



INFO

CARBIDE  
DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

## 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.

🇪🇸 Nano micrograno y revestimiento UH RED e MH a base de TiSi para el fresado de materiales templados hasta 70 HRC. Gran fiabilidad y duración en la utilización de estrategias de elaboración a alta velocidad o alto avance con la posibilidad de evitar la utilización del refrigerante. Las geometrías de corte específicas garantizan una elevada precisión y excelente acabado de la superficie trabajada.

🇷🇺 Нано-микрoзернистoсть и покрытие UH RED и MH на основе TiSi для фрезерования материалов с твердостью до 70 HRC. Высокая надежность и долговечность при использовании стратегий обработки с высокой скоростью или высокой подачей и с возможностью без использования СОЖ. Особая геометрия резания гарантирует высокую точность и отличное качество обработанной поверхности.

HSS  
DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE  
END-MILLS

G2  
MDTA  
HF-VH/UP  
MEF  
ALU  
MEX/MH  
UH/MH

HSS  
END-MILLS

CARBIDE  
BURRS



## CUTTING PARAMETERS

INFO

## 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	
D (mm)	ap (mm)	fz (mm/z)		fz (mm/z)		fz (mm/z)		fz (mm/z)		
<b>0.1</b>	0.01	0.002		0.002		0.002		0.001		
<b>0.2</b>	0.01	0.003		0.003		0.002		0.002		
<b>0.3</b>	0.02	0.004		0.004		0.003		0.003		
<b>0.4</b>	0.02	0.006		0.005		0.005		0.004		
<b>0.5</b>	0.03	0.007		0.006		0.006		0.005		
<b>0.6</b>	0.03	0.008		0.007		0.006		0.006		
<b>0.8</b>	0.04	0.010		0.009		0.008		0.007		
<b>0.9</b>	0.05	0.012		0.011		0.010		0.008		

CARBIDE DRILLS

 PU-HPU  
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 HRC  
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 C-SD-TA

HSS DRILLS

 LFTA  
 SUTA  
 HSS-HSS/CO

CARBIDE END-MILLS

 G2  
 MDTA  
 HF-VH/UP  
 MEF  
 ALU  
 MEX/MH  
**UH/MH**

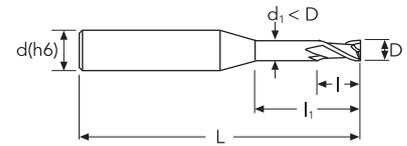
HSS END-MILLS

CARBIDE BURRS

INFO

# UHLN2

cylindrical shank, 2F, extended and reduced neck

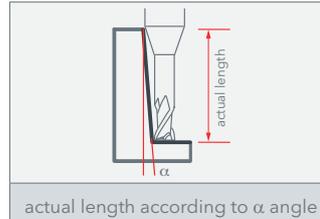


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
☆		☆			★

★ 1st choice ☆ suitable



HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

D	D Tol.	C	C Tol.	d(h6)	l	l1	d1	L	z	30'	1°	1°30'	2°	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	1.30	UHLN200201	●
0.2	0/-0.010			4	0.3	1.5	0.16	50	2	1.60	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	1.30	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	3.50	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	3.50	3.76	UHLN200403	●
0.4	0/-0.010			4	0.6	4	0.37	50	2	4.19	4.33	4.49	4.65	5.00	UHLN200404	●
0.4	0/-0.010			4	0.6	5	0.37	50	2	5.22	5.40	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	2.40	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	2.40	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	1.0	2	0.65	50	2	2.16	2.23	2.31	2.40	2.57	UHLN200702	●
0.7	0/-0.010			4	1.0	4	0.65	50	2	4.23	4.37	4.53	4.69	5.04	UHLN200704	●
0.7	0/-0.010			4	1.0	6	0.65	50	2	6.29	6.51	6.74	6.98	7.51	UHLN200706	●
0.7	0/-0.010			4	1.0	8	0.65	50	2	8.36	8.65	8.96	9.28	9.98	UHLN200708	●
0.7	0/-0.010			4	1.0	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	●
1	0/-0.015			4	1.5	12	0.95	50	2	12.59	13.03	13.49	13.97	15.02	UHLN201012	●
1	0/-0.015			4	1.5	14	0.95	50	2	14.66	15.17	15.70	16.27	17.49	UHLN201014	●
1	0/-0.015			4	1.5	16	0.95	50	2	16.73	17.30	17.92	18.56	19.96	UHLN201016	●

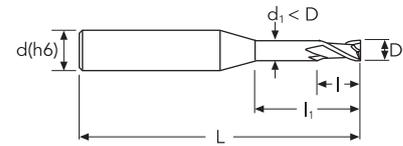
● stock standard ○ non-standard stock ▽ stock exhaustion

# UHLN2

cylindrical shank, 2F, extended and reduced neck

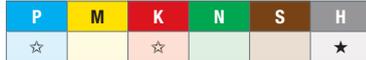


INFO

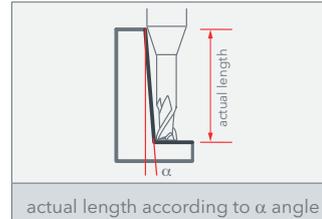


CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
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C-SD-TA



★ 1st choice ☆ suitable



D	D Tol.	C	C Tol.	d(h6)	I	I1	d1	L	z	30'	1°	1°30'	2°	3°	EDP No.	Stock
1.2	0/-0.015			4	1.8	6	1.15	50	2	6.39	6.61	6.84	7.09	7.62	UHLN201206	●
1.2	0/-0.015			4	1.8	8	1.15	50	2	8.46	8.75	9.06	9.38	10.09	UHLN201208	●
1.2	0/-0.015			4	1.8	10	1.15	50	2	10.52	10.89	11.27	11.68	12.56	UHLN201210	●
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	●
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	15.70	16.27	17.49	UHLN201414	●
1.4	0/-0.015			4	2.1	16	1.35	50	2	16.73	17.30	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	17.30	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	15.70	16.27	17.49	UHLN201614	●
1.6	0/-0.015			4	2.4	16	1.55	50	2	16.73	17.30	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	15.70	16.27	17.49	UHLN201814	●
1.8	0/-0.015			4	2.7	16	1.75	50	2	16.73	17.30	17.92	18.56	19.96	UHLN201816	●
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	15.70	16.27	17.49	UHLN202014	●

HSS DRILLS

LFTA  
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CARBIDE END-MILLS

G2  
MDTA  
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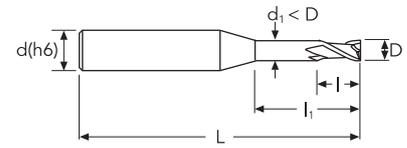
HSS END-MILLS

CARBIDE BURRS

INFO

# UHLN2

cylindrical shank, 2F, extended and reduced neck

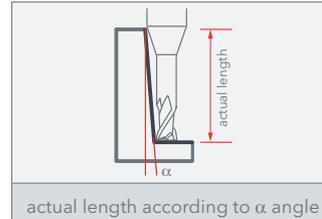


CARBIDE DRILLS

- PU-HPU
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P	M	K	N	S	H
☆		☆			★

★ 1st choice ☆ suitable



HSS DRILLS

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- SUTA
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CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

D	D Tol.	C	C Tol.	d(h6)	l	l1	d1	L	z	30'	1°	1°30'	2°	3°	EDP No.	Stock
2	0/-0.015			4	3	16	1.95	50	2	16.73	17.30	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	15.70	16.27	-	UHLN202514	●
2.5	0/-0.020			4	3.7	16	2.4	50	2	16.73	17.30	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	●
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	9.60	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	17.50	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	29.10	-	UHLN203025	●
4	0/-0.020			6	4.5	10	3.85	60	2	10.91	11.29	11.68	12.10	13.00	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	●

● stock standard ○ non-standard stock ▽ 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	
D (mm)	l1 (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		



INFO

CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF-VH/UP  
MEF  
ALU  
MEX/MH  
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

# UHLN2

CARBIDE  
DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA



HSS  
DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE  
END-MILLS

G2  
MDTA  
HF VH/UP  
MEF  
ALU  
MEX/MH  
**UH/MH**

HSS  
END-MILLS

CARBIDE  
BURRS

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			<b>ap x D</b>	<b>ap x D</b>	<b>ap x D</b>	<b>ap x D</b>
Vc (m/min)			<b>80÷120</b>	<b>60÷100</b>	<b>50÷70</b>	<b>30÷50</b>
D (mm)	l1 (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



INFO

# UH600

CARBIDE  
DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA



	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	<b>1.5D x 0.1D</b>	<b>1.5D x 0.05D</b>	<b>1.5D x 0.05D</b>	<b>1.5D x 0.05D</b>	<b>1.5D x 0.05D</b>
Vc (m/min)	<b>140÷180</b>	<b>100÷140</b>	<b>80÷100</b>	<b>60÷80</b>	
D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
<b>3</b>	0.008	0.008	0.007	0.006	
<b>4</b>	0.012	0.011	0.010	0.008	
<b>5</b>	0.014	0.013	0.012	0.010	
<b>6</b>	0.018	0.016	0.014	0.013	
<b>8</b>	0.028	0.025	0.022	0.019	
<b>10</b>	0.034	0.030	0.027	0.024	
<b>12</b>	0.041	0.037	0.033	0.029	
<b>14</b>	0.048	0.043	0.038	0.034	
<b>16</b>	0.056	0.051	0.045	0.039	
<b>18</b>	0.066	0.059	0.053	0.046	
<b>20</b>	0.078	0.070	0.062	0.055	

HSS  
DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE  
END-MILLS

G2  
MDTA  
HF VH/UP  
MEF  
ALU  
MEX/MH  
**UH/MH**

HSS  
END-MILLS

CARBIDE  
BURRS



INFO

# UH612

CARBIDE  
DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA



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

HSS  
DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE  
END-MILLS

G2  
MDTA  
HF VH/UP  
MEF  
ALU  
MEX/MH  
**UH/MH**

HSS  
END-MILLS

CARBIDE  
BURRS



INFO

## UHM206

CARBIDE  
DRILLS
 PU-HPU  
 TA-4HTA  
 SUH  
 ALH  
 HRC  
 SUH MINI  
 HL  
 HSD  
 C-SD-TA


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
D (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
<b>0.3</b>	0.02	0.004	0.004	0.003	0.003
<b>0.4</b>	0.02	0.006	0.005	0.005	0.004
<b>0.5</b>	0.03	0.007	0.006	0.006	0.005
<b>0.6</b>	0.03	0.008	0.007	0.006	0.006
<b>0.8</b>	0.04	0.010	0.009	0.008	0.007
<b>1</b>	0.05	0.012	0.011	0.010	0.008
<b>1.5</b>	0.08	0.025	0.023	0.020	0.018
<b>2</b>	0.10	0.030	0.027	0.024	0.021

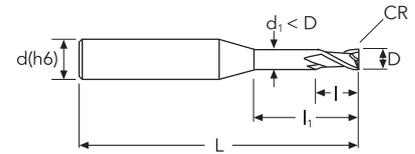
HSS  
DRILLSLFTA  
SUTA  
HSS-HSS/COCARBIDE  
END-MILLSG2  
MDTA  
HF VH/UP  
MEF  
ALU  
MEX/MH  
**UH/MH**HSS  
END-MILLSCARBIDE  
BURRS

# UH211

cylindrical shank, 2F, extended and reduced neck, corner radius

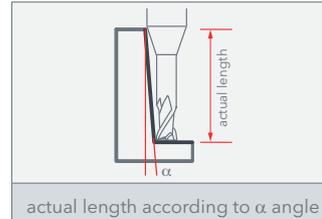


INFO



P	M	K	N	S	H
☆		☆			★

★ 1st choice ☆ suitable



D	D Tol.	CR	CR Tol.	d(h6)	l	l1	d1	L	z	30'	1°	1°30'	2°	3°	EDP No.	Stock
1	0/-0.012	0.10	0/-0.010	4	2	4	0.95	50	2	4.36	4.60	4.86	5.16	5.89	UH2110100104	●
1	0/-0.012	0.10	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	0.10	0/-0.010	4	2	8	0.90	50	2	8.45	8.73	9.00	9.27	9.81	UH2110100108	●
1	0/-0.012	0.20	0/-0.010	4	2	4	0.95	50	2	4.36	4.60	4.86	5.16	5.89	UH2110100204	●
1	0/-0.012	0.20	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	0.30	0/-0.010	4	2	4	0.90	50	2	4.31	4.44	4.57	4.70	4.97	UH2110100304	●
1	0/-0.012	0.30	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	0.10	0/-0.010	4	2.5	6	1.45	50	2	6.30	6.52	6.75	7.01	7.57	UH2110150106	●
1.5	0/-0.012	0.10	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	0.20	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	0.20	0/-0.010	4	2.5	12	1.45	50	2	12.50	12.94	13.40	13.91	15.03	UH2110150212	●
2	0/-0.012	0.10	0/-0.010	4	3	6	1.95	50	2	6.30	6.52	6.75	7.01	7.57	UH2110200106	●
2	0/-0.012	0.10	0/-0.010	4	3	12	1.95	50	2	12.50	12.94	13.40	13.91	15.03	UH2110200112	●
2	0/-0.012	0.20	0/-0.010	4	3	6	1.95	50	2	6.30	6.52	6.75	7.01	7.57	UH2110200206	●
2	0/-0.012	0.20	0/-0.010	4	3	12	1.95	50	2	12.50	12.94	13.40	13.91	15.03	UH2110200212	●
2	0/-0.012	0.30	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	0.30	0/-0.010	4	3	12	1.95	50	2	12.50	12.94	13.40	13.91	15.03	UH2110200312	●
2	0/-0.012	0.30	0/-0.010	4	3	16	1.95	50	2	16.64	17.21	17.84	18.50	-	UH2110200316	●
2	0/-0.012	0.50	0/-0.010	4	3	6	1.95	50	2	6.30	6.52	6.75	7.01	7.57	UH2110200506	●
2	0/-0.012	0.50	0/-0.010	4	3	12	1.95	50	2	12.50	12.94	13.40	13.91	15.03	UH2110200512	●
3	0/-0.012	0.30	0/-0.010	6	4.5	10	2.80	55	2	10.71	11.04	11.38	11.72	12.40	UH2110300310	●
3	0/-0.012	0.30	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	0.50	0/-0.010	6	4.5	10	2.85	55	2	10.63	11.00	11.39	11.82	12.78	UH2110300510	●
3	0/-0.012	0.50	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	0.20	0/-0.010	6	6	20	3.85	60	2	20.96	21.69	22.48	23.32	-	UH2110400220	●
4	0/-0.012	0.30	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	0.30	0/-0.010	6	6	20	3.85	60	2	20.96	21.69	22.48	23.32	-	UH2110400320	●
4	0/-0.012	0.50	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	0.50	0/-0.010	6	6	20	3.85	60	2	20.96	21.69	22.48	23.32	-	UH2110400520	●
4	0/-0.012	1.00	0/-0.010	6	6	16	3.85	55	2	16.83	17.41	18.04	18.72	-	UH2110401016	●
6	0/-0.015	0.50	0/-0.010	6	9	15	5.85	60	2	-	-	-	-	-	UH2110600520	●
6	0/-0.015	1.00	0/-0.010	6	9	15	5.85	60	2	-	-	-	-	-	UH2110601020	●
6	0/-0.015	2.00	0/-0.010	6	9	15	5.85	60	2	-	-	-	-	-	UH2110602020	●

CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF-VH/UP  
MEF  
ALU  
MEX/MH  
UH/MH

HSS END-MILLS

CARBIDE BURRS

INFO

# UH211

CARBIDE  
DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA



HSS  
DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE  
END-MILLS

G2  
MDTA  
HF VH/UP  
MEF  
ALU  
MEX/MH  
UH/MH

HSS  
END-MILLS

CARBIDE  
BURRS

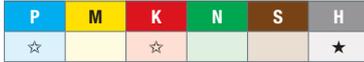
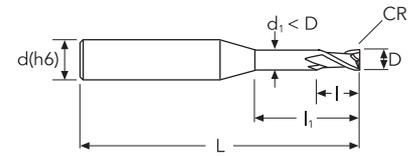
Material Group ISO 513			P3 P4 P5 K2 K3	P6 K4 H1 H4 H5	H2	H3
Hardness/Rm			≤45 HRC	45÷55 HRC	55÷60 HRC	60÷65 HRC
ap x ae			ap x D	ap x D	ap x D	ap x D
Vc (m/min)			80÷120	60÷100	50÷70	30÷50
D (mm)	l1 (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
1	≤ 6D	0.05	0.012	0.011	0.010	0.008
	≤ 8D	0.04	0.010	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

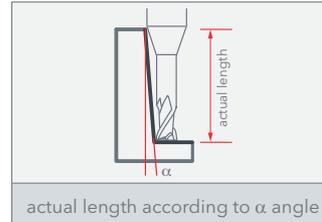
cylindrical shank, 2F, extended and reduced neck, corner radius



INFO



★ 1st choice ☆ suitable



CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

D	D Tol.	CR	CR Tol.	d(h6)	I	I1	d1	L	z	30'	1°	1°30'	2°	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	1.60	1.65	1.71	1.76	1.86	UH21200202015	●
0.3	0/-0.010	0.03	0/-0.010	4	0.4	1	0.26	50	2	1.09	1.12	1.15	1.19	1.26	UH21200300301	●
0.3	0/-0.010	0.03	0/-0.010	4	0.4	2	0.26	50	2	2.12	2.19	2.26	2.32	2.46	UH21200300302	●
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	●
0.4	0/-0.010	0.03	0/-0.010	4	0.6	2	0.37	50	2	2.12	2.19	2.26	2.32	2.46	UH21200400302	●
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	0.03	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	0.03	0/-0.010	4	0.6	5	0.37	50	2	5.22	5.39	5.56	5.73	6.07	UH21200400305	●
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	2.50	UH21200500502	●
0.5	0/-0.010	0.05	0/-0.010	4	0.7	4	0.45	50	2	4.22	4.36	4.50	4.63	4.90	UH21200500504	●
0.5	0/-0.010	0.05	0/-0.010	4	0.7	6	0.45	50	2	6.29	6.49	6.70	6.90	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	8.90	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	2.50	UH21200600502	●
0.6	0/-0.010	0.05	0/-0.010	4	0.9	4	0.55	50	2	4.22	4.36	4.50	4.63	4.90	UH21200600504	●
0.6	0/-0.010	0.05	0/-0.010	4	0.9	6	0.55	50	2	6.29	6.49	6.70	6.90	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	8.90	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	11.10	11.44	12.12	UH21200600510	●
0.7	0/-0.010	0.08	0/-0.010	4	1.0	2	0.65	50	2	2.16	2.22	2.29	2.36	2.49	UH21200700802	●
0.7	0/-0.010	0.08	0/-0.010	4	1.0	4	0.65	50	2	4.22	4.36	4.49	4.63	4.90	UH21200700804	●
0.7	0/-0.010	0.08	0/-0.010	4	1.0	6	0.65	50	2	6.29	6.49	6.69	6.90	7.30	UH21200700806	●
0.7	0/-0.010	0.08	0/-0.010	4	1.0	8	0.65	50	2	8.36	8.63	8.90	9.17	9.71	UH21200700808	●
0.7	0/-0.010	0.08	0/-0.010	4	1.0	10	0.65	50	2	10.42	10.76	11.10	11.44	12.11	UH21200700810	●
0.8	0/-0.010	0.08	0/-0.010	4	1.2	4	0.75	50	2	4.22	4.36	4.49	4.63	4.90	UH21200800804	●
0.8	0/-0.010	0.08	0/-0.010	4	1.2	6	0.75	50	2	6.29	6.49	6.69	6.90	7.30	UH21200800806	●
0.8	0/-0.010	0.08	0/-0.010	4	1.2	8	0.75	50	2	8.36	8.63	8.90	9.17	9.71	UH21200800808	●
0.8	0/-0.010	0.08	0/-0.010	4	1.2	10	0.75	50	2	10.42	10.76	11.10	11.44	12.11	UH21200800810	●
0.8	0/-0.010	0.08	0/-0.010	4	1.2	12	0.75	50	2	12.49	12.90	13.30	13.7	14.51	UH21200800812	●
0.9	0/-0.010	0.08	0/-0.010	4	1.4	6	0.85	50	2	6.29	6.49	6.69	6.90	7.30	UH21200900806	●
0.9	0/-0.010	0.08	0/-0.010	4	1.4	8	0.85	50	2	8.36	8.63	8.90	9.17	9.71	UH21200900808	●
0.9	0/-0.010	0.08	0/-0.010	4	1.4	10	0.85	50	2	10.42	10.76	11.10	11.44	12.11	UH21200900810	●
0.9	0/-0.010	0.08	0/-0.010	4	1.4	15	0.85	50	2	15.59	16.1	16.60	17.11	18.12	UH21200900815	●
1.0	0/-0.015	0.10	0/-0.010	4	1.5	6	0.95	50	2	6.39	6.59	6.80	7.00	7.41	UH2120100106	●
1.0	0/-0.015	0.10	0/-0.010	4	1.5	8	0.95	50	2	8.45	8.73	9.00	9.27	9.81	UH2120100108	●
1.0	0/-0.015	0.10	0/-0.010	4	1.5	10	0.95	50	2	10.52	10.86	11.20	11.54	12.22	UH2120100110	●
1.0	0/-0.015	0.10	0/-0.010	4	1.5	12	0.95	50	2	12.59	12.99	13.40	13.81	14.62	UH2120100112	●
1.0	0/-0.015	0.10	0/-0.010	4	1.5	14	0.95	50	2	14.66	15.13	15.60	16.08	17.03	UH2120100114	●
1.0	0/-0.015	0.10	0/-0.010	4	1.5	16	0.95	50	2	16.72	17.26	17.80	18.35	19.43	UH2120100116	●

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF-VH/UP  
MEF  
ALU  
MEX/MH  
UH/MH

HSS END-MILLS

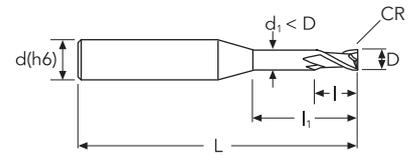
CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

# UH212

cylindrical shank, 2F, extended and reduced neck, corner radius

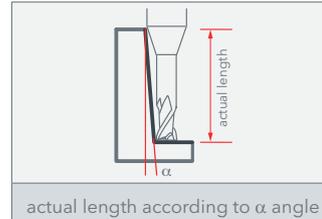


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
☆		☆			★

★ 1st choice ☆ suitable



HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

D	D Tol.	CR	CR Tol.	d(h6)	I	I1	d1	L	z	30'	1°	1°30'	2°	3°	EDP No.	Stock
1.2	0/-0.015	0.10	0/-0.010	4	1.8	6	1.15	50	2	6.39	6.59	6.80	7.00	7.41	UH2120120106	●
1.2	0/-0.015	0.10	0/-0.010	4	1.8	8	1.15	50	2	8.45	8.73	9.00	9.27	9.81	UH2120120108	●
1.2	0/-0.015	0.10	0/-0.010	4	1.8	10	1.15	50	2	10.52	10.86	11.20	11.54	12.22	UH2120120110	●
1.2	0/-0.015	0.10	0/-0.010	4	1.8	12	1.15	50	2	12.59	12.99	13.40	13.81	14.62	UH2120120112	●
1.4	0/-0.015	0.15	0/-0.010	4	2.1	6	1.35	50	2	6.38	6.59	6.79	6.99	7.40	UH21201401506	●
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	9.80	UH21201401508	●
1.4	0/-0.015	0.15	0/-0.010	4	2.1	10	1.35	50	2	10.52	10.86	11.19	11.53	12.21	UH21201401510	●
1.4	0/-0.015	0.15	0/-0.010	4	2.1	12	1.35	50	2	12.59	12.99	13.40	13.80	14.61	UH21201401512	●
1.4	0/-0.015	0.15	0/-0.010	4	2.1	14	1.35	50	2	14.65	15.13	15.60	16.07	17.02	UH21201401514	●
1.4	0/-0.015	0.15	0/-0.010	4	2.1	16	1.35	50	2	16.72	17.26	17.80	18.34	19.42	UH21201401516	●
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	7.40	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	9.80	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	13.40	13.80	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	15.60	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	17.80	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	20.00	20.61	21.82	UH21201501518	●
1.5	0/-0.015	0.15	0/-0.010	4	2.3	20	1.45	60	2	20.86	21.53	22.20	22.88	24.23	UH21201501520	●
1.6	0/-0.015	0.15	0/-0.010	4	2.4	6	1.55	50	2	6.38	6.59	6.79	6.99	7.40	UH21201601506	●
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	9.80	UH21201601508	●
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	0.15	0/-0.010	4	2.4	12	1.55	50	2	12.59	12.99	13.40	13.80	14.61	UH21201601512	●
1.6	0/-0.015	0.15	0/-0.010	4	2.4	14	1.55	50	2	14.65	15.13	15.60	16.07	17.02	UH21201601514	●
1.6	0/-0.015	0.15	0/-0.010	4	2.4	16	1.55	50	2	16.72	17.26	17.80	18.34	19.42	UH21201601516	●
1.6	0/-0.015	0.15	0/-0.010	4	2.4	18	1.55	60	2	18.79	19.39	20.00	20.61	21.82	UH21201601518	●
1.6	0/-0.015	0.15	0/-0.010	4	2.4	20	1.55	60	2	20.86	21.53	22.20	22.88	24.23	UH21201601520	●
1.8	0/-0.015	0.20	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	0.20	0/-0.010	4	2.7	8	1.75	50	2	8.45	8.72	8.99	9.26	9.79	UH2120180208	●
1.8	0/-0.015	0.20	0/-0.010	4	2.7	10	1.75	50	2	10.52	10.85	11.19	11.52	12.20	UH2120180210	●
1.8	0/-0.015	0.20	0/-0.010	4	2.7	12	1.75	50	2	12.58	12.99	13.39	13.79	14.60	UH2120180212	●
1.8	0/-0.015	0.20	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	0.20	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	0.20	0/-0.010	4	2.7	18	1.75	60	2	18.79	19.39	20.00	20.6	21.81	UH2120180218	●
1.8	0/-0.015	0.20	0/-0.010	4	2.7	20	1.75	60	2	20.85	21.53	22.20	22.87	24.22	UH2120180220	●
2	0/-0.015	0.20	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	0.20	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	0.20	0/-0.010	4	3	10	1.95	50	2	10.52	10.85	11.19	11.52	12.20	UH2120200210	●
2	0/-0.015	0.20	0/-0.010	4	3	12	1.95	50	2	12.58	12.99	13.39	13.79	14.60	UH2120200212	●
2	0/-0.015	0.20	0/-0.010	4	3	14	1.95	50	2	14.65	15.12	15.59	16.06	17.01	UH2120200214	●

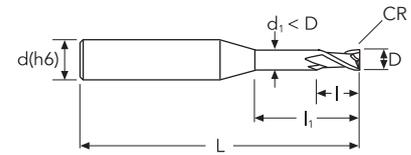
● stock standard ○ non-standard stock ▽ stock exhaustion

# UH212

cylindrical shank, 2F, extended and reduced neck, corner radius



INFO

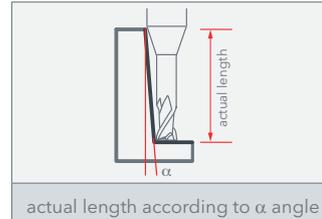


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
☆		☆			★

★ 1st choice ☆ suitable



D	D Tol.	CR	CR Tol.	d(h6)	l	l1	d1	L	z	30°	1°	1°30'	2°	3°	EDP No.	Stock
2	0/-0.015	0.20	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	0.20	0/-0.010	4	3	18	1.95	60	2	18.79	19.39	20.00	20.60	21.81	UH2120200218	●
2	0/-0.015	0.20	0/-0.010	4	3	20	1.95	60	2	20.85	21.53	22.20	22.87	-	UH2120200220	●
2	0/-0.015	0.20	0/-0.010	4	3	25	1.95	75	2	26.02	26.86	27.70	28.54	-	UH2120200225	●
2	0/-0.015	0.20	0/-0.010	4	3	30	1.95	75	2	31.19	32.20	33.21	-	-	UH2120200230	●
2.5	0/-0.020	0.30	0/-0.015	4	3.7	8	2.40	50	2	8.45	8.71	8.98	9.24	9.77	UH2120250308	●
2.5	0/-0.020	0.30	0/-0.015	4	3.7	10	2.40	50	2	10.51	10.85	11.18	11.51	12.18	UH2120250310	●
2.5	0/-0.020	0.30	0/-0.015	4	3.7	12	2.40	50	2	12.58	12.98	13.38	13.78	14.58	UH2120250312	●
2.5	0/-0.020	0.30	0/-0.015	4	3.7	14	2.40	50	2	14.65	15.12	15.58	16.05	-	UH2120250314	●
2.5	0/-0.020	0.30	0/-0.015	4	3.7	16	2.40	50	2	16.72	17.25	17.78	18.32	-	UH2120250316	●
2.5	0/-0.020	0.30	0/-0.015	4	3.7	18	2.40	60	2	18.78	19.38	19.99	20.59	-	UH2120250318	●
2.5	0/-0.020	0.30	0/-0.015	4	3.7	20	2.40	60	2	20.85	21.52	22.19	22.86	-	UH2120250320	●
2.5	0/-0.020	0.30	0/-0.015	4	3.7	25	2.40	60	2	26.02	26.86	27.69	-	-	UH2120250325	●
2.5	0/-0.020	0.30	0/-0.015	4	3.7	30	2.40	75	2	31.19	32.19	-	-	-	UH2120250330	●
3	0/-0.025	0.30	0/-0.015	6	4.5	8	2.85	50	2	8.64	8.91	9.18	9.45	10.00	UH2120300308	●
3	0/-0.025	0.30	0/-0.015	6	4.5	10	2.85	50	2	10.71	11.04	11.38	11.72	12.40	UH2120300310	●
3	0/-0.025	0.30	0/-0.015	6	4.5	12	2.85	50	2	12.77	13.18	13.59	13.99	14.80	UH2120300312	●
3	0/-0.025	0.30	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	0.30	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	0.30	0/-0.015	6	4.5	18	2.85	60	2	18.98	19.58	20.19	20.80	22.02	UH2120300318	●
3	0/-0.025	0.30	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	0.30	0/-0.015	6	4.5	25	2.85	75	2	26.21	27.05	27.90	28.74	30.43	UH2120300325	●
4	0/-0.025	0.40	0/-0.015	6	4.5	10	3.85	60	2	10.90	11.24	11.58	11.92	12.60	UH2120400410	●
4	0/-0.025	0.40	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	0.40	0/-0.015	6	4.5	20	3.85	60	2	21.23	21.91	22.59	23.27	-	UH2120400420	●
4	0/-0.025	0.40	0/-0.015	6	4.5	25	3.85	75	2	26.40	27.25	28.09	28.94	-	UH2120400425	●
4	0/-0.025	0.40	0/-0.015	6	4.5	30	3.85	75	2	31.57	32.58	33.60	-	-	UH2120400430	●
4	0/-0.025	0.40	0/-0.015	6	4.5	40	3.85	75	2	41.90	43.25	-	-	-	UH2120400440	●

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

# UH212

CARBIDE  
DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

HSS  
DRILLS

LFTA  
SUTA  
HSS-HSS/CO



CARBIDE  
END-MILLS

G2  
MDTA  
HF VH/UP  
MEF  
ALU  
MEX/MH  
UH/MH

HSS  
END-MILLS

CARBIDE  
BURRS

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
D (mm)	I1 (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

CUTTING PARAMETERS

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	
D (mm)	l1 (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		



INFO

CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF-VH/UP  
MEF  
ALU  
MEX/MH  
**UH/MH**

HSS END-MILLS

CARBIDE BURRS

INFO

# UHCS2

cylindrical shank, 2F, reduced neck, corner radius

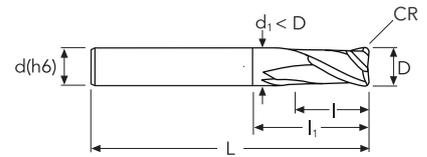


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
☆		☆			★

★ 1st choice ☆ suitable



HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

D	D Tol.	CR	CR Tol.	d(h6)	l	l1	d1	L	z	EDP No.	Stock
1	0/-0.012	0.10	+/-0.010	4	2	3	0.95	50	2	UHCS2010	●
1.5	0/-0.012	0.10	+/-0.010	4	2.5	4	1.45	50	2	UHCS2015	●
2	0/-0.012	0.10	+/-0.010	4	3	6	1.95	50	2	UHCS2020	●
3	0/-0.012	0.10	+/-0.010	6	4.5	8	2.85	55	2	UHCS2030	●
4	0/-0.012	0.10	+/-0.010	6	6	10	3.85	55	2	UHCS2040	●
5	0/-0.012	0.20	+/-0.010	6	6	11	4.85	50	2	UHCS2050	●
6	0/-0.015	0.20	+/-0.010	6	9	15	5.85	60	2	UHCS2060	●
8	0/-0.015	0.20	+/-0.015	8	12	20	7.70	70	2	UHCS2080	●
10	0/-0.015	0.20	+/-0.015	10	15	25	9.70	70	2	UHCS2100	●
12	0/-0.015	0.30	+/-0.015	12	18	30	11.70	80	2	UHCS2120	●

CARBIDE END-MILLS

- G2
- MDTA
- HF VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH**

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

## CUTTING PARAMETERS

## UHCS2

 SLOTTING	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	<b>0.3D x D</b>	<b>0.2D x D</b>	<b>0.2D x D</b>	<b>0.1D x D</b>
	Vc (m/min)	<b>80÷120</b>	<b>60÷100</b>	<b>50÷70</b>	<b>30÷50</b>
	D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	<b>1</b>	0.007	0.006	0.006	0.005
	<b>2</b>	0.012	0.011	0.010	0.008
	<b>3</b>	0.017	0.015	0.014	0.012
	<b>4</b>	0.023	0.021	0.018	0.016
	<b>5</b>	0.030	0.027	0.024	0.021
<b>6</b>	0.038	0.034	0.030	0.027	
<b>8</b>	0.050	0.045	0.040	0.035	
<b>10</b>	0.065	0.059	0.052	0.046	
<b>12</b>	0.080	0.072	0.064	0.056	

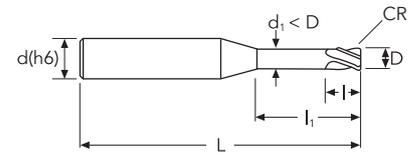
INFO

CARBIDE  
DRILLS
 PU-HPU  
 TA-4HTA  
 SUH  
 ALH  
 HRC  
 SUH MINI  
 HL  
 HSD  
 C-SD-TA
HSS  
DRILLS
 LFTA  
 SUTA  
 HSS-HSS/CO
CARBIDE  
END-MILLS
 G2  
 MDTA  
 HF-VH/UP  
 MEF  
 ALU  
 MEX/MH  
**UH/MH**
HSS  
END-MILLSCARBIDE  
BURRS

INFO

# UHF4LN

cylindrical shank, 4F Unequal Pitch, extended and reduced neck, corner radius

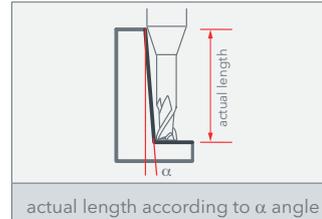


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
☆		☆			★

★ 1st choice ☆ suitable



HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

D	D Tol.	CR	CR Tol.	d(h6)	l	l1	d1	L	z	30'	1°	1°30'	2°	3°	EDP No.	Stock
1	0/-0.010	0.10	+/-0.005	4	1	4	0.90	50	4	4.32	4.46	4.62	4.78	5.13	UHF4LN0100104	●
1	0/-0.010	0.10	+/-0.005	4	1	6	0.90	50	4	6.39	6.60	6.83	7.08	7.60	UHF4LN0100106	●
1	0/-0.010	0.10	+/-0.005	4	1	8	0.90	50	4	8.45	8.74	9.05	9.37	10.07	UHF4LN0100108	●
1	0/-0.010	0.10	+/-0.005	4	1	10	0.90	50	4	10.52	10.88	11.26	11.66	12.53	UHF4LN0100110	●
1	0/-0.010	0.10	+/-0.005	4	1	12	0.90	50	4	12.59	13.02	13.48	13.96	15.00	UHF4LN0100112	●
1	0/-0.010	0.10	+/-0.005	4	1	14	0.90	50	4	14.66	15.16	15.69	16.25	17.47	UHF4LN0100114	●
1	0/-0.010	0.10	+/-0.005	4	1	16	0.90	50	4	16.72	17.30	17.91	18.55	19.94	UHF4LN0100116	●
1	0/-0.010	0.10	+/-0.005	4	1	20	0.90	75	4	20.86	21.57	22.33	23.14	24.87	UHF4LN0100120	●
1	0/-0.010	0.20	+/-0.005	4	1	4	0.90	50	4	4.32	4.46	4.61	4.77	5.11	UHF4LN0100204	●
1	0/-0.010	0.20	+/-0.005	4	1	6	0.90	50	4	6.38	6.60	6.82	7.06	7.57	UHF4LN0100206	●
1	0/-0.010	0.20	+/-0.005	4	1	8	0.90	50	4	8.45	8.73	9.04	9.35	10.04	UHF4LN0100208	●
1	0/-0.010	0.20	+/-0.005	4	1	10	0.90	50	4	10.52	10.87	11.25	11.65	12.51	UHF4LN0100210	●
1	0/-0.010	0.20	+/-0.005	4	1	12	0.90	50	4	12.58	13.01	13.47	13.94	14.98	UHF4LN0100212	●
1	0/-0.010	0.20	+/-0.005	4	1	14	0.90	50	4	14.65	15.15	15.68	16.24	17.45	UHF4LN0100214	●
1	0/-0.010	0.20	+/-0.005	4	1	16	0.90	50	4	16.72	17.29	17.89	18.53	19.91	UHF4LN0100216	●
1	0/-0.010	0.20	+/-0.005	4	1	20	0.90	60	4	20.85	21.57	22.32	23.12	24.85	UHF4LN0100220	●
1	0/-0.010	0.30	+/-0.005	4	1	6	0.90	50	4	6.38	6.59	6.81	7.05	7.55	UHF4LN0100306	●
1	0/-0.010	0.30	+/-0.005	4	1	10	0.90	50	4	10.51	10.87	11.24	11.63	12.49	UHF4LN0100310	●
1	0/-0.010	0.30	+/-0.005	4	1	16	0.90	50	4	16.72	17.28	17.88	18.52	19.89	UHF4LN0100316	●
1	0/-0.010	0.30	+/-0.005	4	1	20	0.90	60	4	20.85	21.56	22.31	23.11	24.82	UHF4LN0100320	●
1.5	0/-0.010	0.10	+/-0.005	4	1.5	6	1.40	50	4	6.39	6.60	6.83	7.08	7.60	UHF4LN0150106	●
1.5	0/-0.010	0.10	+/-0.005	4	1.5	8	1.40	50	4	8.45	8.74	9.05	9.37	10.07	UHF4LN0150108	●
1.5	0/-0.010	0.10	+/-0.005	4	1.5	12	1.40	50	4	12.59	13.02	13.48	13.96	15.00	UHF4LN0150112	●
1.5	0/-0.010	0.10	+/-0.005	4	1.5	16	1.40	50	4	16.72	17.3	17.91	18.55	19.94	UHF4LN0150116	●
1.5	0/-0.010	0.10	+/-0.005	4	1.5	20	1.40	60	4	20.86	21.57	22.33	23.14	-	UHF4LN0150120	●
1.5	0/-0.010	0.20	+/-0.005	4	1.5	6	1.40	50	4	6.38	6.60	6.82	7.06	7.57	UHF4LN0150206	●
1.5	0/-0.010	0.20	+/-0.005	4	1.5	8	1.40	50	4	8.45	8.73	9.04	9.35	10.04	UHF4LN0150208	●
1.5	0/-0.010	0.20	+/-0.005	4	1.5	10	1.40	50	4	10.52	10.87	11.25	11.65	12.51	UHF4LN0150210	●
1.5	0/-0.010	0.20	+/-0.005	4	1.5	12	1.40	50	4	12.58	13.01	13.47	13.94	14.98	UHF4LN0150212	●
1.5	0/-0.010	0.20	+/-0.005	4	1.5	14	1.40	50	4	14.65	15.15	15.68	16.24	17.45	UHF4LN0150214	●
1.5	0/-0.010	0.20	+/-0.005	4	1.5	16	1.40	50	4	16.72	17.29	17.89	18.53	19.91	UHF4LN0150216	●
1.5	0/-0.010	0.20	+/-0.005	4	1.5	18	1.40	60	4	18.79	19.43	20.11	20.83	22.38	UHF4LN0150218	●
1.5	0/-0.010	0.20	+/-0.005	4	1.5	20	1.40	60	4	20.85	21.57	22.32	23.12	-	UHF4LN0150220	●
1.5	0/-0.010	0.30	+/-0.005	4	1.5	8	1.40	50	4	8.45	8.73	9.03	9.34	10.02	UHF4LN0150308	●
1.5	0/-0.010	0.30	+/-0.005	4	1.5	16	1.40	50	4	16.72	17.28	17.88	18.52	19.89	UHF4LN0150316	●
1.5	0/-0.010	0.30	+/-0.005	4	1.5	20	1.40	60	4	20.85	21.56	22.31	23.11	-	UHF4LN0150320	●
2	0/-0.010	0.20	+/-0.005	4	2	6	1.90	50	4	6.38	6.60	6.82	7.06	7.57	UHF4LN0200206	●
2	0/-0.010	0.20	+/-0.005	4	2	8	1.90	50	4	8.45	8.73	9.04	9.35	10.04	UHF4LN0200208	●
2	0/-0.010	0.20	+/-0.005	4	2	10	1.90	50	4	10.52	10.87	11.25	11.65	12.51	UHF4LN0200210	●

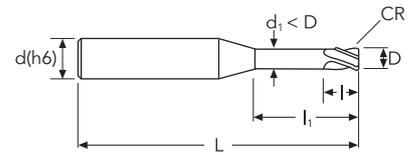
● stock standard ○ non-standard stock ▽ stock exhaustion

# UHF4LN

cylindrical shank, 4F Unequal Pitch, extended and reduced neck, corner radius

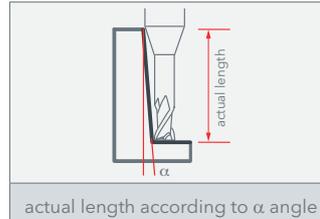


INFO



P	M	K	N	S	H
☆		☆			★

★ 1st choice ☆ suitable



CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

D	D Tol.	CR	CR Tol.	d(h6)	l	l1	d1	L	z	30'	1°	1°30'	2°	3°	EDP No.	Stock
2	0/-0.010	0.20	+/-0.005	4	2	12	1.90	50	4	12.58	13.01	13.47	13.94	14.98	UHF4LN0200212	●
2	0/-0.010	0.20	+/-0.005	4	2	14	1.90	50	4	14.65	15.15	15.68	16.24	17.45	UHF4LN0200214	●
2	0/-0.010	0.20	+/-0.005	4	2	16	1.90	50	4	16.72	17.29	17.89	18.53	-	UHF4LN0200216	●
2	0/-0.010	0.20	+/-0.005	4	2	18	1.90	60	4	18.79	19.43	20.11	20.83	-	UHF4LN0200218	●
2	0/-0.010	0.20	+/-0.005	4	2	20	1.90	60	4	20.85	21.57	22.32	23.12	-	UHF4LN0200220	●
2	0/-0.010	0.20	+/-0.005	4	2	25	1.90	75	4	26.02	26.91	27.86	-	-	UHF4LN0200225	●
2	0/-0.010	0.20	+/-0.005	4	2	30	1.90	75	4	31.19	32.26	33.40	-	-	UHF4LN0200230	●
2	0/-0.010	0.30	+/-0.005	4	2	8	1.90	50	4	8.45	8.73	9.03	9.34	10.02	UHF4LN0200308	●
2	0/-0.010	0.30	+/-0.005	4	2	16	1.90	50	4	16.72	17.28	17.88	18.52	-	UHF4LN0200316	●
2	0/-0.010	0.30	+/-0.005	4	2	20	1.90	60	4	20.85	21.56	22.31	23.11	-	UHF4LN0200320	●
2	0/-0.010	0.50	+/-0.005	4	2	6	1.90	50	4	6.37	6.58	6.79	7.02	7.50	UHF4LN0200506	●
2	0/-0.010	0.50	+/-0.005	4	2	8	1.90	50	4	8.44	8.71	9.00	9.31	9.97	UHF4LN0200508	●
2	0/-0.010	0.50	+/-0.005	4	2	12	1.90	50	4	12.57	12.99	13.43	13.9	14.91	UHF4LN0200512	●
2	0/-0.010	0.50	+/-0.005	4	2	16	1.90	50	4	16.71	17.27	17.86	18.49	-	UHF4LN0200516	●
2	0/-0.010	0.50	+/-0.005	4	2	20	1.90	60	4	20.84	21.55	22.29	23.08	-	UHF4LN0200520	●
2	0/-0.010	0.50	+/-0.005	4	2	25	1.90	75	4	26.01	26.89	27.83	28.82	-	UHF4LN0200525	●
2	0/-0.010	0.50	+/-0.005	4	2	30	1.90	75	4	31.18	32.24	33.36	-	-	UHF4LN0200530	●
2.5	0/-0.015	0.30	+/-0.005	4	2.5	8	2.40	50	4	8.45	8.73	9.03	9.34	10.02	UHF4LN0250308	●
2.5	0/-0.015	0.30	+/-0.005	4	2.5	10	2.40	50	4	10.51	10.87	11.24	11.63	12.49	UHF4LN0250310	●
2.5	0/-0.015	0.30	+/-0.005	4	2.5	12	2.40	50	4	12.58	13.01	13.45	13.93	-	UHF4LN0250312	●
2.5	0/-0.015	0.30	+/-0.005	4	2.5	14	2.40	50	4	14.65	15.14	15.67	16.22	-	UHF4LN0250314	●
2.5	0/-0.015	0.30	+/-0.005	4	2.5	16	2.40	50	4	16.72	17.28	17.88	18.52	-	UHF4LN0250316	●
2.5	0/-0.015	0.30	+/-0.005	4	2.5	18	2.40	60	4	18.78	19.42	20.10	20.81	-	UHF4LN0250318	●
2.5	0/-0.015	0.30	+/-0.005	4	2.5	20	2.40	60	4	20.85	21.56	22.31	-	-	UHF4LN0250320	●
2.5	0/-0.015	0.30	+/-0.005	4	2.5	25	2.40	60	4	26.02	26.91	27.85	-	-	UHF4LN0250325	●
2.5	0/-0.015	0.30	+/-0.005	4	2.5	30	2.40	75	4	31.19	32.25	-	-	-	UHF4LN0250330	●
2.5	0/-0.015	0.50	+/-0.005	4	2.5	8	2.40	50	4	8.44	8.71	9.00	9.31	9.97	UHF4LN0250508	●
2.5	0/-0.015	0.50	+/-0.005	4	2.5	12	2.40	50	4	12.57	12.99	13.43	13.90	-	UHF4LN0250512	●
2.5	0/-0.015	0.50	+/-0.005	4	2.5	16	2.40	50	4	16.71	17.27	17.86	18.49	-	UHF4LN0250516	●
2.5	0/-0.015	0.50	+/-0.005	4	2.5	20	2.40	60	4	20.84	21.55	22.29	-	-	UHF4LN0250520	●
2.5	0/-0.015	0.50	+/-0.005	4	2.5	25	2.40	60	4	26.01	26.89	27.83	-	-	UHF4LN0250525	●
2.5	0/-0.015	0.50	+/-0.005	4	2.5	30	2.40	75	4	31.18	32.24	-	-	-	UHF4LN0250530	●
3	0/-0.015	0.20	+/-0.010	6	3	8	2.80	50	4	8.64	8.93	9.24	9.57	10.27	UHF4LN0300208	●
3	0/-0.015	0.20	+/-0.010	6	3	10	2.80	50	4	10.71	11.07	11.46	11.86	12.73	UHF4LN0300210	●
3	0/-0.015	0.20	+/-0.010	6	3	12	2.80	50	4	12.78	13.21	13.67	14.16	15.20	UHF4LN0300212	●
3	0/-0.015	0.20	+/-0.010	6	3	14	2.80	50	4	14.84	15.35	15.89	16.45	17.67	UHF4LN0300214	●
3	0/-0.015	0.20	+/-0.010	6	3	16	2.80	60	4	16.91	17.49	18.10	18.74	20.14	UHF4LN0300216	●
3	0/-0.015	0.20	+/-0.010	6	3	18	2.80	60	4	18.98	19.63	20.31	21.04	22.60	UHF4LN0300218	●
3	0/-0.015	0.20	+/-0.010	6	3	20	2.80	60	4	21.05	21.77	22.53	23.33	25.07	UHF4LN0300220	●

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF-VH/UP  
MEF  
ALU  
MEX/MH  
UH/MH

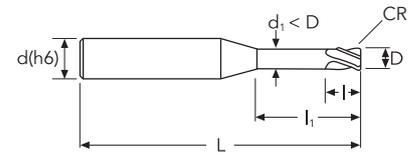
HSS END-MILLS

CARBIDE BURRS

INFO

# UHF4LN

cylindrical shank, 4F Unequal Pitch, extended and reduced neck, corner radius

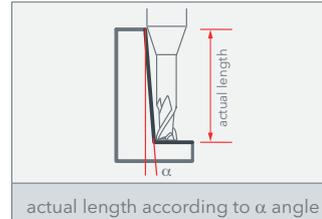


CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

P	M	K	N	S	H
☆		☆			★

★ 1st choice ☆ suitable



actual length according to  $\alpha$  angle

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HFVH/UP  
MEF  
ALU  
MEX/MH  
UH/MH

HSS END-MILLS

CARBIDE BURRS

D	D Tol.	CR	CR Tol.	d(h6)	I	l1	d1	L	z	30'	1°	1°30'	2°	3°	EDP No.	Stock
3	0/-0.015	0.20	+/-0.010	6	3	25	2.80	75	4	26.21	27.11	28.07	29.07	-	UHF4LN0300225	●
3	0/-0.015	0.30	+/-0.010	6	3	8	2.80	50	4	8.64	8.93	9.23	9.55	10.24	UHF4LN0300308	●
3	0/-0.015	0.30	+/-0.010	6	3	10	2.80	50	4	10.71	11.07	11.45	11.85	12.71	UHF4LN0300310	●
3	0/-0.015	0.30	+/-0.010	6	3	12	2.80	50	4	12.77	13.20	13.66	14.14	15.18	UHF4LN0300312	●
3	0/-0.015	0.30	+/-0.010	6	3	14	2.80	50	4	14.84	15.34	15.87	16.44	17.64	UHF4LN0300314	●
3	0/-0.015	0.30	+/-0.010	6	3	16	2.80	60	4	16.91	17.48	18.09	18.73	20.11	UHF4LN0300316	●
3	0/-0.015	0.30	+/-0.010	6	3	18	2.80	60	4	18.98	19.62	20.30	21.02	22.58	UHF4LN0300318	●
3	0/-0.015	0.30	+/-0.010	6	3	20	2.80	60	4	21.04	21.76	22.52	23.32	25.05	UHF4LN0300320	●
3	0/-0.015	0.30	+/-0.010	6	3	30	2.80	75	4	31.38	32.45	33.59	34.79	-	UHF4LN0300330	●
3	0/-0.015	0.50	+/-0.010	6	3	8	2.80	50	4	8.63	8.91	9.21	9.52	10.20	UHF4LN0300508	●
3	0/-0.015	0.50	+/-0.010	6	3	10	2.80	50	4	10.7	11.05	11.42	11.82	12.66	UHF4LN0300510	●
3	0/-0.015	0.50	+/-0.010	6	3	12	2.80	50	4	12.77	13.19	13.64	14.11	15.13	UHF4LN0300512	●
3	0/-0.015	0.50	+/-0.010	6	3	14	2.80	50	4	14.83	15.33	15.85	16.41	17.60	UHF4LN0300514	●
3	0/-0.015	0.50	+/-0.010	6	3	16	2.80	60	4	16.9	17.47	18.07	18.70	20.07	UHF4LN0300516	●
3	0/-0.015	0.50	+/-0.010	6	3	18	2.80	60	4	18.97	19.61	20.28	20.99	22.53	UHF4LN0300518	●
3	0/-0.015	0.50	+/-0.010	6	3	20	2.80	60	4	21.04	21.75	22.50	23.29	25.00	UHF4LN0300520	●
3	0/-0.015	0.50	+/-0.010	6	3	30	2.80	75	4	31.37	32.44	33.57	34.76	-	UHF4LN0300530	●
4	0/-0.015	0.30	+/-0.010	6	4	10	3.70	60	4	10.90	11.26	11.65	12.06	12.93	UHF4LN0400310	●
4	0/-0.015	0.30	+/-0.010	6	4	15	3.70	60	4	16.07	16.61	17.19	17.79	19.10	UHF4LN0400315	●
4	0/-0.015	0.30	+/-0.010	6	4	20	3.70	60	4	21.24	21.96	22.72	23.53	-	UHF4LN0400320	●
4	0/-0.015	0.30	+/-0.010	6	4	25	3.70	75	4	26.4	27.31	28.26	-	-	UHF4LN0400325	●
4	0/-0.015	0.30	+/-0.010	6	4	32	3.70	75	4	33.64	34.79	36.01	-	-	UHF4LN0400332	●
4	0/-0.015	0.30	+/-0.010	6	4	40	3.70	75	4	41.91	43.35	-	-	-	UHF4LN0400340	●
4	0/-0.015	0.50	+/-0.010	6	4	10	3.70	60	4	10.89	11.25	11.63	12.03	12.89	UHF4LN0400510	●
4	0/-0.015	0.50	+/-0.010	6	4	15	3.70	60	4	16.06	16.60	17.17	17.76	19.06	UHF4LN0400515	●
4	0/-0.015	0.50	+/-0.010	6	4	20	3.70	60	4	21.23	21.94	22.7	23.50	-	UHF4LN0400520	●
4	0/-0.015	0.50	+/-0.010	6	4	25	3.70	75	4	26.4	27.29	28.24	-	-	UHF4LN0400525	●
4	0/-0.015	0.50	+/-0.010	6	4	32	3.70	75	4	33.63	34.78	35.99	-	-	UHF4LN0400532	●
4	0/-0.015	0.50	+/-0.010	6	4	40	3.70	75	4	41.9	43.33	-	-	-	UHF4LN0400540	●

● stock standard ○ non-standard stock ▽ stock exhaustion

CUTTING PARAMETERS

**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
D (mm)	l1 (mm)	ap (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)	
<b>1</b>	≤ 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	
<b>1.5</b>	≤ 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	
<b>2</b>	≤ 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	
<b>2.5</b>	≤ 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		
<b>3</b>	≤ 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		
<b>4</b>	≤ 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		



INFO

CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF-VH/UP  
MEF  
ALU  
MEX/MH  
**UH/MH**

HSS END-MILLS

CARBIDE BURRS

INFO

# UHF-RT

cylindrical shank, multiflutes radius type for high feed machining

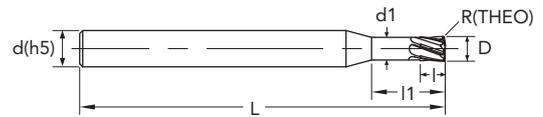


CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

P	M	K	N	S	H
☆					★

★ 1st choice ☆ suitable



D	D Tol.	R(Theo)	d(h5)	l	l1	d1	L	Z	EDP No.	Stock
2	-0.014/-0.038	0.13	6	2	6	1.9	50	4	UHF470RT020	●
3	-0.014/-0.038	0.19	6	3	9	2.9	60	4	UHF470RT030	●
4	-0.014/-0.038	0.25	6	4	12	3.9	60	6	UHF670RT040	●
5	-0.014/-0.038	0.31	6	5	15	4.7	60	6	UHF670RT050	●
6	-0.014/-0.038	0.38	6	5	18	5.5	60	6	UHF670RT060	●
8	-0.014/-0.038	0.50	8	7	24	7.5	75	6	UHF670RT080	●
10	-0.014/-0.038	0.63	10	8	30	9.5	90	6	UHF670RT100	●
12	-0.014/-0.038	0.75	12	10	36	11.5	100	6	UHF670RT120	●

● stock standard ○ non-standard stock

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF VH/UP  
MEF  
ALU  
MEX/MH  
UH/MH



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.

HSS END-MILLS

CARBIDE BURRS

CUTTING PARAMETERS

INFO

**UHF-RT**

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

CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

D	ap max	CAM input			Circular interpolation			Cutting length for linear ramping Lmax (αmax=5°)		
		Rtheo	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)

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF-VH/UP  
MEF  
ALU  
MEX/MH  
**UH/MH**

HSS END-MILLS

CARBIDE BURRS



CUTTING PARAMETERS

**UHF4**

	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	<b>0.03D x 0.3D</b>	<b>0.03D x 0.3D</b>	<b>0.02D x 0.3D</b>	<b>0.02D x 0.3D</b>
	Vc (m/min)	<b>110÷150</b>	<b>90÷130</b>	<b>60÷100</b>	<b>50÷70</b>
	D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	<b>2</b>	0.033	0.029	0.026	0.023
	<b>3</b>	0.050	0.045	0.040	0.035
	<b>4</b>	0.068	0.061	0.054	0.047
	<b>5</b>	0.086	0.077	0.068	0.060
	<b>6</b>	0.104	0.093	0.083	0.072
<b>8</b>	0.122	0.109	0.097	0.085	
<b>10</b>	0.140	0.126	0.112	0.098	
<b>12</b>	0.158	0.142	0.126	0.110	
ap x ae	<b>D2 - D3</b>	0.02D x 0.3D	0.02D x 0.25D	0.01D x 0.02D	0.01D x 0.02D

INFO

CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF-VH/UP  
MEF  
ALU  
MEX/MH  
**UH/MH**

HSS END-MILLS

CARBIDE BURRS



## 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	<b>D x 0.1D</b>	<b>D x 0.05D</b>	<b>D x 0.05D</b>	<b>D x 0.05D</b>
	Vc (m/min)	<b>90÷130</b>	<b>60÷100</b>	<b>50÷70</b>	<b>30÷50</b>
	D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	<b>1</b>	0.010	0.009	0.008	0.007
	<b>2</b>	0.020	0.018	0.016	0.014
	<b>3</b>	0.030	0.027	0.024	0.021
	<b>4</b>	0.040	0.036	0.032	0.028
	<b>5</b>	0.045	0.041	0.036	0.032
<b>6</b>	0.050	0.045	0.040	0.035	
<b>8</b>	0.065	0.059	0.052	0.046	
<b>10</b>	0.085	0.077	0.068	0.060	
<b>12</b>	0.100	0.090	0.080	0.070	

INFO

CARBIDE  
DRILLS
 PU-HPU  
 TA-4HTA  
 SUH  
 ALH  
 HRC  
 SUH MINI  
 HL  
 HSD  
 C-SD-TA
HSS  
DRILLS
 LFTA  
 SUTA  
 HSS-HSS/CO
CARBIDE  
END-MILLS
 G2  
 MDTA  
 HF-VH/UP  
 MEF  
 ALU  
 MEX/MH  
**UH/MH**
HSS  
END-MILLSCARBIDE  
BURRS

INFO

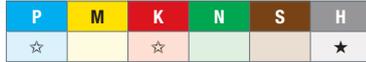
# UH410

cylindrical shank, 4F, corner radius

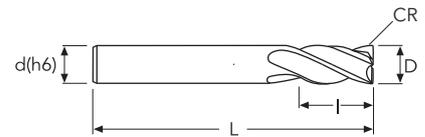


CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA



★ 1st choice ☆ suitable



HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF VH/UP  
MEF  
ALU  
MEX/MH  
UH/MH

HSS END-MILLS

CARBIDE BURRS

D	D Tol.	CR	CR Tol.	d(h6)	l	l1	L	z	EDP No.	Stock
1	0/-0.015	0.20	0/-0.010	6	3		50	4	UH41001002	●
1.5	0/-0.015	0.20	0/-0.010	6	4.5		50	4	UH41001502	●
2	0/-0.015	0.30	0/-0.010	6	6.5		50	4	UH41002003	●
2.5	0/-0.020	0.30	0/-0.015	6	6.5		50	4	UH41002503	●
2.5	0/-0.020	0.50	0/-0.015	6	6.5		50	4	UH41002505	●
3	0/-0.020	0.20	0/-0.015	6	9		50	4	UH41003002	●
3	0/-0.020	0.30	0/-0.015	6	9		50	4	UH41003003	●
3	0/-0.020	0.50	0/-0.015	6	9		50	4	UH41003005	●
4	0/-0.020	0.30	0/-0.015	6	12		50	4	UH41004003	●
4	0/-0.020	0.50	0/-0.015	6	12		50	4	UH41004005	●
4	0/-0.020	1.00	0/-0.015	6	12		50	4	UH41004010	●
5	0/-0.020	0.30	0/-0.015	6	15		50	4	UH41005003	●
5	0/-0.020	0.50	0/-0.015	6	15		50	4	UH41005005	●
5	0/-0.020	1.00	0/-0.015	6	15		50	4	UH41005010	●
6	0/-0.020	0.30	0/-0.015	6	16		50	4	UH41006003	●
6	0/-0.020	0.50	0/-0.015	6	16		50	4	UH41006005	●
6	0/-0.020	1.00	0/-0.015	6	16		50	4	UH41006010	●
8	0/-0.020	0.30	0/-0.015	8	20		64	4	UH41008003	●
8	0/-0.020	0.50	0/-0.015	8	20		64	4	UH41008005	●
8	0/-0.020	1.00	0/-0.015	8	20		64	4	UH41008010	●
8	0/-0.020	1.50	0/-0.015	8	20		64	4	UH41008015	●
8	0/-0.020	2.00	0/-0.015	8	20		64	4	UH41008020	●
10	0/-0.020	0.30	0/-0.020	10	22		70	4	UH41010003	●
10	0/-0.020	0.50	0/-0.020	10	22		70	4	UH41010005	●
10	0/-0.020	1.00	0/-0.020	10	22		70	4	UH41010010	●
10	0/-0.020	1.50	0/-0.020	10	22		70	4	UH41010015	●
10	0/-0.020	2.00	0/-0.020	10	22		70	4	UH41010020	●
12	0/-0.020	0.30	0/-0.020	12	25		75	4	UH41012003	●
12	0/-0.020	0.50	0/-0.020	12	25		75	4	UH41012005	●
12	0/-0.020	1.00	0/-0.020	12	25		75	4	UH41012010	●
12	0/-0.020	1.50	0/-0.020	12	25		75	4	UH41012015	●
12	0/-0.020	2.00	0/-0.020	12	25		75	4	UH41012020	●
12	0/-0.020	3.00	0/-0.020	12	25		75	4	UH41012030	●
14	0/-0.020	0.50	0/-0.020	14	32		90	4	UH41014005	●
14	0/-0.020	1.00	0/-0.020	14	32		90	4	UH41014010	●
14	0/-0.020	2.00	0/-0.020	14	32		90	4	UH41014020	○
16	0/-0.020	0.30	0/-0.020	16	32		90	4	UH41016003	○
16	0/-0.020	0.50	0/-0.020	16	32		90	4	UH41016005	●
16	0/-0.020	1.00	0/-0.020	16	32		90	4	UH41016010	●

● stock standard ○ non-standard stock ▽ stock exhaustion



INFO

## UH410

CARBIDE  
DRILLS
 PU-HPU  
 TA-4HTA  
 SUH  
 ALH  
 HRC  
 SUH MINI  
 HL  
 HSD  
 C-SD-TA


	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	<b>D x 0.1D</b>	<b>D x 0.05D</b>	<b>D x 0.05D</b>	<b>D x 0.05D</b>	<b>D x 0.05D</b>
Vc (m/min)	<b>90÷130</b>	<b>60÷100</b>	<b>50÷70</b>	<b>30÷50</b>	
D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
<b>1</b>	0.010	0.009	0.008	0.007	
<b>2</b>	0.018	0.016	0.014	0.013	
<b>3</b>	0.027	0.024	0.022	0.019	
<b>4</b>	0.036	0.032	0.029	0.025	
<b>5</b>	0.041	0.036	0.032	0.028	
<b>6</b>	0.045	0.041	0.036	0.032	
<b>8</b>	0.059	0.053	0.047	0.041	
<b>10</b>	0.077	0.069	0.061	0.054	
<b>12</b>	0.090	0.081	0.072	0.063	
<b>14</b>	0.102	0.092	0.082	0.071	
<b>16</b>	0.114	0.103	0.091	0.080	
<b>18</b>	0.126	0.113	0.101	0.088	
<b>20</b>	0.138	0.124	0.110	0.097	

HSS  
DRILLSLFTA  
SUTA  
HSS-HSS/COCARBIDE  
END-MILLSG2  
MDTA  
HF VH/UP  
MEF  
ALU  
MEX/MH  
**UH/MH**HSS  
END-MILLSCARBIDE  
BURRS



INFO

## UH411

CARBIDE  
DRILLS
 PU-HPU  
 TA-4HTA  
 SUH  
 ALH  
 HRC  
 SUH MINI  
 HL  
 HSD  
 C-SD-TA


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
ap x ae	<b>D x 0.05D</b>	<b>D x 0.05D</b>	<b>D x 0.05D</b>	<b>D x 0.05D</b>
Vc (m/min)	<b>90÷130</b>	<b>60÷100</b>	<b>50÷70</b>	<b>30÷50</b>
D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
<b>3</b>	0.027	0.024	0.022	0.019
<b>4</b>	0.036	0.032	0.029	0.025
<b>5</b>	0.041	0.036	0.032	0.028
<b>6</b>	0.045	0.041	0.036	0.032
<b>8</b>	0.059	0.053	0.047	0.041
<b>10</b>	0.077	0.069	0.061	0.054
<b>12</b>	0.090	0.081	0.072	0.063

HSS  
DRILLS
 LFTA  
 SUTA  
 HSS-HSS/CO
CARBIDE  
END-MILLS
 G2  
 MDTA  
 HF VH/UP  
 MEF  
 ALU  
 MEX/MH  
**UH/MH**
HSS  
END-MILLSCARBIDE  
BURRS



INFO

## UH412

CARBIDE  
DRILLS
 PU-HPU  
 TA-4HTA  
 SUH  
 ALH  
 HRC  
 SUH MINI  
 HL  
 HSD  
 C-SD-TA


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

HSS  
DRILLS
 LFTA  
 SUTA  
 HSS-HSS/CO
CARBIDE  
END-MILLS
 G2  
 MDTA  
 HF VH/UP  
 MEF  
 ALU  
 MEX/MH  
**UH/MH**
HSS  
END-MILLSCARBIDE  
BURRS



INFO

## UH413

	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	<b>D x 0.05D</b>	<b>D x 0.05D</b>	<b>D x 0.05D</b>	<b>D x 0.05D</b>
	Vc (m/min)	<b>70÷110</b>	<b>60÷80</b>	<b>40÷60</b>	<b>30÷50</b>
	D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
	<b>6</b>	0.041	0.036	0.032	0.028
	<b>8</b>	0.053	0.047	0.042	0.037
<b>10</b>	0.069	0.062	0.055	0.048	
<b>12</b>	0.081	0.073	0.065	0.057	
<b>16</b>	0.095	0.086	0.076	0.067	

CARBIDE  
DRILLS
 PU-HPU  
 TA-4HTA  
 SUH  
 ALH  
 HRC  
 SUH MINI  
 HL  
 HSD  
 C-SD-TA
HSS  
DRILLS
 LFTA  
 SUTA  
 HSS-HSS/CO
CARBIDE  
END-MILLS
 G2  
 MDTA  
 HF VH/UP  
 MEF  
 ALU  
 MEX/MH  
**UH/MH**
HSS  
END-MILLSCARBIDE  
BURRS



INFO

## UH610R

	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	<b>D x 0.1D</b>	<b>D x 0.05D</b>	<b>D x 0.05D</b>	<b>D x 0.05D</b>	<b>D x 0.05D</b>
Vc (m/min)	<b>140÷180</b>	<b>100÷140</b>	<b>70÷110</b>	<b>60÷80</b>	
D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
<b>6</b>	0.018	0.016	0.014	0.013	
<b>8</b>	0.028	0.025	0.022	0.019	
<b>10</b>	0.034	0.030	0.027	0.024	
<b>12</b>	0.041	0.037	0.033	0.029	

CARBIDE  
DRILLS
 PU-HPU  
 TA-4HTA  
 SUH  
 ALH  
 HRC  
 SUH MINI  
 HL  
 HSD  
 C-SD-TA
HSS  
DRILLS
 LFTA  
 SUTA  
 HSS-HSS/CO
CARBIDE  
END-MILLS
 G2  
 MDTA  
 HF VH/UP  
 MEF  
 ALU  
 MEX/MH  
**UH/MH**
HSS  
END-MILLSCARBIDE  
BURRS



INFO

## UH611R

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
ap x ae	<b>1.5D x 0.05D</b>	<b>1.5D x 0.05D</b>	<b>1.5D x 0.05D</b>	<b>1.5D x 0.05D</b>
Vc (m/min)	<b>110÷150</b>	<b>90÷130</b>	<b>60÷80</b>	<b>40÷60</b>
D (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
<b>6</b>	0.015	0.014	0.012	0.011
<b>8</b>	0.023	0.021	0.019	0.016
<b>10</b>	0.029	0.026	0.023	0.020
<b>12</b>	0.035	0.031	0.028	0.024
<b>16</b>	0.048	0.043	0.038	0.034
<b>20</b>	0.066	0.060	0.053	0.046

CARBIDE  
DRILLS
 PU-HPU  
 TA-4HTA  
 SUH  
 ALH  
 HRC  
 SUH MINI  
 HL  
 HSD  
 C-SD-TA
HSS  
DRILLS
 LFTA  
 SUTA  
 HSS-HSS/CO
CARBIDE  
END-MILLS
 G2  
 MDTA  
 HF VH/UP  
 MEF  
 ALU  
 MEX/MH  
**UH/MH**
HSS  
END-MILLSCARBIDE  
BURRS



INFO

# MHMB204

CARBIDE  
DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA



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		<b>0.05D x 0.1D</b>	<b>0.05D x 0.1D</b>	<b>0.05D x 0.1D</b>	<b>0.05D x 0.1D</b>
Vc (m/min)		<b>80÷120</b>	<b>60÷100</b>	<b>40÷80</b>	<b>20÷60</b>
D (mm)	D(eff.) (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
<b>0.1</b>	0.04	0.004	0.004	0.003	0.003
<b>0.2</b>	0.09	0.006	0.005	0.005	0.004
<b>0.3</b>	0.13	0.008	0.007	0.006	0.006
<b>0.4</b>	0.17	0.010	0.009	0.008	0.007
<b>0.5</b>	0.22	0.012	0.011	0.010	0.008
<b>0.6</b>	0.26	0.015	0.014	0.012	0.011
<b>0.7</b>	0.31	0.018	0.016	0.014	0.013
<b>0.8</b>	0.35	0.020	0.018	0.016	0.014
<b>0.9</b>	0.39	0.023	0.021	0.018	0.016
<b>1</b>	0.44	0.026	0.023	0.020	0.017
<b>1.5</b>	0.79	0.040	0.036	0.030	0.026
<b>2</b>	1.20	0.055	0.050	0.041	0.036

HSS  
DRILLS

LFTA  
SUTA  
HSS-HSS/CO

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

CARBIDE  
END-MILLS

G2  
MDTA  
HF VH/UP  
MEF  
ALU  
MEX/MH  
**UH/MH**

HSS  
END-MILLS

CARBIDE  
BURRS



INFO

## 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 x ae		<b>0.05D x 0.2D</b>	<b>0.05D x 0.2D</b>	<b>0.05D x 0.2D</b>	<b>0.05D x 0.2D</b>
	Vc (m/min)		<b>80÷120</b>	<b>60÷100</b>	<b>40÷80</b>	<b>20÷60</b>
	D (mm)	D(eff.) (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
<b>0.4</b>	0.17	0.010	0.009	0.008	0.007	
<b>0.5</b>	0.22	0.012	0.011	0.010	0.008	
<b>0.6</b>	0.26	0.015	0.014	0.012	0.011	
<b>0.8</b>	0.35	0.020	0.018	0.016	0.014	

CARBIDE  
DRILLS
 PU-HPU  
 TA-4HTA  
 SUH  
 ALH  
 HRC  
 SUH MINI  
 HL  
 HSD  
 C-SD-TA

	$\alpha$	n (rpm)	Vf (mm/min)
	15°	x 1.1	x 1.1

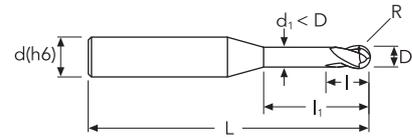
HSS  
DRILLS
 LFTA  
 SUTA  
 HSS-HSS/CO
CARBIDE  
END-MILLS
 G2  
 MDTA  
 HF VH/UP  
 MEF  
 ALU  
 MEX/MH  
**UH/MH**
HSS  
END-MILLSCARBIDE  
BURRS

# MHLNB2

cylindrical shank, 2 flutes ball nose, extended and reduced neck, miniature

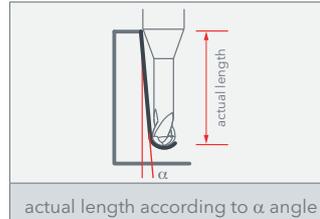


INFO



P	M	K	N	S	H
★		★			★

★ 1st choice ★ suitable



CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

D	D Tol.	R	R Tol.	d(h6)	l	l1	d1	L	z	30'	1°	1°30'	2°	3°	EDP No.	Stock
0.2	0/-0.015	0.10	0/-0.020	4	0.2	0.5	0.17	50	2	0.57	0.58	0.60	0.62	0.66	MHLNB2002005	●
0.2	0/-0.015	0.10	0/-0.020	4	0.2	1	0.17	50	2	1.08	1.12	1.15	1.19	1.27	MHLNB200201	●
0.2	0/-0.015	0.10	0/-0.020	4	0.2	1.5	0.17	50	2	1.60	1.65	1.71	1.76	1.89	MHLNB2002015	●
0.3	0/-0.015	0.15	0/-0.020	4	0.3	1	0.27	50	2	1.08	1.11	1.15	1.18	1.26	MHLNB200301	●
0.3	0/-0.015	0.15	0/-0.020	4	0.3	2	0.27	50	2	2.12	2.18	2.25	2.33	2.49	MHLNB200302	●
0.3	0/-0.015	0.15	0/-0.020	4	0.3	3	0.27	50	2	3.15	3.25	3.36	3.48	3.73	MHLNB200303	●
0.4	0/-0.015	0.20	0/-0.020	4	0.4	1	0.37	50	2	1.08	1.11	1.14	1.18	1.25	MHLNB200401	●
0.4	0/-0.015	0.20	0/-0.020	4	0.4	2	0.37	50	2	2.11	2.18	2.25	2.32	2.48	MHLNB200402	●
0.4	0/-0.015	0.20	0/-0.020	4	0.4	3	0.37	50	2	3.15	3.25	3.36	3.47	3.72	MHLNB200403	●
0.4	0/-0.015	0.20	0/-0.020	4	0.4	4	0.37	50	2	4.18	4.32	4.46	4.62	4.95	MHLNB200404	●
0.4	0/-0.015	0.20	0/-0.020	4	0.4	5	0.37	50	2	5.21	5.39	5.57	5.77	6.18	MHLNB200405	●
0.5	0/-0.015	0.25	0/-0.020	4	0.4	2	0.45	50	2	2.15	2.22	2.29	2.36	2.52	MHLNB200502	●
0.5	0/-0.015	0.25	0/-0.020	4	0.4	3	0.45	50	2	3.18	3.29	3.39	3.51	3.75	MHLNB200503	●
0.5	0/-0.015	0.25	0/-0.020	4	0.4	4	0.45	50	2	4.22	4.35	4.50	4.65	4.98	MHLNB200504	●
0.5	0/-0.015	0.25	0/-0.020	4	0.4	5	0.45	50	2	5.25	5.42	5.61	5.80	6.22	MHLNB200505	●
0.5	0/-0.015	0.25	0/-0.020	4	0.4	6	0.45	50	2	6.28	6.49	6.71	6.95	7.45	MHLNB200506	●
0.5	0/-0.015	0.25	0/-0.020	4	0.4	8	0.45	50	2	8.35	8.63	8.93	9.24	9.92	MHLNB200508	●
0.6	0/-0.015	0.30	0/-0.020	4	0.5	2	0.55	50	2	2.15	2.21	2.28	2.35	2.50	MHLNB200602	●
0.6	0/-0.015	0.30	0/-0.020	4	0.5	3	0.55	50	2	3.18	3.28	3.39	3.50	3.74	MHLNB200603	●
0.6	0/-0.015	0.30	0/-0.020	4	0.5	4	0.55	50	2	4.22	4.35	4.49	4.65	4.97	MHLNB200604	●
0.6	0/-0.015	0.30	0/-0.020	4	0.5	5	0.55	50	2	5.25	5.42	5.60	5.79	6.21	MHLNB200605	●
0.6	0/-0.015	0.30	0/-0.020	4	0.5	6	0.55	50	2	6.28	6.49	6.71	6.94	7.44	MHLNB200606	●
0.6	0/-0.015	0.30	0/-0.020	4	0.5	8	0.55	50	2	8.35	8.63	8.92	9.23	9.91	MHLNB200608	●
0.8	0/-0.015	0.40	0/-0.020	4	0.6	2	0.75	50	2	2.15	2.21	2.27	2.34	2.48	MHLNB200802	●
0.8	0/-0.015	0.40	0/-0.020	4	0.6	4	0.75	50	2	4.21	4.34	4.48	4.63	4.95	MHLNB200804	●
0.8	0/-0.015	0.40	0/-0.020	4	0.6	5	0.75	50	2	5.25	5.41	5.59	5.78	6.18	MHLNB200805	●
0.8	0/-0.015	0.40	0/-0.020	4	0.6	6	0.75	50	2	6.28	6.48	6.70	6.93	7.42	MHLNB200806	●
0.8	0/-0.015	0.40	0/-0.020	4	0.6	7	0.75	50	2	7.31	7.55	7.81	8.07	8.65	MHLNB200807	●
0.8	0/-0.015	0.40	0/-0.020	4	0.6	8	0.75	50	2	8.35	8.62	8.91	9.22	9.88	MHLNB200808	●
0.8	0/-0.015	0.40	0/-0.020	4	0.6	10	0.75	50	2	10.41	10.76	11.13	11.51	12.35	MHLNB200810	●
1	0/-0.015	0.50	0/-0.020	4	0.8	3	0.9	50	2	3.27	3.37	3.47	3.57	3.80	MHLNB201003	●
1	0/-0.015	0.50	0/-0.020	4	0.8	4	0.9	50	2	4.31	4.44	4.58	4.72	5.04	MHLNB201004	●
1	0/-0.015	0.50	0/-0.020	4	0.8	5	0.9	50	2	5.34	5.51	5.68	5.87	6.27	MHLNB201005	●
1	0/-0.015	0.50	0/-0.020	4	0.8	6	0.9	50	2	6.37	6.58	6.79	7.02	7.50	MHLNB201006	●
1	0/-0.015	0.50	0/-0.020	4	0.8	7	0.9	50	2	7.41	7.64	7.90	8.16	8.74	MHLNB201007	●
1	0/-0.015	0.50	0/-0.020	4	0.8	8	0.9	50	2	8.44	8.71	9.00	9.31	9.97	MHLNB201008	●
1	0/-0.015	0.50	0/-0.020	4	0.8	9	0.9	50	2	9.47	9.78	10.11	10.46	11.21	MHLNB201009	●
1	0/-0.015	0.50	0/-0.020	4	0.8	10	0.9	50	2	10.51	10.85	11.22	11.61	12.44	MHLNB201010	●
1	0/-0.015	0.50	0/-0.020	4	0.8	12	0.9	50	2	12.57	12.99	13.43	13.90	14.91	MHLNB201012	●

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HF-VH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

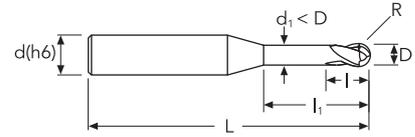
CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

INFO

# MHLNB2

cylindrical shank, 2 flutes ball nose, extended and reduced neck, miniature

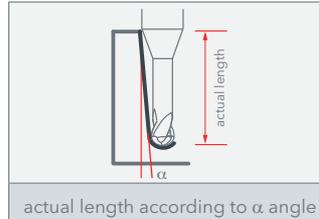


CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

P	M	K	N	S	H
★		★			★

★ 1st choice ★ suitable



D	D Tol.	R	R Tol.	d(h6)	l	l1	d1	L	z	30°	1°	1°30'	2°	3°	EDP No.	Stock
1	0/-0.015	0.50	0/-0.020	4	0.8	14	0.9	50	2	14.64	15.13	15.65	16.19	17.37	MHLNB201014	●
1	0/-0.015	0.50	0/-0.020	4	0.8	16	0.9	50	2	16.71	17.27	17.86	18.49	19.84	MHLNB201016	●
1	0/-0.015	0.50	0/-0.020	4	0.8	20	0.9	60	2	20.84	21.55	22.29	23.08	24.78	MHLNB201020	●
1.2	0/-0.015	0.60	0/-0.020	4	1.0	6	1.1	50	2	6.37	6.57	6.78	7.00	7.48	MHLNB201206	●
1.2	0/-0.015	0.60	0/-0.020	4	1.0	8	1.1	50	2	8.44	8.71	8.99	9.30	9.95	MHLNB201208	●
1.2	0/-0.015	0.60	0/-0.020	4	1.0	10	1.1	50	2	10.50	10.85	11.21	11.59	12.42	MHLNB201210	●
1.2	0/-0.015	0.60	0/-0.020	4	1.0	12	1.1	50	2	12.57	12.98	13.42	13.89	14.88	MHLNB201212	●
1.4	0/-0.015	0.70	0/-0.020	4	1.1	8	1.3	50	2	8.43	8.70	8.98	9.28	9.93	MHLNB201408	●
1.4	0/-0.015	0.70	0/-0.020	4	1.1	12	1.3	50	2	12.57	12.98	13.41	13.87	14.86	MHLNB201412	●
1.4	0/-0.015	0.70	0/-0.020	4	1.1	16	1.3	50	2	16.70	17.26	17.84	18.46	19.80	MHLNB201416	●
1.5	0/-0.015	0.75	0/-0.020	4	1.2	8	1.4	50	2	8.43	8.70	8.98	9.27	9.91	MHLNB201508	●
1.5	0/-0.015	0.75	0/-0.020	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/-0.020	4	1.2	16	1.4	50	2	16.70	17.25	17.84	18.45	19.78	MHLNB201516	●
1.5	0/-0.015	0.75	0/-0.020	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/-0.020	6	2.4	20	1.4	50	2	20.84	21.53	22.26	23.04	24.72	MHLNB201520	●
1.6	0/-0.015	0.80	0/-0.020	4	1.3	8	1.5	50	2	8.43	8.69	8.97	9.27	9.90	MHLNB201608	●
1.6	0/-0.015	0.80	0/-0.020	4	1.3	12	1.5	50	2	12.56	12.97	13.40	13.86	14.84	MHLNB201612	●
1.6	0/-0.015	0.80	0/-0.020	4	1.3	16	1.5	50	2	16.70	17.25	17.83	18.45	19.77	MHLNB201616	●
1.6	0/-0.015	0.80	0/-0.020	4	1.3	20	1.5	60	2	20.83	21.53	22.26	23.03	-	MHLNB201620	●
1.8	0/-0.015	0.90	0/-0.020	4	1.4	8	1.7	50	2	8.43	8.69	8.96	9.25	9.88	MHLNB201808	●
1.8	0/-0.015	0.90	0/-0.020	4	1.4	12	1.7	50	2	12.56	12.96	13.39	13.84	14.81	MHLNB201812	●
1.8	0/-0.015	0.90	0/-0.020	4	1.4	16	1.7	50	2	16.70	17.24	17.82	18.43	19.75	MHLNB201816	●
1.8	0/-0.015	0.90	0/-0.020	4	1.4	20	1.7	60	2	20.83	21.52	22.25	23.02	-	MHLNB201820	●
2	0/-0.015	1.00	0/-0.020	4	1.6	4	1.9	50	2	4.29	4.40	4.52	4.65	4.92	MHLNB202004	●
2	0/-0.015	1.00	0/-0.020	4	1.6	6	1.9	50	2	6.36	6.54	6.74	6.94	7.39	MHLNB202006	●
2	0/-0.015	1.00	0/-0.020	4	1.6	8	1.9	50	2	8.42	8.68	8.95	9.24	9.86	MHLNB202008	●
2	0/-0.015	1.00	0/-0.020	4	1.6	10	1.9	50	2	10.49	10.82	11.17	11.53	12.32	MHLNB202010	●
2	0/-0.015	1.00	0/-0.020	4	1.6	12	1.9	50	2	12.56	12.96	13.38	13.83	14.79	MHLNB202012	●
2	0/-0.015	1.00	0/-0.020	4	1.6	14	1.9	50	2	14.62	15.10	15.59	16.12	17.26	MHLNB202014	●
2	0/-0.015	1.00	0/-0.020	4	1.6	16	1.9	50	2	16.69	17.23	17.81	18.42	19.73	MHLNB202016	●
2	0/-0.015	1.00	0/-0.020	4	1.6	18	1.9	60	2	18.76	19.37	20.02	20.71	-	MHLNB202018	●
2	0/-0.015	1.00	0/-0.020	4	1.6	20	1.9	60	2	20.83	21.51	22.24	23.00	-	MHLNB202020	●
2	0/-0.015	1.00	0/-0.020	4	1.6	22	1.9	60	2	22.89	23.65	24.45	25.30	-	MHLNB202022	●
2	0/-0.015	1.00	0/-0.020	4	1.6	25	1.9	75	2	25.99	26.86	27.77	28.74	-	MHLNB202025	●
2	0/-0.015	1.00	0/-0.020	4	1.6	30	1.9	75	2	31.16	32.21	33.31	-	-	MHLNB202030	●
3	0/-0.020	1.50	0/-0.020	6	2.4	8	2.8	50	2	8.60	8.84	9.10	9.37	9.96	MHLNB203008	●
3	0/-0.020	1.50	0/-0.020	6	2.4	10	2.8	50	2	10.67	10.98	11.32	11.67	12.43	MHLNB203010	●
3	0/-0.020	1.50	0/-0.020	6	2.4	12	2.8	50	2	12.73	13.12	13.53	13.96	14.90	MHLNB203012	●
3	0/-0.020	1.50	0/-0.020	6	2.4	16	2.8	60	2	16.87	17.40	17.96	18.55	19.83	MHLNB203016	●

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HFVH/UP  
MEF  
ALU  
MEX/MH  
UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion



INFO

### MHLNB2

CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF VH/UP  
MEF  
ALU  
MEX/MH  
UH/MH

HSS END-MILLS

CARBIDE BURRS

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	
D (mm)	I1 (mm)	ap (mm)	D(eff.) (mm)	fz (mm/z)		fz (mm/z)		fz (mm/z)		fz (mm/z)	
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	
1.2	>12D	0.02	0.30	0.018		0.010		0.009		0.008	
	≤ 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	
1.5	≤ 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	
	≤ 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	
2	≤ 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	
	≤ 6D	0.10	0.87	0.060		0.054		0.048		0.042	
2.5	≤ 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	
3	≤ 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	
3	>12D	0.06	0.74	0.036		0.019		0.017		0.015	
	≤ 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	
3	≤ 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	

$\alpha$	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

	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
	D (mm)	l1 (mm)	ap (mm)	D(eff.) (mm)	fz (mm/z)		fz (mm/z)		fz (mm/z)		
	4	≤ 6D	0.20	1.74	0.095		0.086		0.076		
≤ 8D		0.17	1.61	0.086		0.069		0.062			
≤ 10D		0.14	1.47	0.076		0.055		0.049			
≤ 12D		0.11	1.31	0.067		0.042		0.037			
>12D		0.09	1.19	0.057		0.031		0.027			

	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

INFO

CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF-VH/UP  
MEF  
ALU  
MEX/MH  
**UH/MH**

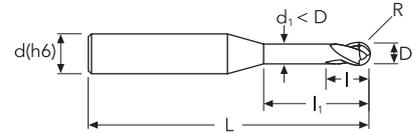
HSS END-MILLS

CARBIDE BURRS

INFO

# MHCRB2

cylindrical shank, 2 flutes ball nose, extended and reduced neck, miniature, 6 mm. shank

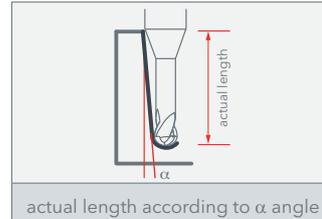


CARBIDE DRILLS

- PU-HPU
- TA-4HTA
- SUH
- ALH
- HRC
- SUH MINI
- HL
- HSD
- C-SD-TA

P	M	K	N	S	H
★		★			★

★ 1st choice ★ suitable



D	D Tol.	R	R Tol.	d(h6)	l	l1	d1	L	z	30'	1°	1°30'	2°	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	4.50	4.65	4.98	MHCRB20050406	●
0.6	0/-0.012	0.30	+/-0.005	6	0.5	2	0.55	50	2	2.15	2.21	2.28	2.35	2.50	MHCRB20060206	●
0.6	0/-0.012	0.30	+/-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	0.30	+/-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	0.40	+/-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	0.40	+/-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	0.40	+/-0.005	6	0.8	6	0.75	50	2	6.28	6.48	6.70	6.93	7.42	MHCRB20080606	●
1	0/-0.012	0.50	+/-0.005	6	1	3	0.90	50	2	3.27	3.37	3.47	3.57	3.80	MHCRB20100306	●
1	0/-0.012	0.50	+/-0.005	6	1	6	0.90	50	2	6.37	6.58	6.79	7.02	7.50	MHCRB20100606	●
1	0/-0.012	0.50	+/-0.005	6	1	8	0.90	50	2	8.44	8.71	9.00	9.31	9.97	MHCRB20100806	●
1	0/-0.012	0.50	+/-0.005	6	1	10	0.90	50	2	10.51	10.85	11.22	11.61	12.44	MHCRB20101006	●
1.2	0/-0.012	0.60	+/-0.005	6	1.2	6	1.10	50	2	6.37	6.57	6.78	7.00	7.48	MHCRB20120606	●
1.2	0/-0.012	0.60	+/-0.005	6	1.2	8	1.10	50	2	8.44	8.71	8.99	9.30	9.95	MHCRB20120806	●
1.2	0/-0.012	0.60	+/-0.005	6	1.2	10	1.10	50	2	10.50	10.85	11.21	11.59	12.42	MHCRB20121006	●
1.5	0/-0.012	0.75	+/-0.005	6	1.5	4	1.40	50	2	4.30	4.42	4.55	4.68	4.98	MHCRB20150406	●
1.5	0/-0.012	0.75	+/-0.005	6	1.5	8	1.40	50	2	8.43	8.70	8.98	9.27	9.91	MHCRB20150806	●
1.5	0/-0.012	0.75	+/-0.005	6	1.5	10	1.40	50	2	10.50	10.84	11.19	11.57	12.38	MHCRB20151006	●
1.5	0/-0.012	0.75	+/-0.005	6	1.5	12	1.40	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	1.40	50	2	16.70	17.25	17.84	18.45	19.78	MHCRB20151606	●
2	0/-0.012	1.00	+/-0.005	6	3	6	1.90	50	2	6.36	6.54	6.74	6.94	7.39	MHCRB20200606	●
2	0/-0.012	1.00	+/-0.005	6	3	8	1.90	50	2	8.42	8.68	8.95	9.24	9.86	MHCRB20200806	●
2	0/-0.012	1.00	+/-0.005	6	3	10	1.90	50	2	10.49	10.82	11.17	11.53	12.32	MHCRB20201006	●
2	0/-0.012	1.00	+/-0.005	6	3	12	1.90	50	2	12.56	12.96	13.38	13.83	14.79	MHCRB20201206	●
2	0/-0.012	1.00	+/-0.005	6	3	16	1.90	50	2	16.69	17.23	17.81	18.42	19.73	MHCRB20201606	●
2	0/-0.012	1.00	+/-0.005	6	3	20	1.90	50	2	20.83	21.51	22.24	23.00	24.66	MHCRB20202006	●

HSS DRILLS

- LFTA
- SUTA
- HSS-HSS/CO

CARBIDE END-MILLS

- G2
- MDTA
- HFVH/UP
- MEF
- ALU
- MEX/MH
- UH/MH

HSS END-MILLS

CARBIDE BURRS

● stock standard ○ non-standard stock ▽ stock exhaustion

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
D (mm)	l1 (mm)	ap (mm)	D(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			
1.5	>12D	0.03	0.36	0.021	0.011	0.010	0.009			
	≤ 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			
2	≤ 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			
	≤ 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				



$\alpha$	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

INFO

CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF-VH/UP  
MEF  
ALU  
MEX/MH  
UH/MH

HSS END-MILLS

CARBIDE BURRS



## 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		<b>0.05D x 0.2D</b>	<b>0.05D x 0.2D</b>	<b>0.05D x 0.2D</b>	<b>0.05D x 0.2D</b>
Vc (m/min)		<b>140÷180</b>	<b>100÷140</b>	<b>80÷100</b>	<b>60÷80</b>
D (mm)	D(eff.) (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
<b>1</b>	0.44	0.009	0.008	0.007	0.006
<b>1.5</b>	0.79	0.012	0.011	0.010	0.008
<b>2</b>	1.20	0.012	0.011	0.010	0.008
<b>2.5</b>	1.65	0.015	0.014	0.012	0.011
<b>3</b>	2.14	0.018	0.016	0.014	0.013
<b>4</b>	3.20	0.025	0.023	0.020	0.018
<b>5</b>	4.33	0.032	0.029	0.026	0.022
<b>6</b>	5.50	0.038	0.034	0.030	0.027
<b>8</b>	7.84	0.048	0.043	0.038	0.034
<b>10</b>	10.00	0.057	0.051	0.046	0.040
<b>12</b>	11.76	0.067	0.060	0.054	0.047
<b>14</b>	12.83	0.080	0.072	0.064	0.056
<b>16</b>	12.80	0.095	0.086	0.076	0.067
<b>18</b>	10.80	0.108	0.097	0.086	0.076
<b>20</b>	12.00	0.108	0.097	0.086	0.076



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

INFO

CARBIDE  
DRILLS
 PU-HPU  
 TA-4HTA  
 SUH  
 ALH  
 HRC  
 SUH MINI  
 HL  
 HSD  
 C-SD-TA
HSS  
DRILLS
 LFTA  
 SUTA  
 HSS-HSS/CO
CARBIDE  
END-MILLS
 G2  
 MDTA  
 HF-VH/UP  
 MEF  
 ALU  
 MEX/MH  
**UH/MH**
HSS  
END-MILLSCARBIDE  
BURRS



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		<b>0.05D x 0.2D</b>	<b>0.05D x 0.2D</b>	<b>0.05D x 0.2D</b>	<b>0.05D x 0.2D</b>
Vc (m/min)		<b>120÷160</b>	<b>100÷130</b>	<b>70÷90</b>	<b>50÷70</b>
D (mm)	D(eff.) (mm)	fz (mm/z)	fz (mm/z)	fz (mm/z)	fz (mm/z)
<b>1</b>	0.44	0.015	0.014	0.012	0.011
<b>2</b>	0.87	0.021	0.019	0.017	0.015
<b>3</b>	1.31	0.027	0.024	0.022	0.019
<b>4</b>	1.74	0.037	0.033	0.029	0.026
<b>5</b>	2.18	0.045	0.041	0.036	0.032
<b>6</b>	2.62	0.051	0.046	0.041	0.036
<b>8</b>	3.49	0.060	0.054	0.048	0.042
<b>10</b>	4.36	0.068	0.061	0.054	0.048
<b>12</b>	5.23	0.077	0.069	0.061	0.054
<b>14</b>	6.10	0.089	0.080	0.071	0.062
<b>16</b>	6.97	0.102	0.092	0.082	0.071
<b>18</b>	7.85	0.115	0.103	0.092	0.080
<b>20</b>	8.72	0.132	0.119	0.106	0.092



$\alpha$	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



INFO

CARBIDE DRILLS

PU-HPU  
TA-4HTA  
SUH  
ALH  
HRC  
SUH MINI  
HL  
HSD  
C-SD-TA

HSS DRILLS

LFTA  
SUTA  
HSS-HSS/CO

CARBIDE END-MILLS

G2  
MDTA  
HF-VH/UP  
MEF  
ALU  
MEX/MH  
**UH/MH**

HSS END-MILLS

CARBIDE BURRS