UH AND MH

STEEL AND HARDENED STEEL
< 70 HRC (UH) AND 30÷ 70 HRC (MH)

Nano micrograin and UH RED and MH, TiSi base coating for high performance milling on hardened steel up to 70 HRC. High reliability and long life in dry milling operation adopting high speed or high feed strategy. The cutting geometry has been specifically designed to obtain high precision and high quality surface finishing.

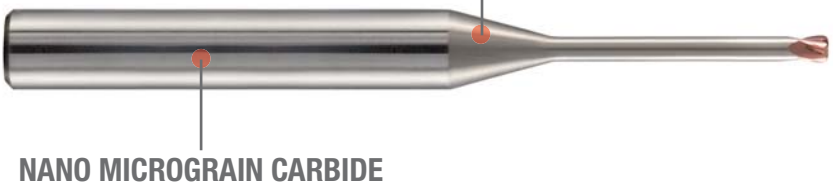
Nano micrograna e rivestimento UH RED e MH, a base TiSi per la fresatura di materiali temprati sino a 70 HRC. Grande affidabilità e durata nell'utilizzo di strategie di lavorazione ad alta velocità o alto avanzamento e con la possibilità di evitare l'utilizzo del refrigerante. Le geometrie di taglio specifiche garantiscono elevata precisione ed eccellente finitura della superficie lavorata.

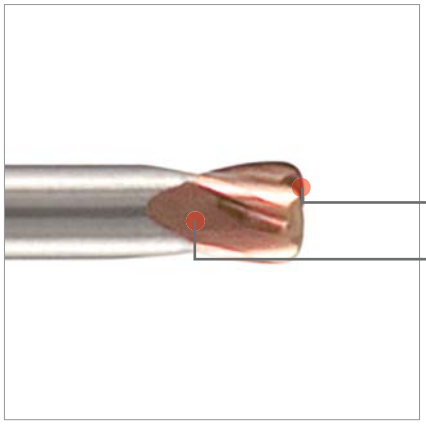
Nano-Mikrokörnung und Beschichtung UH RED und MH auf TiSi-Basis für das Fräsen von gehärteten Materialien bis zu 70 HRC. Hohe Zuverlässigkeit und lange Standzeit auch bei Bearbeitungsverfahren mit hoher Geschwindigkeit und großem Vorschub und mit der Möglichkeit, ohne Kühlmittel zu arbeiten. Die spezifischen Schnittgeometrien gewährleisten eine hohe Präzision und eine hervorragende Endbearbeitung der bearbeiteten Fläche.

Nano micrograin et revêtement UH RED et MH à base TiSi pour le fraisage de matériaux trempés jusqu'à 70 HRC. Grande fiabilité et durée dans l'utilisation stratégique d'usinage à haute vitesse ou avancement élevé et avec la possibilité d'éviter l'utilisation de lubrifiant. Les géométries de coupe spécifiques garantissent une précision élevée et une excellente finition de la surface usinée.

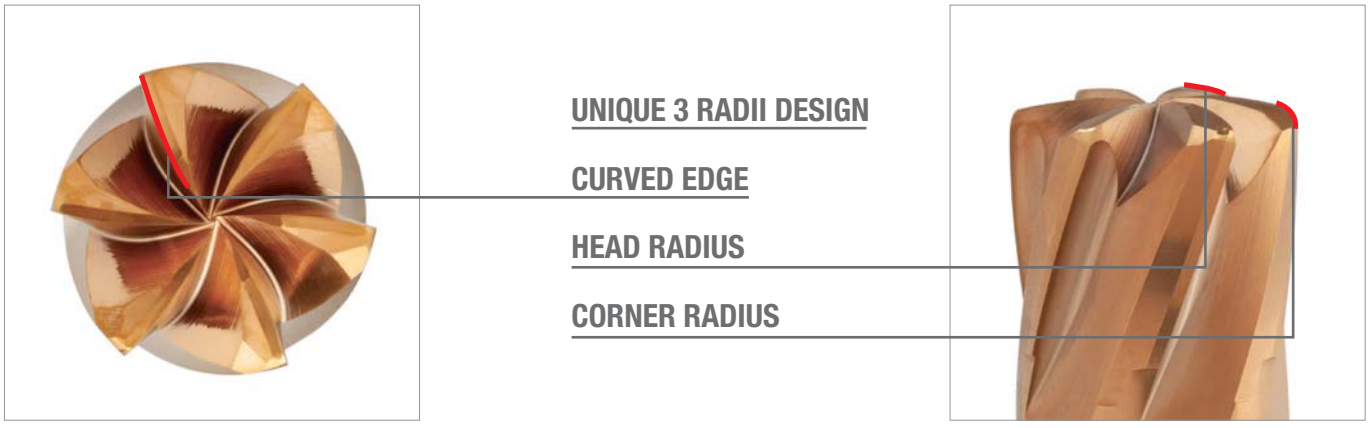
UH&MH

Features of UH end mills



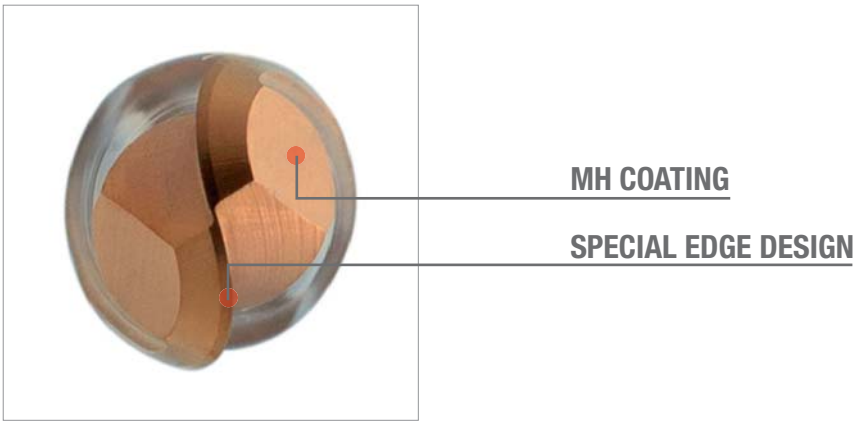


High feed strategy UHF RT



UH&MH

Features of MH end mills



Features and Benefits of UH series

- High edge quality for less chipping and reliable tool life due to the innovative grinding technology
- Great wear resistance even at high cutting speed thanks to the nano micrograin carbide
- Optimized connection shape allows greater stability during machining
- High temperature stability improved by the TiSi based nano multilayer coating
- Multi-edged endmill UHF RT with unique 3 radii geometry, specific for high feed milling on hardened steels up to 70HRC.

- Elevata qualità del tagliente garantisce minori scheggiature e miglior durata dell'utensile grazie all'innovativa tecnologia di rettifica
- Grande resistenza all'usura anche a velocità di taglio elevate grazie al metallo duro nanomicrograna
- La forma ottimizzata di connessione consente una maggiore stabilità durante la lavorazione
- Stabilità alle alte temperature migliorata dal rivestimento nano multistrato con base TiSi
- Fresa multitagliente UHF RT con geometria unica a 3 raggi, specifica per fresatura ad avanzamenti elevati su acciai temprati fino a 70HRC.

- Die hohe Schneidkantenqualität gewährleistet weniger Ausbrüche und eine längere Standzeit des Werkzeugs dank der innovativen Schleiftechnologie
- Hohe Verschleißfestigkeit auch bei hohen Schneidgeschwindigkeiten dank Nanomikrokorn-Hartmetall
- Die optimierte Form der Verbindung ermöglicht eine höhere Stabilität bei der Bearbeitung
- Verbesserte Stabilität bei hohen Temperaturen durch mehrschichtige Nanobeschichtung mit TiSi-Basis
- Mehrzahnfräser UHF RT mit einzigartiger 3-Radius-Geometrie, speziell für das Fräsen von gehärteten Stählen bis zu 70HRC mit hohem Vorschub.

- La haute qualité du tranchant garantit de moindres ébréchures et une plus longue durée de vie de l'outil grâce à la technologie innovante de rectification
- Grande résistance à l'usure y compris à haute vitesse de coupe grâce au carbure nano-micrograin
- La forme de connexion optimisée permet une stabilité accrue pendant l'usinage.
- Stabilité aux hautes températures améliorée par le revêtement nano multicouche avec base TiSi
- Fraise multi-tranchant UHF RT avec géométrie unique à 3 rayons, spéciale fraisage à grande avance sur les aciers trempés jusqu'à 70HRC.

UH&MH

Features and Benefits of MH series

• Special edge design enables high versatility for general milling, copying and super finishing on materials from 30 to 70 HRC
• High temperature stability during the machining process thanks to the MH coating
• Nano-micrograin carbide garanties excellent wear resistance and long life

• Die spezielle Schneidkantenkonstruktion ermöglicht hohe Vielseitigkeit beim allgemeinen Fräsen, Nacharbeiten und Feinstbearbeiten von Materialien von 30 bis 70 HRC
• Hohe Temperaturstabilität bei der Bearbeitung dank der MH-Beschichtung
• Das Nanokorn-Hartmetall sorgt für hervorragende Verschleißfestigkeit und lange Standzeit

• Lo speciale design del tagliente consente un'elevata versatilità in fresatura generale, copiatura e superfinitura di materiali da 30 a 70 HRC
• Stabilità alle alte temperature durante il processo di lavorazione grazie al rivestimento MH
• Il metallo duro nano-micrograna garantisce ottima resistenza all'usura e lunga durata

• La conception spéciale du tranchant permet une grande polyvalence général de fraisage, la copie et la superfinition de matériaux de 30 à 70 HRC.
• Stabilité aux hautes températures pendant le processus d'usinage grâce au revêtement MH
• Le carbure nano-micrograin garantit une excellente résistance à l'usure et une longue durée de vie

Use case

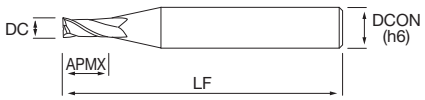
Tool Type	UHF4LN
Workpiece	W.-Nr 1.2379 X155CrVMo12 1(K110) 60HRC
Parameters	Vc 60 m/min, fz 0,01 mm/t, ap 0,04 mm, ae 1,5 mm
Coolant	air
Diameter	1,5 mm
Machining time	

SORMA DIAMOND & CUTTING TOOLS

UHM204

- Cylindrical shank
- 2F
- Miniature

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 40° | SQUARE | ZEFP 2 | SLOTTING

DC	DC tol.	DCON	TCDCON	APMX	LF	ZEFP	EDP no.	Stock
0.1	0/-0.010	4	h6	0.2	40	2	**UHM200104**	◉
0.2	0/-0.010	4	h6	0.3	50	2	**UHM200204**	◉
0.3	0/-0.010	4	h6	0.4	50	2	**UHM200304**	●
0.4	0/-0.010	4	h6	0.6	50	2	**UHM200404**	◉
0.5	0/-0.010	4	h6	0.7	50	2	**UHM200504**	●
0.6	0/-0.010	4	h6	0.9	50	2	**UHM200604**	◉
0.7	0/-0.010	4	h6	1	50	2	**UHM200704**	●
0.8	0/-0.010	4	h6	1.2	50	2	**UHM200804**	◉
0.9	0/-0.010	4	h6	1.4	50	2	**UHM200904**	◉

★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

Cutting Parameters

UHM204

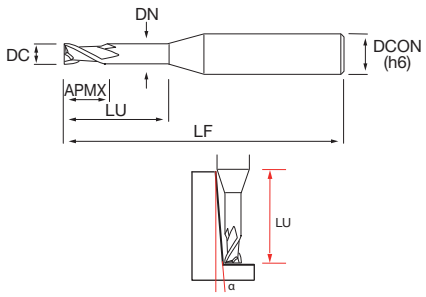
	Material Group ISO 513		P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm		≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae		**ap x D**	**ap x D**	**ap x D**	**ap x D**
	Vc (m/min)		**80÷120**	**60÷100**	**50÷70**	**30÷50**
SLOTTING	DC (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	0.1	0.01	0.002	0.002	0.002	0.001
	0.2	0.01	0.003	0.003	0.002	0.002
	0.3	0.02	0.004	0.004	0.003	0.003
	0.4	0.02	0.006	0.005	0.005	0.004
	0.5	0.03	0.007	0.006	0.006	0.005
	0.6	0.03	0.008	0.007	0.006	0.006
	0.8	0.04	0.010	0.009	0.008	0.007
	0.9	0.05	0.012	0.011	0.010	0.008

SORMA DIAMOND & CUTTING TOOLS

UHLN2

- Cylindrical shank
- 2F
- Extended and reduced neck

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 40° | SQUARE | ZEFP 2 | SQUARE RIB

DC	DC tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
0.2	0/-0.010	4	0.3	0.5	0.16	50	2	0.57	0.59	0.61	0.63	0.68	**UHLN2002005**	●
0.2	0/-0.010	4	0.3	1	0.16	50	2	1.09	1.12	1.16	1.21	1.3	**UHLN200201**	●
0.2	0/-0.010	4	0.3	1.5	0.16	50	2	1.6	1.66	1.72	1.78	1.91	**UHLN2002015**	◉
0.3	0/-0.010	4	0.4	1	0.26	50	2	1.09	1.12	1.16	1.21	1.3	**UHLN200301**	●
0.3	0/-0.010	4	0.4	2	0.26	50	2	2.12	2.19	2.27	2.35	2.53	**UHLN200302**	●
0.3	0/-0.010	4	0.4	3	0.26	50	2	3.15	3.26	3.38	3.5	3.76	**UHLN200303**	●
0.4	0/-0.010	4	0.6	2	0.37	50	2	2.12	2.19	2.27	2.35	2.53	**UHLN200402**	◉
0.4	0/-0.010	4	0.6	3	0.37	50	2	3.15	3.26	3.38	3.5	3.76	**UHLN200403**	●
0.4	0/-0.010	4	0.6	4	0.37	50	2	4.19	4.33	4.49	4.65	5	**UHLN200404**	●
0.4	0/-0.010	4	0.6	5	0.37	50	2	5.22	5.4	5.59	5.79	6.23	**UHLN200405**	●
0.5	0/-0.010	4	0.7	2	0.45	50	2	2.16	2.23	2.31	2.4	2.57	**UHLN200502**	●
0.5	0/-0.010	4	0.7	4	0.45	50	2	4.23	4.37	4.53	4.69	5.04	**UHLN200504**	●
0.5	0/-0.010	4	0.7	6	0.45	50	2	6.29	6.51	6.74	6.98	7.51	**UHLN200506**	●
0.5	0/-0.010	4	0.7	8	0.45	50	2	8.36	8.65	8.96	9.28	9.98	**UHLN200508**	●
0.6	0/-0.010	4	0.9	2	0.55	50	2	2.16	2.23	2.31	2.4	2.57	**UHLN200602**	●
0.6	0/-0.010	4	0.9	4	0.55	50	2	4.23	4.37	4.53	4.69	5.04	**UHLN200604**	●
0.6	0/-0.010	4	0.9	6	0.55	50	2	6.29	6.51	6.74	6.98	7.51	**UHLN200606**	●
0.6	0/-0.010	4	0.9	8	0.55	50	2	8.36	8.65	8.96	9.28	9.98	**UHLN200608**	●
0.6	0/-0.010	4	0.9	10	0.55	50	2	10.43	10.79	11.17	11.57	12.44	**UHLN200610**	●
0.7	0/-0.010	4	1	2	0.65	50	2	2.16	2.23	2.31	2.4	2.57	**UHLN200702**	●
0.7	0/-0.010	4	1	4	0.65	50	2	4.23	4.37	4.53	4.69	5.04	**UHLN200704**	●
0.7	0/-0.010	4	1	6	0.65	50	2	6.29	6.51	6.74	6.98	7.51	**UHLN200706**	◉
0.7	0/-0.010	4	1	8	0.65	50	2	8.36	8.65	8.96	9.28	9.98	**UHLN200708**	●
0.7	0/-0.010	4	1	10	0.65	50	2	10.43	10.79	11.17	11.57	12.44	**UHLN200710**	◉
0.8	0/-0.010	4	1.2	4	0.75	50	2	4.23	4.37	4.53	4.69	5.04	**UHLN200804**	●
0.8	0/-0.010	4	1.2	6	0.75	50	2	6.29	6.51	6.74	6.98	7.51	**UHLN200806**	◉
0.8	0/-0.010	4	1.2	8	0.75	50	2	8.36	8.65	8.96	9.28	9.98	**UHLN200808**	●
0.8	0/-0.010	4	1.2	10	0.75	50	2	10.43	10.79	11.17	11.57	12.44	**UHLN200810**	●
0.8	0/-0.010	4	1.2	12	0.75	50	2	12.49	12.93	13.38	13.87	14.91	**UHLN200812**	◉
0.9	0/-0.010	4	1.4	6	0.85	50	2	6.29	6.51	6.74	6.98	7.51	**UHLN200906**	●
0.9	0/-0.010	4	1.4	8	0.85	50	2	8.36	8.65	8.96	9.28	9.98	**UHLN200908**	●
0.9	0/-0.010	4	1.4	10	0.85	50	2	10.43	10.79	11.17	11.57	12.44	**UHLN200910**	●
0.9	0/-0.010	4	1.4	15	0.85	50	2	15.6	16.14	16.71	17.31	18.61	**UHLN200915**	●
1	0/-0.015	4	1.5	6	0.95	50	2	6.39	6.61	6.84	7.09	7.62	**UHLN201006**	●
1	0/-0.015	4	1.5	8	0.95	50	2	8.46	8.75	9.06	9.38	10.09	**UHLN201008**	●
1	0/-0.015	4	1.5	10	0.95	50	2	10.52	10.89	11.27	11.68	12.56	**UHLN201010**	●
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1	0/-0.015	4	1.5	16	0.95	50	2	16.73	17.3	17.92	18.56	19.96	**UHLN201016**	●
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1.2	0/-0.015	4	1.8	12	1.15	50	2	12.59	13.03	13.49	13.97	15.02	**UHLN201212**	●
1.4	0/-0.015	4	2.1	6	1.35	50	2	6.39	6.61	6.84	7.09	7.62	**UHLN201406**	◉
1.4	0/-0.015	4	2.1	8	1.35	50	2	8.46	8.75	9.06	9.38	10.09	**UHLN201408**	◉

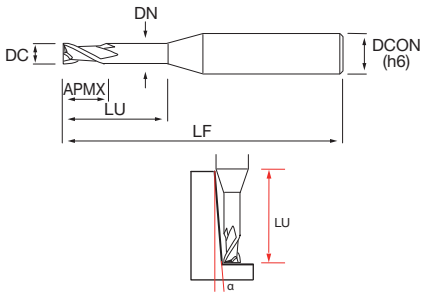
★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

UHLN2

- Cylindrical shank
- 2F
- Extended and reduced neck

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 40° | SQUARE | ZEFP 2 | SQUARE RIB

DC	DC tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
1.4	0/-0.015	4	2.1	10	1.35	50	2	10.52	10.89	11.27	11.68	12.56	**UHLN201410**	●
1.4	0/-0.015	4	2.1	12	1.35	50	2	12.59	13.03	13.49	13.97	15.02	**UHLN201412**	●
1.4	0/-0.015	4	2.1	14	1.35	50	2	14.66	15.17	15.7	16.27	17.49	**UHLN201414**	●
1.4	0/-0.015	4	2.1	16	1.35	50	2	16.73	17.3	17.92	18.56	19.96	**UHLN201416**	●
1.5	0/-0.015	4	2.3	6	1.45	50	2	6.39	6.61	6.84	7.09	7.62	**UHLN201506**	●
1.5	0/-0.015	4	2.3	8	1.45	50	2	8.46	8.75	9.06	9.38	10.09	**UHLN201508**	●
1.5	0/-0.015	4	2.3	10	1.45	50	2	10.52	10.89	11.27	11.68	12.56	**UHLN201510**	◉
1.5	0/-0.015	4	2.3	12	1.45	50	2	12.59	13.03	13.49	13.97	15.02	**UHLN201512**	●
1.5	0/-0.015	4	2.3	14	1.45	50	2	14.66	15.17	15.7	16.27	17.49	**UHLN201514**	◉
1.5	0/-0.015	4	2.3	16	1.45	50	2	16.73	17.3	17.92	18.56	19.96	**UHLN201516**	●
1.5	0/-0.015	4	2.3	18	1.45	60	2	18.79	19.44	20.13	20.86	22.43	**UHLN201518**	●
1.5	0/-0.015	4	2.3	20	1.45	60	2	20.86	21.58	22.35	23.15	-	**UHLN201520**	●
1.6	0/-0.015	4	2.4	6	1.55	50	2	6.39	6.61	6.84	7.09	7.62	**UHLN201606**	●
1.6	0/-0.015	4	2.4	8	1.55	50	2	8.46	8.75	9.06	9.38	10.09	**UHLN201608**	●
1.6	0/-0.015	4	2.4	10	1.55	50	2	10.52	10.89	11.27	11.68	12.56	**UHLN201610**	●
1.6	0/-0.015	4	2.4	12	1.55	50	2	12.59	13.03	13.49	13.97	15.02	**UHLN201612**	●
1.6	0/-0.015	4	2.4	14	1.55	50	2	14.66	15.17	15.7	16.27	17.49	**UHLN201614**	●
1.6	0/-0.015	4	2.4	16	1.55	50	2	16.73	17.3	17.92	18.56	19.96	**UHLN201616**	●
1.6	0/-0.015	4	2.4	18	1.55	60	2	18.79	19.44	20.13	20.86	22.43	**UHLN201618**	●
1.6	0/-0.015	4	2.4	20	1.55	60	2	20.86	21.58	22.35	23.15	-	**UHLN201620**	●
1.8	0/-0.015	4	2.7	6	1.75	50	2	6.39	6.61	6.84	7.09	7.62	**UHLN201806**	◉
1.8	0/-0.015	4	2.7	8	1.75	50	2	8.46	8.75	9.06	9.38	10.09	**UHLN201808**	●
1.8	0/-0.015	4	2.7	10	1.75	50	2	10.52	10.89	11.27	11.68	12.56	**UHLN201810**	◉
1.8	0/-0.015	4	2.7	12	1.75	50	2	12.59	13.03	13.49	13.97	15.02	**UHLN201812**	●
1.8	0/-0.015	4	2.7	14	1.75	50	2	14.66	15.17	15.7	16.27	17.49	**UHLN201814**	●
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1.8	0/-0.015	4	2.7	18	1.75	60	2	18.79	19.44	20.13	20.86	-	**UHLN201818**	●
1.8	0/-0.015	4	2.7	20	1.75	60	2	20.86	21.58	22.35	23.15	-	**UHLN201820**	●
2	0/-0.015	4	3	6	1.95	50	2	6.39	6.61	6.84	7.09	7.62	**UHLN202006**	●
2	0/-0.015	4	3	8	1.95	50	2	8.46	8.75	9.06	9.38	10.09	**UHLN202008**	●
2	0/-0.015	4	3	10	1.95	50	2	10.52	10.89	11.27	11.68	12.56	**UHLN202010**	●
2	0/-0.015	4	3	12	1.95	50	2	12.59	13.03	13.49	13.97	15.02	**UHLN202012**	●
2	0/-0.015	4	3	14	1.95	50	2	14.66	15.17	15.7	16.27	17.49	**UHLN202014**	◉
2	0/-0.015	4	3	16	1.95	50	2	16.73	17.3	17.92	18.56	-	**UHLN202016**	●
2	0/-0.015	4	3	18	1.95	60	2	18.79	19.44	20.13	20.86	-	**UHLN202018**	●
2	0/-0.015	4	3	20	1.95	60	2	20.86	21.58	22.35	23.15	-	**UHLN202020**	●
2	0/-0.015	4	3	25	1.95	75	2	26.03	26.93	27.88	-	-	**UHLN202025**	●
2	0/-0.015	4	3	30	1.95	75	2	31.2	32.28	33.42	-	-	**UHLN202030**	●
2.5	0/-0.020	4	3.7	8	2.4	50	2	8.46	8.75	9.06	9.38	10.09	**UHLN202508**	●
2.5	0/-0.020	4	3.7	10	2.4	50	2	10.52	10.89	11.27	11.68	12.56	**UHLN202510**	●
2.5	0/-0.020	4	3.7	12	2.4	50	2	12.59	13.03	13.49	13.97	-	**UHLN202512**	●
2.5	0/-0.020	4	3.7	14	2.4	50	2	14.66	15.17	15.7	16.27	-	**UHLN202514**	●
2.5	0/-0.020	4	3.7	16	2.4	50	2	16.73	17.3	17.92	18.56	-	**UHLN202516**	●
2.5	0/-0.020	4	3.7	18	2.4	60	2	18.79	19.44	20.13	20.86	-	**UHLN202518**	●
2.5	0/-0.020	4	3.7	20	2.4	60	2	20.86	21.58	22.35	-	-	**UHLN202520**	◉

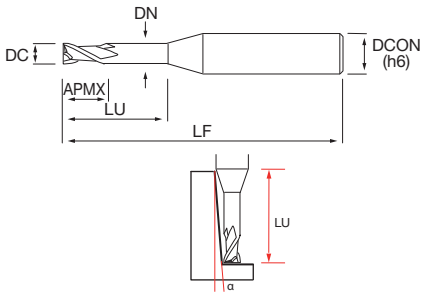
★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

UHLN2

- Cylindrical shank
- 2F
- Extended and reduced neck

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 40° | SQUARE | ZEFP 2 | SQUARE RIB

DC	DC tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
2.5	0/-0.020	4	3.7	25	2.4	75	2	24.1	24.94	25.83	-	-	**UHLN202525**	●
2.5	0/-0.020	4	3.7	30	2.4	75	2	31.2	32.28	-	-	-	**UHLN202530**	◉
3	0/-0.020	6	4.5	8	2.85	50	2	8.65	8.95	9.26	9.6	10.31	**UHLN203008**	●
3	0/-0.020	6	4.5	10	2.85	50	2	10.72	11.09	11.48	11.89	12.78	**UHLN203010**	●
3	0/-0.020	6	4.5	12	2.85	50	2	12.78	13.23	13.69	14.18	15.25	**UHLN203012**	●
3	0/-0.020	6	4.5	14	2.85	50	2	14.85	15.36	15.91	16.48	17.72	**UHLN203014**	●
3	0/-0.020	6	4.5	16	2.85	60	2	16.92	17.5	18.12	18.77	20.18	**UHLN203016**	●
3	0/-0.020	6	4.5	18	2.85	60	2	18.99	19.64	20.34	21.07	22.65	**UHLN203018**	◉
3	0/-0.020	6	4.5	20	2.85	60	2	21.05	21.78	22.55	23.36	25.12	**UHLN203020**	●
3	0/-0.020	6	4.5	25	2.85	75	2	26.22	27.13	28.09	29.1	-	**UHLN203025**	●
4	0/-0.020	6	4.5	10	3.85	60	2	10.91	11.29	11.68	12.1	13	**UHLN204010**	●
4	0/-0.020	6	4.5	15	3.85	60	2	16.08	16.63	17.22	17.84	19.17	**UHLN204015**	◉
4	0/-0.020	6	4.5	20	3.85	60	2	21.25	21.98	22.76	23.57	-	**UHLN204020**	●
4	0/-0.020	6	4.5	25	3.85	75	2	26.41	27.33	28.29	-	-	**UHLN204025**	◉
4	0/-0.020	6	4.5	30	3.85	75	2	31.58	32.67	33.83	-	-	**UHLN204030**	●
4	0/-0.020	6	4.5	40	3.85	75	2	41.92	43.37	-	-	-	**UHLN204040**	●

★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

Cutting Parameters

UHLN2

Material Group ISO 513			P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
Hardness/Rm			≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
ap x ae			**ap x D**	**ap x D**	**ap x D**	**ap x D**
Vc (m/min)			**80÷120**	**60÷100**	**50÷70**	**30÷50**
DC (mm)	LU (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
0.2	≤ 6D	0.01	0.003	0.003	0.002	0.002
	≤ 8D	0.01	0.003	0.002	0.002	0.002
	≤ 10D	0.01	0.002	0.002	0.002	0.001
	≤ 12D	0.01	0.002	0.001	0.001	0.001
0.3	≤ 6D	0.02	0.004	0.004	0.003	0.003
	≤ 8D	0.01	0.003	0.003	0.003	0.002
	≤ 10D	0.01	0.003	0.003	0.002	0.002
	≤ 12D	0.01	0.002	0.002	0.002	0.002
0.4	≤ 6D	0.02	0.006	0.005	0.005	0.004
	≤ 8D	0.02	0.005	0.005	0.004	0.004
	≤ 10D	0.01	0.004	0.004	0.003	0.003
	≤ 12D	0.01	0.003	0.003	0.003	0.002
0.5	≤ 6D	0.03	0.007	0.006	0.006	0.005
	≤ 8D	0.02	0.006	0.005	0.005	0.004
	≤ 10D	0.02	0.005	0.004	0.004	0.003
	≤ 12D	0.01	0.004	0.003	0.003	0.003
0.6	≤ 6D	0.03	0.008	0.007	0.006	0.006
	≤ 8D	0.03	0.007	0.006	0.005	0.005
	≤ 10D	0.02	0.006	0.005	0.004	0.004
	≤ 12D	0.02	0.004	0.004	0.004	0.003
0.8	≤ 6D	0.04	0.010	0.009	0.008	0.007
	≤ 8D	0.03	0.009	0.008	0.007	0.006
	≤ 10D	0.03	0.007	0.006	0.006	0.005
	≤ 12D	0.02	0.006	0.005	0.004	0.004
1	≤ 6D	0.05	0.012	0.011	0.010	0.008
	≤ 8D	0.04	0.010	0.009	0.008	0.007
	≤ 10D	0.04	0.008	0.008	0.007	0.006
	≤ 12D	0.03	0.007	0.006	0.005	0.005
1.2	≤ 6D	0.06	0.022	0.020	0.018	0.015
	≤ 8D	0.05	0.019	0.017	0.015	0.013
	≤ 10D	0.04	0.015	0.014	0.012	0.011
	≤ 12D	0.03	0.012	0.011	0.010	0.008
1.4	≤ 6D	0.07	0.024	0.022	0.019	0.017
	≤ 8D	0.06	0.020	0.018	0.016	0.014
	≤ 10D	0.05	0.017	0.015	0.013	0.012
	≤ 12D	0.04	0.013	0.012	0.011	0.009
	≤ 15D	0.03	0.011	0.010	0.009	0.008
	> 15D	0.02	0.007	0.006	0.006	0.005
1.5	≤ 6D	0.08	0.025	0.023	0.020	0.018
	≤ 8D	0.06	0.021	0.019	0.017	0.015
	≤ 10D	0.05	0.018	0.016	0.014	0.012
	≤ 12D	0.04	0.014	0.012	0.011	0.010
	≤ 15D	0.03	0.011	0.010	0.009	0.008
	> 15D	0.02	0.008	0.007	0.006	0.005
1.6	≤ 6D	0.08	0.026	0.023	0.021	0.018
	≤ 8D	0.07	0.022	0.020	0.018	0.015
	≤ 10D	0.06	0.018	0.016	0.015	0.013
	≤ 12D	0.04	0.014	0.013	0.011	0.010
	≤ 15D	0.04	0.012	0.011	0.009	0.008
	> 15D	0.02	0.008	0.007	0.006	0.005

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

UHLN2

SQUARE RIB

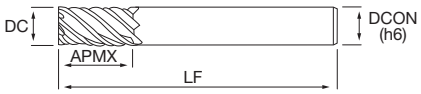
Material Group ISO 513			P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
Hardness/Rm			≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
ap x ae			**ap x D**	**ap x D**	**ap x D**	**ap x D**
Vc (m/min)			**80÷120**	**60÷100**	**50÷70**	**30÷50**
DC (mm)	LU (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
1.8	≤ 6D	0.09	0.028	0.025	0.022	0.020
	≤ 8D	0.08	0.024	0.021	0.019	0.017
	≤ 10D	0.06	0.020	0.018	0.016	0.014
	≤ 12D	0.05	0.015	0.014	0.012	0.011
	≤ 15D	0.04	0.013	0.011	0.010	0.009
	> 15D	0.03	0.008	0.008	0.007	0.006
2	≤ 6D	0.10	0.030	0.027	0.024	0.021
	≤ 8D	0.09	0.026	0.023	0.020	0.018
	≤ 10D	0.07	0.021	0.019	0.017	0.015
	≤ 12D	0.06	0.017	0.015	0.013	0.012
	≤ 15D	0.05	0.014	0.012	0.011	0.009
	> 15D	0.03	0.009	0.008	0.007	0.006
2.5	≤ 6D	0.13	0.035	0.032	0.028	0.025
	≤ 8D	0.11	0.030	0.027	0.024	0.021
	≤ 10D	0.09	0.025	0.022	0.020	0.017
	≤ 12D	0.07	0.019	0.017	0.015	0.013
	≤ 15D	0.06	0.016	0.014	0.013	0.011
	> 15D	0.04	0.011	0.009	0.008	0.007
3	≤ 6D	0.15	0.040	0.036	0.032	0.028
	≤ 8D	0.13	0.034	0.031	0.027	0.024
	≤ 10D	0.11	0.028	0.025	0.022	0.020
	≤ 12D	0.08	0.022	0.020	0.018	0.015
	≤ 15D	0.07	0.018	0.016	0.014	0.013
	> 15D	0.05	0.012	0.011	0.010	0.008
4	≤ 6D	0.20	0.050	0.045	0.040	0.035
	≤ 8D	0.17	0.043	0.038	0.034	0.030
	≤ 10D	0.14	0.035	0.032	0.028	0.025
	≤ 12D	0.11	0.028	0.025	0.022	0.019
	≤ 15D	0.09	0.023	0.020	0.018	0.016
	> 15D	0.06	0.015	0.014	0.012	0.011

SORMA DIAMOND & CUTTING TOOLS

UH600

- Cylindrical shank
- Multi flute

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 50° | SQUARE | ZEFP 6~8 | L SIDE MILLING

DC	DC tol.	DCON	TCDCON	APMX	LF	ZEFP	EDP no.	Stock
3	0/-0.020	6	h6	8	50	6	**UH600030**	●
4	0/-0.020	6	h6	11	50	6	**UH600040**	●
5	0/-0.020	6	h6	13	50	6	**UH600050**	●
6	0/-0.020	6	h6	20	60	6	**UH600060**	●
8	0/-0.020	8	h6	20	64	6	**UH600080**	●
10	0/-0.020	10	h6	22	70	6	**UH600100**	●
12	0/-0.020	12	h6	25	75	6	**UH600120**	●
14	0/-0.020	14	h6	30	90	6	**UH600140**	●
16	0/-0.020	16	h6	30	90	8	**UH600160**	●
20	0/-0.020	20	h6	38	100	8	**UH600200**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

UH600

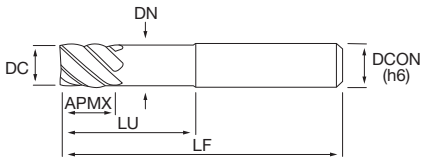
	Material Group ISO 513	P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm	≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae	**1.5D x 0.1D**	**1.5D x 0.05D**	**1.5D x 0.05D**	**1.5D x 0.05D**
	Vc (m/min)	**140÷180**	**100÷140**	**80÷100**	**60÷80**
SIDE MILLING	DC (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	3	0.008	0.008	0.007	0.006
	4	0.012	0.011	0.010	0.008
	5	0.014	0.013	0.012	0.010
	6	0.018	0.016	0.014	0.013
	8	0.028	0.025	0.022	0.019
	10	0.034	0.030	0.027	0.024
	12	0.041	0.037	0.033	0.029
	14	0.048	0.043	0.038	0.034
	16	0.056	0.051	0.045	0.039
	18	0.066	0.059	0.053	0.046
	20	0.078	0.070	0.062	0.055

SORMA DIAMOND & CUTTING TOOLS

UH612

- Cylindrical shank
- Multi flute
- Long

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG / UH RED | <70 HRC | FHA 50° | SQUARE | ZEFP 6~8 | SIDE MILLING

DC	DC tol.	DCON	TCDCON	APMX	LU	DN	LF	ZEFP	EDP no.	Stock
3	0/-0.025	6	h6	19	30	2.8	75	6	**UH612030**	●
4	0/-0.025	6	h6	19	32	3.7	75	6	**UH612040**	●
5	0/-0.025	6	h6	19	32	4.6	75	6	**UH612050**	●
6	0/-0.025	6	h6	38	60	5.5	100	6	**UH612060**	●
8	0/-0.025	8	h6	41	60	7.4	100	6	**UH612080**	●
10	0/-0.025	10	h6	57	85	9.2	125	6	**UH612100**	●
12	0/-0.025	12	h6	75	110	11	150	6	**UH612120**	●
16	0/-0.025	16	h6	75	110	15	150	8	**UH612160**	●
20	0/-0.025	20	h6	75	110	19	150	8	**UH612200**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

Cutting Parameters

UH612

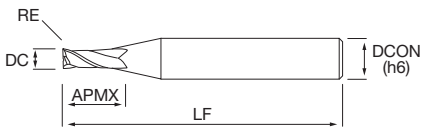
	Material Group ISO 513	P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm	≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae	**1.5D x 0.05D**	**1.5D x 0.05D**	**1.5D x 0.05D**	**1.5D x 0.05D**
	Vc (m/min)	**90÷130**	**70÷110**	**50÷70**	**30÷50**
SIDE MILLING	DC (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	3	0.007	0.006	0.006	0.005
	4	0.010	0.009	0.008	0.007
	5	0.012	0.011	0.010	0.009
	6	0.015	0.014	0.012	0.011
	8	0.023	0.021	0.019	0.016
	10	0.029	0.026	0.023	0.020
	12	0.035	0.031	0.028	0.024
	14	0.041	0.037	0.033	0.029
	16	0.048	0.043	0.038	0.034
	20	0.066	0.060	0.053	0.046

SORMA DIAMOND & CUTTING TOOLS

UHM206

- Cylindrical shank
- 2F
- Miniature
- Corner radius
- 6 mm. shank

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG / UH RED | <70 HRC | FHA 40° | SQUARE | RADIUS | ZEFP 2 | SLOTTING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LF	ZEFP	EDP no.	Stock
0.3	0/-0.012	-	-	6	h6	0.45	50	2	**UHM200306**	●
0.4	0/-0.012	-	-	6	h6	0.6	50	2	**UHM200406**	●
0.5	0/-0.012	0.05	±0.010	6	h6	0.7	50	2	**UHM200506**	●
0.6	0/-0.012	0.05	±0.010	6	h6	0.9	50	2	**UHM200606**	●
0.8	0/-0.012	0.05	±0.010	6	h6	1.2	50	2	**UHM200806**	●
1	0/-0.012	0.1	±0.010	6	h6	1.5	50	2	**UHM201006**	●
1.5	0/-0.012	0.15	±0.010	6	h6	2.2	50	2	**UHM201506**	●
2	0/-0.012	0.15	±0.010	6	h6	2.2	50	2	**UHM202006**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

UHM206

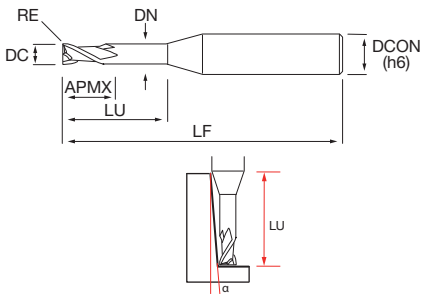
	Material Group ISO 513		P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm		≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae		**ap x D**	**ap x D**	**ap x D**	**ap x D**
	Vc (m/min)		**80÷120**	**60÷100**	**50÷70**	**30÷50**
SLOTTING	DC (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	0.3	0.02	0.004	0.004	0.003	0.003
	0.4	0.02	0.006	0.005	0.005	0.004
	0.5	0.03	0.007	0.006	0.006	0.005
	0.6	0.03	0.008	0.007	0.006	0.006
	0.8	0.04	0.010	0.009	0.008	0.007
	1	0.05	0.012	0.011	0.010	0.008
	1.5	0.08	0.025	0.023	0.020	0.018
	2	0.10	0.030	0.027	0.024	0.021

SORMA DIAMOND & CUTTING TOOLS

UH211

- Cylindrical shank
- 2F
- Extended and reduced neck
- Corner radius

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 40° | RADIUS | ZEFP 2 | SQUARE RIB

DC	DC tol.	RE	RE tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
1	0/-0.012	0.1	0/-0.010	4	2	4	0.95	50	2	4.36	4.6	4.86	5.16	5.89	**UH2110100104**	●
1	0/-0.012	0.1	0/-0.010	4	2	6	0.95	50	2	6.46	6.82	7.21	7.66	8.74	**UH2110100106**	●
1	0/-0.012	0.1	0/-0.010	4	2	8	0.9	50	2	8.45	8.73	9	9.27	9.81	**UH2110100108**	●
1	0/-0.012	0.2	0/-0.010	4	2	4	0.95	50	2	4.36	4.6	4.86	5.16	5.89	**UH2110100204**	●
1	0/-0.012	0.2	0/-0.010	4	2	8	0.95	50	2	8.57	9.04	9.56	10.15	11.18	**UH2110100208**	●
1	0/-0.012	0.3	0/-0.010	4	2	4	0.9	50	2	4.31	4.44	4.57	4.7	4.97	**UH2110100304**	●
1	0/-0.012	0.3	0/-0.010	4	2	8	0.95	50	2	8.57	9.04	9.56	10.15	11.18	**UH2110100308**	●
1.5	0/-0.012	0.1	0/-0.010	4	2.5	6	1.45	50	2	6.3	6.52	6.75	7.01	7.57	**UH2110150106**	●
1.5	0/-0.012	0.1	0/-0.010	4	2.5	10	1.45	50	2	10.43	10.8	11.19	11.61	12.55	**UH2110150110**	●
1.5	0/-0.012	0.2	0/-0.010	4	2.5	8	1.45	50	2	8.37	8.66	8.97	9.31	10.06	**UH2110150208**	●
1.5	0/-0.012	0.2	0/-0.010	4	2.5	12	1.45	50	2	12.5	12.94	13.4	13.91	15.03	**UH2110150212**	●
2	0/-0.012	0.1	0/-0.010	4	3	6	1.95	50	2	6.3	6.52	6.75	7.01	7.57	**UH2110200106**	●
2	0/-0.012	0.1	0/-0.010	4	3	12	1.95	50	2	12.5	12.94	13.4	13.91	15.03	**UH2110200112**	●
2	0/-0.012	0.2	0/-0.010	4	3	6	1.95	50	2	6.3	6.52	6.75	7.01	7.57	**UH2110200206**	●
2	0/-0.012	0.2	0/-0.010	4	3	12	1.95	50	2	12.5	12.94	13.4	13.91	15.03	**UH2110200212**	●
2	0/-0.012	0.3	0/-0.010	4	3	8	1.95	50	2	8.37	8.66	8.97	9.31	10.06	**UH2110200308**	●
2	0/-0.012	0.3	0/-0.010	4	3	12	1.95	50	2	12.5	12.94	13.4	13.91	15.03	**UH2110200312**	●
2	0/-0.012	0.3	0/-0.010	4	3	16	1.95	50	2	16.64	17.21	17.84	18.5	-	**UH2110200316**	●
2	0/-0.012	0.5	0/-0.010	4	3	6	1.95	50	2	6.3	6.52	6.75	7.01	7.57	**UH2110200506**	●
2	0/-0.012	0.5	0/-0.010	4	3	12	1.95	50	2	12.5	12.94	13.4	13.91	15.03	**UH2110200512**	●
3	0/-0.012	0.3	0/-0.010	6	4.5	10	2.8	55	2	10.71	11.04	11.38	11.72	12.4	**UH2110300310**	●
3	0/-0.012	0.3	0/-0.010	6	4.5	16	2.85	55	2	16.83	17.41	18.04	18.72	20.24	**UH2110300316**	●
3	0/-0.012	0.5	0/-0.010	6	4.5	10	2.85	55	2	10.63	11	11.39	11.82	12.78	**UH2110300510**	●
3	0/-0.012	0.5	0/-0.010	6	4.5	16	2.85	55	2	16.83	17.41	18.04	18.72	20.24	**UH2110300516**	●
4	0/-0.012	0.2	0/-0.010	6	6	20	3.85	60	2	20.96	21.69	22.48	23.32	-	**UH2110400220**	●
4	0/-0.012	0.3	0/-0.010	6	6	12	3.85	55	2	12.69	13.14	13.61	14.12	15.27	**UH2110400312**	●
4	0/-0.012	0.3	0/-0.010	6	6	20	3.85	60	2	20.96	21.69	22.48	23.32	-	**UH2110400320**	●
4	0/-0.012	0.5	0/-0.010	6	6	12	3.85	55	2	12.69	13.14	13.61	14.12	15.27	**UH2110400512**	●
4	0/-0.012	0.5	0/-0.010	6	6	20	3.85	60	2	20.96	21.69	22.48	23.32	-	**UH2110400520**	●
4	0/-0.012	1	0/-0.010	6	6	16	3.85	55	2	16.83	17.41	18.04	18.72	-	**UH2110401016**	●
6	0/-0.015	0.5	0/-0.010	6	9	15	5.85	60	2	-	-	-	-	-	**UH2110600520**	●
6	0/-0.015	1	0/-0.010	6	9	15	5.85	60	2	-	-	-	-	-	**UH2110601020**	●
6	0/-0.015	2	0/-0.010	6	9	15	5.85	60	2	-	-	-	-	-	**UH2110602020**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

Cutting Parameters

UH211

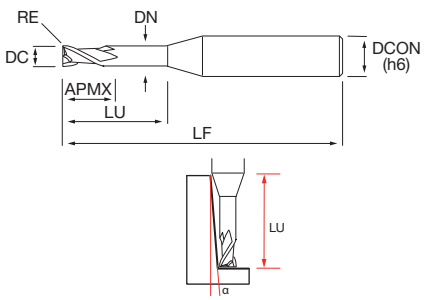
SQUARE RIB

Material Group ISO 513			P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
Hardness/Rm			≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
ap x ae			**ap x D**	**ap x D**	**ap x D**	**ap x D**
Vc (m/min)			**80÷120**	**60÷100**	**50÷70**	**30÷50**
DC (mm)	LU (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
1	≤ 6D	0.05	0.012	0.011	0.010	0.008
	≤ 8D	0.04	0.010	0.009	0.008	0.007
	≤ 10D	0.04	0.008	0.008	0.007	0.006
	≤ 12D	0.03	0.007	0.006	0.005	0.005
1.5	≤ 6D	0.08	0.025	0.023	0.020	0.018
	≤ 8D	0.06	0.021	0.019	0.017	0.015
	≤ 10D	0.05	0.018	0.016	0.014	0.012
	≤ 12D	0.04	0.014	0.012	0.011	0.010
	≤ 15D	0.03	0.011	0.010	0.009	0.008
	> 15D	0.02	0.008	0.007	0.006	0.005
2	≤ 6D	0.10	0.030	0.027	0.024	0.021
	≤ 8D	0.09	0.026	0.023	0.020	0.018
	≤ 10D	0.07	0.021	0.019	0.017	0.015
	≤ 12D	0.06	0.017	0.015	0.013	0.012
	≤ 15D	0.05	0.014	0.012	0.011	0.009
	> 15D	0.03	0.009	0.008	0.007	0.006
2.5	≤ 6D	0.13	0.035	0.032	0.028	0.025
	≤ 8D	0.11	0.030	0.027	0.024	0.021
	≤ 10D	0.09	0.025	0.022	0.020	0.017
	≤ 12D	0.07	0.019	0.017	0.015	0.013
	≤ 15D	0.06	0.016	0.014	0.013	0.011
	> 15D	0.04	0.011	0.009	0.008	0.007
3	≤ 6D	0.15	0.040	0.036	0.032	0.028
	≤ 8D	0.13	0.034	0.031	0.027	0.024
	≤ 10D	0.11	0.028	0.025	0.022	0.020
	≤ 12D	0.08	0.022	0.020	0.018	0.015
	≤ 15D	0.07	0.018	0.016	0.014	0.013
	> 15D	0.05	0.012	0.011	0.010	0.008
4	≤ 6D	0.20	0.050	0.045	0.040	0.035
	≤ 8D	0.17	0.043	0.038	0.034	0.030
	≤ 10D	0.14	0.035	0.032	0.028	0.025
	≤ 12D	0.11	0.028	0.025	0.022	0.019
	≤ 15D	0.09	0.023	0.020	0.018	0.016
	> 15D	0.06	0.015	0.014	0.012	0.011
6	≤ 6D	0.30	0.070	0.063	0.056	0.049
	≤ 8D	0.26	0.060	0.054	0.048	0.042
	≤ 10D	0.21	0.049	0.044	0.039	0.034
	≤ 12D	0.17	0.039	0.035	0.031	0.027
	> 15D	0.14	0.032	0.028	0.025	0.022

UH212

- Cylindrical shank
- 2 flutes
- Extended and reduced neck
- Corner radius

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 40° | RADIUS | ZEFP 2 | SQUARE RIB

DC	DC tol.	RE	RE tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
0.2	0/-0.010	0.02	0/-0.010	4	0.3	0.5	0.16	50	2	0.57	0.59	0.6	0.62	0.66	UH21200202005	◉
0.2	0/-0.010	0.02	0/-0.010	4	0.3	1	0.16	50	2	1.09	1.12	1.16	1.19	1.26	UH2120020201	◉
0.2	0/-0.010	0.02	0/-0.010	4	0.3	1.5	0.16	50	2	1.6	1.65	1.71	1.76	1.86	UH21200202015	●
0.3	0/-0.010	0.05	0/-0.010	4	0.4	1	0.26	50	2	1.09	1.12	1.15	1.19	1.26	UH21200300501	●
0.3	0/-0.010	0.05	0/-0.010	4	0.4	2	0.26	50	2	2.12	2.19	2.26	2.32	2.46	UH21200300502	●
0.3	0/-0.010	0.03	0/-0.010	4	0.4	3	0.26	50	2	3.15	3.25	3.36	3.46	3.66	UH21200300303	●
0.3	0/-0.010	0.05	0/-0.010	4	0.4	3	0.26	50	2	3.15	3.25	3.36	3.46	3.66	UH21200300503	●
0.4	0/-0.010	0.05	0/-0.010	4	0.6	2	0.37	50	2	2.12	2.19	2.26	2.32	2.46	UH21200400502	◉
0.4	0/-0.010	0.03	0/-0.010	4	0.6	3	0.37	50	2	3.15	3.25	3.36	3.46	3.66	UH21200400303	●
0.4	0/-0.010	0.05	0/-0.010	4	0.6	3	0.37	50	2	3.15	3.25	3.36	3.46	3.66	UH21200400503	●
0.4	0/-0.010	0.03	0/-0.010	4	0.6	4	0.37	50	2	4.19	4.32	4.46	4.59	4.86	UH21200400304	●
0.4	0/-0.010	0.05	0/-0.010	4	0.6	4	0.37	50	2	4.19	4.32	4.46	4.59	4.86	UH21200400504	●
0.4	0/-0.010	0.03	0/-0.010	4	0.6	5	0.37	50	2	5.22	5.39	5.56	5.73	6.07	UH21200400305	●
0.4	0/-0.010	0.05	0/-0.010	4	0.6	5	0.37	50	2	5.22	5.39	5.56	5.73	6.07	UH21200400505	●
0.5	0/-0.010	0.05	0/-0.010	4	0.7	2	0.45	50	2	2.16	2.23	2.29	2.36	2.5	UH21200500502	●
0.5	0/-0.010	0.05	0/-0.010	4	0.7	4	0.45	50	2	4.22	4.36	4.5	4.63	4.9	UH21200500504	●
0.5	0/-0.010	0.05	0/-0.010	4	0.7	6	0.45	50	2	6.29	6.49	6.7	6.9	7.31	UH21200500506	●
0.5	0/-0.010	0.05	0/-0.010	4	0.7	8	0.45	50	2	8.36	8.63	8.9	9.17	9.71	UH21200500508	●
0.6	0/-0.010	0.05	0/-0.010	4	0.9	2	0.55	50	2	2.16	2.23	2.29	2.36	2.5	UH21200600502	◉
0.6	0/-0.010	0.05	0/-0.010	4	0.9	4	0.55	50	2	4.22	4.36	4.5	4.63	4.9	UH21200600504	◉
0.6	0/-0.010	0.05	0/-0.010	4	0.9	6	0.55	50	2	6.29	6.49	6.7	6.9	7.31	UH21200600506	●
0.6	0/-0.010	0.05	0/-0.010	4	0.9	8	0.55	50	2	8.36	8.63	8.9	9.17	9.71	UH21200600508	●
0.6	0/-0.010	0.05	0/-0.010	4	0.9	10	0.55	50	2	10.43	10.76	11.1	11.44	12.12	UH21200600510	◉
0.7	0/-0.010	0.1	0/-0.010	4	1	2	0.65	50	2	2.16	2.22	2.29	2.36	2.49	UH21200701002	◉
0.7	0/-0.010	0.08	0/-0.010	4	1	4	0.65	50	2	4.22	4.36	4.49	4.63	4.9	UH21200700804	●
0.7	0/-0.010	0.1	0/-0.010	4	1	4	0.65	50	2	4.22	4.36	4.49	4.63	4.9	UH21200701004	●
0.7	0/-0.010	0.1	0/-0.010	4	1	6	0.65	50	2	6.29	6.49	6.69	6.9	7.3	UH21200701006	◉
0.7	0/-0.010	0.1	0/-0.010	4	1	8	0.65	50	2	8.36	8.63	8.9	9.17	9.71	UH21200701008	◉
0.7	0/-0.010	0.1	0/-0.010	4	1	10	0.65	50	2	10.42	10.76	11.1	11.44	12.11	UH21200701010	◉
0.8	0/-0.010	0.1	0/-0.010	4	1.2	4	0.75	50	2	4.22	4.36	4.49	4.63	4.9	UH21200801004	◉
0.8	0/-0.010	0.08	0/-0.010	4	1.2	6	0.75	50	2	6.29	6.49	6.69	6.9	7.3	UH21200800806	●
0.8	0/-0.010	0.1	0/-0.010	4	1.2	6	0.75	50	2	6.29	6.49	6.69	6.9	7.3	UH21200801006	●
0.8	0/-0.010	0.08	0/-0.010	4	1.2	8	0.75	50	2	8.36	8.63	8.9	9.17	9.71	UH21200800808	●
0.8	0/-0.010	0.1	0/-0.010	4	1.2	8	0.75	50	2	8.36	8.63	8.9	9.17	9.71	UH21200801008	●
0.8	0/-0.010	0.08	0/-0.010	4	1.2	10	0.75	50	2	10.42	10.76	11.1	11.44	12.11	UH21200800810	●
0.8	0/-0.010	0.1	0/-0.010	4	1.2	10	0.75	50	2	10.42	10.76	11.1	11.44	12.11	UH21200801010	●
0.8	0/-0.010	0.1	0/-0.010	4	1.2	12	0.75	50	2	12.49	12.9	13.3	13.7	14.51	UH21200801012	◉
0.9	0/-0.010	0.08	0/-0.010	4	1.4	6	0.85	50	2	6.29	6.49	6.69	6.9	7.3	UH21200900806	●
0.9	0/-0.010	0.1	0/-0.010	4	1.4	6	0.85	50	2	6.29	6.49	6.69	6.9	7.3	UH21200901006	●
0.9	0/-0.010	0.08	0/-0.010	4	1.4	8	0.85	50	2	8.36	8.63	8.9	9.17	9.71	UH21200900808	●
0.9	0/-0.010	0.1	0/-0.010	4	1.4	8	0.85	50	2	8.36	8.63	8.9	9.17	9.71	UH21200901008	●
0.9	0/-0.010	0.08	0/-0.010	4	1.4	10	0.85	50	2	10.42	10.76	11.1	11.44	12.11	UH21200900810	●
0.9	0/-0.010	0.1	0/-0.010	4	1.4	10	0.85	50	2	10.42	10.76	11.1	11.44	12.11	UH21200901010	●
0.9	0/-0.010	0.08	0/-0.010	4	1.4	15	0.85	50	2	15.59	16.1	16.6	17.11	18.12	UH21200900815	●
0.9	0/-0.010	0.1	0/-0.010	4	1.4	15	0.85	50	2	15.59	16.1	16.6	17.11	18.12	UH21200901015	●

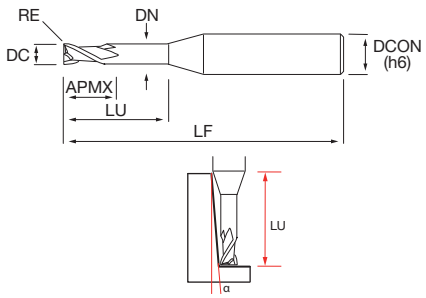
★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

UH212

- Cylindrical shank
- 2 flutes
- Extended and reduced neck
- Corner radius

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 40° | RADIUS | ZEFP 2 | SQUARE RIB

DC	DC tol.	RE	RE tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
1	0/-0.015	0.1	0/-0.010	4	1.5	6	0.95	50	2	6.39	6.59	6.8	7	7.41	UH2120100106	●
1	0/-0.015	0.1	0/-0.010	4	1.5	8	0.95	50	2	8.45	8.73	9	9.27	9.81	UH2120100108	●
1	0/-0.015	0.1	0/-0.010	4	1.5	10	0.95	50	2	10.52	10.86	11.2	11.54	12.22	UH2120100110	●
1	0/-0.015	0.1	0/-0.010	4	1.5	12	0.95	50	2	12.59	12.99	13.4	13.81	14.62	UH2120100112	●
1	0/-0.015	0.1	0/-0.010	4	1.5	14	0.95	50	2	14.66	15.13	15.6	16.08	17.03	UH2120100114	●
1	0/-0.015	0.1	0/-0.010	4	1.5	16	0.95	50	2	16.72	17.26	17.8	18.35	19.43	UH2120100116	◉
1.2	0/-0.015	0.1	0/-0.010	4	1.8	6	1.15	50	2	6.39	6.59	6.8	7	7.41	UH2120120106	●
1.2	0/-0.015	0.1	0/-0.010	4	1.8	8	1.15	50	2	8.45	8.73	9	9.27	9.81	UH2120120108	◉
1.2	0/-0.015	0.1	0/-0.010	4	1.8	10	1.15	50	2	10.52	10.86	11.2	11.54	12.22	UH2120120110	◉
1.2	0/-0.015	0.1	0/-0.010	4	1.8	12	1.15	50	2	12.59	12.99	13.4	13.81	14.62	UH2120120112	●
1.4	0/-0.015	0.1	0/-0.010	4	2.1	6	1.35	50	2	6.38	6.59	6.79	6.99	7.4	UH21201401006	●
1.4	0/-0.015	0.15	0/-0.010	4	2.1	8	1.35	50	2	8.45	8.72	8.99	9.26	9.8	UH21201401508	●
1.4	0/-0.015	0.1	0/-0.010	4	2.1	8	1.35	50	2	8.45	8.72	8.99	9.26	9.8	UH21201401008	●
1.4	0/-0.015	0.1	0/-0.010	4	2.1	10	1.35	50	2	10.52	10.86	11.19	11.53	12.21	UH21201401010	◉
1.4	0/-0.015	0.15	0/-0.010	4	2.1	12	1.35	50	2	12.59	12.99	13.4	13.8	14.61	UH21201401512	●
1.4	0/-0.015	0.1	0/-0.010	4	2.1	12	1.35	50	2	12.59	12.99	13.4	13.8	14.61	UH21201401012	●
1.4	0/-0.015	0.15	0/-0.010	4	2.1	14	1.35	50	2	14.65	15.13	15.6	16.07	17.02	UH21201401514	●
1.4	0/-0.015	0.1	0/-0.010	4	2.1	14	1.35	50	2	14.65	15.13	15.6	16.07	17.02	UH21201401014	●
1.4	0/-0.015	0.15	0/-0.010	4	2.1	16	1.35	50	2	16.72	17.26	17.8	18.34	19.42	UH21201401516	●
1.4	0/-0.015	0.1	0/-0.010	4	2.1	16	1.35	50	2	16.72	17.26	17.8	18.34	19.42	UH21201401016	●
1.5	0/-0.015	0.15	0/-0.010	4	2.3	6	1.45	50	2	6.38	6.59	6.79	6.99	7.4	UH21201501506	◉
1.5	0/-0.015	0.15	0/-0.010	4	2.3	8	1.45	50	2	8.45	8.72	8.99	9.26	9.8	UH21201501508	●
1.5	0/-0.015	0.15	0/-0.010	4	2.3	10	1.45	50	2	10.52	10.86	11.19	11.53	12.21	UH21201501510	◉
1.5	0/-0.015	0.15	0/-0.010	4	2.3	12	1.45	50	2	12.59	12.99	13.4	13.8	14.61	UH21201501512	●
1.5	0/-0.015	0.15	0/-0.010	4	2.3	14	1.45	50	2	14.65	15.13	15.6	16.07	17.02	UH21201501514	●
1.5	0/-0.015	0.15	0/-0.010	4	2.3	16	1.45	50	2	16.72	17.26	17.8	18.34	19.42	UH21201501516	◉
1.5	0/-0.015	0.15	0/-0.010	4	2.3	18	1.45	60	2	18.79	19.39	20	20.61	21.82	UH21201501518	●
1.5	0/-0.015	0.15	0/-0.010	4	2.3	20	1.45	50	2	20.86	21.53	22.2	22.88	24.23	UH21201501520	●
1.6	0/-0.015	0.2	0/-0.010	4	2.4	6	1.55	50	2	6.38	6.59	6.79	6.99	7.4	UH21201602006	●
1.6	0/-0.015	0.15	0/-0.010	4	2.4	8	1.55	50	2	8.45	8.72	8.99	9.26	9.8	UH21201601508	●
1.6	0/-0.015	0.2	0/-0.010	4	2.4	8	1.55	50	2	8.45	8.72	8.99	9.26	9.8	UH21201602008	●
1.6	0/-0.015	0.15	0/-0.010	4	2.4	10	1.55	50	2	10.52	10.86	11.19	11.53	12.21	UH21201601510	●
1.6	0/-0.015	0.2	0/-0.010	4	2.4	10	1.55	50	2	10.52	10.86	11.19	11.53	12.21	UH21201602010	●
1.6	0/-0.015	0.15	0/-0.010	4	2.4	12	1.55	50	2	12.59	12.99	13.4	13.8	14.61	UH21201601512	●
1.6	0/-0.015	0.2	0/-0.010	4	2.4	12	1.55	50	2	12.59	12.99	13.4	13.8	14.61	UH21201602012	●
1.6	0/-0.015	0.15	0/-0.010	4	2.4	14	1.55	50	2	14.65	15.13	15.6	16.07	17.02	UH21201601514	●
1.6	0/-0.015	0.2	0/-0.010	4	2.4	14	1.55	50	2	14.65	15.13	15.6	16.07	17.02	UH21201602014	●
1.6	0/-0.015	0.15	0/-0.010	4	2.4	16	1.55	50	2	16.72	17.26	17.8	18.34	19.42	UH21201601516	●
1.6	0/-0.015	0.2	0/-0.010	4	2.4	16	1.55	50	2	16.72	17.26	17.8	18.34	19.42	UH21201602016	●
1.6	0/-0.015	0.15	0/-0.010	4	2.4	18	1.55	60	2	18.79	19.39	20	20.61	21.82	UH21201601518	●
1.6	0/-0.015	0.2	0/-0.010	4	2.4	18	1.55	50	2	18.79	19.39	20	20.61	21.82	UH21201602018	●
1.6	0/-0.015	0.15	0/-0.010	4	2.4	20	1.55	60	2	20.86	21.53	22.2	22.88	24.23	UH21201601520	●
1.6	0/-0.015	0.2	0/-0.010	4	2.4	20	1.55	50	2	20.86	21.53	22.2	22.88	24.23	UH21201602020	●
1.8	0/-0.015	0.2	0/-0.010	4	2.7	6	1.75	50	2	6.38	6.58	6.79	6.99	7.39	UH2120180206	●
1.8	0/-0.015	0.2	0/-0.010	4	2.7	8	1.75	50	2	8.45	8.72	8.99	9.26	9.79	UH2120180208	◉

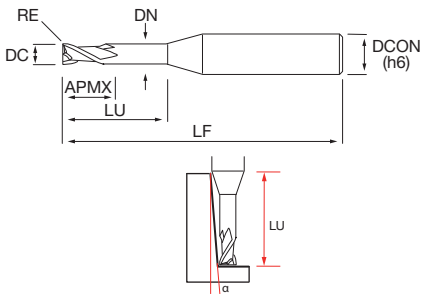
★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

UH212

- Cylindrical shank
- 2 flutes
- Extended and reduced neck
- Corner radius

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 40° | RADIUS | ZEFP 2 | SQUARE RIB

DC	DC tol.	RE	RE tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
1.8	0/-0.015	0.2	0/-0.010	4	2.7	10	1.75	50	2	10.52	10.85	11.19	11.52	12.2	UH2120180210	●
1.8	0/-0.015	0.2	0/-0.010	4	2.7	12	1.75	50	2	12.58	12.99	13.39	13.79	14.6	UH2120180212	◉
1.8	0/-0.015	0.2	0/-0.010	4	2.7	14	1.75	50	2	14.65	15.12	15.59	16.06	17.01	UH2120180214	●
1.8	0/-0.015	0.2	0/-0.010	4	2.7	16	1.75	50	2	16.72	17.26	17.79	18.33	19.41	UH2120180216	●
1.8	0/-0.015	0.2	0/-0.010	4	2.7	18	1.75	60	2	18.79	19.39	20	20.6	21.81	UH2120180218	●
1.8	0/-0.015	0.2	0/-0.010	4	2.7	20	1.75	60	2	20.85	21.53	22.2	22.87	24.22	UH2120180220	●
2	0/-0.015	0.2	0/-0.010	4	3	6	1.95	50	2	6.38	6.58	6.79	6.99	7.39	UH2120200206	●
2	0/-0.015	0.2	0/-0.010	4	3	8	1.95	50	2	8.45	8.72	8.99	9.26	9.79	UH2120200208	●
2	0/-0.015	0.2	0/-0.010	4	3	10	1.95	50	2	10.52	10.85	11.19	11.52	12.2	UH2120200210	●
2	0/-0.015	0.2	0/-0.010	4	3	12	1.95	50	2	12.58	12.99	13.39	13.79	14.6	UH2120200212	●
2	0/-0.015	0.2	0/-0.010	4	3	14	1.95	50	2	14.65	15.12	15.59	16.06	17.01	UH2120200214	●
2	0/-0.015	0.2	0/-0.010	4	3	16	1.95	50	2	16.72	17.26	17.79	18.33	19.41	UH2120200216	●
2	0/-0.015	0.2	0/-0.010	4	3	18	1.95	60	2	18.79	19.39	20	20.6	21.81	UH2120200218	●
2	0/-0.015	0.2	0/-0.010	4	3	20	1.95	60	2	20.85	21.53	22.2	22.87	-	UH2120200220	●
2	0/-0.015	0.2	0/-0.010	4	3	25	1.95	75	2	26.02	26.86	27.7	28.54	-	UH2120200225	●
2	0/-0.015	0.2	0/-0.010	4	3	30	1.95	75	2	31.19	32.2	33.21	-	-	UH2120200230	●
2.5	0/-0.020	0.3	0/-0.015	4	3.7	8	2.4	50	2	8.45	8.71	8.98	9.24	9.77	UH2120250308	●
2.5	0/-0.020	0.3	0/-0.015	4	3.7	10	2.4	50	2	10.51	10.85	11.18	11.51	12.18	UH2120250310	●
2.5	0/-0.020	0.3	0/-0.015	4	3.7	12	2.4	50	2	12.58	12.98	13.38	13.78	14.58	UH2120250312	●
2.5	0/-0.020	0.3	0/-0.015	4	3.7	14	2.4	50	2	14.65	15.12	15.58	16.05	-	UH2120250314	●
2.5	0/-0.020	0.3	0/-0.015	4	3.7	16	2.4	50	2	16.72	17.25	17.78	18.32	-	UH2120250316	●
2.5	0/-0.020	0.3	0/-0.015	4	3.7	18	2.4	60	2	18.78	19.38	19.99	20.59	-	UH2120250318	●
2.5	0/-0.020	0.3	0/-0.015	4	3.7	20	2.4	60	2	20.85	21.52	22.19	22.86	-	UH2120250320	●
2.5	0/-0.020	0.3	0/-0.015	4	3.7	25	2.4	60	2	26.02	26.86	27.69	-	-	UH2120250325	●
2.5	0/-0.020	0.3	0/-0.015	4	3.7	30	2.4	75	2	31.19	32.19	-	-	-	UH2120250330	●
3	0/-0.025	0.3	0/-0.015	6	4.5	8	2.85	50	2	8.64	8.91	9.18	9.45	10	UH2120300308	●
3	0/-0.025	0.3	0/-0.015	6	4.5	10	2.85	50	2	10.71	11.04	11.38	11.72	12.4	UH2120300310	●
3	0/-0.025	0.3	0/-0.015	6	4.5	12	2.85	50	2	12.77	13.18	13.59	13.99	14.8	UH2120300312	◉
3	0/-0.025	0.3	0/-0.015	6	4.5	14	2.85	50	2	14.84	15.31	15.79	16.26	17.21	UH2120300314	●
3	0/-0.025	0.3	0/-0.015	6	4.5	16	2.85	60	2	16.91	17.45	17.99	18.53	19.61	UH2120300316	◉
3	0/-0.025	0.3	0/-0.015	6	4.5	18	2.85	60	2	18.98	19.58	20.19	20.8	22.02	UH2120300318	●
3	0/-0.025	0.3	0/-0.015	6	4.5	20	2.85	60	2	21.04	21.72	22.39	23.07	24.42	UH2120300320	●
3	0/-0.025	0.3	0/-0.015	6	4.5	25	2.85	75	2	26.21	27.05	27.9	28.74	30.43	UH2120300325	●
4	0/-0.025	0.4	0/-0.015	6	4.5	10	3.85	60	2	10.9	11.24	11.58	11.92	12.6	UH2120400410	●
4	0/-0.025	0.4	0/-0.015	6	4.5	15	3.85	60	2	16.06	16.57	17.08	17.59	18.61	UH2120400415	●
4	0/-0.025	0.4	0/-0.015	6	4.5	20	3.85	60	2	21.23	21.91	22.59	23.27	-	UH2120400420	●
4	0/-0.025	0.4	0/-0.015	6	4.5	25	3.85	75	2	26.4	27.25	28.09	28.94	-	UH2120400425	●
4	0/-0.025	0.4	0/-0.015	6	4.5	30	3.85	75	2	31.57	32.58	33.6	-	-	UH2120400430	●
4	0/-0.025	0.4	0/-0.015	6	4.5	40	3.85	75	2	41.9	43.25	-	-	-	UH2120400440	●

★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

UH212

	Material Group ISO 513			P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm			≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae			**ap x D**	**ap x D**	**ap x D**	**ap x D**
	Vc (m/min)			**80÷120**	**60÷100**	**50÷70**	**30÷50**
	DC (mm)	LU (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
SQUARE RIB	0.2	≤ 6D	0.01	0.003	0.003	0.002	0.002
		≤ 8D	0.01	0.003	0.002	0.002	0.002
		≤ 10D	0.01	0.002	0.002	0.002	0.001
		≤ 12D	0.01	0.002	0.001	0.001	0.001
	0.3	≤ 6D	0.02	0.004	0.004	0.003	0.003
		≤ 8D	0.01	0.003	0.003	0.003	0.002
		≤ 10D	0.01	0.003	0.003	0.002	0.002
		≤ 12D	0.01	0.002	0.002	0.002	0.002
	0.4	≤ 6D	0.02	0.006	0.005	0.005	0.004
		≤ 8D	0.02	0.005	0.005	0.004	0.004
		≤ 10D	0.01	0.004	0.004	0.003	0.003
		≤ 12D	0.01	0.003	0.003	0.003	0.002
	0.5	≤ 6D	0.03	0.007	0.006	0.006	0.005
		≤ 8D	0.02	0.006	0.005	0.005	0.004
		≤ 10D	0.02	0.005	0.004	0.004	0.003
		≤ 12D	0.01	0.004	0.003	0.003	0.003
	0.6	≤ 6D	0.03	0.008	0.007	0.006	0.006
		≤ 8D	0.03	0.007	0.006	0.005	0.005
		≤ 10D	0.02	0.006	0.005	0.004	0.004
		≤ 12D	0.02	0.004	0.004	0.004	0.003
	0.8	≤ 6D	0.04	0.010	0.009	0.008	0.007
		≤ 8D	0.03	0.009	0.008	0.007	0.006
		≤ 10D	0.03	0.007	0.006	0.006	0.005
		≤ 12D	0.02	0.006	0.005	0.004	0.004
	1	≤ 6D	0.05	0.012	0.011	0.010	0.008
		≤ 8D	0.04	0.010	0.009	0.008	0.007
		≤ 10D	0.04	0.008	0.008	0.007	0.006
		≤ 12D	0.03	0.007	0.006	0.005	0.005
	1.2	≤ 6D	0.06	0.022	0.020	0.018	0.015
		≤ 8D	0.05	0.019	0.017	0.015	0.013
		≤ 10D	0.04	0.015	0.014	0.012	0.011
		≤ 12D	0.03	0.012	0.011	0.010	0.008
	1.4	≤ 6D	0.07	0.024	0.022	0.019	0.017
		≤ 8D	0.06	0.020	0.018	0.016	0.014
		≤ 10D	0.05	0.017	0.015	0.013	0.012
		≤ 12D	0.04	0.013	0.012	0.011	0.009
		≤ 15D	0.03	0.011	0.010	0.009	0.008
		> 15D	0.02	0.007	0.006	0.006	0.005
	1.5	≤ 6D	0.08	0.025	0.023	0.020	0.018
		≤ 8D	0.06	0.021	0.019	0.017	0.015
		≤ 10D	0.05	0.018	0.016	0.014	0.012
		≤ 12D	0.04	0.014	0.012	0.011	0.010
		≤ 15D	0.03	0.011	0.010	0.009	0.008
		≥ 15D	0.02	0.008	0.007	0.006	0.005
	1.6	≤ 6D	0.08	0.026	0.023	0.021	0.018
		≤ 8D	0.07	0.022	0.020	0.018	0.015
		≤ 10D	0.06	0.018	0.016	0.015	0.013
		≤ 12D	0.04	0.014	0.013	0.011	0.010
		≤ 15D	0.04	0.012	0.011	0.009	0.008
		> 15D	0.02	0.008	0.007	0.006	0.005

Cutting Parameters

UH212

SQUARE RIB

Material Group ISO 513			P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
Hardness/Rm			≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
ap x ae			**ap x D**	**ap x D**	**ap x D**	**ap x D**
Vc (m/min)			**80÷120**	**60÷100**	**50÷70**	**30÷50**
DC (mm)	LU (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
0.2	≤ 6D	0.01	0.003	0.003	0.002	0.002
	≤ 8D	0.01	0.003	0.002	0.002	0.002
	≤ 10D	0.01	0.002	0.002	0.002	0.001
	≤ 12D	0.01	0.002	0.001	0.001	0.001
0.3	≤ 6D	0.02	0.004	0.004	0.003	0.003
	≤ 8D	0.01	0.003	0.003	0.003	0.002
	≤ 10D	0.01	0.003	0.003	0.002	0.002
	≤ 12D	0.01	0.002	0.002	0.002	0.002
0.4	≤ 6D	0.02	0.006	0.005	0.005	0.004
	≤ 8D	0.02	0.005	0.005	0.004	0.004
	≤ 10D	0.01	0.004	0.004	0.003	0.003
	≤ 12D	0.01	0.003	0.003	0.003	0.002
0.5	≤ 6D	0.03	0.007	0.006	0.006	0.005
	≤ 8D	0.02	0.006	0.005	0.005	0.004
	≤ 10D	0.02	0.005	0.004	0.004	0.003
	≤ 12D	0.01	0.004	0.003	0.003	0.003
0.6	≤ 6D	0.03	0.008	0.007	0.006	0.006
	≤ 8D	0.03	0.007	0.006	0.005	0.005
	≤ 10D	0.02	0.006	0.005	0.004	0.004
	≤ 12D	0.02	0.004	0.004	0.004	0.003
0.8	≤ 6D	0.04	0.010	0.009	0.008	0.007
	≤ 8D	0.03	0.009	0.008	0.007	0.006
	≤ 10D	0.03	0.007	0.006	0.006	0.005
	≤ 12D	0.02	0.006	0.005	0.004	0.004
1	≤ 6D	0.05	0.012	0.011	0.010	0.008
	≤ 8D	0.04	0.010	0.009	0.008	0.007
	≤ 10D	0.04	0.008	0.008	0.007	0.006
	≤ 12D	0.03	0.007	0.006	0.005	0.005
1.2	≤ 6D	0.06	0.022	0.020	0.018	0.015
	≤ 8D	0.05	0.019	0.017	0.015	0.013
	≤ 10D	0.04	0.015	0.014	0.012	0.011
	≤ 12D	0.03	0.012	0.011	0.010	0.008
1.4	≤ 6D	0.07	0.024	0.022	0.019	0.017
	≤ 8D	0.06	0.020	0.018	0.016	0.014
	≤ 10D	0.05	0.017	0.015	0.013	0.012
	≤ 12D	0.04	0.013	0.012	0.011	0.009
	≤ 15D	0.03	0.011	0.010	0.009	0.008
	> 15D	0.02	0.007	0.006	0.006	0.005
1.5	≤ 6D	0.08	0.025	0.023	0.020	0.018
	≤ 8D	0.06	0.021	0.019	0.017	0.015
	≤ 10D	0.05	0.018	0.016	0.014	0.012
	≤ 12D	0.04	0.014	0.012	0.011	0.010
	≤ 15D	0.03	0.011	0.010	0.009	0.008
	≥ 15D	0.02	0.008	0.007	0.006	0.005
1.6	≤ 6D	0.08	0.026	0.023	0.021	0.018
	≤ 8D	0.07	0.022	0.020	0.018	0.015
	≤ 10D	0.06	0.018	0.016	0.015	0.013
	≤ 12D	0.04	0.014	0.013	0.011	0.010
	≤ 15D	0.04	0.012	0.011	0.009	0.008
	> 15D	0.02	0.008	0.007	0.006	0.005

UH212

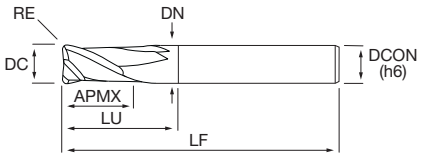
	Material Group ISO 513			P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm			≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae			**ap x D**	**ap x D**	**ap x D**	**ap x D**
	Vc (m/min)			**80÷120**	**60÷100**	**50÷70**	**30÷50**
	DC (mm)	LU (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
SQUARE RIB	1.8	≤ 6D	0.09	0.028	0.025	0.022	0.020
		≤ 8D	0.08	0.024	0.021	0.019	0.017
		≤ 10D	0.06	0.020	0.018	0.016	0.014
		≤ 12D	0.05	0.015	0.014	0.012	0.011
		≤ 15D	0.04	0.013	0.011	0.010	0.009
		> 15D	0.03	0.008	0.008	0.007	0.006
	2	≤ 6D	0.10	0.030	0.027	0.024	0.021
		≤ 8D	0.09	0.026	0.023	0.020	0.018
		≤ 10D	0.07	0.021	0.019	0.017	0.015
		≤ 12D	0.06	0.017	0.015	0.013	0.012
		≤ 15D	0.05	0.014	0.012	0.011	0.009
		> 15D	0.03	0.009	0.008	0.007	0.006
	2.5	≤ 6D	0.13	0.035	0.032	0.028	0.025
		≤ 8D	0.11	0.030	0.027	0.024	0.021
		≤ 10D	0.09	0.025	0.022	0.020	0.017
		≤ 12D	0.07	0.019	0.017	0.015	0.013
		≤ 15D	0.06	0.016	0.014	0.013	0.011
		> 15D	0.04	0.011	0.009	0.008	0.007
	3	≤ 6D	0.15	0.040	0.036	0.032	0.028
		≤ 8D	0.13	0.034	0.031	0.027	0.024
		≤ 10D	0.11	0.028	0.025	0.022	0.020
		≤ 12D	0.08	0.022	0.020	0.018	0.015
		≤ 15D	0.07	0.018	0.016	0.014	0.013
		> 15D	0.05	0.012	0.011	0.010	0.008
	4	≤ 6D	0.20	0.050	0.045	0.040	0.035
		≤ 8D	0.17	0.043	0.038	0.034	0.030
		≤ 10D	0.14	0.035	0.032	0.028	0.025
		≤ 12D	0.11	0.028	0.025	0.022	0.019
		≤ 15D	0.09	0.023	0.020	0.018	0.016
		> 15D	0.06	0.015	0.014	0.012	0.011

SORMA DIAMOND & CUTTING TOOLS

UHCS2

- Cylindrical shank
- 2F
- Corner radius

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG / UH RED | <70 HRC | FHA 40° | RADIUS | ZEFP 2 | SLOTTING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LU	DN	LF	ZEFP	EDP no.	Stock
1	0/-0.012	0.1	±0.010	4	h6	2	3	0.95	50	2	**UHCS2010**	●
1.5	0/-0.012	0.1	±0.010	4	h6	2.5	4	1.45	50	2	**UHCS2015**	●
2	0/-0.012	0.1	±0.010	4	h6	3	6	1.95	50	2	**UHCS2020**	●
3	0/-0.012	0.1	±0.010	6	h6	4.5	8	2.85	55	2	**UHCS2030**	●
4	0/-0.012	0.1	±0.010	6	h6	6	10	3.85	55	2	**UHCS2040**	●
5	0/-0.012	0.2	±0.010	6	h6	6	11	4.85	50	2	**UHCS2050**	●
6	0/-0.015	0.2	±0.010	6	h6	9	15	5.85	60	2	**UHCS2060**	●
8	0/-0.015	0.2	±0.015	8	h6	12	20	7.7	70	2	**UHCS2080**	●
10	0/-0.015	0.2	±0.015	10	h6	15	25	9.7	70	2	**UHCS2100**	●
12	0/-0.015	0.3	±0.015	12	h6	18	30	11.7	80	2	**UHCS2120**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

Cutting Parameters

UHCS2

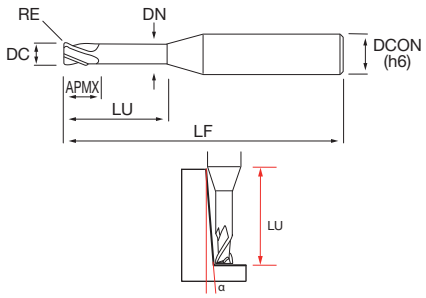
	Material Group ISO 513	P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm	≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae	**0.3D x D**	**0.2D x D**	**0.2D x D**	**0.1D x D**
	Vc (m/min)	**80÷120**	**60÷100**	**50÷70**	**30÷50**
SLOTTING	DC (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	1	0.007	0.006	0.006	0.005
	2	0.012	0.011	0.010	0.008
	3	0.017	0.015	0.014	0.012
	4	0.023	0.021	0.018	0.016
	5	0.030	0.027	0.024	0.021
	6	0.038	0.034	0.030	0.027
	8	0.050	0.045	0.040	0.035
	10	0.065	0.059	0.052	0.046
	12	0.080	0.072	0.064	0.056

SORMA DIAMOND & CUTTING TOOLS

UHF4LN

- Cylindrical shank
- 4F Unequal Pitch
- Extended and reduced neck
- Corner radius

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 25° | RADIUS | ZEFP 4 UP | SQUARE RIB

DC	DC tol.	RE	RE tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
1	0/-0.010	0.1	±0.005	4	1	4	0.9	50	4	4.32	4.46	4.62	4.78	5.13	UHF4LN0100104	●
1	0/-0.010	0.1	±0.005	4	1	6	0.9	50	4	6.39	6.6	6.83	7.08	7.6	UHF4LN0100106	●
1	0/-0.010	0.1	±0.005	4	1	8	0.9	50	4	8.45	8.74	9.05	9.37	10.07	UHF4LN0100108	●
1	0/-0.010	0.1	±0.005	4	1	10	0.9	50	4	10.52	10.88	11.26	11.66	12.53	UHF4LN0100110	◉
1	0/-0.010	0.1	±0.005	4	1	12	0.9	50	4	12.59	13.02	13.48	13.96	15	UHF4LN0100112	●
1	0/-0.010	0.1	±0.005	4	1	14	0.9	50	4	14.66	15.16	15.69	16.25	17.47	UHF4LN0100114	●
1	0/-0.010	0.1	±0.005	4	1	16	0.9	50	4	16.72	17.3	17.91	18.55	19.94	UHF4LN0100116	◉
1	0/-0.010	0.1	±0.005	4	1	20	0.9	75	4	20.86	21.57	22.33	23.14	24.87	UHF4LN0100120	●
1	0/-0.010	0.2	±0.005	4	1	4	0.9	50	4	4.32	4.46	4.61	4.77	5.11	UHF4LN0100204	●
1	0/-0.010	0.2	±0.005	4	1	6	0.9	50	4	6.38	6.6	6.82	7.06	7.57	UHF4LN0100206	●
1	0/-0.010	0.2	±0.005	4	1	8	0.9	50	4	8.45	8.73	9.04	9.35	10.04	UHF4LN0100208	●
1	0/-0.010	0.2	±0.005	4	1	10	0.9	50	4	10.52	10.87	11.25	11.65	12.51	UHF4LN0100210	●
1	0/-0.010	0.2	±0.005	4	1	12	0.9	50	4	12.58	13.01	13.47	13.94	14.98	UHF4LN0100212	◉
1	0/-0.010	0.2	±0.005	4	1	14	0.9	50	4	14.65	15.15	15.68	16.24	17.45	UHF4LN0100214	●
1	0/-0.010	0.2	±0.005	4	1	16	0.9	50	4	16.72	17.29	17.89	18.53	19.91	UHF4LN0100216	●
1	0/-0.010	0.2	±0.005	4	1	20	0.9	60	4	20.85	21.57	22.32	23.12	24.85	UHF4LN0100220	◉
1	0/-0.010	0.3	±0.005	4	1	6	0.9	50	4	6.38	6.59	6.81	7.05	7.55	UHF4LN0100306	●
1	0/-0.010	0.3	±0.005	4	1	10	0.9	50	4	10.51	10.87	11.24	11.63	12.49	UHF4LN0100310	●
1	0/-0.010	0.3	±0.005	4	1	16	0.9	50	4	16.72	17.28	17.88	18.52	19.89	UHF4LN0100316	●
1	0/-0.010	0.3	±0.005	4	1	20	0.9	60	4	20.85	21.56	22.31	23.11	24.82	UHF4LN0100320	◉
1.5	0/-0.010	0.1	±0.005	4	1.5	6	1.4	50	4	6.39	6.6	6.83	7.08	7.6	UHF4LN0150106	●
1.5	0/-0.010	0.1	±0.005	4	1.5	8	1.4	50	4	8.45	8.74	9.05	9.37	10.07	UHF4LN0150108	●
1.5	0/-0.010	0.1	±0.005	4	1.5	12	1.4	50	4	12.59	13.02	13.48	13.96	15	UHF4LN0150112	●
1.5	0/-0.010	0.1	±0.005	4	1.5	16	1.4	50	4	16.72	17.3	17.91	18.55	19.94	UHF4LN0150116	◉
1.5	0/-0.010	0.1	±0.005	4	1.5	20	1.4	60	4	20.86	21.57	22.33	23.14	-	UHF4LN0150120	●
1.5	0/-0.010	0.2	±0.005	4	1.5	6	1.4	50	4	6.38	6.6	6.82	7.06	7.57	UHF4LN0150206	●
1.5	0/-0.010	0.2	±0.005	4	1.5	8	1.4	50	4	8.45	8.73	9.04	9.35	10.04	UHF4LN0150208	●
1.5	0/-0.010	0.2	±0.005	4	1.5	10	1.4	50	4	10.52	10.87	11.25	11.65	12.51	UHF4LN0150210	●
1.5	0/-0.010	0.2	±0.005	4	1.5	12	1.4	50	4	12.58	13.01	13.47	13.94	14.98	UHF4LN0150212	●
1.5	0/-0.010	0.2	±0.005	4	1.5	14	1.4	50	4	14.65	15.15	15.68	16.24	17.45	UHF4LN0150214	●
1.5	0/-0.010	0.2	±0.005	4	1.5	16	1.4	50	4	16.72	17.29	17.89	18.53	19.91	UHF4LN0150216	●
1.5	0/-0.010	0.2	±0.005	4	1.5	18	1.4	60	4	18.79	19.43	20.11	20.83	22.38	UHF4LN0150218	●
1.5	0/-0.010	0.2	±0.005	4	1.5	20	1.4	60	4	20.85	21.57	22.32	23.12	-	UHF4LN0150220	●
1.5	0/-0.010	0.3	±0.005	4	1.5	8	1.4	50	4	8.45	8.73	9.03	9.34	10.02	UHF4LN0150308	◉
1.5	0/-0.010	0.3	±0.005	4	1.5	16	1.4	50	4	16.72	17.28	17.88	18.52	19.89	UHF4LN0150316	●
1.5	0/-0.010	0.3	±0.005	4	1.5	20	1.4	60	4	20.85	21.56	22.31	23.11	-	UHF4LN0150320	●
2	0/-0.010	0.2	±0.005	4	2	6	1.9	50	4	6.38	6.6	6.82	7.06	7.57	UHF4LN0200206	●
2	0/-0.010	0.2	±0.005	4	2	8	1.9	50	4	8.45	8.73	9.04	9.35	10.04	UHF4LN0200208	●
2	0/-0.010	0.2	±0.005	4	2	10	1.9	50	4	10.52	10.87	11.25	11.65	12.51	UHF4LN0200210	●
2	0/-0.010	0.2	±0.005	4	2	12	1.9	50	4	12.58	13.01	13.47	13.94	14.98	UHF4LN0200212	●
2	0/-0.010	0.2	±0.005	4	2	14	1.9	50	4	14.65	15.15	15.68	16.24	17.45	UHF4LN0200214	●
2	0/-0.010	0.2	±0.005	4	2	16	1.9	50	4	16.72	17.29	17.89	18.53	-	UHF4LN0200216	●
2	0/-0.010	0.2	±0.005	4	2	18	1.9	60	4	18.79	19.43	20.11	20.83	-	UHF4LN0200218	●
2	0/-0.010	0.2	±0.005	4	2	20	1.9	60	4	20.85	21.57	22.32	23.12	-	UHF4LN0200220	●
2	0/-0.010	0.2	±0.005	4	2	25	1.9	75	4	26.02	26.91	27.86	-	-	UHF4LN0200225	●

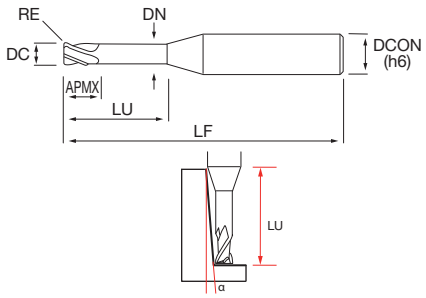
★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

UHF4LN

- Cylindrical shank
- 4F Unequal Pitch
- Extended and reduced neck
- Corner radius

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 25° | RADIUS | ZEFP 4 UP | SQUARE RIB

DC	DC tol.	RE	RE tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
2	0/-0.010	0.2	±0.005	4	2	30	1.9	75	4	31.19	32.26	33.4	-	-	UHF4LN0200230	●
2	0/-0.010	0.3	±0.005	4	2	8	1.9	50	4	8.45	8.73	9.03	9.34	10.02	UHF4LN0200308	●
2	0/-0.010	0.3	±0.005	4	2	16	1.9	50	4	16.72	17.28	17.88	18.52	-	UHF4LN0200316	●
2	0/-0.010	0.3	±0.005	4	2	20	1.9	60	4	20.85	21.56	22.31	23.11	-	UHF4LN0200320	◉
2	0/-0.010	0.5	±0.005	4	2	6	1.9	50	4	6.37	6.58	6.79	7.02	7.5	UHF4LN0200506	●
2	0/-0.010	0.5	±0.005	4	2	8	1.9	50	4	8.44	8.71	9	9.31	9.97	UHF4LN0200508	●
2	0/-0.010	0.5	±0.005	4	2	12	1.9	50	4	12.57	12.99	13.43	13.9	14.91	UHF4LN0200512	●
2	0/-0.010	0.5	±0.005	4	2	16	1.9	50	4	16.71	17.27	17.86	18.49	-	UHF4LN0200516	●
2	0/-0.010	0.5	±0.005	4	2	20	1.9	60	4	20.84	21.55	22.29	23.08	-	UHF4LN0200520	●
2	0/-0.010	0.5	±0.005	4	2	25	1.9	75	4	26.01	26.89	27.83	28.82	-	UHF4LN0200525	◉
2	0/-0.010	0.5	±0.005	4	2	30	1.9	75	4	31.18	32.24	33.36	-	-	UHF4LN0200530	●
2.5	0/-0.015	0.3	±0.005	4	2.5	8	2.4	50	4	8.45	8.73	9.03	9.34	10.02	UHF4LN0250308	●
2.5	0/-0.015	0.3	±0.005	4	2.5	10	2.4	50	4	10.51	10.87	11.24	11.63	12.49	UHF4LN0250310	●
2.5	0/-0.015	0.3	±0.005	4	2.5	12	2.4	50	4	12.58	13.01	13.45	13.93	-	UHF4LN0250312	●
2.5	0/-0.015	0.3	±0.005	4	2.5	14	2.4	50	4	14.65	15.14	15.67	16.22	-	UHF4LN0250314	●
2.5	0/-0.015	0.3	±0.005	4	2.5	16	2.4	50	4	16.72	17.28	17.88	18.52	-	UHF4LN0250316	●
2.5	0/-0.015	0.3	±0.005	4	2.5	18	2.4	60	4	18.78	19.42	20.1	20.81	-	UHF4LN0250318	◉
2.5	0/-0.015	0.3	±0.005	4	2.5	20	2.4	60	4	20.85	21.56	22.31	-	-	UHF4LN0250320	◉
2.5	0/-0.015	0.3	±0.005	4	2.5	25	2.4	60	4	26.02	26.91	27.85	-	-	UHF4LN0250325	●
2.5	0/-0.015	0.3	±0.005	4	2.5	30	2.4	75	4	31.19	32.25	-	-	-	UHF4LN0250330	●
2.5	0/-0.015	0.5	±0.005	4	2.5	8	2.4	50	4	8.44	8.71	9	9.31	9.97	UHF4LN0250508	●
2.5	0/-0.015	0.5	±0.005	4	2.5	12	2.4	50	4	12.57	12.99	13.43	13.9	-	UHF4LN0250512	●
2.5	0/-0.015	0.5	±0.005	4	2.5	16	2.4	50	4	16.71	17.27	17.86	18.49	-	UHF4LN0250516	◉
2.5	0/-0.015	0.5	±0.005	4	2.5	20	2.4	60	4	20.84	21.55	22.29	-	-	UHF4LN0250520	●
2.5	0/-0.015	0.5	±0.005	4	2.5	25	2.4	60	4	26.01	26.89	27.83	-	-	UHF4LN0250525	◉
2.5	0/-0.015	0.5	±0.005	4	2.5	30	2.4	75	4	31.18	32.24	-	-	-	UHF4LN0250530	◉
3	0/-0.015	0.2	±0.010	6	3	8	2.8	50	4	8.64	8.93	9.24	9.57	10.27	UHF4LN0300208	●
3	0/-0.015	0.2	±0.010	6	3	10	2.8	50	4	10.71	11.07	11.46	11.86	12.73	UHF4LN0300210	●
3	0/-0.015	0.2	±0.010	6	3	12	2.8	50	4	12.78	13.21	13.67	14.16	15.2	UHF4LN0300212	●
3	0/-0.015	0.2	±0.010	6	3	14	2.8	50	4	14.84	15.35	15.89	16.45	17.67	UHF4LN0300214	●
3	0/-0.015	0.2	±0.010	6	3	16	2.8	60	4	16.91	17.49	18.1	18.74	20.14	UHF4LN0300216	●
3	0/-0.015	0.2	±0.010	6	3	18	2.8	60	4	18.98	19.63	20.31	21.04	22.6	UHF4LN0300218	●
3	0/-0.015	0.2	±0.010	6	3	20	2.8	60	4	21.05	21.77	22.53	23.33	25.07	UHF4LN0300220	●
3	0/-0.015	0.2	±0.010	6	3	25	2.8	75	4	26.21	27.11	28.07	29.07	-	UHF4LN0300225	●
3	0/-0.015	0.3	±0.010	6	3	8	2.8	50	4	8.64	8.93	9.23	9.55	10.24	UHF4LN0300308	●
3	0/-0.015	0.3	±0.010	6	3	10	2.8	50	4	10.71	11.07	11.45	11.85	12.71	UHF4LN0300310	◉
3	0/-0.015	0.3	±0.010	6	3	12	2.8	50	4	12.77	13.2	13.66	14.14	15.18	UHF4LN0300312	◉
3	0/-0.015	0.3	±0.010	6	3	14	2.8	50	4	14.84	15.34	15.87	16.44	17.64	UHF4LN0300314	●
3	0/-0.015	0.3	±0.010	6	3	16	2.8	60	4	16.91	17.48	18.09	18.73	20.11	UHF4LN0300316	●
3	0/-0.015	0.3	±0.010	6	3	18	2.8	60	4	18.98	19.62	20.3	21.02	22.58	UHF4LN0300318	●
3	0/-0.015	0.3	±0.010	6	3	20	2.8	60	4	21.04	21.76	22.52	23.32	25.05	UHF4LN0300320	●
3	0/-0.015	0.3	±0.010	6	3	30	2.8	75	4	31.38	32.45	33.59	34.79	-	UHF4LN0300330	●
3	0/-0.015	0.5	±0.010	6	3	8	2.8	50	4	8.63	8.91	9.21	9.52	10.2	UHF4LN0300508	●
3	0/-0.015	0.5	±0.010	6	3	10	2.8	50	4	10.7	11.05	11.42	11.82	12.66	UHF4LN0300510	●
3	0/-0.015	0.5	±0.010	6	3	12	2.8	50	4	12.77	13.19	13.64	14.11	15.13	UHF4LN0300512	●

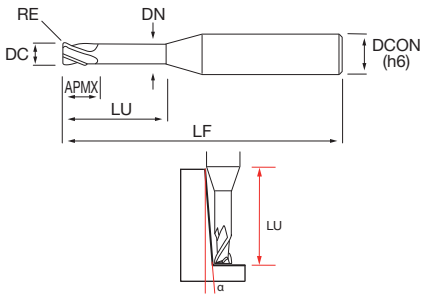
★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

UHF4LN

- Cylindrical shank
- 4F Unequal Pitch
- Extended and reduced neck
- Corner radius

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 25° | RADIUS | ZEFP 4 UP | SQUARE RIB

DC	DC tol.	RE	RE tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
3	0/-0.015	0.5	±0.010	6	3	14	2.8	50	4	14.83	15.33	15.85	16.41	17.6	**UHF4LN0300514**	●
3	0/-0.015	0.5	±0.010	6	3	16	2.8	60	4	16.9	17.47	18.07	18.7	20.07	**UHF4LN0300516**	●
3	0/-0.015	0.5	±0.010	6	3	18	2.8	60	4	18.97	19.61	20.28	20.99	22.53	**UHF4LN0300518**	●
3	0/-0.015	0.5	±0.010	6	3	20	2.8	60	4	21.04	21.75	22.5	23.29	25	**UHF4LN0300520**	●
3	0/-0.015	0.5	±0.010	6	3	30	2.8	75	4	31.37	32.44	33.57	34.76	-	**UHF4LN0300530**	●
4	0/-0.015	0.3	±0.010	6	4	10	3.7	60	4	10.9	11.26	11.65	12.06	12.93	**UHF4LN0400310**	●
4	0/-0.015	0.3	±0.010	6	4	15	3.7	60	4	16.07	16.61	17.19	17.79	19.1	**UHF4LN0400315**	●
4	0/-0.015	0.3	±0.010	6	4	20	3.7	60	4	21.24	21.96	22.72	23.53	-	**UHF4LN0400320**	●
4	0/-0.015	0.3	±0.010	6	4	25	3.7	75	4	26.4	27.31	28.26	-	-	**UHF4LN0400325**	●
4	0/-0.015	0.3	±0.010	6	4	32	3.7	75	4	33.64	34.79	36.01	-	-	**UHF4LN0400332**	◉
4	0/-0.015	0.3	±0.010	6	4	40	3.7	75	4	41.91	43.35	-	-	-	**UHF4LN0400340**	◉
4	0/-0.015	0.5	±0.010	6	4	10	3.7	60	4	10.89	11.25	11.63	12.03	12.89	**UHF4LN0400510**	●
4	0/-0.015	0.5	±0.010	6	4	15	3.7	60	4	16.06	16.6	17.17	17.76	19.06	**UHF4LN0400515**	●
4	0/-0.015	0.5	±0.010	6	4	20	3.7	60	4	21.23	21.94	22.7	23.5	-	**UHF4LN0400520**	●
4	0/-0.015	0.5	±0.010	6	4	25	3.7	75	4	26.4	27.29	28.24	-	-	**UHF4LN0400525**	●
4	0/-0.015	0.5	±0.010	6	4	32	3.7	75	4	33.63	34.78	35.99	-	-	**UHF4LN0400532**	●
4	0/-0.015	0.5	±0.010	6	4	40	3.7	75	4	41.9	43.33	-	-	-	**UHF4LN0400540**	●

★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

UHF4LN

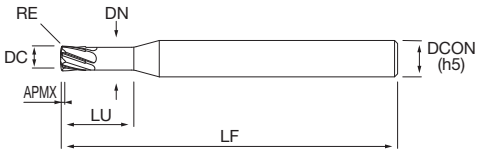
	Material Group ISO 513			P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm			≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae			**ap x D**	**ap x D**	**ap x D**	**ap x D**
	Vc (m/min)			**80÷120**	**60÷100**	**50÷70**	**30÷50**
	DC (mm)	LU (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
SQUARE RIB	1	≤ 6D	0.05	0.010	0.009	0.008	0.007
		≤ 8D	0.04	0.009	0.008	0.007	0.006
		≤ 10D	0.04	0.007	0.006	0.006	0.005
		≤ 12D	0.03	0.006	0.005	0.004	0.004
	1.5	≤ 6D	0.08	0.021	0.019	0.017	0.015
		≤ 8D	0.06	0.018	0.016	0.014	0.013
		≤ 10D	0.05	0.015	0.013	0.012	0.010
		≤ 12D	0.04	0.012	0.011	0.009	0.008
		≤ 15D	0.03	0.010	0.009	0.008	0.007
		> 15D	0.02	0.006	0.006	0.005	0.004
	2	≤ 6D	0.10	0.026	0.023	0.020	0.018
		≤ 8D	0.09	0.022	0.020	0.017	0.015
		≤ 10D	0.07	0.018	0.016	0.014	0.012
		≤ 12D	0.06	0.014	0.013	0.011	0.010
		≤ 15D	0.05	0.011	0.010	0.009	0.008
		> 15D	0.03	0.008	0.007	0.006	0.005
	2.5	≤ 6D	0.13	0.030	0.027	0.024	0.021
		≤ 8D	0.11	0.025	0.023	0.020	0.018
		≤ 10D	0.09	0.021	0.019	0.017	0.015
		≤ 12D	0.07	0.016	0.015	0.013	0.011
		≤ 15D	0.06	0.013	0.012	0.011	0.009
		> 15D	0.04	0.009	0.008	0.007	0.006
	3	≤ 6D	0.15	0.034	0.031	0.027	0.024
		≤ 8D	0.13	0.029	0.026	0.023	0.020
		≤ 10D	0.11	0.024	0.021	0.019	0.017
		≤ 12D	0.08	0.019	0.017	0.015	0.013
		≤ 15D	0.07	0.015	0.014	0.012	0.011
		> 15D	0.05	0.010	0.009	0.008	0.007
	4	≤ 6D	0.20	0.043	0.038	0.034	0.030
		≤ 8D	0.17	0.036	0.033	0.029	0.025
		≤ 10D	0.14	0.030	0.027	0.024	0.021
		≤ 12D	0.11	0.023	0.021	0.019	0.016
		≤ 15D	0.09	0.019	0.017	0.015	0.013
		> 15D	0.06	0.013	0.011	0.010	0.009

SORMA DIAMOND & CUTTING TOOLS

UHF-RT

- Cylindrical shank
- Multi flute
- Unique corner radius design for high feed machining

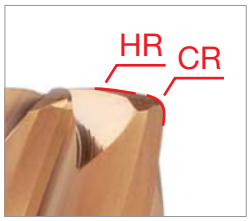
P	M	K	N	S	H
☆					★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 20° | HIGH FEED | ZEFP 4~6 | 3D MACHINING

DC	DC tol.	RP	DCON	TCDCON	APMX	LU	DN	LF	ZEFP	EDP no.	Stock
2	-0.014/-0.038	0.13	6	h5	0.07	6	1.9	50	4	**UHF470RT020N**	●
3	-0.014/-0.038	0.19	6	h5	0.1	9	2.9	60	4	**UHF470RT030N**	●
4	-0.014/-0.038	0.25	6	h5	0.13	12	3.9	60	6	**UHF670RT040N**	●
5	-0.014/-0.038	0.31	6	h5	0.17	15	4.7	60	6	**UHF670RT050N**	●
6	-0.014/-0.038	0.38	6	h5	0.2	18	5.5	60	6	**UHF670RT060N**	●
8	-0.014/-0.038	0.5	8	h5	0.27	24	7.5	75	6	**UHF670RT080N**	●
10	-0.014/-0.038	0.63	10	h5	0.33	30	9.5	90	6	**UHF670RT100N**	●
12	-0.014/-0.038	0.75	12	h5	0.4	36	11.5	100	6	**UHF670RT120N**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion



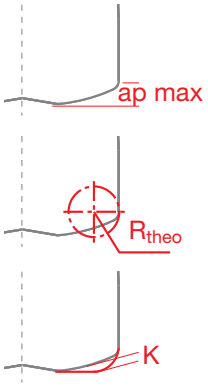
The geometry with combined radius (corner radius + head radius) create thinner chips in comparison with conventional full radius, allowing a great reduction of cutting forces.

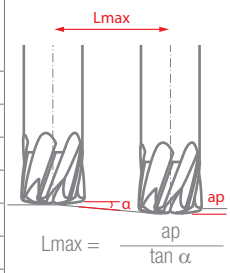
Special "no-contact" area in the end mill center, together with low helix geometry, reduce drastically the vibration, even when machining at corners.

Curved cutting edges reduce chattering and improve the chips flow.

UHF-RT

	Material Group ISO 513	P6 H1 H4 H5	H2	H3	
	Hardness/Rm	45÷55 HRC	55÷60 HRC	60÷65 HRC	
	ap x ae	**0.03D x 0.55D**	**0.03D x 0.55D**	**0.03D x 0.55D**	
	Vc (m/min)	**100÷120**	**80÷100**	**50÷70**	
3D MACHINING	DC (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	
	2	0.070	0.050	0.040	
	3	0.100	0.080	0.060	
	4	0.150	0.100	0.080	
	5	0.200	0.120	0.100	
	6	0.250	0.200	0.150	
	8	0.350	0.250	0.200	
	10	0.400	0.300	0.250	
	12	0.450	0.350	0.300	

DC	ap max	CAM input			Circular interpolation			Cutting length for linear ramping Lmax (αmax=5°) EXAMPLE	
		RP	max unmachined part K		Ø min	Ø max		α=0.5°	α=5°
2	**0.07**	0.189	0.051		2.9	3.8		8.02	0.80
3	**0.10**	0.283	0.076		4.3	5.8		11.46	1.14
4	**0.13**	0.378	0.102		5.7	7.8		14.90	1.49
5	**0.17**	0.472	0.127		7.1	9.8		19.48	1.94
6	**0.20**	0.567	0.152		8.6	11.8		22.92	2.29
8	**0.27**	0.756	0.203		11.4	15.8		30.94	3.09
10	**0.33**	0.945	0.254		14.2	19.8		37.81	3.77
12	**0.40**	1.134	0.305		17.1	23.8		45.84	4.57



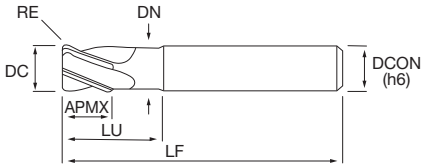
(mm)

SORMA DIAMOND & CUTTING TOOLS

UHCS4

- Cylindrical shank
- 4F
- Corner radius

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG / UH RED | <70 HRC | FHA 40° | RADIUS | ZEFP 4 | SIDE MILLING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LU	DN	LF	ZEFP	EDP no.	Stock
1	0/-0.012	0.1	±0.010	4	h6	2	3	0.95	50	4	**UHCS4010**	●
1.5	0/-0.012	0.1	±0.010	4	h6	2.5	4	1.45	50	4	**UHCS4015**	●
2	0/-0.012	0.1	±0.010	4	h6	3	6	1.95	50	4	**UHCS4020**	●
3	0/-0.012	0.1	±0.010	6	h6	4	8	2.85	55	4	**UHCS4030**	●
4	0/-0.012	0.1	±0.010	6	h6	6	10	3.85	55	4	**UHCS4040**	●
5	0/-0.012	0.2	±0.010	6	h6	6	11	4.85	50	4	**UHCS4050**	●
6	0/-0.015	0.2	±0.010	6	h6	9	15	5.85	60	4	**UHCS4060**	●
8	0/-0.015	0.2	±0.015	8	h6	12	20	7.7	70	4	**UHCS4080**	●
10	0/-0.015	0.2	±0.015	10	h6	15	25	9.7	70	4	**UHCS4100**	●
12	0/-0.015	0.3	±0.015	12	h6	18	30	11.7	80	4	**UHCS4120**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

Cutting Parameters

UHCS4

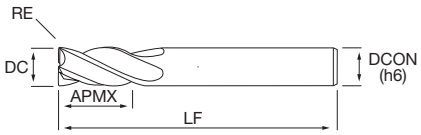
	Material Group ISO 513	P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm	≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae	**D x 0.1D**	**D x 0.05D**	**D x 0.05D**	**D x 0.05D**
	Vc (m/min)	**90÷130**	**60÷100**	**50÷70**	**30÷50**
SIDE MILLING	DC (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	1	0.010	0.009	0.008	0.007
	2	0.020	0.018	0.016	0.014
	3	0.030	0.027	0.024	0.021
	4	0.040	0.036	0.032	0.028
	5	0.045	0.041	0.036	0.032
	6	0.050	0.045	0.040	0.035
	8	0.065	0.059	0.052	0.046
	10	0.085	0.077	0.068	0.060
	12	0.100	0.090	0.080	0.070

SORMA DIAMOND & CUTTING TOOLS

UH410

- Cylindrical shank
- 4F
- Corner radius

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 40° | RADIUS | ZEFP 4 | SIDE MILLING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LF	ZEFP	EDP no.	Stock
1	0/-0.015	0.2	0/-0.010	6	h6	3	50	4	**UH41001002**	●
1.5	0/-0.015	0.2	0/-0.010	6	h6	4.5	50	4	**UH41001502**	●
2	0/-0.015	0.3	0/-0.010	6	h6	6.5	50	4	**UH41002003**	●
2.5	0/-0.020	0.3	0/-0.015	6	h6	6.5	50	4	**UH41002503**	●
2.5	0/-0.020	0.5	0/-0.015	6	h6	6.5	50	4	**UH41002505**	●
3	0/-0.020	0.2	0/-0.015	6	h6	9	50	4	**UH41003002**	●
3	0/-0.020	0.3	0/-0.015	6	h6	9	50	4	**UH41003003**	●
3	0/-0.020	0.5	0/-0.015	6	h6	9	50	4	**UH41003005**	●
4	0/-0.020	0.3	0/-0.015	6	h6	12	50	4	**UH41004003**	●
4	0/-0.020	0.5	0/-0.015	6	h6	12	50	4	**UH41004005**	●
4	0/-0.020	1	0/-0.015	6	h6	12	50	4	**UH41004010**	◉
5	0/-0.020	0.3	0/-0.015	6	h6	15	50	4	**UH41005003**	●
5	0/-0.020	0.5	0/-0.015	6	h6	15	50	4	**UH41005005**	●
5	0/-0.020	1	0/-0.015	6	h6	15	50	4	**UH41005010**	◉
6	0/-0.020	0.3	0/-0.015	6	h6	16	50	4	**UH41006003**	●
6	0/-0.020	0.5	0/-0.015	6	h6	16	50	4	**UH41006005**	●
6	0/-0.020	1	0/-0.015	6	h6	16	50	4	**UH41006010**	●
8	0/-0.020	0.3	0/-0.015	8	h6	20	64	4	**UH41008003**	●
8	0/-0.020	0.5	0/-0.015	8	h6	20	64	4	**UH41008005**	●
8	0/-0.020	1	0/-0.015	8	h6	20	64	4	**UH41008010**	●
8	0/-0.020	1.5	0/-0.015	8	h6	20	64	4	**UH41008015**	●
8	0/-0.020	2	0/-0.015	8	h6	20	64	4	**UH41008020**	◉
10	0/-0.020	0.3	0/-0.020	10	h6	22	70	4	**UH41010003**	●
10	0/-0.020	0.5	0/-0.020	10	h6	22	70	4	**UH41010005**	●
10	0/-0.020	1	0/-0.020	10	h6	22	70	4	**UH41010010**	●
10	0/-0.020	1.5	0/-0.020	10	h6	22	70	4	**UH41010015**	●
10	0/-0.020	2	0/-0.020	10	h6	22	70	4	**UH41010020**	◉
12	0/-0.020	0.3	0/-0.020	12	h6	25	75	4	**UH41012003**	●
12	0/-0.020	0.5	0/-0.020	12	h6	25	75	4	**UH41012005**	●
12	0/-0.020	1	0/-0.020	12	h6	25	75	4	**UH41012010**	●
12	0/-0.020	1.5	0/-0.020	12	h6	25	75	4	**UH41012015**	●
12	0/-0.020	2	0/-0.020	12	h6	25	75	4	**UH41012020**	●
12	0/-0.020	3	0/-0.020	12	h6	25	75	4	**UH41012030**	●
14	0/-0.020	0.5	0/-0.020	14	h6	32	90	4	**UH41014005**	●
14	0/-0.020	1	0/-0.020	14	h6	32	90	4	**UH41014010**	●
16	0/-0.020	0.5	0/-0.020	16	h6	32	90	4	**UH41016005**	●
16	0/-0.020	1	0/-0.020	16	h6	32	90	4	**UH41016010**	●
16	0/-0.020	2	0/-0.020	16	h6	32	90	4	**UH41016020**	●
18	0/-0.020	1	0/-0.020	18	h6	38	100	4	**UH41018010**	◉
20	0/-0.020	0.5	0/-0.020	20	h6	38	100	4	**UH41020005**	●
20	0/-0.020	1	0/-0.020	20	h6	38	100	4	**UH41020010**	◉
20	0/-0.020	2	0/-0.020	20	h6	38	100	4	**UH41020020**	●

★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

Cutting Parameters

UH410

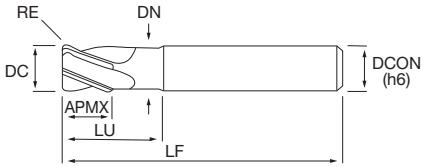
	Material Group ISO 513	P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm	≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae	**D x 0.1D**	**D x 0.05D**	**D x 0.05D**	**D x 0.05D**
	Vc (m/min)	**90÷130**	**60÷100**	**50÷70**	**30÷50**
SIDE MILLING	DC (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	1	0.010	0.009	0.008	0.007
	2	0.018	0.016	0.014	0.013
	3	0.027	0.024	0.022	0.019
	4	0.036	0.032	0.029	0.025
	5	0.041	0.036	0.032	0.028
	6	0.045	0.041	0.036	0.032
	8	0.059	0.053	0.047	0.041
	10	0.077	0.069	0.061	0.054
	12	0.090	0.081	0.072	0.063
	14	0.102	0.092	0.082	0.071
	16	0.114	0.103	0.091	0.080
	18	0.126	0.113	0.101	0.088
	20	0.138	0.124	0.110	0.097

SORMA DIAMOND & CUTTING TOOLS

UH411

- Cylindrical shank
- 4F
- Corner radius
- Long

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG / UH RED | <70 HRC | FHA 40° | RADIUS | ZEFP 4 | SIDE MILLING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LU	DN	LF	ZEFP	EDP no.	Stock
3	0/-0.012	0.3	0/-0.010	6	h6	4	12	2.85	55	4	**UH4110300312**	●
3	0/-0.012	0.3	0/-0.010	6	h6	4	20	2.85	60	4	**UH4110300320**	●
3	0/-0.012	0.5	0/-0.010	6	h6	4	10	2.85	55	4	**UH4110300510**	●
3	0/-0.012	0.5	0/-0.010	6	h6	4	20	2.85	60	4	**UH4110300520**	●
4	0/-0.012	0.3	0/-0.010	6	h6	6	12	3.85	55	4	**UH4110400312**	●
4	0/-0.012	0.3	0/-0.010	6	h6	6	20	3.85	60	4	**UH4110400320**	●
4	0/-0.012	0.5	0/-0.010	6	h6	6	12	3.85	55	4	**UH4110400512**	●
4	0/-0.012	0.5	0/-0.010	6	h6	6	20	3.85	60	4	**UH4110400520**	●
4	0/-0.012	1	0/-0.010	6	h6	6	12	3.85	55	4	**UH4110401012**	●
6	0/-0.015	0.5	0/-0.010	6	h6	9	15	5.85	60	4	**UH4110600520**	●
6	0/-0.015	1	0/-0.010	6	h6	9	15	5.85	60	4	**UH4110601020**	●
8	0/-0.015	0.5	0/-0.015	8	h6	12	20	7.7	70	4	**UH4110800525**	●
8	0/-0.015	1	0/-0.015	8	h6	12	20	7.7	70	4	**UH4110801025**	●
8	0/-0.015	2	0/-0.015	8	h6	12	20	7.7	70	4	**UH4110802025**	●
10	0/-0.015	0.5	0/-0.015	10	h6	15	25	9.7	70	4	**UH4111000532**	●
10	0/-0.015	1	0/-0.015	10	h6	15	25	9.7	70	4	**UH4111001032**	●
10	0/-0.015	2	0/-0.015	10	h6	15	25	9.7	70	4	**UH4111002032**	●
12	0/-0.015	0.5	0/-0.015	12	h6	18	30	11.7	80	4	**UH4111200538**	●
12	0/-0.015	1	0/-0.015	12	h6	18	30	11.7	80	4	**UH4111201038**	●
12	0/-0.015	2	0/-0.015	12	h6	18	30	11.7	80	4	**UH4111202038**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

UH411

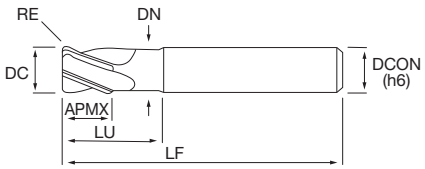
	Material Group ISO 513	P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm	≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae	**D x 0.05D**	**D x 0.05D**	**D x 0.05D**	**D x 0.05D**
	Vc (m/min)	**90÷130**	**60÷100**	**50÷70**	**30÷50**
SIDE MILLING	DC (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	3	0.027	0.024	0.022	0.019
	4	0.036	0.032	0.029	0.025
	5	0.041	0.036	0.032	0.028
	6	0.045	0.041	0.036	0.032
	8	0.059	0.053	0.047	0.041
	10	0.077	0.069	0.061	0.054
	12	0.090	0.081	0.072	0.063

SORMA DIAMOND & CUTTING TOOLS

UH412

- Cylindrical shank
- 4F
- Corner radius
- Long

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG / UH RED | <70 HRC | FHA 40° | RADIUS | ZEFP 4 | L SIDE MILLING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LU	DN	LF	ZEFP	EDP no.	Stock
2	0/-0.020	0.3	0/-0.010	6	h6	4	30	1.9	75	4	**UH4120200330**	◉
2	0/-0.020	0.3	0/-0.010	6	h6	4	60	1.9	100	4	**UH4120200360**	●
3	0/-0.020	0.3	0/-0.010	6	h6	5	30	2.8	75	4	**UH4120300330**	●
3	0/-0.020	0.3	0/-0.010	6	h6	5	60	2.8	100	4	**UH4120300360**	◉
3	0/-0.020	0.5	0/-0.010	6	h6	5	30	2.8	75	4	**UH4120300530**	●
3	0/-0.020	0.5	0/-0.010	6	h6	5	60	2.8	100	4	**UH4120300560**	◉
4	0/-0.020	0.3	0/-0.010	6	h6	8	32	3.7	75	4	**UH4120400332**	●
4	0/-0.020	0.3	0/-0.010	6	h6	8	60	3.7	100	4	**UH4120400360**	●
4	0/-0.020	0.5	0/-0.010	6	h6	8	32	3.7	75	4	**UH4120400532**	●
4	0/-0.020	0.5	0/-0.010	6	h6	8	60	3.7	100	4	**UH4120400560**	●
6	0/-0.020	0.5	0/-0.010	6	h6	9	40	5.85	90	4	**UH4120600520**	●
6	0/-0.020	1	0/-0.010	6	h6	9	40	5.85	90	4	**UH4120601020**	●
8	0/-0.020	0.5	0/-0.015	8	h6	12	45	7.7	100	4	**UH4120800525**	●
8	0/-0.020	1	0/-0.015	8	h6	12	45	7.7	100	4	**UH4120801025**	●
10	0/-0.020	0.5	0/-0.015	10	h6	15	50	9.7	100	4	**UH4121000532**	●
10	0/-0.020	1	0/-0.015	10	h6	15	50	9.7	100	4	**UH4121001032**	●
10	0/-0.020	2	0/-0.015	10	h6	15	50	9.7	100	4	**UH4121002032**	●
12	0/-0.020	0.5	0/-0.015	12	h6	18	60	11.7	110	4	**UH4121200538**	●
12	0/-0.020	1	0/-0.015	12	h6	18	60	11.7	110	4	**UH4121201038**	●
12	0/-0.020	2	0/-0.015	12	h6	18	60	11.7	110	4	**UH4121202038**	●

★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

UH412

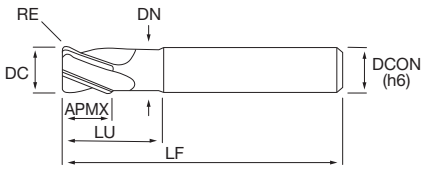
	Material Group ISO 513	P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm	≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae	**D x 0.05D**	**D x 0.05D**	**D x 0.05D**	**D x 0.05D**
	Vc (m/min)	**80÷120**	**60÷100**	**50÷70**	**30÷50**
SIDE MILLING	DC (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	2	0.016	0.015	0.013	0.011
	3	0.024	0.022	0.019	0.017
	4	0.032	0.029	0.026	0.023
	5	0.036	0.033	0.029	0.026
	6	0.041	0.036	0.032	0.028
	8	0.053	0.047	0.042	0.037
	10	0.069	0.062	0.055	0.048
	12	0.081	0.073	0.065	0.057

SORMA DIAMOND & CUTTING TOOLS

UH413

- Cylindrical shank
- 4F
- Corner radius
- Long

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG / UH RED | <70 HRC | FHA 40° | RADIUS | ZEFP 4 | SIDE MILLING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LU	DN	LF	ZEFP	EDP no.	Stock
6	0/-0.020	0.3	0/-0.015	6	h6	10	60	5.5	125	4	**UH4130600360**	●
6	0/-0.020	0.5	0/-0.015	6	h6	10	60	5.5	125	4	**UH4130600560**	●
6	0/-0.020	1	0/-0.015	6	h6	10	60	5.5	125	4	**UH4130601060**	⦿
8	0/-0.020	0.3	0/-0.015	8	h6	12	60	7.4	125	4	**UH4130800360**	●
8	0/-0.020	0.5	0/-0.015	8	h6	12	60	7.4	125	4	**UH4130800560**	●
8	0/-0.020	1	0/-0.015	8	h6	12	60	7.4	125	4	**UH4130801060**	●
8	0/-0.020	2	0/-0.015	8	h6	12	60	7.4	125	4	**UH4130802060**	●
10	0/-0.020	0.3	0/-0.020	10	h6	14	85	9.2	125	4	**UH4131000385**	●
10	0/-0.020	0.5	0/-0.020	10	h6	14	85	9.2	125	4	**UH4131000585**	●
10	0/-0.020	1	0/-0.020	10	h6	14	85	9.2	125	4	**UH4131001085**	●
10	0/-0.020	2	0/-0.020	10	h6	14	85	9.2	125	4	**UH4131002085**	●
12	0/-0.020	0.5	0/-0.020	12	h6	16	110	11	150	4	**UH41312005110**	●
12	0/-0.020	1	0/-0.020	12	h6	16	110	11	150	4	**UH41312010110**	●
12	0/-0.020	2	0/-0.020	12	h6	16	110	11	150	4	**UH41312020110**	●
16	0/-0.020	0.5	0/-0.020	16	h6	22	110	15	150	4	**UH41316005110**	●
16	0/-0.020	1	0/-0.020	16	h6	22	110	15	150	4	**UH41316010110**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

Cutting Parameters

UH413

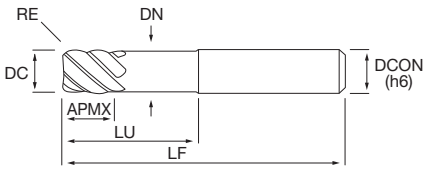
	Material Group ISO 513	P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
SIDE MILLING	Hardness/Rm	≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae	**D x 0.05D**	**D x 0.05D**	**D x 0.05D**	**D x 0.05D**
	Vc (m/min)	**70÷110**	**60÷80**	**40÷60**	**30÷50**
	DC (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	6	0.041	0.036	0.032	0.028
	8	0.053	0.047	0.042	0.037
	10	0.069	0.062	0.055	0.048
	12	0.081	0.073	0.065	0.057
	16	0.095	0.086	0.076	0.067

SORMA DIAMOND & CUTTING TOOLS

UH610R

- Cylindrical shank
- Multi flute
- Corner radius

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 50° | RADIUS | ZEFP 6 | SIDE MILLING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LU	DN	LF	ZEFP	EDP no.	Stock
6	0/-0.030	0.5	±0.015	6	h6	6	15	5.8	50	6	**UH610R05060**	●
8	0/-0.030	0.5	±0.015	8	h6	8	25	7.8	60	6	**UH610R05080**	●
10	0/-0.030	1	±0.015	10	h6	10	30	9.8	70	6	**UH610R10100**	●
12	0/-0.030	1	±0.015	12	h6	12	30	11.8	75	6	**UH610R10120**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

UH610R

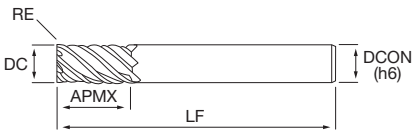
	Material Group ISO 513	P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
SIDE MILLING	Hardness/Rm	≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae	**D x 0.1D**	**D x 0.05D**	**D x 0.05D**	**D x 0.05D**
	Vc (m/min)	**140÷180**	**100÷140**	**70÷110**	**60÷80**
	DC (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	6	0.018	0.016	0.014	0.013
	8	0.028	0.025	0.022	0.019
	10	0.034	0.030	0.027	0.024
	12	0.041	0.037	0.033	0.029

SORMA DIAMOND & CUTTING TOOLS

UH611R

- Cylindrical shank
- Multi flute
- Long
- Corner radius

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 50° | RADIUS | ZEFP 6 | L SIDE MILLING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LF	ZEFP	EDP no.	Stock
6	0/-0.030	0.5	±0.015	6	h6	15	90	6	**UH611R05060**	●
8	0/-0.030	0.5	±0.015	8	h6	20	100	6	**UH611R05080**	●
10	0/-0.030	0.5	±0.015	10	h6	25	100	6	**UH611R05100**	●
10	0/-0.030	1	±0.015	10	h6	25	100	6	**UH611R10100**	●
12	0/-0.030	0.5	±0.015	12	h6	30	110	6	**UH611R05120**	●
12	0/-0.030	1	±0.015	12	h6	30	110	6	**UH611R10120**	●
16	0/-0.030	1	±0.015	16	h6	32	130	6	**UH611R10160**	●
20	0/-0.030	1	±0.015	20	h6	38	140	6	**UH611R10200**	●
20	0/-0.030	2	±0.015	20	h6	38	140	6	**UH611R20200**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

UH611R

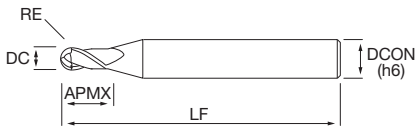
	Material Group ISO 513	P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
SIDE MILLING	Hardness/Rm	≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae	**1.5D x 0.05D**	**1.5D x 0.05D**	**1.5D x 0.05D**	**1.5D x 0.05D**
	Vc (m/min)	**110÷150**	**90÷130**	**60÷80**	**40÷60**
	DC (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	6	0.015	0.014	0.012	0.011
	8	0.023	0.021	0.019	0.016
	10	0.029	0.026	0.023	0.020
	12	0.035	0.031	0.028	0.024
	16	0.048	0.043	0.038	0.034
	20	0.066	0.060	0.053	0.046

SORMA DIAMOND & CUTTING TOOLS

MHMB204

- Cylindrical shank
- 2 flutes ball nose
- Miniature

P	M	K	N	S	H
★		★			★



OSAWA NORM | MH | NMG MH COAT | 30÷70 HRC | FHA 30° | BALL NOSE | ZEFP 2 BALL | COPYING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LF	ZEFP	EDP no.	Stock
0.2	0/-0.010	0.1	0/-0.010	4	h6	0.2	50	2	**MHMB200204**	●
0.3	0/-0.010	0.15	0/-0.010	4	h6	0.3	50	2	**MHMB200304**	●
0.4	0/-0.010	0.2	0/-0.010	4	h6	0.4	50	2	**MHMB200404**	●
0.5	0/-0.010	0.25	0/-0.010	4	h6	0.4	50	2	**MHMB200504**	●
0.6	0/-0.010	0.3	0/-0.010	4	h6	0.5	50	2	**MHMB200604**	●
0.7	0/-0.010	0.35	0/-0.010	4	h6	0.6	50	2	**MHMB200704**	●
0.8	0/-0.010	0.4	0/-0.010	4	h6	0.6	50	2	**MHMB200804**	●
0.9	0/-0.010	0.45	0/-0.010	4	h6	0.8	50	2	**MHMB200904**	●
1	0/-0.015	0.5	0/-0.015	4	h6	0.8	50	2	**MHMB201004**	●
1.5	0/-0.015	0.75	0/-0.015	4	h6	1.35	50	2	**MHMB201504**	●
2	0/-0.015	1	0/-0.015	4	h6	1.7	50	2	**MHMB202004**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

MHMB204

	Material Group ISO 513		P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm		≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae		**0.05D x 0.1D**	**0.05D x 0.1D**	**0.05D x 0.1D**	**0.05D x 0.1D**
	Vc (m/min)		**80÷120**	**60÷100**	**40÷80**	**20÷60**
ap=ae COPYING	DC (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	0.1	0.04	0.004	0.004	0.003	0.003
	0.2	0.09	0.006	0.005	0.005	0.004
	0.3	0.13	0.008	0.007	0.006	0.006
	0.4	0.17	0.010	0.009	0.008	0.007
	0.5	0.22	0.012	0.011	0.010	0.008
	0.6	0.26	0.015	0.014	0.012	0.011
	0.7	0.31	0.018	0.016	0.014	0.013
	0.8	0.35	0.020	0.018	0.016	0.014
	0.9	0.39	0.023	0.021	0.018	0.016
	1	0.44	0.026	0.023	0.020	0.017
	1.5	0.79	0.040	0.036	0.030	0.026
	2	1.20	0.055	0.050	0.041	0.036

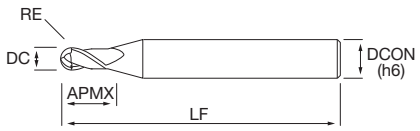
α	n (rpm)	Vf (mm/min)
15°	x 1.1	x 1.1

SORMA DIAMOND & CUTTING TOOLS

MHMB206

- Cylindrical shank
- 2 flutes ball nose
- Miniature
- 6 mm. shank

P	M	K	N	S	H
★		★			★



OSAWA NORM | MH | NMG MH COAT | 30÷70 HRC | FHA 30° | BALL NOSE | ZEFP 2 BALL | COPYING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LF	ZEFP	EDP no.	Stock
0.4	0/-0.010	0.2	0/-0.010	6	h6	0.4	50	2	**MHMB200406**	●
0.5	0/-0.010	0.25	0/-0.010	6	h6	0.5	50	2	**MHMB200506**	●
0.6	0/-0.010	0.3	0/-0.010	6	h6	0.6	50	2	**MHMB200606**	●
0.8	0/-0.010	0.4	0/-0.010	6	h6	0.8	50	2	**MHMB200806**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

MHMB206

	Material Group ISO 513		P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm		≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
ap ae COPYING	ap x ae		**0.05D x 0.2D**	**0.05D x 0.2D**	**0.05D x 0.2D**	**0.05D x 0.2D**
	Vc (m/min)		**80÷120**	**60÷100**	**40÷80**	**20÷60**
	DC (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	0.4	0.17	0.010	0.009	0.008	0.007
	0.5	0.22	0.012	0.011	0.010	0.008
	0.6	0.26	0.015	0.014	0.012	0.011
	0.8	0.35	0.020	0.018	0.016	0.014

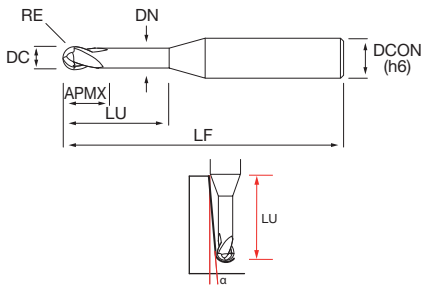
	α	n (rpm)	Vf (mm/min)
α	15°	x 1.1	x 1.1

SORMA DIAMOND & CUTTING TOOLS

MHLNB2

- Cylindrical shank
- 2 flutes ball nose
- Extended and reduced neck

P	M	K	N	S	H
★		★			★



OSAWA NORM | MH | NMG MH COAT | 30÷70 HRC | FHA 30° | BALL NOSE | ZEFP 2 BALL | ROUND RIB

DC	DC tol.	RE	RE tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
0.2	0/-0.010	0.1	0/-0.010	4	0.2	0.5	0.17	50	2	0.57	0.58	0.6	0.62	0.66	MHLNB2002005	●
0.2	0/-0.010	0.1	0/-0.010	4	0.2	1	0.17	50	2	1.08	1.12	1.15	1.19	1.27	MHLNB200201	●
0.2	0/-0.010	0.1	0/-0.010	4	0.2	1.5	0.17	50	2	1.6	1.65	1.71	1.76	1.89	MHLNB2002015	◉
0.3	0/-0.010	0.15	0/-0.010	4	0.3	1	0.27	50	2	1.08	1.11	1.15	1.18	1.26	MHLNB200301	●
0.3	0/-0.010	0.15	0/-0.010	4	0.3	2	0.27	50	2	2.12	2.18	2.25	2.33	2.49	MHLNB200302	●
0.3	0/-0.010	0.15	0/-0.010	4	0.3	3	0.27	50	2	3.15	3.25	3.36	3.48	3.73	MHLNB200303	◉
0.4	0/-0.010	0.2	0/-0.010	4	0.4	1	0.37	50	2	1.08	1.11	1.14	1.18	1.25	MHLNB200401	●
0.4	0/-0.010	0.2	0/-0.010	4	0.4	2	0.37	50	2	2.11	2.18	2.25	2.32	2.48	MHLNB200402	●
0.4	0/-0.010	0.2	0/-0.010	4	0.4	3	0.37	50	2	3.15	3.25	3.36	3.47	3.72	MHLNB200403	●
0.4	0/-0.010	0.2	0/-0.010	4	0.4	4	0.37	50	2	4.18	4.32	4.46	4.62	4.95	MHLNB200404	◉
0.4	0/-0.010	0.2	0/-0.010	4	0.4	5	0.37	50	2	5.21	5.39	5.57	5.77	6.18	MHLNB200405	◉
0.5	0/-0.010	0.25	0/-0.010	4	0.4	2	0.45	50	2	2.15	2.22	2.29	2.36	2.52	MHLNB200502	●
0.5	0/-0.010	0.25	0/-0.010	4	0.4	3	0.45	50	2	3.18	3.29	3.39	3.51	3.75	MHLNB200503	●
0.5	0/-0.010	0.25	0/-0.010	4	0.4	4	0.45	50	2	4.22	4.35	4.5	4.65	4.98	MHLNB200504	●
0.5	0/-0.010	0.25	0/-0.010	4	0.4	5	0.45	50	2	5.25	5.42	5.61	5.8	6.22	MHLNB200505	◉
0.5	0/-0.010	0.25	0/-0.010	4	0.4	6	0.45	50	2	6.28	6.49	6.71	6.95	7.45	MHLNB200506	●
0.5	0/-0.010	0.25	0/-0.010	4	0.4	8	0.45	50	2	8.35	8.63	8.93	9.24	9.92	MHLNB200508	◉
0.6	0/-0.010	0.3	0/-0.010	4	0.5	2	0.55	50	2	2.15	2.21	2.28	2.35	2.5	MHLNB200602	●
0.6	0/-0.010	0.3	0/-0.010	4	0.5	3	0.55	50	2	3.18	3.28	3.39	3.5	3.74	MHLNB200603	◉
0.6	0/-0.010	0.3	0/-0.010	4	0.5	4	0.55	50	2	4.22	4.35	4.49	4.65	4.97	MHLNB200604	●
0.6	0/-0.010	0.3	0/-0.010	4	0.5	5	0.55	50	2	5.25	5.42	5.6	5.79	6.21	MHLNB200605	◉
0.6	0/-0.010	0.3	0/-0.010	4	0.5	6	0.55	50	2	6.28	6.49	6.71	6.94	7.44	MHLNB200606	●
0.6	0/-0.010	0.3	0/-0.010	4	0.5	8	0.55	50	2	8.35	8.63	8.92	9.23	9.91	MHLNB200608	●
0.8	0/-0.010	0.4	0/-0.010	4	0.6	2	0.75	50	2	2.15	2.21	2.27	2.34	2.48	MHLNB200802	●
0.8	0/-0.010	0.4	0/-0.010	4	0.6	4	0.75	50	2	4.21	4.34	4.48	4.63	4.95	MHLNB200804	●
0.8	0/-0.010	0.4	0/-0.010	4	0.6	5	0.75	50	2	5.25	5.41	5.59	5.78	6.18	MHLNB200805	●
0.8	0/-0.010	0.4	0/-0.010	4	0.6	6	0.75	50	2	6.28	6.48	6.7	6.93	7.42	MHLNB200806	●
0.8	0/-0.010	0.4	0/-0.010	4	0.6	7	0.75	50	2	7.31	7.55	7.81	8.07	8.65	MHLNB200807	●
0.8	0/-0.010	0.4	0/-0.010	4	0.6	8	0.75	50	2	8.35	8.62	8.91	9.22	9.88	MHLNB200808	●
0.8	0/-0.010	0.4	0/-0.010	4	0.6	10	0.75	50	2	10.41	10.76	11.13	11.51	12.35	MHLNB200810	●
1	0/-0.015	0.5	0/-0.015	4	0.8	3	0.9	50	2	3.27	3.37	3.47	3.57	3.8	MHLNB201003	●
1	0/-0.015	0.5	0/-0.015	4	0.8	4	0.9	50	2	4.31	4.44	4.58	4.72	5.04	MHLNB201004	●
1	0/-0.015	0.5	0/-0.015	4	0.8	5	0.9	50	2	5.34	5.51	5.68	5.87	6.27	MHLNB201005	●
1	0/-0.015	0.5	0/-0.015	4	0.8	6	0.9	50	2	6.37	6.58	6.79	7.02	7.5	MHLNB201006	●
1	0/-0.015	0.5	0/-0.015	4	0.8	7	0.9	50	2	7.41	7.64	7.9	8.16	8.74	MHLNB201007	◉
1	0/-0.015	0.5	0/-0.015	4	0.8	8	0.9	50	2	8.44	8.71	9	9.31	9.97	MHLNB201008	●
1	0/-0.015	0.5	0/-0.015	4	0.8	9	0.9	50	2	9.47	9.78	10.11	10.46	11.21	MHLNB201009	◉
1	0/-0.015	0.5	0/-0.015	4	0.8	10	0.9	50	2	10.51	10.85	11.22	11.61	12.44	MHLNB201010	●
1	0/-0.015	0.5	0/-0.015	4	0.8	12	0.9	50	2	12.57	12.99	13.43	13.9	14.91	MHLNB201012	●
1	0/-0.015	0.5	0/-0.015	4	0.8	14	0.9	50	2	14.64	15.13	15.65	16.19	17.37	MHLNB201014	◉
1	0/-0.015	0.5	0/-0.015	4	0.8	16	0.9	50	2	16.71	17.27	17.86	18.49	19.84	MHLNB201016	●
1	0/-0.015	0.5	0/-0.015	4	0.8	20	0.9	60	2	20.84	21.55	22.29	23.08	24.78	MHLNB201020	●
1.2	0/-0.015	0.6	0/-0.015	4	1	6	1.1	50	2	6.37	6.57	6.78	7	7.48	MHLNB201206	●
1.2	0/-0.015	0.6	0/-0.015	4	1	8	1.1	50	2	8.44	8.71	8.99	9.3	9.95	MHLNB201208	◉
1.2	0/-0.015	0.6	0/-0.015	4	1	10	1.1	50	2	10.5	10.85	11.21	11.59	12.42	MHLNB201210	●

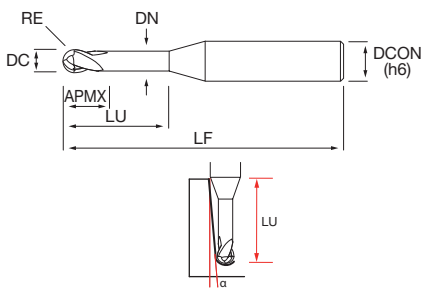
★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

MHLNB2

- Cylindrical shank
- 2 flutes ball nose
- Extended and reduced neck

P	M	K	N	S	H
★		★			★



OSAWA NORM | MH | NMG MH COAT | 30÷70 HRC | FHA 30° | BALL NOSE | ZEFP 2 BALL | ROUND RIB

DC	DC tol.	RE	RE tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
1.2	0/-0.015	0.6	0/-0.015	4	1	12	1.1	50	2	12.57	12.98	13.42	13.89	14.88	MHLNB201212	◉
1.4	0/-0.015	0.7	0/-0.015	4	1.1	8	1.3	50	2	8.43	8.7	8.98	9.28	9.93	MHLNB201408	●
1.4	0/-0.015	0.7	0/-0.015	4	1.1	12	1.3	50	2	12.57	12.98	13.41	13.87	14.86	MHLNB201412	◉
1.4	0/-0.015	0.7	0/-0.015	4	1.1	16	1.3	50	2	16.7	17.26	17.84	18.46	19.8	MHLNB201416	◉
1.5	0/-0.015	0.75	0/-0.015	4	1.2	8	1.4	50	2	8.43	8.7	8.98	9.27	9.91	MHLNB201508	●
1.5	0/-0.015	0.75	0/-0.015	4	1.2	12	1.4	50	2	12.57	12.97	13.41	13.86	14.85	MHLNB201512	●
1.5	0/-0.015	0.75	0/-0.015	4	1.2	16	1.4	50	2	16.7	17.25	17.84	18.45	19.78	MHLNB201516	●
1.5	0/-0.015	0.75	0/-0.015	4	1.2	18	1.4	60	2	18.77	19.39	20.05	20.75	22.25	MHLNB201518	●
1.5	0/-0.015	0.75	0/-0.015	6	2.4	20	1.4	50	2	20.84	21.53	22.26	23.04	24.72	MHLNB201520	●
1.6	0/-0.015	0.8	0/-0.015	4	1.3	8	1.5	50	2	8.43	8.69	8.97	9.27	9.9	MHLNB201608	◉
1.6	0/-0.015	0.8	0/-0.015	4	1.3	12	1.5	50	2	12.56	12.97	13.4	13.86	14.84	MHLNB201612	●
1.6	0/-0.015	0.8	0/-0.015	4	1.3	16	1.5	50	2	16.7	17.25	17.83	18.45	19.77	MHLNB201616	●
1.6	0/-0.015	0.8	0/-0.015	4	1.3	20	1.5	60	2	20.83	21.53	22.26	23.03	-	MHLNB201620	●
1.8	0/-0.015	0.9	0/-0.015	4	1.4	8	1.7	50	2	8.43	8.69	8.96	9.25	9.88	MHLNB201808	●
1.8	0/-0.015	0.9	0/-0.015	4	1.4	12	1.7	50	2	12.56	12.96	13.39	13.84	14.81	MHLNB201812	◉
1.8	0/-0.015	0.9	0/-0.015	4	1.4	16	1.7	50	2	16.7	17.24	17.82	18.43	19.75	MHLNB201816	●
1.8	0/-0.015	0.9	0/-0.015	4	1.4	20	1.7	60	2	20.83	21.52	22.25	23.02	-	MHLNB201820	●
2	0/-0.015	1	0/-0.015	4	1.6	4	1.9	50	2	4.29	4.4	4.52	4.65	4.92	MHLNB202004	●
2	0/-0.015	1	0/-0.015	4	1.6	6	1.9	50	2	6.36	6.54	6.74	6.94	7.39	MHLNB202006	●
2	0/-0.015	1	0/-0.015	4	1.6	8	1.9	50	2	8.42	8.68	8.95	9.24	9.86	MHLNB202008	●
2	0/-0.015	1	0/-0.015	4	1.6	10	1.9	50	2	10.49	10.82	11.17	11.53	12.32	MHLNB202010	●
2	0/-0.015	1	0/-0.015	4	1.6	12	1.9	50	2	12.56	12.96	13.38	13.83	14.79	MHLNB202012	●
2	0/-0.015	1	0/-0.015	4	1.6	14	1.9	50	2	14.62	15.1	15.59	16.12	17.26	MHLNB202014	●
2	0/-0.015	1	0/-0.015	4	1.6	16	1.9	50	2	16.69	17.23	17.81	18.42	19.73	MHLNB202016	●
2	0/-0.015	1	0/-0.015	4	1.6	18	1.9	60	2	18.76	19.37	20.02	20.71	-	MHLNB202018	●
2	0/-0.015	1	0/-0.015	4	1.6	20	1.9	60	2	20.83	21.51	22.24	23	-	MHLNB202020	●
2	0/-0.015	1	0/-0.015	4	1.6	22	1.9	60	2	22.89	23.65	24.45	25.3	-	MHLNB202022	●
2	0/-0.015	1	0/-0.015	4	1.6	25	1.9	75	2	25.99	26.86	27.77	28.74	-	MHLNB202025	●
2	0/-0.015	1	0/-0.015	4	1.6	30	1.9	75	2	31.16	32.21	33.31	-	-	MHLNB202030	●
3	0/-0.020	1.5	0/-0.015	6	2.4	8	2.8	50	2	8.6	8.84	9.1	9.37	9.96	MHLNB203008	●
3	0/-0.020	1.5	0/-0.015	6	2.4	10	2.8	50	2	10.67	10.98	11.32	11.67	12.43	MHLNB203010	●
3	0/-0.020	1.5	0/-0.015	6	2.4	12	2.8	50	2	12.73	13.12	13.53	13.96	14.9	MHLNB203012	●
3	0/-0.020	1.5	0/-0.015	6	2.4	16	2.8	60	2	16.87	17.4	17.96	18.55	19.83	MHLNB203016	●
3	0/-0.020	1.5	0/-0.015	6	2.4	20	2.8	60	2	21	21.68	22.39	23.14	24.77	MHLNB203020	●
3	0/-0.020	1.5	0/-0.015	6	2.4	25	2.8	75	2	26.17	27.02	27.93	28.88	-	MHLNB203025	●
3	0/-0.020	1.5	0/-0.015	6	2.4	30	2.8	75	2	31.34	32.37	33.46	34.62	-	MHLNB203030	●
3	0/-0.020	1.5	0/-0.015	6	2.4	35	2.8	75	2	36.51	37.72	39	40.35	-	MHLNB203035	◉
4	0/-0.020	2	0/-0.015	6	3.2	10	3.7	50	2	10.84	11.15	11.47	11.81	12.54	MHLNB204010	●
4	0/-0.020	2	0/-0.015	6	3.2	16	3.7	60	2	17.04	17.56	18.11	18.69	19.94	MHLNB204016	●
4	0/-0.020	2	0/-0.015	6	3.2	20	3.7	60	2	21.18	21.84	22.54	23.28	-	MHLNB204020	●
4	0/-0.020	2	0/-0.015	6	3.2	25	3.7	75	2	26.35	27.19	28.08	29.02	-	MHLNB204025	●
4	0/-0.020	2	0/-0.015	6	3.2	30	3.7	75	2	31.51	32.53	33.61	-	-	MHLNB204030	●
4	0/-0.020	2	0/-0.015	6	3.2	35	3.7	75	2	36.68	37.88	39.15	-	-	MHLNB204035	●
4	0/-0.020	2	0/-0.015	6	3.2	40	3.7	100	2	41.85	43.23	-	-	-	MHLNB204040	●
4	0/-0.020	2	0/-0.015	6	3.2	45	3.7	100	2	47.02	48.57	-	-	-	MHLNB204045	◉

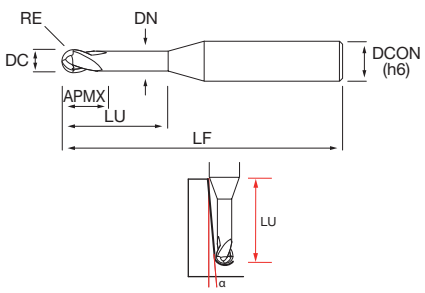
★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

MHLNB2

- Cylindrical shank
- 2 flutes ball nose
- Extended and reduced neck

P	M	K	N	S	H
★		★			★



OSAWA NORM | MH | NMG MH COAT | 30÷70 HRC | FHA 30° | BALL NOSE | ZEFP 2 BALL | ROUND RIB

DC	DC tol.	RE	RE tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
4	0/-0.020	2	0/-0.015	6	3.2	50	3.7	100	2	52.19	53.92	-	-	-	**MHLNB204050**	●

★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

MHLNB2

	Material Group ISO 513				P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm				≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae				**ap x D**	**ap x D**	**ap x D**	**ap x D**
	Vc (m/min)				**80÷120**	**60÷100**	**50÷70**	**30÷50**
	DC (mm)	LU (mm)	ap (mm)	DC(eff.) (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
ROUND RIB	0.2	≤ 6D	0.01	0.09	0.008	0.007	0.006	0.006
		≤ 8D	0.01	0.08	0.007	0.006	0.005	0.005
		≤ 10D	0.01	0.07	0.006	0.005	0.004	0.004
	0.3	≤ 6D	0.02	0.13	0.010	0.009	0.008	0.007
		≤ 8D	0.01	0.12	0.009	0.007	0.006	0.006
		≤ 10D	0.01	0.11	0.008	0.006	0.005	0.004
	0.4	≤ 6D	0.02	0.17	0.013	0.012	0.010	0.009
		≤ 8D	0.02	0.16	0.012	0.009	0.008	0.007
		≤ 10D	0.01	0.15	0.010	0.007	0.007	0.006
	0.5	≤ 6D	0.03	0.22	0.017	0.015	0.014	0.012
		≤ 8D	0.02	0.20	0.015	0.012	0.011	0.010
		≤ 10D	0.02	0.18	0.014	0.010	0.009	0.008
	0.6	≤ 6D	0.03	0.26	0.021	0.019	0.017	0.015
		≤ 8D	0.03	0.24	0.019	0.015	0.014	0.012
		≤ 10D	0.02	0.22	0.017	0.012	0.011	0.009
	0.8	≤ 6D	0.04	0.35	0.025	0.023	0.020	0.018
		≤ 8D	0.03	0.32	0.023	0.018	0.016	0.014
		≤ 10D	0.03	0.29	0.020	0.014	0.013	0.011
	1	≤ 6D	0.05	0.44	0.030	0.027	0.024	0.021
		≤ 8D	0.04	0.40	0.027	0.022	0.019	0.017
		≤ 10D	0.04	0.37	0.024	0.017	0.015	0.013
		≤ 12D	0.03	0.33	0.021	0.013	0.012	0.010
		>12D	0.02	0.30	0.018	0.010	0.009	0.008
	1.2	≤ 6D	0.06	0.52	0.035	0.032	0.028	0.025
		≤ 8D	0.05	0.48	0.032	0.026	0.023	0.020
		≤ 10D	0.04	0.44	0.028	0.020	0.018	0.016
		≤ 12D	0.03	0.39	0.025	0.015	0.014	0.012
		>12D	0.03	0.36	0.021	0.011	0.010	0.009
	1.5	≤ 6D	0.08	0.65	0.045	0.041	0.036	0.032
		≤ 8D	0.06	0.61	0.041	0.033	0.029	0.026
		≤ 10D	0.05	0.55	0.036	0.026	0.023	0.020
		≤ 12D	0.04	0.49	0.032	0.020	0.018	0.015
		>12D	0.03	0.44	0.027	0.015	0.013	0.011
	2	≤ 6D	0.10	0.87	0.060	0.054	0.048	0.042
		≤ 8D	0.09	0.81	0.054	0.044	0.039	0.034
		≤ 10D	0.07	0.74	0.048	0.035	0.031	0.027
		≤ 12D	0.06	0.65	0.042	0.026	0.024	0.021
		>12D	0.05	0.59	0.036	0.019	0.017	0.015
	2.5	≤ 6D	0.13	1.09	0.060	0.054	0.048	0.042
		≤ 8D	0.11	1.01	0.054	0.044	0.039	0.034
		≤ 10D	0.09	0.92	0.048	0.035	0.031	0.027
		≤ 12D	0.07	0.82	0.042	0.026	0.024	0.021
		>12D	0.06	0.74	0.036	0.019	0.017	0.015
	3	≤ 6D	0.15	1.31	0.075	0.068	0.060	0.053
		≤ 8D	0.13	1.21	0.068	0.055	0.049	0.043
		≤ 10D	0.11	1.10	0.060	0.043	0.038	0.034
		≤ 12D	0.08	0.98	0.053	0.033	0.029	0.026
		>12D	0.07	0.89	0.045	0.024	0.022	0.019

α	n (rpm)	Vf (mm/min)
45°	x 1.65	x 1.65
30°	x 1.30	x 1.30
15°	x 1.15	x 1.15

Cutting Parameters

MHLNB2

ROUND RIB

Material Group ISO 513				P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
Hardness/Rm				≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
ap x ae				**ap x D**	**ap x D**	**ap x D**	**ap x D**
Vc (m/min)				**80÷120**	**60÷100**	**50÷70**	**30÷50**
DC (mm)	LU (mm)	ap (mm)	DC(eff.) (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
4	≤ 6D	0.20	1.74	0.095	0.086	0.076	0.067
	≤ 8D	0.17	1.61	0.086	0.069	0.062	0.054
	≤ 10D	0.14	1.47	0.076	0.055	0.049	0.043
	≤ 12D	0.11	1.31	0.067	0.042	0.037	0.033
	>12D	0.09	1.19	0.057	0.031	0.027	0.024

α

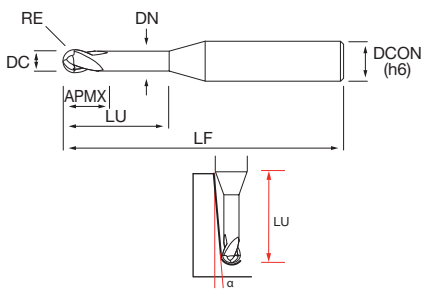
α	n (rpm)	Vf (mm/min)
45°	x 1.65	x 1.65
30°	x 1.30	x 1.30
15°	x 1.15	x 1.15

SORMA DIAMOND & CUTTING TOOLS

MHCRB2

- Cylindrical shank
- 2 flutes ball nose
- Extended and reduced neck
- 6 mm. shank

P	M	K	N	S	H
★		★			★



OSAWA NORM | MH | NMG MH COAT | 30÷70 HRC | FHA 30° | BALL NOSE | ZEFP 2 BALL | ROUND RIB

DC	DC tol.	RE	RE tol.	DCON	APMX	LU	DN	LF	ZEFP	LU α=30'	LU α=1°	LU α=1°30'	LU α=2°	LU α=3°	EDP no.	Stock
0.5	0/-0.012	0.25	±0.005	6	0.5	2	0.45	50	2	2.15	2.22	2.29	2.36	2.52	**MHCRB20050206**	○
0.5	0/-0.012	0.25	±0.005	6	0.5	4	0.45	50	2	4.22	4.35	4.5	4.65	4.98	**MHCRB20050406**	●
0.6	0/-0.012	0.3	±0.005	6	0.5	2	0.55	50	2	2.15	2.21	2.28	2.35	2.5	**MHCRB20060206**	●
0.6	0/-0.012	0.3	±0.005	6	0.5	4	0.55	50	2	4.22	4.35	4.49	4.65	4.97	**MHCRB20060406**	●
0.6	0/-0.012	0.3	±0.005	6	0.5	6	0.55	50	2	6.28	6.49	6.71	6.94	7.44	**MHCRB20060606**	●
0.8	0/-0.012	0.4	±0.005	6	0.8	2	0.75	50	2	2.15	2.21	2.27	2.34	2.48	**MHCRB20080206**	●
0.8	0/-0.012	0.4	±0.005	6	0.8	4	0.75	50	2	4.21	4.34	4.48	4.63	4.95	**MHCRB20080406**	●
0.8	0/-0.012	0.4	±0.005	6	0.8	6	0.75	50	2	6.28	6.48	6.7	6.93	7.42	**MHCRB20080606**	●
1	0/-0.012	0.5	±0.005	6	1	3	0.9	50	2	3.27	3.37	3.47	3.57	3.8	**MHCRB20100306**	●
1	0/-0.012	0.5	±0.005	6	1	6	0.9	50	2	6.37	6.58	6.79	7.02	7.5	**MHCRB20100606**	●
1	0/-0.012	0.5	±0.005	6	1	8	0.9	50	2	8.44	8.71	9	9.31	9.97	**MHCRB20100806**	●
1	0/-0.012	0.5	±0.005	6	1	10	0.9	50	2	10.51	10.85	11.22	11.61	12.44	**MHCRB20101006**	●
1.2	0/-0.012	0.6	±0.005	6	1.2	6	1.1	50	2	6.37	6.57	6.78	7	7.48	**MHCRB20120606**	●
1.2	0/-0.012	0.6	±0.005	6	1.2	8	1.1	50	2	8.44	8.71	8.99	9.3	9.95	**MHCRB20120806**	●
1.2	0/-0.012	0.6	±0.005	6	1.2	10	1.1	50	2	10.5	10.85	11.21	11.59	12.42	**MHCRB20121006**	●
1.5	0/-0.012	0.75	±0.005	6	1.5	4	1.4	50	2	4.3	4.42	4.55	4.68	4.98	**MHCRB20150406**	●
1.5	0/-0.012	0.75	±0.005	6	1.5	8	1.4	50	2	8.43	8.7	8.98	9.27	9.91	**MHCRB20150806**	●
1.5	0/-0.012	0.75	±0.005	6	1.5	10	1.4	50	2	10.5	10.84	11.19	11.57	12.38	**MHCRB20151006**	●
1.5	0/-0.012	0.75	±0.005	6	1.5	12	1.4	50	2	12.57	12.97	13.41	13.86	14.85	**MHCRB20151206**	●
1.5	0/-0.012	0.75	±0.005	6	1.5	16	1.4	50	2	16.7	17.25	17.84	18.45	19.78	**MHCRB20151606**	●
2	0/-0.012	1	±0.005	6	3	6	1.9	50	2	6.36	6.54	6.74	6.94	7.39	**MHCRB20200606**	●
2	0/-0.012	1	±0.005	6	3	8	1.9	50	2	8.42	8.68	8.95	9.24	9.86	**MHCRB20200806**	●
2	0/-0.012	1	±0.005	6	3	10	1.9	50	2	10.49	10.82	11.17	11.53	12.32	**MHCRB20201006**	●
2	0/-0.012	1	±0.005	6	3	12	1.9	50	2	12.56	12.96	13.38	13.83	14.79	**MHCRB20201206**	●
2	0/-0.012	1	±0.005	6	3	16	1.9	50	2	16.69	17.23	17.81	18.42	19.73	**MHCRB20201606**	●
2	0/-0.012	1	±0.005	6	3	20	1.9	50	2	20.83	21.51	22.24	23	24.66	**MHCRB20202006**	●

★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

MHCRB2

Material Group ISO 513				P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
Hardness/Rm				≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
ap x ae				**ap x 0.2D**	**ap x 0.2D**	**ap x 0.2D**	**ap x 0.2D**
Vc (m/min)				**140÷160**	**110÷130**	**80÷100**	**50÷70**
DC (mm)	LU (mm)	ap (mm)	DC(eff.) (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
0.5	≤ 6D	0.03	0.22	0.020	0.018	0.016	0.014
	≤ 8D	0.02	0.20	0.018	0.015	0.013	0.011
	≤ 10D	0.02	0.18	0.016	0.012	0.010	0.009
0.6	≤ 6D	0.03	0.26	0.022	0.020	0.018	0.015
	≤ 8D	0.03	0.24	0.020	0.016	0.014	0.012
	≤ 10D	0.02	0.22	0.018	0.013	0.011	0.010
0.8	≤ 6D	0.04	0.35	0.025	0.023	0.020	0.018
	≤ 8D	0.03	0.32	0.023	0.018	0.016	0.014
	≤ 10D	0.03	0.29	0.020	0.014	0.013	0.011
1	≤ 6D	0.05	0.44	0.030	0.027	0.024	0.021
	≤ 8D	0.04	0.40	0.027	0.022	0.019	0.017
	≤ 10D	0.04	0.37	0.024	0.017	0.015	0.013
	≤ 12D	0.03	0.33	0.021	0.013	0.012	0.010
	>12D	0.02	0.30	0.018	0.010	0.009	0.008
1.2	≤ 6D	0.06	0.52	0.035	0.032	0.028	0.025
	≤ 8D	0.05	0.48	0.032	0.026	0.023	0.020
	≤ 10D	0.04	0.44	0.028	0.020	0.018	0.016
	≤ 12D	0.03	0.39	0.025	0.015	0.014	0.012
	>12D	0.03	0.36	0.021	0.011	0.010	0.009
1.5	≤ 6D	0.08	0.65	0.045	0.041	0.036	0.032
	≤ 8D	0.06	0.61	0.041	0.033	0.029	0.026
	≤ 10D	0.05	0.55	0.036	0.026	0.023	0.020
	≤ 12D	0.04	0.49	0.032	0.020	0.018	0.015
	>12D	0.03	0.44	0.027	0.015	0.013	0.011
2	≤ 6D	0.10	0.87	0.060	0.054	0.048	0.042
	≤ 8D	0.09	0.81	0.054	0.044	0.039	0.034
	≤ 10D	0.07	0.74	0.048	0.035	0.031	0.027
	≤ 12D	0.06	0.65	0.042	0.026	0.024	0.021
	>12D	0.05	0.59	0.036	0.019	0.017	0.015

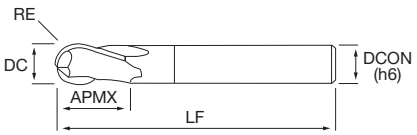
α	n (rpm)	Vf (mm/min)
45°	x 1.65	x 1.65
30°	x 1.30	x 1.30
15°	x 1.15	x 1.15

SORMA DIAMOND & CUTTING TOOLS

UHCSB2

- Cylindrical shank
- 2 flutes ball nose

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG / UH RED | <70 HRC | FHA 30° | BALL NOSE | ZEFP 2 BALL | COPYING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LF	ZEFP	EDP no.	Stock
1	0/-0.012	0.5	0/-0.010	6	h6	1.5	40	2	**UHCSB2010**	●
1.5	0/-0.012	0.75	0/-0.010	6	h6	2.5	40	2	**UHCSB2015**	●
2	0/-0.012	1	0/-0.010	6	h6	3	40	2	**UHCSB2020**	●
2.5	0/-0.012	1.25	0/-0.010	6	h6	3	50	2	**UHCSB2025**	●
3	0/-0.012	1.5	0/-0.010	6	h6	4.5	50	2	**UHCSB2030**	●
4	0/-0.012	2	0/-0.010	6	h6	6	50	2	**UHCSB2040**	●
5	0/-0.012	2.5	0/-0.010	6	h6	7.5	50	2	**UHCSB2050**	●
6	0/-0.015	3	0/-0.010	6	h6	9	50	2	**UHCSB2060**	●
8	0/-0.015	4	0/-0.010	8	h6	12	50	2	**UHCSB2080**	●
10	0/-0.015	5	0/-0.010	10	h6	15	60	2	**UHCSB2100**	●
12	0/-0.015	6	0/-0.010	12	h6	18	60	2	**UHCSB2120**	●
14	0/-0.020	7	0/-0.020	14	h6	32	90	2	**UHCSB2140**	●
16	0/-0.020	8	0/-0.020	16	h6	32	90	2	**UHCSB2160**	●
18	0/-0.020	9	0/-0.020	18	h6	38	100	2	**UHCSB2180**	●
20	0/-0.020	10	0/-0.020	20	h6	38	100	2	**UHCSB2200**	●

★ 1st choice, ☆ suitable, ● stock standard, ⦿ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

UHCSB2

	Material Group ISO 513		P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm		≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae		**0.05D x 0.2D**	**0.05D x 0.2D**	**0.05D x 0.2D**	**0.05D x 0.2D**
	Vc (m/min)		**140÷180**	**100÷140**	**80÷100**	**60÷80**
ap=ae COPYING	DC (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	1	0.44	0.009	0.008	0.007	0.006
	1.5	0.79	0.012	0.011	0.010	0.008
	2	1.20	0.012	0.011	0.010	0.008
	2.5	1.65	0.015	0.014	0.012	0.011
	3	2.14	0.018	0.016	0.014	0.013
	4	3.20	0.025	0.023	0.020	0.018
	5	4.33	0.032	0.029	0.026	0.022
	6	5.50	0.038	0.034	0.030	0.027
	8	7.84	0.048	0.043	0.038	0.034
	10	10.00	0.057	0.051	0.046	0.040
	12	11.76	0.067	0.060	0.054	0.047
	14	12.83	0.080	0.072	0.064	0.056
	16	12.80	0.095	0.086	0.076	0.067
	18	10.80	0.108	0.097	0.086	0.076
	20	12.00	0.108	0.097	0.086	0.076

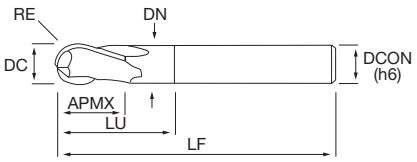
	α	n (rpm)	Vf (mm/min)
α	15°	x 1.1	x 1.1

SORMA DIAMOND & CUTTING TOOLS

UH250

- Cylindrical shank
- 2 flutes ball nose
- Long reach

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 30° | BALL NOSE | ZEFP 2 BALL | COPYING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LU	DN	LF	ZEFP	EDP no.	Stock
1	0/-0.012	0.5	0/-0.010	4	h6	1	2.2	0.95	50	2	**UH250010**	●
1.5	0/-0.012	0.75	0/-0.010	4	h6	1.5	3	1.45	50	2	**UH250015**	●
2	0/-0.012	1	0/-0.010	6	h6	2	4	1.95	50	2	**UH250020**	●
2.5	0/-0.020	1.25	0/-0.015	6	h6	4	10	2.4	50	2	**UH250025**	●
3	0/-0.012	1.5	0/-0.010	6	h6	3	6	2.85	60	2	**UH250030**	●
4	0/-0.012	2	0/-0.010	6	h6	4	8	3.85	70	2	**UH250040**	●
5	0/-0.012	2.5	0/-0.010	6	h6	5	10	4.85	80	2	**UH250050**	●
6	0/-0.015	3	0/-0.010	6	h6	6	12	5.85	90	2	**UH250060**	●
8	0/-0.015	4	0/-0.010	8	h6	8	16	7.7	100	2	**UH250080**	●
10	0/-0.015	5	0/-0.010	10	h6	10	20	9.7	100	2	**UH250100**	●
12	0/-0.015	6	0/-0.010	12	h6	12	24	11.7	110	2	**UH250120**	●
14	0/-0.020	7	0/-0.020	14	h6	32	80	13	125	2	**UH250140**	◉
16	0/-0.020	8	0/-0.020	16	h6	32	80	15	125	2	**UH250160**	●
18	0/-0.020	9	0/-0.020	18	h6	38	80	17	125	2	**UH250180**	●
20	0/-0.020	10	0/-0.020	20	h6	38	80	19	125	2	**UH250200**	●

★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

UH250

	Material Group ISO 513		P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm		≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae		**0.05D x 0.2D**	**0.05D x 0.2D**	**0.05D x 0.2D**	**0.05D x 0.2D**
	Vc (m/min)		**120÷160**	**100÷130**	**70÷90**	**50÷70**
ap=ae COPYING	DC (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	1	0.44	0.015	0.014	0.012	0.011
	2	0.87	0.021	0.019	0.017	0.015
	3	1.31	0.027	0.024	0.022	0.019
	4	1.74	0.037	0.033	0.029	0.026
	5	2.18	0.045	0.041	0.036	0.032
	6	2.62	0.051	0.046	0.041	0.036
	8	3.49	0.060	0.054	0.048	0.042
	10	4.36	0.068	0.061	0.054	0.048
	12	5.23	0.077	0.069	0.061	0.054
	14	6.10	0.089	0.080	0.071	0.062
	16	6.97	0.102	0.092	0.082	0.071
	18	7.85	0.115	0.103	0.092	0.080
	20	8.72	0.132	0.119	0.106	0.092

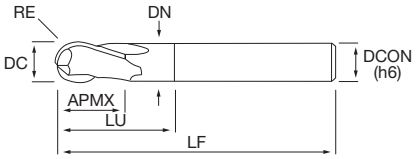
α	n (rpm)	Vf (mm/min)
30°	x 0.8	x 0.8
15°	x 0.7	x 0.7
0°	x 0.6	x 0.6

SORMA DIAMOND & CUTTING TOOLS

UH253

- Cylindrical shank
- 2 flutes ball nose
- Extra-long reach

P	M	K	N	S	H
☆		☆			★



OSAWA NORM | UH | NMG UH RED | <70 HRC | FHA 30° | BALL NOSE | ZEFP 2 BALL | COPYING

DC	DC tol.	RE	RE tol.	DCON	TCDCON	APMX	LU	DN	LF	ZEFP	EDP no.	Stock
1	0/-0.020	0.5	0/-0.010	6	h6	3	7	0.9	75	2	**UH25301075**	●
1	0/-0.020	0.5	0/-0.010	6	h6	3	10	0.9	100	2	**UH253010100**	●
1.5	0/-0.020	0.75	0/-0.010	6	h6	3	10	1.4	75	2	**UH25301575**	●
1.5	0/-0.020	0.75	0/-0.010	6	h6	3	15	1.4	100	2	**UH253015100**	●
2	0/-0.020	1	0/-0.010	6	h6	4	14	1.9	75	2	**UH25302075**	●
2	0/-0.020	1	0/-0.010	6	h6	4	20	1.9	100	2	**UH253020100**	●
2.5	0/-0.020	1.25	0/-0.015	6	h6	4	18	2.4	75	2	**UH25302575**	●
3	0/-0.025	1.5	0/-0.015	6	h6	5	21	2.8	75	2	**UH25303075**	●
3	0/-0.025	1.5	0/-0.015	6	h6	5	30	2.8	100	2	**UH253030100**	●
4	0/-0.025	2	0/-0.015	6	h6	8	28	3.7	75	2	**UH25304075**	●
4	0/-0.025	2	0/-0.015	6	h6	8	40	3.7	100	2	**UH253040100**	◉
5	0/-0.025	2.5	0/-0.015	6	h6	9	50	4.6	100	2	**UH253050100**	●
6	0/-0.025	3	0/-0.015	6	h6	10	60	5.5	100	2	**UH253060100**	●
6	0/-0.025	3	0/-0.015	6	h6	10	60	5.5	150	2	**UH253060150**	●
8	0/-0.030	4	0/-0.015	8	h6	12	60	7.4	100	2	**UH253080100**	●
8	0/-0.030	4	0/-0.015	8	h6	12	80	7.4	150	2	**UH253080150**	●
10	0/-0.035	5	0/-0.020	10	h6	14	85	9.2	125	2	**UH253100125**	●
10	0/-0.035	5	0/-0.020	10	h6	14	100	9.2	150	2	**UH253100150**	●
12	0/-0.035	6	0/-0.020	12	h6	16	85	11	125	2	**UH253120125**	●
12	0/-0.035	6	0/-0.020	12	h6	16	110	11	150	2	**UH253120150**	●
14	0/-0.035	7	0/-0.020	14	h6	32	110	13	150	2	**UH253140150**	▽
14	0/-0.035	7	0/-0.020	14	h6	32	150	13	200	2	**UH253140200**	▽
16	0/-0.035	8	0/-0.020	16	h6	32	110	15	150	2	**UH253160150**	▽
16	0/-0.035	8	0/-0.020	16	h6	32	150	15	200	2	**UH253160200**	▽
20	0/-0.035	10	0/-0.020	20	h6	38	110	19	150	2	**UH253200150**	▽
20	0/-0.035	10	0/-0.020	20	h6	38	150	19	200	2	**UH253200200**	▽

★ 1st choice, ☆ suitable, ● stock standard, ◉ non-stock standard (no MOQ), ○ non-stock standard (MOQ), ▲ upcoming product, ▽ stock exhaustion

SORMA DIAMOND & CUTTING TOOLS

Cutting Parameters

UH253

	Material Group ISO 513		P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
	Hardness/Rm		≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
	ap x ae		**0.05D x 0.2D**	**0.05D x 0.2D**	**0.05D x 0.2D**	**0.05D x 0.2D**
	Vc (m/min)		**110÷150**	**80÷120**	**50÷90**	**40÷60**
ap=ae COPYING	DC (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	1	0.44	0.015	0.014	0.012	0.011
	2	0.87	0.021	0.019	0.017	0.015
	3	1.31	0.027	0.024	0.022	0.019
	4	1.74	0.037	0.033	0.029	0.026
	5	2.18	0.045	0.041	0.036	0.032
	6	2.62	0.051	0.046	0.041	0.036
	8	3.49	0.060	0.054	0.048	0.042
	10	4.36	0.068	0.061	0.054	0.048
	12	5.23	0.077	0.069	0.061	0.054
	14	6.10	0.089	0.080	0.071	0.062
	16	6.97	0.102	0.092	0.082	0.071
	18	7.85	0.115	0.103	0.092	0.080
	20	8.72	0.132	0.119	0.106	0.092

α45°	α	n (rpm)	Vf (mm/min)
	30°	x 0.8	x 0.8
	15°	x 0.7	x 0.7
	0°	x 0.6	x 0.6