

JIATENG TOOLS

嘉腾工具
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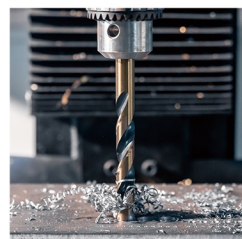


丹阳嘉腾工具有限公司
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丹阳嘉腾工具有限公司
DANYANG JIATENG TOOLS CO., LTD

COMPANY
PROFILE

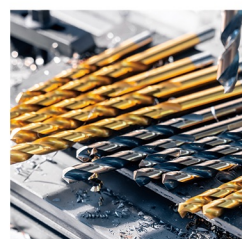
企业简介



致力于让每一转切削成为值得信赖的工业语言。
COMMITTED TO MAKING EVERY ROTATION OF CUTTING A RELIABLE INDUSTRIAL LANGUAGE.



丹阳嘉腾工具有限公司是一家专业生产麻花钻的工厂，占地面积6000多平方米，拥有一条总结20多年麻花钻生产经验精心打造的全新生产线，重点生产设备120多台，日产量10万支，主要产品有DIN338, DIN340, DIN1897, ANSI系列，双头钻，航空钻以及定制加长钻等，目前公司生产的高速钢麻花钻产品覆盖了市场上所有型号和材质，满足了不同客户的需求。并且，在麻花钻生产经验基础上，嘉腾工具与各大工具生产线紧密合作，为客户提供各类工具产品。



嘉腾工具始终坚持质量第一的原则，通过严格的质量控制体系确保每一支麻花钻的精准与稳定，并一直对钻头的切削速度、耐磨性能等各方面进行细致研究，不断改进优化每一个生产环节的工艺设备，稳定制造高品质产品。

得益于对质量的执着追求，嘉腾工具在市场上始终保持着高精尖的竞争力，返单率不断攀升，成为了客户信赖的工具品牌。

“用二十年赤诚，磨砺毫米之间的永恒”，丹阳嘉腾工具，将永远致力于让每一转切削成为值得信赖的工业语言。



JIATENG TOOLS

Danyang Jiateng Tools Co., Ltd. is a manufacturer specialize in producing twist drills, covering an area of over 6,000 square meters, the company boasts a brand-new production line that encapsulates more than 20 years of experience in twist drill manufacturing.

With over 120 key production equipment, the factory has a daily output of 100,000 pieces drill bits, main products include DIN338, DIN340, DIN1897, ANSI series, double-ended drills, Aircraft and customerized extended drills, covers all models and materials available in the market, meeting the diverse needs of different customers.

Building on its extensive experience in twist drill production, we closely collaborates with major tool production lines to provide customers with a wide range of tool products.

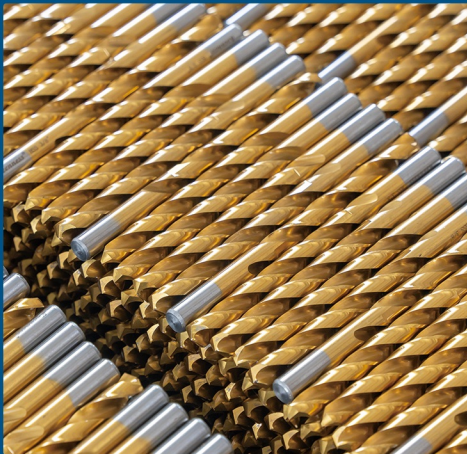
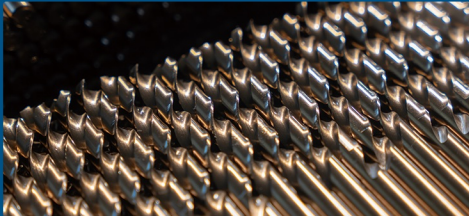
Jiateng Tools consistently adheres to the principle of quality first. Through a stringent quality control system, the company ensures the precision and stability of every twist drill. We continuously conducts detailed research on various aspects of the drill bits, such as cutting speed and wear resistance, constantly improves and optimizes the process equipment at every production stage to stably manufacture high-quality products.

Thanks to its relentless pursuit of quality, Jiateng Tools maintains a high level of competitiveness in the market, with a continuously increasing repeat order rate, making it a trusted tool brand among customers.

"With twenty years of dedication, refine the eternal precision within millimeters." Jiateng Tools is committed to making every rotation of cutting a reliable industrial language.

ENTERPRISE
PROFILE

企业概况



HSS TWIST DRILL

ELECTRIC HAMMER DRILL

MASONRY DRILL

WOOD WORKING DRILL

GLASS DRILL

CHISELS

DIAMOND SAW BLADE

TCT SAW BLADE

ABRASIVE CUTTING WHEEL



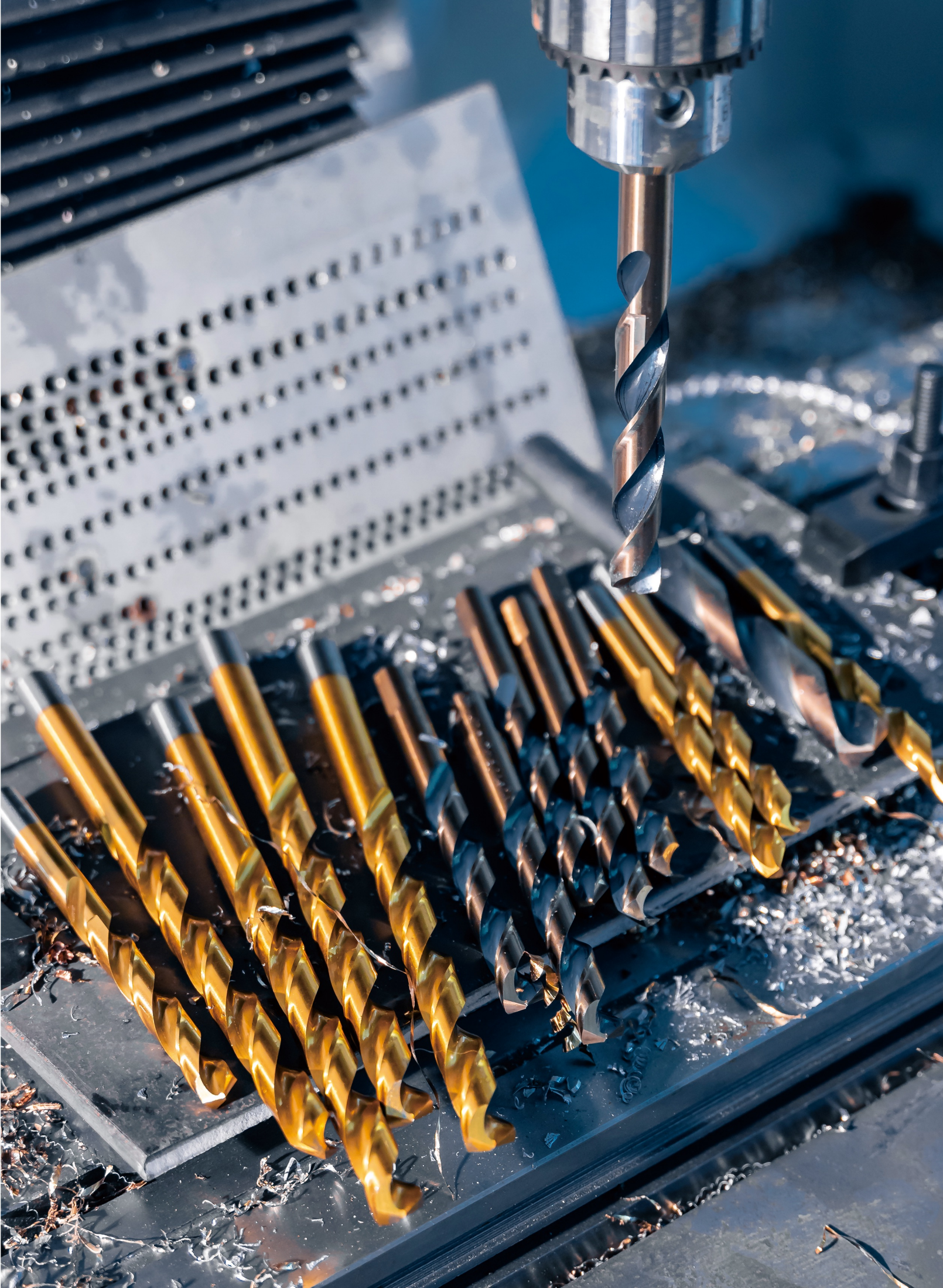
HATENG TOOLS

PRODUCT CATALOG

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麻花钻	
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INSTRUCTION FOR HSS TWIST DRILL

高速钢麻花钻使用说明

1 PRODUCTION TECHNICS/生产工艺

-  Roll forged 轧制
-  Roll&Edge ground 清边
-  Fully ground 全磨

2 SURFACE FINISHING/表面处理

-  Black finished 氮化
-  Black & bright 黑白
-  Bright Finished 白钻
-  Tin coated 镀钛
-  Rainbow color 七彩
-  Bronze oxide 镀铜
-  Black&Gold 黑黄
-  Amber 烤黄

3 MATERIAL/材料

HSS-M35/M2/W9341/W4341/W4241

4 CUTTING EDGE/切削角度



118° GeneralAngle 118度

118°/135° Split Point 118/135 双后角

5 REDUCED SHANK/缩柄



1/4 Shank/ 6.5mm 缩柄

3/8 Shank /10.0mm 缩柄

1/2 Shank/13.0mm 缩柄



TECHNICAL STANDARDS

MAIN TECHNICAL CONDITIONS OF TWIST DRILL

DIMENSIONS

Drill diameter

The values indicated in the relevant dimensional standards apply in respect of the diameter of Twist Drills.

Test point: On the lands at the corners,(see Fig.1)

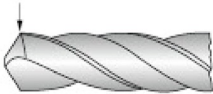


Fig.1 Test point of the drill diameter

Testing equipment: micrometer

Tapering of diameter

The diameter of twist drills usually reduces from the drill tip towards the shank in the area of the flutes.

Test values:The taper on diameter amounts to 0.02 to 0.08mm over a length of 100mm.

Test point: At the outside diameter on the land.

Testing equipment: micrometer and indicating measuring instruments.

Parallel shank

Tolerance for shank diameter f11,Tolerance for roundness and parallelism 0.02mm for the shank length.

Concentricity tolerance(Tr.)

The concentricity tolerance(Tr.) of the Twist Drill is calculated from the equation.

$Tr=0.03+0.01$

In which "l" is the total length and "d" the diameter of the drill (all dimensions in mm)

Length

The tolerance of length for the total length corresponds for the degree of accuracy "very coarse" according to DIN 7168 part 1.The flute lengths given in the relevant dimensional standards are minimum dimensions.

Point angle

Test value: $\sigma=118^\circ$; $\sigma=135^\circ$

Test point: At the cutting edges(See Fig.2)

Testing equipment: Universal bevel protractor and indicating measuring instruments.

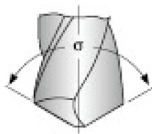


Fig 2 Point angle

MATERIALS AND HARDNESS

Materials

M42;M35;M2;9341; 4341 Or F4341

Hardness

HSS HRC63-66

HSSCO HRC64-68

Test point: On outside diameter on the land or adjacent relieved land.

Test equipment: Hardness Tester.

MARKING

Twist drills with diameter 3mm and upwards shall be marked with:

Diameter

Material:(HSS;HSSCO;)

Name or mark of manufacturer.

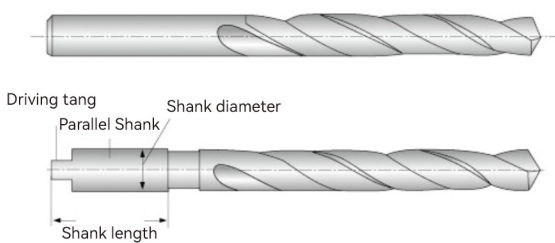
Additional and/or differing marking by agreement



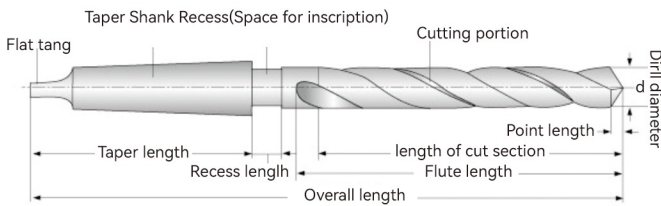
TECHNICAL STANDARDS

MAIN TECHNICAL CONDITIONS OF TWIST DRILL

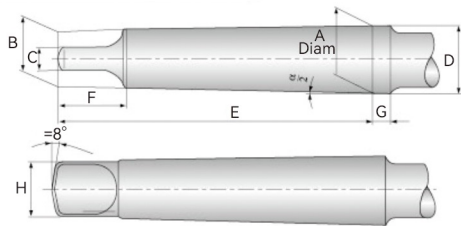
TWIST DRILL WITH PARALLEL SHANK



TWIST DRILL WITH TAPER SHANK

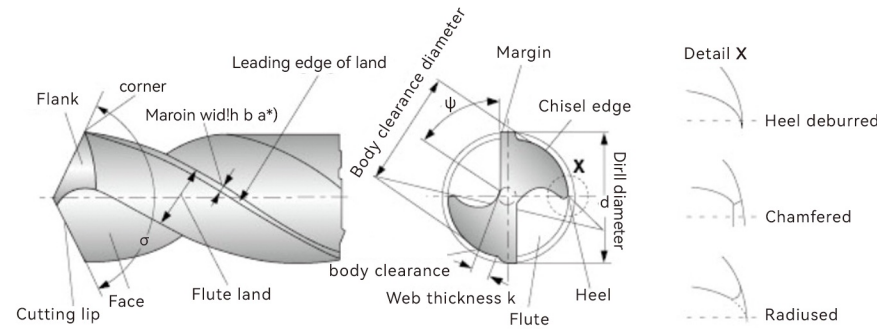


GENERAL DIMENSIONS OF MORSE TAPER SHANKS



Morse Taper Shank	A mm	B mm	C(h13) mm	D mm	E(max.) mm	F mm	G mm	H(max.) mm	a/2
No.1	12.065	9	5.2	12.2	62	13.5	3.5	8.7	1°25'43"
No.2	17.780	14	6.3	18.0	75	16	5	13.5	1°25'50"
No.3	23.825	19.1	7.9	24.1	94	20	5	18.5	1°26'16"
No.4	31.267	25.2	11.9	31.6	117.5	24	6.5	24.5	1°29'15"
No.5	44.399	36.5	15.9	44.7	149.5	29	6.5	35.7	1°30'26"
No.6	63.348	52.4	19	63.8	210	40	8	51	1°29'36"

CUTTING PORTION

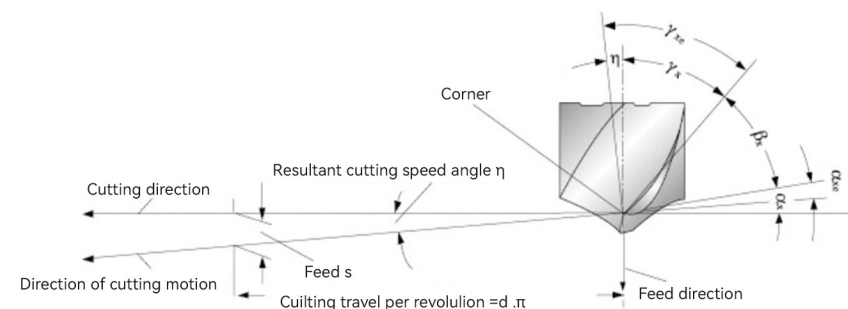


- σ = Point angle (sigma)
- ψ = Chisel edge angle (psi)

*)in the context of culting technology, land width b is the body clearance land width which is to be by b_{fan} see DIN 6581.

ANGLE AT THE CUTTING EDGES

- The corner has been adopted as the observed edge point



- α_x = Side clearance angle (alpha)
- α_{xc} = Effective side clearance angle
- β_x = Side wedge angle (beta)
- γ_x = Front rake angle (gamma)
- γ_{xc} = Working front rake angle
- η = Resultant cutting speed angle (eta)

Clearance angle α , wedge angle β and rake angle γ are measured in the tool orthogonal plane. For details, see DIN 6581, definitions of metal-cutting technology; geometry at the tool edge.

WEB THICKNESS K

Test values: The web thickness according to Fig.1 shall not be less than the minimum value k_{min} indicated in Fig.2.

Test point: At the point of the drill.

Testing equipment: Slide gauge with measuring points.

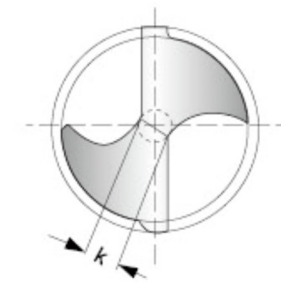
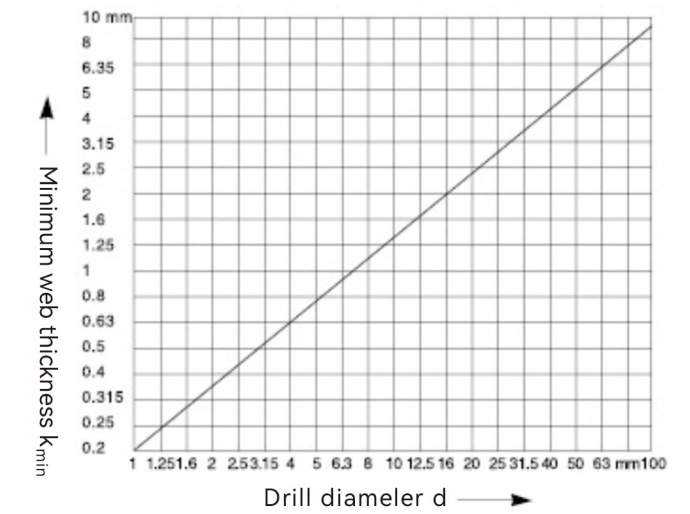


Figure 1. Web thickness k

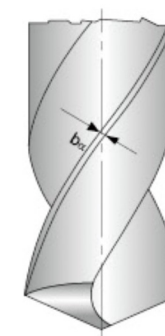
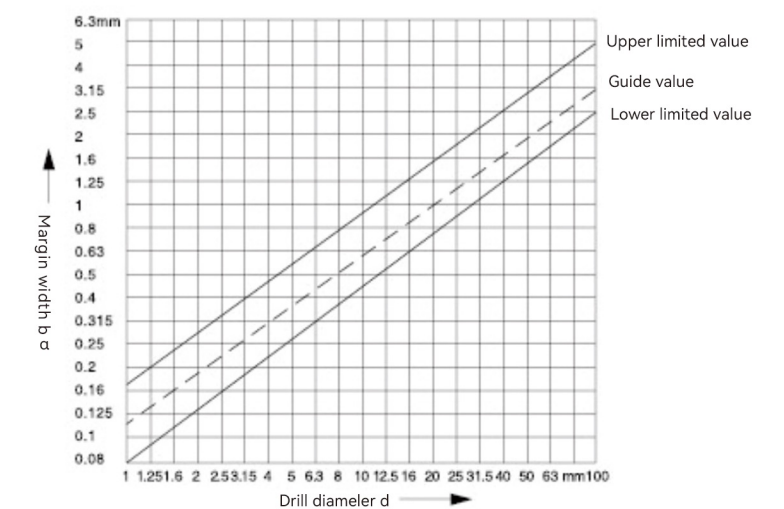

Figure 2. Web thickness k_{min}

MARGIN WIDTH B_α

Test values: The land width as in Fig.3 shall lie within the limiting values indicated in Fig.4.

Test point: 5mm behind the corner

Testing equipment: Slide gauge


Figure 3. Margin width B_α

Figure 4. Margin width B_α



ANGLE ON TWIST DRILLS

- 1 • Side rake angle γ_f (Helix angle)
 - Recommended test value: Recommended ranges depending on the tool types N,H and W according to DIN 1836 and the diameter of the drill included in Fig.5.
 - Test point: At the corner,see Fig.6.
 - Testing equipment: According to VDI Guideline 3331 Part1 ,Section Margin width ba
 - Note:The side rake angle γ_f is measured in place of the orthonagonal rake angle γ_o found in the wedge measuring plane(see DIN 6581), as this changes along the cutting edge(becoming smaller towards the point of the drill).

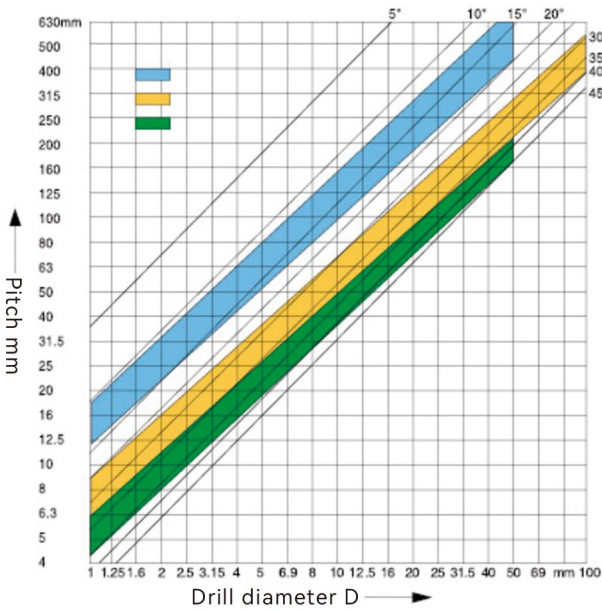


Figure 6. Side rake angle γ_f

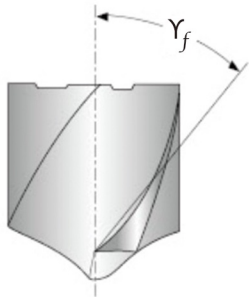


Figure 5. Side rake angle γ_f



ANGLE ON TWIST DRILLS

- 2 • Point angle σ
 - Test value: Usual execution for tool types N and H: $\sigma = 118^\circ$, for tool type W: $\sigma = 130^\circ$
 - Test point: At the cutting, see Fig.7.
 - Testing equipment: According to VDI Guideline 3331 Part 1, Section Margin width ba

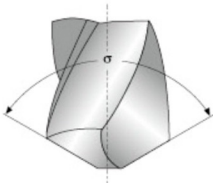


Figure 7 .Point angle σ

RESHARPENING TWIST DRILLS

- 1 Drills are worn off iregularly.It should be sharpened prior to developing into excessive wear.
- 2 Resharpening
 - ① Grind the correct point angle to suit your application.(figure 8)
 - ② Check that both cutting lips have the same angle. On a 130° point,each lip should be 65° toward the axis.The point must be on center,i.e..the chisel edge must produce cutting lips of equal length.(figure 8)
 - ③ Grind Primary relief and Secondary clearance,(figure 9)
 - ④ Grind web thinning.(figure 10)

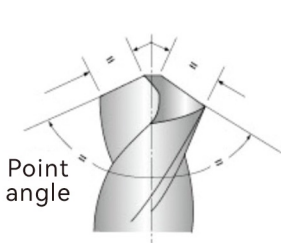


Figure 7

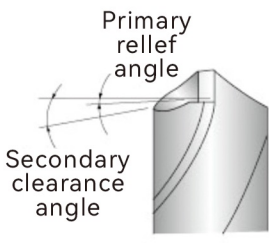


Figure 8



Figure 9

Upper limited value
Guide value
Lower limited value



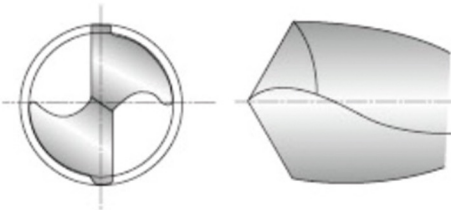
TECHNICAL STANDARDS

MAIN TECHNICAL CONDITIONS OF TWIST DRILL

WEB THINNING

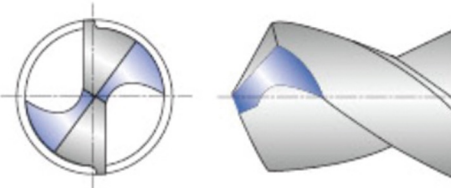
1 • Without thinning

Suitable for drill of general purpose.
Thanks to thin web thickness, web thinning is not need.
This without web thinning type is applied to design of drills for mild steel, alloy steels, castiron, stainless steel, titanium, inconel, etc. and conventional cutting conditons..



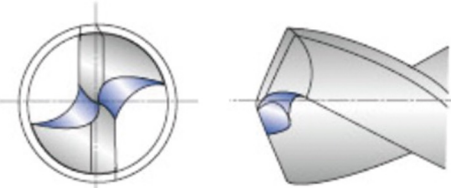
2 • Type C thinning (DIN1412 FORM C,SPLIT POINT)

Because Split point enables good centering when drilling and breaks the chips, chip removals is easy.Suitable for drill design in high hardened tough materials, i.e, heat treated steel, titanium alloy, stainless steel, in-coroey inconel, nimonic, etc.



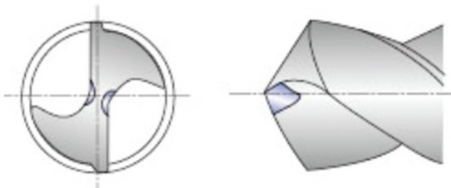
3 • Type R thinning (HELICAL THINNING)

Helical thinning ensure to frequent chip breaking and removal. The different direction force of cutting edges and helical thinning partsenables that chips curl, break and remove through the flutes.In addition helical thinningmakes the chip room up to center, remove the chisel and enables good centering.



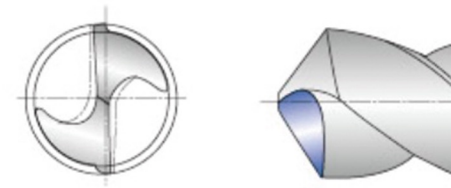
4 • Type A thinning (DIN1412 FORM A)

A type thinnings makes thin chisel, good chip removal and favorable centering..This type is the easiest type to grind the thinning.In narrow web and wide fluted drills keeping of the rigidity and smooth chip removaare possible.



5 • Type B thinning (DIN1412 FORM B)

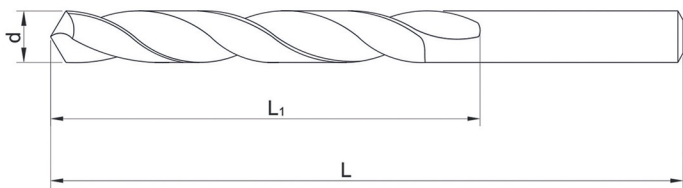
In case of work materials with low cutting resistance and good chip removal, ie, cast iron,aluminium, plastic etc,B type thinning issuitable.
Especially when drills for high hardended steels are designed, this type is applied todecrease rake angle and avoid chipping of cutting lips.



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

DIN338



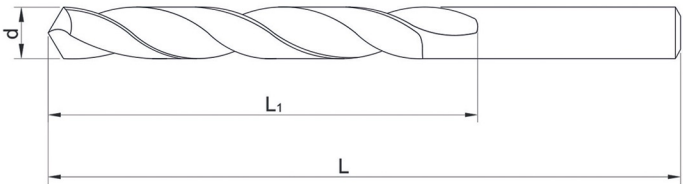
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0.22	19	2.5	2.05	49	24	6.3	101	63	11.5	142	94
0.25	19	3	2.1	49	24	6.4	101	63	11.6	142	94
0.28	19	3	2.15	53	27	6.5	101	63	11.7	142	94
0.3	19	3	2.2	53	27	6.6	101	63	11.8	142	94
0.32	19	4	2.25	53	27	6.7	101	63	11.9	151	101
0.35	19	4	2.3	53	27	6.8	109	69	12	151	101
0.38	19	4	2.35	53	27	6.9	109	69	12.1	151	101
0.4	20	5	2.4	57	30	7	109	69	12.2	151	101
0.42	20	5	2.45	57	30	7.1	109	69	12.3	151	101
0.45	20	5	2.5	57	30	7.2	109	69	12.4	151	101
0.48	20	5	2.55	57	30	7.3	109	69	12.5	151	101
0.5	22	6	2.6	57	30	7.4	109	69	12.6	151	101
0.52	22	6	2.65	57	30	7.5	109	69	12.7	151	101
0.55	24	7	2.7	61	33	7.6	117	75	12.8	151	101
0.58	24	7	2.75	61	33	7.7	117	75	12.9	151	101
0.6	24	7	2.8	61	33	7.8	117	75	13	151	101
0.62	26	8	2.85	61	33	7.9	117	75	13.1	151	101
0.65	26	8	2.9	61	33	8	117	75	13.2	151	101
0.68	28	9	2.95	61	33	8.1	117	75	13.3	160	108
0.7	28	9	3	61	33	8.2	117	75	13.4	160	108
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0.85	30	10	3.6	70	39	8.8	125	81	14	160	108
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1.5	40	18	5.2	86	52	10.4	133	87	18	191	130
1.55	43	20	5.3	86	52	10.5	133	87	18.25	198	135
1.6	43	20	5.4	93	57	10.6	133	87	18.5	198	135
1.65	43	20	5.5	93	57	10.7	142	94	18.75	198	135
1.7	43	20	5.6	93	57	10.8	142	94	19	198	135
1.75	46	22	5.7	93	57	10.9	142	94	19.25	205	140
1.8	46	22	5.8	93	57	11	142	94	19.5	205	140
1.85	46	22	5.9	93	57	11.1	142	94	19.75	205	140
1.9	46	22	6	93	57	11.2	142	94	20	205	140
1.95	49	24	6.1	101	63	11.3	142	94			



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

DIN340



mm

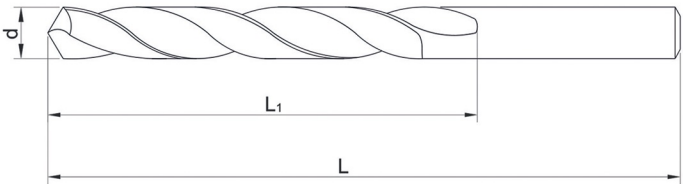
D	L1	L2	D	L1	L2	D	L1	L2	D	L1	L2
1	56	33	5.1	132	87	9.2	175	115	13.3	214	140
1.1	60	37	5.2	132	87	9.3	175	115	13.4	214	140
1.2	65	41	5.3	132	87	9.4	175	115	13.5	214	140
1.3	65	41	5.4	139	91	9.5	175	115	13.6	214	140
1.4	70	45	5.5	139	91	9.6	184	121	13.7	214	140
1.5	70	45	5.6	139	91	9.8	184	121	13.8	214	140
1.6	76	50	5.7	139	91	9.8	184	121	13.9	214	140
1.7	76	50	5.8	139	91	9.9	184	121	14	214	140
1.8	80	53	5.9	139	91	10	184	121	14.25	220	144
1.9	80	53	6	139	91	10.1	184	121	14.5	220	144
2	85	56	6.1	148	97	10.2	184	121	14.75	220	144
2.1	85	56	6.2	148	97	10.3	184	121	15	220	144
2.2	90	56	6.3	148	97	10.4	184	121	15.25	227	149
2.3	90	56	6.4	148	97	10.5	184	121	15.5	227	149
2.4	95	62	6.5	148	97	10.6	184	121	15.75	227	149
2.5	95	62	6.6	148	97	10.7	195	128	16	227	149
2.6	95	62	6.7	148	97	10.8	195	128	16.25	235	154
2.7	100	66	6.8	156	102	10.9	195	128	16.5	235	154
2.8	100	66	6.9	156	102	11	195	128	16.75	235	154
2.9	100	66	7	156	102	11.1	195	128	17	235	154
3	100	66	7.1	156	102	11.2	195	128	17.25	241	158
3.1	106	69	7.2	156	102	11.3	195	128	17.5	241	158
3.2	106	69	7.3	156	102	11.4	195	128	17.75	241	158
3.3	106	69	7.4	156	102	11.5	195	128	18	241	158
3.4	112	73	7.5	156	102	11.6	195	128	18.25	247	162
3.5	112	73	7.6	165	109	11.7	195	128	18.5	247	162
3.6	112	73	7.7	165	109	11.8	195	128	18.75	247	162
3.7	112	73	7.8	165	109	11.9	205	134	19	247	162
3.8	119	78	7.9	165	109	12	205	134	19.25	254	166
3.9	119	78	8	165	109	12.1	205	134	19.5	254	166
4	119	78	8.1	165	109	12.2	205	134	19.75	254	166
4.1	119	78	8.2	165	109	12.3	205	134	20	254	166
4.2	119	78	8.3	165	109	12.4	205	134			
4.3	1260	82	8.4	165	109	12.5	205	134			
4.4	126	82	8.5	165	109	12.6	205	134			
4.5	1261	82	8.6	175	115	12.7	205	134			
4.6	126	82	8.7	175	115	12.8	205	134			
4.7	126	82	8.8	175	115	12.9	205	134			
4.8	132	87	8.9	175	115	13	205	134			
4.9	132	87	9	175	115	13.1	205	134			
5	132	87	9.1	175	115	13.2	205	134			



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

DIN1897



mm

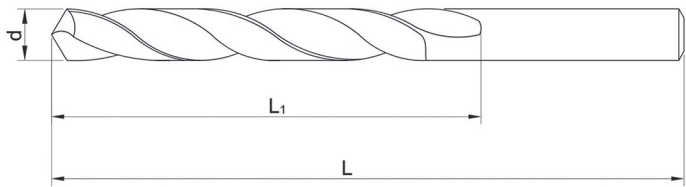
D	L1	L2	D	L1	L2	D	L1	L2	D	L1	L2
1	26	6	4.9	62	26	8.8	84	40	12.7	102	51
1.1	28	7	5	62	26	8.9	84	40	12.8	102	51
1.2	30	8	5.1	62	26	9	84	40	12.9	102	51
1.3	30	8	5.2	62	26	9.1	84	40	13	102	51
1.4	32	9	5.3	62	26	9.2	84	40	13.1	102	51
1.5	32	9	5.4	66	28	9.3	84	40	13.2	102	51
1.6	34	10	5.5	66	28	9.4	84	40	13.3	107	54
1.7	34	10	5.6	66	28	9.5	84	40	13.4	107	54
1.8	36	11	5.7	66	28	9.6	89	43	13.5	107	54
1.9	36	11	5.8	66	28	9.7	89	43	13.6	107	54
2	38	12	5.9	66	28	9.8	89	43	13.7	107	54
2.1	38	12	6	66	28	9.9	89	43	13.8	107	54
2.2	40	13	6.1	70	31	10	89	43	13.9	107	54
2.3	40	13	6.2	70	31	10.1	89	43	14	107	54
2.4	43	14	6.3	70	31	10.2	89	43	14.25	111	56
2.5	43	14	6.4	70	31	10.3	89	43	14.5	111	56
2.6	43	14	6.5	70	31	10.4	89	43	14.75	111	56
2.7	46	16	6.6	70	31	10.5	89	43	15	111	56
2.8	46	16	6.7	70	31	10.6	89	43	15.25	115	58
2.9	46	16	6.8	74	34	10.7	95	47	15.5	115	58
3	46	16	6.9	74	34	10.8	95	47	15.75	115	58
3.1	49	18	7	74	34	10.9	95	47	16	115	58
3.2	49	18	7.1	74	34	11	95	47	16.25	119	60
3.3	49	18	7.2	74	34	11.1	95	47	16.5	119	60
3.4	52	20	7.3	74	34	11.2	95	47	16.75	119	60
3.5	52	20	7.4	74	34	11.3	95	47	17	119	60
3.6	52	20	7.5	74	34	11.4	95	47	17.25	123	62
3.7	52	20	7.6	79	37	11.5	95	47	17.5	123	62
3.8	55	22	7.7	79	37	11.6	95	47	17.75	123	62
3.9	55	22	7.8	79	37	11.7	95	47	18	123	62
4	55	22	7.9	79	37	11.8	102	47	18.25	127	64
4.1	55	22	8	79	37	11.9	102	51	18.5	127	64
4.2	55	24	8.1	79	37	12	102	51	18.75	127	64
4.3	58	24	8.2	79	37	12.1	102	51	19	127	64
4.4	58	24	8.3	79	37	12.2	102	51	19.25	131	66
4.5	58	24	8.4	79	37	12.3	102	51	19.5	131	66
4.6	58	24	8.5	79	37	12.4	102	51	19.75	131	66
4.7	58	24	8.6	84	40	12.5	102	51	20	131	66
4.8	62	26	8.7	84	40	12.6	102	51			



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

ANSI B94.11M



Jobbers Length

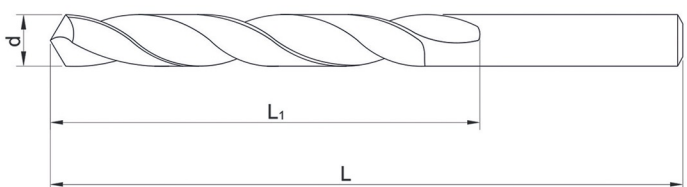
Diameter of Drill					Flute Length		Overall Length		
D				Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	No.	Ltr.	mm			Inch	mm	Inch	mm
3/64			1.00	0.0394	1.000	11/16	17	1 5/8	41
		60		0.0400	1.016	11/16	17	1 5/8	41
		59		0.0410	1.041	11/16	17	1 5/8	41
			1.05	0.0413	1.050	11/16	17	1 5/8	41
		58		0.0420	1.067	11/16	17	1 5/8	41
		57		0.0430	1.092	3/4	19	1 3/4	44
			1.10	0.0433	1.100	3/4	19	1 3/4	44
			1.15	0.0453	1.150	3/4	19	1 3/4	44
		56		0.0465	1.181	3/4	19	1 3/4	44
				0.0469	1.191	3/4	19	1 3/4	44
			1.20	0.0472	1.200	7/8	22	1 7/8	48
			1.25	0.0492	1.250	7/8	22	1 7/8	48
			1.30	0.0512	1.300	7/8	22	1 7/8	48
		55		0.0520	1.321	7/8	22	1 7/8	48
			1.35	0.0531	1.350	7/8	22	1 7/8	48
		54		0.0550	1.397	7/8	22	1 7/8	48
1/16			1.40	0.0551	1.400	7/8	22	1 7/8	48
			1.45	0.0571	1.450	7/8	22	1 7/8	48
			1.50	0.0591	1.500	7/8	22	1 7/8	48
		53		0.0595	1.511	7/8	22	1 7/8	48
			1.55	0.0610	1.550	7/8	22	1 7/8	48
				0.0625	1.588	7/8	22	1 7/8	48
			1.60	0.0630	1.600	7/8	22	1 7/8	48
		52		0.0635	1.613	7/8	22	1 7/8	48
			1.65	0.0650	1.650	1	25	2	51
			1.70	0.0669	1.700	1	25	2	51
		51		0.0670	1.702	1	25	2	51
			1.75	0.0689	1.750	1	25	2	51
		50		0.0700	1.778	1	25	2	51
			1.80	0.0709	1.800	1	25	2	51
			1.85	0.0728	1.850	1	25	2	51
		49		0.0730	1.859	1	25	2	51



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

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Jobbers Length

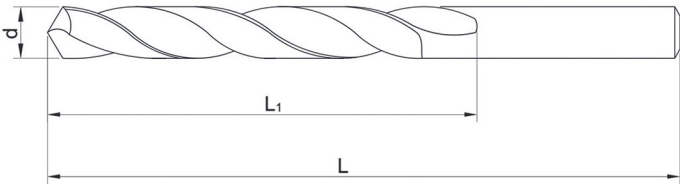
Diameter of Drill					Flute Length		Overall Length		
D				Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	No.	Ltr.	mm			Inch	mm	Inch	mm
5/64	48		1.90	0.0748	1.900	1	25	2	51
				0.0760	1.930	1	25	2	51
			1.95	0.0768	1.950	1	25	2	51
				0.0781	1.984	1	25	2	51
				0.0785	1.994	1	25	2	51
	46		2.00	0.0787	2.000	1	25	2	51
			2.05	0.0807	2.050	1 1/8	29	2 1/8	54
				0.0810	2.057	1 1/8	29	2 1/8	54
				0.0820	2.083	1 1/8	29	2 1/8	54
				0.0827	2.100	1 1/8	29	2 1/8	54
44		2.10	0.0827	2.100	1 1/8	29	2 1/8	54	
		2.15	0.0846	2.150	1 1/8	29	2 1/8	54	
			0.0860	2.184	1 1/8	29	2 1/8	54	
			0.0866	2.200	1 1/4	32	2 1/4	57	
			0.0886	2.250	1 1/4	32	2 1/4	57	
3/32	43			0.0890	2.261	1 1/4	32	2 1/4	57
			2.30	0.0906	2.300	1 1/4	32	2 1/4	57
			2.35	0.0925	2.350	1 1/4	32	2 1/4	57
				0.0935	2.375	1 1/4	32	2 1/4	57
				0.0938	2.383	1 1/4	32	2 1/4	57
	41		2.40	0.0945	2.400	1 3/8	35	2 3/8	60
				0.0960	2.438	1 3/8	35	2 3/8	60
			2.45	0.0965	2.450	1 3/8	35	2 3/8	60
				0.0980	2.489	1 3/8	35	2 3/8	60
				0.0984	2.500	1 3/8	35	2 3/8	60
7/64	38			0.0995	2.527	1 3/8	35	2 3/8	60
				0.1015	2.578	1 7/16	37	2 1/2	64
			2.60	0.1024	2.600	1 7/16	37	2 1/2	64
				0.1040	2.642	1 7/16	37	2 1/2	64
				0.1063	2.700	1 7/16	37	2 1/2	64
	36			0.1065	2.705	1 7/16	37	2 1/2	64
			2.70	0.1094	2.779	1 1/2	38	2 5/8	67
				0.1100	2.794	1 1/21	38	2 5/8	67
				0.1102	2.800	1 1/2	38	2 5/8	67
				0.1110	2.819	1 1/2	38	2 5/8	67
32			0.1130	2.870	1 1/2	38	2 5/8	67	
		2.90	0.1142	2.900	1 5/8	41	2 3/4	70	
			0.1160	2.946	1 5/8	41	2 3/4	70	
		3.00	0.1181	3.000	1 5/8	41	2 3/4	70	
			0.1200	3.048	1 5/8	41	2 3/4	70	
		3.10	0.1220	3.100	1 5/8	41	2 3/4	70	



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

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Jobbers Length

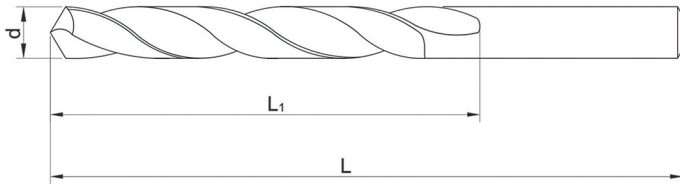
Diameter of Drill						Flute Length		Overall Length	
D				Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	No.	Ltr.	mm			Inch	mm	Inch	mm
1/8				0.1250	3.175	1 5/8	41	2 3/4	70
			3.20	0.1260	3.200	1 5/8	41	2 3/4	70
	30			0.1285	3.264	1 5/8	41	2 3/4	70
			3.30	0.1299	3.300	1 3/4	44	2 7/8	73
			3.40	0.1339	3.400	1 3/4	44	2 7/8	73
	29			0.1360	3.454	1 3/4	44	2 7/8	73
			3.50	0.1378	3.500	1 3/4	44	2 7/8	73
	28			0.1405	3.569	1 3/4	44	2 7/8	73
9/64				0.1406	3.571	1 3/4	44	2 7/8	73
			3.60	0.1417	3.600	1 7/8	48	2	76
	27			0.1440	3.658	1 7/8	48	3	76
			3.70	0.1457	3.700	1 7/8	48	3	76
	26			0.1470	3.734	1 7/8	48	3	76
	25			0.1495	3.797	1 7/8	48	3	76
			3.80	0.1496	3.800	1 7/8	48	3	76
	24			0.1520	3.861	2	51	3 1/8	79
			3.90	0.1535	3.900	2	51	3 1/8	79
	23			0.1540	3.912	2	51	3 1/8	79
5/32				0.1562	3.967	2	51	3 1/8	79
	22			0.1570	3.988	2	51	3 1/8	79
			4.00	0.1575	4.000	2 1/8	54	3 1/4	83
	21			0.1590	4.039	2 1/8	54	3 1/4	83
	20			0.1610	4.089	2 1/8	54	3 1/4	83
			4.10	0.1614	4.100	2 1/8	54	3 1/4	83
			4.20	0.1654	4.200	2 1/8	54	3 1/4	83
	19			0.1660	4.216	2 1/8	54	3 1/4	83
			4.30	0.1693	4.300	2 1/8	54	3 1/4	83
	18			0.1695	4.305	2 1/8	54	3 1/4	83
11/64				0.1719	4.366	2 1/8	54	3 1/4	83
	17			0.1730	4.394	2 3/16	56	3 3/8	86
			4.40	0.1732	4.400	2 3/16	56	3 3/8	86
	16			0.1770	4.496	2 3/16	56	3 3/8	86
			4.50	0.1772	4.500	2 3/16	56	3 3/8	86
	15			0.1800	4.572	2 3/16	56	3 3/8	86
			4.60	0.1811	4.600	2 3/16	56	3 3/8	86
	14			0.1820	4.623	2 3/16	56	3 3/8	86
	13			0.1850	4.700	2 5/16	59	3 1/2	89
3/16				0.1875	4.762	2 5/16	59	3 1/2	89
	12			0.1890	4.800	2 5/16	59	3 1/2	89
	11			0.1910	4.851	2 5/16	59	3 1/2	89



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

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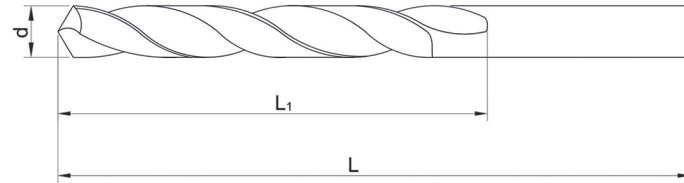


Jobbers Length

Diameter of Drill						Flute Length		Overall Length	
D				Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	No.	Ltr.	mm			Inch	mm	Inch	mm
			4.90	0.1929	4.900	2 7/16	62	3 5/8	92
	10			0.1935	4.915	2 7/16	62	3 5/8	92
	9			0.1960	4.978	2 7/16	62	3 5/8	92
			5.00	0.1969	5.000	2 7/16	62	3 5/8	92
	8			0.1990	5.054	2 7/16	62	3 5/8	92
			5.10	0.2008	5.100	2 7/16	62	3 5/8	92
	7			0.2010	5.105	2 7/16	62	3 5/8	92
13/64				0.2031	5.159	2 7/16	62	3 5/8	92
	6			0.2040	5.182	2 1/2	64	3 3/4	95
			5.20	0.2047	5.200	2 1/2	64	3 3/4	95
	5			0.2055	5.220	2 1/2	64	3 3/4	95
			5.30	0.2087	5.300	2 1/2	64	3 3/4	95
	4			0.2090	5.309	2 1/2	64	3 3/4	95
			5.40	0.2126	5.400	2 1/2	64	3 3/4	95
	3			0.2130	5.410	2 1/2	64	3 3/4	95
			5.50	0.2165	5.500	2 1/2	64	3 3/4	95
7/32				0.2188	5.558	2 1/2	64	3 3/4	95
			5.60	0.2205	5.600	2 5/8	67	3 7/8	98
	2			0.2210	5.613	2 5/8	67	3 7/8	98
			5.70	0.2244	5.700	2 5/8	67	3 7/8	98
	1			0.2280	5.791	2 5/8	67	3 7/8	98
			5.80	0.2283	5.800	2 5/8	67	3 7/8	98
			5.90	0.2323	5.900	2 5/8	67	3 7/8	98
	A			0.2340	5.944	2 5/8	67	3 7/8	98
15/64				0.2344	5.954	2 5/8	67	3 7/8	98
			6.00	0.2362	6.000	2 3/4	70	4	102
	B			0.2380	6.045	2 3/4	70	4	102
			6.10	0.2402	6.100	2 3/4	70	4	102
	C			0.2420	6.147	2 3/4	70	4	102
			6.20	0.2441	6.200	2 3/4	70	4	102
	D			0.2460	6.248	2 3/4	70	4	102
			6.30	0.2480	6.300	2 3/4	70	4	102
1/4				0.2500	6.350	2 3/4	70	4	102
	E			0.2520	6.400	2 7/8	73	4 1/8	105
			6.40	0.2520	6.400	2 7/8	73	4 1/8	105
			6.50	0.2559	6.500	2 7/8	73	4 1/8	105
	F			0.2570	6.528	2 7/8	73	4 1/8	105
			6.60	0.2598	6.600	2 7/8	73	4 1/8	105
	G			0.2610	6.629	2 7/8	73	4 1/8	105
			6.70	0.2638	6.700	2 7/8	73	4 1/8	105
17/64				0.2656	6.746	2 7/8	73	4 1/8	105

HSS STRAIGHT SHANK TWIST DRILLS

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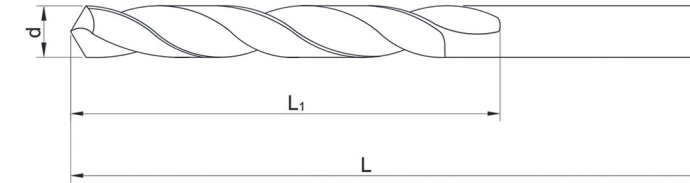
Jobbers Length

Diameter of Drill					Flute Length		Overall Length		
D				Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	No.	Ltr.	mm			Inch	mm	Inch	mm
9/32	H			0.2660	6.756	2 7/8	73	4 1/8	105
			6.80	0.2677	6.800	2 7/8	73	4 1/8	105
			6.90	0.2717	6.900	2 7/8	73	4 1/8	105
	I			0.2720	6.909	2 7/8	73	4 1/8	105
			7.00	0.2756	7.000	2 7/8	73	4 1/8	105
	J			0.2770	7.036	2 7/8	73	4 1/8	105
			7.10	0.2795	7.100	2 15/16	75	4 1/4	108
	K			0.2810	7.137	2 15/16	75	4 1/4	108
				0.2812	7.142	2 15/16	75	4 1/4	108
			7.20	0.2835	7.200	2 15/16	75	4 1/4	108
19/64	L			0.2874	7.300	2 15/16	75	4 1/4	108
				0.2900	7.366	2 15/16	75	4 1/4	108
			7.40	0.2913	7.400	3 1/16	78	4 3/8	111
	M			0.2950	7.493	3 1/16	78	4 3/8	111
			7.50	0.2953	7.500	3 1/16	78	4 3/8	111
	M			0.2969	7.541	3 1/16	78	4 3/8	111
			7.60	0.2992	7.600	3 1/16	78	4 3/8	111
	N			0.3020	7.671	3 1/16	78	4 3/8	111
			7.70	0.3031	7.700	3 3/16	81	4 1/2	114
			7.80	0.3071	7.800	3 3/16	81	4 1/2	114
5/16				0.3110	7.900	3 3/16	81	4 1/2	114
				0.3125	7.938	3 3/16	81	4 1/2	114
			8.00	0.3150	8.000	3 3/16	81	4 1/2	114
	O			0.3160	8.026	3 3/16	81	4 1/2	114
			8.10	0.3189	8.100	3 5/16	84	4 5/8	117
	P			0.3228	8.200	3 5/16	84	4 5/8	117
				0.3230	8.204	3 5/16	84	4 5/8	117
			8.30	0.3268	8.300	3 5/16	84	4 5/8	117
	21/64			0.3281	8.334	3 5/16	84	4 5/8	117
			8.40	0.3307	8.400	3 7/16	87	4 3/4	121
Q				0.3320	8.433	3 7/16	87	4 3/4	121
		8.50	0.3346	8.500	3 7/16	87	4 3/4	121	
		8.60	0.3386	8.600	3 7/16	87	4 3/4	121	
11/32	R			0.3390	8.611	3 7/16	87	4 3/4	121
			8.70	0.3425	8.700	3 7/16	87	4 3/4	121
				0.3438	8.733	3 7/16	87	4 3/4	121
	S		8.80	0.3465	8.800	3 1/2	89	4 7/8	124
				0.3480	8.839	3 1/2	89	4 7/8	124
			8.90	0.3504	8.900	3 1/2	89	4 7/8	124
				0.3543	9.000	3 1/2	89	4 7/8	124
			9.00						

TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

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Jobbers Length

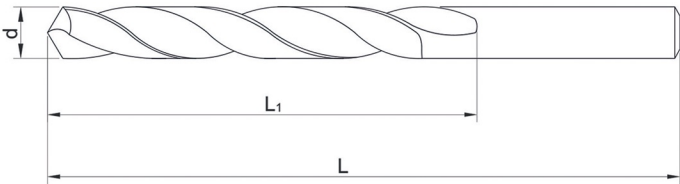
Diameter of Drill					Flute Length		Overall Length				
D				Decimal Inch Equivalent	Millimeter Equivalent	L2		L1			
Fraction	No.	Ltr.	mm			Inch	mm	Inch	mm		
23/64	T			0.3580	9.093	3 1/2	89	4 7/8	124		
			9.10	0.3583	9.100	3 1/2	89	4 7/8	124		
				0.3594	9.129	3 1/2	89	4 7/8	124		
			9.20	0.3622	9.200	3 5/8	92	5	127		
			9.30	0.3661	9.300	3 5/8	92	5	127		
3/8	U			0.3680	9.347	3 5/8	92	5	127		
			9.40	0.3701	9.400	3 5/8	92	5	127		
			9.50	0.3740	9.500	3 5/8	92	5	127		
				0.3750	9.525	3 5/8	92	5	127		
				0.3770	9.576	3 5/8	92	5	130		
	V		9.60	0.3780	9.600	3 3/4	95	5 1/8	130		
			9.70	0.3819	9.700	3 3/4	95	5 1/8	130		
			9.80	0.3858	9.800	3 3/4	95	5 1/8	130		
			25/64	W		0.3860	9.804	3 3/4	95	5 1/8	130
					9.90	0.3898	9.000	3 3/4	95	5 1/8	130
	0.3906	9.921			3 3/4	95	5 1/8	130			
10.00	0.3937	10.000			3 3/4	95	5 1/8	130			
	X					0.3970	10.084	3 3/4	95	5 1/8	133
			10.20	0.4016	10.200	3 7/8	98	5 1/4	133		
			13/32	Y		0.4090	10.262	3 7/8	98	5 1/4	133
						0.4062	10.317	3 7/8	98	5 1/4	133
					27/64	Z		0.4130	10.490	3 7/8	98
10.50	0.4134	10.500					3 7/8	98	5 1/4	137	
	0.4219	10.716					3 15/16	100	5 3/8	140	
10.80	0.4252	10.800	4 1/16	103			5 1/20	140			
11.00	0.4331	11.000	4 1/16	103			5 1/21	140			
7/16				0.4375	11.112	4 1/16	103	5 1/2	143		
			11.20	0.4409	11.200	4 3/16	106	5 5/8	143		
			11.50	0.4528	11.500	4 3/16	106	5 5/8	143		
			29/64			0.4531	11.509	4 3/16	106	5 5/8	146
					11.80	0.4646	11.800	4 5/16	110	5 3/4	146
	0.4688	11.908			4 5/16	110	5 3/4	149			
12.00	0.4724	12.000			4 3/8	111	5 7/8	149			
12.20	0.4803	12.200			4 3/8	111	5 7/8	149			
31/64				0.4844	12.304	4 3/8	111	5 7/8	152		
			12.50	0.4921	12.500	4 1/2	114	6	152		
			1/2			0.5000	12.700	4 1/2	114	6	152
					12.80	0.5039	12.800	4 1/2	114	6	152
					13.00	0.5118	13.000	4 1/2	114	6	152
33/64					0.5156	13.096	4 13/16	122	6 5/8	168	



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

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Jobbers Length

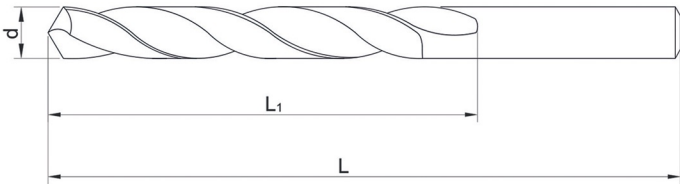
Diameter of Drill					Flute Length		Overall Length		
D				Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	No.	Ltr.	mm			Inch	mm	Inch	mm
17/32			13.20	0.5197	13.200	4 13/16	122	6 5/8	168
				0.5312	13.492	4 13/16	122	6 5/8	168
			13.50	0.5315	13.500	4 13/16	122	6 5/8	168
35/64			13.80	0.5433	13.800	4 13/16	122	6 5/8	168
				0.5469	13.891	4 13/16	122	6 5/8	168
			14.00	0.5512	14.000	4 13/16	122	6 5/8	168
9/16			14.25	0.5610	14.250	4 13/16	122	6 5/8	168
				0.5625	14.288	4 13/16	122	6 5/8	168
			14.50	0.5709	14.500	4 13/16	122	6 5/8	168
37/64				0.5781	14.684	4 13/16	122	6 5/8	168
			14.75	0.5807	14.750	5 3/16	132	7 1/8	181
			15.00	0.5906	15.000	5 3/16	132	7 1/8	181
19/32				0.5938	15.083	5 3/16	132	7 1/8	181
			15.25	0.6004	15.250	5 3/16	132	7 1/8	181
				0.6094	15.479	5 3/16	132	7 1/8	181
39/64			15.50	0.6102	15.500	5 3/16	132	7 1/8	181
			15.75	0.6201	15.750	5 3/16	132	7 1/8	181
				0.6250	15.875	5 3/16	132	7 1/8	181
5/8			16.00	0.6299	16.000	5 3/16	132	7 1/8	181
			16.25	0.6398	16.250	5 3/16	132	7 1/8	181
				0.6406	16.271	5 3/16	132	7 1/8	181
41/64			16.50	0.6496	16.500	5 3/16	132	7 1/8	181
				0.6562	16.667	5 3/16	132	7 1/8	181
			16.75	0.6594	16.750	5 5/8	143	7 5/8	194
43/64			17.00	0.6693	17.000	5 5/8	143	7 5/8	194
				0.6719	17.066	5 5/8	143	7 5/8	194
			17.25	0.6791	17.250	5 5/8	143	7 5/8	194
11/16				0.6875	17.462	5 5/8	143	7 5/8	194
			17.50	0.6890	17.500	5 5/8	143	7 5/8	194



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

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Taper Length

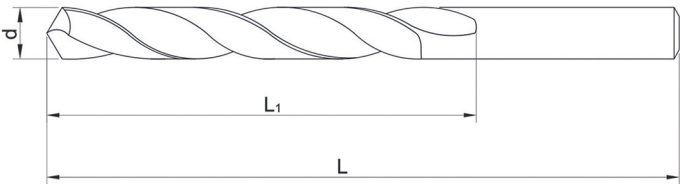
Diameter of Drill					Flute Length		Overall Length		
D			Decimal Inch Equivalent	Millimeter Equivalent	L2		L1		
Fraction	No.	mm			Inch	mm	Inch	mm	
3/64	60	1.00	0.0394	1.000	1 1/8	29	2 1/4	57	
			0.0400	1.016	1 1/8	29	2 1/4	57	
		59		0.0410	1.041	1 1/8	29	2 1/4	57
			1.05	0.0413	1.050	1 1/8	29	2 1/4	57
	58		0.0420	1.067	1 1/8	29	2 1/4	57	
		57		0.0430	1.092	1 1/8	29	2 1/4	57
	56		1.10	0.0433	1.100	1 1/8	29	2 1/4	57
			1.15	0.0453	1.150	1 1/8	29	2 1/4	57
				0.0465	1.181	1 1/8	29	2 1/4	57
				0.0469	1.191	1 1/8	29	2 1/4	57
	55		1.20	0.0472	1.200	1 3/4	44	3	76
			1.25	0.0492	1.250	1 3/4	44	3	76
			1.30	0.0512	1.300	1 3/4	44	3	76
				0.0520	1.321	1 3/4	44	3	76
	54		1.35	0.0531	1.350	1 3/4	44	3	76
				0.0550	1.397	1 3/4	44	3	76
			1.40	0.0551	1.400	1 3/4	44	3	76
			1.45	0.0571	1.450	1 3/4	44	3	76
	53		1.50	0.0591	1.500	1 3/4	44	3	76
				0.0595	1.511	1 3/4	44	3	76
1/16			1.55	0.0610	1.550	1 3/4	44	3	76
				0.0625	1.588	1 3/4	44	3	76
52		1.60	0.0630	1.600	2	51	3 3/4	95	
			0.0635	1.613	2	51	3 3/4	95	
		1.65	0.0650	1.650	2	51	3 3/4	95	
		1.70	0.0660	1.700	2	51	3 3/4	95	
			0.0670	1.702	2	51	3 3/4	95	
	51		1.75	0.0689	1.750	2	51	3 3/4	95
				0.0700	1.778	2	51	3 3/4	95
	50	1.80	0.0709	1.800	2	51	3 3/4	95	



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

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Taper Length

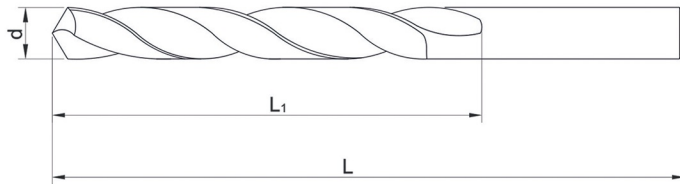
Diameter of Drill					Flute Length		Overall Length	
D			Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	No.	mm			Inch	mm	Inch	mm
	49	1.85	0.0728	1.850	2	51	3 3/4	95
			0.0730	1.854	2	51	3 3/4	95
		1.90	0.0748	1.900	2	51	3 3/4	95
	48		0.0760	1.930	2	51	3 3/4	95
		1.95	0.0768	1.950	2	51	3 3/4	95
			0.0781	1.984	2	51	3 3/4	95
5/64	47		0.0785	1.994	2 1/4	57	4 1/4	108
		2.00	0.0787	2.000	2 1/4	57	4 1/4	108
		2.05	0.0807	2.050	2 1/4	57	4 1/4	108
	46		0.0810	2.057	2 1/4	57	4 1/4	108
			0.0820	2.083	2 1/4	57	4 1/4	108
		2.10	0.0827	2.100	2 1/4	57	4 1/4	108
	44	2.15	0.0846	2.150	2 1/4	57	4 1/4	108
			0.0860	2.184	2 1/4	57	4 1/4	108
		2.20	0.0866	2.200	2 1/4	57	4 1/4	108
	43	2.25	0.0886	2.250	2 1/4	57	4 1/4	108
			0.0890	2.261	2 1/4	57	4 1/4	108
		2.30	0.0906	2.300	2 1/4	57	4 1/4	108
	42	2.35	0.0925	2.350	2 1/4	57	4 1/4	108
			0.0935	2.375	2 1/4	57	4 1/4	108
			0.0938	2.383	2 1/4	57	4 1/4	108
3/32	41	2.40	0.0945	2.400	2 1/2	64	4 5/8	117
			0.0960	2.438	2 1/2	64	4 5/8	117
		2.45	0.0965	2.450	2 1/2	64	4 5/8	117
	40		0.0980	2.489	2 1/2	64	4 5/8	117
		2.50	0.0984	2.500	2 1/2	64	4 5/8	117
			0.0995	2.527	2 1/2	64	4 5/8	117
	39		0.1015	2.578	2 1/2	64	4 5/8	117
		2.60	0.1024	2.600	2 1/2	64	4 5/8	117
			0.1040	2.642	2 1/2	64	4 5/8	117
	37	2.70	0.1063	2.700	2 1/2	64	4 5/8	117
			0.1065	2.705	2 1/2	64	4 5/8	117
			0.1094	2.779	2 1/2	64	4 5/8	117
7/64	35		0.1100	2.794	2 3/4	70	5 1/8	130
		2.80	0.1102	2.800	2 3/4	70	5 1/8	130
			0.1110	2.819	2 3/4	70	5 1/8	130
	33		0.1130	2.870	2 3/4	70	5 1/8	130
		2.90	0.1142	2.900	2 3/4	70	5 1/8	130
			0.1160	2.946	2 3/4	70	5 1/8	130
	32	3.00	0.1181	3.000	2 3/4	70	5 1/8	130



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

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Taper Length

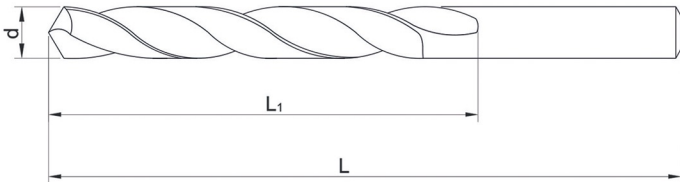
Diameter of Drill					Flute Length		Overall Length	
D			Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	No.	mm			Inch	mm	Inch	mm
	31		0.1200	3.048	2 3/4	70	5 1/8	130
		3.10	0.1220	3.100	2 3/4	70	5 1/8	130
			0.1250	3.175	2 3/4	70	5 1/8	130
1/8	30	3.20	0.1260	3.200	3	76	5 3/8	137
			0.1285	3.264	3	76	5 3/8	137
		3.30	0.1299	3.300	3	76	5 3/8	137
	29	3.40	0.1339	3.400	3	76	5 3/8	137
			0.1360	3.464	3	76	5 3/8	137
		3.50	0.1378	3.500	3	76	5 3/8	137
9/64	28		0.1405	3.569	3	76	5 3/8	137
			0.1406	3.571	3	76	5 3/8	137
		3.60	0.1417	3.600	3	76	5 3/8	137
	27		0.1440	3.658	3	76	5 3/8	137
		3.70	0.1457	3.700	3	76	5 3/8	137
			0.1470	3.734	3	76	5 3/8	137
	25		0.1495	3.797	3	76	5 3/8	137
		3.80	0.1496	3.800	3	76	5 3/8	137
			0.1520	3.861	3	76	5 3/8	137
	24	3.90	0.1535	3.900	3	76	5 3/8	137
			0.1540	3.912	3 3/8	76	5 3/8	137
			0.1562	3.967	3 3/8	76	5 3/8	137
5/32	22		0.1570	3.988	3 3/8	86	5 3/4	146
		4.00	0.1575	4.000	3 3/8	86	5 3/4	146
			0.1590	4.039	3 3/8	86	5 3/4	146
	20		0.1610	4.089	3 3/8	86	5 3/4	146
		4.10	0.1614	4.100	3 3/8	86	5 3/4	146
		4.20	0.1654	4.200	3 3/8	86	5 3/4	146
	19		0.1660	4.216	3 3/8	86	5 3/4	146
		4.30	0.1693	4.300	3 3/8	86	5 3/4	146
			0.1695	4.305	3 3/8	86	5 3/4	146
11/64	18		0.1719	4.366	3 3/8	86	5 3/4	146
			0.1730	4.394	3 3/8	86	5 3/4	146
		4.40	0.1732	4.400	3 3/8	86	5 3/4	146
	16		0.1770	4.496	3 3/8	86	5 3/4	146
		4.50	0.1772	4.500	3 3/8	86	5 3/4	146
			0.1800	4.572	3 3/8	86	5 3/4	146
	15		0.1811	4.600	3 3/8	86	5 3/4	146
		4.60	0.1820	4.623	3 3/8	86	5 3/4	146
			0.1850	4.700	3 3/8	86	5 3/4	146
3/16	13	4.70	0.1875	4.762	3 3/8	86	5 3/4	146



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

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Taper Length

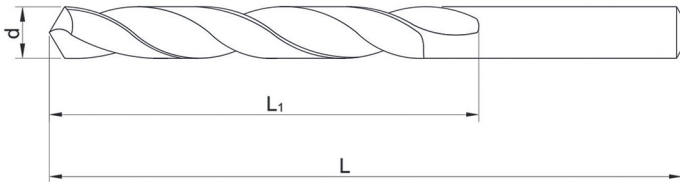
Diameter of Drill					Flute Length		Overall Length	
D			Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	No.	mm			Inch	mm	Inch	mm
	12	4.80	0.1890	4.800	3 5/8	92	6	152
	11		0.1910	4.851	3 5/8	92	6	152
		4.90	0.1929	4.900	3 5/8	92	6	152
	10		0.1935	4.915	3 5/8	92	6	152
	9		0.1960	4.978	3 5/8	92	6	152
		5.00	0.1969	5.000	3 5/8	92	6	152
	8		0.1990	5.054	3 5/8	92	6	152
		5.10	0.2008	5.100	3 5/8	92	6	152
	7		0.2010	5.105	3 5/8	92	6	152
13/64			0.2031	5.159	3 5/8	92	6	152
	6		0.2040	5.182	3 5/8	92	6	152
		5.20	0.2047	5.200	3 5/8	92	6	152
	5		0.2055	5.220	3 5/8	92	6	152
		5.30	0.2087	5.300	3 5/8	92	6	152
	4		0.2090	5.309	3 5/8	92	6	152
		5.40	0.2126	5.400	3 5/8	92	6	152
	3		0.2130	5.410	3 5/8	92	6	152
		5.50	0.2165	5.500	3 5/8	92	6	152
7/32			0.2188	5.558	3 5/8	92	6	152
		5.60	0.2205	5.600	3 3/4	95	6 1/8	156
	2		0.2210	5.613	3 3/4	95	6 1/8	156
		5.70	0.2244	5.700	3 3/4	95	6 1/8	156
	1		0.2280	5.791	3 3/4	95	6 1/8	156
		5.80	0.2283	5.800	3 3/4	95	6 1/8	156
		5.90	0.2323	5.900	3 3/4	95	6 1/8	156
15/64			0.2344	5.954	3 3/4	95	6 1/8	156
		6.00	0.2362	6.000	3 3/4	95	6 1/8	156
		6.10	0.2402	6.100	3 3/4	95	6 1/8	156
		6.20	0.2441	6.200	3 3/4	95	6 1/8	156
		6.30	0.2480	6.300	3 3/4	95	6 1/8	156
1/4			0.2500	6.350	3 3/4	95	6 1/8	156
		6.40	0.2520	6.400	3 7/8	98	6 1/4	159
		6.50	0.2559	6.500	3 7/8	98	6 1/4	159
17/64			0.2656	6.746	3 7/8	98	6 1/4	159
		6.80	0.2677	6.800	3 7/8	98	6 1/4	159
		7.00	0.2756	7.000	3 7/8	98	6 1/4	159
9/32			0.2812	7.142	3 7/8	98	6 1/4	159
		7.20	0.2835	7.200	4	102	6 3/8	162
		7.50	0.2953	7.500	4	102	6 3/8	162
19/64			0.2969	7.541	4	102	6 3/8	162



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

ANSIB94.11M



Taper Length

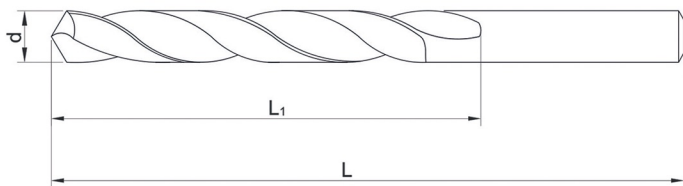
Diameter of Drill					Flute Length		Overall Length	
D			Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	No.	mm			Inch	mm	Inch	mm
		7.80	0.3071	7.800	4	102	6 3/8	162
5/16			0.3125	7.938	4	102	6 3/8	162
		8.00	0.3150	8.000	4 1/8	105	6 1/2	165
		8.20	0.3228	8.200	4 1/8	105	6 1/2	165
21/64			0.3281	8.334	4 1/8	105	6 1/2	165
		8.50	0.3346	8.500	4 1/8	105	6 1/2	165
11/32			0.3438	8.733	4 1/8	105	6 1/2	165
		8.80	0.3465	8.800	4 1/4	108	6 3/4	171
		9.00	0.3543	9.000	4 1/4	108	6 3/4	171
23/64			0.3594	9.129	4 1/4	108	6 3/4	171
		9.20	0.3622	9.200	4 1/4	108	6 3/4	171
		9.50	0.3740	9.500	4 1/4	108	6 3/4	171
3/8			0.3750	9.525	4 1/4	108	6 3/4	171
		9.80	0.3858	9.800	4 3/8	111	7	178
25/64			0.3906	9.921	4 3/8	111	7	178
		10.00	0.3937	10.000	4 3/8	111	7	178
		10.20	0.4016	10.200	4 3/8	111	7	178
13/32			0.4062	10.317	4 3/8	111	7	178
		10.50	0.4134	10.500	4 5/8	117	7 1/4	184
27/64			0.4219	10.716	4 5/8	117	7 1/4	184
		10.80	0.4252	10.800	4 5/8	117	7 1/4	184
		11.00	0.4331	11.000	4 5/8	117	7 1/4	184
7/16			0.4375	11.112	4 5/8	117	7 1/4	184
		11.20	0.4409	11.200	4 3/4	121	7 1/2	190
		11.50	0.4528	11.500	4 3/4	121	7 1/2	190
29/64			0.4531	11.509	4 3/4	121	7 1/2	190
		11.80	0.4646	11.800	4 3/4	121	7 1/2	190
15/32			0.4688	11.908	4 3/4	121	7 1/2	190
		12.00	0.4724	12.000	4 3/4	121	7 3/4	197
		12.20	0.4803	12.200	4 3/4	121	7 3/4	197
31/64			0.4844	12.304	4 3/4	121	7 3/4	197
		12.50	0.4921	12.500	4 3/4	121	7 3/4	197
1/2			0.5000	12.700	4 3/4	121	7 3/4	197



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

ANSI B94.11M



Screw Machine Length

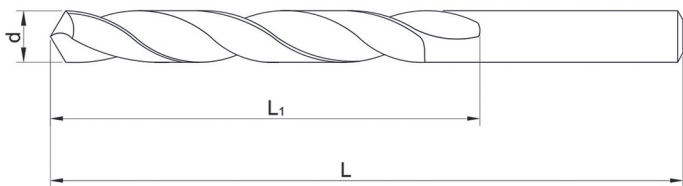
Diameter of Drill					Flute Length		Overall Length	
D			Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	Ltr.	mm			Inch	mm	Inch	mm
F		6.40	0.2520	6.400	1 7/16	37	2 5/8	67
		6.50	0.2559	6.500	1 7/16	37	2 5/8	67
			0.2570	6.528	1 7/16	37	2 5/8	67
		6.60	0.2598	6.600	1 7/16	37	2 5/8	67
			0.2610	6.629	1 7/16	37	2 5/8	67
G		6.70	0.2638	6.700	1 7/16	37	2 5/8	67
			0.2656	6.746	1 7/16	37	2 5/8	67
			0.2660	6.756	1 1/2	38	2 11/16	68
H		6.80	0.2677	6.800	1 1/2	38	2 11/16	68
		6.90	0.2717	6.900	1 1/2	38	2 11/16	68
			0.2720	6.909	1 1/2	38	2 11/16	68
I		7.00	0.2756	7.000	1 1/2	38	2 11/16	68
			0.2770	7.036	1 1/2	38	2 11/16	68
		7.10	0.2795	7.100	1 1/2	38	2 11/16	68
J			0.2810	7.137	1 1/2	38	2 11/16	68
			0.2812	7.142	1 1/2	38	2 11/16	68
		7.20	0.2835	7.200	1 9/16	40	2 3/4	70
K		7.30	0.2874	7.300	1 9/16	40	2 3/4	70
			0.2900	7.366	1 9/16	40	2 3/4	70
		7.40	0.2913	7.400	1 9/16	40	2 3/4	70
L			0.2950	7.493	1 9/16	40	2 3/4	70
		7.50	0.2953	7.500	1 9/16	40	2 3/4	70
			0.2969	7.541	1 9/16	40	2 3/4	70
M		7.60	0.2992	7.600	1 5/8	41	2 13/16	71
			0.3020	7.671	1 5/8	41	2 13/16	71
		7.70	0.3031	7.700	1 5/8	41	2 13/16	71
N		7.80	0.3071	7.800	1 5/8	41	2 13/16	71
		7.90	0.3110	7.900	1 5/8	41	2 13/16	71
			0.3125	7.938	1 5/8	41	2 13/16	71
O			0.3150	8.000	1 11/16	43	2 15/16	75
		8.00	0.3160	8.026	1 11/16	43	2 15/16	75
			0.3189	8.100	1 11/16	43	2 15/16	75
P		8.10	0.3189	8.100	1 11/16	43	2 15/16	75
		8.20	0.3228	8.200	1 11/16	43	2 15/16	75
			0.3230	8.204	1 11/16	43	2 15/16	75
Q		8.30	0.3268	8.300	1 11/16	43	2 15/16	75
			0.3281	8.334	1 11/16	43	2 15/16	75
		8.40	0.3307	8.400	1 11/16	43	3	76
R			0.3320	8.433	1 11/16	43	3	76
		8.50	0.3346	8.500	1 11/16	43	3	76
		8.60	0.3386	8.600	1 11/16	43	3	76



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

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Screw Machine Length

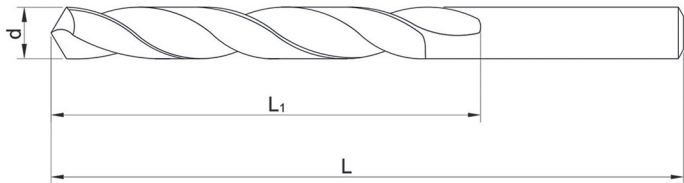
Diameter of Drill					Flute Length		Overall Length	
D			Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	Ltr.	mm			Inch	mm	Inch	mm
11/32	R	8.70	0.3390	8.611	1 11/16	43	3	77
			0.3425	8.700	1 11/16	43	3	77
			0.3438	8.733	1 11/16	43	3	77
		8.80	0.3465	8.800	1 3/4	44	3 1/16	78
			0.3480	8.839	1 3/4	44	3 1/16	78
23/64	S	8.90	0.3504	8.900	1 3/4	44	3 1/16	78
			0.3543	9.000	1 3/4	44	3 1/16	78
		9.00	0.3580	9.093	1 3/4	44	3 1/16	78
3/8	T		0.3583	9.100	1 3/4	44	3 1/16	78
			0.3594	9.129	1 3/4	44	3 1/16	78
		9.20	0.3622	9.200	1 13/16	46	3 1/8	79
25/64	U		0.3661	9.300	1 13/16	46	3 1/8	79
			0.3680	9.347	1 13/16	46	3 1/8	79
		9.40	0.3701	9.400	1 13/16	46	3 1/8	79
13/32	V		0.3740	9.500	1 13/16	46	3 1/8	79
			0.3750	9.525	1 13/16	46	3 1/8	79
		9.60	0.3770	9.576	1 7/8	48	3 1/4	83
27/64	W		0.3780	9.600	1 7/8	48	3 1/4	83
			0.3819	9.700	1 7/8	48	3 1/4	83
		9.80	0.3858	9.800	1 7/8	48	3 1/4	83
7/16	X		0.3860	9.804	1 7/8	48	3 1/4	83
			0.3898	9.900	1 7/8	48	3 1/4	83
		9.90	0.3906	9.921	1 7/8	48	3 1/4	83
15/32	Y	10.00	0.3937	10.000	1 15/16	49	3 5/16	84
			0.3970	10.084	1 15/16	49	3 5/16	84
		10.20	0.4016	10.200	1 15/16	49	3 5/16	84
29/64	Z		0.4040	10.262	1 15/16	49	3 5/16	84
			0.4062	10.320	1 15/16	49	3 5/16	84
		10.50	0.4130	10.490	2	51	3 3/8	86
15/16			0.4134	10.500	2	51	3 3/8	86
			0.4219	10.716	2	51	3 3/8	86
		10.80	0.4252	10.800	2 1/16	52	3 7/16	87
31/64			0.4331	11.000	2 1/16	52	3 7/16	87
			0.4375	11.112	2 1/16	52	3 7/16	87
		11.20	0.4409	11.200	2 1/8	54	3 9/16	90
33/64			0.4528	11.500	2 1/8	54	3 9/16	90
			0.4531	11.509	2 1/8	54	3 9/16	90
		11.80	0.4646	11.800	2 1/8	54	3 5/8	92
1			0.4688	11.908	2 1/8	54	3 5/8	92
		12.00	0.4724	12.000	2 3/16	56	3 11/16	94



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

ANSI B94.11M



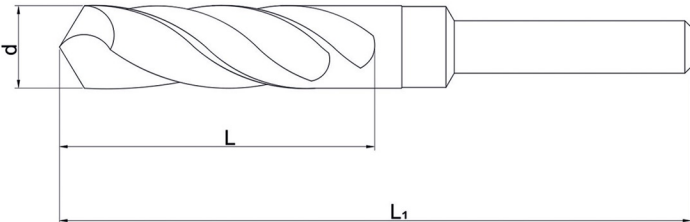
Screw Machine Length

Diameter of Drill					Flute Length		Overall Length	
D			Decimal Inch Equivalent	Millimeter Equivalent	L2		L1	
Fraction	Ltr.	mm			Inch	mm	Inch	mm
31/64		12.20	0.4803	12.200	2 3/16	56	3 11/16	94
			0.4844	12.304	2 3/16	56	3 11/16	94
1/2		12.50	0.4921	12.500	2 1/4	57	3 3/4	95
			0.5000	12.700	2 1/4	57	3 3/4	95
33/64		12.80	0.5039	12.800	2 3/8	60	3 7/8	98
		13.00	0.5118	13.000	2 3/8	60	3 7/8	98
17/32			0.5156	13.096	2 3/8	60	3 7/8	98
		13.20	0.5197	13.200	2 3/8	60	3 7/8	98
35/64			0.5312	13.492	2 3/8	60	3 7/8	98
		13.50	0.5315	13.500	2 3/8	60	3 7/8	98
9/16		13.80	0.5433	13.800	2 1/2	64	4	102
			0.5469	13.891	2 1/2	64	4	102
37/64		14.00	0.5572	14.000	2 1/2	64	4	102
		14.25	0.5610	14.250	2 1/2	64	4	102
19/32			0.5625	14.288	2 1/2	64	4	102
		14.50	0.5709	14.500	2 5/8	67	4 1/8	105
39/64			0.5781	14.684	2 5/8	67	4 1/8	105
		14.75	0.5807	14.750	2 5/8	67	4 1/8	105
5/8		15.00	0.5906	15.000	2 5/8	67	4 1/8	105
			0.5938	15.083	2 5/8	67	4 1/8	105
21/32		15.25	0.6004	15.250	2 3/4	70	4 1/4	108
			0.6094	15.479	2 3/4	70	4 1/4	108
41/64		15.50	0.6102	15.500	2 3/4	70	4 1/4	108
		15.75	0.6201	15.750	2 3/4	70	4 1/4	108
23/32			0.6250	15.875	2 3/4	70	4 1/4	108
		16.00	0.6299	16.000	2 7/8	73	4 1/2	114
43/64		16.25	0.6398	16.250	2 7/8	73	4 1/2	114
			0.6406	16.271	2 7/8	73	4 1/2	114
11/16		16.50	0.6496	16.500	2 7/8	73	4 1/2	114
			0.6562	16.667	2 7/8	73	4 1/2	114
45/64		16.75	0.6594	16.750	2 7/8	73	4 1/2	114
		17.00	0.6693	17.000	2 7/8	73	4 1/2	114
23/32			0.6719	17.066	2 7/8	73	4 1/2	114
		17.25	0.6791	17.250	2 7/8	73	4 1/2	114
47/64			0.6875	17.462	2 7/8	73	4 1/2	114
		17.50	0.6890	17.500	3	76	4 3/4	121
23/32			0.7031	17.859	3	76	4 3/4	121
		18.00	0.7087	18.000	3	76	4 3/4	121
23/32			0.7188	18.258	3	76	4 3/4	121
		18.50	0.7283	18.500	3 1/8	79	5	127



TECHNICAL STANDARDS

HSS REDUCED SHANK TWIST DRILLS



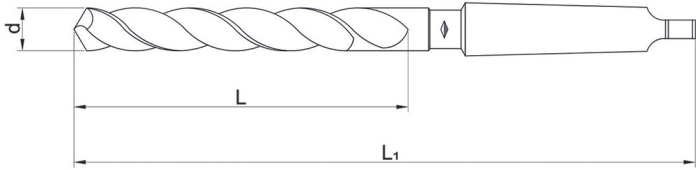
D	L1	L2	D	L1	L2
1/2	6	3	1-1/64	6	3
33/64	6	3	1-1/32	6	3
17/32	6	3	1-3/64	6	3
35/64	6	3	1-1/16	6	3
9/16	6	3	1-5/64	6	3
37/64	6	3	1-3/32	6	3
19/32	6	3	1-7/64	6	3
39/64	6	3	1-1/8	6	3
5/8	6	3	1-9/64	6	3
41/64	6	3	1-5/32	6	3
21/32	6	3	1-11/64	6	3
43/64	6	3	1-3/16	6	3
11/16	6	3	1-13/64	6	3
45/64	6	3	1-7/32	6	3
23/32	6	3	1-15/64	6	3
47/64	6	3	1-1/4	6	3
3/4	6	3	1-17/64	6	3
49/64	6	3	1-9/32	6	3
25/32	6	3	1-19/64	6	3
51/64	6	3	1-5/16	6	3
13/16	6	3	1-21/64	6	3
53/64	6	3	1-11/32	6	3
27/32	6	3	1-23/64	6	3
55/64	6	3	1-3/8	6	3
7/8	6	3	1-25/64	6	3
57/64	6	3	1-13/32	6	3
29/32	6	3	1-27/64	6	3
59/64	6	3	1-7/16	6	3
15/16	6	3	1-29/64	6	3
61/64	6	3	1-15/32	6	3
31/32	6	3	1-31/64	6	3
63/64	6	3	1-1/2	6	3
1	6	3			



TECHNICAL STANDARDS

TAPER SHANK TWIST DRILLS

DIN 345



D	L1	L2	MTNO	D	L1	L2	MTNO	D	L1	L2	MTNO	D	L1	L2	MTNO
7.5	150	69	1	20	238	140	2	34.5	339	190	4	66	432	245	5
7.8	156	75	1	20.25	243	145	2	35	339	190	4	67	432	245	5
8	156	75	1	20.5	243	145	2	35.5	339	190	4	68	437	250	5
8.2	156	75	1	20.75	243	145	2	36	344	195	4	69	437	250	5
8.5	156	75	1	21	243	145	2	36.5	344	195	4	70	437	250	5
8.8	162	81	1	21.2	248	150	2	37	344	195	4	71	437	250	5
9	162	81	1	21.5	248	150	2	37.5	344	195	4	72	442	255	5
9.2	162	81	1	22	248	150	2	38	349	200	4	73	442	255	5
9.5	162	81	1	22.5	253	155	2	38.5	349	200	4	74	442	255	5
9.8	168	87	1	23	253	155	2	39	349	200	4	75	442	255	5
10	168	87	1	23.25	276	155	3	39.5	349	200	4	76	447	260	5
10.2	168	87	1	23.5	276	155	3	40	349	200	4	77	514	260	6
10.5	168	87	1	23.75	281	160	3	40.5	354	205	4	78	514	260	6
10.8	175	94	1	24	281	160	3	41	354	205	4	79	514	260	6
11	175	94	1	24.25	281	160	3	41.5	354	205	4	80	514	260	6
11.2	175	94	1	24.5	281	160	3	42	354	205	4	81	519	265	6
11.5	175	94	1	24.75	281	160	3	42.5	354	205	4	82	519	265	6
11.8	175	94	1	25	281	160	3	43	359	210	4	83	519	265	6
12	182	101	1	25.25	286	165	3	43.25	359	210	4	84	519	265	6
12.2	182	101	1	25.5	286	165	3	43.5	359	210	4	85	519	265	6
12.5	182	101	1	25.75	286	165	3	43.75	359	210	4	86	524	270	6
12.8	182	101	1	26	286	165	3	44	359	210	4	87	524	270	6
13	182	101	1	26.25	286	165	3	44.25	359	210	4	88	524	270	6
13.2	182	101	1	26.5	286	165	3	44.5	359	210	4	89	524	270	6
13.5	189	108	1	26.75	291	170	3	44.75	359	210	4	90	524	270	6
13.8	189	108	1	27	291	170	3	45	359	210	4	91	529	275	6
14	189	108	1	27.25	291	170	3	45.25	359	210	4	92	529	275	6
14.25	212	114	2	27.5	291	170	3	45.5	359	210	4	93	529	275	6
14.5	212	114	2	27.75	291	170	3	45.75	359	210	4	94	529	275	6
14.75	212	114	2	28	291	170	3	48	369	220	4	95	529	275	6
15	212	114	2	28.25	296	175	3	48.5	369	220	4	96	534	280	6
15.25	218	120	2	28.5	296	175	3	49	369	220	4	97	534	280	6
15.5	218	120	2	28.75	296	175	3	49.5	369	220	4	98	534	280	6
15.75	218	120	2	29	296	175	3	50	369	220	4	99	534	280	6
16	218	120	2	29.25	296	175	3	50.5	374	225	4	100	534	280	6
16.25	223	125	2	29.5	296	175	3	51	412	225	5				
16.5	223	125	2	29.75	296	175	3	52	412	225	5				
16.75	223	125	2	30	296	175	3	53	412	225	5				
17	223	125	2	30.25	301	180	3	54	417	230	5				
17.25	228	130	2	30.5	301	180	3	55	417	230	5				
17.5	228	130	2	30.75	301	180	3	56	417	230	5				
17.75	228	130	2	31	301	180	3	57	422	235	5				
18	228	130	2	31.25	301	180	3	58	422	235	5				
18.25	233	135	2	31.5	301	180	3	59	422	235	5				
18.5	233	135	2	31.75	306	185	3	60	422	235	5				
18.75	233	135	2	32	334	185	4	61	427	240	5				
19	233	135	2	32.5	334	185	4	62	427	240	5				
19.25	238	140	2	33	334	185	4	63	427	240	5				
19.5	238	140	2	33.5	334	185	4	64	432	245	5				
19.75	238	140	2	34	339	190	4	65	432	245	5				



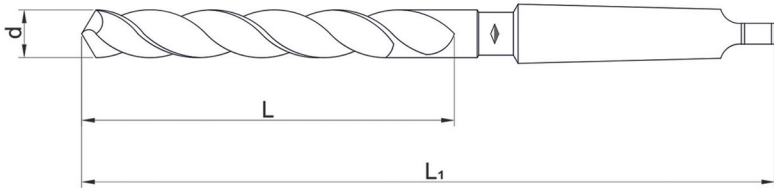
TWIST DRILL



TECHNICAL STANDARDS

TAPER SHANK TWIST DRILLS

ANSI B94.11M



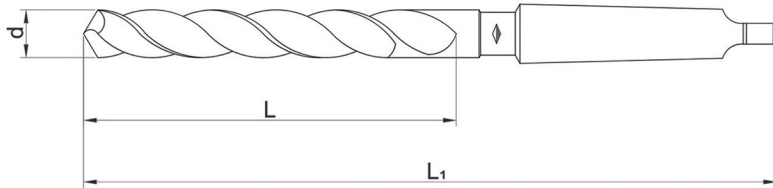
Diameter of Drill				Morse Taper Number	Flute Length		Overall Length	
D		Decimal Inch Equivalent	Millimeter Equivalent		L2		L1	
Fraction	mm				Inch	mm	Inch	mm
23/64		0.3594	9.129	1	3 1/2	89	6 3/4	171
	9.20	0.3622	9.200	1	3 1/2	89	6 3/4	171
	9.50	0.2740	9.500	1	3 1/2	89	6 3/4	171
3/8		0.3750	9.525	1	3 1/2	89	6 3/4	171
	9.80	0.3858	9.800	1	3 5/8	92	7	178
25/64		0.3906	9.921	1	3 5/8	92	7	178
	10.00	0.3937	10.000	1	3 5/8	92	7	178
	10.20	0.4016	10.200	1	3 5/8	92	7	178
13/32		0.4062	10.320	1	3 5/8	92	7	178
	10.50	0.4134	10.500	1	3 7/8	98	7 1/4	184
27/64		0.4219	10.716	1	3 7/8	98	7 1/4	184
	10.80	0.4252	10.800	1	3 7/8	98	7 1/4	184
	11.00	0.4331	11.000	1	3 7/8	98	7 1/4	184
7/16		0.4375	11.112	1	3 7/8	98	7 1/4	184
	11.20	0.4409	11.200	1	4 1/8	105	7 1/2	190
	11.50	0.4528	11.500	1	4 1/8	105	7 1/2	190
29/64		0.4531	11.509	1	4 1/8	105	7 1/2	190
	11.80	0.4646	11.800	1	4 1/8	105	7 1/2	190
15/32		0.4688	11.906	1	4 1/8	105	7 1/2	190
	12.00	0.4724	12.000	2	4 3/8	111	8 1/4	210
	12.20	0.4803	12.200	2	4 3/8	111	8 1/4	210
31/64		0.4844	12.304	2	4 3/8	111	8 1/4	210
	12.50	0.4921	12.500	2	4 3/8	111	8 1/4	210
1/2		0.5000	12.700	2	4 3/8	111	8 1/4	210
	12.80	0.5034	12.800	2	4 5/8	117	8 1/2	216
	13.00	0.5118	13.000	2	4 5/8	117	8 1/2	216
33/64		0.5156	13.096	2	4 5/8	117	8 1/2	216
	13.20	0.5197	13.200	2	4 5/8	117	8 1/2	216
17/32		0.5312	13.492	2	4 5/8	117	8 1/2	216
	13.50	0.5315	13.500	2	4 5/8	117	8 1/2	216
	13.80	0.5433	13.800	2	4 7/8	124	8 3/4	222
35/64		0.5469	13.891	2	4 7/8	124	8 3/4	222
	14.00	0.5572	14.000	2	4 7/8	124	8 3/4	222
	14.25	0.5610	14.250	2	4 7/8	124	8 3/4	222
9/16		0.5625	14.288	2	4 7/8	124	8 3/4	222
	14.50	0.5709	14.500	2	4 7/8	124	8 3/4	222
37/64		0.5781	14.684	2	4 7/8	124	8 3/4	222
	14.75	0.5807	14.750	2	4 7/8	124	8 3/4	222
	15.00	0.5906	15.000	2	4 7/8	124	8 3/4	222
19/32		0.5938	15.083	2	4 7/8	124	8 3/4	222



TECHNICAL STANDARDS

TAPER SHANK TWIST DRILLS

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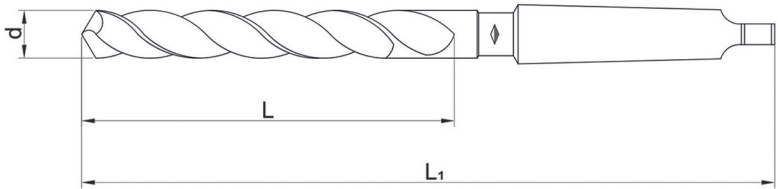
Diameter of Drill				Morse Taper Number	Regular shank			
D		Decimal Inch Equivalent	Millimeter Equivalent		Flute Length		Overall Length	
					L2		L1	
Fraction	mm				Inch	mm	Inch	mm
39/64	15.25	0.6004	15.250	2	4 7/8	124	8 3/4	222
		0.6094	15.479	2	4 7/8	124	8 3/4	222
	15.50	0.6102	15.500	2	4 7/8	124	8 3/4	222
5/8	15.75	0.6201	15.750	2	4 7/8	124	8 3/4	222
		0.6250	15.875	2	4 7/8	124	8 3/4	222
	16.00	0.6299	16.000	2	5 1/8	130	9	229
41/64	16.25	0.6398	16.250	2	5 1/8	130	9	229
		0.6406	16.271	2	5 1/8	130	9	229
	16.50	0.6496	16.500	2	5 1/8	130	9	229
21/32		0.6562	16.667	2	5 1/8	130	9	229
	16.75	0.6594	16.750	2	5 3/8	137	9 1/4	235
	17.00	0.6693	17.000	2	5 3/8	137	9 1/4	235
43/64		0.6719	17.066	2	5 3/8	137	9 1/4	235
	17.25	0.6791	17.250	2	5 3/8	137	9 1/4	235
		0.6875	17.462	2	5 3/8	137	9 1/4	235
11/16	17.50	0.6880	17.500	2	5 5/8	143	9 1/2	241
		0.7031	17.859	2	5 5/8	143	9 1/2	241
	18.00	0.7087	18.000	2	5 5/8	143	9 1/2	241
23/32		0.7188	18.258	2	5 5/8	143	9 1/2	241
	18.50	0.7283	18.500	2	5 7/8	149	9 3/4	248
		0.7344	18.654	2	5 7/8	149	9 3/4	248
47/64	19.00	0.7480	19.000	2	5 7/8	149	9 3/4	248
		0.7500	19.050	2	5 7/8	149	9 3/4	248
	19.50	0.7656	19.446	2	6	152	9 7/8	251
25/32		0.7677	19.500	2	6	152	9 7/8	251
		0.7812	19.843	2	6	152	9 7/8	251
	20.00	0.7821	20.000	3	6 1/8	156	10 3/4	273
51/64		0.7969	20.241	3	6 1/8	156	10 3/4	273
	20.50	0.8071	20.500	3	6 1/8	156	10 3/4	273
		0.8125	20.638	3	6 1/8	156	10 3/4	273
13/16	21.00	0.8268	21.000	3	6 1/8	156	10 3/4	273
		0.8281	21.034	3	6 1/8	156	10 3/4	273
	27/32	0.8438	21.433	3	6 1/8	156	10 3/4	273
53/64		0.8465	21.500	3	6 1/8	156	10 3/4	273
	21.50	0.8594	21.829	3	6 1/8	156	10 3/4	273
		0.8661	22.000	3	6 1/8	156	10 3/4	273
7/8	22.00	0.8750	22.225	3	6 1/8	156	10 3/4	273
		0.8858	22.500	3	6 1/8	156	10 3/4	273
	22.50	0.8906	22.621	3	6 1/8	156	10 3/4	273
57/64		0.9055	23.000	3	6 1/8	156	10 3/4	273
	23.00							



TECHNICAL STANDARDS

TAPER SHANK TWIST DRILLS

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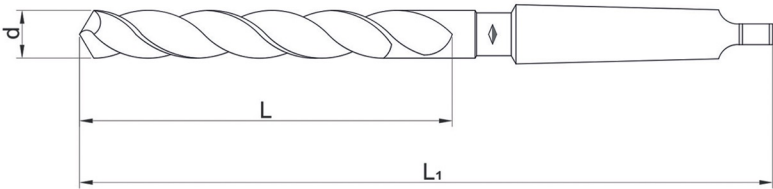
Diameter of Drill				Regular shank				
				Morse Taper Number	Flute Length		Overall Length	
D		Decimal Inch Equivalent	Millimeter Equivalent		L2		L1	
					Fraction	mm	Inch	mm
29/32		0.9062	23.017	3	6 1/8	156	10 3/4	273
9/64		0.9219	23.416	3	6 1/8	156	10 3/4	273
	23.50	0.9252	23.500	3	6 1/8	156	10 3/4	273
15/16		0.9375	23.812	3	6 1/8	156	10 3/4	273
	24.00	0.9449	24.000	3	6 3/8	162	11	279
61/64		0.9531	24.209	3	6 3/8	162	11	279
	24.50	0.9646	24.500	3	6 3/8	162	11	279
31/32		0.9688	24.608	3	6 3/8	162	11	279
	25.00	0.9843	25.000	3	6 3/8	162	11	279
63/64		0.9844	25.004	3	6 3/8	162	11	279
1		1.0000	25.400	3	6 3/8	162	11	279
	25.50	1.0039	25.500	3	6 1/2	165	11 1/8	283
1 1/64		1.0156	25.796	3	6 1/2	165	11 1/8	283
	26.00	1.0236	26.000	3	6 1/2	165	11 1/8	283
1 1/32		1.0312	26.192	3	6 1/2	165	11 1/8	283
	26.50	1.0433	26.500	3	6 5/8	168	11 1/4	286
1 3/64		1.0469	26.591	3	6 5/8	168	11 1/4	286
1 1/16		1.0625	26.988	3	6 5/8	168	11 1/4	286
	27.00	1.0630	27.000	3	6 5/8	168	11 1/4	286
1 5/64		1.0781	27.384	4	6 7/8	175	12 1/2	318
	27.50	1.0827	27.500	4	6 7/8	175	12 1/2	318
1 3/32		1.0938	27.783	4	6 7/8	175	12 1/2	318
	28.00	1.1024	28.000	4	7 1/8	181	12 3/4	324
1 7/64		1.1094	28.179	4	7 1/8	181	12 3/4	324
	28.50	1.1220	28.500	4	7 1/8	181	12 3/4	324
1 1/8		1.1250	28.575	4	7 1/8	181	12 3/4	324
1 9/64		1.1406	28.971	4	7 1/4	184	12 7/8	327
	29.00	1.1417	29.000	4	7 1/4	184	12 7/8	327
1 5/32		1.1562	29.367	4	7 1/4	184	12 7/8	327
	29.50	1.1614	29.500	4	7 3/8	187	13	330
1 11/64		1.1719	29.766	4	7 3/8	187	13	330
	30.00	1.1811	30.000	4	7 3/8	187	13	330
1 3/16		1.1875	30.162	4	7 3/8	187	13	330
	30.50	1.2008	30.500	4	7 1/2	190	13 1/8	333
1 13/64		1.2031	30.559	4	7 1/2	190	13 1/8	333
1 7/32		1.2188	30.958	4	7 1/2	190	13 1/8	333
	31.00	1.2205	31.000	4	7 7/8	200	13 1/2	343
115/64		1.2344	31.354	4	7 7/8	200	13 1/2	343
	31.50	1.2402	31.500	4	7 7/8	200	13 1/2	343
1 1/4		1.2500	31.750	4	7 7/8	200	13 1/2	343



TECHNICAL STANDARDS

TAPER SHANK TWIST DRILLS

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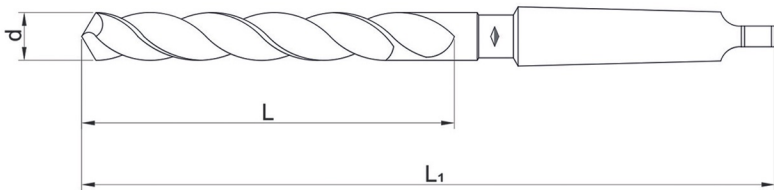
Diameter of Drill				Morse Taper Number	Regular shank			
D		Decimal Inch Equivalent	Millimeter Equivalent		Flute Length		Overall Length	
					L2		L1	
Fraction	mm				Inch	mm	Inch	mm
1 17/64	32.00	1.2598	32.000	4	8 1/2	216	14 1/8	359
		1.2656	32.146	4	8 1/2	216	14 1/8	359
	32.50	1.2795	32.500	4	8 1/2	216	14 1/8	359
1 9/32		1.2812	32.542	4	8 1/2	216	14 1/8	359
1 19/64		1.2969	32.941	4	8 5/8	219	14 1/4	362
	33.00	1.2992	33.000	4	8 5/8	219	14 1/4	362
1 5/16		1.3125	33.338	4	8 5/8	219	14 1/4	362
	33.50	1.3189	33.500	4	8 3/4	222	14 3/8	365
1 21/64		1.3281	33.734	4	8 3/4	222	14 3/8	365
	34.00	1.3386	34.000	4	8 3/4	222	14 3/8	365
1 11/32		1.3438	34.133	4	8 3/4	222	14 3/8	365
	34.50	1.3583	34.500	4	8 7/8	225	14 1/2	368
1 23/64		1.3594	34.529	4	8 7/8	225	14 1/2	368
1 3/8		1.3750	34.925	4	8 7/8	225	14 1/2	368
	35.00	1.3780	35.000	4	9	229	14 5/8	371
1 25/64		1.3906	35.321	4	9	229	14 5/8	371
	35.50	1.3976	35.500	4	9	229	14 5/8	371
1 13/32		1.4062	35.717	4	9	229	14 5/8	371
	36.00	1.4173	36.000	4	9 1/8	232	14 3/4	375
1 27/64		1.4219	36.116	4	9 1/8	232	14 3/4	375
	36.50	1.4370	36.500	4	9 1/8	232	14 3/4	375
1 7/16		1.4375	36.512	4	9 1/8	232	14 3/4	375
1 29/64		1.4531	36.909	4	9 1/4	235	14 7/8	378
	37.00	1.4567	37.000	4	9 1/4	235	14 7/8	378
1 15/32		1.4688	37.308	4	9 1/4	235	14 7/8	378
	37.50	1.4764	37.500	4	9 3/8	238	15	381
1 31/64		1.4844	37.704	4	9 3/8	238	15	381
	38.00	1.4961	38.000	4	9 3/8	238	15	381
1 1/2		1.5000	38.100	4	9 3/8	238	15	381
1 33/64		1.5156	38.496					
1 17/32		1.5312	38.892	5	9 3/8	238	16 3/8	416
	39.00	1.5354	39.000	5	9 5/8	244	16 5/8	422
1 35/64		1.5469	39.291					
1 9/16		1.5625	39.688	5	9 5/8	244	16 5/8	422
	40.00	1.5748	40.000	5	9 7/8	251	16 7/8	429
1 37/64		1.5781	40.084					
1 19/32		1.5938	40.483	5	9 7/8	251	16 7/8	429
1 39/64		1.6094	40.879					
	41.00	1.6142	41.000	5	10	254	17	432
1 5/8		1.6250	41.275	5	10	254	17	432



TECHNICAL STANDARDS

TAPER SHANK TWIST DRILLS

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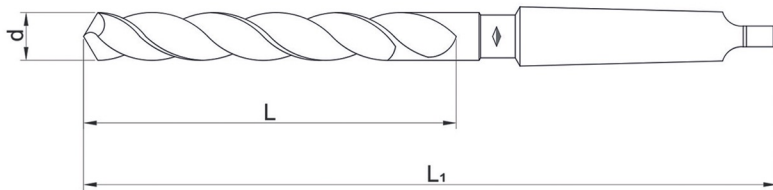
Diameter of Drill				Morse Taper Number	Regular shank				
					Flute Length		Overall Length		
D		Decimal Inch Equivalent	Millimeter Equivalent		L2		L1		
					Fraction	mm	Inch	mm	Inch
1 41/64		42.00	1.6406	41.671	5	10 1/8	257	17 1/8	435
			1.6535	42.000	5	10 1/8	257	17 1/8	435
1 21/32			1.6562	42.067	5	10 1/8	257	17 1/8	435
1 43/64		43.00	1.6719	42.466	5	10 1/8	257	17 1/8	435
1 11/16			1.6875	42.862	5	10 1/8	257	17 1/8	435
			1.6929	43.000	5	10 1/8	257	17 1/8	435
1 45/64		44.00	1.7031	43.259	5	10 1/8	257	17 1/8	435
1 23/32			1.7188	43.658	5	10 1/8	257	17 1/8	435
			1.7323	44.000	5	10 1/8	257	17 1/8	435
1 47/64		45.00	1.7344	44.054	5	10 1/8	257	17 1/8	435
1 3/4			1.7500	44.450	5	10 1/8	257	17 1/8	435
			1.7717	45.000	5	10 1/8	257	17 1/8	435
1 25/32		46.00	1.7812	45.242	5	10 1/8	257	17 1/8	435
			1.8110	46.000	5	10 1/8	257	17 1/8	435
1 13/16			1.8125	46.038	5	10 1/8	257	17 1/8	435
1 27/32		47.00	1.8438	46.833	5	10 1/8	257	17 1/8	435
			1.8504	47.000	5	10 3/8	264	17 3/8	441
1 7/8			1.8750	47.625	5	10 3/8	264	17 3/8	441
		48.00	1.8898	48.000	5	10 3/8	264	17 3/8	441
1 29/32			1.9062	48.417	5	10 3/8	264	17 3/8	441
			1.9291	49.000	5	10 3/8	264	17 3/8	441
1 15/16		50.00	1.9375	49.212	5	10 3/8	264	17 3/8	441
			1.9625	50.000	5	10 3/8	264	17 3/8	441
1 31/32			1.9688	50.008	5	10 3/8	264	17 3/8	441
2		51.00	2.0000	50.800	5	10 3/8	264	17 3/8	441
			2.0079	51.000	5	10 3/8	264	17 3/8	441
2 1/32			2.0312	51.592	5	10 3/8	264	17 3/8	441
		52.00	2.0472	52.000	5	10 1/4	260	17 3/8	441
2 1/16			2.0625	52.388	5	10 1/4	260	17 3/8	441
			2.0866	53.000	5	10 1/4	260	17 3/8	441
2 3/32		53.00	2.0938	53.183	5	10 1/4	260	17 3/8	441
2 1/8			2.1250	53.975	5	10 1/4	260	17 3/8	441
			2.1260	54.000	5	10 1/4	260	17 3/8	441
2 5/32		54.00	2.1562	54.767	5	10 1/4	260	17 3/8	441
			2.1654	55.000	5	10 1/4	260	17 3/8	441
2 3/16			2.1875	55.512	5	10 1/4	260	17 3/8	441
		56.00	2.2000	56.000	5	10 1/8	257	17 3/8	441
2 7/32			2.2188	56.358	5	10 1/8	257	17 3/8	441
			2.2441	57.000	5	10 1/8	257	17 3/8	441
2 1/4		57.00	2.2500	57.150	5	10 1/8	257	17 3/8	441



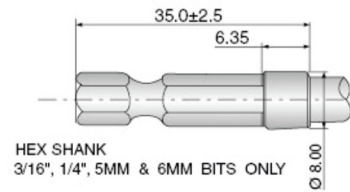
TECHNICAL STANDARDS

TAPER SHANK TWIST DRILLS

ANSI B94.11M



Diameter of Drill				Regular shank				
				Morse Taper Number	Flute Length		Overall Length	
D		Decimal Inch Equivalent	Millimeter Equivalent		L2		L1	
					Fraction	mm	Inch	mm
2 5/6	58.00	2.2835	58.000	5	10 1/8	257	17 3/8	441
		2.3125	58.738	5	10 1/8	257	17 3/8	441
	59.00	2.3228	59.000	5	10 1/8	257	17 3/8	441
2 3/8	60.00	2.3622	60.000	5	10 1/8	257	17 3/8	441
		2.3750	60.325	5	10 1/8	257	17 3/8	441
	61.00	2.4016	61.000	5	11 1/4	286	18 3/4	476
2 7/16		2.4375	61.912	5	11 1/4	286	18 3/4	476
	62.00	2.4409	62.000	5	11 1/4	286	18 3/4	476
	63.00	2.4803	63.000	5	11 1/4	286	18 3/4	476
2 1/2		2.5000	63.500	5	11 1/4	286	18 3/4	476
	64.00	2.5197	64.000	5	11 7/8	302	19 1/2	495
	65.00	2.5591	65.000	5	11 7/8	302	19 1/2	495
2 9/16		2.5625	65.088	5	11 7/8	302	19 1/2	495
	66.00	2.5984	66.000	5	11 7/8	302	19 1/2	495
		2.6250	66.675	5	11 7/8	302	19 1/2	495
2 5/8	67.00	2.6378	67.000	5	12 3/4	324	20 3/8	518
	68.00	2.6772	68.000	5	12 3/4	324	20 3/8	518
		2.6875	68.262	5	12 3/4	324	20 3/8	518
2 11/16	69.00	2.7165	69.000	5	12 3/4	324	20 3/8	518
		2.7500	69.850	5	12 3/4	324	20 3/8	518
	70.00	2.7559	70.000	5	13 3/8	340	21 1/8	537
2 13/16	71.00	2.7953	71.000	5	13 3/8	340	21 1/8	537
		2.8125	71.438	5	13 3/8	340	21 1/8	537
	72.00	2.8346	72.000	5	13 3/8	340	21 1/8	537
2 7/8	73.00	2.8740	73.000	5	13 3/8	340	21 1/8	537
		2.8750	73.025	5	13 3/8	340	21 1/8	537
	74.00	2.9134	74.000	5	14	356	21 3/4	552
2 15/16		2.9375	74.612	5	14	356	21 3/4	552
	75.00	2.9528	75.000	5	14	356	21 3/4	552
	76.00	2.9921	76.000	5	14	356	21 3/4	552
3		3.0000	76.200	5	14	356	21 3/4	552
	77.00	3.0315	77.000	6	14 5/8	371	24 1/2	622
	78.00	3.0709	78.000	6	14 5/8	371	24 1/2	622
3 1/8		3.1250	79.375	6	14 5/8	371	24 1/2	622
3 1/4		3.2500	82.550	6	15 1/2	394	24 1/2	648
3 1/2		3.5000	88.900					



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BIT SIZE (mm)	Ø“A”	“B”	“C”	CLAMP FORCE (N.M)
1/16	1.588	64	20	0.39
5/64	1.984	70	24	0.68
3/32	2.381	78	30	0.96
7/64	2.778	82	33	1.36
1/8	3.175	86	36	1.75
9/64	3.572	91	39	2.55
5/32	3.969	96	43	3.20
11/64	4.366	101	47	4.80
3/16	4.763	107	52	5.00
13/64	5.159	107	52	5.40
7/32	5.558	114	57	6.70
15/64	5.953	114	57	8.00
1/4	6.350	122	63	8.46

BODY DRILLS, DOUBLE END



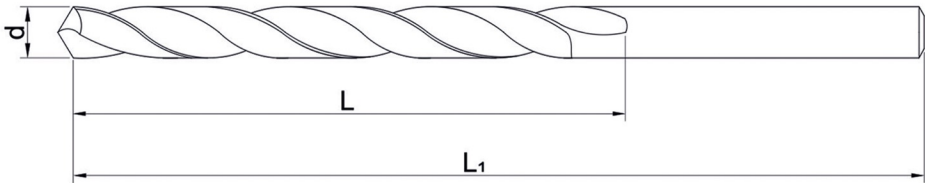
135° SPLIT -POINT, HIGH-SPEED STEEL, BLACK OXIDE/BRIGHT

Size	Flute Length	Overall Length
7/64	1/2	1-7/8
1/8	1/2	2
9/64	1/2	2
5/32	1/2	2-1/16
3/16	1/2	2-3/16
7/32	1/2	2-3/8
1/4	1/2	2-1/2



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS

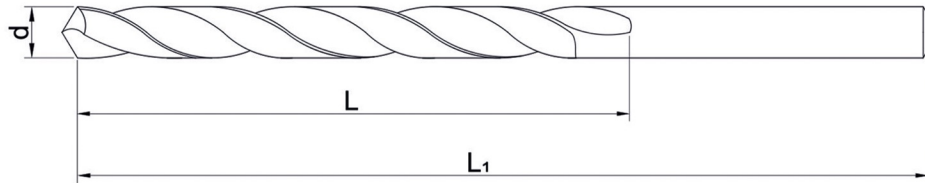


D	DEC.EQUIV	L2	D	DEC.EQUIV	L2	D	DEC.EQUIV	L2
60	0.0400	11/16	17	0.1730	2-3/16	3/64	0.0469	3/4
59	0.0410	11/16	16	0.1770	2-3/16	1/16	0.0625	7/8
58	0.0420	11/16	15	0.1800	2-3/16	5/64	0.0781	1-1/4
57	0.0430	3/4	14	0.1820	2-3/16	3/32	0.0938	1-1/2
56	0.0465	3/4	13	0.1850	2-5/16	7/64	0.1094	1-5/8
55	0.0520	7/8	12	0.1890	2-5/16	1/8	0.1250	1-3/4
54	0.0550	7/8	11	0.1910	2-5/16	9/64	0.1406	2
53	0.0595	7/8	10	0.1935	2-7/16	5/32	0.1562	2-1/8
52	0.0635	7/8	9	0.1960	2-7/16	11/64	0.1719	2-5/16
51	0.0670	1	8	0.1990	2-7/16	3/16	0.1875	2-7/16
50	0.0700	1	7	0.2010	2-7/16	13/64	0.2031	2-1/2
49	0.0730	1	6	0.2040	2-1/2	7/32	0.2188	2-5/8
48	0.0760	1	5	0.2055	2-1/2	1 5/64	0.2344	2-3/4
47	0.0785	1	4	0.2090	2-11/2	1/4	0.2500	2-7/8
46	0.0810	1-1/8	3	0.2130	2-1/2	17/64	0.2656	2-15/16
45	0.0820	1-1/8	2	0.2210	2-5/8	9/32	0.2812	3-1/16
44	0.0860	1-1/8	1	0.2280	2-5/8	1 9/64	0.2969	3-3/16
43	0.0890	1-1/4	A	0.2340	2-5/8	5/16	0.3125	3-5/16
42	0.0935	1-1/4	B	0.2380	2-3/4	21/64	0.3281	3-7/16
41	0.0960	1-3/8	C	0.2420	2-3/4	11/32	0.3438	3-1/2
40	0.0980	1-3/8	D	0.2460	2-3/4	23/64	0.3594	3-5/8
39	0.0995	1-3/8	E	0.2500	2-3/4	3/8	0.3750	3-3/4
38	0.1015	1-7/16	F	0.2570	2-7/8	25/64	0.3906	3-7/8
37	0.1040	1-7/16	G	0.2610	2-7/8	13/32	0.4062	3-15/16
36	0.1065	1-7/16	H	0.2660	2-7/8	27/64	0.4219	4-1/16
35	0.1100	1-1/2	I	0.2720	2-7/8	7/16	0.4375	4-3/16
34	0.1110	1-1/2	J	0.2770	2-7/8	29/64	0.4531	4-5/16
33	0.1130	1-1/2	K	0.2810	2-15/16	15/32	0.4688	4-3/8
32	0.1160	1-5/8	L	0.2900	2-15/16	31/64	0.4844	4-1/2
31	0.1200	1-5/8	M	0.2950	3-1/16	1/2	0.5000	
30	0.1285	1-5/8	N	0.3020	3-1/16			
29	0.1360	1-3/4	O	0.3160	3-3/16			
28	0.1405	1-3/4	P	0.3230	3-5/16			
27	0.1440	1-7/8	Q	0.3320	3-7/16			
26	0.1470	1-7/8	R	0.3390	3-7/16			
25	0.1495	1-7/8	S	0.3480	3-1/2			
24	0.1520	2	T	0.3580	3-1/2			
23	0.1540	2	U	0.3680	3-5/8			
22	0.1570	2	V	0.3770	3-5/8			
21	0.1590	2-1/8	W	0.3860	3-3/4			
20	0.1610	2-1/8	X	0.3970	3-3/4			
19	0.1660	2-1/8	Y	0.4040	3-7/8			
18	0.1695	2-1/8	Z	0.4130	3-7/8			



TECHNICAL STANDARDS

HSS STRAIGHT SHANK TWIST DRILLS



DIN1869-I			DIN1869-II			DIN1869-III		
D	L1	L2	D	L1	L2	D	L1	L2
2.00	125	85	2.00	160	110	2.00	200	135
2.50	140	95	2.50	180	120	2.50	225	150
3.00	150	100	3.00	190	130	3.00	240	160
3.50	165	115	3.50	210	145	3.50	265	180
4.00	175	120	4.00	220	150	4.00	280	190
4.50	185	125	4.50	235	190	4.50	295	200
5.00	195	135	5.00	245	210	5.00	315	210
5.50	205	140	5.50	260	210	5.50	330	225
6.00	205	140	6.00	260	220	6.00	330	225
6.50	215	150	6.50	275	220	6.50	350	235
7.00	225	155	7.00	290	235	7.00	370	250
7.50	225	155	7.50	290	235	7.50	370	250
8.00	240	165	8.00	305	250	8.00	390	265
8.50	240	165	8.50	305	250	8.50	390	265
9.00	250	175	9.00	320	260	9.00	410	280
9.50	250	175	9.50	320	260	9.50	410	280
10.00	265	185	10.00	340	260	10.00	430	295
10.50	265	185	10.50	340	160	10.50	430	295
11.00	280	195	11.00	365	170	11.00	455	310
11.50	280	195	11.50	365	180	11.50	455	310
12.00	295	205	12.00	375	180	12.00	480	330
12.50	295	205	12.50	375	200	12.50	480	330
13.00	295	205	13.00	375	200	13.00	480	330



高速钢麻花钻 HSS TWIST DRILLS



DIN 338 TYPE N



DIN 338 TYPE VA



DIN 338TL



DIN 338 TYPE UNI



DIN 338 TYPE H



DIN 338 TYPE W



DIN 338 TYPE TURBO



DIN 340 TYPE N



DIN 340 TYPE TL



DIN 345 TYPE N, ROLL FORGED



DIN 345 TYPE N, MILLED



DIN 345 TYPE N



CENTER DRILLS DIN 333
TYPE A



CENTER DRILLS DIN 333
TYPE B



CENTER DRILLS DIN 333 TYPE
R



高速钢麻花钻 HSS TWIST DRILLS



DIN 1897 TYPE N, SHORT



DIN 1897 TYPE UF-L, SHORT



SPOT WELD DRILL



DIN 338 TYPE N, WITH TCT



NC-SPOT DRILLS 900, WITH
WELDON SHANK



NC-SPOT DRILLS 1200, WITH
WELDON SHANK



TWIST DRILLS DIN 338 TYPE N,
HSS ROLLED



TWIST DRILLS DIN 338 TYPE N,
WITH REDUCED SHANK



DRILL WITH HEXAGONAL SHANK
FOR "QUIK CHANGE" HSS





TECHNICAL STANDARDS ELECTRIC HAMMER DRILL

SDS PLUS



DIA (MM)	LENGTH (MM)	DIA (MM)	LENGTH (MM)	DIA (MM)	LENGTH (MM)	DIA (MM)	LENGTH (MM)	DIA (MM)	LENGTH (MM)	DIA (MM)	LENGTH (MM)	DIA (MM)	LENGTH (MM)
6	110	8	210	10	310	12	260	14	210	14	800	16	600
6	160	8	260	10	350	12	310	14	260	16	210	16	800
6	210	8	310	10	400	12	350	14	310	16	260	16	1000
6	260	10	110	10	450	12	400	14	350	16	310	22	260
6	310	10	160	10	600	12	450	14	400	16	350	22	350
8	110	10	210	12	160	12	600	14	450	16	400	22	450
8	160	10	260	12	210	12	800	14	600	16	450	22	600

SDS MAX



DIA (MM)	LENGTH (MM)	DIA (MM)	LENGTH (MM)	DIA (MM)	LENGTH (MM)	DIA (MM)	LENGTH (MM)
12	500	18	500	25	500	30	500
14	500	20	500	26	500	32	500
16	500	22	500	28	500	35	500

CHISEL

SDS PLUS



DIA (MM)	LENGTH (MM)	HEAD
14	250	POINT
14	250	20MM
14	250	30MM
14	250	40MM
14	250	GOUGE

SDS PLUS



DIA (MM)	LENGTH (MM)	HEAD
18	400.500	POINT
18	400.500	20MM
18	400.500	30MM
18	400.500	40MM

HOLLOW CORE



DIA (MM)	TIPS	DIA (MM)	TIPS	DIA (MM)	TIPS
30	4	60	7	90	11
35	4	65	8	95	11
40	5	70	9	100	12
45	5	75	9	110	12
50	6	80	10	115	12
55	6	85	11	120	13



ELECTRIC HAMMER DRILL



TECHNICAL STANDARDS

MASONRY DRILL BIT

1 MILLED

-  High-helix zinc plated
-  High-helix nickel plated
-  High-helix chrome plated
-  Parabola flute

2 MILLED

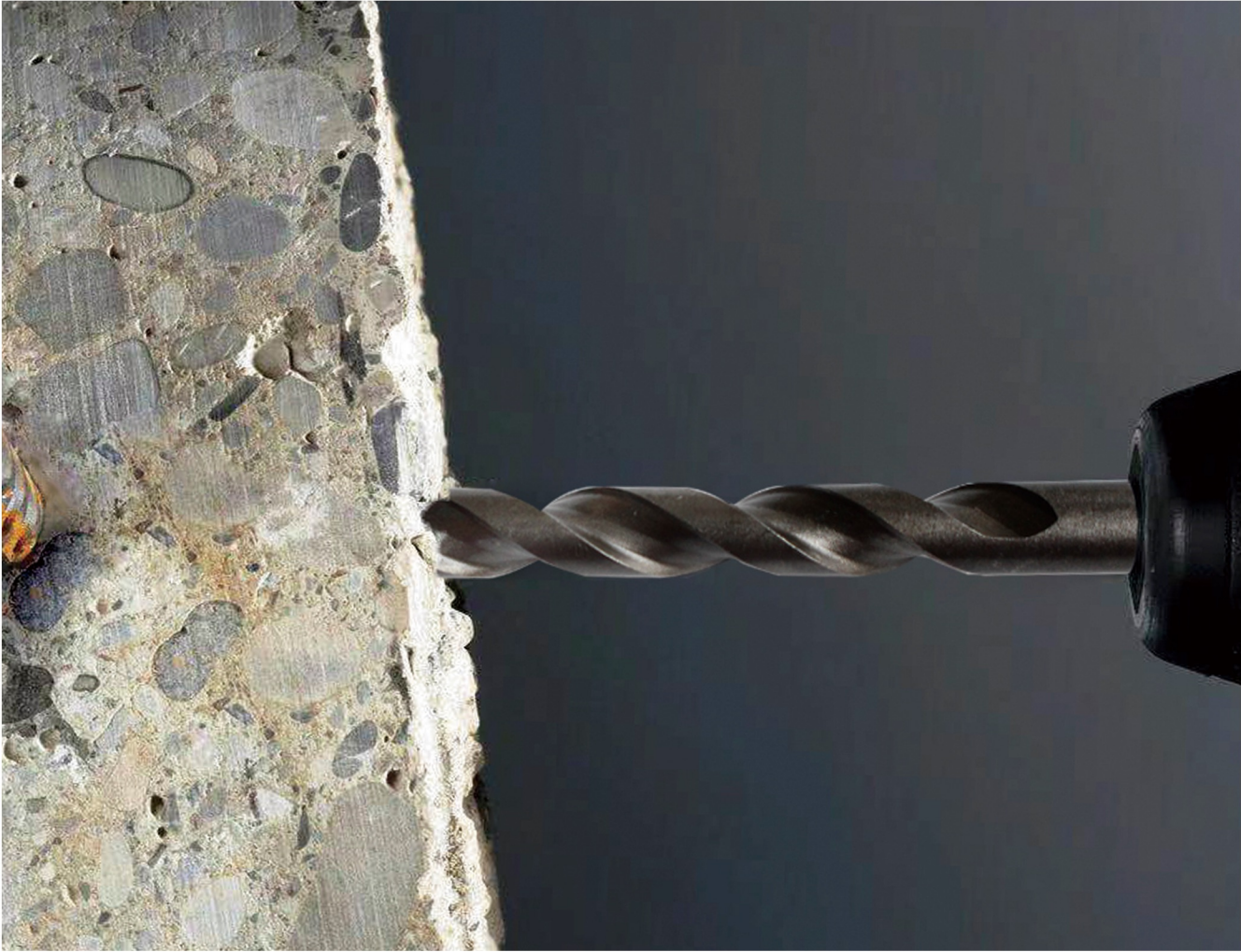
-  black&white tempered body
-  Nicjle plated double flute
-  Multifunction tip

DIN8039

DIA (MM)	L1	L2	DIA (MM)	L1	L2	DIA (MM)	L1	L2	DIA (MM)	L1	L2
3	60	35	7	100	54	12	150	90	20	160	100
4	75	39	8	120	80	14	150	90	22	160	100
5	85	39	9	120	80	16	150	90	24	160	100
6	100	54	10	120	80	18	160	100	25	160	100

EXTRA LONG LENGTH

L1	L2	L1	L2
150	85	400	350
200	135	600	550
300	250		





TECHNICAL STANDARDS WOOD DRILL BIT

WOOD WORKING DRILL BIT



DIA (MM)	L1	L2	DIA (MM)	L1	L2
3	60	32	8	115	71
4	75	43	9	115	71
5	85	51	10	120	82
6	92	54	12	140	90
7	100	60	14	150	95

AUGER DRILL BIT



DIA (MM)	OVERALL LENGTH	DIA (MM)	OVERALL LENGTH	DIA (MM)	OVERALL LENGTH
6	100.150.200.230.300.400.460.600.1200	18	100.150.200.230.300.400.460.600.1200	30	100.150.200.230.300.400.460.600.1200
8	100.150.200.230.300.400.460.600.1200	20	100.150.200.230.300.400.460.600.1200	32	100.150.200.230.300.400.460.600.1200
10	100.150.200.230.300.400.460.600.1200	22	100.150.200.230.300.400.460.600.1200	34	100.150.200.230.300.400.460.600.1200
12	100.150.200.230.300.400.460.600.1200	24	100.150.200.230.300.400.460.600.1200	36	100.150.200.230.300.400.460.600.1200
14	100.150.200.230.300.400.460.600.1200	26	100.150.200.230.300.400.460.600.1200	38	100.150.200.230.300.400.460.600.1200
16	100.150.200.230.300.400.460.600.1200	28	100.150.200.230.300.400.460.600.1200	40	100.150.200.230.300.400.460.600.1200

WOOD SPADE DRILL BIT



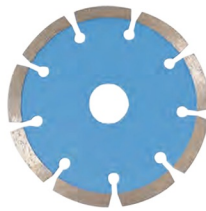
DIA (MM)	OVERALL LENGTH	DIA (MM)	OVERALL LENGTH	DIA (MM)	OVERALL LENGTH	DIA (MM)	OVERALL LENGTH
6	152.300.400	16	152.300.400	25	152.300.400	35	152.300.400
8	152.300.400	18	152.300.400	28	152.300.400	36	152.300.400
10	152.300.400	20	152.300.400	30	152.300.400	38	152.300.400
12	152.300.400	22	152.300.400	32	152.300.400	40	152.300.400
14	152.300.400	24	152.300.400	34	152.300.400		





TECHNICAL STANDARDS SINTERED DIAMOND BLADE

SEGMENT



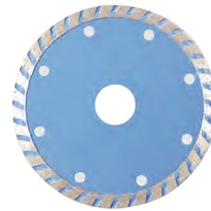
DAMEIER (MM)	SEGMENT SIZE (MM)	SEGMENT NO.
105	32X1.8X7/10	8
110	32X1.8X7/10	9
115	32X1.8X7/10	9
125	32X2.0X7/10	10
150	33X2.2X7/10	12
180	36X2.4X7/10	13
200	40X2.4X7/10	13
230	38X2.6X7/10	18
250	38X2.6X7/10	18
300	40X3.0X7/10	22
350	40X3.2X7/10	24

CONTINUOUS RIM



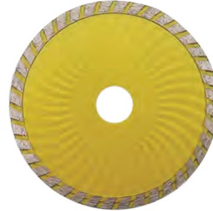
DAMEIER (MM)	SEGMENT SIZE (MM)
105	1.8X7/10
110	1.8X7/10
115	1.8X7/10
125	2.0X7/10
150	2.2X7/10
180	2.4X7/10
200	2.4X7/10
230	2.6X7/10
250	2.6X7/10
300	3.0X7/10
350	3.2X7/10

TURBO



DAMEIER (MM)	SEGMENT SIZE (MM)
105	2.0X8/10
110	2.0X8/10
115	2.0X8/10
125	2.0X8/10
150	2.2X8/10
180	2.6X8/10
200	2.6X8/10
230	3.0X8/10
250	2.8X8/10
300	3.2X8/10
350	3.4X8/10

TURBO WAVE



DAMEIER (MM)	SEGMENT SIZE (MM)
105	2.0X8/10
110	2.0X8/10
115	2.0X8/10
125	2.0X8/10
150	2.2X8/10
180	2.6X8/10
200	2.6X8/10
230	3.0X8/10
250	2.8X8/10
300	3.2X8/10
350	3.4X8/10

HOT PRESSED DIAMOND BLADE

“Y”THIN TURBO



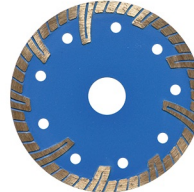
DAMEIER (MM)	SEGMENT SIZE (MM)
105	1.2X10
115	1.3X10
125	1.3X10
150	1.6X10
180	1.6X10
230	2.2X10

“K”THIN TURBO



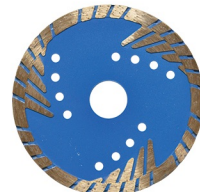
DAMEIER (MM)	SEGMENT SIZE (MM)
105	1.2X10
115	1.3X10
125	1.3X10
150	1.6X10
180	1.6X10
230	2.2X10

“T”TURBO



DAMEIER (MM)	SEGMENT SIZE (MM)
105	2.0X8
115	2.0X8
125	2.0X8
150	2.2X8
180	2.6X8
230	2.8X8

TRIANGLE TURBO



DAMEIER (MM)	SEGMENT SIZE (MM)
105	2.0X8
125	2.2X8
180	2.4X8
230	2.6X8



TECHNICAL STANDARDS

DIAMOND CUP WHEEL

SINGLE ROW DIAMOND CUP WHEEL



DAMEIER (MM)	SEGMENT SIZE (MM)	SEGMENT NO.
100	30X5.0X7.2	8
105	30X5.0X7.2	8
110	31X5.0X7.2	8
115	32X5.0X7.2	9
125	30X5.0X7.2	10
150	30X5.0X7.2	12
180	32X5.0X7.2	13
230	30X5.0X7.2	18

DOUBLE ROW DIAMOND CUP WHEEL



DAMEIER (MM)	SEGMENT SIZE (MM)	SEGMENT NO.
100	30X5.0X7.2	12
105	30X5.0X7.2	12
110	30X5.0X7.2	12
115	30X5.0X7.2	18
125	30X5.0X7.2	20
150	30X5.0X7.2	24
180	30X5.0X7.2	24
230	30X5.0X7.2	24

TURBO DIAMOND CUP WHEEL



DAMEIER (MM)	SEGMENT SIZE (MM)
100	4.5X20
105	4.5X20
110	4.5X20
115	4.5X20
125	4.5X20
150	4.5X20
180	4.5X20
230	4.5X20



TECHNICAL STANDARDS

VACUUM BRAZED DIAMOND TOOLS

KEY SLOT BRAZED DIAMOND BLADE



DAMEIER (MM)	SEGMENT SIZE (MM)	SEGMENT NO.
105	32X1.8X5	8
110	32X1.8X5	8
115	32X1.8X5	9
125	32X2.0X5	10
150	33X2.2X5	12
180	36X2.4X5	13
230	38X2.6X5	18

U SLOT BRAZED DIAMOND BLADE



DAMEIER (MM)	SEGMENT SIZE (MM)	SEGMENT NO.
105	32X1.8X5	8
110	32X1.8X5	8
115	32X1.8X5	9
125	32X2.0X5	10
150	33X2.2X5	12
180	36X2.4X5	13
230	38X2.6X5	18

VACUUM BRAZED DIAMOND CORE DRILL



DAMEIER (MM)	ENGTH (MM)	CONNECTION	SEGMENT NO.
5	65	13MM/HEX/M14	3.0X10MM
6	65	13MM/HEX/M14	3.0X10MM
7	65	13MM/HEX/M14	3.0X10MM
8	65	13MM/HEX/M14	3.0X10MM
10	65	13MM/HEX/M14	3.0X10MM
12	65	13MM/HEX/M14	3.0X10MM
14	65	13MM/HEX/M14	3.0X10MM
16	65	13MM/HEX/M14	3.0X10MM
18	65	M14	3.0X10MM
20	65	M14	3.0X10MM
22	65	M14	3.0X10MM
25	65	M14	3.0X10MM
27	65	M14	3.0X10MM
28	65	M14	3.0X10MM
30	65	M14	3.0X10MM
32	65	M14	3.0X10MM
35	65	M14	3.0X10MM
38	65	M14	3.0X10MM
40	65	M14	3.0X10MM
43	65	M14	3.0X10MM

DAMEIER (MM)	ENGTH (MM)	CONNECTION	SEGMENT NO.
4	65	M14	3.0X10MM
50	65	M14	3.0X10MM
52	65	M14	3.0X10MM
55	65	M14	3.0X10MM
57	65	M14	3.0X10MM
60	65	M14	3.0X10MM
65	65	M14	3.0X10MM
67	65	M14	3.0X10MM
70	65	M14	3.0X10MM
75	65	M14	3.0X10MM
80	65	M14	3.0X10MM
83	65	M14	3.0X10MM
85	65	M14	3.0X10MM
90	65	M14	3.0X10MM
95	65	M14	3.0X10MM
100	65	M14	3.0X10MM
115	65	M14	3.0X10MM
120	65	M14	3.0X10MM
128	65	M14	3.0X10MM



TECHNICAL STANDARDS TCT SAW BLADE

FOR WOOD CUTTING



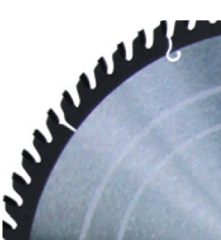
DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER	DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER	DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER
4	110	12~40	12	305	40~80	24	600	60~160
6	150	20~40	14	355	40~80			
7	180	24~40	16	405	40~160	26	650	60~160
7.5	185	24~60	18	455	60~160			
8	200	40~60	20	505	60~160	29.5	700	40~160
10	250	40~80	22	550	60~160			

FOR WOOD CUTTING



DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER	DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER	DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER
4	100	24~40	12	300	60~100	24	600	80~160
5	125	24~40	14	350	72~120			
6	150	24~60	16	400	72~140	26	650	80~160
7	180	36~80	18	450	72~140			
8	200	40~90	20	500	72~140	28	700	100~200
10	250	50~100	22	550	80~160			

FOR PLYWOOD AND LAMINATED BOARD



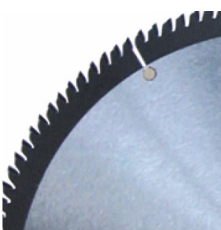
DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER
4	110	40
5	125	40
6	150	60
8	200	60~80
10	250	60~100
12	305	60~120
14	355	72~120
16	405	84~120

FOR GRASS



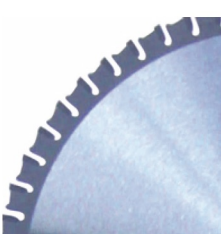
DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER
9	230	36~40
10	255	36~40~48
12	305	40~48~60

FOR ALUMINIUM AND PLASTIC

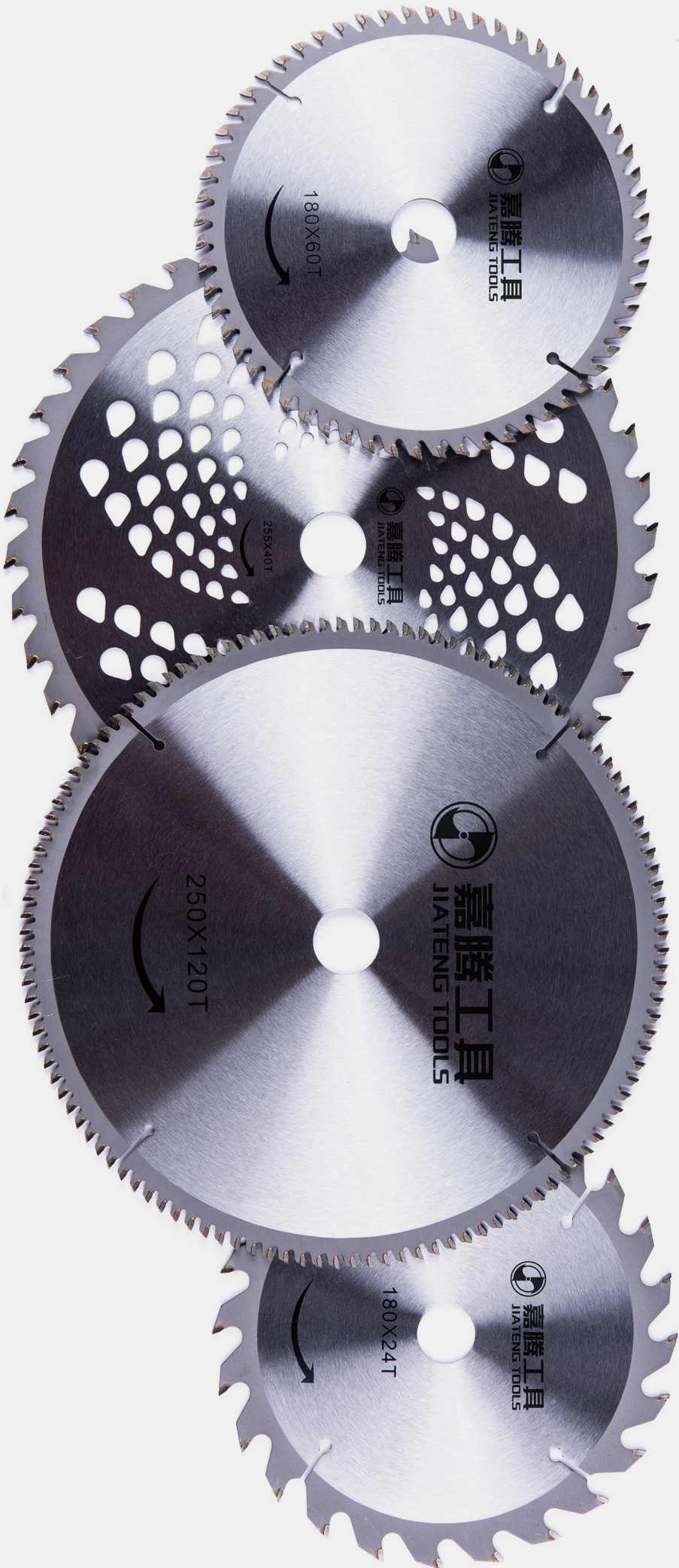


DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER	DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER	DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER
4	110	40	14	355	96~120			
5	125	40	16	405	100~120			
6	150	60	18	455	100~120	26	660	120~180
8	200	60~80	20	500	100~140			
10	250	60~100	22	550	120~140			
12	305	80~120	24	610	120~160			

FOR METAL CUTTING



DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER	DIAMEIER (INCH)	DIAMETER (MM)	TEETH NUMBER
4	100	24	8.5	210	48~60
4.5	115	24~40	10	250	60~80
5	125	24~40	12	305	72~96
6.5	160	28~40	14	355	84~108
7.5	190	36~48	16	405	84~120





TECHNICAL STANDARDS ABRASIVE DISC

SUPER THIN CUTTING WHEELS



SIZE(MM)	INCH
107X1.0X16	4"X1/21X5/8"
115X1.2X22	4.5"X1/21X7/8"
125X1.0X22	5"X1/21X7/8"
150X1.6X22	6"X1/16X7/8"
180X1.6X22	7"X1/16X7/8"

CUTTING WHEELS FOR STAINLESS STEEL



SIZE(MM)	INCH
100X2.5X16	4"X1/8X5/8"
355X2.5X254	14"X1/8X1"
400X3X25 4/32	16"X1/8X1"

DEPRESSED CENTER CUTTING WHEELS



SIZE(MM)	INCH
100X3X16	4"X1/8X5/8"
115X3X22	4.5"X1/8X7/8"
125X3X22	5"X1/8X7/8"
150X3X22	6"X1/8X7/8"
180X3X22	7"X1/8X7/8"
230X3X22	9"X1/8X7/8"

GRINDING WHEELS FOR METAL



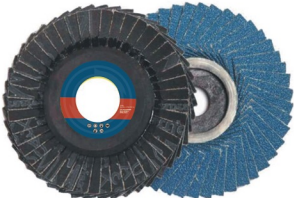
SIZE(MM)	INCH
100X4X16	4"X4/25X5/8"
100X6X16	4"X1/4X5/8"
115X6X22	4.5"X1/4X7/8"
125X6X22	5"X1/4X7/8"
150X6X22	6"X1/4X7/8"
180X6X22	7"X1/4X7/8"
230X6X22	9"X1/4X7/8"

BROW ALUMINUM OXIDE(FIBERGLASS BACKING)



SIZE(MM)	INCH
100X16	4"X5/8"
115X22	4/5"X7/8"
125X22	5"X7/8"
150X22	6"X7/8"
180X22	7"X7/8"

DISH SHAPE FLAP DISC



SIZE(MM)	INCH
100X45	50
100X45	80
100X45	120
100X45	240
100X45	320

