



UD TWIST DRILLS



BROOKE HEAVY DUTY "UD" TWIST DRILL RANGE

This range of drills is specifically designed to meet the challenges of difficult drilling applications. Available in Fractional, Number, Letter and Metric sizes in Screw Machine, Jobber and Taper lengths. See price list for details.

PRODUCT TYPES

UDL Designed for LONG CHIP FORMING MATERIALS, such as Aluminum, Copper and Stainless Steels, with special "UX" point or Split point.

UDS Designed for SHORT CHIP FORMING MATERIALS, such as Titanium and Nickel Chrome Alloys, with special Split point.

UDC Designed for CAST IRON and ABRASIVE MATERIALS, with special "DX" point.

BENEFITS OF THE HEAVY DUTY UD DRILL RANGE

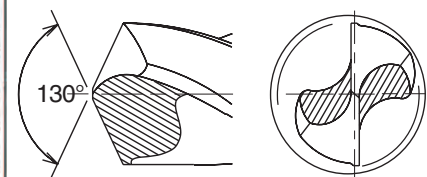
- Easier Penetration and Reduced Time per Hole
- Increased Hole Depth and Accuracy
- Increased Number of Holes per Sharpening
- Reduced Drilling Cost
- Coatings - These drills can be supplied with either TiN, TiCN or TiAlN coatings to further enhance their performance. Suggested coatings are indicated in the drill selection details on the opposite page.

DRILL CHARACTERISTICS

- Flutes** Wide, polished, "PARABOLIC FORM" flutes with 40° helix on UDL and 33° helix on UDS/UDC drills provide fast chip removal and reduced heat generation at the point. The increased web thickness allows increased feed rates.
- Materials** Manufactured from HSS-Co (5% Cobalt) to ensure increased wear and heat resistance during drilling operations.
- Hole Depth** Hole depths greater than 5 times diameter with the uncoated drill (conventional drill 3 times diameter). Hole depths up to 15 times diameter with coated drills, with proportionally reduced feed rates.

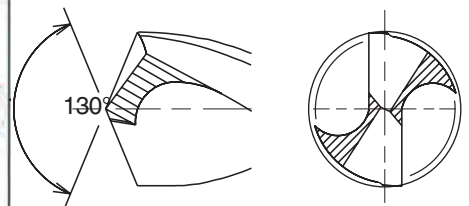
POINT STYLES

The 130° special notched "UX" point style provides self centring, easier penetration, improved hole accuracy and improved load distribution. This special notch geometry gives a corrected rake angle of 15° which provides a strong point for harder materials, as well as preventing snatching with materials such as Aluminium, Brass, Bronze and Plastics. Available on UDL and UDS drills from No.60 (1mm) to 1/2" (13mm) diameter.



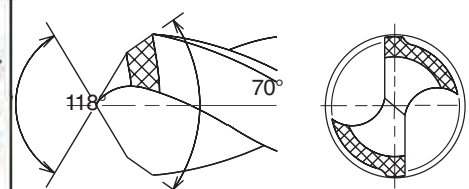
UX POINT FORM

The 130° SPLIT POINT is a conventional point providing self centring and easier penetration. Available on UDL and UDS drills from No.60 (1mm) to 1/2" (13mm) diameter.



SPLIT POINT FORM

The double angled "DX" point, 118° / 70° minimizes wear on the outer corners of the drill point in highly abrasive materials such as Cast Iron and Reinforced Plastics. The point is web thinned for easier penetration. Available on UDC drills from No.21 (4mm) to 1/2" (13mm) diameter.

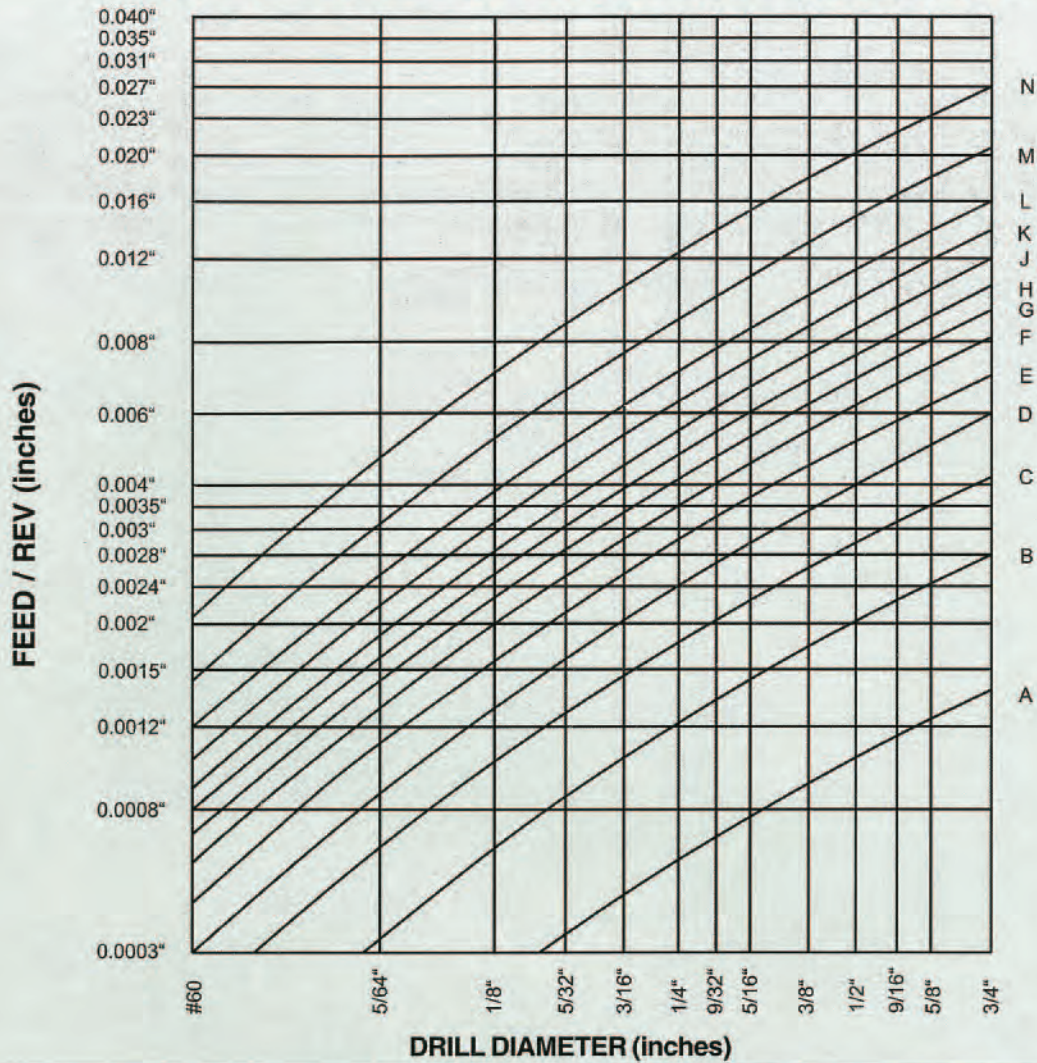


DX POINT FORM

BROOKE “UD” DRILL SELECTION GUIDE

MATERIAL TYPES		HARDNESS HB	TENSILE STRENGTH (TONS / SQ.INCH)	NORMAL CHIP FORM	DRILL TYPE & SURFACE TREATMENT	SURFACE SPEED FEET PER MINUTE	FEED CURVE
Steel	Free Cutting steels	≤120	≤25	extra long	UDL TIN	115 - 150 170 - 225	H J
	Structural steel. Case carburizing steel	≤200	≤45	middle/long	UDL TIN	80 - 115 125 - 170	H J
	Plain Carbon steel	≤250	≤55	long	TIN UDL TICN TIAIN	75 - 90 115 - 130	G I
	Alloy steel	>250	≤55	long	TIN UDL TICN TIAIN	75 - 90 115 - 130	G I
	Alloy steel. Hardened and tempered steel	>250 ≤350	>55 ≤80	long	TIN UDL TICN TIAIN	55 - 70 80 - 100	E G
	Alloy steel. Hardened and tempered steel	>350	>80	long	TIN UDL TICN TIAIN	45 - 60 65 - 80	E G
Stainless Steel	Free machining Stainless steel	≤250	≤55	middle	TIN UDL TICN TIAIN	60 - 70 90 - 105	E G
	Austenitic	≤250	≤55	long	TIN UDL TICN TIAIN	25 - 30 40 - 50	K M
	Ferritic + Austenitic, Ferritic, Martensitic	≤300	≤65	long	TIN UDL TICN TIAIN	35 - 50 55 - 75	E G
Cast Iron	Lamellar graphite	≤150	≤30	extra short	UDC TIAIN	100 - 120 150 - 180	G I
	Lamellar graphite	>150 ≤300	>30 ≤65	extra short	UDC TIAIN	80 - 100 115 - 150	G I
	Nodular graphite, Malleable Cast Iron	≤200	≤45	middle/short	UDC TIAIN	60 - 70 80 - 115	E G
	Nodular graphite Malleable Cast Iron	>200 ≤300	>45 ≤65	middle/short	UDC TIAIN	40 - 55 75 - 85	E G
Titanium	Titanium, unalloyed	≤ 200	≤45	extra long	UDL TICN	65 - 80 100 - 115	E G
	Titanium, alloyed	≤270	≤60	middle/short	UDS TICN	40 - 55 65 - 80	E G
	Titanium, alloyed	>270 ≤350	>60 ≤80	middle/short	UDS TICN	15 - 20 25 - 35	C E
Nickel	Nickel, unalloyed	≤150	≤30	extra long	UDL TICN TIAIN	40 - 50 65 - 80	G I
	Nickel, alloyed	≤270	≤60	long	UDL TICN TIAIN	20 - 25 35 - 40	G I
	Nickel, alloyed	>270 ≤350	>60 ≤80	long	UDL TICN TIAIN	15 - 20 35 - 40	C E
Copper	Copper	≤100	≤20	extra long	UDL TIN	180 - 215 260 - 310	L N
	Beta Brass, Bronze	≤200	≤45	middle/short	UDS TIN	200 - 230 295 - 345	L N
	Alpha Brass	≤200	≤45	long	UDL TIN	100 - 125 145 - 170	L N
	High strength Bronze	≤470	≤100	short	UDL TIN	90 - 110 125 - 150	K M
Aluminum Magnesium	Al, Mg, unalloyed	≤100	≤20	extra long	UDL TIN	245 - 280 360 - 410	N N
	Al alloyed Si < 0.5%	≤150	≤30	middle	UDL TIN	215 - 250 325 - 375	N N
	Al alloyed, Si >0.5% <10%	≤120	≤25	middle/short	UDS TIN	180 - 215 260 - 325	L N
	Al alloyed, Si > 10% Al-alloys, Mg-alloys	≤120	≤25	short	UDS TIN	90 - 110 130 - 165	K M
Synthetic Materials	Thermoplastics	-	-	extra long	UDL TIN	250 - 280 360 - 410	L N
	Thermosetting plastics	-	-	short	UDS TIN	180 - 215 260 - 325	J L
	Reinforced plastic materials	-	-	extra short	UDC TIN	50 - 65 65 - 100	J L

RECOMMENDED UD DRILL FEEDS (inch / rev.)



HOW TO USE THE DRILL FEED CHART

1. Locate Feed Curve (as given in the application data) on the right-hand side of the drill feed chart.
2. Locate Drill diameter along bottom axis of chart.
3. Determine point of intersection of Feed Curve and Drill diameter.
4. Project horizontally from point of intersection to left hand side of chart and read off nearest FEED / REV (inches).
5. Select nearest Feed on drilling machine within $\pm 20\%$ of chart figure.

PRODUCT RANGE

FRACTIONAL, WIRE, LETTER & MILLIMETRE

1mm	5/64"	No.34	5/32"	No.10	B	7.3mm	11/32"	13/32"
No.60	No.47	No.33	No.22	No.9	6.1mm	L	8.8mm	Z
No.59	2mm	2.9mm	4mm	5mm	C	7.4mm	S	10.5mm
No.58	No.46	No.32	No.21	No.8	6.2mm	M	8.9mm	27/64"
No.57	No.45	3mm	No.20	5.1mm	D	7.5mm	9mm	10.8mm
1.1mm	2.1mm	No.31	4.1mm	No.7	6.3mm	19/64"	T	11.0mm
No.56	No.44	3.1mm	4.2mm	13/64"	E	7.6mm	9.1mm	7/16"
3/64"	2.2mm	1/8"	No.19	No.6	1/4"	N	23/64"	11.2mm
1.2mm	No.43	3.2mm	4.3mm	5.2mm	6.4mm	7.7mm	9.2mm	11.5mm
1.3mm	2.3mm	No.30	No.18	No.5	6.5mm	7.8mm	9.3mm	29/64"
No.55	No.42	3.3mm	11/64"	5.3mm	F	7.9mm	U	11.8mm
No.54	3/32"	3.4mm	No.17	No.4	6.6mm	5/16"	9.4mm	15/32"
1.4mm	2.4mm	No.29	4.4mm	5.4mm	G	8mm	9.5mm	12.0mm
1.5mm	No.41	3.5mm	No.16	No.3	6.7mm	O	3/8"	31/64"
No.53	No.40	No.28	4.5mm	5.5mm	H	8.1mm	V	12.5mm
1/16"	2.5mm	9/64"	No.15	7/32"	17/64"	8.2mm	9.6mm	1/2"
1.6mm	No.39	3.6mm	4.6mm	5.6mm	6.8mm	P	9.7mm	13mm
No.52	No.38	No.27	No.14	No.2	6.9mm	8.3mm	9.8mm	
No.51	2.6mm	3.7mm	No.13	5.7mm	I	21/64"	W	
1.7mm	No.37	No.26	4.7mm	No.1	7mm	8.4mm	9.9mm	
No.50	2.7mm	No.25	3/16"	5.8mm	J	Q	25/64"	
1.8mm	No.36	3.8mm	No.12	5.9mm	7.1mm	8.5mm	10mm	
No.49	7/64"	No.24	4.8mm	A	K	8.6mm	X	
1.9mm	No.35	3.9mm	No.11	15/64"	9/32"	R	10.2mm	
No.48	2.8mm	No.23	4.9mm	6mm	7.2mm	8.7mm	Y	



**ISO 9002
Certified**

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