S06	4	20	25	100	6
2MLE 010 200 S03	1	5	20	80	3	2MLE 040 300 S06	4	20	30	100	6
2MLE 010 200 S04	1	5	20	80	4	2MLE 040 400 S06	4	20	40	120	6
2MLE 010 250 S03	1	5	25	80	3	2MLE 050 200 S06	5	20	-	100	6
2MLE 010 250 S04	1	5	25	80	4	2MLE 050 300 100	5	30	-	100	5
2MLE 010 300 S03	1	5	30	80	3	2MLE 050 300 120	5	30	-	120	5



Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2MLE 060 250 080	6	25	-	80	6						
2MLE 060 300 080	6	30	-	80	6						
2MLE 060 400 100	6	40	-	100	6						
2MLE 060 400 120	6	40	-	120	6						
2MLE 060 400 150	6	40	-	150	6						
2MLE 080 300 080	8	30	-	80	8						
2MLE 080 350 090	8	35	-	90	8						
2MLE 080 400 100	8	40	-	100	8						
2MLE 080 450 120	8	45	-	120	8						
2MLE 080 450 150	8	45	-	150	8						
2MLE 100 300 080	10	30	-	80	10						
2MLE 100 350 090	10	35	-	90	10						
2MLE 100 400 100	10	40	-	100	10						
2MLE 100 500 120	10	50	-	120	10						
2MLE 100 500 150	10	50	-	150	10						
2MLE 120 300 090	12	30	-	90	12						
2MLE 120 400 100	12	40	-	100	12						
2MLE 120 500 110	12	50	-	110	12						
2MLE 120 550 130	12	55	-	130	12						
2MLE 120 550 150	12	55	-	150	12						
2MLE 160 700 160	16	70	-	160	16						

FOR A.B.S



- Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Reinforced edge design for preventing edge chipping.
- Improved tool performance by even run-out and tolerance control.
- Excellent wear resistance by applying fine WC grade.

2

WC  
마립자

D  
+0 -0.005  
Ø0.1 ~ 0.15

D  
+0 -0.01  
Ø0.2 ~ 5

D  
-0.01 -0.025  
Ø6 ~ 12

30°  
Helix Angle

Sharp Edge

CUTTING  
DATA  
373P

D Size	D Tolerance
Ø0.1 ~ 0.15	+0 ~ -0.005mm
Ø0.2 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm

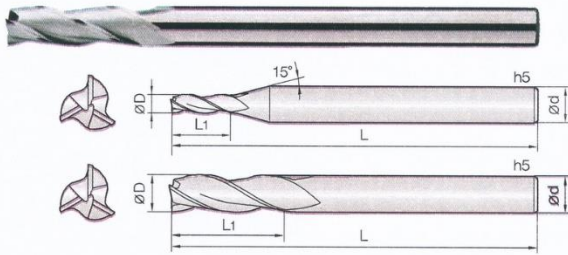
Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d
2MEM 001 002 S03	0.1	0.2	40	3					
2MEM 0015 003 S03	0.15	0.3	40	3					
2MEM 002 004 S03	0.2	0.4	40	3					
2MEM 003 006 S03	0.3	0.6	40	3					
2MEM 004 008 S03	0.4	0.8	40	3					
2MEM 005 010 S03	0.5	1	40	3					
2MEM 006 012 S03	0.6	1.2	40	3					
2MEM 007 014 S03	0.7	1.4	40	3					
2MEM 008 016 S03	0.8	1.6	40	3					
2MEM 009 018 S03	0.9	1.8	40	3					
2MEM 010 025 S03	1	2.5	40	3					
2MEM 010 025 S06	1	2.5	40	6					
2MEM 011 025 S03	1.1	2.5	40	3					
2MEM 012 035 S03	1.2	3.5	40	3					
2MEM 013 040 S03	1.3	4	40	3					
2MEM 014 040 S03	1.4	4	40	3					
2MEM 015 040 S03	1.5	4	40	3					
2MEM 015 040 S06	1.5	4	40	6					
2MEM 016 040 S03	1.6	4	40	3					
2MEM 017 050 S03	1.7	5	40	3					
2MEM 018 055 S03	1.8	5.5	40	3					
2MEM 019 060 S03	1.9	6	40	3					
2MEM 020 060 S03	2	6	40	3					
2MEM 020 060 S06	2	6	40	6					
2MEM 025 080 S03	2.5	8	40	3					
2MEM 025 080 S06	2.5	8	40	6					
2MEM 030 080 S03	3	8	45	3					
2MEM 030 080 S06	3	8	45	6					
2MEM 035 100 S06	3.5	10	45	6					
2MEM 040 110 S06	4	11	45	6					
2MEM 045 110 S06	4.5	11	45	6					
2MEM 050 130 S06	5	13	50	6					
2MEM 060 130 S06	6	13	50	6					
2MEM 070 160 S08	7	16	60	8					
2MEM 080 190 S08	8	19	60	8					
2MEM 090 190 S10	9	19	70	10					
2MEM 100 220 S10	10	22	70	10					
2MEM 120 260 S12	12	26	75	12					

FOR A.B.S



3 Flutes End Mills

VHM 3-Lp. Schaftfräser, Alu, non ferrous



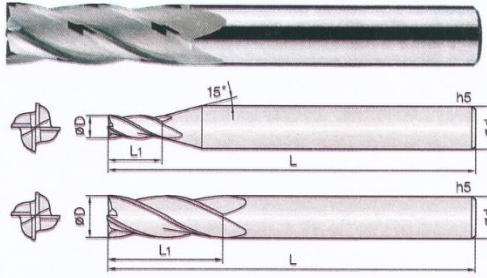
- Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Reinforced edge design for preventing edge chipping.
- Minimize chattering by short flute design
- Excellent wear resistance by applying fine WC grade.



D Size	D Tolerance
ø0.3 ~ 4	+0 ~ -0.01mm
ø6	-0.01 ~ -0.025mm

Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d
3MEM 003 008 S04	0.3	0.8	40	4					
3MEM 003 012 S04	0.3	1.2	40	4					
3MEM 004 010 S04	0.4	1	40	4					
3MEM 004 015 S04	0.4	1.5	40	4					
3MEM 005 013 S04	0.5	1.3	40	4					
3MEM 005 020 S04	0.5	2	45	4					
3MEM 006 015 S04	0.6	1.5	40	4					
3MEM 006 024 S04	0.6	2.4	45	4					
3MEM 007 018 S04	0.7	1.8	40	4					
3MEM 007 028 S04	0.7	2.8	45	4					
3MEM 008 020 S04	0.8	2	40	4					
3MEM 008 032 S04	0.8	3.2	45	4					
3MEM 009 025 S04	0.9	2.5	40	4					
3MEM 009 036 S04	0.9	3.6	45	4					
3MEM 010 025 S04	1	2.5	40	4					
3MEM 010 040 S04	1	4	45	4					
3MEM 010 060 S04	1	6	50	4					
3MEM 012 030 S04	1.2	3	40	4					
3MEM 012 050 S04	1.2	5	40	4					
3MEM 012 070 S04	1.2	7	50	4					
3MEM 015 040 S04	1.5	4	40	4					
3MEM 015 060 S04	1.5	6	40	4					
3MEM 015 090 S04	1.5	9	60	4					
3MEM 020 050 S04	2	5	40	4					
3MEM 020 080 S04	2	8	50	4					
3MEM 020 100 S04	2	10	60	4					
3MEM 025 060 S04	2.5	6	45	4					
3MEM 025 100 S04	2.5	10	50	4					
3MEM 025 150 S04	2.5	15	60	4					
3MEM 030 080 S04	3	8	50	4					
3MEM 030 120 S04	3	12	60	4					
3MEM 030 150 S04	3	15	80	4					
3MEM 040 100 S04	4	10	50	4					
3MEM 040 150 S04	4	15	80	4					
3MEM 060 200 S06	6	20	80	6					
3MEM 060 300 S06	6	30	110	6					

FOR A.B.S



- Endmills for Mild steel, Acryl, A.B.S, Aluminum, non-ferrous and non-metallic materials.
- Reinforced edge design for preventing edge chipping.
- Minimize chattering by even run-out and tolerance control.
- Excellent wear resistance by applying fine WC grade.

4

WC  
마질재

D  
+0 -0.01  
Ø1 ~ 5

D  
-0.01 -0.025  
Ø6 ~ 12

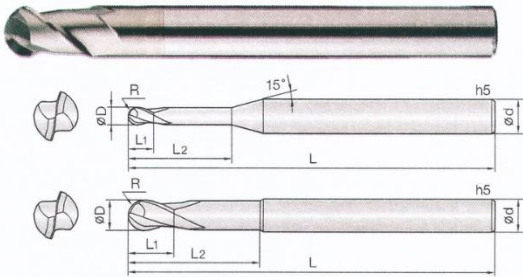
30°  
Helix Angle  
Sharp Edge

CUTTING  
DATA  
373P

D Size	D Tolerance
Ø1 ~ 5	+0 ~ -0.01mm
Ø6 ~ 12	-0.01 ~ -0.025mm

Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d	Order Number	Diameter D	Length of cut L1	Overall Length L	Shank Dia d
4MEM 010 025 S04	1	2.5	40	4					
4MEM 010 040 S04	1	4	45	4					
4MEM 015 040 S04	1.5	4	40	4					
4MEM 015 060 S04	1.5	6	45	4					
4MEM 020 050 S04	2	5	40	4					
4MEM 020 080 S04	2	8	45	4					
4MEM 025 080 S04	2.5	8	45	4					
4MEM 025 100 S04	2.5	10	50	4					
4MEM 030 080 S06	3	8	45	6					
4MEM 030 120 S06	3	12	50	6					
4MEM 040 110 S06	4	11	45	6					
4MEM 040 160 S06	4	16	55	6					
4MEM 050 130 S06	5	13	50	6					
4MEM 050 200 S06	5	20	60	6					
4MEM 060 130 S06	6	13	50	6					
4MEM 060 240 S06	6	24	70	6					
4MEM 080 200 S08	8	20	60	8					
4MEM 080 320 S08	8	32	80	8					
4MEM 100 220 S10	10	22	70	10					
4MEM 100 400 S10	10	40	100	10					
4MEM 120 260 S12	12	26	75	12					
4MEM 120 480 S12	12	48	100	12					

FOR A.B.S



- Endmills for copper, copper alloy, nonferrous and non-metallic materials.
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Minimize fracturing by high TRS fine(0.5 μm) WC grade.
- High speed, feed applicable by 45° degree helix and deep chip pocket design

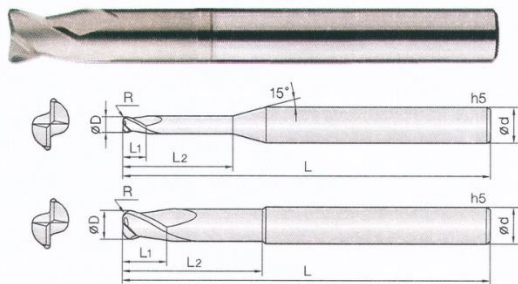


D Size	D Tolerance
ø0.5 ~ 5	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm
ø16	-0.01 ~ -0.02mm

FOR COPPER

Order Number	Diameter R x ØD	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter R x ØD	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2COB 005 010 S04	0.25R X 0.5	0.7	1	45	4	2COB 025 200 S06	1.25R X 2.5	4	20	60	6
2COB 005 020 S04	0.25R X 0.5	0.7	2	45	4	2COB 030 080 S06	1.5R X 3	4.5	8	60	6
2COB 005 030 S04	0.25R X 0.5	0.7	3	45	4	2COB 030 120 S06	1.5R X 3	4.5	12	60	6
2COB 005 040 S04	0.25R X 0.5	0.7	4	45	4	2COB 030 160 S06	1.5R X 3	4.5	16	60	6
2COB 005 050 S04	0.25R X 0.5	0.7	5	45	4	2COB 030 200 S06	1.5R X 3	4.5	20	60	6
2COB 005 060 S04	0.25R X 0.5	0.7	6	45	4	2COB 030 250 S06	1.5R X 3	4.5	25	70	6
2COB 006 020 S04	0.3R X 0.6	0.9	2	45	4	2COB 030 300 S06	1.5R X 3	4.5	30	70	6
2COB 006 030 S04	0.3R X 0.6	0.9	3	45	4	2COB 030 400 S06	1.5R X 3	4.5	40	80	6
2COB 006 040 S04	0.3R X 0.6	0.9	4	45	4	2COB 040 100 S06	2R X 4	6	10	60	6
2COB 006 050 S04	0.3R X 0.6	0.9	5	45	4	2COB 040 160 S06	2R X 4	6	16	60	6
2COB 006 060 S04	0.3R X 0.6	0.9	6	45	4	2COB 040 200 S06	2R X 4	6	20	60	6
2COB 006 080 S04	0.3R X 0.6	0.9	8	45	4	2COB 040 250 S06	2R X 4	6	25	70	6
2COB 006 100 S04	0.3R X 0.6	0.9	10	45	4	2COB 040 300 S06	2R X 4	6	30	70	6
2COB 008 020 S04	0.4R X 0.8	1.2	2	45	4	2COB 040 400 S06	2R X 4	6	40	80	6
2COB 008 030 S04	0.4R X 0.8	1.2	3	45	4	2COB 050 160 S06	2.5R X 5	8	16	80	6
2COB 008 040 S04	0.4R X 0.8	1.2	4	45	4	2COB 050 200 S06	2.5R X 5	8	20	80	6
2COB 008 060 S04	0.4R X 0.8	1.2	6	45	4	2COB 050 250 S06	2.5R X 5	8	25	80	6
2COB 008 080 S04	0.4R X 0.8	1.2	8	45	4	2COB 060 150 S06	3R X 6	9	15	90	6
2COB 008 100 S04	0.4R X 0.8	1.2	10	45	4	2COB 060 300 S06	3R X 6	9	30	90	6
2COB 008 120 S04	0.4R X 0.8	1.2	12	45	4	2COB 060 400 S06	3R X 6	9	40	90	6
2COB 010 030 S04	0.5R X 1	1.5	3	50	4	2COB 080 200 S08	4R X 8	12	20	100	8
2COB 010 050 S04	0.5R X 1	1.5	5	50	4	2COB 100 250 S10	5R X 10	15	25	100	10
2COB 010 080 S04	0.5R X 1	1.5	8	50	4	2COB 120 300 S12	6R X 12	18	30	110	12
2COB 010 100 S04	0.5R X 1	1.5	10	50	4	2COB 160 600 S16	8R X 16	30	60	160	16
2COB 010 120 S04	0.5R X 1	1.5	12	50	4						
2COB 010 160 S04	0.5R X 1	1.5	16	50	4						
2COB 010 200 S04	0.5R X 1	1.5	20	50	4						
2COB 012 030 S04	0.6R X 1.2	1.8	3	50	4						
2COB 012 040 S04	0.6R X 1.2	1.8	4	50	4						
2COB 012 060 S04	0.6R X 1.2	1.8	6	50	4						
2COB 012 080 S04	0.6R X 1.2	1.8	8	50	4						
2COB 012 100 S04	0.6R X 1.2	1.8	10	50	4						
2COB 012 120 S04	0.6R X 1.2	1.8	12	50	4						
2COB 015 050 S04	0.75R X 1.5	2	5	50	4						
2COB 015 080 S04	0.75R X 1.5	2	8	50	4						
2COB 015 100 S04	0.75R X 1.5	2	10	50	4						
2COB 015 120 S04	0.75R X 1.5	2	12	50	4						
2COB 015 160 S04	0.75R X 1.5	2	16	50	4						
2COB 015 200 S04	0.75R X 1.5	2	20	50	4						
2COB 020 050 S06	1R X 2	3	5	50	6						
2COB 020 080 S06	1R X 2	3	8	50	6						
2COB 020 100 S06	1R X 2	3	10	50	6						
2COB 020 120 S06	1R X 2	3	12	60	6						
2COB 020 160 S06	1R X 2	3	16	60	6						
2COB 020 200 S06	1R X 2	3	20	60	6						
2COB 020 250 S06	1R X 2	3	25	65	6						
2COB 025 060 S06	1.25R X 2.5	4	6	50	6						
2COB 025 100 S06	1.25R X 2.5	4	10	50	6						
2COB 025 120 S06	1.25R X 2.5	4	12	60	6						
2COB 025 160 S06	1.25R X 2.5	4	16	60	6						

### VHM 2-Lp. Eckradiusfräser, Kupfer, non ferrous



- Endmills for copper, copper alloy, nonferrous and non-metallic materials.
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- Smooth chip outflow by deep chip pocket.
- Minimize fracturing by high TRS fine(0.5µm) WC grade.



D Size	D Tolerance
ø1 ~ 4	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2COR 010 001 040	1 X R0.1	1.5	4	50	4	2COR 020 001 250	2 X R0.1	3	25	60	4
2COR 010 001 060	1 X R0.1	1.5	6	50	4	2COR 020 002 060	2 X R0.2	3	6	50	4
2COR 010 001 080	1 X R0.1	1.5	8	50	4	2COR 020 002 100	2 X R0.2	3	10	50	4
2COR 010 001 100	1 X R0.1	1.5	10	50	4	2COR 020 002 120	2 X R0.2	3	12	50	4
2COR 010 001 120	1 X R0.1	1.5	12	50	4	2COR 020 002 160	2 X R0.2	3	16	50	4
2COR 010 001 160	1 X R0.1	1.5	16	50	4	2COR 020 002 200	2 X R0.2	3	20	50	4
2COR 010 001 200	1 X R0.1	1.5	20	50	4	2COR 020 002 250	2 X R0.2	3	25	60	4
2COR 010 002 040	1 X R0.2	1.5	4	50	4	2COR 020 003 060	2 X R0.3	3	6	50	4
2COR 010 002 060	1 X R0.2	1.5	6	50	4	2COR 020 003 100	2 X R0.3	3	10	50	4
2COR 010 002 080	1 X R0.2	1.5	8	50	4	2COR 020 003 120	2 X R0.3	3	12	50	4
2COR 010 002 100	1 X R0.2	1.5	10	50	4	2COR 020 003 160	2 X R0.3	3	16	50	4
2COR 010 002 120	1 X R0.2	1.5	12	50	4	2COR 020 003 200	2 X R0.3	3	20	50	4
2COR 010 002 160	1 X R0.2	1.5	16	50	4	2COR 020 003 250	2 X R0.3	3	25	60	4
2COR 010 002 200	1 X R0.2	1.5	20	50	4	2COR 020 005 060	2 X R0.5	3	6	50	4
2COR 010 003 040	1 X R0.3	1.5	4	50	4	2COR 020 005 100	2 X R0.5	3	10	50	4
2COR 010 003 060	1 X R0.3	1.5	6	50	4	2COR 020 005 120	2 X R0.5	3	12	50	4
2COR 010 003 080	1 X R0.3	1.5	8	50	4	2COR 020 005 140	2 X R0.5	3	14	50	4
2COR 010 003 100	1 X R0.3	1.5	10	50	4	2COR 020 005 160	2 X R0.5	3	16	50	4
2COR 010 003 120	1 X R0.3	1.5	12	50	4	2COR 020 005 200	2 X R0.5	3	20	50	4
2COR 010 003 160	1 X R0.3	1.5	16	50	4	2COR 020 005 250	2 X R0.5	3	25	60	4
2COR 010 003 200	1 X R0.3	1.5	20	50	4	2COR 025 001 060	2.5 X R0.1	3.5	6	50	4
2COR 015 001 060	1.5 X R0.1	2	6	50	4	2COR 025 001 100	2.5 X R0.1	3.5	10	50	4
2COR 015 001 100	1.5 X R0.1	2	10	50	4	2COR 025 001 120	2.5 X R0.1	3.5	12	50	4
2COR 015 001 120	1.5 X R0.1	2	12	50	4	2COR 025 001 160	2.5 X R0.1	3.5	16	50	4
2COR 015 001 160	1.5 X R0.1	2	16	50	4	2COR 025 001 200	2.5 X R0.1	3.5	20	50	4
2COR 015 001 200	1.5 X R0.1	2	20	50	4	2COR 025 001 250	2.5 X R0.1	3.5	25	60	4
2COR 015 001 250	1.5 X R0.1	2	25	60	4	2COR 025 002 060	2.5 X R0.2	3.5	6	50	4
2COR 015 002 060	1.5 X R0.2	2	6	50	4	2COR 025 002 100	2.5 X R0.2	3.5	10	50	4
2COR 015 002 100	1.5 X R0.2	2	10	50	4	2COR 025 002 120	2.5 X R0.2	3.5	12	50	4
2COR 015 002 120	1.5 X R0.2	2	12	50	4	2COR 025 002 160	2.5 X R0.2	3.5	16	50	4
2COR 015 002 160	1.5 X R0.2	2	16	50	4	2COR 025 002 200	2.5 X R0.2	3.5	20	50	4
2COR 015 002 200	1.5 X R0.2	2	20	50	4	2COR 025 002 250	2.5 X R0.2	3.5	25	60	4
2COR 015 002 250	1.5 X R0.2	2	25	60	4	2COR 025 003 060	2.5 X R0.3	3.5	6	50	4
2COR 015 003 060	1.5 X R0.3	2	6	50	4	2COR 025 003 100	2.5 X R0.3	3.5	10	50	4
2COR 015 003 100	1.5 X R0.3	2	10	50	4	2COR 025 003 120	2.5 X R0.3	3.5	12	50	4
2COR 015 003 120	1.5 X R0.3	2	12	50	4	2COR 025 003 160	2.5 X R0.3	3.5	16	50	4
2COR 015 003 160	1.5 X R0.3	2	16	50	4	2COR 025 003 200	2.5 X R0.3	3.5	20	50	4
2COR 015 003 200	1.5 X R0.3	2	20	50	4	2COR 025 003 250	2.5 X R0.3	3.5	25	60	4
2COR 015 003 250	1.5 X R0.3	2	25	60	4	2COR 025 005 060	2.5 X R0.5	3.5	6	50	4
2COR 015 005 060	1.5 X R0.5	2	6	50	4	2COR 025 005 100	2.5 X R0.5	3.5	10	50	4
2COR 015 005 100	1.5 X R0.5	2	10	50	4	2COR 025 005 120	2.5 X R0.5	3.5	12	50	4
2COR 015 005 120	1.5 X R0.5	2	12	50	4	2COR 025 005 160	2.5 X R0.5	3.5	16	50	4
2COR 015 005 160	1.5 X R0.5	2	16	50	4	2COR 025 005 200	2.5 X R0.5	3.5	20	50	4
2COR 015 005 200	1.5 X R0.5	2	20	50	4	2COR 025 005 250	2.5 X R0.5	3.5	25	60	4
2COR 015 005 250	1.5 X R0.5	2	25	60	4	2COR 030 001 100	3 X R0.1	4	10	55	6
2COR 020 001 060	2 X R0.1	3	6	50	4	2COR 030 001 120	3 X R0.1	4	12	55	6
2COR 020 001 100	2 X R0.1	3	10	50	4	2COR 030 001 160	3 X R0.1	4	16	55	6
2COR 020 001 120	2 X R0.1	3	12	50	4	2COR 030 001 200	3 X R0.1	4	20	60	6
2COR 020 001 160	2 X R0.1	3	16	50	4	2COR 030 001 250	3 X R0.1	4	25	65	6
2COR 020 001 200	2 X R0.1	3	20	50	4	2COR 030 001 300	3 X R0.1	4	30	70	6

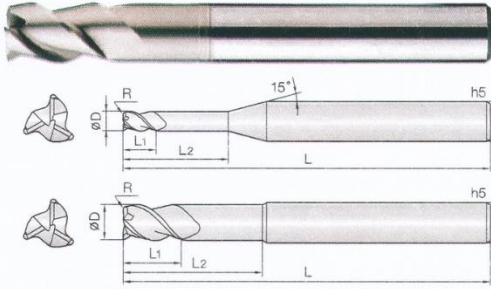
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Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
2COR 030 001 350	3 X R0.1	4	35	75	6	2COR 040 005 160	4 X R0.5	5	16	55	6
2COR 030 001 400	3 X R0.1	4	40	80	6	2COR 040 005 200	4 X R0.5	5	20	60	6
2COR 030 002 100	3 X R0.2	4	10	55	6	2COR 040 005 300	4 X R0.5	5	30	70	6
2COR 030 002 120	3 X R0.2	4	12	55	6	2COR 040 005 400	4 X R0.5	5	40	80	6
2COR 030 002 160	3 X R0.2	4	16	55	6	2COR 040 010 120	4 X R1	5	12	55	6
2COR 030 002 200	3 X R0.2	4	20	60	6	2COR 040 010 160	4 X R1	5	16	55	6
2COR 030 002 250	3 X R0.2	4	25	65	6	2COR 040 010 200	4 X R1	5	20	60	6
2COR 030 002 300	3 X R0.2	4	30	70	6	2COR 040 010 300	4 X R1	5	30	70	6
2COR 030 002 350	3 X R0.2	4	35	75	6	2COR 040 010 400	4 X R1	5	40	80	6
2COR 030 002 400	3 X R0.2	4	40	80	6	2COR 060 001 200	6 X R0.1	7	20	60	6
2COR 030 003 100	3 X R0.3	4	10	55	6	2COR 060 002 200	6 X R0.2	7	20	60	6
2COR 030 003 120	3 X R0.3	4	12	55	6	2COR 060 003 200	6 X R0.3	7	20	60	6
2COR 030 003 160	3 X R0.3	4	16	55	6	2COR 060 005 200	6 X R0.5	7	20	60	6
2COR 030 003 200	3 X R0.3	4	20	60	6	2COR 060 010 200	6 X R1	7	20	60	6
2COR 030 003 250	3 X R0.3	4	25	65	6	2COR 060 015 200	6 X R1.5	7	20	60	6
2COR 030 003 300	3 X R0.3	4	30	70	6	2COR 080 005 250	8 X R0.5	9	25	65	8
2COR 030 003 350	3 X R0.3	4	35	75	6	2COR 080 010 250	8 X R1	9	25	65	8
2COR 030 003 400	3 X R0.3	4	40	80	6	2COR 080 015 250	8 X R1.5	9	25	65	8
2COR 030 005 100	3 X R0.5	4	10	55	6	2COR 100 005 320	10 X R0.5	11	32	70	10
2COR 030 005 120	3 X R0.5	4	12	55	6	2COR 100 010 320	10 X R1	11	32	70	10
2COR 030 005 160	3 X R0.5	4	16	55	6	2COR 100 015 320	10 X R1.5	11	32	70	10
2COR 030 005 200	3 X R0.5	4	20	60	6	2COR 120 005 380	12 X R0.5	12	38	80	12
2COR 030 005 250	3 X R0.5	4	25	65	6	2COR 120 010 380	12 X R1	12	38	80	12
2COR 030 005 300	3 X R0.5	4	30	70	6	2COR 120 015 380	12 X R1.5	12	38	80	12
2COR 030 005 350	3 X R0.5	4	35	75	6						
2COR 030 005 400	3 X R0.5	4	40	80	6						
2COR 030 010 100	3 X R1	4	10	55	6						
2COR 030 010 120	3 X R1	4	12	55	6						
2COR 030 010 160	3 X R1	4	16	55	6						
2COR 030 010 200	3 X R1	4	20	60	6						
2COR 030 010 250	3 X R1	4	25	65	6						
2COR 030 010 300	3 X R1	4	30	70	6						
2COR 030 010 350	3 X R1	4	35	75	6						
2COR 030 010 400	3 X R1	4	40	80	6						
2COR 040 001 120	4 X R0.1	5	12	55	6						
2COR 040 001 160	4 X R0.1	5	16	55	6						
2COR 040 001 200	4 X R0.1	5	20	60	6						
2COR 040 001 300	4 X R0.1	5	30	70	6						
2COR 040 001 400	4 X R0.1	5	40	80	6						
2COR 040 002 120	4 X R0.2	5	12	55	6						
2COR 040 002 160	4 X R0.2	5	16	55	6						
2COR 040 002 200	4 X R0.2	5	20	60	6						
2COR 040 002 300	4 X R0.2	5	30	70	6						
2COR 040 002 400	4 X R0.2	5	40	80	6						
2COR 040 003 120	4 X R0.3	5	12	55	6						
2COR 040 003 160	4 X R0.3	5	16	55	6						
2COR 040 003 200	4 X R0.3	5	20	60	6						
2COR 040 003 300	4 X R0.3	5	30	70	6						
2COR 040 003 400	4 X R0.3	5	40	80	6						
2COR 040 005 120	4 X R0.5	5	12	55	6						

VHM 3-Lp. Eckradiusfräser, Kupfer, non ferrous



- Endmills for copper, copper alloy, nonferrous and non-metallic materials.
- JCRO coating provides wear resistance improvement as well as avoid edge stress in various applications.
- High speed, feed applicable by 3 flute 45° degree helix and deep chip pocket design.
- Minimize fracturing by high TRS fine(0.5µm) WC grade.



D Size	D Tolerance
ø1 ~ 4	+0 ~ -0.01mm
ø6 ~ 12	-0.005 ~ -0.015mm

Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d	Order Number	Diameter D x R	Length of cut L1	Effective Length L2	Overall Length L	Shank Dia d
3COR 010 001 030	1 X R0.1	1.5	3	45	4	3COR 060 010 300	6 X R1	9	30	70	6
3COR 010 001 060	1 X R0.1	1.5	6	45	4	3COR 080 003 S08	8 X R0.3	12	25	65	8
3COR 010 001 100	1 X R0.1	1.5	10	45	4	3COR 080 005 S08	8 X R0.5	12	25	65	8
3COR 010 002 030	1 X R0.2	1.5	3	45	4	3COR 080 010 S08	8 X R1	12	25	65	8
3COR 010 002 060	1 X R0.2	1.5	6	45	4	3COR 100 005 S10	10 X R0.5	15	30	70	10
3COR 010 002 100	1 X R0.2	1.5	10	45	4	3COR 100 010 S10	10 X R1	15	30	70	10
3COR 015 001 050	1.5 X R0.1	2	5	45	4	3COR 120 005 S12	12 X R0.5	20	35	80	12
3COR 015 001 080	1.5 X R0.1	2	8	45	4	3COR 120 010 S12	12 X R1	20	35	80	12
3COR 015 001 120	1.5 X R0.1	2	12	45	4						
3COR 015 002 050	1.5 X R0.2	2	5	45	4						
3COR 015 002 080	1.5 X R0.2	2	8	45	4						
3COR 015 002 120	1.5 X R0.2	2	12	45	4						
3COR 020 001 060	2 X R0.1	3	6	45	4						
3COR 020 001 100	2 X R0.1	3	10	45	4						
3COR 020 001 140	2 X R0.1	3	14	45	4						
3COR 020 002 060	2 X R0.2	3	6	45	4						
3COR 020 002 100	2 X R0.2	3	10	45	4						
3COR 020 002 140	2 X R0.2	3	14	45	4						
3COR 025 001 080	2.5 X R0.1	3.5	8	45	4						
3COR 025 001 120	2.5 X R0.1	3.5	12	45	4						
3COR 025 001 160	2.5 X R0.1	3.5	16	45	4						
3COR 025 002 080	2.5 X R0.2	3.5	8	45	4						
3COR 025 002 120	2.5 X R0.2	3.5	12	45	4						
3COR 025 002 160	2.5 X R0.2	3.5	16	45	4						
3COR 025 005 080	2.5 X R0.5	3.5	8	45	4						
3COR 025 005 120	2.5 X R0.5	3.5	12	45	4						
3COR 025 005 160	2.5 X R0.5	3.5	16	45	4						
3COR 030 002 100	3 X R0.2	4	10	50	4						
3COR 030 002 160	3 X R0.2	4	16	50	4						
3COR 030 002 200	3 X R0.2	4	20	50	4						
3COR 030 003 100	3 X R0.3	4	10	50	4						
3COR 030 003 160	3 X R0.3	4	16	50	4						
3COR 030 003 200	3 X R0.3	4	20	50	4						
3COR 030 005 100	3 X R0.5	4	10	50	4						
3COR 030 005 160	3 X R0.5	4	16	50	4						
3COR 030 005 200	3 X R0.5	4	20	50	4						
3COR 040 002 120	4 X R0.2	6	12	50	4						
3COR 040 002 160	4 X R0.2	6	16	50	4						
3COR 040 002 200	4 X R0.2	6	20	50	4						
3COR 040 003 120	4 X R0.3	6	12	50	4						
3COR 040 003 160	4 X R0.3	6	16	50	4						
3COR 040 003 200	4 X R0.3	6	20	50	4						
3COR 040 005 120	4 X R0.5	6	12	50	4						
3COR 040 005 160	4 X R0.5	6	16	50	4						
3COR 040 005 200	4 X R0.5	6	20	50	4						
3COR 060 003 200	6 X R0.3	9	20	55	6						
3COR 060 003 300	6 X R0.3	9	30	70	6						
3COR 060 005 200	6 X R0.5	9	20	55	6						
3COR 060 005 300	6 X R0.5	9	30	70	6						
3COR 060 010 200	6 X R1	9	20	55	6						

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