

THE NEW VALUE FRONTIER



METAL DIVISION

Drills

Drills



High Performance

Sales number 0114 2788787



Recommended cutting data

Recommended cutting data

The cutting data in this catalogue is only recommended cutting data and may vary depending on the specific machining situation. Below the general conditions are described on which the recommended cutting data in this catalogue is based.

The machine and tool clamping

The recommended cutting data for milling and drilling is based on a machining situation with a relatively stable machine. Also, total runout from the machine and the tool clamping must be under 0.04 mm for HSS end mills and under 0.02 mm for carbide end mills and carbide drills.

Tool projection

The recommended cutting data for milling assumes that tools with a short or standard overall length have a projection which is no more than three times the tool diameter. For tools with a long or extra long overall length the projection must be no more than five times the tool diameter. If vibrations occur the cutting speed should be reduced. If the tool projection is larger than described above, the cutting speed and feed should be reduced by approx. 50 per cent.

Coolant and swarf removal

The recommended cutting data for milling and drilling assumes that the pressure from the coolant/lubricant or air used is high enough to remove chips from the machining zone and cool down the tool. When cutting hardened steel (>50 HRC) it is not necessary to cool down the tool as the heat generated disappears with the chips.

Clamping the workpiece

The recommended cutting data is based on a correctly clamped workpiece as vibrations can otherwise occur. Vibrations may cause the tool to break and will always reduce tool life. If the workpiece is badly clamped or thin we recommend that you reduce cutting speed and feed.





Professional advice

Correct choice of tool and cutting data always depends on the specific machining situation which means that insight into machine optimisation, workpiece properties and tooling technology is important when choosing the optimum cutting data.

Contact our technical sales engineers and specialists who offer professional advice to ensure high process security and the lowest unit costs.

Drills

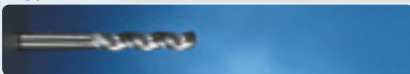

High performance HSS-E twist drills

Item no.								Page	
288472		Z 2	HSS-E		TIN	 3 x D	118°	DZ	03.40.03
288470, 288471		Z 2	HSS-E		TIN Uncoated	 5 x D	118°	DZ	03.40.05

High performance carbide twist drills

Item no.								Page	
289413, 289402, 289410, 289415		Z 2	HM UF3	UU	TiAIN	 3 x D	σ 140°	HA HE HA HE	03.70.03
289414, 289417, 289411, 289408		Z 2	HM UF3	UU	TiAIN	 5 x D	σ 140°	HA HE HA HE	03.70.05
289412, 289416		Z 2	HM UF3	UU	TiAIN	 7 x D	σ 140°	HA HE	03.70.07
289418		Z 2	HM UF3		TiAIN	 12 x D	σ 140°	HA	03.70.12

High performance carbide three flute drills

Item no.								Page	
289247		Z 3	HM UF3	UU	UNCOATED or TiCN	 5 x D	σ 130°	HA	03.80.05

How to use the catalogue

An example of how to find a suitable drill

We need a coated carbide drill 3 x D, Ø10 mm, with coolant channels and whistle notch shank for drilling in steel, 708 M 40.

1. Material class

Find the workpiece material in UNIMERCO material class (UMC). The workpiece material 708 M 40 with a tensile strength under 1000 N/mm² is found in the material class UMC 01.2 on page 06.00.01.

UMC 01.2 - steel	Examples of BS/DIN standards			
Alloy construction steels < 500 N/mm ²	1501-620 Gr. 27	1501-622 Gr. 31:45		
Naturally hard spring steels	250 A 53	060 A 67	060 A 78	527 A 60
Case-hardening steels 700 - 850 N/mm ²	S 107	527 M 17		
Nitriding steels < 1000 N/mm ²	905 M 31	905 M 39		
Non-alloy heat treatable steels 800 - 1000 N/mm ²	070 M 55	080 A 62	080 A 62	
Alloy heat treatable steels < 800 N/mm ²	1717 CDS 110	708 M 40		735 A 50
Alloy heat treatable steels 800 - 1000 N/mm ²	150 M 36	150 M 36	708 M 40	530 A 32
Low alloy cold work tool steels	708 A 37	708 M 40	R0 1	RW 2

2. Choosing a tool

Use the index on page 01.10.02 to find the most suitable drill. Carbide drills, 3 x D, with coolant channels are described on page 03.70.03. Please note that the first page only includes dimensions up to Ø6.5 mm which means that Ø10 mm is on the following page.

Item no.	Page
289413, 289402, 289410, 289415	03.70.03
289414, 289417, 289411, 289408	03.70.05

3. Suitability of the tool

On page 03.70.03 is detailed information on the chosen drill. The drill is suited for the material classes stated in the table at the bottom of the page. ☺ indicates that the tool is well suited whereas ☺☺, as shown in this example, indicates that the tool is highly suited.

UNIMERCO MATERIAL CLASS (UMC)												
01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09

4. Cutting data and feed

The back of the page shows the recommended cutting data. In this case the cutting speed (V_c) should be 115 m/min. and the feed code should be 7.

Use the feed code to find the feed per revolution (f_n) in the table at the bottom of the page. In this case (Ø10 mm, feed code 7) the feed per revolution is 0.294 mm.

UMC	V _c (m/min)	f _n (mm/rev)	Feed code	UMC	V _c (m/min)	f _n (mm/rev)	Feed code
01.1	130	145	8	04.1	260	300	9
01.2	105	115	7	04.2	200	240	8
01.3	90	105	6	05.1	105	125	7
01.4	60	75	6	05.2	95	115	7
01.5	45	60	4	06.1	240	295	8

Revolution rate and table feed are calculated as follows:

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \Leftrightarrow n = \frac{115 \times 1000}{10 \times \pi} \Leftrightarrow n = 3662$$

$$V_f = f_n \times n \Leftrightarrow V_f = 0.294 \times 3662 \Leftrightarrow V_f = 1077$$

d ₁ mm	Feed (f _n) mm/revolution							
	Feed code							
	1	2	3	4	5	6	7	8
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.11
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.15
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.22
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.27
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.33
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.39
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.46
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.55
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.66

5. Ordering

When ordering, state the item no. of the tool


UM HP DRILL™		289413	289402	289410	289415
Item no.	d ₁ (mm)	D (mm)	L (mm)	l ₁ (mm)	l ₂ (mm)
		HA	HE	HA	HE

Guide to symbols used

Drills


This page explains the symbols used.

HM
UF3




Material
The symbol shows the tool material.
See 06.00.01 for detailed information on tool materials.

UU




Cutting edge geometry
The geometry of the drills can be as follows:
UU Universal point is used in most materials.

TiAIN




Coating
The symbol shows the type of coating used.

5 x D




Length
The symbol shows the theoretical drilling depth (e.g. 3 x D, 5 x D, 7 x D, 10 x D, 15 x D).

σ 140°



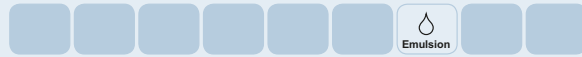
Drill point angle
The symbol shows the drill point angle.

λ 30°



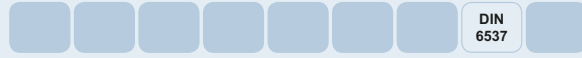
Helix angle
The symbol shows the helix angle of the tool (λ).

Emulsion



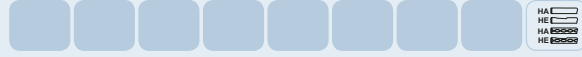
Coolant
The symbol shows the recommended type of coolant.
Emulsion The tool should be used with emulsion.

DIN 6537



Production standard
The symbol shows which standard the drill has been manufactured to.
DIN 6537 The drill has been manufactured to DIN 6537.
DIN 6539 The drill has been manufactured to DIN 6539.

HA HE HA HE HA



Shank standard
The symbol shows which standard the shank has been manufactured to.
HA Straight shank.
HE Whistle notch shank.
HA Straight shank with coolant channels.
HE Whistle notch shank with coolant channels.
HA Straight shank with coolant channels.

HSS High Precision drills, 3×D

HSS-E

TiN



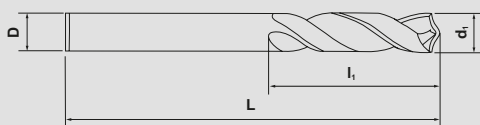
σ 118°

λ 38°



STUBDRILL
DIN
1897

DZ



UM **HP** DRILL™

288472

Item no.	d ₁ (h8)	D (f11)	L	l ₁	l ₂	DZ
288472.0100	1.00	1.00	26	6		▪
288472.0110	1.10	1.10	28	7		▪
288472.0120	1.20	1.20	30	8		▪
288472.0130	1.30	1.30	30	8		▪
288472.0140	1.40	1.40	32	9		▪
288472.0150	1.50	1.50	32	9		▪
288472.0160	1.60	1.60	34	10		▪
288472.0170	1.70	1.70	34	10		▪
288472.0180	1.80	1.80	36	11		▪
288472.0190	1.90	1.90	36	11		▪
288472.0200	2.00	2.00	38	12		▪
288472.0210	2.10	2.10	38	12		▪
288472.0220	2.20	2.20	40	13		▪
288472.0230	2.30	2.30	40	13		▪
288472.0238	2.38	2.38	43	14		▪
288472.0240	2.40	2.40				▪
288472.0250	2.50	2.50				▪
288472.0260	2.60	2.60	43	14		▪
288472.0270	2.70	2.70	46	16		▪
288472.0278	2.78	2.78				▪
288472.0280	2.80	2.80				▪
288472.0290	2.90	2.90				▪
288472.0300	3.00	3.00	46	16		▪
288472.0310	3.10	3.10	49	18		▪
288472.0317	3.17	3.17				▪
288472.0320	3.20	3.20				▪
288472.0330	3.30	3.30	49	18		▪
288472.0340	3.40	3.40	52	20		▪
288472.0350	3.50	3.50				▪
288472.0357	3.57	3.57	52	20		▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1	01.2	01.3	01.4	02.1	02.2	03.1	03.2	04.1	04.2	05.1	06.1	07.1	07.2		
☺☺	☺☺	☺	☺	☺☺	☺☺	☺	☺	☺	☺	☺	☺	☺	☺		

HSS High Precision drills, 3×D

HSS-E

TiN



σ 118°

λ 38°



STUBDRILL
DIN
1897

DZ

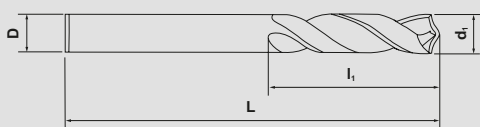


UM *HP* DRILL™

288472



Item no.	d ₁ (h8)	D (f11)	L	l ₁	l ₂	DZ
288472.0360	3.60	3.60	52	20		▪
288472.0370	3.70	3.70	52	20		▪
288472.0380	3.80	3.80	55	22		▪
288472.0390	3.90	3.90				▪
288472.0397	3.97	3.97				▪
288472.0400	4.00	4.00				▪
288472.0410	4.10	4.10				▪
288472.0420	4.20	4.20	55	22		▪
288472.0430	4.30	4.30	58	24		▪
288472.0437	4.37	4.37				▪
288472.0440	4.40	4.40				▪
288472.0450	4.50	4.50				▪
288472.0460	4.60	4.60				▪
288472.0470	4.70	4.70	58	24		▪
288472.0476	4.76	4.76	62	26		▪
288472.0480	4.80	4.80				▪
288472.0490	4.90	4.90				▪
288472.0500	5.00	5.00				▪
288472.0510	5.10	5.10				▪
288472.0516	5.16	5.16				▪
288472.0520	5.20	5.20				▪
288472.0530	5.30	5.30	62	26		▪
288472.0540	5.40	5.40	66	28		▪
288472.0550	5.50	5.50				▪
288472.0556	5.56	5.56				▪
288472.0560	5.60	5.60				▪
288472.0570	5.70	5.70				▪
288472.0580	5.80	5.80				▪
288472.0590	5.90	5.90				▪
288472.0595	5.95	5.95	66	28		▪



KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1	01.2	01.3	01.4	02.1	02.2	03.1	03.2	04.1	04.2	05.1	06.1	07.1	07.2		
☺☺	☺☺	☺	☺	☺☺	☺☺	☺	☺	☺	☺	☺	☺	☺	☺		

HSS High Precision drills, 3×D

HSS-E

TiN



3 x D

σ 118°

λ 38°



Emulsion

STUBDRILL
DIN
1897

DZ

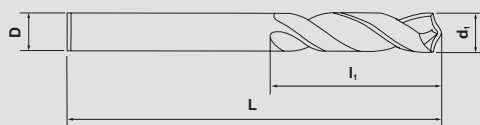


UM *HP* DRILL™

288472



Item no.	d ₁ (h8)	D (f11)	L	I ₁	I ₂	DZ
288472.0600	6.00	6.00	66	28		▪
288472.0610	6.10	6.10	70	31		▪
288472.0620	6.20	6.20				▪
288472.0630	6.30	6.30				▪
288472.0635	6.35	6.35				▪
288472.0640	6.40	6.40				▪
288472.0650	6.50	6.50				▪
288472.0660	6.60	6.60				▪
288472.0670	6.70	6.70	70	31		▪
288472.0680	6.80	6.80	74	34		▪
288472.0690	6.90	6.90				▪
288472.0700	7.00	7.00				▪
288472.0710	7.10	7.10				▪
288472.0714	7.14	7.14				▪
288472.0720	7.20	7.20				▪
288472.0730	7.30	7.30				▪
288472.0740	7.40	7.40				▪
288472.0750	7.50	7.50	74	34		▪
288472.0760	7.60	7.60	79	37		▪
288472.0770	7.70	7.70				▪
288472.0780	7.80	7.80				▪
288472.0790	7.90	7.90				▪
288472.0794	7.94	7.94				▪
288472.0800	8.00	8.00				▪
288472.0810	8.10	8.10				▪
288472.0820	8.20	8.20				▪
288472.0830	8.30	8.30				▪
288472.0840	8.40	8.40				▪
288472.0850	8.50	8.50	79	37		▪
288472.0873	8.73	8.73	84	40		▪



KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1	01.2	01.3	01.4	02.1	02.2	03.1	03.2	04.1	04.2	05.1	06.1	07.1	07.2		
☺☺	☺☺	☺	☺	☺☺	☺☺	☺	☺	☺	☺	☺	☺	☺	☺		

HSS High Precision drills, 3×D

HSS-E

TiN

3 x D

σ 118°

λ 38°



STUBDRILL
DIN
1897

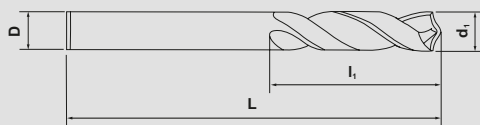
DZ



UM *HP* DRILL™

288472

Item no.	d ₁ (h8)	D (f11)	L	I ₁	I ₂	DZ
288472.0880	8.80	8.80	84	40		▪
288472.0900	9.00	9.00				▪
288472.0930	9.30	9.30				▪
288472.0950	9.50	9.50	84	40		▪
288472.0980	9.80	9.80	89	43		▪
288472.1000	10.00	10.00				▪
288472.1020	10.20	10.20				▪
288472.1050	10.50	10.50	89	43		▪
288472.1100	11.00	11.00	95	47		▪
288472.1111	11.11	11.11				▪
288472.1150	11.50	11.50	95	47		▪
288472.1200	12.00	12.00	102	51		▪
288472.1250	12.50	12.50				▪
288472.1300	13.00	13.00	102	51		▪
288472.1350	13.50	13.50	107	54		▪
288472.1400	14.00	14.00	107	54		▪



KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1	01.2	01.3	01.4	02.1	02.2	03.1	03.2	04.1	04.2	05.1	06.1	07.1	07.2		
☺☺	☺☺	☺	☺	☺☺	☺☺	☺	☺	☺	☺	☺	☺	☺	☺		

HSS High Precision drills, 5×D

HSS-E

TiN
Uncoated

5 x D

σ 118°

λ 38°

Emulsion

JOBBER DRILL
DIN
338

DZ

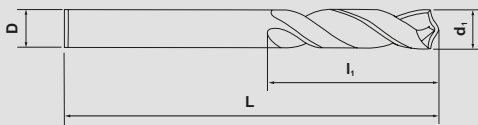


UM HP DRILL™

288470 288471
Uncoated TiN



Item no.	d ₁ (h8)	D (f11)	L	l ₁	l ₂	DZ	DZ
288---.0100	1.00	1.00	34	12		▪	▪
288---.0110	1.10	1.10	36	14		▪	▪
288---.0120	1.20	1.20	38	16		▪	▪
288---.0130	1.30	1.30	38	16		▪	▪
288---.0140	1.40	1.40	40	18		▪	▪
288---.0150	1.50	1.50	40	18		▪	▪
288---.0160	1.60	1.60	43	20		▪	▪
288---.0170	1.70	1.70	43	20		▪	▪
288---.0180	1.80	1.80	46	22		▪	▪
288---.0190	1.90	1.90	46	22		▪	▪
288---.0200	2.00	2.00	49	24		▪	▪
288---.0210	2.10	2.10	49	24		▪	▪
288---.0220	2.20	2.20	53	27		▪	▪
288---.0230	2.30	2.30	53	27		▪	▪
288---.0238	2.38	2.38	57	30		▪	▪
288---.0240	2.40	2.40				▪	▪
288---.0250	2.50	2.50				▪	▪
288---.0260	2.60	2.60	57	30		▪	▪
288---.0270	2.70	2.70	61	33		▪	▪
288---.0278	2.78	2.78				▪	▪
288---.0280	2.80	2.80				▪	▪
288---.0290	2.90	2.90				▪	▪
288---.0300	3.00	3.00	61	33		▪	▪
288---.0310	3.10	3.10	65	36		▪	▪
288---.0317	3.17	3.17				▪	▪
288---.0320	3.20	3.20				▪	▪
288---.0330	3.30	3.30	65	36		▪	▪
288---.0340	3.40	3.40	70	39		▪	▪
288---.0350	3.50	3.50				▪	▪
288---.0357	3.57	3.57	70	39		▪	▪



KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1	01.2	01.3	01.4	02.1	02.2	03.1	03.2	04.1	04.2	05.1	06.1	07.1	07.2	
☺☺	☺☺	☺	☺	☺☺	☺☺	☺	☺	☺	☺	☺	☺	☺	☺	

HSS High Precision drills, 5×D

HSS-E

TiN
Uncoated

5 x D

σ 118°

λ 38°

Emulsion

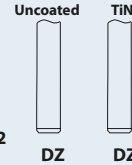
JOBBER DRILL
DIN
338

DZ

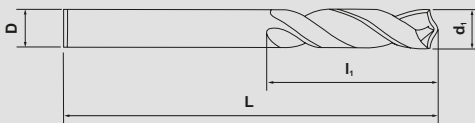


UM HP DRILL™

288470 288471



Item no.	d ₁ (h8)	D (f11)	L	I ₁	I ₂	288470 Uncoated DZ	288471 TiN DZ
288---.0360	3.60	3.60	70	39		▪	▪
288---.0370	3.70	3.70	70	39		▪	▪
288---.0380	3.80	3.80	75	43		▪	▪
288---.0390	3.90	3.90				▪	▪
288---.0397	3.97	3.97				▪	▪
288---.0400	4.00	4.00				▪	▪
288---.0410	4.10	4.10				▪	▪
288---.0420	4.20	4.20	75	43		▪	▪
288---.0430	4.30	4.30	80	47		▪	▪
288---.0437	4.37	4.37				▪	▪
288---.0440	4.40	4.40				▪	▪
288---.0450	4.50	4.50				▪	▪
288---.0460	4.60	4.60				▪	▪
288---.0470	4.70	4.70	80	47		▪	▪
288---.0476	4.76	4.76	86	52		▪	▪
288---.0480	4.80	4.80				▪	▪
288---.0490	4.90	4.90				▪	▪
288---.0500	5.00	5.00				▪	▪
288---.0510	5.10	5.10				▪	▪
288---.0516	5.16	5.16				▪	▪
288---.0520	5.20	5.20				▪	▪
288---.0530	5.30	5.30	86	52		▪	▪
288---.0540	5.40	5.40	93	57		▪	▪
288---.0550	5.50	5.50				▪	▪
288---.0556	5.56	5.56				▪	▪
288---.0560	5.60	5.60				▪	▪
288---.0570	5.70	5.70				▪	▪
288---.0580	5.80	5.80				▪	▪
288---.0590	5.90	5.90				▪	▪
288---.0595	5.95	5.95	93	57		▪	▪



KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1	01.2	01.3	01.4	02.1	02.2	03.1	03.2	04.1	04.2	05.1	06.1	07.1	07.2
☺☺	☺☺	☺	☺	☺☺	☺☺	☺	☺	☺	☺	☺	☺	☺	☺

HSS High Precision drills, 5×D

HSS-E

TiN
Uncoated

5 x D

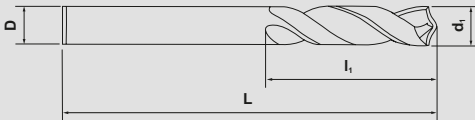
σ 118°

λ 38°

Emulsion

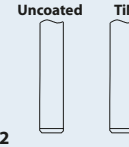
JOBBER DRILL
DIN
338

DZ



UM HP DRILL™

288470 288471



Item no.	d ₁ (h8)	D (f11)	L	l ₁	l ₂	Uncoated DZ	TiN DZ
288---.0600	6.00	6.00	93	57		▪	▪
288---.0610	6.10	6.10	101	63		▪	▪
288---.0620	6.20	6.20				▪	▪
288---.0630	6.30	6.30				▪	▪
288---.0635	6.35	6.35				▪	▪
288---.0640	6.40	6.40				▪	▪
288---.0650	6.50	6.50				▪	▪
288---.0660	6.60	6.60				▪	▪
288---.0670	6.70	6.70	101	63		▪	▪
288---.0680	6.80	6.80	109	69		▪	▪
288---.0690	6.90	6.90				▪	▪
288---.0700	7.00	7.00				▪	▪
288---.0710	7.10	7.10				▪	▪
288---.0714	7.14	7.14				▪	▪
288---.0720	7.20	7.20				▪	▪
288---.0730	7.30	7.30				▪	▪
288---.0740	7.40	7.40				▪	▪
288---.0750	7.50	7.50	109	69		▪	▪
288---.0760	7.60	7.60	117	75		▪	▪
288---.0770	7.70	7.70				▪	▪
288---.0780	7.80	7.80				▪	▪
288---.0790	7.90	7.90				▪	▪
288---.0794	7.94	7.94				▪	▪
288---.0800	8.00	8.00				▪	▪
288---.0810	8.10	8.10				▪	▪
288---.0820	8.20	8.20				▪	▪
288---.0830	8.30	8.30				▪	▪
288---.0840	8.40	8.40				▪	▪
288---.0850	8.50	8.50	117	75		▪	▪
288---.0873	8.73	8.73	125	81		▪	▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1	01.2	01.3	01.4	02.1	02.2	03.1	03.2	04.1	04.2	05.1	06.1	07.1	07.2		
☺☺	☺☺	☺	☺	☺☺	☺☺	☺	☺	☺	☺	☺	☺	☺	☺		

HSS High Precision drills, 5×D

HSS-E

TiN
Uncoated

5 x D

σ 118°

λ 38°

Emulsion

JOBBER DRILL
DIN
338

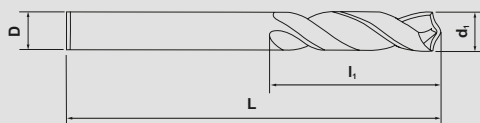
DZ



UM HP DRILL™

288470 288471
Uncoated TiN

Item no.	d ₁ (h8)	D (f11)	L	I ₁	I ₂	DZ	DZ
288---.0880	8.80	8.80	125	81		▪	▪
288---.0900	9.00	9.00				▪	▪
288---.0930	9.30	9.30				▪	▪
288---.0950	9.50	9.50	125	81		▪	▪
288---.0980	9.80	9.80	133	87		▪	▪
288---.1000	10.00	10.00				▪	▪
288---.1020	10.20	10.20				▪	▪
288---.1050	10.50	10.50	133	87		▪	▪
288---.1100	11.00	11.00	142	94		▪	▪
288---.1111	11.11	11.11				▪	▪
288---.1120	11.20	11.20				▪	▪
288---.1150	11.50	11.50	142	94		▪	▪
288---.1200	12.00	12.00	151	101		▪	▪
288---.1250	12.50	12.50				▪	▪
288---.1300	13.00	13.00	151	101		▪	▪
288---.1350	13.50	13.50	160	108		▪	▪
288---.1400	14.00	14.00	160	108		▪	▪



KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1	01.2	01.3	01.4	02.1	02.2	03.1	03.2	04.1	04.2	05.1	06.1	07.1	07.2
☺☺	☺☺	☺	☺	☺☺	☺☺	☺	☺	☺	☺	☺	☺	☺	☺

Carbide Twist drills, 3×D

HM
UF3

UU

TiAlN

3 x D

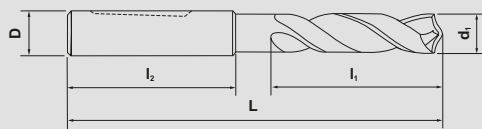
σ 140°

λ 30°

Emulsion

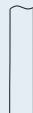



DIN
6537

HA 
HE 
HAK 
HEK 



UM **HP** DRILL™









289413 289402 289410 289415

Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂	   			
						HA	HE	HAK	HEK
289---.0300	3.00	6	62	20	36	▪	▪	▪	▪
289---.0310	3.10					▪	▪		
289---.0317	3.17					▪	▪	▪	▪
289---.0320	3.20						▪		
289---.0325	3.25					▪	▪	▪	▪
289---.0330	3.30					▪	▪	▪	▪
289---.0340	3.40					▪	▪		
289---.0350	3.50					▪	▪	▪	▪
289---.0357	3.57					▪	▪	▪	▪
289---.0360	3.60					▪	▪		
289---.0370	3.70		62	20		▪	▪		
289---.0380	3.80		66	24		▪	▪	▪	▪
289---.0390	3.90						▪		
289---.0397	3.97					▪	▪	▪	▪
289---.0400	4.00					▪	▪	▪	▪
289---.0420	4.20					▪	▪	▪	▪
289---.0430	4.30					▪	▪	▪	▪
289---.0440	4.40					▪			
289---.0437	4.37					▪	▪	▪	▪
289---.0450	4.50					▪	▪	▪	▪
289---.0460	4.60					▪	▪		
289---.0465	4.65						▪		
289---.0470	4.70			24		▪	▪		
289---.0476	4.76			28		▪	▪	▪	▪
289---.0480	4.80					▪	▪	▪	▪
289---.0490	4.90					▪			
289---.0500	5.00					▪	▪	▪	▪
289---.0510	5.10					▪	▪	▪	▪
289---.0516	5.16					▪	▪		
289---.0520	5.20	6	66	28	36	▪	▪	▪	▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09			
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺			

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code	UMC	V _c m/min.	V _c m/min.	Feed code
			 				 
01.1	130	145	8	04.1	260	300	9
01.2	105	115	7	04.2	200	240	8
01.3	90	105	6	05.1	105	125	7
01.4	60	75	6	05.2	95	115	7
01.5	45	60	4	06.1	240	295	8
01.6	45	55	3	07.1	105	125	7
01.7	35	45	3	07.2	85	105	6
01.8	25	35	2	09.1	40	45	4
02.1	55	60	5	09.2	40	45	4
02.2	40	55	5	09.3	35	40	3
02.3	25	35	4				
03.1	200	220	9				
03.2	155	180	8				
03.3	130	145	7				

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 3×D

HM
UF3

UU

TiAlN

3 x D

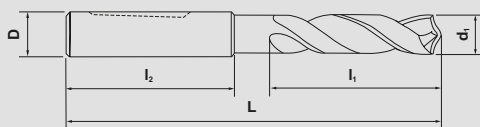
σ 140°

λ 30°

Emulsion



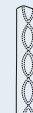

DIN
6537

HA 
HE 
HAK 
HEK 



UM *HP* DRILL™






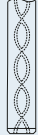


289413 289402 289410 289415

Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂	   			
						HA	HE	HAK	HEK
289---.0530	5.30	6	66	28	36	▪	▪	▪	▪
289---.0540	5.40					▪	▪	▪	▪
289---.0550	5.50					▪	▪	▪	▪
289---.0555	5.55					▪	▪	▪	▪
289---.0556	5.56					▪	▪	▪	▪
289---.0560	5.60					▪	▪	▪	▪
289---.0570	5.70					▪	▪	▪	▪
289---.0580	5.80					▪	▪	▪	▪
289---.0590	5.90					▪	▪	▪	▪
289---.0595	5.95					▪	▪	▪	▪
289---.0600	6.00	6	66	28		▪	▪	▪	▪
289---.0610	6.10	8	79	34		▪	▪	▪	▪
289---.0620	6.20					▪	▪	▪	▪
289---.0630	6.30					▪	▪	▪	▪
289---.0635	6.35					▪	▪	▪	▪
289---.0640	6.40					▪	▪	▪	▪
289---.0650	6.50					▪	▪	▪	▪
289---.0660	6.60					▪	▪	▪	▪
289---.0670	6.70					▪	▪	▪	▪
289---.0675	6.75					▪	▪	▪	▪
289---.0680	6.80					▪	▪	▪	▪
289---.0690	6.90					▪	▪	▪	▪
289---.0700	7.00					▪	▪	▪	▪
289---.0710	7.10			34		▪	▪	▪	▪
289---.0714	7.14			41		▪	▪	▪	▪
289---.0720	7.20					▪	▪	▪	▪
289---.0730	7.30					▪	▪	▪	▪
289---.0740	7.40					▪	▪	▪	▪
289---.0750	7.50					▪	▪	▪	▪
289---.0754	7.54	8	79	41	36	▪	▪	▪	▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09			
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺			

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code	UMC	V _c m/min.	V _c m/min.	Feed code
			 				 
01.1	130	145	8	04.1	260	300	9
01.2	105	115	7	04.2	200	240	8
01.3	90	105	6	05.1	105	125	7
01.4	60	75	6	05.2	95	115	7
01.5	45	60	4	06.1	240	295	8
01.6	45	55	3	07.1	105	125	7
01.7	35	45	3	07.2	85	105	6
01.8	25	35	2	09.1	40	45	4
02.1	55	60	5	09.2	40	45	4
02.2	40	55	5	09.3	35	40	3
02.3	25	35	4				
03.1	200	220	9				
03.2	155	180	8				
03.3	130	145	7				

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 3xD

HM
UF3

UU

TiAIN

3 x D

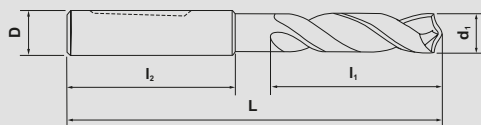
σ 140°

λ 30°

Emulsion

DIN
6537

HA 
HE 
HAK 
HEK 



UM HP DRILL™









289413 289402 289410 289415

Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂	Tip Styles			
						HA	HE	HAK	HEK
289---.0760	7.60	8	79	41	36	▪	▪	▪	▪
289---.0770	7.70					▪	▪	▪	▪
289---.0780	7.80					▪	▪	▪	▪
289---.0790	7.90					▪	▪	▪	▪
289---.0794	7.94					▪	▪	▪	▪
289---.0800	8.00	8	79	41	36	▪	▪	▪	▪
289---.0810	8.10	10	89	47	40	▪	▪	▪	▪
289---.0820	8.20					▪	▪	▪	▪
289---.0830	8.30					▪	▪	▪	▪
289---.0833	8.33					▪	▪	▪	▪
289---.0840	8.40					▪	▪	▪	▪
289---.0850	8.50					▪	▪	▪	▪
289---.0860	8.60					▪	▪	▪	▪
289---.0870	8.70					▪	▪	▪	▪
289---.0873	8.73					▪	▪	▪	▪
289---.0880	8.80					▪	▪	▪	▪
289---.0900	9.00					▪	▪	▪	▪
289---.0910	9.10					▪	▪	▪	▪
289---.0913	9.13					▪	▪	▪	▪
289---.0920	9.20					▪	▪	▪	▪
289---.0925	9.25					▪	▪	▪	▪
289---.0930	9.30					▪	▪	▪	▪
289---.0940	9.40					▪	▪	▪	▪
289---.0950	9.50					▪	▪	▪	▪
289---.0952	9.52					▪	▪	▪	▪
289---.0960	9.60					▪	▪	▪	▪
289---.0970	9.70					▪	▪	▪	▪
289---.0980	9.80					▪	▪	▪	▪
289---.0990	9.90					▪	▪	▪	▪
289---.0992	9.92	10	89	47	40	▪	▪	▪	▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09			
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺			

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1	130	145	8		04.1	260	300	9	
01.2	105	115	7		04.2	200	240	8	
01.3	90	105	6		05.1	105	125	7	
01.4	60	75	6		05.2	95	115	7	
01.5	45	60	4		06.1	240	295	8	
01.6	45	55	3		07.1	105	125	7	
01.7	35	45	3		07.2	85	105	6	
01.8	25	35	2		09.1	40	45	4	
02.1	55	60	5		09.2	40	45	4	
02.2	40	55	5		09.3	35	40	3	
02.3	25	35	4						
03.1	200	220	9						
03.2	155	180	8						
03.3	130	145	7						

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 3×D

HM
UF3

UU

TiAlN

3 x D

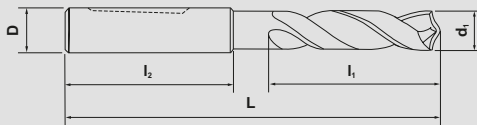
σ 140°

λ 30°

Emulsion

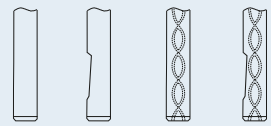
DIN
6537

HA 
HE 
HAK 
HEK 



UM *HP* DRILL™









289413 289402 289410 289415

Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂				
						HA	HE	HAK	HEK
289---.1000	10.00	10	89	47	40	▪	▪	▪	▪
289---.1010	10.10	12	102	55	45		▪		
289---.1020	10.20					▪	▪	▪	▪
289---.1030	10.30					▪	▪	▪	▪
289---.1032	10.32							▪	▪
289---.1050	10.50					▪	▪	▪	▪
289---.1060	10.60						▪		▪
289---.1070	10.70							▪	▪
289---.1080	10.80						▪	▪	▪
289---.1100	11.00					▪	▪	▪	▪
289---.1110	11.10						▪		▪
289---.1111	11.11							▪	▪
289---.1120	11.20					▪	▪	▪	▪
289---.1130	11.30								▪
289---.1140	11.40						▪		
289---.1150	11.50					▪	▪	▪	▪
289---.1160	11.60						▪	▪	
289---.1170	11.70						▪	▪	▪
289---.1180	11.80						▪		▪
289---.1191	11.91							▪	▪
289---.1200	12.00	12	102	55		▪	▪	▪	▪
289---.1210	12.10	14	107	60		▪	▪		▪
289---.1220	12.20						▪		
289---.1230	12.30						▪	▪	
289---.1240	12.40						▪		
289---.1250	12.50					▪	▪	▪	▪
289---.1260	12.60						▪		
289---.1270	12.70							▪	▪
289---.1300	13.00					▪	▪	▪	▪
289---.1320	13.20	14	107	60	45		▪		▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09			
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺			

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1	130	145	8		04.1	260	300	9	
01.2	105	115	7		04.2	200	240	8	
01.3	90	105	6		05.1	105	125	7	
01.4	60	75	6		05.2	95	115	7	
01.5	45	60	4		06.1	240	295	8	
01.6	45	55	3		07.1	105	125	7	
01.7	35	45	3		07.2	85	105	6	
01.8	25	35	2		09.1	40	45	4	
02.1	55	60	5		09.2	40	45	4	
02.2	40	55	5		09.3	35	40	3	
02.3	25	35	4						
03.1	200	220	9						
03.2	155	180	8						
03.3	130	145	7						

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 3×D

HM
UF3

UU

TiAlN

3 x D

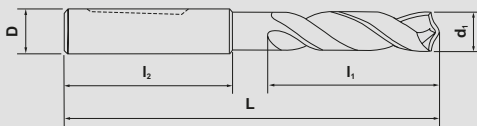
σ 140°

λ 30°

Emulsion

DIN
6537

HA
HE
HAK
HEK



UM HP DRILL™









289413 289402 289410 289415

Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂	Flute Profiles			
						HA	HE	HAK	HEK
289---.1330	13.30	14	107	60	45	▪			
289---.1350	13.50					▪	▪	▪	▪
289---.1370	13.70						▪	▪	▪
289---.1380	13.80						▪		
289---.1400	14.00	14	107	60	45	▪	▪	▪	▪
289---.1410	14.10	16	115	65	48	▪	▪	▪	▪
289---.1420	14.20								▪
289---.1429	14.29								▪
289---.1430	14.30						▪		▪
289---.1440	14.40						▪		
289---.1450	14.50					▪	▪	▪	▪
289---.1470	14.70								▪
289---.1490	14.90								▪
289---.1500	15.00					▪	▪	▪	▪
289---.1520	15.20					▪	▪		
289---.1550	15.50					▪	▪	▪	▪
289---.1560	15.60						▪		▪
289---.1570	15.70								▪
289---.1580	15.80						▪		
289---.1600	16.00	16	115	65		▪	▪	▪	▪
289---.1610	16.10	18	123	73			▪	▪	▪
289---.1620	16.20						▪		▪
289---.1630	16.30						▪		
289---.1650	16.50						▪	▪	▪
289---.1700	17.00					▪	▪	▪	▪
289---.1750	17.50						▪	▪	▪
289---.1770	17.70								▪
289---.1800	18.00	18	123	73	48	▪	▪	▪	▪
289---.1830	18.30	20	131	79	50		▪		
289---.1850	18.50	20	131	79	50			▪	▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09			
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺			

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1	130	145	8		04.1	260	300	9	
01.2	105	115	7		04.2	200	240	8	
01.3	90	105	6		05.1	105	125	7	
01.4	60	75	6		05.2	95	115	7	
01.5	45	60	4		06.1	240	295	8	
01.6	45	55	3		07.1	105	125	7	
01.7	35	45	3		07.2	85	105	6	
01.8	25	35	2		09.1	40	45	4	
02.1	55	60	5		09.2	40	45	4	
02.2	40	55	5		09.3	35	40	3	
02.3	25	35	4						
03.1	200	220	9						
03.2	155	180	8						
03.3	130	145	7						

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 3×D

HM
UF3

UU

TiAlN

3 x D

σ 140°

λ 30°

Emulsion

DIN
6537

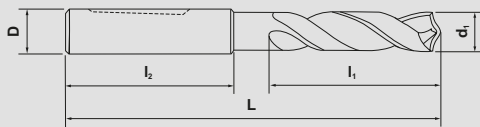
HA
HE
HAK
HEK



UM HP DRILL™

289413 289402 289410 289415









Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂				
						HA	HE	HAK	HEK
289---.1900	19.00	20	131	79	50	▪	▪	▪	▪
289---.1950	19.50						▪	▪	▪
289---.2000	20.00	20	131	79	50	▪	▪	▪	▪



KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09			
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺			

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1	130	145	8		04.1	260	300	9	
01.2	105	115	7		04.2	200	240	8	
01.3	90	105	6		05.1	105	125	7	
01.4	60	75	6		05.2	95	115	7	
01.5	45	60	4		06.1	240	295	8	
01.6	45	55	3		07.1	105	125	7	
01.7	35	45	3		07.2	85	105	6	
01.8	25	35	2		09.1	40	45	4	
02.1	55	60	5		09.2	40	45	4	
02.2	40	55	5		09.3	35	40	3	
02.3	25	35	4						
03.1	200	220	9						
03.2	155	180	8						
03.3	130	145	7						

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 5×D

HM
UF3

UU

TiAlN

5 x D

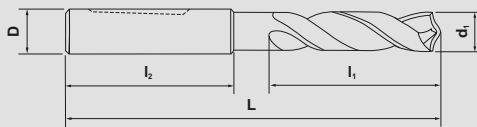
σ 140°

λ 30°

Emulsion

DIN
6537

HA
HE
HAK
HEK



UM *HP* DRILL™









289414 289417 289411 289408

Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂				
						HA	HE	HAK	HEK
289---.0300	3.00	6	66	28	36	▪	▪	▪	▪
289---.0310	3.10					▪			
289---.0317	3.17					▪	▪	▪	▪
289---.0320	3.20					▪			
289---.0325	3.25					▪	▪	▪	▪
289---.0330	3.30					▪	▪	▪	▪
289---.0340	3.40					▪	▪		
289---.0350	3.50					▪	▪	▪	▪
289---.0357	3.57					▪	▪	▪	▪
289---.0360	3.60					▪			
289---.0370	3.70		66	28		▪	▪		
289---.0380	3.80		74	36		▪	▪	▪	▪
289---.0390	3.90					▪			
289---.0397	3.97					▪	▪	▪	▪
289---.0400	4.00					▪	▪	▪	▪
289---.0410	4.10					▪			
289---.0420	4.20					▪	▪	▪	▪
289---.0430	4.30					▪	▪		
289---.0437	4.37					▪	▪	▪	▪
289---.0440	4.40					▪			
289---.0450	4.50					▪	▪	▪	▪
289---.0460	4.60					▪	▪	▪	▪
289---.0465	4.65					▪		▪	
289---.0470	4.70		74	36		▪			
289---.0476	4.76		82	44		▪	▪	▪	▪
289---.0480	4.80					▪	▪	▪	▪
289---.0490	4.90					▪			
289---.0500	5.00					▪	▪	▪	▪
289---.0510	5.10					▪	▪	▪	▪
289---.0516	5.16	6	82	44	36	▪	▪	▪	▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09			
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺			

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1	130	145	8		04.1	260	300	9	
01.2	105	115	7		04.2	200	240	8	
01.3	90	105	6		05.1	105	125	7	
01.4	60	75	6		05.2	95	115	7	
01.5	45	60	4		06.1	240	295	8	
01.6	45	55	3		07.1	105	125	7	
01.7	35	45	3		07.2	85	105	6	
01.8	25	35	2		09.1	40	45	4	
02.1	55	60	5		09.2	40	45	4	
02.2	40	55	5		09.3	35	40	3	
02.3	25	35	4						
03.1	200	220	9						
03.2	155	180	8						
03.3	130	145	7						

$$n = \frac{V_c \times 1000}{d_1 \times \pi}$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 5×D

HM
UF3

UU

TiAlN

5 x D

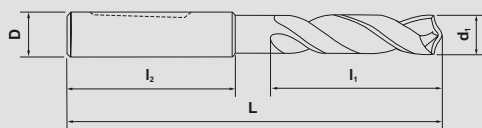
σ 140°

λ 30°

Emulsion

DIN
6537

HA
HE
HAK
HEK



UM **HP** DRILL™









289414 289417 289411 289408

Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂	Flute Profiles			
						HA	HE	HAK	HEK
289---.0520	5.20	6	82	44	36	■			■
289---.0530	5.30					■			■
289---.0540	5.40					■		■	■
289---.0550	5.50					■	■	■	■
289---.0555	5.55					■		■	
289---.0556	5.56					■	■	■	■
289---.0560	5.60					■		■	■
289---.0570	5.70					■		■	■
289---.0580	5.80					■	■	■	■
289---.0590	5.90					■		■	■
289---.0595	5.95					■	■	■	■
289---.0600	6.00	6	82	44		■	■	■	■
289---.0610	6.10	8	91	53		■		■	■
289---.0620	6.20					■		■	■
289---.0630	6.30					■		■	■
289---.0635	6.35					■	■	■	■
289---.0640	6.40					■		■	■
289---.0650	6.50					■	■	■	■
289---.0660	6.60					■		■	■
289---.0670	6.70					■		■	■
289---.0675	6.75					■	■	■	■
289---.0680	6.80					■	■	■	■
289---.0690	6.90					■		■	■
289---.0700	7.00					■	■	■	■
289---.0710	7.10							■	■
289---.0714	7.14					■	■	■	■
289---.0720	7.20								■
289---.0730	7.30					■		■	■
289---.0740	7.40					■	■	■	■
289---.0750	7.50	8	91	53	36	■	■	■	■

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09			
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺			

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1	130	145	8		04.1	260	300	9	
01.2	105	115	7		04.2	200	240	8	
01.3	90	105	6		05.1	105	125	7	
01.4	60	75	6		05.2	95	115	7	
01.5	45	60	4		06.1	240	295	8	
01.6	45	55	3		07.1	105	125	7	
01.7	35	45	3		07.2	85	105	6	
01.8	25	35	2		09.1	40	45	4	
02.1	55	60	5		09.2	40	45	4	
02.2	40	55	5		09.3	35	40	3	
02.3	25	35	4						
03.1	200	220	9						
03.2	155	180	8						
03.3	130	145	7						

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 5×D

HM
UF3

UU

TiAIN

5 x D

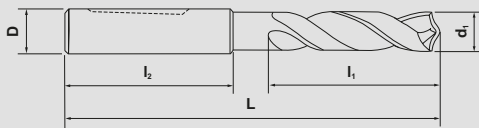
σ 140°

λ 30°

Emulsion

DIN
6537

HA
HE
HAK
HEK



UM HP DRILL™









289414 289417 289411 289408

Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂	Flute Profiles			
						HA	HE	HAK	HEK
289---.0754	7.54	8	91	53	36	▪	▪	▪	▪
289---.0760	7.60					▪			▪
289---.0770	7.70					▪			▪
289---.0780	7.80					▪	▪	▪	▪
289---.0790	7.90					▪		▪	▪
289---.0794	7.94					▪	▪	▪	▪
289---.0800	8.00	8	91	53	36	▪	▪	▪	▪
289---.0810	8.10	10	103	61	40	▪		▪	▪
289---.0820	8.20					▪		▪	▪
289---.0830	8.30					▪		▪	▪
289---.0833	8.33					▪	▪	▪	▪
289---.0840	8.40					▪		▪	▪
289---.0850	8.50					▪	▪	▪	▪
289---.0860	8.60						▪	▪	▪
289---.0870	8.70					▪		▪	▪
289---.0873	8.73					▪	▪	▪	▪
289---.0880	8.80					▪	▪	▪	▪
289---.0890	8.90					▪			
289---.0900	9.00					▪	▪	▪	▪
289---.0910	9.10					▪		▪	
289---.0913	9.13					▪	▪	▪	▪
289---.0920	9.20					▪			
289---.0925	9.25					▪		▪	
289---.0930	9.30					▪	▪	▪	▪
289---.0940	9.40					▪		▪	▪
289---.0950	9.50					▪	▪	▪	▪
289---.0952	9.52					▪	▪	▪	▪
289---.0960	9.60					▪		▪	▪
289---.0970	9.70					▪		▪	▪
289---.0980	9.80	10	103	61	40	▪	▪	▪	▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09			
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺			

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1	130	145	8		04.1	260	300	9	
01.2	105	115	7		04.2	200	240	8	
01.3	90	105	6		05.1	105	125	7	
01.4	60	75	6		05.2	95	115	7	
01.5	45	60	4		06.1	240	295	8	
01.6	45	55	3		07.1	105	125	7	
01.7	35	45	3		07.2	85	105	6	
01.8	25	35	2		09.1	40	45	4	
02.1	55	60	5		09.2	40	45	4	
02.2	40	55	5		09.3	35	40	3	
02.3	25	35	4						
03.1	200	220	9						
03.2	155	180	8						
03.3	130	145	7						

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 5×D

HM
UF3

UU

TiAlN

5 x D

σ 140°

λ 30°

Emulsion

DIN
6537

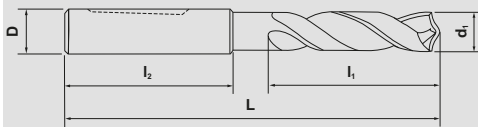
HA
HE
HAK
HEK



UM HP DRILL™

289414 289417 289411 289408









Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂				
						HA	HE	HAK	HEK
289---.0990	9.90	10	103	61	40	▪		▪	▪
289---.0992	9.92					▪	▪	▪	▪
289---.1000	10.00	10	103	61	40	▪	▪	▪	▪
289---.1010	10.10	12	118	71	45	▪		▪	
289---.1020	10.20					▪	▪	▪	▪
289---.1030	10.30					▪		▪	▪
289---.1032	10.32							▪	▪
289---.1040	10.40							▪	
289---.1050	10.50					▪	▪	▪	▪
289---.1060	10.60					▪			▪
289---.1070	10.70							▪	▪
289---.1080	10.80							▪	▪
289---.1100	11.00					▪	▪	▪	▪
289---.1110	11.10							▪	▪
289---.1111	11.11							▪	▪
289---.1120	11.20							▪	▪
289---.1130	11.30							▪	▪
289---.1140	11.40					▪		▪	▪
289---.1150	11.50					▪	▪	▪	▪
289---.1160	11.60							▪	
289---.1170	11.70							▪	▪
289---.1180	11.80							▪	▪
289---.1190	11.90							▪	
289---.1191	11.91							▪	▪
289---.1200	12.00	12	118	71	45	▪	▪	▪	▪
289---.1210	12.10	14	124	77		▪		▪	▪
289---.1220	12.20							▪	▪
289---.1230	12.30							▪	▪
289---.1240	12.40							▪	▪
289---.1250	12.50	14	124	77	45	▪	▪	▪	▪



KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09			
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺			

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1	130	145	8		04.1	260	300	9	
01.2	105	115	7		04.2	200	240	8	
01.3	90	105	6		05.1	105	125	7	
01.4	60	75	6		05.2	95	115	7	
01.5	45	60	4		06.1	240	295	8	
01.6	45	55	3		07.1	105	125	7	
01.7	35	45	3		07.2	85	105	6	
01.8	25	35	2		09.1	40	45	4	
02.1	55	60	5		09.2	40	45	4	
02.2	40	55	5		09.3	35	40	3	
02.3	25	35	4						
03.1	200	220	9						
03.2	155	180	8						
03.3	130	145	7						

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 5×D

HM
UF3

UU

TiAlN

5 x D

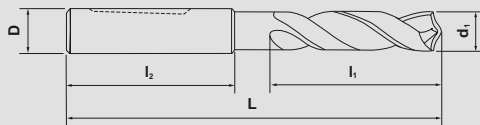
σ 140°

λ 30°

Emulsion

DIN
6537

HA
HE
HAK
HEK



UM HP DRILL™









289414 289417 289411 289408

Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂	Flute Profiles			
						HA	HE	HAK	HEK
289---.1260	12.60	14	124	77	45	■			
289---.1270	12.70							■	■
289---.1300	13.00					■	■	■	■
289---.1320	13.20					■			
289---.1350	13.50					■	■	■	■
289---.1370	13.70							■	■
289---.1380	13.80							■	■
289---.1390	13.90							■	
289---.1400	14.00	14	124	77	45	■	■	■	■
289---.1410	14.10	16	133	83	48			■	■
289---.1420	14.20							■	■
289---.1429	14.29							■	■
289---.1450	14.50					■	■	■	■
289---.1470	14.70							■	■
289---.1500	15.00					■	■	■	■
289---.1530	15.30							■	
289---.1550	15.50					■	■	■	■
289---.1570	15.70							■	■
289---.1580	15.80							■	■
289---.1600	16.00	16	133	83		■	■	■	■
289---.1650	16.50	18	143	93				■	■
289---.1700	17.00							■	■
289---.1730	17.30								■
289---.1750	17.50							■	■
289---.1800	18.00	18	143	93	48			■	■
289---.1850	18.50	20	153	101	50			■	■
289---.1900	19.00							■	■
289---.1950	19.50							■	■
289---.2000	20.00	20	153	101	50			■	■

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09			
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺			

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code	UMC	V _c m/min.	V _c m/min.	Feed code
			 				 
01.1	130	145	8	04.1	260	300	9
01.2	105	115	7	04.2	200	240	8
01.3	90	105	6	05.1	105	125	7
01.4	60	75	6	05.2	95	115	7
01.5	45	60	4	06.1	240	295	8
01.6	45	55	3	07.1	105	125	7
01.7	35	45	3	07.2	85	105	6
01.8	25	35	2	09.1	40	45	4
02.1	55	60	5	09.2	40	45	4
02.2	40	55	5	09.3	35	40	3
02.3	25	35	4				
03.1	200	220	9				
03.2	155	180	8				
03.3	130	145	7				

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007		0.012		0.017		0.022		0.027	0.035
ø 02.00	0.022		0.032		0.053		0.085		0.127	0.150
ø 03.00	0.031		0.046		0.076		0.120		0.180	0.215
ø 05.00	0.045		0.066		0.108		0.172		0.257	0.310
ø 06.00	0.054		0.079		0.129		0.206		0.308	0.375
ø 08.00	0.065		0.095		0.156		0.248		0.370	0.445
ø 10.00	0.077		0.113		0.185		0.294		0.440	0.530
ø 12.00	0.091		0.134		0.220		0.350		0.523	0.640
ø 16.00	0.111		0.162		0.266		0.423		0.633	0.765
ø 20.00	0.131		0.193		0.316		0.503		0.752	0.900
ø 25.00	0.156		0.229		0.376		0.598		0.893	1.080
ø 32.00	0.187		0.274		0.450		0.715		1.068	1.300
ø 40.00	0.225		0.329		0.541		0.860		1.285	1.520

Carbide Twist drills, 7×D

HM
UF3

UU

TiAlN


7 x D

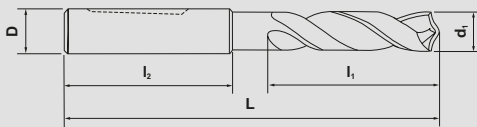
σ 140°

λ 30°


Emulsion



DIN
6537

HAK 
HEK 



UM HP DRILL™





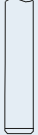



289412 289416

Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂	 HAK	 HEK
289---.0500	5.00	6	90	50	36	▪	▪
289---.0510	5.10					▪	▪
289---.0550	5.50		97	57		▪	▪
289---.0600	6.00	6	97	57		▪	▪
289---.0635	6.35	8	106	66		▪	▪
289---.0650	6.50					▪	▪
289---.0680	6.80		106	66		▪	▪
289---.0690	6.90		116	76		▪	▪
289---.0700	7.00					▪	▪
289---.0750	7.50					▪	▪
289---.0780	7.80					▪	▪
289---.0800	8.00	8	116	76	36	▪	▪
289---.0850	8.50	10	131	87	40	▪	▪
289---.0860	8.60					▪	▪
289---.0900	9.00		131	87		▪	▪
289---.0950	9.50		139	95		▪	▪
289---.0952	9.52					▪	▪
289---.1000	10.00	10	139	95	40	▪	▪
289---.1020	10.20	12	155	106	45	▪	▪
289---.1030	10.30					▪	▪
289---.1050	10.50					▪	▪
289---.1100	11.00		155	106		▪	▪
289---.1150	11.50		163	114		▪	▪
289---.1200	12.00					▪	▪
289---.1210	12.10	12	163	114		▪	▪
289---.1250	12.50	14	182	133		▪	▪
289---.1270	12.70					▪	▪
289---.1300	13.00					▪	▪
289---.1350	13.50					▪	▪
289---.1400	14.00	14	182	133	45	▪	▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09			
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺			

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1		145	7		04.1		300	8	
01.2		115	6		04.2		240	7	
01.3		105	5		05.1		125	6	
01.4		75	5		05.2		115	6	
01.5		60	3		06.1		295	7	
01.6		55	2		07.1		125	6	
01.7		45	2		07.2		105	5	
01.8		35	1		09.1		45	3	
02.1		60	4		09.2		45	3	
02.2		55	4		09.3		40	2	
02.3		35	3						
03.1		220	8						
03.2		180	7						
03.3		145	6						

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 7×D

HM
UF3

UU

TiAlN

7 × D

σ 140°

λ 30°

Emulsion

DIN
6537

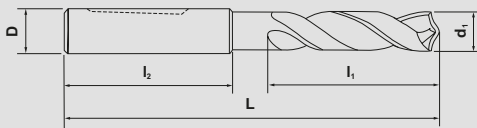
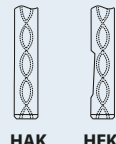
HAK
HEK



UM HP DRILL™

289412 289416









Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂	HAK	HEK
289---.1410	14.10	16	204	152	48	▪	▪
289---.1450	14.50					▪	▪
289---.1500	15.00					▪	▪
289---.1550	15.50					▪	▪
289---.1600	16.00	16	204	152		▪	▪
289---.1650	16.50	18	223	171	48	▪	▪
289---.1700	17.00					▪	▪
289---.1750	17.50					▪	▪
289---.1800	18.00	18	223	171	48	▪	▪
289---.1850	18.50	20	244	190	50	▪	▪
289---.1900	19.00					▪	▪
289---.1905	19.05					▪	▪
289---.1950	19.50					▪	▪
289---.2000	20.00	20	244	190	50	▪	▪



KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01	01.6	01.7	01.8	02.1	02.2	02.3	03	04	05	06	07	09		
☺☺	☺☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺☺		

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1		145	7		04.1		300	8	
01.2		115	6		04.2		240	7	
01.3		105	5		05.1		125	6	
01.4		75	5		05.2		115	6	
01.5		60	3		06.1		295	7	
01.6		55	2		07.1		125	6	
01.7		45	2		07.2		105	5	
01.8		35	1		09.1		45	3	
02.1		60	4		09.2		45	3	
02.2		55	4		09.3		40	2	
02.3		35	3						
03.1		220	8						
03.2		180	7						
03.3		145	6						

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 12×D

HM
UF3

TiAlN

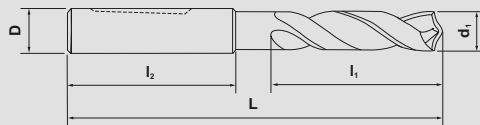
12 x D

σ 140°

λ 30°

Emulsion

HAK



UM HP DRILL™

289418



HAK

Item no.

d_1
(m7)

D
(h6)

L

l_1









l_2

Item no.	d_1 (m7)	D (h6)	L	l_1	l_2	HAK
289418.0400	4.00	6	102	64	36	▪
289418.0420	4.20					▪
289418.0430	4.30					▪
289418.0450	4.50		102	64		▪
289418.0500	5.00		116	78		▪
289418.0550	5.50					▪
289418.0600	6.00	6	116	78		▪
289418.0635	6.35	8	146	108		▪
289418.0650	6.50					▪
289418.0680	6.80					▪
289418.0700	7.00					▪
289418.0750	7.50					▪
289418.0800	8.00	8	146	108	36	▪
289418.0850	8.50	10	162	120	40	▪
289418.0900	9.00					▪
289418.0950	9.50					▪
289418.0952	9.52					▪
289418.1000	10.00	10	162	120	40	▪
289418.1020	10.20	12	204	156	45	▪
289418.1050	10.50					▪
289418.1100	11.00					▪
289418.1150	11.50					▪
289418.1200	12.00	12	204	156		▪
289418.1250	12.50	14	230	182		▪
289418.1270	12.70					▪
289418.1300	13.00					▪
289418.1350	13.50					▪
289418.1400	14.00	14	230	182	45	▪
289418.1450	14.50	16	260	208	48	▪
289418.1500	15.00					▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1	01.2	01.3	01.4	01.5	02.1	02.2	03.1	03.2	03.3	04.1	04.2	05.1	05.2	06.1	07.1
☺☺	☺☺	☺☺	☺☺	☺	☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺	☺	☺☺	☺

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1		90	6		04.1		150	8	
01.2		80	6		04.2		120	7	
01.3		60	5		05.1		80	6	
01.4		50	4		05.2		70	5	
01.5		35	2		06.1		120	6	
02.1		40	4		07.1		40	6	
02.2		40	4						
03.1		120	8						
03.2		90	7						
03.3		80	6						

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Twist drills, 12×D

HM
UF3

UU

TiAlN


12 x D

σ 140°

λ 30°


Emulsion

HAK 



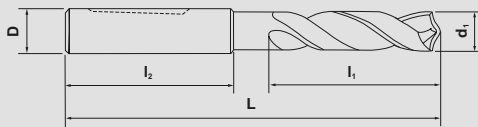
UM *HP* DRILL™

289418



HAK









Item no.	d ₁ (m7)	D (h6)	L	I ₁	I ₂	HAK
289418.1600	16.00	16	260	208	48	▪
289418.1650	16.50	18	285	234		▪
289418.1700	17.00					▪
289418.1800	18.00	18	285	234	48	▪
289418.1900	19.00	20	310	258	50	▪
289418.1905	19.05					▪
289418.2000	20.00	20	310	258	50	▪



KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1	01.2	01.3	01.4	01.5	02.1	02.2	03.1	03.2	03.3	04.1	04.2	05.1	05.2	06.1	07.1
☺☺	☺☺	☺☺	☺☺	☺	☺	☺	☺☺	☺☺	☺☺	☺☺	☺☺	☺	☺	☺☺	☺

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1		90	6		04.1		150	8	
01.2		80	6		04.2		120	7	
01.3		60	5		05.1		80	6	
01.4		50	4		05.2		70	5	
01.5		35	2		06.1		120	6	
02.1		40	4		07.1		40	6	
02.2		40	4						
03.1		120	8						
03.2		90	7						
03.3		80	6						

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Three Flute drills, 5×D

HM
UF3

UU

UNCOATED

5 x D

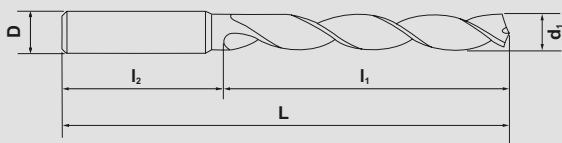
σ 130°

λ 30°

Emulsion

DIN
6539

HA



UM HP DRILL™

289247

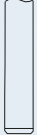







Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂	HA
289---.0300	3.00	6	66	28	36	▪
289---.0310	3.10					▪
289---.0320	3.20					▪
289---.0330	3.30					▪
289---.0350	3.50					▪
289---.0370	3.70		66	28		▪
289---.0380	3.80		74	36		▪
289---.0400	4.00					▪
289---.0410	4.10					▪
289---.0420	4.20					▪
289---.0450	4.50		74	36		▪
289---.0480	4.80		82	44		▪
289---.0500	5.00					▪
289---.0510	5.10					▪
289---.0520	5.20					▪
289---.0530	5.30					▪
289---.0550	5.50					▪
289---.0580	5.80					▪
289---.0600	6.00	6	82	44		▪
289---.0610	6.10	8	91	53		▪
289---.0620	6.20					▪
289---.0640	6.40					▪
289---.0650	6.50					▪
289---.0670	6.70					▪
289---.0680	6.80					▪
289---.0700	7.00					▪
289---.0710	7.10					▪
289---.0740	7.40					▪
289---.0750	7.50					▪
289---.0780	7.80	8	91	53	36	▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1 01.2 01.3 03.1 03.2 04.1 04.2

☺ ☺ ☺ ☺☺ ☺☺ ☺☺ ☺☺

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1	75			5					
01.2	60			5					
01.3	50			4					
03.1	90			6					
03.2	75			6					
04.1	160			7					
04.2	140			6					

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Three Flute drills, 5×D

HM
UF3

UU

UNCOATED

5 x D

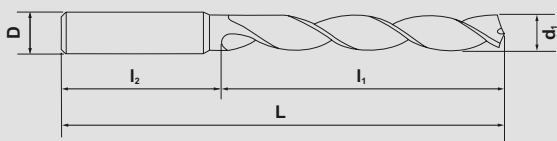
σ 130°

λ 30°

Emulsion

DIN
6539

HA



UM HP DRILL™

289247






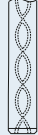


Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂	HA
289---0800	8.00	8	91	53	36	▪
289---0810	8.10	10	103	61	40	▪
289---0820	8.20					▪
489---0840	8.40					▪
289---0850	8.50					▪
289---0860	8.60					▪
289---0870	8.70					▪
289---0880	8.80					▪
289---0900	9.00					▪
289---0910	9.10					▪
289---0950	9.50					▪
289---0980	9.80					▪
289---1000	10.00	10	103	61	40	▪
289---1010	10.10	12	118	71	45	▪
289---1020	10.20					▪
289---1030	10.30					▪
289---1050	10.50					▪
289---1100	11.00					▪
289---1120	11.20					▪
289---1150	11.50					▪
289---1180	11.80					▪
289---1200	12.00	12	118	71		▪
289---1210	12.10	14	124	77		▪
289---1250	12.50					▪
289---1300	13.00					▪
289---1350	13.50					▪
289---1400	14.00	14	124	77	45	▪
289---1450	14.50	16	133	83	48	▪
289---1500	15.00					▪
289---1550	15.50	16	133	83	48	▪

KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1 01.2 01.3 03.1 03.2 04.1 04.2

☺ ☺ ☺ ☺☺ ☺☺ ☺☺ ☺☺

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1	75			5					
01.2	60			5					
01.3	50			4					
03.1	90			6					
03.2	75			6					
04.1	160			7					
04.2	140			6					

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Carbide Three Flute drills, 5×D

HM
UF3

UU

UNCOATED

5 x D

σ 130°

λ 30°

Emulsion

DIN
6539

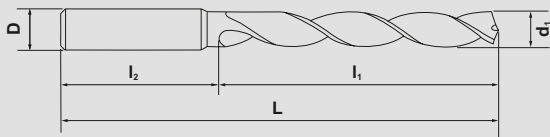
HA



UM HP DRILL™

289247

Item no.	d ₁ (m7)	D (h6)	L	l ₁	l ₂	HA
289---.1600	16.00	16	133	83	48	▪
289---.1650	16.50	18	143	93		▪
289---.1700	17.00					▪
289---.1750	17.50					▪
289---.1800	18.00	18	143	93	48	▪
289---.1850	18.50	20	153	101	50	▪
289---.1900	19.00					▪
289---.1950	19.50					▪
289---.2000	20.00	20	153	101	50	▪






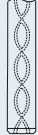




KYOCERA UNIMERCO MATERIAL CLASS (UMC)

01.1 01.2 01.3 03.1 03.2 04.1 04.2

☺ ☺ ☺ ☺☺ ☺☺ ☺☺ ☺☺

Recommended cutting data

UMC	V _c m/min.	V _c m/min.	Feed code		UMC	V _c m/min.	V _c m/min.	Feed code	
									
01.1	75			5					
01.2	60			5					
01.3	50			4					
03.1	90			6					
03.2	75			6					
04.1	160			7					
04.2	140			6					

$$n = \frac{V_c \times 1000}{d_1 \times \pi} \qquad V_f = f_n \times n$$

Feed (f_n) mm/revolution

d ₁ mm	Feed code									
	1	2	3	4	5	6	7	8	9	10
ø 01.00	0.007	0.010	0.012	0.015	0.017	0.020	0.022	0.025	0.027	0.035
ø 02.00	0.022	0.026	0.032	0.042	0.053	0.068	0.085	0.104	0.127	0.150
ø 03.00	0.031	0.037	0.046	0.059	0.076	0.096	0.120	0.148	0.180	0.215
ø 05.00	0.045	0.053	0.066	0.084	0.108	0.138	0.172	0.212	0.257	0.310
ø 06.00	0.054	0.063	0.079	0.101	0.129	0.164	0.206	0.253	0.308	0.375
ø 08.00	0.065	0.076	0.095	0.121	0.156	0.198	0.248	0.305	0.370	0.445
ø 10.00	0.077	0.090	0.113	0.144	0.185	0.235	0.294	0.362	0.440	0.530
ø 12.00	0.091	0.107	0.134	0.172	0.220	0.279	0.350	0.431	0.523	0.640
ø 16.00	0.111	0.130	0.162	0.208	0.266	0.338	0.423	0.521	0.633	0.765
ø 20.00	0.131	0.154	0.193	0.247	0.316	0.402	0.503	0.619	0.752	0.900
ø 25.00	0.156	0.183	0.229	0.293	0.376	0.478	0.598	0.736	0.893	1.080
ø 32.00	0.187	0.219	0.274	0.351	0.450	0.571	0.715	0.880	1.068	1.300
ø 40.00	0.225	0.264	0.329	0.422	0.541	0.687	0.860	1.059	1.285	1.520

Kyocera Unimerco material class (UMC)

List of material classes

UNIMERCO material class (UMC) is a clear grouping of workpiece materials. The list shows the most common standards for each class.

Where relevant, the recommended UMC (material classes) are shown at the bottom of the page. The tool is suited for machining all the materials comprised in the material classes shown. This is indicated by ☺.

If the tool is highly suited, this is indicated by ☺☺.

01.1	01.2	01.3	01.4	02.1	02.2	03.1	03.2	03.3	04.1	04.2	05.1	06.1	10.1	10.2
☺☺	☺☺	☺☺	☺	☺☺	☺	☺☺	☺☺	☺	☺☺	☺	☺☺	☺☺	☺☺	☺

UMC 01.1 - steel

Examples of BS standards

Free-cutting steels	230 M 07	210 M 15	212 M 44	240 M 07
Non-alloy construction steels	4360-43 B	4360-50 B	4360-40 C	4360-SSE
Annealed spring steels	250 A 53	060 A 67	060 A 96	527 A 60
Case-hardening steels < 700 N/mm ²	045 M 10	045 M 10	080 M 15	523 M 15
Non-alloy heat treatable steels < 800 N/mm ²	070 M 26	080 M 46	070 M 26	080 M 40
Alloy heat treatable steels < 800 N/mm ²	120 M 19	640 A 35	530 A 30	530 A 32
Unalloy tool steels	BW 1A	BW 1B		

UMC 01.2 - steel

Examples of BS/DIN standards

Alloy construction steels < 500 N/mm ²	1501-620 Gr. 27	1501-622 Gr. 31;45		
Naturally hard spring steels	250 A 53	060 A 67	060 A 78	527 A 60
Case-hardening steels 700 - 850 N/mm ²	S 107	527 M 17		
Nitriding steels < 1000 N/mm ²	905 M 31	905 M 39		
Non-alloy heat treatable steels 800 - 1000 N/mm ²	070 M 55	080 A 62	080 A 62	
Alloy heat treatable steels < 800 N/mm ²	1717 CDS 110	708 M 40	735 A 50	
Alloy heat treatable steels 800 - 1000 N/mm ²	150 M 36	150 M 36	708 M 40	530 A 32
Low alloy cold work tool steels < 1000 N/mm ²	708 A 37	708 M 40	BO 1	BW 2
Low alloy hot work tool steels 800 - 1000 N/mm ²	40 CMD			
High alloy hot work tool steels, after annealing < 1100 N/mm ²	BH 13	BH 21		
Conventional steel castings	GS-60	GS-Ck 45	GS-42 CrMo 4	

UMC 01.3 - steel

Examples of BS standards

Alloy heat treatable steels 1000 - 1300 N/mm ²	817 M 40	708 M 40	735 A 50	
High alloy cold work tool steels	2260			
Treated hot work tool steels 1100 - 1350 N/mm ²	40 CMD			
High alloy hot work tool steels, after annealing < 1100 N/mm ²	BH 11	BH 21		
Conventional steel castings	Z 120 M 12			

Kyocera Unimerco material class (UMC)

UMC 01.4 - steel

Examples of BS standards

High alloy cold work tool steels	BA 2
Treated hot work tool steels 1100 - 1350 N/mm ²	
Conventional steel castings	Z 120 M 12

UMC 01.5 - steel

Examples of BS standards

Spring hard spring steels	250 A 53	060 A 78	060 A 96	735 A 50
Alloy construction steels 1300 - 1600 N/mm ²	823 M 30		722 M 24	
Treated hot work tool steels 1350 - 1600 N/mm ²	BH 13			

UMC 01.6 - steel

Hardened tool steels < 45 HRC

UMC 01.7 - steel

Hardened tool steels < 55 HRC

UMC 01.8 - steel

Hardened tool steels > 55 HRC

UMC 02.1 - stainless steel

Examples of BS standards

Stainless chromium steels (ferritic/martensitic)	403 S 17	416 S 21	420 S 37	431 S 29
Chromium steel castings (ferritic/martensitic)	420 C 29			

UMC 02.2 - stainless steel

Examples of BS/USA standards

Stainless chromium steels (ferritic/martensitic)	440 A	440 C		
Stainless chromium-nickel steels (austenitic)	304 S 15	304 S 62	316 S 16	316 S 11
Heat resisting steels (nickel-base alloys)	NiCu30Fe	NiCu30Al		
Heat resisting steels (Co-base alloys)	CoCr20W15Ni		CoCr28MoNi	
Chromium steel castings (ferritic/martensitic)	G-X 40 CrSi 17		G-X 3 CrNi 13 4	
Chromium steel castings (austenitic)	G-X 2 CrNi 18 9		G-X 5 CrNi 13 4	

UMC 02.3 - stainless steel

Examples of BS/AFOR standards

Treated aerospace material 280 - 450 HB	431 S 29			
Heat resisting steels	321 S 12	NA 17	430 S 15	
Heat resisting steels (nickel-base alloys)	Inconel	Hastelloy	Nimonic	Waspaloy
Chromium steel castings (ferritic/martensitic)				

Kyocera Unimerco material class (UMC)

UMC 03.1 - cast iron

Examples of BS standards

Non-alloy grey cast iron < 180 HB	Grade 150	Grade 220
Non-alloy nodular graphite cast iron < 180 HB	SNG 420/12	SNG 370/17

UMC 03.2 - cast iron

Examples of BS standards

Non-alloy grey cast iron (with lamellar graphite) > 180 HB	Grade 260	Grade 300	Grade 350	Grade 400
Alloy grey cast iron (with lamellar graphite)	L-NiMn 13 7	L-NiCr 20 2		
Non-alloy nodular graphite cast iron > 180 HB	SNG 500/7	SNG 600/3	SNG 700/2	
Alloy nodular graphite cast iron	S-NiCr 20 2	S-niCr 30 1		

UMC 03.3 - cast iron

Examples of BS standards

High alloy grey cast iron (with lamellar graphite)	Grade 2 A	Grade 3 D
--	-----------	-----------

UMC 04.1 - aluminium

Examples of DIN standards

Non-alloy aluminium 20 - 50 HB	Al99	Al99.5	Al99.8	Al99.9
Non-hardened wrought alloys 30 - 80 HB	AlMnCu	AlMn1Mg0.5	AlMg1	AlMg3
Hardened wrought alloys 75 - 150 HB	AlMgSi 1	AlCuMg2	AlZnMgCu0.5	
Cast material < 6% Si	G-AlCu4Ti	G-AlMg5Si	G-AlMg3	
Aluminium magnesium	MgMn2	MgAl8Zn	G-MgZn5Th2Zr1	

UMC 04.2 - aluminium

Examples of DIN standards

Cast material 6 - 12% Si	G-AlSi9Mg	G-AlSi12	G-AlSi10Mg (Cu)
Cast material > 12% Si	G-AlSi18		
Magnesium alloys (cast material)	GD-MgAl4sI1		GD-MgAl6Zn1

UMC 05.1 - copper

Examples of DIN standards

Non-alloy copper	E-Cu57	SE-Cu	SW-Cu	SF-Cu
Non-hardened wrought alloys	CuZn20	CuPb 1P	CuFe 2p	CuMn5

UMC 05.2 - copper

Examples of DIN standards

Hardened wrought alloys	CuNi2Si	CuBe1.7	CuCrZr	CuZr
CuNi alloys	CuNi25	CuNi9Sn2	CuNi30FeMn2	
CuNi alloys, short chips	CuNi12Zn24		CuNi12Zn30Pb1	

UMC 06.1 - brass

Examples of DIN standards

CuZn (brass), long chips	CuZn20	CuZn30	CuZn36	CuZn40
CuZn (brass), short chips	CuZn39Pb2		CuZn38Sn1	

Kyocera Unimero material class (UMC)

UMC 07.1 - bronze

CuSn (bronze), long chips

Examples of DIN standards

CuSn4

CuSn8

CuSn6ZnNi

UMC 07.2 - bronze

CuAlFe (Ampco), long chips

Examples of DIN standards

CuAl8

CuAl8Fe3

CuAl11Fe4

UMC 08.1 - nickel

Non-alloy nickel

Examples of DIN standards

Ni99CSi

Ni99.6

Ni99.4Fe

NiAlBz

UMC 09.1 - titanium

Non-alloy titanium 110 - 270 HB

Examples of BS standards

TA 7

TA 6

TA 9

UMC 09.2 - titanium

Alloy titanium 300 - 340 HB

Examples of BS/DIN standards

TA 14 / 17

Ti6Al6V2Sn

Ti7Al4Mo

UMC 09.3 - titanium

Hardened alloys 340 - 450 HB

Examples of BS standards

TA 40

TA 48

TA 28

UMC 10.1 - plastics

Thermoplastics
(PE, PP, PVC, PS, PMMA, PTFE, PA, PC, PI)

Examples of BS standards

Eraclene

Viplast

Sinvet

Lacrillex

UMC 10.2 - plastics

Duroplastics
(PF, MF, UF, PUR, SI, PI, UP, EP)

Examples of BS standards

Formolo

Melochem

Puriplast

Conapoxy

UMC 11.1 - plastics

Fibre reinforced plastics

Examples of DIN standards

Kevlar

UMC 12.1 - graphite

Graphite

Industrial tooling solutions

Kyocera Unimerco is a global manufacturer and distributor, providing standard and customized cutting tool solutions as well as know-how and optimization guidance for the manufacturing industry.

The company was founded in 1964 and has since expanded into 17 countries, with more than 700 employees in 14 companies. Today the company is part of the Japan-based Kyocera Corporation.

The Sheffield branch was established in 1998 and specialises in supplying the industrial market with inserts, standard tools and related tooling solutions.



www.kyocera-unimerco.co.uk

101 Attercliffe Road | UK-Sheffield S4 7WW | Tel. 01142 788787 | uksales@kyocera-unimerco.com