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PRODUCT
CATALOG**



Introducing Drills for Stainless Steel & Titanium

Built for machinists who
demand results and
refuse to compromise.

Tool Life That Leads.
Cost Per Hole That Wins.
Performance That Proves It.



VALOR[®]
HOLEMAKING

Victory Starts With Valor Holemaking

Introducing a New Era of CNC Drilling

Rethink your holmaking routine with Valor Holmaking's new line of the world's most premium quality, high performance drills and holmaking solutions. Our products are meticulously tested, engineered, and manufactured in the USA to deliver excellent service levels and quality that your shop deserves.



**Manufactured
in the USA**

**HARVEY PERFORMANCE
COMPANY**



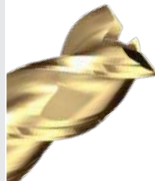
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Tool First**

More than 31,000 miniature
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Ship today, in your
machine tomorrow.



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Material-optimized high
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end mills. Run faster, push
harder, machine smarter.



**Make More with
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Exceptional quality turning
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at exceptional value.



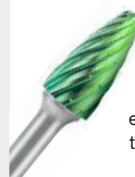
**Innovative Tools for
Innovative Materials**

The industry's most
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core cutting tools.



**Superior Grinding and
Finishing Solutions**

More than 1,200 precision-
engineered carbide burs with options
tailored to every grinding application.





From the experts behind **Helical Solutions'** High Performance End Mills, comes a **new brand** that delivers on what you want most from your drills.

Superior Hole Quality & Performance

Reduced Cost-Per-Hole

Reliable, Fully Stocked Inventory

Engineered & Manufactured in the USA.

OUR OFFERING

11 High Performance Spotting Drills



14 High Performance Drills for Aluminum & Aluminum Alloys



52 High Performance Drills for Steels



112 Combined Drill & Countersinks



113 High Performance Chamfer Cutters



118 Counterbores



121 Thread Mills



**Victory Starts With
Valor Holemaking**





Outstanding Hole Accuracy & Repeatability

Enjoy incredible repeatability, reliability, and part-to-part consistency with drills meticulously tested to deliver impeccable hole circularity, straightness, and true position that matches the best in the industry.



Exceptional Surface Finish

Achieve impressive surface finish that increases your through put, reduces your scraps, and eliminates post-processing operations. Our High Performance Drill geometries undergo a precision edge prep, coating, and post-polish process, allowing chips to effectively evacuate up and out of a part with minimal entry and exit burrs.



Amazing Tool Life & Performance

Rely on industry-leading material-specific geometry and coatings that minimize stress and breakage, resulting in reduced cutting forces, high quality holes, and long tool life.



Impressive Cost-Per-Hole Results

Get an immediate boost to your shop's efficiency by realizing impressive cost-per-hole results. Our High Performance Drills are priced competitively, built to last, and engineered to run at higher cutting parameters, effectively, and reliably, providing you with unbeatable cost savings.

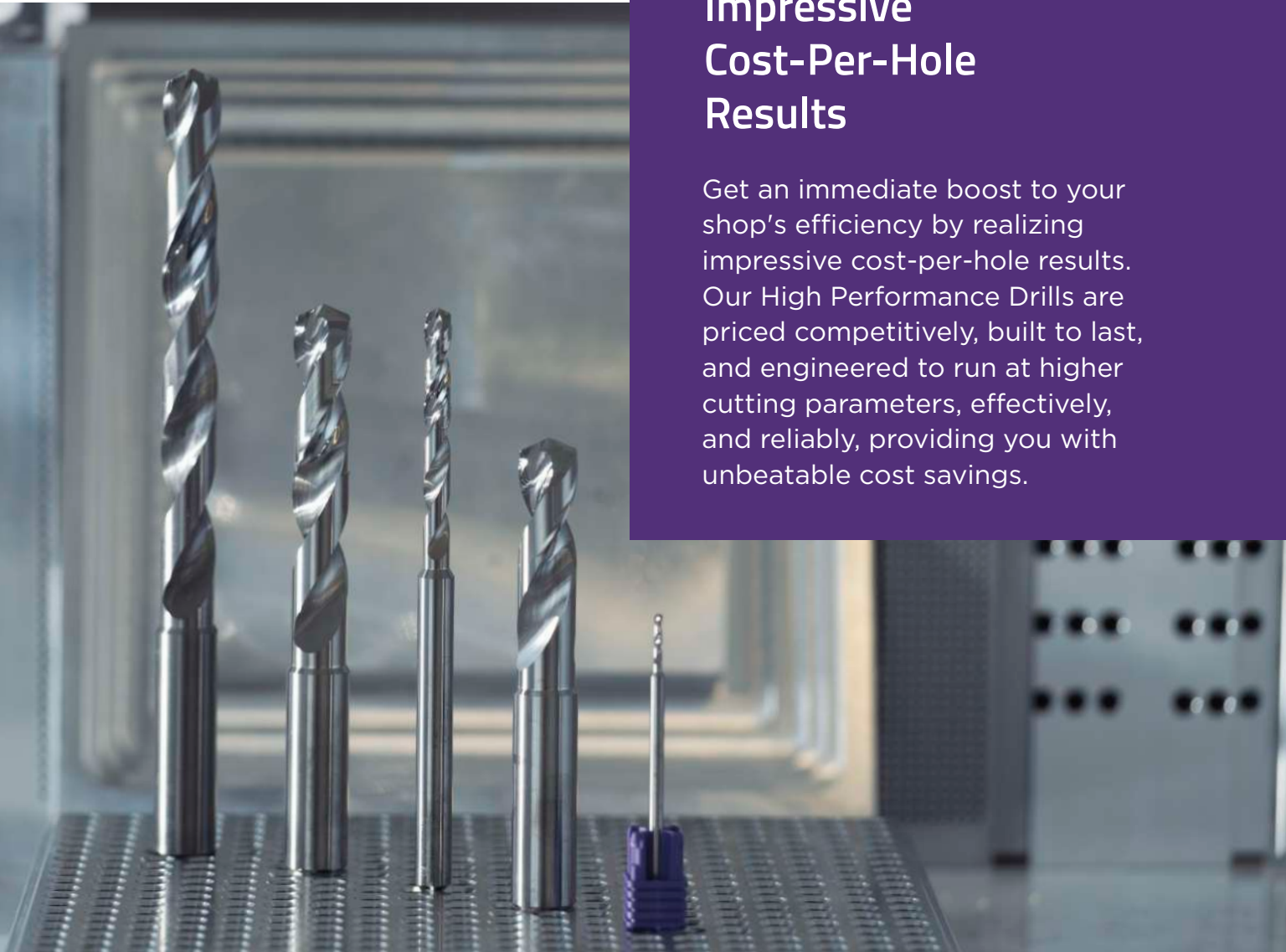




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High Performance Drills for Aluminum & Aluminum Alloys
Coolant-Through

45



High Performance Drills for Aluminum & Aluminum Alloys
Pilot Drills

High Performance Drills for Steels



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High Performance Drills for Steels



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High Performance Drills for Steels - Coolant-Through

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High Performance Drills for Stainless Steels & Titanium



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Val-Max Coating Technology

Valor Holemaking's proprietary high performance coating technology is specially engineered to revolutionize your drilling operations. At Valor, we select each coating to provide the best performance in the material it's optimized for, so you can drill more high quality holes with Valor tooling.

	Val-Max V	Val-Max X
		
Application Benefits	Val-Max V technology provides tooling with higher hardness, lubricity, and abrasion resistance to deliver outstanding performance in aluminum with high silicon content, and a variety of other non-ferrous materials.	Val-Max X technology is specially engineered to improve tool life and heat resistance in a wide variety of ferrous materials. Achieve excellent performance in difficult-to-machine materials including alloy steels, stainless steels, nickel alloys, titanium, and other high hardness materials up to 65 Rc.
Materials	Wrought Aluminum, Cast Aluminum, and Non-Ferrous Materials	Alloy Steels, Stainless Steels, Hardened Steels, Cast Iron, Nickel Alloys, and Titanium
Coating Appearance	Light Gold / Champagne	Copper
Max Temperature Usage	1,110° F	2,192° F
Microhardness (HV 0.05)	2243 (22 GPa)	4487 (44 GPa)
Coefficient of Friction	0.40	0.35

Tolerance Chart

High Performance Drills & Spotting Drills

Diameter (mm)	Drill Diameter D1 (h8)		Shank Diameter D2 (h6)	
	inch	microns	inch	microns
0 mm - 3 mm	+0" / - .0006"	+0 µm / -14 µm	+0" / - .0002"	+0 µm / -6 µm
3 mm - 6 mm	+0" / - .0007"	+0 µm / -18 µm	+0" / - .0003"	+0 µm / -8 µm
6 mm - 10 mm	+0" / - .0009"	+0 µm / -22 µm	+0" / - .0004"	+0 µm / -9 µm
10 mm - 18 mm	+0" / - .0011"	+0 µm / -27 µm	+0" / - .0004"	+0 µm / -11 µm



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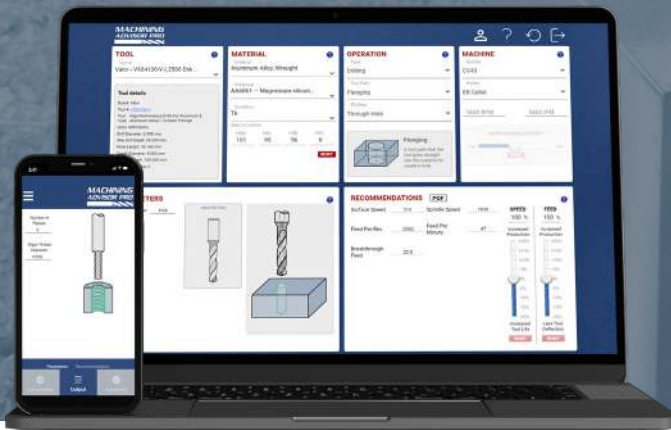
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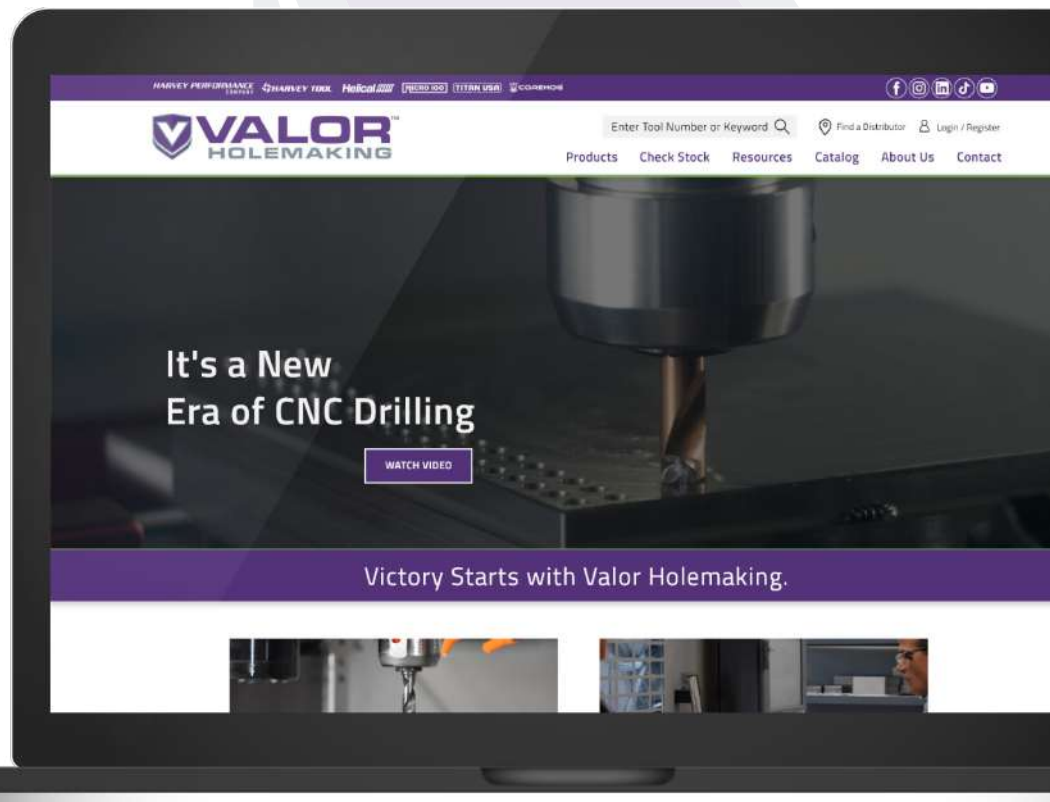
Simulation
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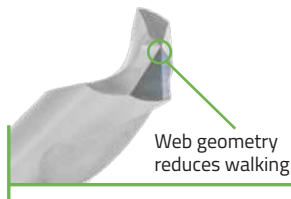


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In The Loupe
Blog





High Performance Spotting Drills

Delivers Incredible Accuracy for High Performance Drilling

- Highly engineered point design provides better positioning and stability for high performance drilling applications
- Thinned web to reduce walking
- Uncoated option well-suited for spot drilling Aluminum Alloys and other Non-Ferrous Alloys
- +2° / -0° angle tolerance
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



Excellent for aluminum and non-ferrous alloys

Outstanding in ferrous materials

NEW

NEW

NEW

NEW

NEW

NEW

NEW

NEW

NEW

NEW

NEW

Point Angle	Drill Diameter		Flute Length (inclusive of point angle)		Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max X Coated	
	inch	metric	inch	metric	L4	D2 (h6)*	L1	Tool #	\$USD	Tool #	\$USD
A ^{+2°} / _{-0°}	D1 (h8)*		L2		L4	D2 (h6)*	L1	Tool #	\$USD	Tool #	\$USD
90°	.1181	3.000 mm	.3937	10.00 mm	1.50 mm	3 mm	63 mm	V528289	29.70	V528289-X	37.20
	.1250	3.175 mm	.4300	10.92 mm	.0600	1/8	2-1/2	V736029	25.50	V736029-X	33.00
	.1575	4.000 mm	.5905	15.00 mm	2.00 mm	4 mm	63 mm	V401556	33.00	V401556-X	41.50
	.1875	4.762 mm	.6400	16.26 mm	.0900	3/16	2-1/2	V435128	29.50	V435128-X	38.00
	.2362	6.000 mm	.7874	20.00 mm	3.00 mm	6 mm	63 mm	V133679	50.90	V133679-X	61.00
	.2500	6.250 mm	.8600	21.84 mm	.1300	1/4	2-1/2	V473934	37.10	V473934-X	47.20
	.3125	7.937 mm	1.0700	27.18 mm	.1600	5/16	3	V199036	63.20	V199036-X	75.40
	.3150	8.000 mm	.7874	20.00 mm	4.00 mm	8 mm	75 mm	V925137	68.50	V925137-X	83.00
	.3750	9.525 mm	1.2900	32.77 mm	.1900	3/8	3	V293232	67.00	V293232-X	81.50
	.3937	10.000 mm	.9842	25.00 mm	5.00 mm	10 mm	75 mm	V870885	72.50	V870885-X	89.30
	.4375	11.112 mm	1.5000	38.10 mm	.2200	7/16	4	V423676	91.40	V423676-X	109.50
	.4724	12.000 mm	1.1811	30.00 mm	6.00 mm	12 mm	100 mm	V625792	125.40	V625792-X	146.50
	.5000	12.700 mm	1.7200	43.69 mm	.2500	1/2	4	V543417	115.70	V543417-X	136.80
	.6299	16.000 mm	1.5748	40.00 mm	8.00 mm	16 mm	100 mm	V397909	182.50	V397909-X	211.60
135°	.1181	3.000 mm	.3937	10.00 mm	.62 mm	3 mm	63 mm	V828908	29.70	V828908-X	37.20
	.1250	3.175 mm	.3900	9.91 mm	.0300	1/8	2-1/2	V421177	25.50	V421177-X	33.00
	.1575	4.000 mm	.5905	15.00 mm	.82 mm	4 mm	63 mm	V578430	33.00	V578430-X	41.50
	.1875	4.762 mm	.5900	14.99 mm	.0400	3/16	2-1/2	V451201	29.50	V451201-X	38.00
	.2362	6.000 mm	.7874	20.00 mm	1.24 mm	6 mm	63 mm	V126235	50.90	V126235-X	61.00
	.2500	6.250 mm	.7800	19.81 mm	.0500	1/4	2-1/2	V897903	37.10	V897903-X	47.20
	.3125	7.937 mm	.9800	24.89 mm	.0600	5/16	3	V273711	63.20	V273711-X	75.40

* For h6 and h8 tolerances, see page 8.

continued on next page





High Performance Spotting Drills (cont.)

continued from previous page

Point Angle A ^{+2°} _{-0°}	Drill Diameter		Flute Length (inclusive of point angle)		Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max X Coated	
	inch	metric	inch	metric				Tool #	\$USD	Tool #	\$USD
135°	D1 (h8)*		L2		L4	D2 (h6)*	L1				
	.3150	8.000 mm	.7874	20.00 mm	1.65 mm	8 mm	75 mm	V965469	68.50	V965469-X	83.00
	.3750	9.525 mm	1.1800	29.97 mm	.0800	3/8	3	V470012	67.00	V470012-X	81.50
	.3937	10.000 mm	.9842	25.00 mm	2.07 mm	10 mm	75 mm	V856609	72.50	V856609-X	89.30
	.4375	11.112 mm	1.3800	35.05 mm	.0900	7/16	4	V500070	91.40	V500070-X	109.50
	.4724	12.000 mm	1.1811	30.00 mm	2.48 mm	12 mm	100 mm	V705482	125.40	V705482-X	146.50
	.5000	12.700 mm	1.5700	39.88 mm	.1000	1/2	4	V781823	115.70	V781823-X	136.80
	.6299	16.000 mm	1.5748	40.00 mm	3.31 mm	16 mm	100 mm	V827330	182.50	V827330-X	211.60
140°	.1181	3.000 mm	.3937	10.00 mm	.54 mm	3 mm	63 mm	V261312	29.70	V261312-X	37.20
	.1250	3.175 mm	.3900	9.91 mm	.0200	1/8	2-1/2	V004558	25.50	V004558-X	33.00
	.1575	4.000 mm	.5905	15.00 mm	.72 mm	4 mm	63 mm	V589772	33.00	V589772-X	41.50
	.1875	4.762 mm	.5800	14.73 mm	.0300	3/16	2-1/2	V682811	29.50	V682811-X	38.00
	.2362	6.000 mm	.7874	20.00 mm	1.09 mm	6 mm	63 mm	V661563	50.90	V661563-X	61.00
	.2500	6.250 mm	.7800	19.81 mm	.0500	1/4	2-1/2	V927620	37.10	V927620-X	47.20
	.3125	7.937 mm	.9700	24.64 mm	.0600	5/16	3	V361885	63.20	V361885-X	75.40
	.3150	8.000 mm	.7874	20.00 mm	1.45 mm	8 mm	75 mm	V102716	68.50	V102716-X	83.00
	.3750	9.525 mm	1.1700	29.72 mm	.0700	3/8	3	V491170	67.00	V491170-X	81.50
	.3937	10.000 mm	.9842	25.00 mm	1.81 mm	10 mm	75 mm	V634710	72.50	V634710-X	89.30
	.4375	11.112 mm	1.3700	34.80 mm	.0800	7/16	4	V570186	91.40	V570186-X	109.50
	.4724	12.000 mm	1.1811	30.00 mm	2.18 mm	12 mm	100 mm	V443621	125.40	V443621-X	146.50
	.5000	12.700 mm	1.5600	39.62 mm	.0900	1/2	4	V680705	115.70	V680705-X	136.80
	.6299	16.000 mm	1.5748	40.00 mm	2.91 mm	16 mm	100 mm	V941564	182.50	V941564-X	211.60

* For h6 and h8 tolerances, see page 8.



Speeds & Feeds

High Performance Spotting Drills

Material Guide		Hardness	SFM	Chip Load (IPR) by Drill Diameter						
				1/8	3/16	1/4	3/8	1/2	5/8	3/4
Carbon Steels	10XX, 11XX, 12XX, 12LXX, ASTM A27, ASTM A36	29-37 Rc (279-344 HBn)	150	.00270	.00404	.00540	.00810	.01080	.01350	.01620
Low Alloy Steels	13XX, 41XX, 43XX, 51XX, 86XX, 93XX	29-37 Rc (279-344 HBn)	240	.00295	.00442	.00591	.00886	.01181	.01477	.01772
Tool Steels	A, L, O, P, W series	29-37 Rc (279-344 HBn)	125	.00270	.00404	.00540	.00810	.01080	.01350	.01620
		38-45 Rc (353-421 HBn)	100	.00180	.00269	.00360	.00540	.00720	.00900	.01080
	D, H, M, T, S series	29-37 Rc (279-344 HBn)	90	.00169	.00252	.00338	.00506	.00675	.00844	.01013
		38-45 Rc (353-421 HBn)	75	.00113	.00168	.00225	.00338	.00450	.00563	.00675
Austenitic Stainless Steels	Nitronic 50, Nitronic 60, 301, 303, 304, 304L, Incoloy 27-7MO, 316, 316L, 321, 347	29-37 Rc (279-344 HBn)	180	.00295	.00442	.00591	.00886	.01181	.01477	.01772
Martensitic & Ferritic Stainless Steels	403, 410, 416, 420, 440, 430, 446	29-37 Rc (279-344 HBn)	150	.00270	.00404	.00540	.00810	.01080	.01350	.01620
		38-45 Rc (353-421 HBn)	100	.00180	.00269	.00360	.00540	.00720	.00900	.01080
PH Stainless Steels	15-5, 17-4, Carpenter 450, Carpenter 465	29-37 Rc (279-344 HBn)	125	.00169	.00252	.00338	.00506	.00675	.00844	.01013
		38-45 Rc (353-421 HBn)	90	.00113	.00168	.00225	.00338	.00450	.00563	.00675
Nickel Alloys	Hastelloy C-22, Inconel 625, Waspaloy, René 41, Inconel 718, Incoloy 20	29-37 Rc (279-344 HBn)	70	.00169	.00252	.00338	.00506	.00675	.00844	.01013
		38-45 Rc (353-421 HBn)	50	.00113	.00168	.00225	.00338	.00450	.00563	.00675
Titanium Alloys	Ti 3Al-2.5V, Ti 6Al-4V, Ti 10V-2Fe-3Al	29-37 Rc (279-344 HBn)	100	.00169	.00252	.00338	.00506	.00675	.00844	.01013
		38-45 Rc (353-421 HBn)	75	.00113	.00168	.00225	.00338	.00450	.00563	.00675
Wrought Aluminum Alloys	2014, 5062, 6061, 7050, 7075, 7475	≤ 28 Rc (≤ 271 HBn)	600	.00338	.00505	.00675	.01013	.01350	.01688	.02025
	5% - 8% Si (4XXX)		600	.00304	.00454	.00608	.00911	.01215	.01519	.01823
	8% - 12% Si (4XXX)		480							
Cast Aluminum Alloys	319.0, 328.0, 355.0, 360.0, 380.0, 383.0, 390.0, 520.0, 535.0	≤ 28 Rc (≤ 271 HBn)	450	.00338	.00505	.00675	.01013	.01350	.01688	.02025
	3% - 5% Si (3XX, A3XX, C3XX, 4XX, A4XX, B4XX)		450	.00304	.00454	.00608	.00911	.01215	.01519	.01823
	5% - 8% Si (3XX, A3XX, C3XX, 4XX, A4XX, B4XX)		420							
	8% - 12% Si (3XX, A3XX, C3XX, 4XX, A4XX, B4XX)		390							
	12% - 16% Si (3XX, A3XX, C3XX, 4XX, A4XX, B4XX)		350							
Copper Alloys	Cu-ETP, CuBe2, CuZn30, CuZn36Pb3, CuZn10, CuSn5	≤ 28 Rc (≤ 271 HBn)	170-400	.00270	.00404	.00540	.00810	.01080	.01350	.01620
Magnesium Alloys	—	≤ 28 Rc (≤ 271 HBn)	900	.00338	.00505	.00675	.01013	.01350	.01688	.02025
Zinc Alloys			480							

General Notes

All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions. Chip loads reflect uncoated cutters and may be increased 10%-20% if coated. For ferrous materials with hardness ≤ 28 Rc, chip loads can be increased 10%-20%.

If you require additional information, Valor Holesmaking has a team of technical experts available to assist you through even the most challenging applications. Please contact us at **866-840-1505** or **Valortech@harveyperformance.com**.

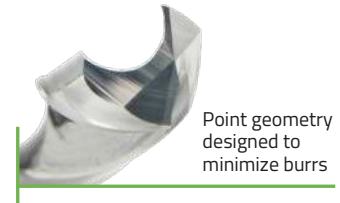




High Performance Drills

For Aluminum & Aluminum Alloys

Best-In-Class for High Performance Drilling in 6061 Aluminum



- Optimized for best-in-class performance in 6061 Aluminum with superior performance in Aluminum and Aluminum Alloys
- Geometry is designed to provide minimal entry and exit burrs
- Engineered cylindrical margin design ensures stability and improved performance
- Pre and post polish process delivers reduced friction and ensures outstanding chip management
- 135° point angle with 4-facet geometry for improved self-centering
- h6 shank tolerance for high precision tool holders
- Proprietary Val-Max V coating delivers outstanding performance in Aluminum Alloys and other Non-Ferrous Alloys
- Solid carbide



Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth					Tool #	\$USD	Tool #	\$USD
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1				
.0625 (1/16)		1.587 mm	.186	4.75 mm	(3x)	6.17 mm	.33 mm	3 mm	63 mm	V194685	36.00	V194685-V	40.50
.0625 (1/16)		1.587 mm	.312	7.95 mm	(5x)	9.51 mm	.33 mm	3 mm	63 mm	V810911	66.50	V810911-V	71.00
.0630		1.600 mm	.188	4.80 mm	(3x)	6.22 mm	.33 mm	3 mm	63 mm	V350774	36.00	V350774-V	40.50
.0630		1.600 mm	.314	8.00 mm	(5x)	9.58 mm	.33 mm	3 mm	63 mm	V440239	66.50	V440239-V	71.00
.0635	#52	1.612 mm	.190	4.85 mm	(3x)	6.27 mm	.33 mm	3 mm	63 mm	V848954	36.00	V848954-V	40.50
.0635	#52	1.612 mm	.316	8.05 mm	(5x)	9.65 mm	.33 mm	3 mm	63 mm	V770019	66.50	V770019-V	71.00
.0669	#51	1.700 mm	.200	5.10 mm	(3x)	6.61 mm	.35 mm	3 mm	63 mm	V912750	36.00	V912750-V	40.50
.0669	#51	1.700 mm	.334	8.50 mm	(5x)	10.18 mm	.35 mm	3 mm	63 mm	V962712	66.50	V962712-V	71.00
.0700	#50	1.778 mm	.210	5.35 mm	(3x)	6.92 mm	.37 mm	3 mm	63 mm	V927808	36.00	V927808-V	40.50
.0700	#50	1.778 mm	.349	8.90 mm	(5x)	10.65 mm	.37 mm	3 mm	63 mm	V116492	66.50	V116492-V	71.00
.0708		1.800 mm	.212	5.40 mm	(3x)	7.00 mm	.37 mm	3 mm	63 mm	V354482	36.00	V354482-V	40.50
.0708		1.800 mm	.353	9.00 mm	(5x)	10.78 mm	.37 mm	3 mm	63 mm	V269342	66.50	V269342-V	71.00
.0730	#49	1.854 mm	.218	5.55 mm	(3x)	7.21 mm	.38 mm	3 mm	63 mm	V066676	36.00	V066676-V	40.50
.0730	#49	1.854 mm	.363	9.25 mm	(5x)	11.11 mm	.38 mm	3 mm	63 mm	V606543	66.50	V606543-V	71.00
.0748		1.900 mm	.224	5.70 mm	(3x)	7.39 mm	.39 mm	3 mm	63 mm	V491940	36.00	V491940-V	40.50
.0748		1.900 mm	.373	9.50 mm	(5x)	11.38 mm	.39 mm	3 mm	63 mm	V732481	66.50	V732481-V	71.00

* For h6 and h8 tolerances, see page 8.

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Stocked in 3x and 5x hole depths





High Performance Drills

For Aluminum & Aluminum Alloys (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.0760	#48	1.930 mm	.227	5.80 mm	(3x)	7.51 mm	.40 mm	3 mm	63 mm	V139953	36.00	V139953-V	40.50
.0760	#48	1.930 mm	.379	9.65 mm	(5x)	11.56 mm	.40 mm	3 mm	63 mm	V933801	66.50	V933801-V	71.00
.0781 (5/64)		1.984 mm	.233	5.95 mm	(3x)	7.72 mm	.41 mm	3 mm	63 mm	V380076	36.00	V380076-V	40.50
.0781 (5/64)		1.984 mm	.389	9.90 mm	(5x)	11.88 mm	.41 mm	3 mm	63 mm	V870254	66.50	V870254-V	71.00
.0785	#47	1.993 mm	.235	6.00 mm	(3x)	7.75 mm	.41 mm	3 mm	63 mm	V060682	36.00	V060682-V	40.50
.0785	#47	1.993 mm	.391	9.95 mm	(5x)	11.94 mm	.41 mm	3 mm	63 mm	V005189	66.50	V005189-V	71.00
.0787		2.000 mm	.235	6.00 mm	(3x)	7.78 mm	.41 mm	3 mm	63 mm	V692266	36.00	V692266-V	40.50
.0787		2.000 mm	.393	10.00 mm	(5x)	11.98 mm	.41 mm	3 mm	63 mm	V843172	66.50	V843172-V	71.00
.0810	#46	2.057 mm	.241	6.15 mm	(3x)	8.00 mm	.43 mm	3 mm	63 mm	V652507	36.00	V652507-V	40.50
.0810	#46	2.057 mm	.404	10.30 mm	(5x)	12.32 mm	.43 mm	3 mm	63 mm	V056306	66.50	V056306-V	71.00
.0820	#45	2.082 mm	.245	6.25 mm	(3x)	8.10 mm	.43 mm	3 mm	63 mm	V562507	36.00	V562507-V	40.50
.0820	#45	2.082 mm	.408	10.40 mm	(5x)	12.47 mm	.43 mm	3 mm	63 mm	V299345	66.50	V299345-V	71.00
.0826		2.100 mm	.247	6.30 mm	(3x)	8.17 mm	.43 mm	3 mm	63 mm	V352580	36.00	V352580-V	40.50
.0826		2.100 mm	.412	10.50 mm	(5x)	12.58 mm	.43 mm	3 mm	63 mm	V249129	66.50	V249129-V	71.00
.0860	#44	2.184 mm	.257	6.55 mm	(3x)	8.50 mm	.45 mm	3 mm	63 mm	V299357	36.00	V299357-V	40.50
.0860	#44	2.184 mm	.428	10.90 mm	(5x)	13.08 mm	.45 mm	3 mm	63 mm	V685778	66.50	V685778-V	71.00
.0866		2.200 mm	.259	6.60 mm	(3x)	8.56 mm	.46 mm	3 mm	63 mm	V666234	36.00	V666234-V	40.50
.0866		2.200 mm	.432	11.00 mm	(5x)	13.18 mm	.46 mm	3 mm	63 mm	V259897	66.50	V259897-V	71.00
.0890	#43	2.260 mm	.267	6.80 mm	(3x)	8.79 mm	.47 mm	3 mm	63 mm	V709733	36.00	V709733-V	40.50
.0890	#43	2.260 mm	.444	11.30 mm	(5x)	13.54 mm	.47 mm	3 mm	63 mm	V161734	66.50	V161734-V	71.00
.0905		2.300 mm	.271	6.90 mm	(3x)	8.95 mm	.48 mm	3 mm	63 mm	V599496	36.00	V599496-V	40.50
.0905		2.300 mm	.451	11.50 mm	(5x)	13.78 mm	.48 mm	3 mm	63 mm	V652049	66.50	V652049-V	71.00
.0935	#42	2.374 mm	.279	7.10 mm	(3x)	9.24 mm	.49 mm	3 mm	63 mm	V593613	36.00	V593613-V	40.50
.0935	#42	2.374 mm	.465	11.85 mm	(5x)	14.22 mm	.49 mm	3 mm	63 mm	V619035	66.50	V619035-V	71.00
.0937 (3/32)		2.381 mm	.280	7.15 mm	(3x)	9.26 mm	.49 mm	3 mm	63 mm	V538054	36.00	V538054-V	40.50
.0937 (3/32)		2.381 mm	.467	11.90 mm	(5x)	14.26 mm	.49 mm	3 mm	63 mm	V572375	66.50	V572375-V	71.00
.0944		2.400 mm	.282	7.20 mm	(3x)	9.34 mm	.50 mm	3 mm	63 mm	V431788	36.00	V431788-V	40.50
.0944		2.400 mm	.471	12.00 mm	(5x)	14.38 mm	.50 mm	3 mm	63 mm	V785917	66.50	V785917-V	71.00
.0960	#41	2.438 mm	.286	7.30 mm	(3x)	9.48 mm	.50 mm	3 mm	63 mm	V898724	36.00	V898724-V	40.50
.0960	#41	2.438 mm	.479	12.20 mm	(5x)	14.60 mm	.50 mm	3 mm	63 mm	V931555	66.50	V931555-V	71.00
.0980	#40	2.489 mm	.292	7.45 mm	(3x)	9.68 mm	.52 mm	3 mm	63 mm	V712233	36.00	V712233-V	40.50
.0980	#40	2.489 mm	.489	12.45 mm	(5x)	14.91 mm	.52 mm	3 mm	63 mm	V800908	66.50	V800908-V	71.00
.0984		2.500 mm	.294	7.50 mm	(3x)	9.73 mm	.52 mm	3 mm	63 mm	V536698	36.00	V536698-V	40.50
.0984		2.500 mm	.491	12.50 mm	(5x)	14.98 mm	.52 mm	3 mm	63 mm	V445649	66.50	V445649-V	71.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth		Length						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.0995	#39	2.527 mm	.298	7.60 mm	(3x)	9.83 mm	.52 mm	3 mm	63 mm	V411934	36.00	V411934-V	40.50
.0995	#39	2.527 mm	.497	12.65 mm	(5x)	15.14 mm	.52 mm	3 mm	63 mm	V828685	66.50	V828685-V	71.00
.1015	#38	2.578 mm	.304	7.75 mm	(3x)	10.03 mm	.53 mm	3 mm	63 mm	V839028	36.00	V839028-V	40.50
.1015	#38	2.578 mm	.506	12.90 mm	(5x)	15.44 mm	.53 mm	3 mm	63 mm	V471230	66.50	V471230-V	71.00
.1023		2.600 mm	.306	7.80 mm	(3x)	10.12 mm	.54 mm	3 mm	63 mm	V315845	36.00	V315845-V	40.50
.1023		2.600 mm	.510	13.00 mm	(5x)	15.58 mm	.54 mm	3 mm	63 mm	V788414	66.50	V788414-V	71.00
.1040	#37	2.641 mm	.310	7.90 mm	(3x)	10.27 mm	.55 mm	3 mm	63 mm	V480351	36.00	V480351-V	40.50
.1040	#37	2.641 mm	.518	13.20 mm	(5x)	15.82 mm	.55 mm	3 mm	63 mm	V127253	66.50	V127253-V	71.00
.1062		2.700 mm	.318	8.10 mm	(3x)	10.50 mm	.56 mm	3 mm	63 mm	V481040	36.00	V481040-V	40.50
.1062		2.700 mm	.530	13.50 mm	(5x)	16.17 mm	.56 mm	3 mm	63 mm	V165528	66.50	V165528-V	71.00
.1065	#36	2.705 mm	.318	8.10 mm	(3x)	10.52 mm	.56 mm	3 mm	63 mm	V396022	36.00	V396022-V	40.50
.1065	#36	2.705 mm	.532	13.55 mm	(5x)	16.20 mm	.56 mm	3 mm	63 mm	V243691	66.50	V243691-V	71.00
.1093 (7/64)		2.778 mm	.328	8.35 mm	(3x)	10.81 mm	.58 mm	3 mm	63 mm	V954203	36.00	V954203-V	40.50
.1093 (7/64)		2.778 mm	.546	13.90 mm	(5x)	16.64 mm	.58 mm	3 mm	63 mm	V195817	66.50	V195817-V	71.00
.1100	#35	2.794 mm	.330	8.40 mm	(3x)	10.87 mm	.58 mm	3 mm	63 mm	V973247	36.00	V973247-V	40.50
.1100	#35	2.794 mm	.548	13.95 mm	(5x)	16.74 mm	.58 mm	3 mm	63 mm	V525217	66.50	V525217-V	71.00
.1102		2.800 mm	.330	8.40 mm	(3x)	10.89 mm	.58 mm	3 mm	63 mm	V838163	36.00	V838163-V	40.50
.1102		2.800 mm	.550	14.00 mm	(5x)	16.77 mm	.58 mm	3 mm	63 mm	V802613	66.50	V802613-V	71.00
.1110	#34	2.819 mm	.332	8.45 mm	(3x)	10.97 mm	.58 mm	3 mm	63 mm	V501205	36.00	V501205-V	40.50
.1110	#34	2.819 mm	.554	14.10 mm	(5x)	16.89 mm	.58 mm	3 mm	63 mm	V222388	66.50	V222388-V	71.00
.1130	#33	2.870 mm	.337	8.60 mm	(3x)	11.17 mm	.59 mm	3 mm	63 mm	V138783	36.00	V138783-V	40.50
.1130	#33	2.870 mm	.563	14.35 mm	(5x)	17.19 mm	.59 mm	3 mm	63 mm	V963537	66.50	V963537-V	71.00
.1141		2.900 mm	.341	8.70 mm	(3x)	11.28 mm	.60 mm	3 mm	63 mm	V729681	36.00	V729681-V	40.50
.1141		2.900 mm	.569	14.50 mm	(5x)	17.37 mm	.60 mm	3 mm	63 mm	V960568	66.50	V960568-V	71.00
.1160	#32	2.946 mm	.347	8.85 mm	(3x)	11.46 mm	.61 mm	3 mm	63 mm	V431133	36.00	V431133-V	40.50
.1160	#32	2.946 mm	.579	14.75 mm	(5x)	17.65 mm	.61 mm	3 mm	63 mm	V660128	66.50	V660128-V	71.00
.1181		3.000 mm	.353	9.00 mm	(3x)	11.67 mm	.62 mm	4 mm	63 mm	V438428	36.00	V438428-V	40.50
.1181		3.000 mm	.589	15.00 mm	(5x)	17.97 mm	.62 mm	4 mm	63 mm	V116498	66.50	V116498-V	71.00
.1200	#31	3.048 mm	.359	9.15 mm	(3x)	11.86 mm	.63 mm	4 mm	63 mm	V710387	36.00	V710387-V	41.50
.1200	#31	3.048 mm	.599	15.25 mm	(5x)	18.26 mm	.63 mm	4 mm	63 mm	V232225	66.50	V232225-V	71.00
.1220		3.100 mm	.365	9.30 mm	(3x)	12.06 mm	.64 mm	4 mm	63 mm	V793541	36.00	V793541-V	41.50
.1220		3.100 mm	.609	15.50 mm	(5x)	18.57 mm	.64 mm	4 mm	63 mm	V569668	66.50	V569668-V	71.00
.1250 (1/8)		3.175 mm	.373	9.50 mm	(3x)	12.35 mm	.66 mm	4 mm	63 mm	V367456	36.00	V367456-V	41.50
.1250 (1/8)		3.175 mm	.624	15.90 mm	(5x)	19.02 mm	.66 mm	4 mm	63 mm	V844439	66.50	V844439-V	71.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth		Length						
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD	Tool #	\$USD
.1260		3.200 mm	.377	9.60 mm	(3x)	12.45 mm	.66 mm	4 mm	63 mm	V660156	36.00	V660156-V	41.50
.1260		3.200 mm	.628	16.00 mm	(5x)	19.17 mm	.66 mm	4 mm	63 mm	V390641	66.50	V390641-V	71.00
.1285	#30	3.263 mm	.385	9.80 mm	(3x)	12.70 mm	.68 mm	4 mm	63 mm	V171673	36.00	V171673-V	41.50
.1285	#30	3.263 mm	.640	16.30 mm	(5x)	19.55 mm	.68 mm	4 mm	63 mm	V761951	66.50	V761951-V	71.00
.1300		3.300 mm	.389	9.90 mm	(3x)	12.84 mm	.68 mm	4 mm	63 mm	V171897	36.00	V171897-V	41.50
.1300		3.300 mm	.648	16.50 mm	(5x)	19.77 mm	.68 mm	4 mm	63 mm	V999845	66.50	V999845-V	71.00
.1338		3.400 mm	.400	10.20 mm	(3x)	13.23 mm	.70 mm	4 mm	63 mm	V781405	36.00	V781405-V	41.50
.1338		3.400 mm	.668	17.00 mm	(5x)	20.37 mm	.70 mm	4 mm	63 mm	V262808	66.50	V262808-V	71.00
.1360	#29	3.454 mm	.406	10.35 mm	(3x)	13.44 mm	.72 mm	4 mm	63 mm	V723395	36.00	V723395-V	41.50
.1360	#29	3.454 mm	.677	17.25 mm	(5x)	20.69 mm	.72 mm	4 mm	63 mm	V038060	66.50	V038060-V	71.00
.1377		3.500 mm	.412	10.50 mm	(3x)	13.62 mm	.72 mm	4 mm	63 mm	V839259	36.00	V839259-V	41.50
.1377		3.500 mm	.687	17.50 mm	(5x)	20.97 mm	.72 mm	4 mm	63 mm	V920406	66.50	V920406-V	71.00
.1406 (9/64)	#28	3.571 mm	.420	10.70 mm	(3x)	13.89 mm	.74 mm	4 mm	63 mm	V740344	36.00	V740344-V	41.50
.1406 (9/64)	#28	3.571 mm	.701	17.85 mm	(5x)	21.39 mm	.74 mm	4 mm	63 mm	V747490	66.50	V747490-V	71.00
.1417		3.600 mm	.424	10.80 mm	(3x)	14.01 mm	.75 mm	4 mm	63 mm	V137136	36.00	V137136-V	41.50
.1417		3.600 mm	.707	18.00 mm	(5x)	21.57 mm	.75 mm	4 mm	63 mm	V813201	66.50	V813201-V	71.00
.1440	#27	3.657 mm	.430	10.95 mm	(3x)	14.23 mm	.76 mm	4 mm	63 mm	V463566	36.00	V463566-V	41.50
.1440	#27	3.657 mm	.719	18.30 mm	(5x)	21.91 mm	.76 mm	4 mm	63 mm	V437622	66.50	V437622-V	71.00
.1456		3.700 mm	.436	11.10 mm	(3x)	14.40 mm	.77 mm	4 mm	63 mm	V282861	36.00	V282861-V	41.50
.1456		3.700 mm	.727	18.50 mm	(5x)	22.17 mm	.77 mm	4 mm	63 mm	V334748	66.50	V334748-V	71.00
.1470	#26	3.733 mm	.440	11.20 mm	(3x)	14.53 mm	.77 mm	4 mm	63 mm	V735522	36.00	V735522-V	41.50
.1470	#26	3.733 mm	.732	18.65 mm	(5x)	22.36 mm	.77 mm	4 mm	63 mm	V898871	66.50	V898871-V	71.00
.1495	#25	3.797 mm	.448	11.40 mm	(3x)	14.77 mm	.79 mm	4 mm	63 mm	V988586	36.00	V988586-V	41.50
.1495	#25	3.797 mm	.746	19.00 mm	(5x)	22.75 mm	.79 mm	4 mm	63 mm	V075083	66.50	V075083-V	71.00
.1496		3.800 mm	.448	11.40 mm	(3x)	14.79 mm	.79 mm	4 mm	63 mm	V728547	36.00	V728547-V	41.50
.1496		3.800 mm	.746	19.00 mm	(5x)	22.77 mm	.79 mm	4 mm	63 mm	V454017	66.50	V454017-V	71.00
.1520	#24	3.860 mm	.455	11.60 mm	(3x)	15.02 mm	.80 mm	4 mm	63 mm	V350429	36.00	V350429-V	41.50
.1520	#24	3.860 mm	.758	19.30 mm	(5x)	23.13 mm	.80 mm	4 mm	63 mm	V338360	66.50	V338360-V	71.00
.1535		3.900 mm	.459	11.70 mm	(3x)	15.18 mm	.81 mm	4 mm	63 mm	V438470	36.00	V438470-V	41.50
.1535		3.900 mm	.766	19.50 mm	(5x)	23.37 mm	.81 mm	4 mm	63 mm	V878966	66.50	V878966-V	71.00
.1540	#23	3.911 mm	.461	11.75 mm	(3x)	15.22 mm	.81 mm	4 mm	63 mm	V457996	36.00	V457996-V	41.50
.1540	#23	3.911 mm	.768	19.55 mm	(5x)	23.43 mm	.81 mm	4 mm	63 mm	V135119	66.50	V135119-V	71.00
.1562 (5/32)		3.968 mm	.467	11.90 mm	(3x)	15.44 mm	.82 mm	4 mm	63 mm	V648893	36.00	V648893-V	41.50
.1562 (5/32)		3.968 mm	.780	19.85 mm	(5x)	23.77 mm	.82 mm	4 mm	63 mm	V458952	66.50	V458952-V	71.00
.1570	#22	3.987 mm	.469	11.95 mm	(3x)	15.51 mm	.83 mm	4 mm	63 mm	V982304	36.00	V982304-V	41.50
.1570	#22	3.987 mm	.784	19.95 mm	(5x)	23.89 mm	.83 mm	4 mm	63 mm	V389031	66.50	V389031-V	71.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.1574		4.000 mm	.471	12.00 mm	(3x)	15.56 mm	.83 mm	6 mm	63 mm	V421509	36.00	V421509-V	41.50
.1574		4.000 mm	.786	20.00 mm	(5x)	23.96 mm	.83 mm	6 mm	75 mm	V338334	66.50	V338334-V	71.00
.1590	#21	4.038 mm	.475	12.10 mm	(3x)	15.71 mm	.84 mm	6 mm	63 mm	V305616	42.00	V305616-V	48.00
.1590	#21	4.038 mm	.793	20.20 mm	(5x)	24.19 mm	.84 mm	6 mm	75 mm	V600359	72.50	V600359-V	79.00
.1610	#20	4.089 mm	.481	12.25 mm	(3x)	15.91 mm	.85 mm	6 mm	63 mm	V842765	42.00	V842765-V	48.00
.1610	#20	4.089 mm	.803	20.45 mm	(5x)	24.50 mm	.85 mm	6 mm	75 mm	V916972	72.50	V916972-V	79.00
.1614		4.100 mm	.483	12.30 mm	(3x)	15.95 mm	.85 mm	6 mm	63 mm	V174492	42.00	V174492-V	48.00
.1614		4.100 mm	.805	20.50 mm	(5x)	24.56 mm	.85 mm	6 mm	75 mm	V885910	72.50	V885910-V	79.00
.1653		4.200 mm	.495	12.60 mm	(3x)	16.34 mm	.87 mm	6 mm	63 mm	V106883	42.00	V106883-V	48.00
.1653		4.200 mm	.825	21.00 mm	(5x)	25.16 mm	.87 mm	6 mm	75 mm	V261808	72.50	V261808-V	79.00
.1660	#19	4.216 mm	.497	12.65 mm	(3x)	16.41 mm	.87 mm	6 mm	63 mm	V420755	42.00	V420755-V	48.00
.1660	#19	4.216 mm	.829	21.10 mm	(5x)	25.26 mm	.87 mm	6 mm	75 mm	V884494	72.50	V884494-V	79.00
.1692		4.300 mm	.506	12.90 mm	(3x)	16.73 mm	.89 mm	6 mm	63 mm	V831806	42.00	V831806-V	48.00
.1692		4.300 mm	.844	21.50 mm	(5x)	25.76 mm	.89 mm	6 mm	75 mm	V911321	72.50	V911321-V	79.00
.1695	#18	4.305 mm	.506	12.90 mm	(3x)	16.75 mm	.89 mm	6 mm	63 mm	V589699	42.00	V589699-V	48.00
.1695	#18	4.305 mm	.844	21.50 mm	(5x)	25.79 mm	.89 mm	6 mm	75 mm	V293587	72.50	V293587-V	79.00
.1718 (11/64)		4.365 mm	.514	13.10 mm	(3x)	16.99 mm	.90 mm	6 mm	63 mm	V639993	42.00	V639993-V	48.00
.1718 (11/64)		4.365 mm	.858	21.85 mm	(5x)	26.15 mm	.90 mm	6 mm	75 mm	V374159	72.50	V374159-V	79.00
.1730	#17	4.394 mm	.518	13.20 mm	(3x)	17.10 mm	.91 mm	6 mm	63 mm	V911686	42.00	V911686-V	48.00
.1730	#17	4.394 mm	.862	21.95 mm	(5x)	26.33 mm	.91 mm	6 mm	75 mm	V097719	72.50	V097719-V	79.00
.1732		4.400 mm	.518	13.20 mm	(3x)	17.12 mm	.91 mm	6 mm	63 mm	V582968	42.00	V582968-V	48.00
.1732		4.400 mm	.864	22.00 mm	(5x)	26.36 mm	.91 mm	6 mm	75 mm	V197740	72.50	V197740-V	79.00
.1770	#16	4.495 mm	.530	13.50 mm	(3x)	17.49 mm	.93 mm	6 mm	63 mm	V906585	42.00	V906585-V	48.00
.1770	#16	4.495 mm	.884	22.50 mm	(5x)	26.93 mm	.93 mm	6 mm	75 mm	V258860	72.50	V258860-V	79.00
.1771		4.500 mm	.530	13.50 mm	(3x)	17.51 mm	.93 mm	6 mm	63 mm	V956195	42.00	V956195-V	48.00
.1771		4.500 mm	.884	22.50 mm	(5x)	26.96 mm	.93 mm	6 mm	75 mm	V441617	72.50	V441617-V	79.00
.1800	#15	4.572 mm	.538	13.70 mm	(3x)	17.79 mm	.95 mm	6 mm	63 mm	V952252	42.00	V952252-V	48.00
.1800	#15	4.572 mm	.898	22.85 mm	(5x)	27.39 mm	.95 mm	6 mm	75 mm	V603476	72.50	V603476-V	79.00
.1811		4.600 mm	.542	13.80 mm	(3x)	17.90 mm	.95 mm	6 mm	63 mm	V866527	42.00	V866527-V	48.00
.1811		4.600 mm	.903	23.00 mm	(5x)	27.56 mm	.95 mm	6 mm	75 mm	V224773	72.50	V224773-V	79.00
.1820	#14	4.622 mm	.544	13.85 mm	(3x)	17.99 mm	.96 mm	6 mm	63 mm	V697062	42.00	V697062-V	48.00
.1820	#14	4.622 mm	.907	23.10 mm	(5x)	27.69 mm	.96 mm	6 mm	75 mm	V777354	72.50	V777354-V	79.00
.1850	#13	4.700 mm	.554	14.10 mm	(3x)	18.29 mm	.97 mm	6 mm	63 mm	V344265	42.00	V344265-V	48.00
.1850	#13	4.700 mm	.923	23.50 mm	(5x)	28.16 mm	.97 mm	6 mm	75 mm	V433090	72.50	V433090-V	79.00
.1875 (3/16)		4.762 mm	.561	14.30 mm	(3x)	18.53 mm	.99 mm	6 mm	63 mm	V850660	42.00	V850660-V	48.00
.1875 (3/16)		4.762 mm	.935	23.80 mm	(5x)	28.53 mm	.99 mm	6 mm	75 mm	V771194	72.50	V771194-V	79.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth		Length						
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD	Tool #	\$USD
.1890	#12	4.800 mm	.565	14.40 mm	(3x)	18.68 mm	.99 mm	6 mm	63 mm	V568557	42.00	V568557-V	48.00
.1890	#12	4.800 mm	.943	24.00 mm	(5x)	28.76 mm	.99 mm	6 mm	75 mm	V856912	72.50	V856912-V	79.00
.1910	#11	4.851 mm	.571	14.55 mm	(3x)	18.88 mm	1.00 mm	6 mm	63 mm	V747801	42.00	V747801-V	48.00
.1910	#11	4.851 mm	.953	24.25 mm	(5x)	29.06 mm	1.00 mm	6 mm	75 mm	V532445	72.50	V532445-V	79.00
.1930		4.900 mm	.577	14.70 mm	(3x)	19.07 mm	1.01 mm	6 mm	63 mm	V728480	42.00	V728480-V	48.00
.1930		4.900 mm	.962	24.50 mm	(5x)	29.36 mm	1.01 mm	6 mm	75 mm	V367252	72.50	V367252-V	79.00
.1935	#10	4.914 mm	.579	14.75 mm	(3x)	19.12 mm	1.02 mm	6 mm	63 mm	V700659	42.00	V700659-V	48.00
.1935	#10	4.914 mm	.964	24.55 mm	(5x)	29.44 mm	1.02 mm	6 mm	75 mm	V676032	72.50	V676032-V	79.00
.1960	#9	4.978 mm	.587	14.95 mm	(3x)	19.37 mm	1.03 mm	6 mm	63 mm	V043384	42.00	V043384-V	48.00
.1960	#9	4.978 mm	.978	24.90 mm	(5x)	29.83 mm	1.03 mm	6 mm	75 mm	V590355	72.50	V590355-V	79.00
.1968		5.000 mm	.589	15.00 mm	(3x)	19.46 mm	1.04 mm	6 mm	63 mm	V330699	42.00	V330699-V	48.00
.1968		5.000 mm	.982	25.00 mm	(5x)	29.96 mm	1.04 mm	6 mm	75 mm	V234458	72.50	V234458-V	79.00
.1990	#8	5.054 mm	.595	15.15 mm	(3x)	19.67 mm	1.05 mm	6 mm	63 mm	V565140	42.00	V565140-V	48.00
.1990	#8	5.054 mm	.992	25.25 mm	(5x)	30.28 mm	1.05 mm	6 mm	75 mm	V140225	72.50	V140225-V	79.00
.2007		5.100 mm	.601	15.30 mm	(3x)	19.85 mm	1.06 mm	6 mm	63 mm	V368184	42.00	V368184-V	48.00
.2007		5.100 mm	1.002	25.50 mm	(5x)	30.56 mm	1.06 mm	6 mm	75 mm	V224687	72.50	V224687-V	79.00
.2009	#7	5.105 mm	.601	15.30 mm	(3x)	19.87 mm	1.06 mm	6 mm	63 mm	V246045	42.00	V246045-V	48.00
.2009	#7	5.105 mm	1.004	25.55 mm	(5x)	30.59 mm	1.06 mm	6 mm	75 mm	V221870	72.50	V221870-V	79.00
.2031 (13/64)		5.159 mm	.609	15.50 mm	(3x)	20.08 mm	1.07 mm	6 mm	63 mm	V977882	42.00	V977882-V	48.00
.2031 (13/64)		5.159 mm	1.013	25.80 mm	(5x)	30.91 mm	1.07 mm	6 mm	75 mm	V420736	72.50	V420736-V	79.00
.2040	#6	5.181 mm	.611	15.55 mm	(3x)	20.16 mm	1.07 mm	6 mm	63 mm	V538548	42.00	V538548-V	48.00
.2040	#6	5.181 mm	1.017	25.90 mm	(5x)	31.04 mm	1.07 mm	6 mm	75 mm	V376545	72.50	V376545-V	79.00
.2047		5.200 mm	.613	15.60 mm	(3x)	20.24 mm	1.08 mm	6 mm	63 mm	V485216	42.00	V485216-V	48.00
.2047		5.200 mm	1.021	26.00 mm	(5x)	31.16 mm	1.08 mm	6 mm	75 mm	V357300	72.50	V357300-V	79.00
.2055	#5	5.219 mm	.615	15.65 mm	(3x)	20.31 mm	1.08 mm	6 mm	63 mm	V875933	42.00	V875933-V	48.00
.2055	#5	5.219 mm	1.025	26.10 mm	(5x)	31.27 mm	1.08 mm	6 mm	75 mm	V303034	72.50	V303034-V	79.00
.2086		5.300 mm	.624	15.90 mm	(3x)	20.63 mm	1.10 mm	6 mm	63 mm	V110782	42.00	V110782-V	48.00
.2086		5.300 mm	1.041	26.50 mm	(5x)	31.76 mm	1.10 mm	6 mm	75 mm	V727361	72.50	V727361-V	79.00
.2090	#4	5.308 mm	.624	15.90 mm	(3x)	20.66 mm	1.10 mm	6 mm	63 mm	V241018	42.00	V241018-V	48.00
.2090	#4	5.308 mm	1.043	26.55 mm	(5x)	31.80 mm	1.10 mm	6 mm	75 mm	V968866	72.50	V968866-V	79.00
.2125		5.400 mm	.636	16.20 mm	(3x)	21.01 mm	1.12 mm	6 mm	63 mm	V836676	42.00	V836676-V	48.00
.2125		5.400 mm	1.061	27.00 mm	(5x)	32.35 mm	1.12 mm	6 mm	75 mm	V834281	72.50	V834281-V	79.00
.2129	#3	5.410 mm	.638	16.25 mm	(3x)	21.05 mm	1.12 mm	6 mm	63 mm	V321229	42.00	V321229-V	48.00
.2129	#3	5.410 mm	1.063	27.05 mm	(5x)	32.41 mm	1.12 mm	6 mm	75 mm	V336628	72.50	V336628-V	79.00
.2165		5.500 mm	.648	16.50 mm	(3x)	21.40 mm	1.14 mm	6 mm	63 mm	V106542	42.00	V106542-V	48.00
.2165		5.500 mm	1.080	27.50 mm	(5x)	32.95 mm	1.14 mm	6 mm	75 mm	V492013	72.50	V492013-V	79.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth		Length						
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD	Tool #	\$USD
.2187 (7/32)		5.556 mm	.654	16.65 mm	(3x)	21.62 mm	1.15 mm	6 mm	63 mm	V656902	42.00	V656902-V	48.00
.2187 (7/32)		5.556 mm	1.092	27.80 mm	(5x)	33.29 mm	1.15 mm	6 mm	75 mm	V700600	72.50	V700600-V	79.00
.2205		5.600 mm	.660	16.80 mm	(3x)	21.79 mm	1.16 mm	6 mm	63 mm	V770182	42.00	V770182-V	48.00
.2205		5.600 mm	1.100	28.00 mm	(5x)	33.55 mm	1.16 mm	6 mm	75 mm	V896743	72.50	V896743-V	79.00
.2210	#2	5.613 mm	.662	16.85 mm	(3x)	21.84 mm	1.16 mm	6 mm	63 mm	V531725	42.00	V531725-V	48.00
.2210	#2	5.613 mm	1.102	28.05 mm	(5x)	33.63 mm	1.16 mm	6 mm	75 mm	V403428	72.50	V403428-V	79.00
.2244		5.700 mm	.672	17.10 mm	(3x)	22.18 mm	1.18 mm	6 mm	63 mm	V403734	42.00	V403734-V	48.00
.2244		5.700 mm	1.120	28.50 mm	(5x)	34.15 mm	1.18 mm	6 mm	75 mm	V770664	72.50	V770664-V	79.00
.2280	#1	5.791 mm	.681	17.35 mm	(3x)	22.54 mm	1.20 mm	6 mm	63 mm	V642955	42.00	V642955-V	48.00
.2280	#1	5.791 mm	1.137	28.95 mm	(5x)	34.70 mm	1.20 mm	6 mm	75 mm	V547450	72.50	V547450-V	79.00
.2283		5.800 mm	.683	17.40 mm	(3x)	22.57 mm	1.20 mm	6 mm	63 mm	V899133	42.00	V899133-V	48.00
.2283		5.800 mm	1.139	29.00 mm	(5x)	34.75 mm	1.20 mm	6 mm	75 mm	V380680	72.50	V380680-V	79.00
.2322		5.900 mm	.695	17.70 mm	(3x)	22.96 mm	1.22 mm	6 mm	63 mm	V590239	42.00	V590239-V	48.00
.2322		5.900 mm	1.159	29.50 mm	(5x)	35.35 mm	1.22 mm	6 mm	75 mm	V537399	72.50	V537399-V	79.00
.2340	A	5.943 mm	.701	17.85 mm	(3x)	23.13 mm	1.23 mm	6 mm	63 mm	V286479	42.00	V286479-V	48.00
.2340	A	5.943 mm	1.167	29.70 mm	(5x)	35.61 mm	1.23 mm	6 mm	75 mm	V785134	72.50	V785134-V	79.00
.2343 (15/64)		5.953 mm	.701	17.85 mm	(3x)	23.17 mm	1.23 mm	6 mm	63 mm	V353700	42.00	V353700-V	48.00
.2343 (15/64)		5.953 mm	1.169	29.75 mm	(5x)	35.67 mm	1.23 mm	6 mm	75 mm	V430775	72.50	V430775-V	79.00
.2362		6.000 mm	.707	18.00 mm	(3x)	23.35 mm	1.24 mm	8 mm	75 mm	V234178	42.00	V234178-V	48.00
.2362		6.000 mm	1.179	30.00 mm	(5x)	35.95 mm	1.24 mm	8 mm	100 mm	V927207	72.50	V927207-V	79.00
.2380	B	6.045 mm	.713	18.15 mm	(3x)	23.52 mm	1.25 mm	8 mm	75 mm	V288432	44.00	V288432-V	51.50
.2380	B	6.045 mm	1.188	30.25 mm	(5x)	36.22 mm	1.25 mm	8 mm	100 mm	V892981	84.00	V892981-V	92.50
.2401		6.100 mm	.719	18.30 mm	(3x)	23.74 mm	1.26 mm	8 mm	75 mm	V524686	44.00	V524686-V	51.50
.2401		6.100 mm	1.198	30.50 mm	(5x)	36.55 mm	1.26 mm	8 mm	100 mm	V699896	84.00	V699896-V	92.50
.2420	C	6.146 mm	.725	18.45 mm	(3x)	23.92 mm	1.27 mm	8 mm	75 mm	V168340	44.00	V168340-V	51.50
.2420	C	6.146 mm	1.208	30.75 mm	(5x)	36.82 mm	1.27 mm	8 mm	100 mm	V337360	84.00	V337360-V	92.50
.2440		6.200 mm	.730	18.60 mm	(3x)	24.13 mm	1.28 mm	8 mm	75 mm	V147676	44.00	V147676-V	51.50
.2440		6.200 mm	1.218	31.00 mm	(5x)	37.15 mm	1.28 mm	8 mm	100 mm	V973436	84.00	V973436-V	92.50
.2460	D	6.248 mm	.736	18.75 mm	(3x)	24.32 mm	1.29 mm	8 mm	75 mm	V441246	44.00	V441246-V	51.50
.2460	D	6.248 mm	1.228	31.25 mm	(5x)	37.44 mm	1.29 mm	8 mm	100 mm	V572625	84.00	V572625-V	92.50
.2480		6.300 mm	.742	18.90 mm	(3x)	24.52 mm	1.30 mm	8 mm	75 mm	V627609	44.00	V627609-V	51.50
.2480		6.300 mm	1.237	31.50 mm	(5x)	37.75 mm	1.30 mm	8 mm	100 mm	V753195	84.00	V753195-V	92.50
.2500 (1/4)	E	6.350 mm	.748	19.05 mm	(3x)	24.71 mm	1.32 mm	8 mm	75 mm	V463324	44.00	V463324-V	51.50
.2500 (1/4)	E	6.350 mm	1.247	31.75 mm	(5x)	38.05 mm	1.32 mm	8 mm	100 mm	V890966	84.00	V890966-V	92.50
.2520		6.400 mm	.754	19.20 mm	(3x)	24.91 mm	1.33 mm	8 mm	75 mm	V470320	44.00	V470320-V	51.50
.2520		6.400 mm	1.257	32.00 mm	(5x)	38.35 mm	1.33 mm	8 mm	100 mm	V610421	84.00	V610421-V	92.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
		D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD	Tool #	\$USD
.2559		6.500 mm	.766	19.50 mm	(3x)	25.30 mm	1.35 mm	8 mm	75 mm	V904272	44.00	V904272-V	51.50
.2559		6.500 mm	1.277	32.50 mm	(5x)	38.95 mm	1.35 mm	8 mm	100 mm	V503831	84.00	V503831-V	92.50
.2570	F	6.528 mm	.770	19.60 mm	(3x)	25.40 mm	1.35 mm	8 mm	75 mm	V682687	44.00	V682687-V	51.50
.2570	F	6.528 mm	1.283	32.65 mm	(5x)	39.11 mm	1.35 mm	8 mm	100 mm	V989829	84.00	V989829-V	92.50
.2598		6.600 mm	.778	19.80 mm	(3x)	25.69 mm	1.37 mm	8 mm	75 mm	V591811	44.00	V591811-V	51.50
.2598		6.600 mm	1.296	33.00 mm	(5x)	39.55 mm	1.37 mm	8 mm	100 mm	V548894	84.00	V548894-V	92.50
.2609	G	6.629 mm	.782	19.90 mm	(3x)	25.80 mm	1.37 mm	8 mm	75 mm	V650465	44.00	V650465-V	51.50
.2609	G	6.629 mm	1.302	33.15 mm	(5x)	39.72 mm	1.37 mm	8 mm	100 mm	V150997	84.00	V150997-V	92.50
.2638		6.700 mm	.789	20.10 mm	(3x)	26.07 mm	1.39 mm	8 mm	75 mm	V863925	44.00	V863925-V	51.50
.2638		6.700 mm	1.316	33.50 mm	(5x)	40.14 mm	1.39 mm	8 mm	100 mm	V956352	84.00	V956352-V	92.50
.2656 (17/64)		6.746 mm	.795	20.25 mm	(3x)	26.25 mm	1.40 mm	8 mm	75 mm	V230372	44.00	V230372-V	51.50
.2656 (17/64)		6.746 mm	1.326	33.75 mm	(5x)	40.42 mm	1.40 mm	8 mm	100 mm	V330745	84.00	V330745-V	92.50
.2659	H	6.756 mm	.795	20.25 mm	(3x)	26.29 mm	1.40 mm	8 mm	75 mm	V290623	44.00	V290623-V	51.50
.2659	H	6.756 mm	1.328	33.80 mm	(5x)	40.48 mm	1.40 mm	8 mm	100 mm	V436154	84.00	V436154-V	92.50
.2677		6.800 mm	.801	20.40 mm	(3x)	26.46 mm	1.41 mm	8 mm	75 mm	V586533	44.00	V586533-V	51.50
.2677		6.800 mm	1.336	34.00 mm	(5x)	40.74 mm	1.41 mm	8 mm	100 mm	V112067	84.00	V112067-V	92.50
.2717		6.900 mm	.813	20.70 mm	(3x)	26.85 mm	1.43 mm	8 mm	75 mm	V585346	44.00	V585346-V	51.50
.2717		6.900 mm	1.355	34.50 mm	(5x)	41.34 mm	1.43 mm	8 mm	100 mm	V766452	84.00	V766452-V	92.50
.2719	I	6.908 mm	.813	20.70 mm	(3x)	26.88 mm	1.43 mm	8 mm	75 mm	V953821	44.00	V953821-V	51.50
.2719	I	6.908 mm	1.357	34.55 mm	(5x)	41.39 mm	1.43 mm	8 mm	100 mm	V300138	84.00	V300138-V	92.50
.2756		7.000 mm	.825	21.00 mm	(3x)	27.24 mm	1.45 mm	8 mm	75 mm	V793057	44.00	V793057-V	51.50
.2756		7.000 mm	1.375	35.00 mm	(5x)	41.94 mm	1.45 mm	8 mm	100 mm	V812884	84.00	V812884-V	92.50
.2769	J	7.035 mm	.829	21.10 mm	(3x)	27.38 mm	1.46 mm	8 mm	75 mm	V796718	45.50	V796718-V	53.00
.2769	J	7.035 mm	1.381	35.15 mm	(5x)	42.15 mm	1.46 mm	8 mm	100 mm	V390365	86.00	V390365-V	94.00
.2795		7.100 mm	.837	21.30 mm	(3x)	27.63 mm	1.47 mm	8 mm	75 mm	V971883	45.50	V971883-V	53.00
.2795		7.100 mm	1.395	35.50 mm	(5x)	42.54 mm	1.47 mm	8 mm	100 mm	V526212	86.00	V526212-V	94.00
.2809	K	7.137 mm	.841	21.40 mm	(3x)	27.78 mm	1.48 mm	8 mm	75 mm	V031270	45.50	V031270-V	53.00
.2809	K	7.137 mm	1.403	35.70 mm	(5x)	42.76 mm	1.48 mm	8 mm	100 mm	V215139	86.00	V215139-V	94.00
.2812 (9/32)		7.142 mm	.842	21.45 mm	(3x)	27.79 mm	1.48 mm	8 mm	75 mm	V745358	45.50	V745358-V	53.00
.2812 (9/32)		7.142 mm	1.403	35.70 mm	(5x)	42.79 mm	1.48 mm	8 mm	100 mm	V974925	86.00	V974925-V	94.00
.2834		7.200 mm	.848	21.60 mm	(3x)	28.02 mm	1.49 mm	8 mm	75 mm	V318182	45.50	V318182-V	53.00
.2834		7.200 mm	1.414	36.00 mm	(5x)	43.14 mm	1.49 mm	8 mm	100 mm	V243742	86.00	V243742-V	94.00
.2874		7.300 mm	.860	21.90 mm	(3x)	28.41 mm	1.51 mm	8 mm	75 mm	V400766	45.50	V400766-V	53.00
.2874		7.300 mm	1.434	36.50 mm	(5x)	43.74 mm	1.51 mm	8 mm	100 mm	V340474	86.00	V340474-V	94.00
.2900	L	7.366 mm	.868	22.10 mm	(3x)	28.67 mm	1.53 mm	8 mm	75 mm	V081281	45.50	V081281-V	53.00
.2900	L	7.366 mm	1.448	36.85 mm	(5x)	44.14 mm	1.53 mm	8 mm	100 mm	V266244	86.00	V266244-V	94.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth		Length						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.2913		7.400 mm	.872	22.20 mm	(3x)	28.80 mm	1.53 mm	8 mm	75 mm	V583325	45.50	V583325-V	53.00
.2913		7.400 mm	1.454	37.00 mm	(5x)	44.34 mm	1.53 mm	8 mm	100 mm	V884228	86.00	V884228-V	94.00
.2950	M	7.493 mm	.884	22.50 mm	(3x)	29.16 mm	1.55 mm	8 mm	75 mm	V818677	45.50	V818677-V	53.00
.2950	M	7.493 mm	1.471	37.45 mm	(5x)	44.90 mm	1.55 mm	8 mm	100 mm	V520509	86.00	V520509-V	94.00
.2952		7.500 mm	.884	22.50 mm	(3x)	29.19 mm	1.55 mm	8 mm	75 mm	V833945	45.50	V833945-V	53.00
.2952		7.500 mm	1.473	37.50 mm	(5x)	44.94 mm	1.55 mm	8 mm	100 mm	V759862	86.00	V759862-V	94.00
.2969 (19/64)		7.541 mm	.888	22.60 mm	(3x)	29.35 mm	1.56 mm	8 mm	75 mm	V222380	45.50	V222380-V	53.00
.2969 (19/64)		7.541 mm	1.481	37.70 mm	(5x)	45.18 mm	1.56 mm	8 mm	100 mm	V440832	86.00	V440832-V	94.00
.2992		7.600 mm	.896	22.80 mm	(3x)	29.58 mm	1.57 mm	8 mm	75 mm	V931842	45.50	V931842-V	53.00
.2992		7.600 mm	1.493	38.00 mm	(5x)	45.54 mm	1.57 mm	8 mm	100 mm	V883385	86.00	V883385-V	94.00
.3020	N	7.671 mm	.903	23.00 mm	(3x)	29.85 mm	1.59 mm	8 mm	75 mm	V016939	45.50	V016939-V	53.00
.3020	N	7.671 mm	1.507	38.35 mm	(5x)	45.96 mm	1.59 mm	8 mm	100 mm	V415219	86.00	V415219-V	94.00
.3031		7.700 mm	.907	23.10 mm	(3x)	29.97 mm	1.59 mm	8 mm	75 mm	V649826	45.50	V649826-V	53.00
.3031		7.700 mm	1.513	38.50 mm	(5x)	46.14 mm	1.59 mm	8 mm	100 mm	V696121	86.00	V696121-V	94.00
.3071		7.800 mm	.919	23.40 mm	(3x)	30.36 mm	1.62 mm	8 mm	75 mm	V402097	45.50	V402097-V	53.00
.3071		7.800 mm	1.532	39.00 mm	(5x)	46.74 mm	1.62 mm	8 mm	100 mm	V914982	86.00	V914982-V	94.00
.3110		7.900 mm	.931	23.70 mm	(3x)	30.75 mm	1.64 mm	8 mm	75 mm	V217709	45.50	V217709-V	53.00
.3110		7.900 mm	1.552	39.50 mm	(5x)	47.34 mm	1.64 mm	8 mm	100 mm	V960211	86.00	V960211-V	94.00
.3125 (5/16)		7.937 mm	.935	23.80 mm	(3x)	30.89 mm	1.64 mm	8 mm	75 mm	V785367	45.50	V785367-V	53.00
.3125 (5/16)		7.937 mm	1.560	39.70 mm	(5x)	47.56 mm	1.64 mm	8 mm	100 mm	V504447	86.00	V504447-V	94.00
.3150		8.000 mm	.943	24.00 mm	(3x)	31.13 mm	1.66 mm	10 mm	75 mm	V899583	45.50	V899583-V	53.00
.3150		8.000 mm	1.572	40.00 mm	(5x)	47.93 mm	1.66 mm	10 mm	100 mm	V959977	86.00	V959977-V	94.00
.3159	O	8.026 mm	.947	24.10 mm	(3x)	31.24 mm	1.66 mm	10 mm	75 mm	V032635	52.00	V032635-V	61.00
.3159	O	8.026 mm	1.577	40.15 mm	(5x)	48.09 mm	1.66 mm	10 mm	100 mm	V141969	101.50	V141969-V	111.00
.3189		8.100 mm	.954	24.30 mm	(3x)	31.52 mm	1.68 mm	10 mm	75 mm	V926444	52.00	V926444-V	61.00
.3189		8.100 mm	1.591	40.50 mm	(5x)	48.53 mm	1.68 mm	10 mm	100 mm	V759625	101.50	V759625-V	111.00
.3228		8.200 mm	.966	24.60 mm	(3x)	31.91 mm	1.70 mm	10 mm	75 mm	V724837	52.00	V724837-V	61.00
.3228		8.200 mm	1.611	41.00 mm	(5x)	49.13 mm	1.70 mm	10 mm	100 mm	V873208	101.50	V873208-V	111.00
.3229	P	8.204 mm	.966	24.60 mm	(3x)	31.93 mm	1.70 mm	10 mm	75 mm	V372182	52.00	V372182-V	61.00
.3229	P	8.204 mm	1.611	41.00 mm	(5x)	49.16 mm	1.70 mm	10 mm	100 mm	V236956	101.50	V236956-V	111.00
.3268		8.300 mm	.978	24.90 mm	(3x)	32.30 mm	1.72 mm	10 mm	75 mm	V555652	52.00	V555652-V	61.00
.3268		8.300 mm	1.630	41.50 mm	(5x)	49.73 mm	1.72 mm	10 mm	100 mm	V573287	101.50	V573287-V	111.00
.3281 (21/64)		8.333 mm	.982	25.00 mm	(3x)	32.43 mm	1.73 mm	10 mm	75 mm	V733277	52.00	V733277-V	61.00
.3281 (21/64)		8.333 mm	1.636	41.65 mm	(5x)	49.93 mm	1.73 mm	10 mm	100 mm	V919579	101.50	V919579-V	111.00
.3307		8.400 mm	.990	25.20 mm	(3x)	32.69 mm	1.74 mm	10 mm	75 mm	V167766	52.00	V167766-V	61.00
.3307		8.400 mm	1.650	42.00 mm	(5x)	50.33 mm	1.74 mm	10 mm	100 mm	V633981	101.50	V633981-V	111.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.3319	Q	8.432 mm	.994	25.30 mm	(3x)	32.82 mm	1.75 mm	10 mm	75 mm	V701245	52.00	V701245-V	61.00
.3319	Q	8.432 mm	1.656	42.15 mm	(5x)	50.52 mm	1.75 mm	10 mm	100 mm	V433751	101.50	V433751-V	111.00
.3346		8.500 mm	1.002	25.50 mm	(3x)	33.08 mm	1.76 mm	10 mm	75 mm	V408664	52.00	V408664-V	61.00
.3346		8.500 mm	1.670	42.50 mm	(5x)	50.93 mm	1.76 mm	10 mm	100 mm	V861150	101.50	V861150-V	111.00
.3386		8.600 mm	1.013	25.80 mm	(3x)	33.47 mm	1.78 mm	10 mm	75 mm	V390096	52.00	V390096-V	61.00
.3386		8.600 mm	1.689	43.00 mm	(5x)	51.53 mm	1.78 mm	10 mm	100 mm	V844326	101.50	V844326-V	111.00
.3389	R	8.610 mm	1.015	25.85 mm	(3x)	33.51 mm	1.78 mm	10 mm	75 mm	V992693	52.00	V992693-V	61.00
.3389	R	8.610 mm	1.691	43.05 mm	(5x)	51.59 mm	1.78 mm	10 mm	100 mm	V332666	101.50	V332666-V	111.00
.3425		8.700 mm	1.025	26.10 mm	(3x)	33.86 mm	1.80 mm	10 mm	75 mm	V151969	52.00	V151969-V	61.00
.3425		8.700 mm	1.709	43.50 mm	(5x)	52.13 mm	1.80 mm	10 mm	100 mm	V879893	101.50	V879893-V	111.00
.3438 (11/32)		8.732 mm	1.029	26.20 mm	(3x)	33.98 mm	1.81 mm	10 mm	75 mm	V104671	52.00	V104671-V	61.00
.3438 (11/32)		8.732 mm	1.715	43.65 mm	(5x)	52.32 mm	1.81 mm	10 mm	100 mm	V335452	101.50	V335452-V	111.00
.3465		8.800 mm	1.037	26.40 mm	(3x)	34.25 mm	1.82 mm	10 mm	75 mm	V891293	52.00	V891293-V	61.00
.3465		8.800 mm	1.729	44.00 mm	(5x)	52.73 mm	1.82 mm	10 mm	100 mm	V260828	101.50	V260828-V	111.00
.3479	S	8.839 mm	1.041	26.50 mm	(3x)	34.40 mm	1.83 mm	10 mm	75 mm	V165338	52.00	V165338-V	61.00
.3479	S	8.839 mm	1.737	44.20 mm	(5x)	52.96 mm	1.83 mm	10 mm	100 mm	V926902	101.50	V926902-V	111.00
.3504		8.900 mm	1.049	26.70 mm	(3x)	34.64 mm	1.84 mm	10 mm	75 mm	V365922	52.00	V365922-V	61.00
.3504		8.900 mm	1.748	44.50 mm	(5x)	53.33 mm	1.84 mm	10 mm	100 mm	V781535	101.50	V781535-V	111.00
.3543		9.000 mm	1.061	27.00 mm	(3x)	35.03 mm	1.86 mm	10 mm	75 mm	V386241	52.00	V386241-V	61.00
.3543		9.000 mm	1.768	45.00 mm	(5x)	53.93 mm	1.86 mm	10 mm	100 mm	V656849	101.50	V656849-V	111.00
.3579	T	9.093 mm	1.072	27.30 mm	(3x)	35.39 mm	1.88 mm	10 mm	75 mm	V202316	68.00	V202316-V	77.00
.3579	T	9.093 mm	1.786	45.45 mm	(5x)	54.48 mm	1.88 mm	10 mm	100 mm	V113760	113.50	V113760-V	123.00
.3583		9.100 mm	1.072	27.30 mm	(3x)	35.42 mm	1.88 mm	10 mm	75 mm	V637527	68.00	V637527-V	77.00
.3583		9.100 mm	1.788	45.50 mm	(5x)	54.53 mm	1.88 mm	10 mm	100 mm	V134756	113.50	V134756-V	123.00
.3594 (23/64)		9.128 mm	1.076	27.40 mm	(3x)	35.53 mm	1.89 mm	10 mm	75 mm	V324647	68.00	V324647-V	77.00
.3594 (23/64)		9.128 mm	1.794	45.65 mm	(5x)	54.69 mm	1.89 mm	10 mm	100 mm	V928900	113.50	V928900-V	123.00
.3622		9.200 mm	1.084	27.60 mm	(3x)	35.81 mm	1.91 mm	10 mm	75 mm	V332586	68.00	V332586-V	77.00
.3622		9.200 mm	1.807	46.00 mm	(5x)	55.13 mm	1.91 mm	10 mm	100 mm	V326648	113.50	V326648-V	123.00
.3661		9.300 mm	1.096	27.90 mm	(3x)	36.19 mm	1.93 mm	10 mm	75 mm	V589859	68.00	V589859-V	77.00
.3661		9.300 mm	1.827	46.50 mm	(5x)	55.72 mm	1.93 mm	10 mm	100 mm	V975106	113.50	V975106-V	123.00
.3679	U	9.347 mm	1.102	28.05 mm	(3x)	36.38 mm	1.94 mm	10 mm	75 mm	V143815	68.00	V143815-V	77.00
.3679	U	9.347 mm	1.837	46.75 mm	(5x)	56.01 mm	1.94 mm	10 mm	100 mm	V429034	113.50	V429034-V	123.00
.3701		9.400 mm	1.108	28.20 mm	(3x)	36.58 mm	1.95 mm	10 mm	75 mm	V656422	68.00	V656422-V	77.00
.3701		9.400 mm	1.847	47.00 mm	(5x)	56.32 mm	1.95 mm	10 mm	100 mm	V807457	113.50	V807457-V	123.00
.3740		9.500 mm	1.120	28.50 mm	(3x)	36.97 mm	1.97 mm	10 mm	75 mm	V306233	68.00	V306233-V	77.00
.3740		9.500 mm	1.866	47.50 mm	(5x)	56.92 mm	1.97 mm	10 mm	100 mm	V983594	113.50	V983594-V	123.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.3750 (3/8)		9.525 mm	1.123	28.60 mm	(3x)	37.07 mm	1.97 mm	10 mm	75 mm	V893492	68.00	V893492-V	77.00
.3750 (3/8)		9.525 mm	1.872	47.65 mm	(5x)	57.07 mm	1.97 mm	10 mm	100 mm	V937306	113.50	V937306-V	123.00
.3770	V	9.575 mm	1.127	28.70 mm	(3x)	37.27 mm	1.98 mm	10 mm	75 mm	V043059	68.00	V043059-V	77.00
.3770	V	9.575 mm	1.882	47.90 mm	(5x)	57.37 mm	1.98 mm	10 mm	100 mm	V541568	113.50	V541568-V	123.00
.3780		9.600 mm	1.131	28.80 mm	(3x)	37.36 mm	1.99 mm	10 mm	75 mm	V883648	68.00	V883648-V	77.00
.3780		9.600 mm	1.886	48.00 mm	(5x)	57.52 mm	1.99 mm	10 mm	100 mm	V796500	113.50	V796500-V	123.00
.3819		9.700 mm	1.143	29.10 mm	(3x)	37.75 mm	2.01 mm	10 mm	75 mm	V695542	68.00	V695542-V	77.00
.3819		9.700 mm	1.906	48.50 mm	(5x)	58.12 mm	2.01 mm	10 mm	100 mm	V247210	113.50	V247210-V	123.00
.3858		9.800 mm	1.155	29.40 mm	(3x)	38.14 mm	2.03 mm	10 mm	75 mm	V676169	68.00	V676169-V	77.00
.3858		9.800 mm	1.925	49.00 mm	(5x)	58.72 mm	2.03 mm	10 mm	100 mm	V823528	113.50	V823528-V	123.00
.3859	W	9.804 mm	1.155	29.40 mm	(3x)	38.16 mm	2.03 mm	10 mm	75 mm	V556517	68.00	V556517-V	77.00
.3859	W	9.804 mm	1.925	49.00 mm	(5x)	58.75 mm	2.03 mm	10 mm	100 mm	V743002	113.50	V743002-V	123.00
.3898		9.900 mm	1.167	29.70 mm	(3x)	38.53 mm	2.05 mm	10 mm	75 mm	V263386	68.00	V263386-V	77.00
.3898		9.900 mm	1.945	49.50 mm	(5x)	59.32 mm	2.05 mm	10 mm	100 mm	V879509	113.50	V879509-V	123.00
.3906 (25/64)		9.921 mm	1.169	29.75 mm	(3x)	38.61 mm	2.05 mm	10 mm	75 mm	V405503	68.00	V405503-V	77.00
.3906 (25/64)		9.921 mm	1.949	49.60 mm	(5x)	59.45 mm	2.05 mm	10 mm	100 mm	V287196	113.50	V287196-V	123.00
.3937		10.000 mm	1.179	30.00 mm	(3x)	38.92 mm	2.07 mm	12 mm	100 mm	V532196	74.00	V532196-V	88.00
.3937		10.000 mm	1.965	50.00 mm	(5x)	59.92 mm	2.07 mm	12 mm	125 mm	V856596	113.50	V856596-V	123.00
.3969	X	10.083 mm	1.188	30.25 mm	(3x)	39.24 mm	2.09 mm	12 mm	100 mm	V869635	87.50	V869635-V	101.00
.3969	X	10.083 mm	1.980	50.40 mm	(5x)	60.42 mm	2.09 mm	12 mm	125 mm	V213558	170.00	V213558-V	184.00
.3976		10.100 mm	1.190	30.30 mm	(3x)	39.31 mm	2.09 mm	12 mm	100 mm	V621639	87.50	V621639-V	101.00
.3976		10.100 mm	1.984	50.50 mm	(5x)	60.52 mm	2.09 mm	12 mm	125 mm	V848057	170.00	V848057-V	184.00
.4016		10.200 mm	1.202	30.60 mm	(3x)	39.70 mm	2.11 mm	12 mm	100 mm	V641835	87.50	V641835-V	101.00
.4016		10.200 mm	2.004	51.00 mm	(5x)	61.12 mm	2.11 mm	12 mm	125 mm	V210101	170.00	V210101-V	184.00
.4039	Y	10.261 mm	1.210	30.80 mm	(3x)	39.94 mm	2.13 mm	12 mm	100 mm	V411827	87.50	V411827-V	101.00
.4039	Y	10.261 mm	2.016	51.30 mm	(5x)	61.48 mm	2.13 mm	12 mm	125 mm	V625795	170.00	V625795-V	184.00
.4055		10.300 mm	1.214	30.90 mm	(3x)	40.09 mm	2.13 mm	12 mm	100 mm	V589355	87.50	V589355-V	101.00
.4055		10.300 mm	2.023	51.50 mm	(5x)	61.72 mm	2.13 mm	12 mm	125 mm	V333787	170.00	V333787-V	184.00
.4062 (13/32)		10.317 mm	1.216	30.95 mm	(3x)	40.15 mm	2.14 mm	12 mm	100 mm	V576080	87.50	V576080-V	101.00
.4062 (13/32)		10.317 mm	2.027	51.60 mm	(5x)	61.82 mm	2.14 mm	12 mm	125 mm	V227073	170.00	V227073-V	184.00
.4094		10.400 mm	1.226	31.20 mm	(3x)	40.48 mm	2.15 mm	12 mm	100 mm	V708410	87.50	V708410-V	101.00
.4094		10.400 mm	2.043	52.00 mm	(5x)	62.32 mm	2.15 mm	12 mm	125 mm	V195280	170.00	V195280-V	184.00
.4129	Z	10.490 mm	1.235	31.45 mm	(3x)	40.83 mm	2.17 mm	12 mm	100 mm	V471254	87.50	V471254-V	101.00
.4129	Z	10.490 mm	2.061	52.45 mm	(5x)	62.86 mm	2.17 mm	12 mm	125 mm	V994112	170.00	V994112-V	184.00
.4134		10.500 mm	1.237	31.50 mm	(3x)	40.87 mm	2.17 mm	12 mm	100 mm	V879946	87.50	V879946-V	101.00
.4134		10.500 mm	2.063	52.50 mm	(5x)	62.92 mm	2.17 mm	12 mm	125 mm	V496598	170.00	V496598-V	184.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD	Tool #	\$USD
.4173		10.600 mm	1.249	31.80 mm	(3x)	41.26 mm	2.20 mm	12 mm	100 mm	V455218	87.50	V455218-V	101.00
.4173		10.600 mm	2.082	53.00 mm	(5x)	63.52 mm	2.20 mm	12 mm	125 mm	V452314	170.00	V452314-V	184.00
.4213		10.700 mm	1.261	32.10 mm	(3x)	41.64 mm	2.22 mm	12 mm	100 mm	V155404	87.50	V155404-V	101.00
.4213		10.700 mm	2.102	53.50 mm	(5x)	64.11 mm	2.22 mm	12 mm	125 mm	V634560	170.00	V634560-V	184.00
.4219 (27/64)		10.716 mm	1.263	32.15 mm	(3x)	41.71 mm	2.22 mm	12 mm	100 mm	V826638	87.50	V826638-V	101.00
.4219 (27/64)		10.716 mm	2.106	53.60 mm	(5x)	64.21 mm	2.22 mm	12 mm	125 mm	V814056	170.00	V814056-V	184.00
.4252		10.800 mm	1.273	32.40 mm	(3x)	42.03 mm	2.24 mm	12 mm	100 mm	V213641	87.50	V213641-V	101.00
.4252		10.800 mm	2.122	54.00 mm	(5x)	64.71 mm	2.24 mm	12 mm	125 mm	V455956	170.00	V455956-V	184.00
.4291		10.900 mm	1.285	32.70 mm	(3x)	42.42 mm	2.26 mm	12 mm	100 mm	V681558	87.50	V681558-V	101.00
.4291		10.900 mm	2.141	54.50 mm	(5x)	65.31 mm	2.26 mm	12 mm	125 mm	V872776	170.00	V872776-V	184.00
.4331		11.000 mm	1.296	33.00 mm	(3x)	42.81 mm	2.28 mm	12 mm	100 mm	V486441	87.50	V486441-V	101.00
.4331		11.000 mm	2.161	55.00 mm	(5x)	65.91 mm	2.28 mm	12 mm	125 mm	V840142	170.00	V840142-V	184.00
.4370		11.100 mm	1.308	33.30 mm	(3x)	43.20 mm	2.30 mm	12 mm	100 mm	V569821	95.50	V569821-V	108.50
.4370		11.100 mm	2.181	55.50 mm	(5x)	66.51 mm	2.30 mm	12 mm	125 mm	V786789	174.50	V786789-V	188.50
.4375 (7/16)		11.112 mm	1.310	33.35 mm	(3x)	43.25 mm	2.30 mm	12 mm	100 mm	V194265	95.50	V194265-V	108.50
.4375 (7/16)		11.112 mm	2.183	55.55 mm	(5x)	66.58 mm	2.30 mm	12 mm	125 mm	V266796	174.50	V266796-V	188.50
.4409		11.200 mm	1.320	33.60 mm	(3x)	43.59 mm	2.32 mm	12 mm	100 mm	V800667	95.50	V800667-V	108.50
.4409		11.200 mm	2.200	56.00 mm	(5x)	67.11 mm	2.32 mm	12 mm	125 mm	V503159	174.50	V503159-V	188.50
.4449		11.300 mm	1.332	33.90 mm	(3x)	43.98 mm	2.34 mm	12 mm	100 mm	V309259	95.50	V309259-V	108.50
.4449		11.300 mm	2.220	56.50 mm	(5x)	67.71 mm	2.34 mm	12 mm	125 mm	V346861	174.50	V346861-V	188.50
.4488		11.400 mm	1.344	34.20 mm	(3x)	44.37 mm	2.36 mm	12 mm	100 mm	V434511	95.50	V434511-V	108.50
.4488		11.400 mm	2.240	57.00 mm	(5x)	68.31 mm	2.36 mm	12 mm	125 mm	V662862	174.50	V662862-V	188.50
.4527		11.500 mm	1.355	34.50 mm	(3x)	44.76 mm	2.38 mm	12 mm	100 mm	V848030	95.50	V848030-V	108.50
.4527		11.500 mm	2.259	57.50 mm	(5x)	68.91 mm	2.38 mm	12 mm	125 mm	V786485	174.50	V786485-V	188.50
.4531 (29/64)		11.508 mm	1.355	34.50 mm	(3x)	44.79 mm	2.38 mm	12 mm	100 mm	V293298	95.50	V293298-V	108.50
.4531 (29/64)		11.508 mm	2.261	57.55 mm	(5x)	68.96 mm	2.38 mm	12 mm	125 mm	V128189	174.50	V128189-V	188.50
.4567		11.600 mm	1.367	34.80 mm	(3x)	45.15 mm	2.40 mm	12 mm	100 mm	V713188	95.50	V713188-V	108.50
.4567		11.600 mm	2.279	58.00 mm	(5x)	69.51 mm	2.40 mm	12 mm	125 mm	V314182	174.50	V314182-V	188.50
.4606		11.700 mm	1.379	35.10 mm	(3x)	45.54 mm	2.42 mm	12 mm	100 mm	V136399	95.50	V136399-V	108.50
.4606		11.700 mm	2.299	58.50 mm	(5x)	70.11 mm	2.42 mm	12 mm	125 mm	V357863	174.50	V357863-V	188.50
.4646		11.800 mm	1.391	35.40 mm	(3x)	45.93 mm	2.44 mm	12 mm	100 mm	V891844	95.50	V891844-V	108.50
.4646		11.800 mm	2.318	59.00 mm	(5x)	70.71 mm	2.44 mm	12 mm	125 mm	V101325	174.50	V101325-V	188.50
.4685		11.900 mm	1.403	35.70 mm	(3x)	46.32 mm	2.46 mm	12 mm	100 mm	V393491	95.50	V393491-V	108.50
.4685		11.900 mm	2.338	59.50 mm	(5x)	71.31 mm	2.46 mm	12 mm	125 mm	V470839	174.50	V470839-V	188.50
.4688 (15/32)		11.907 mm	1.403	35.70 mm	(3x)	46.34 mm	2.47 mm	12 mm	100 mm	V477349	95.50	V477349-V	108.50
.4688 (15/32)		11.907 mm	2.340	59.55 mm	(5x)	71.35 mm	2.47 mm	12 mm	125 mm	V910118	174.50	V910118-V	188.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.4724		12.000 mm	1.414	36.00 mm	(3x)	46.70 mm	2.49 mm	14 mm	100 mm	V890909	95.50	V890909-V	108.50
.4724		12.000 mm	2.358	60.00 mm	(5x)	71.90 mm	2.49 mm	14 mm	125 mm	V660828	174.50	V660828-V	188.50
.4764		12.100 mm	1.426	36.30 mm	(3x)	47.09 mm	2.51 mm	14 mm	100 mm	V634940	125.50	V634940-V	141.00
.4764		12.100 mm	2.377	60.50 mm	(5x)	72.50 mm	2.51 mm	14 mm	125 mm	V932711	218.50	V932711-V	234.50
.4803		12.200 mm	1.438	36.60 mm	(3x)	47.48 mm	2.53 mm	14 mm	100 mm	V905748	125.50	V905748-V	141.00
.4803		12.200 mm	2.397	61.00 mm	(5x)	73.10 mm	2.53 mm	14 mm	125 mm	V781595	218.50	V781595-V	234.50
.4843		12.300 mm	1.450	36.90 mm	(3x)	47.87 mm	2.55 mm	14 mm	100 mm	V170687	125.50	V170687-V	141.00
.4843		12.300 mm	2.416	61.50 mm	(5x)	73.70 mm	2.55 mm	14 mm	125 mm	V699007	218.50	V699007-V	234.50
.4883 (31/64)		12.400 mm	1.461	37.20 mm	(3x)	48.26 mm	2.57 mm	14 mm	100 mm	V359843	125.50	V359843-V	141.00
.4883 (31/64)		12.400 mm	2.436	62.00 mm	(5x)	74.30 mm	2.57 mm	14 mm	125 mm	V692988	218.50	V692988-V	234.50
.4921		12.500 mm	1.473	37.50 mm	(3x)	48.65 mm	2.59 mm	14 mm	100 mm	V512726	125.50	V512726-V	141.00
.4921		12.500 mm	2.456	62.50 mm	(5x)	74.90 mm	2.59 mm	14 mm	125 mm	V684136	218.50	V684136-V	234.50
.4961		12.600 mm	1.485	37.80 mm	(3x)	49.04 mm	2.61 mm	14 mm	100 mm	V622722	137.00	V622722-V	152.50
.4961		12.600 mm	2.475	63.00 mm	(5x)	75.50 mm	2.61 mm	14 mm	125 mm	V951870	218.50	V951870-V	234.50
.5000 (1/2)		12.700 mm	1.497	38.10 mm	(3x)	49.43 mm	2.63 mm	14 mm	100 mm	V503316	137.00	V503316-V	152.50
.5000 (1/2)		12.700 mm	2.495	63.50 mm	(5x)	76.10 mm	2.63 mm	14 mm	125 mm	V805106	218.50	V805106-V	234.50



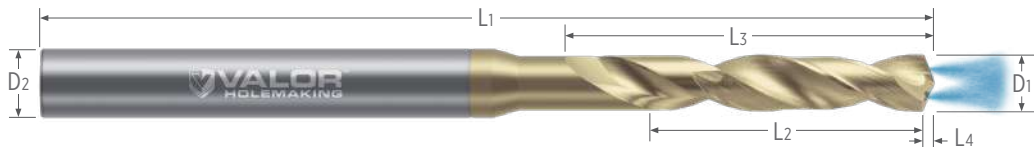
Point geometry designed to minimize burrs

High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through

Unmatched Precision in 6061 Aluminum Coolant-Through Drilling

- Optimized for best-in-class performance in 6061 Aluminum with superior performance in Aluminum and Aluminum Alloys
- Provides excellent performance in other Non-Ferrous Alloys
- Coolant-through channels further enhance chip evacuation
- Geometry is designed to provide minimal entry and exit burrs
- Engineered cylindrical margin design ensures stability and improved performance
- Pre and post polish process delivers reduced friction and ensures outstanding chip management
- 135° point angle with 4-facet geometry for improved self-centering
- h6 shank tolerance for high precision tool holders
- Proprietary Val-Max V coating delivers outstanding performance in Aluminum Alloys and other Non-Ferrous Alloys
- Solid carbide

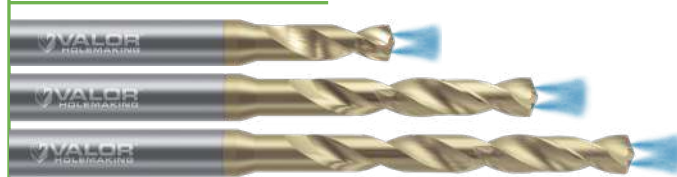


Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth					Tool #	\$USD	Tool #	\$USD
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1				
.0625 (1/16)		1.587 mm	.187	4.761 mm	(3x)	6.17 mm	.33 mm	3 mm	63 mm			V547443-V	63.00
.0625 (1/16)		1.587 mm	.313	7.950 mm	(5x)	9.51 mm	.33 mm	3 mm	63 mm	V995092	79.50	V995092-V	84.00
.0625 (1/16)		1.587 mm	.500	12.700 mm	(8x)	14.50 mm	.33 mm	3 mm	63 mm	V484828	135.00	V484828-V	139.50
.0630		1.600 mm	.189	4.800 mm	(3x)	6.22 mm	.33 mm	3 mm	63 mm			V590503-V	63.00
.0630		1.600 mm	.315	8.000 mm	(5x)	9.58 mm	.33 mm	3 mm	63 mm	V501534	79.50	V501534-V	84.00
.0630		1.600 mm	.504	12.800 mm	(8x)	14.62 mm	.33 mm	3 mm	63 mm	V680349	135.00	V680349-V	139.50
.0635	#52	1.612 mm	.190	4.836 mm	(3x)	6.27 mm	.33 mm	3 mm	63 mm			V052869-V	63.00
.0635	#52	1.612 mm	.317	8.050 mm	(5x)	9.65 mm	.33 mm	3 mm	63 mm	V069599	79.50	V069599-V	84.00
NEW .0635	#52	1.612 mm	.508	12.900 mm	(8x)	14.73 mm	.33 mm	3 mm	63 mm	V638003	135.00	V638003-V	139.50
.0669	#51	1.700 mm	.201	5.100 mm	(3x)	6.61 mm	.35 mm	3 mm	63 mm			V072870-V	63.00
.0669	#51	1.700 mm	.335	8.500 mm	(5x)	10.18 mm	.35 mm	3 mm	63 mm	V605780	79.50	V605780-V	84.00
.0669	#51	1.700 mm	.535	13.600 mm	(8x)	15.54 mm	.35 mm	3 mm	63 mm	V910907	135.00	V910907-V	139.50
.0700	#50	1.778 mm	.210	5.334 mm	(3x)	6.92 mm	.37 mm	3 mm	63 mm			V925403-V	63.00
.0700	#50	1.778 mm	.350	8.900 mm	(5x)	10.65 mm	.37 mm	3 mm	63 mm	V337086	79.50	V337086-V	84.00
NEW .0700	#50	1.778 mm	.559	14.200 mm	(8x)	16.25 mm	.37 mm	3 mm	63 mm	V793411	135.00	V793411-V	139.50
.0708		1.800 mm	.213	5.400 mm	(3x)	7.00 mm	.37 mm	3 mm	63 mm			V036635-V	63.00
.0708		1.800 mm	.354	9.000 mm	(5x)	10.78 mm	.37 mm	3 mm	63 mm	V322492	79.50	V322492-V	84.00

* For h6 and h8 tolerances, see page 8.

continued on next page

Stocked in 3x, 5x, and 8x hole depths





High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

continued from previous page

Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.0708		1.800 mm	.567	14.400 mm	(8x)	16.45 mm	.37 mm	3 mm	63 mm	V882014	135.00	V882014-V	139.50
.0730	#49	1.854 mm	.219	5.562 mm	(3x)	7.21 mm	.38 mm	3 mm	63 mm			V322276-V	63.00
.0730	#49	1.854 mm	.364	9.250 mm	(5x)	11.11 mm	.38 mm	3 mm	63 mm	V500638	79.50	V500638-V	84.00
.0730	#49	1.854 mm	.585	14.850 mm	(8x)	16.95 mm	.38 mm	3 mm	63 mm	V390913	135.00	V390913-V	139.50
.0748		1.900 mm	.224	5.700 mm	(3x)	7.39 mm	.39 mm	3 mm	63 mm			V028978-V	63.00
.0748		1.900 mm	.374	9.500 mm	(5x)	11.38 mm	.39 mm	3 mm	63 mm	V531576	79.50	V531576-V	84.00
.0748		1.900 mm	.598	15.200 mm	(8x)	17.37 mm	.39 mm	3 mm	63 mm	V421746	135.00	V421746-V	139.50
.0760	#48	1.930 mm	.228	5.790 mm	(3x)	7.51 mm	.40 mm	3 mm	63 mm			V526503-V	63.00
.0760	#48	1.930 mm	.380	9.650 mm	(5x)	11.56 mm	.40 mm	3 mm	63 mm	V762830	79.50	V762830-V	84.00
.0760	#48	1.930 mm	.608	15.450 mm	(8x)	17.64 mm	.40 mm	3 mm	63 mm	V457565	135.00	V457565-V	139.50
.0781 (5/64)		1.984 mm	.234	5.952 mm	(3x)	7.72 mm	.41 mm	3 mm	63 mm			V155062-V	63.00
.0781 (5/64)		1.984 mm	.390	9.900 mm	(5x)	11.88 mm	.41 mm	3 mm	63 mm	V658747	79.50	V658747-V	84.00
.0781 (5/64)		1.984 mm	.624	15.850 mm	(8x)	18.13 mm	.41 mm	3 mm	63 mm	V880813	135.00	V880813-V	139.50
.0785	#47	1.993 mm	.235	5.979 mm	(3x)	7.75 mm	.41 mm	3 mm	63 mm			V331214-V	63.00
.0785	#47	1.993 mm	.392	9.950 mm	(5x)	11.94 mm	.41 mm	3 mm	63 mm	V371261	79.50	V371261-V	84.00
.0785	#47	1.993 mm	.628	15.950 mm	(8x)	18.22 mm	.41 mm	3 mm	63 mm	V463975	135.00	V463975-V	139.50
.0787		2.000 mm	.236	6.000 mm	(3x)	7.78 mm	.41 mm	3 mm	63 mm			V863052-V	63.00
.0787		2.000 mm	.394	10.000 mm	(5x)	11.98 mm	.41 mm	3 mm	63 mm	V420395	79.50	V420395-V	84.00
.0787		2.000 mm	.630	16.000 mm	(8x)	18.28 mm	.41 mm	3 mm	63 mm	V492205	135.00	V492205-V	139.50
.0810	#46	2.057 mm	.243	6.171 mm	(3x)	8.00 mm	.43 mm	3 mm	63 mm			V710082-V	63.00
.0810	#46	2.057 mm	.406	10.300 mm	(5x)	12.32 mm	.43 mm	3 mm	63 mm	V522450	79.50	V522450-V	84.00
.0810	#46	2.057 mm	.648	16.450 mm	(8x)	18.80 mm	.43 mm	3 mm	63 mm	V989413	135.00	V989413-V	139.50
.0820	#45	2.082 mm	.246	6.246 mm	(3x)	8.10 mm	.43 mm	3 mm	63 mm			V749355-V	63.00
.0820	#45	2.082 mm	.409	10.400 mm	(5x)	12.47 mm	.43 mm	3 mm	63 mm	V648740	79.50	V648740-V	84.00
.0820	#45	2.082 mm	.656	16.650 mm	(8x)	19.03 mm	.43 mm	3 mm	63 mm	V178734	135.00	V178734-V	139.50
.0826		2.100 mm	.248	6.300 mm	(3x)	8.17 mm	.43 mm	3 mm	63 mm			V386451-V	63.00
.0826		2.100 mm	.413	10.500 mm	(5x)	12.58 mm	.43 mm	3 mm	63 mm	V260199	79.50	V260199-V	84.00
.0826		2.100 mm	.661	16.800 mm	(8x)	19.19 mm	.43 mm	3 mm	63 mm	V390543	135.00	V390543-V	139.50
.0860	#44	2.184 mm	.258	6.552 mm	(3x)	8.50 mm	.45 mm	3 mm	63 mm			V057641-V	63.00
.0860	#44	2.184 mm	.429	10.900 mm	(5x)	13.08 mm	.45 mm	3 mm	63 mm	V921873	79.50	V921873-V	84.00
.0860	#44	2.184 mm	.687	17.450 mm	(8x)	19.96 mm	.45 mm	3 mm	63 mm	V435486	135.00	V435486-V	139.50
.0866		2.200 mm	.260	6.600 mm	(3x)	8.56 mm	.46 mm	3 mm	63 mm			V465235-V	63.00
.0866		2.200 mm	.433	11.000 mm	(5x)	13.18 mm	.46 mm	3 mm	63 mm	V507605	79.50	V507605-V	84.00
.0866		2.200 mm	.693	17.600 mm	(8x)	20.11 mm	.46 mm	3 mm	63 mm	V841569	135.00	V841569-V	139.50
.0890	#43	2.260 mm	.267	6.780 mm	(3x)	8.79 mm	.47 mm	3 mm	63 mm			V499129-V	63.00
.0890	#43	2.260 mm	.445	11.300 mm	(5x)	13.54 mm	.47 mm	3 mm	63 mm	V877543	79.50	V877543-V	84.00
.0890	#43	2.260 mm	.713	18.100 mm	(8x)	20.66 mm	.47 mm	3 mm	63 mm	V033771	135.00	V033771-V	139.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
	inch	wire	metric	inch	metric	hole depth					Tool #	\$USD	Tool #	\$USD
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁				
NEW	.0905		2.300 mm	.272	6.900 mm	(3x)	8.95 mm	.48 mm	3 mm	63 mm			V862144-V	63.00
	.0905		2.300 mm	.453	11.500 mm	(5x)	13.78 mm	.48 mm	3 mm	63 mm	V303320	79.50	V303320-V	84.00
	.0905		2.300 mm	.724	18.400 mm	(8x)	21.02 mm	.48 mm	3 mm	63 mm	V664000	135.00	V664000-V	139.50
	.0935	#42	2.374 mm	.280	7.122 mm	(3x)	9.24 mm	.49 mm	3 mm	63 mm			V446936-V	63.00
	.0935	#42	2.374 mm	.467	11.850 mm	(5x)	14.22 mm	.49 mm	3 mm	63 mm	V913199	79.50	V913199-V	84.00
	.0935	#42	2.374 mm	.748	19.000 mm	(8x)	21.70 mm	.49 mm	3 mm	63 mm	V042010	135.00	V042010-V	139.50
	.0937 (3/32)		2.381 mm	.281	7.143 mm	(3x)	9.26 mm	.49 mm	3 mm	63 mm			V928820-V	63.00
	.0937 (3/32)		2.381 mm	.469	11.900 mm	(5x)	14.26 mm	.49 mm	3 mm	63 mm	V626473	79.50	V626473-V	84.00
	.0937 (3/32)		2.381 mm	.750	19.050 mm	(8x)	21.76 mm	.49 mm	3 mm	63 mm	V773519	135.00	V773519-V	139.50
	.0944		2.400 mm	.283	7.200 mm	(3x)	9.34 mm	.50 mm	3 mm	63 mm			V757681-V	63.00
NEW	.0944		2.400 mm	.472	12.000 mm	(5x)	14.38 mm	.50 mm	3 mm	63 mm	V199489	79.50	V199489-V	84.00
	.0944		2.400 mm	.756	19.200 mm	(8x)	21.94 mm	.50 mm	3 mm	63 mm	V234473	135.00	V234473-V	139.50
	.0960	#41	2.438 mm	.288	7.314 mm	(3x)	9.48 mm	.50 mm	3 mm	63 mm			V121658-V	63.00
	.0960	#41	2.438 mm	.480	12.200 mm	(5x)	14.60 mm	.50 mm	3 mm	63 mm	V233440	79.50	V233440-V	84.00
	.0960	#41	2.438 mm	.768	19.500 mm	(8x)	22.28 mm	.50 mm	3 mm	63 mm	V246344	135.00	V246344-V	139.50
	.0980	#40	2.489 mm	.294	7.467 mm	(3x)	9.68 mm	.52 mm	3 mm	63 mm			V712971-V	63.00
	.0980	#40	2.489 mm	.490	12.450 mm	(5x)	14.91 mm	.52 mm	3 mm	63 mm	V355218	79.50	V355218-V	84.00
	.0980	#40	2.489 mm	.783	19.900 mm	(8x)	22.75 mm	.52 mm	3 mm	63 mm	V544301	135.00	V544301-V	139.50
	.0984		2.500 mm	.295	7.500 mm	(3x)	9.73 mm	.52 mm	3 mm	63 mm			V010689-V	63.00
	.0984		2.500 mm	.492	12.500 mm	(5x)	14.98 mm	.52 mm	3 mm	63 mm	V302724	79.50	V302724-V	84.00
NEW	.0984		2.500 mm	.787	20.000 mm	(8x)	22.85 mm	.52 mm	3 mm	63 mm	V755519	135.00	V755519-V	139.50
	.0995	#39	2.527 mm	.298	7.581 mm	(3x)	9.83 mm	.52 mm	3 mm	63 mm			V148811-V	63.00
	.0995	#39	2.527 mm	.498	12.650 mm	(5x)	15.14 mm	.52 mm	3 mm	63 mm	V389949	79.50	V389949-V	84.00
	.0995	#39	2.527 mm	.795	20.200 mm	(8x)	23.10 mm	.52 mm	3 mm	63 mm	V812194	135.00	V812194-V	139.50
	.1015	#38	2.578 mm	.304	7.734 mm	(3x)	10.03 mm	.53 mm	3 mm	63 mm			V021100-V	63.00
	.1015	#38	2.578 mm	.508	12.900 mm	(5x)	15.44 mm	.53 mm	3 mm	63 mm	V180642	79.50	V180642-V	84.00
	.1015	#38	2.578 mm	.811	20.600 mm	(8x)	23.56 mm	.53 mm	3 mm	63 mm	V370975	135.00	V370975-V	139.50
	.1023		2.600 mm	.307	7.800 mm	(3x)	10.12 mm	.54 mm	3 mm	63 mm			V315631-V	63.00
	.1023		2.600 mm	.512	13.000 mm	(5x)	15.58 mm	.54 mm	3 mm	63 mm	V520958	79.50	V520958-V	84.00
	.1023		2.600 mm	.819	20.800 mm	(8x)	23.77 mm	.54 mm	3 mm	63 mm	V492168	135.00	V492168-V	139.50
NEW	.1040	#37	2.641 mm	.312	7.923 mm	(3x)	10.27 mm	.55 mm	3 mm	63 mm			V361116-V	63.00
	.1040	#37	2.641 mm	.520	13.200 mm	(5x)	15.82 mm	.55 mm	3 mm	63 mm	V319625	79.50	V319625-V	84.00
	.1040	#37	2.641 mm	.833	21.150 mm	(8x)	24.14 mm	.55 mm	3 mm	63 mm	V656227	135.00	V656227-V	139.50
	.1062		2.700 mm	.319	8.100 mm	(3x)	10.50 mm	.56 mm	3 mm	63 mm			V381880-V	63.00
	.1062		2.700 mm	.531	13.500 mm	(5x)	16.17 mm	.56 mm	3 mm	63 mm	V527387	79.50	V527387-V	84.00
	.1062		2.700 mm	.850	21.600 mm	(8x)	24.68 mm	.56 mm	3 mm	63 mm	V196896	135.00	V196896-V	139.50
	.1065	#36	2.705 mm	.319	8.115 mm	(3x)	10.52 mm	.56 mm	3 mm	63 mm			V542977-V	63.00
	.1065	#36	2.705 mm	.533	13.550 mm	(5x)	16.20 mm	.56 mm	3 mm	63 mm	V425882	79.50	V425882-V	84.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.1065	#36	2.705 mm	.852	21.650 mm (8x)		24.73 mm	.56 mm	3 mm	63 mm	V725628	135.00	V725628-V	139.50
.1093 (7/64)		2.778 mm	.328	8.334 mm (3x)		10.81 mm	.58 mm	3 mm	63 mm			V501094-V	63.00
.1093 (7/64)		2.778 mm	.547	13.900 mm (5x)		16.64 mm	.58 mm	3 mm	63 mm	V278759	79.50	V278759-V	84.00
.1093 (7/64)		2.778 mm	.874	22.200 mm (8x)		25.39 mm	.58 mm	3 mm	63 mm	V618198	135.00	V618198-V	139.50
.1100	#35	2.794 mm	.330	8.382 mm (3x)		10.87 mm	.58 mm	3 mm	63 mm			V557769-V	63.00
.1100	#35	2.794 mm	.549	13.950 mm (5x)		16.74 mm	.58 mm	3 mm	63 mm	V793423	79.50	V793423-V	84.00
.1100	#35	2.794 mm	.880	22.350 mm (8x)		25.54 mm	.58 mm	3 mm	63 mm	V997210	135.00	V997210-V	139.50
.1102		2.800 mm	.331	8.400 mm (3x)		10.89 mm	.58 mm	3 mm	63 mm			V568444-V	63.00
.1102		2.800 mm	.551	14.000 mm (5x)		16.77 mm	.58 mm	3 mm	63 mm	V730812	79.50	V730812-V	84.00
.1102		2.800 mm	.882	22.400 mm (8x)		25.59 mm	.58 mm	3 mm	63 mm	V963101	135.00	V963101-V	139.50
.1110	#34	2.819 mm	.333	8.457 mm (3x)		10.97 mm	.58 mm	3 mm	63 mm			V309636-V	63.00
.1110	#34	2.819 mm	.555	14.100 mm (5x)		16.89 mm	.58 mm	3 mm	63 mm	V383269	79.50	V383269-V	84.00
.1110	#34	2.819 mm	.888	22.550 mm (8x)		25.77 mm	.58 mm	3 mm	63 mm	V294933	135.00	V294933-V	139.50
.1130	#33	2.870 mm	.339	8.610 mm (3x)		11.17 mm	.59 mm	3 mm	63 mm			V484647-V	63.00
.1130	#33	2.870 mm	.565	14.350 mm (5x)		17.19 mm	.59 mm	3 mm	63 mm	V954704	79.50	V954704-V	84.00
.1130	#33	2.870 mm	.904	22.950 mm (8x)		26.23 mm	.59 mm	3 mm	63 mm	V707712	135.00	V707712-V	139.50
.1141		2.900 mm	.343	8.700 mm (3x)		11.28 mm	.60 mm	3 mm	63 mm			V233124-V	63.00
.1141		2.900 mm	.571	14.500 mm (5x)		17.37 mm	.60 mm	3 mm	63 mm	V882240	79.50	V882240-V	84.00
.1141		2.900 mm	.913	23.200 mm (8x)		26.51 mm	.60 mm	3 mm	63 mm	V385580	135.00	V385580-V	139.50
.1160	#32	2.946 mm	.348	8.838 mm (3x)		11.46 mm	.61 mm	3 mm	63 mm			V890345-V	63.00
.1160	#32	2.946 mm	.581	14.750 mm (5x)		17.65 mm	.61 mm	3 mm	63 mm	V040624	79.50	V040624-V	84.00
.1160	#32	2.946 mm	.927	23.550 mm (8x)		26.93 mm	.61 mm	3 mm	63 mm	V824718	135.00	V824718-V	139.50
.1181		3.000 mm	.354	9.000 mm (3x)		11.67 mm	.62 mm	4 mm	63 mm			V118419-V	63.00
.1181		3.000 mm	.591	15.000 mm (5x)		17.97 mm	.62 mm	4 mm	63 mm	V187918	79.50	V187918-V	84.50
.1181		3.000 mm	.945	24.000 mm (8x)		27.42 mm	.62 mm	4 mm	75 mm	V860963	135.00	V860963-V	139.50
.1200	#31	3.048 mm	.360	9.144 mm (3x)		11.86 mm	.63 mm	4 mm	63 mm			V074456-V	63.00
.1200	#31	3.048 mm	.600	15.250 mm (5x)		18.26 mm	.63 mm	4 mm	63 mm	V115638	79.50	V115638-V	84.50
.1200	#31	3.048 mm	.961	24.400 mm (8x)		27.86 mm	.63 mm	4 mm	75 mm	V839433	135.00	V839433-V	139.50
.1220		3.100 mm	.366	9.300 mm (3x)		12.06 mm	.64 mm	4 mm	63 mm			V318260-V	63.00
.1220		3.100 mm	.610	15.500 mm (5x)		18.57 mm	.64 mm	4 mm	63 mm	V443746	79.50	V443746-V	84.50
.1220		3.100 mm	.976	24.800 mm (8x)		28.34 mm	.64 mm	4 mm	75 mm	V577751	135.00	V577751-V	139.50
.1250 (1/8)		3.175 mm	.375	9.525 mm (3x)		12.35 mm	.66 mm	4 mm	63 mm			V338039-V	63.00
.1250 (1/8)		3.175 mm	.626	15.900 mm (5x)		19.02 mm	.66 mm	4 mm	63 mm	V877822	79.50	V877822-V	84.50
.1250 (1/8)		3.175 mm	1.000	25.400 mm (8x)		29.02 mm	.66 mm	4 mm	75 mm	V846347	135.00	V846347-V	139.50
.1260		3.200 mm	.378	9.600 mm (3x)		12.45 mm	.66 mm	4 mm	63 mm			V998572-V	63.00
.1260		3.200 mm	.630	16.000 mm (5x)		19.17 mm	.66 mm	4 mm	63 mm	V527462	79.50	V527462-V	84.50
.1260		3.200 mm	1.008	25.600 mm (8x)		29.25 mm	.66 mm	4 mm	75 mm	V478157	135.00	V478157-V	139.50
.1285	#30	3.263 mm	.385	9.789 mm (3x)		12.70 mm	.68 mm	4 mm	63 mm			V728607-V	63.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
	inch	wire	metric	inch	metric	hole depth								
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
NEW	.1285	#30	3.263 mm	.642	16.300 mm	(5x)	19.55 mm	.68 mm	4 mm	63 mm	V238651	79.50	V238651-V	84.50
	.1285	#30	3.263 mm	1.028	26.100 mm	(8x)	29.83 mm	.68 mm	4 mm	75 mm	V870051	135.00	V870051-V	139.50
	.1300		3.300 mm	.390	9.900 mm	(3x)	12.84 mm	.68 mm	4 mm	63 mm			V704855-V	63.00
	.1300		3.300 mm	.650	16.500 mm	(5x)	19.77 mm	.68 mm	4 mm	63 mm	V584441	79.50	V584441-V	84.50
	.1300		3.300 mm	1.039	26.400 mm	(8x)	30.17 mm	.68 mm	4 mm	75 mm	V828022	135.00	V828022-V	139.50
	.1338		3.400 mm	.402	10.200 mm	(3x)	13.23 mm	.70 mm	4 mm	63 mm			V556576-V	63.00
	.1338		3.400 mm	.669	17.000 mm	(5x)	20.37 mm	.70 mm	4 mm	63 mm	V837035	79.50	V837035-V	84.50
NEW	.1338		3.400 mm	1.071	27.200 mm	(8x)	31.08 mm	.70 mm	4 mm	75 mm	V915819	135.00	V915819-V	139.50
	.1360	#29	3.454 mm	.408	10.362 mm	(3x)	13.44 mm	.72 mm	4 mm	63 mm			V571251-V	63.00
	.1360	#29	3.454 mm	.679	17.250 mm	(5x)	20.69 mm	.72 mm	4 mm	63 mm	V757997	79.50	V757997-V	84.50
	.1360	#29	3.454 mm	1.089	27.650 mm	(8x)	31.57 mm	.72 mm	4 mm	75 mm	V189833	135.00	V189833-V	139.50
	.1377		3.500 mm	.413	10.500 mm	(3x)	13.62 mm	.72 mm	4 mm	63 mm			V971540-V	63.00
	.1377		3.500 mm	.689	17.500 mm	(5x)	20.97 mm	.72 mm	4 mm	63 mm	V357695	79.50	V357695-V	84.50
	.1377		3.500 mm	1.102	28.000 mm	(8x)	31.99 mm	.72 mm	4 mm	75 mm	V261340	135.00	V261340-V	139.50
NEW	.1406 (9/64)	#28	3.571 mm	.422	10.713 mm	(3x)	14.01 mm	.74 mm	4 mm	63 mm			V424417-V	63.00
	.1406 (9/64)	#28	3.571 mm	.703	17.850 mm	(5x)	21.39 mm	.74 mm	4 mm	63 mm	V767730	79.50	V767730-V	84.50
	.1406 (9/64)	#28	3.571 mm	1.124	28.550 mm	(8x)	32.64 mm	.74 mm	4 mm	75 mm	V333089	135.00	V333089-V	139.50
	.1417		3.600 mm	.425	10.800 mm	(3x)	14.23 mm	.75 mm	4 mm	63 mm			V549176-V	63.00
	.1417		3.600 mm	.709	18.000 mm	(5x)	21.57 mm	.75 mm	4 mm	63 mm	V139840	79.50	V139840-V	84.50
	.1417		3.600 mm	1.134	28.800 mm	(8x)	32.91 mm	.75 mm	4 mm	75 mm	V241917	135.00	V241917-V	139.50
	.1440	#27	3.657 mm	.432	10.971 mm	(3x)	14.40 mm	.76 mm	4 mm	63 mm			V360112-V	63.00
NEW	.1440	#27	3.657 mm	.720	18.300 mm	(5x)	21.91 mm	.76 mm	4 mm	63 mm	V113280	79.50	V113280-V	84.50
	.1440	#27	3.657 mm	1.152	29.250 mm	(8x)	33.43 mm	.76 mm	4 mm	75 mm	V281128	135.00	V281128-V	139.50
	.1456		3.700 mm	.437	11.100 mm	(3x)	14.53 mm	.77 mm	4 mm	63 mm			V397478-V	63.00
	.1456		3.700 mm	.728	18.500 mm	(5x)	22.17 mm	.77 mm	4 mm	63 mm	V441225	79.50	V441225-V	84.50
	.1456		3.700 mm	1.165	29.600 mm	(8x)	33.82 mm	.77 mm	4 mm	75 mm	V869984	135.00	V869984-V	139.50
	.1470	#26	3.733 mm	.441	11.199 mm	(3x)	14.77 mm	.77 mm	4 mm	63 mm			V282547-V	63.00
	.1470	#26	3.733 mm	.734	18.650 mm	(5x)	22.36 mm	.77 mm	4 mm	63 mm	V365564	79.50	V365564-V	84.50
NEW	.1470	#26	3.733 mm	1.175	29.850 mm	(8x)	34.12 mm	.77 mm	4 mm	75 mm	V577236	135.00	V577236-V	139.50
	.1495	#25	3.797 mm	.448	11.391 mm	(3x)	14.79 mm	.79 mm	4 mm	63 mm			V799624-V	63.00
	.1495	#25	3.797 mm	.748	19.000 mm	(5x)	22.75 mm	.79 mm	4 mm	63 mm	V106662	79.50	V106662-V	84.50
	.1495	#25	3.797 mm	1.197	30.400 mm	(8x)	34.71 mm	.79 mm	4 mm	75 mm	V794855	135.00	V794855-V	139.50
	.1496		3.800 mm	.449	11.400 mm	(3x)	15.02 mm	.79 mm	4 mm	63 mm			V442431-V	63.00
	.1496		3.800 mm	.748	19.000 mm	(5x)	22.77 mm	.79 mm	4 mm	63 mm	V818024	79.50	V818024-V	84.50
	.1496		3.800 mm	1.197	30.400 mm	(8x)	34.74 mm	.79 mm	4 mm	75 mm	V756236	135.00	V756236-V	139.50
NEW	.1520	#24	3.860 mm	.456	11.580 mm	(3x)	15.18 mm	.80 mm	4 mm	63 mm			V925751-V	63.00
	.1520	#24	3.860 mm	.760	19.300 mm	(5x)	23.13 mm	.80 mm	4 mm	63 mm	V580926	79.50	V580926-V	84.50
	.1520	#24	3.860 mm	1.217	30.900 mm	(8x)	35.28 mm	.80 mm	4 mm	75 mm	V136145	135.00	V136145-V	139.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.1535		3.900 mm	.461	11.700 mm (3x)		15.22 mm	.81 mm	4 mm	63 mm			V319983-V	63.00
.1535		3.900 mm	.768	19.500 mm (5x)		23.37 mm	.81 mm	4 mm	63 mm	V429888	79.50	V429888-V	84.50
.1535		3.900 mm	1.228	31.200 mm (8x)		35.65 mm	.81 mm	4 mm	75 mm	V832803	135.00	V832803-V	139.50
.1540	#23	3.911 mm	.462	11.733 mm (3x)		15.44 mm	.81 mm	4 mm	63 mm			V174079-V	63.00
.1540	#23	3.911 mm	.770	19.550 mm (5x)		23.43 mm	.81 mm	4 mm	63 mm	V009162	79.50	V009162-V	84.50
.1540	#23	3.911 mm	1.232	31.300 mm (8x)		35.75 mm	.81 mm	4 mm	75 mm	V351288	135.00	V351288-V	139.50
.1562 (5/32)		3.968 mm	.469	11.904 mm (3x)		15.51 mm	.82 mm	4 mm	63 mm			V654306-V	63.00
.1562 (5/32)		3.968 mm	.781	19.850 mm (5x)		23.77 mm	.82 mm	4 mm	63 mm	V205668	79.50	V205668-V	84.50
.1562 (5/32)		3.968 mm	1.250	31.750 mm (8x)		36.27 mm	.82 mm	4 mm	75 mm	V576052	135.00	V576052-V	139.50
.1570	#22	3.987 mm	.471	11.961 mm (3x)		15.56 mm	.83 mm	4 mm	63 mm			V783489-V	63.00
.1570	#22	3.987 mm	.785	19.950 mm (5x)		23.89 mm	.83 mm	4 mm	63 mm	V205615	79.50	V205615-V	84.50
.1570	#22	3.987 mm	1.256	31.900 mm (8x)		36.45 mm	.83 mm	4 mm	75 mm	V000952	135.00	V000952-V	139.50
.1574		4.000 mm	.472	12.000 mm (3x)		15.56 mm	.83 mm	6 mm	63 mm			V065768-V	63.00
.1574		4.000 mm	.787	20.000 mm (5x)		23.96 mm	.83 mm	6 mm	75 mm	V131303	79.50	V131303-V	84.50
.1574		4.000 mm	1.260	32.000 mm (8x)		36.56 mm	.83 mm	6 mm	100 mm	V305691	135.00	V305691-V	139.50
.1590	#21	4.038 mm	.477	12.114 mm (3x)		15.71 mm	.84 mm	6 mm	63 mm			V122161-V	64.50
.1590	#21	4.038 mm	.795	20.200 mm (5x)		24.19 mm	.84 mm	6 mm	75 mm	V991193	82.50	V991193-V	89.00
.1590	#21	4.038 mm	1.272	32.300 mm (8x)		36.91 mm	.84 mm	6 mm	100 mm	V769020	135.00	V769020-V	139.50
.1610	#20	4.089 mm	.483	12.267 mm (3x)		15.91 mm	.85 mm	6 mm	63 mm			V214813-V	64.50
.1610	#20	4.089 mm	.805	20.450 mm (5x)		24.50 mm	.85 mm	6 mm	75 mm	V997846	82.50	V997846-V	89.00
.1610	#20	4.089 mm	1.287	32.700 mm (8x)		37.38 mm	.85 mm	6 mm	100 mm	V225375	135.00	V225375-V	139.50
.1614		4.100 mm	.484	12.300 mm (3x)		15.95 mm	.85 mm	6 mm	63 mm			V923337-V	64.50
.1614		4.100 mm	.807	20.500 mm (5x)		24.56 mm	.85 mm	6 mm	75 mm	V679258	82.50	V679258-V	89.00
.1614		4.100 mm	1.291	32.800 mm (8x)		37.48 mm	.85 mm	6 mm	100 mm	V557129	135.00	V557129-V	139.50
.1653		4.200 mm	.496	12.600 mm (3x)		16.34 mm	.87 mm	6 mm	63 mm			V470004-V	64.50
.1653		4.200 mm	.827	21.000 mm (5x)		25.16 mm	.87 mm	6 mm	75 mm	V803894	82.50	V803894-V	89.00
.1653		4.200 mm	1.323	33.600 mm (8x)		38.39 mm	.87 mm	6 mm	100 mm	V752243	135.00	V752243-V	139.50
.1660	#19	4.216 mm	.498	12.648 mm (3x)		16.41 mm	.87 mm	6 mm	63 mm			V900344-V	64.50
.1660	#19	4.216 mm	.831	21.100 mm (5x)		25.26 mm	.87 mm	6 mm	75 mm	V796179	82.50	V796179-V	89.00
.1660	#19	4.216 mm	1.329	33.750 mm (8x)		38.54 mm	.87 mm	6 mm	100 mm	V405519	135.00	V405519-V	139.50
.1692		4.300 mm	.508	12.900 mm (3x)		16.73 mm	.89 mm	6 mm	63 mm			V759323-V	64.50
.1692		4.300 mm	.846	21.500 mm (5x)		25.76 mm	.89 mm	6 mm	75 mm	V223762	82.50	V223762-V	89.00
.1692		4.300 mm	1.354	34.400 mm (8x)		39.31 mm	.89 mm	6 mm	100 mm	V775572	135.00	V775572-V	139.50
.1695	#18	4.305 mm	.508	12.915 mm (3x)		16.75 mm	.89 mm	6 mm	63 mm			V784872-V	64.50
.1695	#18	4.305 mm	.846	21.500 mm (5x)		25.79 mm	.89 mm	6 mm	75 mm	V167389	82.50	V167389-V	89.00
.1695	#18	4.305 mm	1.356	34.450 mm (8x)		39.35 mm	.89 mm	6 mm	100 mm	V719673	135.00	V719673-V	139.50
.1718 (11/64)		4.365 mm	.516	13.095 mm (3x)		16.99 mm	.90 mm	6 mm	63 mm			V895219-V	64.50
.1718 (11/64)		4.365 mm	.860	21.850 mm (5x)		26.15 mm	.90 mm	6 mm	75 mm	V639751	82.50	V639751-V	89.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
	inch	wire	metric	inch	metric	hole depth		Length						
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
NEW	.1718 (11/64)		4.365 mm	1.374	34.900 mm	(8x)	39.90 mm	.90 mm	6 mm	100 mm	V849166	135.00	V849166-V	139.50
	.1730	#17	4.394 mm	.519	13.182 mm	(3x)	17.10 mm	.91 mm	6 mm	63 mm			V184046-V	64.50
	.1730	#17	4.394 mm	.864	21.950 mm	(5x)	26.33 mm	.91 mm	6 mm	75 mm	V127788	82.50	V127788-V	89.00
	.1730	#17	4.394 mm	1.384	35.150 mm	(8x)	40.17 mm	.91 mm	6 mm	100 mm	V426131	135.00	V426131-V	139.50
	.1732		4.400 mm	.520	13.200 mm	(3x)	17.12 mm	.91 mm	6 mm	63 mm			V653274-V	64.50
	.1732		4.400 mm	.866	22.000 mm	(5x)	26.36 mm	.91 mm	6 mm	75 mm	V918663	82.50	V918663-V	89.00
	.1732		4.400 mm	1.386	35.200 mm	(8x)	40.22 mm	.91 mm	6 mm	100 mm	V356654	135.00	V356654-V	139.50
NEW	.1770	#16	4.495 mm	.531	13.485 mm	(3x)	17.49 mm	.93 mm	6 mm	63 mm			V501836-V	64.50
	.1770	#16	4.495 mm	.886	22.500 mm	(5x)	26.93 mm	.93 mm	6 mm	75 mm	V901338	82.50	V901338-V	89.00
	.1770	#16	4.495 mm	1.415	35.950 mm	(8x)	41.09 mm	.93 mm	6 mm	100 mm	V570013	135.00	V570013-V	139.50
	.1771		4.500 mm	.531	13.500 mm	(3x)	17.51 mm	.93 mm	6 mm	63 mm			V419182-V	64.50
	.1771		4.500 mm	.886	22.500 mm	(5x)	26.96 mm	.93 mm	6 mm	75 mm	V383315	82.50	V383315-V	89.00
	.1771		4.500 mm	1.417	36.000 mm	(8x)	41.14 mm	.93 mm	6 mm	100 mm	V703950	135.00	V703950-V	139.50
	.1800	#15	4.572 mm	.540	13.716 mm	(3x)	17.79 mm	.95 mm	6 mm	63 mm			V456860-V	64.50
NEW	.1800	#15	4.572 mm	.900	22.850 mm	(5x)	27.39 mm	.95 mm	6 mm	75 mm	V658639	82.50	V658639-V	89.00
	.1800	#15	4.572 mm	1.441	36.600 mm	(8x)	41.79 mm	.95 mm	6 mm	100 mm	V768976	135.00	V768976-V	139.50
	.1811		4.600 mm	.543	13.800 mm	(3x)	17.90 mm	.95 mm	6 mm	63 mm			V320501-V	64.50
	.1811		4.600 mm	.906	23.000 mm	(5x)	27.56 mm	.95 mm	6 mm	75 mm	V342441	82.50	V342441-V	89.00
	.1811		4.600 mm	1.449	36.800 mm	(8x)	42.05 mm	.95 mm	6 mm	100 mm	V202174	135.00	V202174-V	139.50
	.1820	#14	4.622 mm	.546	13.866 mm	(3x)	17.99 mm	.96 mm	6 mm	63 mm			V621276-V	64.50
	.1820	#14	4.622 mm	.909	23.100 mm	(5x)	27.69 mm	.96 mm	6 mm	75 mm	V204402	82.50	V204402-V	89.00
NEW	.1820	#14	4.622 mm	1.457	37.000 mm	(8x)	42.25 mm	.96 mm	6 mm	100 mm	V835640	135.00	V835640-V	139.50
	.1850	#13	4.700 mm	.555	14.100 mm	(3x)	18.29 mm	.97 mm	6 mm	63 mm			V358610-V	64.50
	.1850	#13	4.700 mm	.925	23.500 mm	(5x)	28.16 mm	.97 mm	6 mm	75 mm	V689582	82.50	V689582-V	89.00
	.1850	#13	4.700 mm	1.480	37.600 mm	(8x)	42.96 mm	.97 mm	6 mm	100 mm	V928497	135.00	V928497-V	139.50
	.1875 (3/16)		4.762 mm	.562	14.286 mm	(3x)	18.53 mm	.99 mm	6 mm	63 mm			V381118-V	64.50
	.1875 (3/16)		4.762 mm	.937	23.800 mm	(5x)	28.53 mm	.99 mm	6 mm	75 mm	V675548	82.50	V675548-V	89.00
	.1875 (3/16)		4.762 mm	1.500	38.100 mm	(8x)	43.53 mm	.99 mm	6 mm	100 mm	V431500	135.00	V431500-V	139.50
NEW	.1890	#12	4.800 mm	.567	14.400 mm	(3x)	18.68 mm	.99 mm	6 mm	63 mm			V618153-V	64.50
	.1890	#12	4.800 mm	.945	24.000 mm	(5x)	28.76 mm	.99 mm	6 mm	75 mm	V926654	82.50	V926654-V	89.00
	.1890	#12	4.800 mm	1.512	38.400 mm	(8x)	43.88 mm	.99 mm	6 mm	100 mm	V253484	135.00	V253484-V	139.50
	.1910	#11	4.851 mm	.573	14.553 mm	(3x)	18.88 mm	1.00 mm	6 mm	63 mm			V528760-V	64.50
	.1910	#11	4.851 mm	.955	24.250 mm	(5x)	29.06 mm	1.00 mm	6 mm	75 mm	V191226	82.50	V191226-V	89.00
	.1910	#11	4.851 mm	1.528	38.800 mm	(8x)	44.35 mm	1.00 mm	6 mm	100 mm	V548796	135.00	V548796-V	139.50
	.1930		4.900 mm	.579	14.700 mm	(3x)	19.07 mm	1.01 mm	6 mm	63 mm			V351892-V	64.50
	.1930		4.900 mm	.965	24.500 mm	(5x)	29.36 mm	1.01 mm	6 mm	75 mm	V417508	82.50	V417508-V	89.00
	.1930		4.900 mm	1.543	39.200 mm	(8x)	44.79 mm	1.01 mm	6 mm	100 mm	V904772	135.00	V904772-V	139.50
	.1935	#10	4.914 mm	.580	14.742 mm	(3x)	19.12 mm	1.02 mm	6 mm	63 mm			V578183-V	64.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.1935	#10	4.914 mm	.967	24.550 mm	(5x)	29.44 mm	1.02 mm	6 mm	75 mm	V620990	82.50	V620990-V	89.00
.1935	#10	4.914 mm	1.547	39.300 mm	(8x)	44.92 mm	1.02 mm	6 mm	100 mm	V414131	135.00	V414131-V	139.50
.1960	#9	4.978 mm	.588	14.934 mm	(3x)	19.37 mm	1.03 mm	6 mm	63 mm			V407470-V	64.50
.1960	#9	4.978 mm	.980	24.900 mm	(5x)	29.83 mm	1.03 mm	6 mm	75 mm	V140803	82.50	V140803-V	89.00
.1960	#9	4.978 mm	1.567	39.800 mm	(8x)	45.51 mm	1.03 mm	6 mm	100 mm	V629514	135.00	V629514-V	139.50
.1968		5.000 mm	.591	15.000 mm	(3x)	19.46 mm	1.04 mm	6 mm	63 mm			V537001-V	64.50
.1968		5.000 mm	.984	25.000 mm	(5x)	29.96 mm	1.04 mm	6 mm	75 mm	V761883	82.50	V761883-V	89.00
.1968		5.000 mm	1.575	40.000 mm	(8x)	45.71 mm	1.04 mm	6 mm	100 mm	V858075	135.00	V858075-V	139.50
.1990	#8	5.054 mm	.597	15.162 mm	(3x)	19.67 mm	1.05 mm	6 mm	63 mm			V656928-V	64.50
.1990	#8	5.054 mm	.994	25.250 mm	(5x)	30.28 mm	1.05 mm	6 mm	75 mm	V252688	82.50	V252688-V	89.00
.1990	#8	5.054 mm	1.593	40.450 mm	(8x)	46.20 mm	1.05 mm	6 mm	100 mm	V122305	135.00	V122305-V	139.50
.2007		5.100 mm	.602	15.300 mm	(3x)	19.85 mm	1.06 mm	6 mm	63 mm			V670090-V	64.50
.2007		5.100 mm	1.004	25.500 mm	(5x)	30.56 mm	1.06 mm	6 mm	75 mm	V487502	82.50	V487502-V	89.00
.2007		5.100 mm	1.606	40.800 mm	(8x)	46.62 mm	1.06 mm	6 mm	100 mm	V663020	135.00	V663020-V	139.50
.2009	#7	5.105 mm	.603	15.315 mm	(3x)	19.87 mm	1.06 mm	6 mm	63 mm			V314719-V	64.50
.2009	#7	5.105 mm	1.006	25.550 mm	(5x)	30.59 mm	1.06 mm	6 mm	75 mm	V394192	82.50	V394192-V	89.00
.2009	#7	5.105 mm	1.608	40.850 mm	(8x)	46.67 mm	1.06 mm	6 mm	100 mm	V074115	135.00	V074115-V	139.50
.2031 (13/64)		5.159 mm	.609	15.477 mm	(3x)	20.08 mm	1.07 mm	6 mm	63 mm			V556983-V	64.50
.2031 (13/64)		5.159 mm	1.016	25.800 mm	(5x)	30.91 mm	1.07 mm	6 mm	75 mm	V802986	82.50	V802986-V	89.00
.2031 (13/64)		5.159 mm	1.624	41.250 mm	(8x)	47.16 mm	1.07 mm	6 mm	100 mm	V386945	135.00	V386945-V	139.50
.2040	#6	5.181 mm	.612	15.543 mm	(3x)	20.16 mm	1.07 mm	6 mm	63 mm			V550881-V	64.50
.2040	#6	5.181 mm	1.020	25.900 mm	(5x)	31.04 mm	1.07 mm	6 mm	75 mm	V438225	82.50	V438225-V	89.00
.2040	#6	5.181 mm	1.632	41.450 mm	(8x)	47.36 mm	1.07 mm	6 mm	100 mm	V211841	135.00	V211841-V	139.50
.2047		5.200 mm	.614	15.600 mm	(3x)	20.24 mm	1.08 mm	6 mm	63 mm			V051333-V	64.50
.2047		5.200 mm	1.024	26.000 mm	(5x)	31.16 mm	1.08 mm	6 mm	75 mm	V411179	82.50	V411179-V	89.00
.2047		5.200 mm	1.638	41.600 mm	(8x)	47.54 mm	1.08 mm	6 mm	100 mm	V855920	135.00	V855920-V	139.50
.2055	#5	5.219 mm	.616	15.657 mm	(3x)	20.31 mm	1.08 mm	6 mm	63 mm			V744785-V	64.50
.2055	#5	5.219 mm	1.028	26.100 mm	(5x)	31.27 mm	1.08 mm	6 mm	75 mm	V086467	82.50	V086467-V	89.00
.2055	#5	5.219 mm	1.644	41.750 mm	(8x)	47.71 mm	1.08 mm	6 mm	100 mm	V435044	135.00	V435044-V	139.50
.2086		5.300 mm	.626	15.900 mm	(3x)	20.63 mm	1.10 mm	6 mm	63 mm			V835905-V	64.50
.2086		5.300 mm	1.043	26.500 mm	(5x)	31.76 mm	1.10 mm	6 mm	75 mm	V969066	82.50	V969066-V	89.00
.2086		5.300 mm	1.669	42.400 mm	(8x)	48.45 mm	1.10 mm	6 mm	100 mm	V555520	135.00	V555520-V	139.50
.2090	#4	5.308 mm	.627	15.924 mm	(3x)	20.66 mm	1.10 mm	6 mm	63 mm			V555221-V	64.50
.2090	#4	5.308 mm	1.045	26.550 mm	(5x)	31.80 mm	1.10 mm	6 mm	75 mm	V250479	82.50	V250479-V	89.00
.2090	#4	5.308 mm	1.671	42.450 mm	(8x)	48.52 mm	1.10 mm	6 mm	100 mm	V025152	135.00	V025152-V	139.50
.2125		5.400 mm	.638	16.200 mm	(3x)	21.01 mm	1.12 mm	6 mm	63 mm			V192173-V	64.50
.2125		5.400 mm	1.063	27.000 mm	(5x)	32.35 mm	1.12 mm	6 mm	75 mm	V923077	82.50	V923077-V	89.00
.2125		5.400 mm	1.701	43.200 mm	(8x)	49.36 mm	1.12 mm	6 mm	100 mm	V412862	135.00	V412862-V	139.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
	inch	wire	metric	inch	metric	hole depth		Length						
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
NEW	.2129	#3	5.410 mm	.639	16.230 mm	(3x)	21.05 mm	1.12 mm	6 mm	63 mm			V915275-V	64.50
	.2129	#3	5.410 mm	1.065	27.050 mm	(5x)	32.41 mm	1.12 mm	6 mm	75 mm	V448801	82.50	V448801-V	89.00
	.2129	#3	5.410 mm	1.705	43.300 mm	(8x)	49.46 mm	1.12 mm	6 mm	100 mm	V880565	135.00	V880565-V	139.50
	.2165		5.500 mm	.650	16.500 mm	(3x)	21.40 mm	1.14 mm	6 mm	63 mm			V791535-V	64.50
	.2165		5.500 mm	1.083	27.500 mm	(5x)	32.95 mm	1.14 mm	6 mm	75 mm	V332947	82.50	V332947-V	89.00
	.2165		5.500 mm	1.732	44.000 mm	(8x)	50.28 mm	1.14 mm	6 mm	100 mm	V692720	135.00	V692720-V	139.50
	.2187 (7/32)		5.556 mm	.656	16.668 mm	(3x)	21.62 mm	1.15 mm	6 mm	63 mm			V418970-V	64.50
	.2187 (7/32)		5.556 mm	1.094	27.800 mm	(5x)	33.29 mm	1.15 mm	6 mm	75 mm	V192488	82.50	V192488-V	89.00
	.2187 (7/32)		5.556 mm	1.750	44.450 mm	(8x)	50.79 mm	1.15 mm	6 mm	100 mm	V421981	135.00	V421981-V	139.50
	.2205		5.600 mm	.661	16.800 mm	(3x)	21.79 mm	1.16 mm	6 mm	63 mm			V439639-V	64.50
NEW	.2205		5.600 mm	1.102	28.000 mm	(5x)	33.55 mm	1.16 mm	6 mm	75 mm	V300624	82.50	V300624-V	89.00
	.2205		5.600 mm	1.764	44.800 mm	(8x)	51.19 mm	1.16 mm	6 mm	100 mm	V625957	135.00	V625957-V	139.50
	.2210	#2	5.613 mm	.663	16.839 mm	(3x)	21.84 mm	1.16 mm	6 mm	63 mm			V902817-V	64.50
	.2210	#2	5.613 mm	1.104	28.050 mm	(5x)	33.63 mm	1.16 mm	6 mm	75 mm	V494998	82.50	V494998-V	89.00
	.2210	#2	5.613 mm	1.768	44.900 mm	(8x)	51.31 mm	1.16 mm	6 mm	100 mm	V509318	135.00	V509318-V	139.50
	.2244		5.700 mm	.673	17.100 mm	(3x)	22.18 mm	1.18 mm	6 mm	63 mm			V695857-V	64.50
	.2244		5.700 mm	1.122	28.500 mm	(5x)	34.15 mm	1.18 mm	6 mm	75 mm	V932148	82.50	V932148-V	89.00
	.2244		5.700 mm	1.795	45.600 mm	(8x)	52.11 mm	1.18 mm	6 mm	100 mm	V662636	135.00	V662636-V	139.50
	.2280	#1	5.791 mm	.684	17.373 mm	(3x)	22.54 mm	1.20 mm	6 mm	63 mm			V707928-V	64.50
	.2280	#1	5.791 mm	1.140	28.950 mm	(5x)	34.70 mm	1.20 mm	6 mm	75 mm	V446839	82.50	V446839-V	89.00
NEW	.2280	#1	5.791 mm	1.825	46.350 mm	(8x)	52.94 mm	1.20 mm	6 mm	100 mm	V108807	135.00	V108807-V	139.50
	.2283		5.800 mm	.685	17.400 mm	(3x)	22.57 mm	1.20 mm	6 mm	63 mm			V712558-V	64.50
	.2283		5.800 mm	1.142	29.000 mm	(5x)	34.75 mm	1.20 mm	6 mm	75 mm	V583286	82.50	V583286-V	89.00
	.2283		5.800 mm	1.827	46.400 mm	(8x)	53.02 mm	1.20 mm	6 mm	100 mm	V664218	135.00	V664218-V	139.50
	.2322		5.900 mm	.697	17.700 mm	(3x)	22.96 mm	1.22 mm	6 mm	63 mm			V689805-V	64.50
	.2322		5.900 mm	1.161	29.500 mm	(5x)	35.35 mm	1.22 mm	6 mm	75 mm	V424468	82.50	V424468-V	89.00
	.2322		5.900 mm	1.858	47.200 mm	(8x)	53.94 mm	1.22 mm	6 mm	100 mm	V406472	135.00	V406472-V	139.50
	.2340	A	5.943 mm	.702	17.829 mm	(3x)	23.13 mm	1.23 mm	6 mm	63 mm			V193451-V	64.50
	.2340	A	5.943 mm	1.169	29.700 mm	(5x)	35.61 mm	1.23 mm	6 mm	75 mm	V290384	82.50	V290384-V	89.00
	.2340	A	5.943 mm	1.872	47.550 mm	(8x)	54.33 mm	1.23 mm	6 mm	100 mm	V365074	135.00	V365074-V	139.50
NEW	.2343 (15/64)		5.953 mm	.703	17.859 mm	(3x)	23.17 mm	1.23 mm	6 mm	75 mm			V103321-V	64.50
	.2343 (15/64)		5.953 mm	1.171	29.750 mm	(5x)	35.67 mm	1.23 mm	6 mm	75 mm	V483232	82.50	V483232-V	89.00
	.2343 (15/64)		5.953 mm	1.874	47.600 mm	(8x)	54.42 mm	1.23 mm	6 mm	100 mm	V857943	135.00	V857943-V	139.50
	.2362		6.000 mm	.709	18.000 mm	(3x)	23.35 mm	1.24 mm	8 mm	75 mm			V191882-V	64.50
	.2362		6.000 mm	1.181	30.000 mm	(5x)	35.95 mm	1.24 mm	8 mm	100 mm	V514442	82.50	V514442-V	89.00
	.2362		6.000 mm	1.890	48.000 mm	(8x)	54.85 mm	1.24 mm	8 mm	125 mm	V965807	135.00	V965807-V	139.50
	.2380	B	6.045 mm	.714	18.135 mm	(3x)	23.52 mm	1.25 mm	8 mm	75 mm			V253319-V	92.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.2380	B	6.045 mm	1.191	30.250 mm	(5x)	36.22 mm	1.25 mm	8 mm	100 mm	V100164	106.50	V100164-V	115.00
.2380	B	6.045 mm	1.904	48.350 mm	(8x)	55.26 mm	1.25 mm	8 mm	125 mm	V358282	185.00	V358282-V	194.00
.2401		6.100 mm	.720	18.300 mm	(3x)	23.74 mm	1.26 mm	8 mm	75 mm			V882361-V	92.00
.2401		6.100 mm	1.201	30.500 mm	(5x)	36.55 mm	1.26 mm	8 mm	100 mm	V699389	106.50	V699389-V	115.00
.2401		6.100 mm	1.921	48.800 mm	(8x)	55.76 mm	1.26 mm	8 mm	125 mm	V512364	185.00	V512364-V	194.00
.2420	C	6.146 mm	.726	18.438 mm	(3x)	23.92 mm	1.27 mm	8 mm	75 mm			V165832-V	92.00
.2420	C	6.146 mm	1.211	30.750 mm	(5x)	36.82 mm	1.27 mm	8 mm	100 mm	V150659	106.50	V150659-V	115.00
.2420	C	6.146 mm	1.935	49.150 mm	(8x)	56.18 mm	1.27 mm	8 mm	125 mm	V418249	185.00	V418249-V	194.00
.2440		6.200 mm	.732	18.600 mm	(3x)	24.13 mm	1.28 mm	8 mm	75 mm			V600300-V	92.00
.2440		6.200 mm	1.220	31.000 mm	(5x)	37.15 mm	1.28 mm	8 mm	100 mm	V333318	106.50	V333318-V	115.00
.2440		6.200 mm	1.953	49.600 mm	(8x)	56.68 mm	1.28 mm	8 mm	125 mm	V246360	185.00	V246360-V	194.00
.2460	D	6.248 mm	.738	18.744 mm	(3x)	24.32 mm	1.29 mm	8 mm	75 mm			V983825-V	92.00
.2460	D	6.248 mm	1.230	31.250 mm	(5x)	37.44 mm	1.29 mm	8 mm	100 mm	V888234	106.50	V888234-V	115.00
.2460	D	6.248 mm	1.969	50.000 mm	(8x)	57.12 mm	1.29 mm	8 mm	125 mm	V922825	185.00	V922825-V	194.00
.2480		6.300 mm	.744	18.900 mm	(3x)	24.52 mm	1.30 mm	8 mm	75 mm			V897423-V	92.00
.2480		6.300 mm	1.240	31.500 mm	(5x)	37.75 mm	1.30 mm	8 mm	100 mm	V716403	106.50	V716403-V	115.00
.2480		6.300 mm	1.984	50.400 mm	(8x)	57.59 mm	1.30 mm	8 mm	125 mm	V171510	185.00	V171510-V	194.00
.2500 (1/4)	E	6.350 mm	.750	19.050 mm	(3x)	24.71 mm	1.32 mm	8 mm	75 mm			V063190-V	92.00
.2500 (1/4)	E	6.350 mm	1.250	31.750 mm	(5x)	38.05 mm	1.32 mm	8 mm	100 mm	V924120	106.50	V924120-V	115.00
.2500 (1/4)	E	6.350 mm	2.000	50.800 mm	(8x)	58.05 mm	1.32 mm	8 mm	125 mm	V515046	185.00	V515046-V	194.00
.2520		6.400 mm	.756	19.200 mm	(3x)	24.91 mm	1.33 mm	8 mm	75 mm			V740956-V	92.00
.2520		6.400 mm	1.260	32.000 mm	(5x)	38.35 mm	1.33 mm	8 mm	100 mm	V952739	106.50	V952739-V	115.00
.2520		6.400 mm	2.016	51.200 mm	(8x)	58.51 mm	1.33 mm	8 mm	125 mm	V442929	185.00	V442929-V	194.00
.2559		6.500 mm	.768	19.500 mm	(3x)	25.30 mm	1.35 mm	8 mm	75 mm			V140273-V	92.00
.2559		6.500 mm	1.280	32.500 mm	(5x)	38.95 mm	1.35 mm	8 mm	100 mm	V252657	106.50	V252657-V	115.00
.2559		6.500 mm	2.047	52.000 mm	(8x)	59.42 mm	1.35 mm	8 mm	125 mm	V981850	185.00	V981850-V	194.00
.2570	F	6.528 mm	.771	19.584 mm	(3x)	25.40 mm	1.35 mm	8 mm	75 mm			V586018-V	92.00
.2570	F	6.528 mm	1.285	32.650 mm	(5x)	39.11 mm	1.35 mm	8 mm	100 mm	V245556	106.50	V245556-V	115.00
.2570	F	6.528 mm	2.055	52.200 mm	(8x)	59.68 mm	1.35 mm	8 mm	125 mm	V615983	185.00	V615983-V	194.00
.2598		6.600 mm	.780	19.800 mm	(3x)	25.69 mm	1.37 mm	8 mm	75 mm			V754441-V	92.00
.2598		6.600 mm	1.299	33.000 mm	(5x)	39.55 mm	1.37 mm	8 mm	100 mm	V522677	106.50	V522677-V	115.00
.2598		6.600 mm	2.079	52.800 mm	(8x)	60.34 mm	1.37 mm	8 mm	125 mm	V583091	185.00	V583091-V	194.00
.2609	G	6.629 mm	.783	19.887 mm	(3x)	25.80 mm	1.37 mm	8 mm	75 mm			V163302-V	92.00
.2609	G	6.629 mm	1.305	33.150 mm	(5x)	39.72 mm	1.37 mm	8 mm	100 mm	V703189	106.50	V703189-V	115.00
.2609	G	6.629 mm	2.089	53.050 mm	(8x)	60.60 mm	1.37 mm	8 mm	125 mm	V928187	185.00	V928187-V	194.00
.2638		6.700 mm	.791	20.100 mm	(3x)	26.07 mm	1.39 mm	8 mm	75 mm			V848441-V	92.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
	inch	wire	metric	inch	metric	hole depth								
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
NEW	.2638		6.700 mm	1.319	33.500 mm	(5x)	40.14 mm	1.39 mm	8 mm	100 mm	V144907	106.50	V144907-V	115.00
	.2638		6.700 mm	2.110	53.600 mm	(8x)	61.25 mm	1.39 mm	8 mm	125 mm	V320537	185.00	V320537-V	194.00
	.2656 (17/64)		6.746 mm	.797	20.238 mm	(3x)	26.25 mm	1.40 mm	8 mm	75 mm			V234999-V	92.00
	.2656 (17/64)		6.746 mm	1.329	33.750 mm	(5x)	40.42 mm	1.40 mm	8 mm	100 mm	V822656	106.50	V822656-V	115.00
	.2656 (17/64)		6.746 mm	2.124	53.950 mm	(8x)	61.67 mm	1.40 mm	8 mm	125 mm	V403247	185.00	V403247-V	194.00
	.2659	H	6.756 mm	.798	20.268 mm	(3x)	26.29 mm	1.40 mm	8 mm	75 mm			V647097-V	92.00
	.2659	H	6.756 mm	1.331	33.800 mm	(5x)	40.48 mm	1.40 mm	8 mm	100 mm	V908338	106.50	V908338-V	115.00
	.2659	H	6.756 mm	2.128	54.050 mm	(8x)	61.76 mm	1.40 mm	8 mm	125 mm	V323307	185.00	V323307-V	194.00
	.2677		6.800 mm	.803	20.400 mm	(3x)	26.46 mm	1.41 mm	8 mm	75 mm			V122946-V	92.00
	.2677		6.800 mm	1.339	34.000 mm	(5x)	40.74 mm	1.41 mm	8 mm	100 mm	V390334	106.50	V390334-V	115.00
	.2677		6.800 mm	2.142	54.400 mm	(8x)	62.16 mm	1.41 mm	8 mm	125 mm	V892039	185.00	V892039-V	194.00
	.2717		6.900 mm	.815	20.700 mm	(3x)	26.85 mm	1.43 mm	8 mm	75 mm			V784229-V	92.00
NEW	.2717		6.900 mm	1.358	34.500 mm	(5x)	41.34 mm	1.43 mm	8 mm	100 mm	V359934	106.50	V359934-V	115.00
	.2717		6.900 mm	2.173	55.200 mm	(8x)	63.08 mm	1.43 mm	8 mm	125 mm	V272766	185.00	V272766-V	194.00
	.2719	I	6.908 mm	.816	20.724 mm	(3x)	26.88 mm	1.43 mm	8 mm	75 mm			V990261-V	92.00
	.2719	I	6.908 mm	1.360	34.550 mm	(5x)	41.39 mm	1.43 mm	8 mm	100 mm	V584949	106.50	V584949-V	115.00
	.2719	I	6.908 mm	2.175	55.250 mm	(8x)	63.15 mm	1.43 mm	8 mm	125 mm	V605148	185.00	V605148-V	194.00
	.2756		7.000 mm	.827	21.000 mm	(3x)	27.24 mm	1.45 mm	8 mm	75 mm			V488914-V	92.00
	.2756		7.000 mm	1.378	35.000 mm	(5x)	41.94 mm	1.45 mm	8 mm	100 mm	V849487	106.50	V849487-V	115.00
	.2756		7.000 mm	2.205	56.000 mm	(8x)	63.99 mm	1.45 mm	8 mm	125 mm	V582978	185.00	V582978-V	194.00
	.2769	J	7.035 mm	.831	21.105 mm	(3x)	27.38 mm	1.46 mm	8 mm	75 mm			V540821-V	92.00
	.2769	J	7.035 mm	1.384	35.150 mm	(5x)	42.15 mm	1.46 mm	8 mm	100 mm	V706581	106.50	V706581-V	115.00
	.2769	J	7.035 mm	2.217	56.300 mm	(8x)	64.31 mm	1.46 mm	8 mm	125 mm	V037290	185.00	V037290-V	194.00
	.2795		7.100 mm	.839	21.300 mm	(3x)	27.63 mm	1.47 mm	8 mm	75 mm			V128432-V	92.00
NEW	.2795		7.100 mm	1.398	35.500 mm	(5x)	42.54 mm	1.47 mm	8 mm	100 mm	V608576	106.50	V608576-V	115.00
	.2795		7.100 mm	2.236	56.800 mm	(8x)	64.91 mm	1.47 mm	8 mm	125 mm	V700117	185.00	V700117-V	194.00
	.2809	K	7.137 mm	.843	21.411 mm	(3x)	27.78 mm	1.48 mm	8 mm	75 mm			V602705-V	92.00
	.2809	K	7.137 mm	1.406	35.700 mm	(5x)	42.76 mm	1.48 mm	8 mm	100 mm	V608935	106.50	V608935-V	115.00
	.2809	K	7.137 mm	2.248	57.100 mm	(8x)	65.24 mm	1.48 mm	8 mm	125 mm	V074358	185.00	V074358-V	194.00
	.2812 (9/32)		7.142 mm	.844	21.426 mm	(3x)	27.79 mm	1.48 mm	8 mm	75 mm			V166927-V	92.00
	.2812 (9/32)		7.142 mm	1.406	35.700 mm	(5x)	42.79 mm	1.48 mm	8 mm	100 mm	V808410	106.50	V808410-V	115.00
	.2812 (9/32)		7.142 mm	2.250	57.150 mm	(8x)	65.29 mm	1.48 mm	8 mm	125 mm	V298615	185.00	V298615-V	194.00
	.2834		7.200 mm	.850	21.600 mm	(3x)	28.02 mm	1.49 mm	8 mm	75 mm			V283687-V	92.00
	.2834		7.200 mm	1.417	36.000 mm	(5x)	43.14 mm	1.49 mm	8 mm	100 mm	V476150	106.50	V476150-V	115.00
	.2834		7.200 mm	2.268	57.600 mm	(8x)	65.82 mm	1.49 mm	8 mm	125 mm	V933182	185.00	V933182-V	194.00
	.2874		7.300 mm	.862	21.900 mm	(3x)	28.41 mm	1.51 mm	8 mm	75 mm			V026525-V	92.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD	Tool #	\$USD
.2874		7.300 mm	1.437	36.500 mm	(5x)	43.74 mm	1.51 mm	8 mm	100 mm	V207592	106.50	V207592-V	115.00
.2874		7.300 mm	2.299	58.400 mm	(8x)	66.73 mm	1.51 mm	8 mm	125 mm	V359441	185.00	V359441-V	194.00
.2900	L	7.366 mm	.870	22.098 mm	(3x)	28.67 mm	1.53 mm	8 mm	75 mm			V565679-V	92.00
.2900	L	7.366 mm	1.451	36.850 mm	(5x)	44.14 mm	1.53 mm	8 mm	100 mm	V705607	106.50	V705607-V	115.00
.2900	L	7.366 mm	2.321	58.950 mm	(8x)	67.34 mm	1.53 mm	8 mm	125 mm	V158525	185.00	V158525-V	194.00
.2913		7.400 mm	.874	22.200 mm	(3x)	28.80 mm	1.53 mm	8 mm	75 mm			V291133-V	92.00
.2913		7.400 mm	1.457	37.000 mm	(5x)	44.34 mm	1.53 mm	8 mm	100 mm	V902089	106.50	V902089-V	115.00
.2913		7.400 mm	2.331	59.200 mm	(8x)	67.65 mm	1.53 mm	8 mm	125 mm	V654235	185.00	V654235-V	194.00
.2950	M	7.493 mm	.885	22.479 mm	(3x)	29.16 mm	1.55 mm	8 mm	75 mm			V726436-V	92.00
.2950	M	7.493 mm	1.474	37.450 mm	(5x)	44.90 mm	1.55 mm	8 mm	100 mm	V321251	106.50	V321251-V	115.00
.2950	M	7.493 mm	2.360	59.950 mm	(8x)	68.50 mm	1.55 mm	8 mm	125 mm	V747423	185.00	V747423-V	194.00
.2952		7.500 mm	.886	22.500 mm	(3x)	29.19 mm	1.55 mm	8 mm	75 mm			V769530-V	92.00
.2952		7.500 mm	1.476	37.500 mm	(5x)	44.94 mm	1.55 mm	8 mm	100 mm	V137771	106.50	V137771-V	115.00
.2952		7.500 mm	2.362	60.000 mm	(8x)	68.56 mm	1.55 mm	8 mm	125 mm	V444829	185.00	V444829-V	194.00
.2969 (19/64)		7.541 mm	.891	22.623 mm	(3x)	29.35 mm	1.56 mm	8 mm	75 mm			V525410-V	92.00
.2969 (19/64)		7.541 mm	1.484	37.700 mm	(5x)	45.18 mm	1.56 mm	8 mm	100 mm	V645522	106.50	V645522-V	115.00
.2969 (19/64)		7.541 mm	2.376	60.350 mm	(8x)	68.94 mm	1.56 mm	8 mm	125 mm	V319299	185.00	V319299-V	194.00
.2992		7.600 mm	.898	22.800 mm	(3x)	29.58 mm	1.57 mm	8 mm	75 mm			V517743-V	92.00
.2992		7.600 mm	1.496	38.000 mm	(5x)	45.54 mm	1.57 mm	8 mm	100 mm	V871764	106.50	V871764-V	115.00
.2992		7.600 mm	2.394	60.800 mm	(8x)	69.48 mm	1.57 mm	8 mm	125 mm	V937150	185.00	V937150-V	194.00
.3020	N	7.671 mm	.906	23.013 mm	(3x)	29.85 mm	1.59 mm	8 mm	75 mm			V736522-V	92.00
.3020	N	7.671 mm	1.510	38.350 mm	(5x)	45.96 mm	1.59 mm	8 mm	100 mm	V560802	106.50	V560802-V	115.00
.3020	N	7.671 mm	2.415	61.350 mm	(8x)	70.13 mm	1.59 mm	8 mm	125 mm	V911028	185.00	V911028-V	194.00
.3031		7.700 mm	.909	23.100 mm	(3x)	29.97 mm	1.59 mm	8 mm	75 mm			V853902-V	92.00
.3031		7.700 mm	1.516	38.500 mm	(5x)	46.14 mm	1.59 mm	8 mm	100 mm	V272800	106.50	V272800-V	115.00
.3031		7.700 mm	2.425	61.600 mm	(8x)	70.39 mm	1.59 mm	8 mm	125 mm	V733422	185.00	V733422-V	194.00
.3071		7.800 mm	.921	23.400 mm	(3x)	30.36 mm	1.62 mm	8 mm	75 mm			V400489-V	92.00
.3071		7.800 mm	1.535	39.000 mm	(5x)	46.74 mm	1.62 mm	8 mm	100 mm	V444378	106.50	V444378-V	115.00
.3071		7.800 mm	2.457	62.400 mm	(8x)	71.31 mm	1.62 mm	8 mm	125 mm	V467902	185.00	V467902-V	194.00
.3110		7.900 mm	.933	23.700 mm	(3x)	30.75 mm	1.64 mm	8 mm	75 mm			V624164-V	92.00
.3110		7.900 mm	1.555	39.500 mm	(5x)	47.34 mm	1.64 mm	8 mm	100 mm	V838506	106.50	V838506-V	115.00
.3110		7.900 mm	2.488	63.200 mm	(8x)	72.22 mm	1.64 mm	8 mm	125 mm	V118204	185.00	V118204-V	194.00
.3125 (5/16)		7.937 mm	.937	23.811 mm	(3x)	30.89 mm	1.64 mm	8 mm	75 mm			V160019-V	92.00
.3125 (5/16)		7.937 mm	1.563	39.700 mm	(5x)	47.56 mm	1.64 mm	8 mm	100 mm	V534118	106.50	V534118-V	115.00
.3125 (5/16)		7.937 mm	2.500	63.500 mm	(8x)	72.56 mm	1.64 mm	8 mm	125 mm	V181162	185.00	V181162-V	194.00
.3150		8.000 mm	.945	24.000 mm	(3x)	31.13 mm	1.66 mm	10 mm	75 mm			V770448-V	92.00
.3150		8.000 mm	1.575	40.000 mm	(5x)	47.93 mm	1.66 mm	10 mm	100 mm	V631086	106.50	V631086-V	115.00
.3150		8.000 mm	2.520	64.000 mm	(8x)	73.13 mm	1.66 mm	10 mm	125 mm	V372448	185.00	V372448-V	194.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
	inch	wire	metric	inch	metric	hole depth					Tool #	\$USD	Tool #	\$USD
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1				
NEW	.3159	O	8.026 mm	.948	24.078 mm	(3x)	31.24 mm	1.66 mm	10 mm	75 mm			V871268-V	106.00
	.3159	O	8.026 mm	1.581	40.150 mm	(5x)	48.09 mm	1.66 mm	10 mm	100 mm	V736656	121.50	V736656-V	131.00
	.3159	O	8.026 mm	2.528	64.200 mm	(8x)	73.37 mm	1.66 mm	10 mm	125 mm	V905230	203.00	V905230-V	214.00
	.3189		8.100 mm	.957	24.300 mm	(3x)	31.52 mm	1.68 mm	10 mm	75 mm			V635177-V	106.00
	.3189		8.100 mm	1.594	40.500 mm	(5x)	48.53 mm	1.68 mm	10 mm	100 mm	V480410	121.50	V480410-V	131.00
	.3189		8.100 mm	2.551	64.800 mm	(8x)	74.05 mm	1.68 mm	10 mm	125 mm	V373765	203.00	V373765-V	214.00
	.3228		8.200 mm	.969	24.600 mm	(3x)	31.91 mm	1.70 mm	10 mm	75 mm			V858422-V	106.00
	.3228		8.200 mm	1.614	41.000 mm	(5x)	49.13 mm	1.70 mm	10 mm	100 mm	V668382	121.50	V668382-V	131.00
	.3228		8.200 mm	2.583	65.600 mm	(8x)	74.96 mm	1.70 mm	10 mm	125 mm	V581134	203.00	V581134-V	214.00
NEW	.3229	P	8.204 mm	.969	24.612 mm	(3x)	31.93 mm	1.70 mm	10 mm	75 mm			V133443-V	106.00
	.3229	P	8.204 mm	1.614	41.000 mm	(5x)	49.16 mm	1.70 mm	10 mm	100 mm	V418883	121.50	V418883-V	131.00
	.3229	P	8.204 mm	2.585	65.650 mm	(8x)	75.00 mm	1.70 mm	10 mm	125 mm	V230611	203.00	V230611-V	214.00
	.3268		8.300 mm	.980	24.900 mm	(3x)	32.30 mm	1.72 mm	10 mm	75 mm			V726928-V	106.00
	.3268		8.300 mm	1.634	41.500 mm	(5x)	49.73 mm	1.72 mm	10 mm	100 mm	V386606	121.50	V386606-V	131.00
	.3268		8.300 mm	2.614	66.400 mm	(8x)	75.88 mm	1.72 mm	10 mm	125 mm	V496970	203.00	V496970-V	214.00
	.3281 (21/64)		8.333 mm	.984	24.999 mm	(3x)	32.43 mm	1.73 mm	10 mm	75 mm			V161221-V	106.00
	.3281 (21/64)		8.333 mm	1.640	41.650 mm	(5x)	49.93 mm	1.73 mm	10 mm	100 mm	V904466	121.50	V904466-V	131.00
	.3281 (21/64)		8.333 mm	2.624	66.650 mm	(8x)	76.18 mm	1.73 mm	10 mm	125 mm	V185340	203.00	V185340-V	214.00
NEW	.3307		8.400 mm	.992	25.200 mm	(3x)	32.69 mm	1.74 mm	10 mm	75 mm			V665263-V	106.00
	.3307		8.400 mm	1.654	42.000 mm	(5x)	50.33 mm	1.74 mm	10 mm	100 mm	V336999	121.50	V336999-V	131.00
	.3307		8.400 mm	2.646	67.200 mm	(8x)	76.79 mm	1.74 mm	10 mm	125 mm	V555396	203.00	V555396-V	214.00
	.3319	Q	8.432 mm	.996	25.296 mm	(3x)	32.82 mm	1.75 mm	10 mm	75 mm			V863233-V	106.00
	.3319	Q	8.432 mm	1.659	42.150 mm	(5x)	50.52 mm	1.75 mm	10 mm	100 mm	V869008	121.50	V869008-V	131.00
	.3319	Q	8.432 mm	2.656	67.450 mm	(8x)	77.08 mm	1.75 mm	10 mm	125 mm	V237191	203.00	V237191-V	214.00
	.3346		8.500 mm	1.004	25.500 mm	(3x)	33.08 mm	1.76 mm	10 mm	75 mm			V120027-V	106.00
	.3346		8.500 mm	1.673	42.500 mm	(5x)	50.93 mm	1.76 mm	10 mm	100 mm	V944598	121.50	V944598-V	131.00
	.3346		8.500 mm	2.677	68.000 mm	(8x)	77.71 mm	1.76 mm	10 mm	125 mm	V102862	203.00	V102862-V	214.00
NEW	.3386		8.600 mm	1.016	25.800 mm	(3x)	33.47 mm	1.78 mm	10 mm	75 mm			V441571-V	106.00
	.3386		8.600 mm	1.693	43.000 mm	(5x)	51.53 mm	1.78 mm	10 mm	100 mm	V129890	121.50	V129890-V	131.00
	.3386		8.600 mm	2.709	68.800 mm	(8x)	78.62 mm	1.78 mm	10 mm	125 mm	V259256	203.00	V259256-V	214.00
	.3389	R	8.610 mm	1.017	25.830 mm	(3x)	33.51 mm	1.78 mm	10 mm	75 mm			V157109-V	106.00
	.3389	R	8.610 mm	1.695	43.050 mm	(5x)	51.59 mm	1.78 mm	10 mm	100 mm	V467935	121.50	V467935-V	131.00
	.3389	R	8.610 mm	2.713	68.900 mm	(8x)	78.71 mm	1.78 mm	10 mm	125 mm	V361790	203.00	V361790-V	214.00
	.3425		8.700 mm	1.028	26.100 mm	(3x)	33.86 mm	1.80 mm	10 mm	75 mm			V682490-V	106.00
	.3425		8.700 mm	1.713	43.500 mm	(5x)	52.13 mm	1.80 mm	10 mm	100 mm	V364436	121.50	V364436-V	131.00
	.3425		8.700 mm	2.740	69.600 mm	(8x)	79.53 mm	1.80 mm	10 mm	125 mm	V578927	203.00	V578927-V	214.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.3438 (11/32)		8.732 mm	1.031	26.196 mm	(3x)	33.98 mm	1.81 mm	10 mm	75 mm			V097646-V	106.00
.3438 (11/32)		8.732 mm	1.719	43.650 mm	(5x)	52.32 mm	1.81 mm	10 mm	100 mm	V960893	121.50	V960893-V	131.00
.3438 (11/32)		8.732 mm	2.750	69.850 mm	(8x)	79.83 mm	1.81 mm	10 mm	125 mm	V828826	203.00	V828826-V	214.00
.3465		8.800 mm	1.039	26.400 mm	(3x)	34.25 mm	1.82 mm	10 mm	75 mm			V421988-V	106.00
.3465		8.800 mm	1.732	44.000 mm	(5x)	52.73 mm	1.82 mm	10 mm	100 mm	V295589	121.50	V295589-V	131.00
.3465		8.800 mm	2.772	70.400 mm	(8x)	80.45 mm	1.82 mm	10 mm	125 mm	V682221	203.00	V682221-V	214.00
.3479	S	8.839 mm	1.044	26.517 mm	(3x)	34.40 mm	1.83 mm	10 mm	75 mm			V769820-V	106.00
.3479	S	8.839 mm	1.740	44.200 mm	(5x)	52.96 mm	1.83 mm	10 mm	100 mm	V788883	121.50	V788883-V	131.00
.3479	S	8.839 mm	2.783	70.700 mm	(8x)	80.81 mm	1.83 mm	10 mm	125 mm	V338174	203.00	V338174-V	214.00
.3504		8.900 mm	1.051	26.700 mm	(3x)	34.64 mm	1.84 mm	10 mm	75 mm			V260713-V	106.00
.3504		8.900 mm	1.752	44.500 mm	(5x)	53.33 mm	1.84 mm	10 mm	100 mm	V837355	121.50	V837355-V	131.00
.3504		8.900 mm	2.803	71.200 mm	(8x)	81.36 mm	1.84 mm	10 mm	150 mm	V650588	203.00	V650588-V	214.00
.3543		9.000 mm	1.063	27.000 mm	(3x)	35.03 mm	1.86 mm	10 mm	75 mm			V330816-V	106.00
.3543		9.000 mm	1.772	45.000 mm	(5x)	53.93 mm	1.86 mm	10 mm	100 mm	V883001	121.50	V883001-V	131.00
.3543		9.000 mm	2.835	72.000 mm	(8x)	82.28 mm	1.86 mm	10 mm	150 mm	V158250	203.00	V158250-V	214.00
.3579	T	9.093 mm	1.074	27.279 mm	(3x)	35.39 mm	1.88 mm	10 mm	75 mm			V630569-V	106.00
.3579	T	9.093 mm	1.789	45.450 mm	(5x)	54.48 mm	1.88 mm	10 mm	100 mm	V852432	121.50	V852432-V	131.00
.3579	T	9.093 mm	2.864	72.750 mm	(8x)	83.13 mm	1.88 mm	10 mm	150 mm	V794936	203.00	V794936-V	214.00
.3583		9.100 mm	1.075	27.300 mm	(3x)	35.42 mm	1.88 mm	10 mm	75 mm			V029659-V	106.00
.3583		9.100 mm	1.791	45.500 mm	(5x)	54.53 mm	1.88 mm	10 mm	100 mm	V819645	121.50	V819645-V	131.00
.3583		9.100 mm	2.866	72.800 mm	(8x)	83.19 mm	1.88 mm	10 mm	150 mm	V132901	203.00	V132901-V	214.00
.3594 (23/64)		9.128 mm	1.078	27.384 mm	(3x)	35.53 mm	1.89 mm	10 mm	75 mm			V258548-V	106.00
.3594 (23/64)		9.128 mm	1.797	45.650 mm	(5x)	54.69 mm	1.89 mm	10 mm	100 mm	V655775	121.50	V655775-V	131.00
.3594 (23/64)		9.128 mm	2.874	73.000 mm	(8x)	83.45 mm	1.89 mm	10 mm	150 mm	V272571	203.00	V272571-V	214.00
.3622		9.200 mm	1.087	27.600 mm	(3x)	35.81 mm	1.91 mm	10 mm	75 mm			V090970-V	106.00
.3622		9.200 mm	1.811	46.000 mm	(5x)	55.13 mm	1.91 mm	10 mm	100 mm	V687657	121.50	V687657-V	131.00
.3622		9.200 mm	2.898	73.600 mm	(8x)	84.11 mm	1.91 mm	10 mm	150 mm	V871378	203.00	V871378-V	214.00
.3661		9.300 mm	1.098	27.900 mm	(3x)	36.19 mm	1.93 mm	10 mm	75 mm			V598581-V	106.00
.3661		9.300 mm	1.831	46.500 mm	(5x)	55.72 mm	1.93 mm	10 mm	100 mm	V787709	121.50	V787709-V	131.00
.3661		9.300 mm	2.929	74.400 mm	(8x)	85.02 mm	1.93 mm	10 mm	150 mm	V503354	203.00	V503354-V	214.00
.3679	U	9.347 mm	1.104	28.041 mm	(3x)	36.38 mm	1.94 mm	10 mm	75 mm			V145702-V	106.00
.3679	U	9.347 mm	1.841	46.750 mm	(5x)	56.01 mm	1.94 mm	10 mm	100 mm	V811370	121.50	V811370-V	131.00
.3679	U	9.347 mm	2.945	74.800 mm	(8x)	85.45 mm	1.94 mm	10 mm	150 mm	V107978	203.00	V107978-V	214.00
.3701		9.400 mm	1.110	28.200 mm	(3x)	36.58 mm	1.95 mm	10 mm	75 mm			V523020-V	106.00
.3701		9.400 mm	1.850	47.000 mm	(5x)	56.32 mm	1.95 mm	10 mm	100 mm	V307018	121.50	V307018-V	131.00
.3701		9.400 mm	2.961	75.200 mm	(8x)	85.93 mm	1.95 mm	10 mm	150 mm	V207468	203.00	V207468-V	214.00
.3740		9.500 mm	1.122	28.500 mm	(3x)	36.97 mm	1.97 mm	10 mm	75 mm			V391187-V	106.00
.3740		9.500 mm	1.870	47.500 mm	(5x)	56.92 mm	1.97 mm	10 mm	100 mm	V718117	121.50	V718117-V	131.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
	inch	wire	metric	inch	metric	hole depth		Length						
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
	.3740		9.500 mm	2.992	76.000 mm	(8x)	86.85 mm	1.97 mm	10 mm	150 mm	V732216	203.00	V732216-V	214.00
	.3750 (3/8)		9.525 mm	1.125	28.575 mm	(3x)	37.07 mm	1.97 mm	10 mm	75 mm			V645795-V	106.00
	.3750 (3/8)		9.525 mm	1.876	47.650 mm	(5x)	57.07 mm	1.97 mm	10 mm	100 mm	V210563	121.50	V210563-V	131.00
	.3750 (3/8)		9.525 mm	3.000	76.200 mm	(8x)	87.08 mm	1.97 mm	10 mm	150 mm	V224674	203.00	V224674-V	214.00
	.3770	V	9.575 mm	1.131	28.725 mm	(3x)	37.27 mm	1.98 mm	10 mm	75 mm			V681972-V	106.00
	.3770	V	9.575 mm	1.886	47.900 mm	(5x)	57.37 mm	1.98 mm	10 mm	100 mm	V195378	121.50	V195378-V	131.00
NEW	.3770	V	9.575 mm	3.016	76.600 mm	(8x)	87.53 mm	1.98 mm	10 mm	150 mm	V327114	203.00	V327114-V	214.00
	.3780		9.600 mm	1.134	28.800 mm	(3x)	37.36 mm	1.99 mm	10 mm	75 mm			V161354-V	106.00
	.3780		9.600 mm	1.890	48.000 mm	(5x)	57.52 mm	1.99 mm	10 mm	100 mm	V417983	121.50	V417983-V	131.00
	.3780		9.600 mm	3.024	76.800 mm	(8x)	87.76 mm	1.99 mm	10 mm	150 mm	V845546	203.00	V845546-V	214.00
	.3819		9.700 mm	1.146	29.100 mm	(3x)	37.75 mm	2.01 mm	10 mm	75 mm			V773539-V	106.00
	.3819		9.700 mm	1.909	48.500 mm	(5x)	58.12 mm	2.01 mm	10 mm	100 mm	V211508	121.50	V211508-V	131.00
	.3819		9.700 mm	3.055	77.600 mm	(8x)	88.68 mm	2.01 mm	10 mm	150 mm	V283637	203.00	V283637-V	214.00
	.3858		9.800 mm	1.157	29.400 mm	(3x)	38.14 mm	2.03 mm	10 mm	75 mm			V159548-V	106.00
	.3858		9.800 mm	1.929	49.000 mm	(5x)	58.72 mm	2.03 mm	10 mm	100 mm	V183783	121.50	V183783-V	131.00
	.3858		9.800 mm	3.087	78.400 mm	(8x)	89.59 mm	2.03 mm	10 mm	150 mm	V456526	203.00	V456526-V	214.00
	.3859	W	9.804 mm	1.158	29.412 mm	(3x)	38.16 mm	2.03 mm	10 mm	75 mm			V403914-V	106.00
	.3859	W	9.804 mm	1.929	49.000 mm	(5x)	58.75 mm	2.03 mm	10 mm	100 mm	V437927	121.50	V437927-V	131.00
NEW	.3859	W	9.804 mm	3.089	78.450 mm	(8x)	89.63 mm	2.03 mm	10 mm	150 mm	V115936	203.00	V115936-V	214.00
	.3898		9.900 mm	1.169	29.700 mm	(3x)	38.53 mm	2.05 mm	10 mm	75 mm			V197695-V	106.00
	.3898		9.900 mm	1.949	49.500 mm	(5x)	59.32 mm	2.05 mm	10 mm	100 mm	V828417	121.50	V828417-V	131.00
	.3898		9.900 mm	3.118	79.200 mm	(8x)	90.51 mm	2.05 mm	10 mm	150 mm	V591316	203.00	V591316-V	214.00
	.3906 (25/64)		9.921 mm	1.172	29.763 mm	(3x)	38.61 mm	2.05 mm	10 mm	100 mm			V245767-V	106.00
	.3906 (25/64)		9.921 mm	1.953	49.600 mm	(5x)	59.45 mm	2.05 mm	10 mm	100 mm	V206750	121.50	V206750-V	131.00
	.3906 (25/64)		9.921 mm	3.124	79.350 mm	(8x)	90.70 mm	2.05 mm	10 mm	150 mm	V592921	203.00	V592921-V	214.00
	.3937		10.000 mm	1.181	30.000 mm	(3x)	38.92 mm	2.07 mm	12 mm	100 mm			V289395-V	120.00
	.3937		10.000 mm	1.969	50.000 mm	(5x)	59.92 mm	2.07 mm	12 mm	125 mm	V510346	121.50	V510346-V	131.00
	.3937		10.000 mm	3.150	80.000 mm	(8x)	91.42 mm	2.07 mm	12 mm	150 mm	V906154	203.00	V906154-V	214.00
	.3969	X	10.083 mm	1.191	30.249 mm	(3x)	39.24 mm	2.09 mm	12 mm	100 mm			V426173-V	144.00
	.3969	X	10.083 mm	1.984	50.400 mm	(5x)	60.42 mm	2.09 mm	12 mm	125 mm	V370331	171.00	V370331-V	185.00
NEW	.3969	X	10.083 mm	3.175	80.650 mm	(8x)	92.18 mm	2.09 mm	12 mm	150 mm	V867197	268.50	V867197-V	284.00
	.3976		10.100 mm	1.193	30.300 mm	(3x)	39.31 mm	2.09 mm	12 mm	100 mm			V484703-V	144.00
	.3976		10.100 mm	1.988	50.500 mm	(5x)	60.52 mm	2.09 mm	12 mm	125 mm	V393209	171.00	V393209-V	185.00
	.3976		10.100 mm	3.181	80.800 mm	(8x)	92.33 mm	2.09 mm	12 mm	150 mm	V912984	268.50	V912984-V	284.00
	.4016		10.200 mm	1.205	30.600 mm	(3x)	39.70 mm	2.11 mm	12 mm	100 mm			V083994-V	144.00
	.4016		10.200 mm	2.008	51.000 mm	(5x)	61.12 mm	2.11 mm	12 mm	125 mm	V241050	171.00	V241050-V	185.00
	.4016		10.200 mm	3.213	81.600 mm	(8x)	93.25 mm	2.11 mm	12 mm	150 mm	V781707	268.50	V781707-V	284.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.4039	Y	10.261 mm	1.212	30.783 mm (3x)		39.94 mm	2.13 mm	12 mm	100 mm			V186932-V	144.00
.4039	Y	10.261 mm	2.020	51.300 mm (5x)		61.48 mm	2.13 mm	12 mm	125 mm	V417796	171.00	V417796-V	185.00
.4039	Y	10.261 mm	3.232	82.100 mm (8x)		93.81 mm	2.13 mm	12 mm	150 mm	V563144	268.50	V563144-V	284.00
.4055		10.300 mm	1.217	30.900 mm (3x)		40.09 mm	2.13 mm	12 mm	100 mm			V825264-V	144.00
.4055		10.300 mm	2.028	51.500 mm (5x)		61.72 mm	2.13 mm	12 mm	125 mm	V693701	171.00	V693701-V	185.00
.4055		10.300 mm	3.244	82.400 mm (8x)		94.16 mm	2.13 mm	12 mm	150 mm	V507787	268.50	V507787-V	284.00
.4062 (13/32)		10.317 mm	1.219	30.951 mm (3x)		40.15 mm	2.14 mm	12 mm	100 mm			V287054-V	144.00
.4062 (13/32)		10.317 mm	2.031	51.600 mm (5x)		61.82 mm	2.14 mm	12 mm	125 mm	V426663	171.00	V426663-V	185.00
.4062 (13/32)		10.317 mm	3.250	82.550 mm (8x)		94.32 mm	2.14 mm	12 mm	150 mm	V165261	268.50	V165261-V	284.00
.4094		10.400 mm	1.228	31.200 mm (3x)		40.48 mm	2.15 mm	12 mm	100 mm			V642336-V	144.00
.4094		10.400 mm	2.047	52.000 mm (5x)		62.32 mm	2.15 mm	12 mm	125 mm	V805959	171.00	V805959-V	185.00
.4094		10.400 mm	3.276	83.200 mm (8x)		95.08 mm	2.15 mm	12 mm	150 mm	V585515	268.50	V585515-V	284.00
.4129	Z	10.490 mm	1.239	31.470 mm (3x)		40.83 mm	2.17 mm	12 mm	100 mm			V832098-V	144.00
.4129	Z	10.490 mm	2.065	52.450 mm (5x)		62.86 mm	2.17 mm	12 mm	125 mm	V262198	171.00	V262198-V	185.00
.4129	Z	10.490 mm	3.303	83.900 mm (8x)		95.90 mm	2.17 mm	12 mm	150 mm	V126280	268.50	V126280-V	284.00
.4134		10.500 mm	1.240	31.500 mm (3x)		40.87 mm	2.17 mm	12 mm	100 mm			V897877-V	144.00
.4134		10.500 mm	2.067	52.500 mm (5x)		62.92 mm	2.17 mm	12 mm	125 mm	V891328	171.00	V891328-V	185.00
.4134		10.500 mm	3.307	84.000 mm (8x)		95.99 mm	2.17 mm	12 mm	150 mm	V656520	268.50	V656520-V	284.00
.4173		10.600 mm	1.252	31.800 mm (3x)		41.26 mm	2.20 mm	12 mm	100 mm			V794597-V	144.00
.4173		10.600 mm	2.087	53.000 mm (5x)		63.52 mm	2.20 mm	12 mm	125 mm	V811500	171.00	V811500-V	185.00
.4173		10.600 mm	3.339	84.800 mm (8x)		96.91 mm	2.20 mm	12 mm	150 mm	V517271	268.50	V517271-V	284.00
.4213		10.700 mm	1.264	32.100 mm (3x)		41.64 mm	2.22 mm	12 mm	100 mm			V807669-V	144.00
.4213		10.700 mm	2.106	53.500 mm (5x)		64.11 mm	2.22 mm	12 mm	125 mm	V980072	171.00	V980072-V	185.00
.4213		10.700 mm	3.370	85.600 mm (8x)		97.82 mm	2.22 mm	12 mm	150 mm	V352223	268.50	V352223-V	284.00
.4219 (27/64)		10.716 mm	1.266	32.148 mm (3x)		41.71 mm	2.22 mm	12 mm	100 mm			V187034-V	144.00
.4219 (27/64)		10.716 mm	2.110	53.600 mm (5x)		64.21 mm	2.22 mm	12 mm	125 mm	V422407	171.00	V422407-V	185.00
.4219 (27/64)		10.716 mm	3.376	85.750 mm (8x)		97.97 mm	2.22 mm	12 mm	150 mm	V628625	268.50	V628625-V	284.00
.4252		10.800 mm	1.276	32.400 mm (3x)		42.03 mm	2.24 mm	12 mm	100 mm			V643097-V	144.00
.4252		10.800 mm	2.126	54.000 mm (5x)		64.71 mm	2.24 mm	12 mm	125 mm	V433000	171.00	V433000-V	185.00
.4252		10.800 mm	3.402	86.400 mm (8x)		98.73 mm	2.24 mm	12 mm	150 mm	V876124	268.50	V876124-V	284.00
.4291		10.900 mm	1.287	32.700 mm (3x)		42.42 mm	2.26 mm	12 mm	100 mm			V178979-V	144.00
.4291		10.900 mm	2.146	54.500 mm (5x)		65.31 mm	2.26 mm	12 mm	125 mm	V507576	171.00	V507576-V	185.00
.4291		10.900 mm	3.433	87.200 mm (8x)		99.65 mm	2.26 mm	12 mm	175 mm	V959173	268.50	V959173-V	284.00
.4331		11.000 mm	1.299	33.000 mm (3x)		42.81 mm	2.28 mm	12 mm	100 mm			V702251-V	144.00
.4331		11.000 mm	2.165	55.000 mm (5x)		65.91 mm	2.28 mm	12 mm	125 mm	V216634	171.00	V216634-V	185.00
.4331		11.000 mm	3.465	88.000 mm (8x)		100.56 mm	2.28 mm	12 mm	175 mm	V705619	268.50	V705619-V	284.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.4370		11.100 mm	1.311	33.300 mm	(3x)	43.20 mm	2.30 mm	12 mm	100 mm			V794183-V	144.00
.4370		11.100 mm	2.185	55.500 mm	(5x)	66.51 mm	2.30 mm	12 mm	125 mm	V838445	171.00	V838445-V	185.00
.4370		11.100 mm	3.496	88.800 mm	(8x)	101.48 mm	2.30 mm	12 mm	175 mm	V554353	268.50	V554353-V	284.00
.4375 (7/16)		11.112 mm	1.312	33.336 mm	(3x)	43.25 mm	2.30 mm	12 mm	100 mm			V559493-V	144.00
.4375 (7/16)		11.112 mm	2.187	55.550 mm	(5x)	66.58 mm	2.30 mm	12 mm	125 mm	V258691	171.00	V258691-V	185.00
.4375 (7/16)		11.112 mm	3.500	88.900 mm	(8x)	101.59 mm	2.30 mm	12 mm	175 mm	V865610	268.50	V865610-V	284.00
.4409		11.200 mm	1.323	33.600 mm	(3x)	43.59 mm	2.32 mm	12 mm	100 mm			V665834-V	144.00
.4409		11.200 mm	2.205	56.000 mm	(5x)	67.11 mm	2.32 mm	12 mm	125 mm	V837182	171.00	V837182-V	185.00
.4409		11.200 mm	3.528	89.600 mm	(8x)	102.39 mm	2.32 mm	12 mm	175 mm	V638291	268.50	V638291-V	284.00
.4449		11.300 mm	1.335	33.900 mm	(3x)	43.98 mm	2.34 mm	12 mm	100 mm			V675652-V	144.00
.4449		11.300 mm	2.224	56.500 mm	(5x)	67.71 mm	2.34 mm	12 mm	125 mm	V104347	171.00	V104347-V	185.00
.4449		11.300 mm	3.559	90.400 mm	(8x)	103.30 mm	2.34 mm	12 mm	175 mm	V923125	268.50	V923125-V	284.00
.4488		11.400 mm	1.346	34.200 mm	(3x)	44.37 mm	2.36 mm	12 mm	100 mm			V967508-V	144.00
.4488		11.400 mm	2.244	57.000 mm	(5x)	68.31 mm	2.36 mm	12 mm	125 mm	V145663	171.00	V145663-V	185.00
.4488		11.400 mm	3.591	91.200 mm	(8x)	104.22 mm	2.36 mm	12 mm	175 mm	V218282	268.50	V218282-V	284.00
.4527		11.500 mm	1.358	34.500 mm	(3x)	44.76 mm	2.38 mm	12 mm	100 mm			V170874-V	144.00
.4527		11.500 mm	2.264	57.500 mm	(5x)	68.91 mm	2.38 mm	12 mm	125 mm	V845377	171.00	V845377-V	185.00
.4527		11.500 mm	3.622	92.000 mm	(8x)	105.13 mm	2.38 mm	12 mm	175 mm	V679783	268.50	V679783-V	284.00
.4531 (29/64)		11.508 mm	1.359	34.524 mm	(3x)	44.79 mm	2.38 mm	12 mm	100 mm			V229337-V	144.00
.4531 (29/64)		11.508 mm	2.266	57.550 mm	(5x)	68.96 mm	2.38 mm	12 mm	125 mm	V520815	171.00	V520815-V	185.00
.4531 (29/64)		11.508 mm	3.624	92.050 mm	(8x)	105.21 mm	2.38 mm	12 mm	175 mm	V960077	268.50	V960077-V	284.00
.4567		11.600 mm	1.370	34.800 mm	(3x)	45.15 mm	2.40 mm	12 mm	100 mm			V426961-V	144.00
.4567		11.600 mm	2.283	58.000 mm	(5x)	69.51 mm	2.40 mm	12 mm	125 mm	V214907	171.00	V214907-V	185.00
.4567		11.600 mm	3.654	92.800 mm	(8x)	106.05 mm	2.40 mm	12 mm	175 mm	V307195	268.50	V307195-V	284.00
.4606		11.700 mm	1.382	35.100 mm	(3x)	45.54 mm	2.42 mm	12 mm	100 mm			V674164-V	144.00
.4606		11.700 mm	2.303	58.500 mm	(5x)	70.11 mm	2.42 mm	12 mm	125 mm	V858509	171.00	V858509-V	185.00
.4606		11.700 mm	3.685	93.600 mm	(8x)	106.96 mm	2.42 mm	12 mm	175 mm	V313087	268.50	V313087-V	284.00
.4646		11.800 mm	1.394	35.400 mm	(3x)	45.93 mm	2.44 mm	12 mm	100 mm			V950044-V	144.00
.4646		11.800 mm	2.323	59.000 mm	(5x)	70.71 mm	2.44 mm	12 mm	125 mm	V216870	171.00	V216870-V	185.00
.4646		11.800 mm	3.717	94.400 mm	(8x)	107.88 mm	2.44 mm	12 mm	175 mm	V902922	268.50	V902922-V	284.00
.4685		11.900 mm	1.406	35.700 mm	(3x)	46.32 mm	2.46 mm	12 mm	100 mm			V987332-V	144.00
.4685		11.900 mm	2.343	59.500 mm	(5x)	71.31 mm	2.46 mm	12 mm	125 mm	V722943	171.00	V722943-V	185.00
.4685		11.900 mm	3.748	95.200 mm	(8x)	108.79 mm	2.46 mm	12 mm	175 mm	V889227	268.50	V889227-V	284.00
.4688 (15/32)		11.907 mm	1.406	35.721 mm	(3x)	46.34 mm	2.47 mm	12 mm	100 mm			V204593-V	144.00
.4688 (15/32)		11.907 mm	2.344	59.550 mm	(5x)	71.35 mm	2.47 mm	12 mm	125 mm	V715708	171.00	V715708-V	185.00
.4688 (15/32)		11.907 mm	3.750	95.250 mm	(8x)	108.85 mm	2.47 mm	12 mm	175 mm	V209677	268.50	V209677-V	284.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Aluminum & Aluminum Alloys – Coolant-Through (cont.)

continued from previous page

Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth								
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD	Tool #	\$USD
.4724		12.000 mm	1.417	36.000 mm	(3x)	46.70 mm	2.49 mm	14 mm	100 mm			V399399-V	144.00
.4724		12.000 mm	2.362	60.000 mm	(5x)	71.90 mm	2.49 mm	14 mm	125 mm	V312296	171.00	V312296-V	185.00
.4724		12.000 mm	3.780	96.000 mm	(8x)	109.70 mm	2.49 mm	14 mm	175 mm	V339609	268.50	V339609-V	284.00
.4764		12.100 mm	1.429	36.300 mm	(3x)	47.09 mm	2.51 mm	14 mm	100 mm			V599386-V	161.00
.4764		12.100 mm	2.382	60.500 mm	(5x)	72.50 mm	2.51 mm	14 mm	125 mm	V904889	235.50	V904889-V	252.00
.4764		12.100 mm	3.811	96.800 mm	(8x)	110.62 mm	2.51 mm	14 mm	175 mm	V264702	363.00	V264702-V	382.00
.4803		12.200 mm	1.441	36.600 mm	(3x)	47.48 mm	2.53 mm	14 mm	100 mm			V624214-V	161.00
.4803		12.200 mm	2.402	61.000 mm	(5x)	73.10 mm	2.53 mm	14 mm	125 mm	V727024	235.50	V727024-V	252.00
.4803		12.200 mm	3.843	97.600 mm	(8x)	111.53 mm	2.53 mm	14 mm	175 mm	V954879	363.00	V954879-V	382.00
.4843		12.300 mm	1.453	36.900 mm	(3x)	47.87 mm	2.55 mm	14 mm	100 mm			V571635-V	161.00
.4843		12.300 mm	2.421	61.500 mm	(5x)	73.70 mm	2.55 mm	14 mm	125 mm	V804318	235.50	V804318-V	252.00
.4843		12.300 mm	3.874	98.400 mm	(8x)	112.45 mm	2.55 mm	14 mm	175 mm	V559229	363.00	V559229-V	382.00
.4883 (31/64)		12.400 mm	1.465	37.200 mm	(3x)	48.26 mm	2.57 mm	14 mm	100 mm			V937094-V	161.00
.4883 (31/64)		12.400 mm	2.441	62.000 mm	(5x)	74.30 mm	2.57 mm	14 mm	125 mm	V680043	235.50	V680043-V	252.00
.4883 (31/64)		12.400 mm	3.906	99.200 mm	(8x)	113.36 mm	2.57 mm	14 mm	175 mm	V597636	363.00	V597636-V	382.00
.4921		12.500 mm	1.476	37.500 mm	(3x)	48.65 mm	2.59 mm	14 mm	100 mm			V065955-V	161.00
.4921		12.500 mm	2.461	62.500 mm	(5x)	74.90 mm	2.59 mm	14 mm	125 mm	V396773	235.50	V396773-V	252.00
.4921		12.500 mm	3.937	100.00 mm	(8x)	114.28 mm	2.59 mm	14 mm	175 mm	V576237	363.00	V576237-V	382.00
.4961		12.600 mm	1.488	37.800 mm	(3x)	49.04 mm	2.61 mm	14 mm	100 mm			V196713-V	161.00
.4961		12.600 mm	2.480	63.000 mm	(5x)	75.50 mm	2.61 mm	14 mm	125 mm	V560508	235.50	V560508-V	252.00
.4961		12.600 mm	3.969	100.80 mm	(8x)	115.19 mm	2.61 mm	14 mm	175 mm	V511270	363.00	V511270-V	382.00
.5000 (1/2)		12.700 mm	1.500	38.100 mm	(3x)	49.43 mm	2.63 mm	14 mm	100 mm			V312578-V	161.00
.5000 (1/2)		12.700 mm	2.500	63.500 mm	(5x)	76.10 mm	2.63 mm	14 mm	125 mm	V346191	235.50	V346191-V	252.00
.5000 (1/2)		12.700 mm	4.000	101.60 mm	(8x)	116.10 mm	2.63 mm	14 mm	175 mm	V190634	363.00	V190634-V	382.00

* For h6 and h8 tolerances, see page 8.



4-Facet
Geometry Improves
Self-Centering

High Performance Drills

For Aluminum & Aluminum Alloys – Pilot Drills

Designed to Achieve Precision Drilling in 6061 Aluminum

- Optimized for best-in-class performance in 6061 Aluminum with superior performance in Aluminum and Aluminum Alloys
- Provides excellent performance in other Non-Ferrous Alloys
- 135° point angle with 4-facet geometry for improved self-centering
- +0.005mm / +0.013mm (+0.0002" / +0.0005") Custom tolerance suitable for piloting when drilling 8xD or greater
- h6 shank tolerance for high precision tool holders
- Proprietary Val-Max V coating delivers outstanding performance in Aluminum Alloys and other Non-Ferrous Alloys
- Solid carbide



Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth						
		D1 +0.005mm +0.013mm		L2		L3	L4	D2 (h6)*	L1	Tool #	USD
.0625 (1/16)		1.587 mm	.187	4.764 mm	(3x)	6.410 mm	.329 mm	3 mm	63 mm	V458626-V	67.50
.0630		1.600 mm	.188	4.800 mm	(3x)	6.458 mm	.331 mm	3 mm	63 mm	V051849-V	67.50
.0635	#52	1.612 mm	.190	4.836 mm	(3x)	6.508 mm	.334 mm	3 mm	63 mm	V944412-V	67.50
.0669	#51	1.700 mm	.200	5.100 mm	(3x)	6.869 mm	.352 mm	3 mm	63 mm	V484514-V	67.50
.0700	#50	1.778 mm	.209	5.334 mm	(3x)	7.188 mm	.368 mm	3 mm	63 mm	V744721-V	67.50
.0708		1.800 mm	.212	5.400 mm	(3x)	7.279 mm	.373 mm	3 mm	63 mm	V954481-V	67.50
.0730	#49	1.854 mm	.218	5.562 mm	(3x)	7.500 mm	.384 mm	3 mm	63 mm	V901336-V	67.50
.0748		1.900 mm	.224	5.700 mm	(3x)	7.690 mm	.394 mm	3 mm	63 mm	V813801-V	67.50
.0760	#48	1.930 mm	.227	5.790 mm	(3x)	7.812 mm	.400 mm	3 mm	63 mm	V937161-V	67.50
.0781 (5/64)		1.984 mm	.233	5.953 mm	(3x)	8.035 mm	.411 mm	3 mm	63 mm	V008120-V	67.50
.0785	#47	1.993 mm	.234	5.979 mm	(3x)	8.070 mm	.413 mm	3 mm	63 mm	V387681-V	67.50
.0787		2.000 mm	.235	6.000 mm	(3x)	8.098 mm	.414 mm	3 mm	63 mm	V639954-V	67.50
.0810	#46	2.057 mm	.242	6.171 mm	(3x)	8.332 mm	.426 mm	3 mm	63 mm	V674940-V	67.50
.0820	#45	2.082 mm	.245	6.246 mm	(3x)	8.434 mm	.431 mm	3 mm	63 mm	V340272-V	67.50
.0826		2.100 mm	.247	6.300 mm	(3x)	8.509 mm	.435 mm	3 mm	63 mm	V983413-V	67.50
.0860	#44	2.184 mm	.257	6.552 mm	(3x)	8.852 mm	.452 mm	3 mm	63 mm	V594959-V	67.50
.0866		2.200 mm	.259	6.600 mm	(3x)	8.919 mm	.456 mm	3 mm	63 mm	V117359-V	67.50
.0890	#43	2.260 mm	.266	6.780 mm	(3x)	9.164 mm	.468 mm	3 mm	63 mm	V236916-V	67.50
.0905		2.300 mm	.271	6.900 mm	(3x)	9.328 mm	.476 mm	3 mm	63 mm	V152442-V	67.50
.0935	#42	2.374 mm	.279	7.122 mm	(3x)	9.633 mm	.492 mm	3 mm	63 mm	V193528-V	67.50
.0937 (3/32)		2.381 mm	.280	7.143 mm	(3x)	9.660 mm	.493 mm	3 mm	63 mm	V492791-V	67.50
.0944		2.400 mm	.282	7.200 mm	(3x)	9.738 mm	.497 mm	3 mm	63 mm	V420577-V	67.50
.0960	#41	2.438 mm	.287	7.314 mm	(3x)	9.894 mm	.505 mm	3 mm	63 mm	V325738-V	67.50
.0980	#40	2.489 mm	.293	7.467 mm	(3x)	10.102 mm	.515 mm	3 mm	63 mm	V378369-V	67.50

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High Performance Drills

For Aluminum & Aluminum Alloys – Pilot Drills (cont.)

continued from previous page

Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth						
		D ₁ ^{+0.005mm} / _{+0.013mm}		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.0984		2.500 mm	.294	7.500 mm	(3x)	10.149 mm	.518 mm	3 mm	63 mm	V471766-V	67.50
.0995	#39	2.527 mm	.297	7.581 mm	(3x)	10.258 mm	.523 mm	3 mm	63 mm	V820933-V	67.50
.1015	#38	2.578 mm	.303	7.734 mm	(3x)	10.468 mm	.534 mm	3 mm	63 mm	V258840-V	67.50
.1023		2.600 mm	.306	7.800 mm	(3x)	10.557 mm	.538 mm	3 mm	63 mm	V445631-V	67.50
.1040	#37	2.641 mm	.311	7.923 mm	(3x)	10.727 mm	.547 mm	3 mm	63 mm	V724470-V	67.50
.1062		2.700 mm	.318	8.100 mm	(3x)	10.968 mm	.559 mm	3 mm	63 mm	V943398-V	67.50
.1065	#36	2.705 mm	.318	8.115 mm	(3x)	10.988 mm	.560 mm	3 mm	63 mm	V063704-V	67.50
.1093 (7/64)		2.778 mm	.327	8.334 mm	(3x)	11.287 mm	.575 mm	3 mm	63 mm	V205869-V	67.50
.1100	#35	2.794 mm	.329	8.382 mm	(3x)	11.354 mm	.579 mm	3 mm	63 mm	V737537-V	67.50
.1102		2.800 mm	.330	8.400 mm	(3x)	11.379 mm	.580 mm	3 mm	63 mm	V064456-V	67.50
.1110	#34	2.819 mm	.332	8.457 mm	(3x)	11.457 mm	.584 mm	3 mm	63 mm	V456898-V	67.50
.1130	#33	2.870 mm	.338	8.610 mm	(3x)	11.664 mm	.594 mm	3 mm	63 mm	V582091-V	67.50
.1141		2.900 mm	.341	8.700 mm	(3x)	11.789 mm	.601 mm	3 mm	63 mm	V244320-V	67.50
.1160	#32	2.946 mm	.347	8.838 mm	(3x)	11.977 mm	.610 mm	3 mm	63 mm	V694716-V	67.50
.1181		3.000 mm	.353	9.000 mm	(3x)	12.198 mm	.621 mm	4 mm	63 mm	V065889-V	67.50
.1200	#31	3.048 mm	.359	9.144 mm	(3x)	12.394 mm	.631 mm	4 mm	63 mm	V103193-V	67.50
.1220		3.100 mm	.365	9.300 mm	(3x)	12.608 mm	.642 mm	4 mm	63 mm	V386809-V	67.50
.1250 (1/8)		3.175 mm	.374	9.525 mm	(3x)	12.917 mm	.658 mm	4 mm	63 mm	V418253-V	67.50
.1260		3.200 mm	.377	9.600 mm	(3x)	13.019 mm	.663 mm	4 mm	63 mm	V588882-V	67.50
.1285	#30	3.263 mm	.384	9.789 mm	(3x)	13.277 mm	.676 mm	4 mm	63 mm	V553542-V	67.50
.1300		3.300 mm	.389	9.900 mm	(3x)	13.427 mm	.683 mm	4 mm	63 mm	V566373-V	67.50
.1338		3.400 mm	.400	10.200 mm	(3x)	13.838 mm	.704 mm	4 mm	63 mm	V716833-V	67.50
.1360	#29	3.454 mm	.407	10.362 mm	(3x)	14.059 mm	.715 mm	4 mm	63 mm	V338904-V	67.50
.1377		3.500 mm	.412	10.500 mm	(3x)	14.248 mm	.725 mm	4 mm	63 mm	V099276-V	67.50
.1406 (9/64)		3.571 mm	.421	10.713 mm	(3x)	14.540 mm	.740 mm	4 mm	63 mm	V855494-V	67.50
.1417		3.600 mm	.424	10.800 mm	(3x)	14.659 mm	.746 mm	4 mm	63 mm	V562361-V	67.50
.1440	#27	3.657 mm	.431	10.971 mm	(3x)	14.891 mm	.757 mm	4 mm	63 mm	V800899-V	67.50
.1456		3.700 mm	.436	11.100 mm	(3x)	15.067 mm	.766 mm	4 mm	63 mm	V115601-V	67.50
.1470	#26	3.733 mm	.440	11.199 mm	(3x)	15.203 mm	.773 mm	4 mm	63 mm	V676338-V	67.50
.1495	#25	3.797 mm	.447	11.391 mm	(3x)	15.465 mm	.786 mm	4 mm	63 mm	V620544-V	67.50
.1496		3.800 mm	.448	11.400 mm	(3x)	15.478 mm	.787 mm	4 mm	63 mm	V227035-V	67.50
.1520	#24	3.860 mm	.455	11.580 mm	(3x)	15.723 mm	.799 mm	4 mm	63 mm	V199002-V	67.50
.1535		3.900 mm	.459	11.700 mm	(3x)	15.888 mm	.808 mm	4 mm	63 mm	V416708-V	67.50
.1540	#23	3.911 mm	.461	11.733 mm	(3x)	15.933 mm	.810 mm	4 mm	63 mm	V553952-V	67.50
.1562 (5/32)		3.968 mm	.467	11.904 mm	(3x)	16.167 mm	.822 mm	4 mm	63 mm	V913887-V	67.50
.1570	#22	3.987 mm	.470	11.961 mm	(3x)	16.245 mm	.826 mm	6 mm	63 mm	V749740-V	70.70
.1574		4.000 mm	.471	12.000 mm	(3x)	16.297 mm	.828 mm	6 mm	63 mm	V901121-V	70.70
.1590	#21	4.038 mm	.476	12.114 mm	(3x)	16.453 mm	.836 mm	6 mm	63 mm	V027671-V	70.70

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High Performance Drills

For Aluminum & Aluminum Alloys – Pilot Drills (cont.)

continued from previous page

Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth						
		D ₁ +0.005mm +0.013mm		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.1610	#20	4.089 mm	.482	12.267 mm	(3x)	16.663 mm	.847 mm	6 mm	63 mm	V641258-V	70.70
.1614		4.100 mm	.483	12.300 mm	(3x)	16.707 mm	.849 mm	6 mm	63 mm	V898128-V	70.70
.1653		4.200 mm	.495	12.600 mm	(3x)	17.118 mm	.870 mm	6 mm	63 mm	V106381-V	70.70
.1660	#19	4.216 mm	.497	12.648 mm	(3x)	17.183 mm	.873 mm	6 mm	63 mm	V571579-V	70.70
.1692		4.300 mm	.506	12.900 mm	(3x)	17.529 mm	.891 mm	6 mm	63 mm	V420107-V	70.70
.1695	#18	4.305 mm	.507	12.915 mm	(3x)	17.549 mm	.892 mm	6 mm	63 mm	V864636-V	70.70
.1718 (11/64)		4.365 mm	.514	13.095 mm	(3x)	17.794 mm	.904 mm	6 mm	63 mm	V284000-V	70.70
.1730	#17	4.394 mm	.518	13.182 mm	(3x)	17.913 mm	.910 mm	6 mm	63 mm	V839238-V	70.70
.1732		4.400 mm	.518	13.200 mm	(3x)	17.937 mm	.911 mm	6 mm	63 mm	V103214-V	70.70
.1770	#16	4.495 mm	.529	13.485 mm	(3x)	18.327 mm	.931 mm	6 mm	63 mm	V807306-V	70.70
.1771		4.500 mm	.530	13.500 mm	(3x)	18.348 mm	.932 mm	6 mm	63 mm	V767553-V	70.70
.1800	#15	4.572 mm	.539	13.716 mm	(3x)	18.643 mm	.947 mm	6 mm	63 mm	V208619-V	70.70
.1811		4.600 mm	.542	13.800 mm	(3x)	18.758 mm	.953 mm	6 mm	63 mm	V328325-V	70.70
.1820	#14	4.622 mm	.544	13.866 mm	(3x)	18.847 mm	.957 mm	6 mm	63 mm	V114824-V	70.70
.1850		4.700 mm	.554	14.100 mm	(3x)	19.167 mm	.973 mm	6 mm	63 mm	V402525-V	70.70
.1875 (3/16)		4.763 mm	.561	14.289 mm	(3x)	19.425 mm	.986 mm	6 mm	63 mm	V088553-V	70.70
.1890		4.800 mm	.565	14.400 mm	(3x)	19.577 mm	.994 mm	6 mm	63 mm	V288713-V	70.70
.1910	#11	4.851 mm	.571	14.553 mm	(3x)	19.787 mm	1.005 mm	6 mm	63 mm	V846941-V	70.70
.1930		4.900 mm	.577	14.700 mm	(3x)	19.988 mm	1.015 mm	6 mm	63 mm	V724943-V	70.70
.1935	#10	4.914 mm	.579	14.742 mm	(3x)	20.045 mm	1.018 mm	6 mm	63 mm	V410868-V	70.70
.1960	#9	4.978 mm	.586	14.934 mm	(3x)	20.307 mm	1.031 mm	6 mm	63 mm	V807602-V	70.70
.1968		5.000 mm	.589	15.000 mm	(3x)	20.398 mm	1.036 mm	6 mm	63 mm	V335851-V	70.70
.1990	#8	5.054 mm	.595	15.162 mm	(3x)	20.619 mm	1.047 mm	6 mm	63 mm	V579484-V	70.70
.2007		5.100 mm	.601	15.300 mm	(3x)	20.807 mm	1.056 mm	6 mm	63 mm	V589265-V	74.50
.2009	#7	5.105 mm	.601	15.315 mm	(3x)	20.827 mm	1.057 mm	6 mm	63 mm	V581245-V	74.50
.2031 (13/64)		5.159 mm	.608	15.477 mm	(3x)	21.048 mm	1.068 mm	6 mm	63 mm	V748735-V	74.50
.2040	#6	5.181 mm	.610	15.543 mm	(3x)	21.139 mm	1.073 mm	6 mm	63 mm	V596663-V	74.50
.2047		5.200 mm	.613	15.600 mm	(3x)	21.217 mm	1.077 mm	6 mm	63 mm	V097296-V	74.50
.2055	#5	5.219 mm	.615	15.657 mm	(3x)	21.295 mm	1.081 mm	6 mm	63 mm	V481995-V	74.50
.2086		5.300 mm	.624	15.900 mm	(3x)	21.628 mm	1.098 mm	6 mm	63 mm	V558286-V	74.50
.2090	#4	5.308 mm	.625	15.924 mm	(3x)	21.659 mm	1.099 mm	6 mm	63 mm	V674180-V	74.50
.2125		5.400 mm	.636	16.200 mm	(3x)	22.036 mm	1.118 mm	6 mm	63 mm	V865361-V	74.50
.2129	#3	5.410 mm	.637	16.230 mm	(3x)	22.077 mm	1.120 mm	6 mm	63 mm	V465690-V	74.50
.2165		5.500 mm	.648	16.500 mm	(3x)	22.447 mm	1.139 mm	6 mm	63 mm	V568878-V	74.50
.2187 (7/32)		5.556 mm	.655	16.668 mm	(3x)	22.677 mm	1.151 mm	6 mm	63 mm	V263148-V	74.50
.2205		5.600 mm	.660	16.800 mm	(3x)	22.858 mm	1.160 mm	6 mm	63 mm	V474787-V	74.50
.2210	#2	5.613 mm	.661	16.839 mm	(3x)	22.909 mm	1.162 mm	6 mm	63 mm	V503997-V	74.50
.2244		5.700 mm	.672	17.100 mm	(3x)	23.268 mm	1.181 mm	6 mm	63 mm	V254088-V	74.50

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High Performance Drills

For Aluminum & Aluminum Alloys – Pilot Drills (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth						
		D ₁ ^{+0.005mm} / _{+0.013mm}		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.2280	#1	5.791 mm	.682	17.373 mm	(3x)	23.639 mm	1.199 mm	6 mm	63 mm	V315466-V	74.50
.2283		5.800 mm	.683	17.400 mm	(3x)	23.677 mm	1.201 mm	6 mm	63 mm	V356303-V	74.50
.2322		5.900 mm	.695	17.700 mm	(3x)	24.087 mm	1.222 mm	6 mm	63 mm	V391569-V	74.50
.2340	A	5.943 mm	.700	17.829 mm	(3x)	24.264 mm	1.231 mm	6 mm	63 mm	V239595-V	74.50
.2343 (15/64)		5.953 mm	.701	17.859 mm	(3x)	24.304 mm	1.233 mm	6 mm	63 mm	V800362-V	74.50
.2362		6.000 mm	.707	18.000 mm	(3x)	24.498 mm	1.243 mm	8 mm	75 mm	V267137-V	86.20
.2380	B	6.045 mm	.712	18.135 mm	(3x)	24.681 mm	1.252 mm	8 mm	75 mm	V712858-V	86.20
.2401		6.100 mm	.719	18.300 mm	(3x)	24.906 mm	1.263 mm	8 mm	75 mm	V928963-V	86.20
.2420	C	6.146 mm	.724	18.438 mm	(3x)	25.096 mm	1.273 mm	8 mm	75 mm	V897943-V	86.20
.2440		6.200 mm	.730	18.600 mm	(3x)	25.317 mm	1.284 mm	8 mm	75 mm	V985047-V	86.20
.2460	D	6.248 mm	.736	18.744 mm	(3x)	25.514 mm	1.294 mm	8 mm	75 mm	V950741-V	86.20
.2480		6.300 mm	.742	18.900 mm	(3x)	25.727 mm	1.305 mm	8 mm	75 mm	V223715-V	86.20
.2500 (1/4)		6.350 mm	.748	19.050 mm	(3x)	25.932 mm	1.315 mm	8 mm	75 mm	V924252-V	86.20
.2520		6.400 mm	.754	19.200 mm	(3x)	26.136 mm	1.325 mm	8 mm	75 mm	V007268-V	86.20
.2559		6.500 mm	.766	19.500 mm	(3x)	26.546 mm	1.346 mm	8 mm	75 mm	V963679-V	86.20
.2570	F	6.528 mm	.769	19.584 mm	(3x)	26.662 mm	1.352 mm	8 mm	75 mm	V046389-V	86.20
.2598		6.600 mm	.778	19.800 mm	(3x)	26.957 mm	1.367 mm	8 mm	75 mm	V200152-V	86.20
.2609	G	6.629 mm	.781	19.887 mm	(3x)	27.076 mm	1.373 mm	8 mm	75 mm	V691416-V	86.20
.2638		6.700 mm	.789	20.100 mm	(3x)	27.367 mm	1.388 mm	8 mm	75 mm	V056975-V	86.20
.2656 (17/64)		6.746 mm	.795	20.238 mm	(3x)	27.555 mm	1.397 mm	8 mm	75 mm	V841619-V	86.20
.2659	H	6.756 mm	.796	20.268 mm	(3x)	27.596 mm	1.399 mm	8 mm	75 mm	V487063-V	86.20
.2677		6.800 mm	.801	20.400 mm	(3x)	27.776 mm	1.408 mm	8 mm	75 mm	V342842-V	86.20
.2717		6.900 mm	.813	20.700 mm	(3x)	28.186 mm	1.429 mm	8 mm	75 mm	V449547-V	86.20
.2719	I	6.908 mm	.814	20.724 mm	(3x)	28.220 mm	1.431 mm	8 mm	75 mm	V931296-V	86.20
.2756		7.000 mm	.825	21.000 mm	(3x)	28.597 mm	1.450 mm	8 mm	75 mm	V140440-V	86.20
.2769	J	7.035 mm	.829	21.105 mm	(3x)	28.740 mm	1.457 mm	8 mm	75 mm	V725889-V	86.20
.2795		7.100 mm	.837	21.300 mm	(3x)	29.006 mm	1.470 mm	8 mm	75 mm	V583032-V	86.20
.2809	K	7.137 mm	.841	21.411 mm	(3x)	29.158 mm	1.478 mm	8 mm	75 mm	V868628-V	86.20
.2812 (9/32)		7.142 mm	.842	21.426 mm	(3x)	29.178 mm	1.479 mm	8 mm	75 mm	V217626-V	86.20
.2834		7.200 mm	.848	21.600 mm	(3x)	29.416 mm	1.491 mm	8 mm	75 mm	V398105-V	86.20
.2874		7.300 mm	.860	21.900 mm	(3x)	29.827 mm	1.512 mm	8 mm	75 mm	V279932-V	86.20
.2900	L	7.366 mm	.868	22.098 mm	(3x)	30.098 mm	1.526 mm	8 mm	75 mm	V410801-V	86.20
.2913		7.400 mm	.872	22.200 mm	(3x)	30.237 mm	1.533 mm	8 mm	75 mm	V485479-V	86.20
.2950	M	7.493 mm	.883	22.479 mm	(3x)	30.618 mm	1.552 mm	8 mm	75 mm	V777580-V	86.20
.2952		7.500 mm	.884	22.500 mm	(3x)	30.646 mm	1.553 mm	8 mm	75 mm	V908748-V	86.20
.2969 (19/64)		7.541 mm	.889	22.623 mm	(3x)	30.815 mm	1.562 mm	8 mm	75 mm	V321343-V	86.20
.2992		7.600 mm	.896	22.800 mm	(3x)	31.056 mm	1.574 mm	8 mm	75 mm	V757081-V	86.20
.3020	N	7.671 mm	.904	23.013 mm	(3x)	31.348 mm	1.589 mm	8 mm	75 mm	V261069-V	86.20

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High Performance Drills

For Aluminum & Aluminum Alloys – Pilot Drills (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth						
		D ₁ +0.005mm +0.013mm		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.3031		7.700 mm	.907	23.100 mm	(3x)	31.467 mm	1.595 mm	8 mm	75 mm	V318644-V	86.20
.3071		7.800 mm	.919	23.400 mm	(3x)	31.875 mm	1.615 mm	8 mm	75 mm	V404642-V	86.20
.3110		7.900 mm	.931	23.700 mm	(3x)	32.286 mm	1.636 mm	8 mm	75 mm	V092027-V	86.20
.3125 (5/16)		7.938 mm	.935	23.814 mm	(3x)	32.442 mm	1.644 mm	8 mm	75 mm	V838105-V	86.20
.3150		8.000 mm	.943	24.000 mm	(3x)	32.696 mm	1.657 mm	10 mm	75 mm	V228756-V	97.30
.3159	O	8.026 mm	.946	24.078 mm	(3x)	32.802 mm	1.662 mm	10 mm	75 mm	V489628-V	97.30
.3189		8.100 mm	.954	24.300 mm	(3x)	33.107 mm	1.678 mm	10 mm	75 mm	V739367-V	97.30
.3228		8.200 mm	.966	24.600 mm	(3x)	33.515 mm	1.698 mm	10 mm	75 mm	V955716-V	97.30
.3229	P	8.204 mm	.967	24.612 mm	(3x)	33.532 mm	1.699 mm	10 mm	75 mm	V829599-V	97.30
.3268		8.300 mm	.978	24.900 mm	(3x)	33.926 mm	1.719 mm	10 mm	75 mm	V920803-V	97.30
.3281 (21/64)		8.333 mm	.982	24.999 mm	(3x)	34.062 mm	1.726 mm	10 mm	75 mm	V937074-V	97.30
.3307		8.400 mm	.990	25.200 mm	(3x)	34.337 mm	1.740 mm	10 mm	75 mm	V060993-V	97.30
.3319	Q	8.432 mm	.994	25.296 mm	(3x)	34.466 mm	1.746 mm	10 mm	75 mm	V451333-V	97.30
.3346		8.500 mm	1.002	25.500 mm	(3x)	34.745 mm	1.760 mm	10 mm	75 mm	V946050-V	97.30
.3386		8.600 mm	1.013	25.800 mm	(3x)	35.156 mm	1.781 mm	10 mm	75 mm	V419120-V	97.30
.3389	R	8.610 mm	1.015	25.830 mm	(3x)	35.196 mm	1.783 mm	10 mm	75 mm	V452517-V	97.30
.3425		8.700 mm	1.025	26.100 mm	(3x)	35.566 mm	1.802 mm	10 mm	75 mm	V572097-V	97.30
.3438 (11/32)		8.732 mm	1.029	26.196 mm	(3x)	35.696 mm	1.808 mm	10 mm	75 mm	V064894-V	97.30
.3465		8.800 mm	1.037	26.400 mm	(3x)	35.977 mm	1.823 mm	10 mm	75 mm	V621535-V	97.30
.3479	S	8.839 mm	1.042	26.517 mm	(3x)	36.136 mm	1.831 mm	10 mm	75 mm	V727509-V	97.30
.3504		8.900 mm	1.049	26.700 mm	(3x)	36.385 mm	1.843 mm	10 mm	75 mm	V632579-V	97.30
.3543		9.000 mm	1.061	27.000 mm	(3x)	36.796 mm	1.864 mm	10 mm	75 mm	V594228-V	97.30
.3579	T	9.093 mm	1.072	27.279 mm	(3x)	37.176 mm	1.883 mm	10 mm	75 mm	V721337-V	97.30
.3583		9.100 mm	1.072	27.300 mm	(3x)	37.206 mm	1.885 mm	10 mm	75 mm	V323708-V	97.30
.3594 (23/64)		9.128 mm	1.076	27.384 mm	(3x)	37.319 mm	1.890 mm	10 mm	75 mm	V451113-V	97.30
.3622		9.200 mm	1.084	27.600 mm	(3x)	37.615 mm	1.905 mm	10 mm	75 mm	V713991-V	97.30
.3661		9.300 mm	1.096	27.900 mm	(3x)	38.025 mm	1.926 mm	10 mm	75 mm	V525767-V	97.30
.3679	U	9.347 mm	1.102	28.041 mm	(3x)	38.219 mm	1.936 mm	10 mm	75 mm	V273056-V	97.30
.3701		9.400 mm	1.108	28.200 mm	(3x)	38.436 mm	1.947 mm	10 mm	75 mm	V459157-V	97.30
.3740		9.500 mm	1.120	28.500 mm	(3x)	38.846 mm	1.968 mm	10 mm	75 mm	V598764-V	97.30
.3750 (3/8)		9.525 mm	1.122	28.575 mm	(3x)	38.949 mm	1.973 mm	10 mm	75 mm	V851522-V	97.30
.3770	V	9.575 mm	1.128	28.725 mm	(3x)	39.153 mm	1.983 mm	10 mm	75 mm	V430817-V	97.30
.3780		9.600 mm	1.131	28.800 mm	(3x)	39.255 mm	1.988 mm	10 mm	75 mm	V591250-V	97.30
.3819		9.700 mm	1.143	29.100 mm	(3x)	39.665 mm	2.009 mm	10 mm	75 mm	V166101-V	97.30
.3858		9.800 mm	1.155	29.400 mm	(3x)	40.076 mm	2.030 mm	10 mm	75 mm	V875839-V	97.30
.3859	W	9.804 mm	1.155	29.412 mm	(3x)	40.091 mm	2.030 mm	10 mm	75 mm	V207633-V	97.30
.3898		9.900 mm	1.167	29.700 mm	(3x)	40.485 mm	2.050 mm	10 mm	75 mm	V918890-V	97.30
.3906 (25/64)		9.921 mm	1.169	29.763 mm	(3x)	40.572 mm	2.055 mm	10 mm	75 mm	V096397-V	97.30

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High Performance Drills

For Aluminum & Aluminum Alloys – Pilot Drills (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth						
		D ₁ ^{+0.005mm} _{+0.013mm}		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.3937		10.000 mm	1.179	30.000 mm	(3x)	40.895 mm	2.071 mm	12 mm	100 mm	V002587-V	133.90
.3969	X	10.083 mm	1.188	30.249 mm	(3x)	41.235 mm	2.088 mm	12 mm	100 mm	V817473-V	133.90
.3976		10.100 mm	1.190	30.300 mm	(3x)	41.306 mm	2.092 mm	12 mm	100 mm	V385093-V	133.90
.4016		10.200 mm	1.202	30.600 mm	(3x)	41.714 mm	2.112 mm	12 mm	100 mm	V429038-V	133.90
.4039	Y	10.261 mm	1.209	30.783 mm	(3x)	41.965 mm	2.125 mm	12 mm	100 mm	V666877-V	133.90
.4055		10.300 mm	1.214	30.900 mm	(3x)	42.125 mm	2.133 mm	12 mm	100 mm	V203780-V	133.90
.4062 (13/32)		10.317 mm	1.216	30.951 mm	(3x)	42.195 mm	2.137 mm	12 mm	100 mm	V970330-V	133.90
.4094		10.400 mm	1.226	31.200 mm	(3x)	42.535 mm	2.154 mm	12 mm	100 mm	V616669-V	133.90
.4129	Z	10.490 mm	1.236	31.470 mm	(3x)	42.905 mm	2.173 mm	12 mm	100 mm	V106038-V	133.90
.4134		10.500 mm	1.237	31.500 mm	(3x)	42.946 mm	2.175 mm	12 mm	100 mm	V833765-V	133.90
.4173		10.600 mm	1.249	31.800 mm	(3x)	43.354 mm	2.195 mm	12 mm	100 mm	V879604-V	133.90
.4213		10.700 mm	1.261	32.100 mm	(3x)	43.765 mm	2.216 mm	12 mm	100 mm	V303153-V	133.90
.4219 (27/64)		10.716 mm	1.263	32.148 mm	(3x)	43.830 mm	2.219 mm	12 mm	100 mm	V451607-V	133.90
.4252		10.800 mm	1.273	32.400 mm	(3x)	44.175 mm	2.237 mm	12 mm	100 mm	V385455-V	133.90
.4291		10.900 mm	1.285	32.700 mm	(3x)	44.584 mm	2.257 mm	12 mm	100 mm	V340534-V	133.90
.4331		11.000 mm	1.296	33.000 mm	(3x)	44.994 mm	2.278 mm	12 mm	100 mm	V609059-V	133.90
.4370		11.100 mm	1.308	33.300 mm	(3x)	45.405 mm	2.299 mm	12 mm	100 mm	V697882-V	133.90
.4375 (7/16)		11.112 mm	1.310	33.339 mm	(3x)	45.459 mm	2.302 mm	12 mm	100 mm	V752391-V	133.90
.4409		11.200 mm	1.320	33.600 mm	(3x)	45.816 mm	2.320 mm	12 mm	100 mm	V308736-V	133.90
.4449		11.300 mm	1.332	33.900 mm	(3x)	46.224 mm	2.340 mm	12 mm	100 mm	V085336-V	133.90
.4488		11.400 mm	1.344	34.200 mm	(3x)	46.635 mm	2.361 mm	12 mm	100 mm	V278802-V	133.90
.4527		11.500 mm	1.355	34.500 mm	(3x)	47.045 mm	2.382 mm	12 mm	100 mm	V359451-V	133.90
.4531 (29/64)		11.508 mm	1.356	34.524 mm	(3x)	47.077 mm	2.383 mm	12 mm	100 mm	V479130-V	133.90
.4567		11.600 mm	1.367	34.800 mm	(3x)	47.454 mm	2.402 mm	12 mm	100 mm	V369135-V	133.90
.4606		11.700 mm	1.379	35.100 mm	(3x)	47.864 mm	2.423 mm	12 mm	100 mm	V495494-V	133.90
.4646		11.800 mm	1.391	35.400 mm	(3x)	48.275 mm	2.444 mm	12 mm	100 mm	V584626-V	133.90
.4685		11.900 mm	1.403	35.700 mm	(3x)	48.685 mm	2.465 mm	12 mm	100 mm	V061982-V	133.90
.4688 (15/32)		11.907 mm	1.403	35.721 mm	(3x)	48.713 mm	2.466 mm	12 mm	100 mm	V906738-V	133.90
.4724		12.000 mm	1.414	36.000 mm	(3x)	49.094 mm	2.485 mm	14 mm	100 mm	V223074-V	184.30
.4764		12.100 mm	1.426	36.300 mm	(3x)	49.504 mm	2.506 mm	14 mm	100 mm	V283132-V	184.30
.4803		12.200 mm	1.438	36.600 mm	(3x)	49.915 mm	2.527 mm	14 mm	100 mm	V084646-V	184.30
.4843		12.300 mm	1.450	36.900 mm	(3x)	50.323 mm	2.547 mm	14 mm	100 mm	V199080-V	184.30
.4883 (31/64)		12.400 mm	1.461	37.200 mm	(3x)	50.734 mm	2.568 mm	14 mm	100 mm	V134445-V	184.30
.4921		12.500 mm	1.473	37.500 mm	(3x)	51.144 mm	2.589 mm	14 mm	100 mm	V314545-V	184.30
.4961		12.600 mm	1.485	37.800 mm	(3x)	51.555 mm	2.610 mm	14 mm	100 mm	V795498-V	184.30
.5000 (1/2)		12.700 mm	1.497	38.100 mm	(3x)	51.964 mm	2.630 mm	14 mm	100 mm	V333309-V	184.30



Speeds & Feeds

High Performance Drills for Aluminum & Aluminum Alloys

Important Notes

Values in table are in inches and are based on standard (up to 7x Dia) length of flute solid carbide drills.

For longer lengths of flute, table values of IPR must be reduced (for 8x, reduce to 75%) and SFM must be reduced (for 8x, reduce to 80%).

For Non-Ferrous materials, the initial peck should be 3-5x Diameter with each subsequent peck at 2-3x Diameter.

For complete speeds and feeds charts, please see <https://www.valorholemaking.com/resources/speeds-feeds>.

Coolant-Through Notes

For Coolant-through carbide drills, table values of IPR must be reduced (reduced to 90%) and SFM can increase (increase up to 125%).

For best results, the following steps are recommended:

- For hole depths of 7x Diameter or greater, drill a pilot hole up to 1.5-2x D in depth using a drill with 3x LOF or shorter.
- Insert primary drill at low speed (~50-500 RPM) and start coolant flow.
- Increase speed and feed to recommended parameters.
- Under optimal conditions, a pecking cycle should not be needed.
- On through holes, reduce feed rate by 50% just before break through with drill point.
- Feed at 50% to final depth.
- After reaching desired hole depth, reduce speed (~500 RPM) before retracting the drill.
- Cutting oil is recommended. As an alternative, it is possible to use emulsions with EP additives. Use a fine mesh prefilter (=5µm) on spindle through coolant to prevent a blockage of the coolant hole. A minimum coolant pressure of 600-800 PSI is recommended.

Material Guide		SFM	Chip Load (IPR) by Drill Diameter									
			1/16	5/64	3/32	1/8	3/16	1/4	5/16	3/8	7/16	1/2
Wrought Aluminum Alloys	2014, 5062, 6061, 7050, 7075, 7475	350-1500	.003-.004	.003-.004	.004-.005	.005-.006	.005-.007	.006-.008	.008-.010	.009-.012	.010-.013	.011-.015
Cast Aluminum Alloys	319.0, 328.0, 355.0, 360.0, 380.0, 383.0, 390.0, 520.0, 535.0	300-875	.002-.003	.002-.003	.003-.004	.004-.005	.004-.006	.005-.007	.006-.008	.007-.010	.008-.011	.009-.013
Copper Alloys	Cu-ETP, CuBe2, CuZn30, CuZn36Pb3, CuZn10, CuSn5	300-520	.002-.003	.002-.003	.003-.004	.004-.005	.004-.006	.005-.007	.006-.008	.007-.010	.008-.011	.009-.013

General Notes

All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions.

If you require additional information, Valor Holesmaking has a team of technical experts available to assist you through even the most challenging applications. Please contact us at 866-840-1505 or Valortech@harveyperformance.com.



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High Performance Drills

For Steels

Exceptional Design for Precision Drilling in 4140 Steel



- Optimized for best-in-class performance in 4140 Steel with superior performance in a wide variety of Steels and other Alloy Steels
- Provides excellent performance in Stainless Steels and Cast Iron
- Engineered double margin geometry provides performance and stability when drilling intersecting holes and/or exiting holes on inclined or irregular surfaces
- Pre and post polish process delivers reduced friction and ensures outstanding chip management
- 140° point angle with 4-facet geometry for improved self-centering
- h6 shank tolerance for high precision tool holders
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide

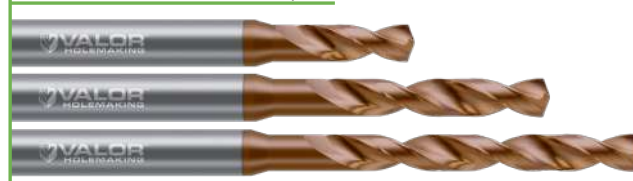


Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth					Tool #	USD
		D1 (h8)*		L2		L3	L4	D2 (h6)*	L1		
.0625 (1/16)		1.587 mm	.187	4.750 mm	(3x)	6.13 mm	.29 mm	3 mm	63 mm	V973517-X	55.00
.0625 (1/16)		1.587 mm	.313	7.950 mm	(5x)	9.46 mm	.29 mm	3 mm	63 mm	V296154-X	70.00
.0625 (1/16)		1.587 mm	.500	12.700 mm	(8x)	14.46 mm	.29 mm	3 mm	63 mm	V623340-X	95.00
.0630		1.600 mm	.189	4.800 mm	(3x)	6.18 mm	.29 mm	3 mm	63 mm	V957351-X	55.00
.0630		1.600 mm	.315	8.000 mm	(5x)	9.54 mm	.29 mm	3 mm	63 mm	V462279-X	70.00
.0630		1.600 mm	.504	12.800 mm	(8x)	14.58 mm	.29 mm	3 mm	63 mm	V305247-X	95.00
.0635	#52	1.612 mm	.191	4.850 mm	(3x)	6.23 mm	.29 mm	3 mm	63 mm	V825539-X	55.00
.0635	#52	1.612 mm	.317	8.050 mm	(5x)	9.61 mm	.29 mm	3 mm	63 mm	V815480-X	70.00
.0635	#52	1.612 mm	.508	12.900 mm	(8x)	14.69 mm	.29 mm	3 mm	63 mm	V539487-X	95.00
.0669	#51	1.700 mm	.201	5.100 mm	(3x)	6.57 mm	.31 mm	3 mm	63 mm	V868330-X	55.00
.0669	#51	1.700 mm	.335	8.500 mm	(5x)	10.14 mm	.31 mm	3 mm	63 mm	V118791-X	70.00
.0669	#51	1.700 mm	.535	13.600 mm	(8x)	15.49 mm	.31 mm	3 mm	63 mm	V896049-X	95.00
.0700	#50	1.778 mm	.211	5.350 mm	(3x)	6.87 mm	.32 mm	3 mm	63 mm	V595411-X	55.00

* For h6 and h8 tolerances, see page 8.

continued on next page

Stocked in 3x, 5x, and 8x hole depths





High Performance Drills

For Steels (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD
NEW	.0700	#50	1.778 mm	.350	8.900 mm	(5x)	10.60 mm	.32 mm	3 mm	63 mm	V331444-X	70.00
	.0700	#50	1.778 mm	.559	14.200 mm	(8x)	16.20 mm	.32 mm	3 mm	63 mm	V461432-X	95.00
	.0708		1.800 mm	.213	5.400 mm	(3x)	6.95 mm	.33 mm	3 mm	63 mm	V779567-X	55.00
	.0708		1.800 mm	.354	9.000 mm	(5x)	10.73 mm	.33 mm	3 mm	63 mm	V794019-X	70.00
	.0708		1.800 mm	.567	14.400 mm	(8x)	16.40 mm	.33 mm	3 mm	63 mm	V178926-X	95.00
NEW	.0730	#49	1.854 mm	.219	5.550 mm	(3x)	7.16 mm	.34 mm	3 mm	63 mm	V298663-X	55.00
	.0730	#49	1.854 mm	.364	9.250 mm	(5x)	11.06 mm	.34 mm	3 mm	63 mm	V013385-X	70.00
	.0730	#49	1.854 mm	.585	14.850 mm	(8x)	16.90 mm	.34 mm	3 mm	63 mm	V265753-X	95.00
	.0748		1.900 mm	.224	5.700 mm	(3x)	7.34 mm	.35 mm	3 mm	63 mm	V185449-X	55.00
	.0748		1.900 mm	.374	9.500 mm	(5x)	11.33 mm	.35 mm	3 mm	63 mm	V249203-X	70.00
NEW	.0748		1.900 mm	.598	15.200 mm	(8x)	17.32 mm	.35 mm	3 mm	63 mm	V483409-X	95.00
	.0760	#48	1.930 mm	.228	5.800 mm	(3x)	7.46 mm	.35 mm	3 mm	63 mm	V204652-X	55.00
	.0760	#48	1.930 mm	.380	9.650 mm	(5x)	11.51 mm	.35 mm	3 mm	63 mm	V465245-X	70.00
	.0760	#48	1.930 mm	.608	15.450 mm	(8x)	17.59 mm	.35 mm	3 mm	63 mm	V284735-X	95.00
	.0781 (5/64)		1.984 mm	.234	5.950 mm	(3x)	7.67 mm	.36 mm	3 mm	63 mm	V467156-X	55.00
NEW	.0781 (5/64)		1.984 mm	.390	9.900 mm	(5x)	11.83 mm	.36 mm	3 mm	63 mm	V224870-X	70.00
	.0781 (5/64)		1.984 mm	.624	15.850 mm	(8x)	18.08 mm	.36 mm	3 mm	63 mm	V911271-X	95.00
	.0785	#47	1.993 mm	.236	6.000 mm	(3x)	7.70 mm	.36 mm	3 mm	63 mm	V242846-X	55.00
	.0785	#47	1.993 mm	.392	9.950 mm	(5x)	11.89 mm	.36 mm	3 mm	63 mm	V969398-X	70.00
	.0785	#47	1.993 mm	.628	15.950 mm	(8x)	18.16 mm	.36 mm	3 mm	63 mm	V689514-X	95.00
NEW	.0787		2.000 mm	.236	6.000 mm	(3x)	7.73 mm	.36 mm	3 mm	63 mm	V826750-X	55.00
	.0787		2.000 mm	.394	10.000 mm	(5x)	11.93 mm	.36 mm	3 mm	63 mm	V979538-X	70.00
	.0787		2.000 mm	.630	16.000 mm	(8x)	18.23 mm	.36 mm	3 mm	63 mm	V918445-X	99.00
	.0810	#46	2.057 mm	.242	6.150 mm	(3x)	7.95 mm	.37 mm	3 mm	63 mm	V250128-X	55.00
	.0810	#46	2.057 mm	.406	10.300 mm	(5x)	12.27 mm	.37 mm	3 mm	63 mm	V527406-X	70.00
NEW	.0810	#46	2.057 mm	.648	16.450 mm	(8x)	18.75 mm	.37 mm	3 mm	63 mm	V664826-X	99.00
	.0820	#45	2.082 mm	.246	6.250 mm	(3x)	8.04 mm	.38 mm	3 mm	63 mm	V102713-X	55.00
	.0820	#45	2.082 mm	.409	10.400 mm	(5x)	12.42 mm	.38 mm	3 mm	63 mm	V884916-X	70.00
	.0820	#45	2.082 mm	.656	16.650 mm	(8x)	18.97 mm	.38 mm	3 mm	63 mm	V927615-X	99.00
	.0826		2.100 mm	.248	6.300 mm	(3x)	8.11 mm	.38 mm	3 mm	63 mm	V110651-X	55.00
NEW	.0826		2.100 mm	.413	10.500 mm	(5x)	12.52 mm	.38 mm	3 mm	63 mm	V392180-X	70.00
	.0826		2.100 mm	.661	16.800 mm	(8x)	19.14 mm	.38 mm	3 mm	63 mm	V704770-X	99.00
	.0860	#44	2.184 mm	.258	6.550 mm	(3x)	8.44 mm	.40 mm	3 mm	63 mm	V623358-X	55.00
	.0860	#44	2.184 mm	.429	10.900 mm	(5x)	13.02 mm	.40 mm	3 mm	63 mm	V250148-X	70.00
	.0860	#44	2.184 mm	.687	17.450 mm	(8x)	19.90 mm	.40 mm	3 mm	63 mm	V780923-X	99.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
		D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
.0866		2.200 mm	.260	6.600 mm	(3x)	8.50 mm	.40 mm	3 mm	63 mm	V569646-X	55.00
.0866		2.200 mm	.433	11.000 mm	(5x)	13.12 mm	.40 mm	3 mm	63 mm	V659262-X	70.00
.0866		2.200 mm	.693	17.600 mm	(8x)	20.05 mm	.40 mm	3 mm	63 mm	V259528-X	99.00
.0890	#43	2.260 mm	.268	6.800 mm	(3x)	8.73 mm	.41 mm	3 mm	63 mm	V808685-X	55.00
.0890	#43	2.260 mm	.445	11.300 mm	(5x)	13.48 mm	.41 mm	3 mm	63 mm	V221091-X	70.00
.0890	#43	2.260 mm	.713	18.100 mm	(8x)	20.60 mm	.41 mm	3 mm	63 mm	V843092-X	99.00
.0905		2.300 mm	.272	6.900 mm	(3x)	8.89 mm	.42 mm	3 mm	63 mm	V519827-X	55.00
.0905		2.300 mm	.453	11.500 mm	(5x)	13.72 mm	.42 mm	3 mm	63 mm	V941185-X	70.00
.0905		2.300 mm	.724	18.400 mm	(8x)	20.96 mm	.42 mm	3 mm	63 mm	V962527-X	99.00
.0935	#42	2.374 mm	.280	7.100 mm	(3x)	9.17 mm	.43 mm	3 mm	63 mm	V985856-X	55.00
.0935	#42	2.374 mm	.467	11.850 mm	(5x)	14.16 mm	.43 mm	3 mm	63 mm	V233135-X	70.00
.0935	#42	2.374 mm	.748	19.000 mm	(8x)	21.64 mm	.43 mm	3 mm	63 mm	V519078-X	99.00
.0937 (3/32)		2.381 mm	.281	7.150 mm	(3x)	9.20 mm	.43 mm	3 mm	63 mm	V964923-X	55.00
.0937 (3/32)		2.381 mm	.469	11.900 mm	(5x)	14.20 mm	.43 mm	3 mm	63 mm	V170896-X	70.00
.0937 (3/32)		2.381 mm	.750	19.050 mm	(8x)	21.70 mm	.43 mm	3 mm	63 mm	V630268-X	99.00
.0944		2.400 mm	.283	7.200 mm	(3x)	9.27 mm	.44 mm	3 mm	63 mm	V713265-X	55.00
.0944		2.400 mm	.472	12.000 mm	(5x)	14.31 mm	.44 mm	3 mm	63 mm	V766011-X	70.00
.0944		2.400 mm	.756	19.200 mm	(8x)	21.87 mm	.44 mm	3 mm	63 mm	V931255-X	99.00
.0960	#41	2.438 mm	.287	7.300 mm	(3x)	9.42 mm	.44 mm	3 mm	63 mm	V247674-X	55.00
.0960	#41	2.438 mm	.480	12.200 mm	(5x)	14.54 mm	.44 mm	3 mm	63 mm	V282589-X	70.00
.0960	#41	2.438 mm	.768	19.500 mm	(8x)	22.22 mm	.44 mm	3 mm	63 mm	V199938-X	99.00
.0980	#40	2.489 mm	.293	7.450 mm	(3x)	9.62 mm	.45 mm	3 mm	63 mm	V166537-X	55.00
.0980	#40	2.489 mm	.490	12.450 mm	(5x)	14.84 mm	.45 mm	3 mm	63 mm	V115909-X	70.00
.0980	#40	2.489 mm	.783	19.900 mm	(8x)	22.68 mm	.45 mm	3 mm	63 mm	V492173-X	99.00
.0984		2.500 mm	.295	7.500 mm	(3x)	9.66 mm	.45 mm	3 mm	63 mm	V441162-X	55.00
.0984		2.500 mm	.492	12.500 mm	(5x)	14.91 mm	.45 mm	3 mm	63 mm	V665871-X	70.00
.0984		2.500 mm	.787	20.000 mm	(8x)	22.79 mm	.45 mm	3 mm	63 mm	V753719-X	105.50
.0995	#39	2.527 mm	.299	7.600 mm	(3x)	9.76 mm	.46 mm	3 mm	63 mm	V672137-X	55.00
.0995	#39	2.527 mm	.498	12.650 mm	(5x)	15.07 mm	.46 mm	3 mm	63 mm	V220844-X	70.00
.0995	#39	2.527 mm	.795	20.200 mm	(8x)	23.03 mm	.46 mm	3 mm	63 mm	V609165-X	105.50
.1015	#38	2.578 mm	.305	7.750 mm	(3x)	9.96 mm	.47 mm	3 mm	63 mm	V450989-X	55.00
.1015	#38	2.578 mm	.508	12.900 mm	(5x)	15.38 mm	.47 mm	3 mm	63 mm	V246934-X	70.00
.1015	#38	2.578 mm	.811	20.600 mm	(8x)	23.50 mm	.47 mm	3 mm	63 mm	V945244-X	105.50
.1023		2.600 mm	.307	7.800 mm	(3x)	10.05 mm	.47 mm	3 mm	63 mm	V776161-X	55.00
.1023		2.600 mm	.512	13.000 mm	(5x)	15.51 mm	.47 mm	3 mm	63 mm	V935510-X	70.00
.1023		2.600 mm	.819	20.800 mm	(8x)	23.70 mm	.47 mm	3 mm	63 mm	V864115-X	105.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

continued from previous page

	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
			D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
NEW	.1040	#37	2.641 mm	.311	7.900 mm	(3x)	10.21 mm	.48 mm	3 mm	63 mm	V588494-X	55.00
	.1040	#37	2.641 mm	.520	13.200 mm	(5x)	15.75 mm	.48 mm	3 mm	63 mm	V985795-X	70.00
	.1040	#37	2.641 mm	.833	21.150 mm	(8x)	24.07 mm	.48 mm	3 mm	63 mm	V475028-X	105.50
	.1062		2.700 mm	.319	8.100 mm	(3x)	10.43 mm	.49 mm	3 mm	63 mm	V375655-X	55.00
	.1062		2.700 mm	.531	13.500 mm	(5x)	16.10 mm	.49 mm	3 mm	63 mm	V120072-X	70.00
NEW	.1062		2.700 mm	.850	21.600 mm	(8x)	24.61 mm	.49 mm	3 mm	63 mm	V111219-X	105.50
	.1065	#36	2.705 mm	.319	8.100 mm	(3x)	10.45 mm	.49 mm	3 mm	63 mm	V764150-X	55.00
	.1065	#36	2.705 mm	.533	13.550 mm	(5x)	16.13 mm	.49 mm	3 mm	63 mm	V191261-X	70.00
	.1065	#36	2.705 mm	.852	21.650 mm	(8x)	24.65 mm	.49 mm	3 mm	63 mm	V670873-X	105.50
	.1093 (7/64)		2.778 mm	.329	8.350 mm	(3x)	10.73 mm	.51 mm	3 mm	63 mm	V959991-X	55.00
NEW	.1093 (7/64)		2.778 mm	.547	13.900 mm	(5x)	16.57 mm	.51 mm	3 mm	63 mm	V610313-X	70.00
	.1093 (7/64)		2.778 mm	.874	22.200 mm	(8x)	25.32 mm	.51 mm	3 mm	63 mm	V254288-X	105.50
	.1100	#35	2.794 mm	.331	8.400 mm	(3x)	10.80 mm	.51 mm	3 mm	63 mm	V253432-X	55.00
	.1100	#35	2.794 mm	.549	13.950 mm	(5x)	16.66 mm	.51 mm	3 mm	63 mm	V835618-X	70.00
	.1100	#35	2.794 mm	.880	22.350 mm	(8x)	25.47 mm	.51 mm	3 mm	63 mm	V924698-X	105.50
NEW	.1102		2.800 mm	.331	8.400 mm	(3x)	10.82 mm	.51 mm	3 mm	63 mm	V113654-X	55.00
	.1102		2.800 mm	.551	14.000 mm	(5x)	16.70 mm	.51 mm	3 mm	63 mm	V555135-X	70.00
	.1102		2.800 mm	.882	22.400 mm	(8x)	25.52 mm	.51 mm	3 mm	63 mm	V587228-X	105.50
	.1110	#34	2.819 mm	.333	8.450 mm	(3x)	10.89 mm	.51 mm	3 mm	63 mm	V266486-X	55.00
	.1110	#34	2.819 mm	.555	14.100 mm	(5x)	16.81 mm	.51 mm	3 mm	63 mm	V637059-X	70.00
NEW	.1110	#34	2.819 mm	.888	22.550 mm	(8x)	25.69 mm	.51 mm	3 mm	63 mm	V993109-X	105.50
	.1130	#33	2.870 mm	.339	8.600 mm	(3x)	11.09 mm	.52 mm	3 mm	63 mm	V210487-X	55.00
	.1130	#33	2.870 mm	.565	14.350 mm	(5x)	17.12 mm	.52 mm	3 mm	63 mm	V445436-X	70.00
	.1130	#33	2.870 mm	.904	22.950 mm	(8x)	26.16 mm	.52 mm	3 mm	63 mm	V600415-X	105.50
	.1141		2.900 mm	.343	8.700 mm	(3x)	11.21 mm	.53 mm	3 mm	63 mm	V934711-X	55.00
NEW	.1141		2.900 mm	.571	14.500 mm	(5x)	17.30 mm	.53 mm	3 mm	63 mm	V425270-X	70.00
	.1141		2.900 mm	.913	23.200 mm	(8x)	26.43 mm	.53 mm	3 mm	63 mm	V466163-X	105.50
	.1160	#32	2.946 mm	.348	8.850 mm	(3x)	11.38 mm	.54 mm	3 mm	63 mm	V731454-X	55.00
	.1160	#32	2.946 mm	.581	14.750 mm	(5x)	17.57 mm	.54 mm	3 mm	63 mm	V917679-X	70.00
	.1160	#32	2.946 mm	.927	23.550 mm	(8x)	26.85 mm	.54 mm	3 mm	63 mm	V831031-X	105.50
NEW	.1181		3.000 mm	.354	9.000 mm	(3x)	11.59 mm	.55 mm	4 mm	63 mm	V448334-X	55.00
	.1181		3.000 mm	.591	15.000 mm	(5x)	17.89 mm	.55 mm	4 mm	63 mm	V728184-X	70.00
	.1181		3.000 mm	.945	24.000 mm	(8x)	27.34 mm	.55 mm	4 mm	75 mm	V816162-X	105.50
	.1200	#31	3.048 mm	.360	9.150 mm	(3x)	11.78 mm	.55 mm	4 mm	63 mm	V814529-X	48.50
	.1200	#31	3.048 mm	.600	15.250 mm	(5x)	18.18 mm	.55 mm	4 mm	63 mm	V340108-X	62.50
NEW	.1200	#31	3.048 mm	.961	24.400 mm	(8x)	27.78 mm	.55 mm	4 mm	75 mm	V943062-X	143.50
	.1220		3.100 mm	.366	9.300 mm	(3x)	11.98 mm	.56 mm	4 mm	63 mm	V980525-X	48.50
	.1220		3.100 mm	.610	15.500 mm	(5x)	18.49 mm	.56 mm	4 mm	63 mm	V262531-X	62.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

continued from previous page

Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
		D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
.1220		3.100 mm	.976	24.800 mm	(8x)	28.25 mm	.56 mm	4 mm	75 mm	V175931-X	143.50
.1250 (1/8)		3.175 mm	.374	9.500 mm	(3x)	12.27 mm	.58 mm	4 mm	63 mm	V757262-X	48.50
.1250 (1/8)		3.175 mm	.626	15.900 mm	(5x)	18.94 mm	.58 mm	4 mm	63 mm	V407402-X	62.50
.1250 (1/8)		3.175 mm	1.000	25.400 mm	(8x)	28.94 mm	.58 mm	4 mm	75 mm	V143044-X	143.50
.1260		3.200 mm	.378	9.600 mm	(3x)	12.37 mm	.58 mm	4 mm	63 mm	V241601-X	48.50
.1260		3.200 mm	.630	16.000 mm	(5x)	19.09 mm	.58 mm	4 mm	63 mm	V864366-X	62.50
.1260		3.200 mm	1.008	25.600 mm	(8x)	29.17 mm	.58 mm	4 mm	75 mm	V191656-X	143.50
.1285	#30	3.263 mm	.386	9.800 mm	(3x)	12.61 mm	.59 mm	4 mm	63 mm	V966769-X	48.50
.1285	#30	3.263 mm	.642	16.300 mm	(5x)	19.46 mm	.59 mm	4 mm	63 mm	V282918-X	62.50
.1285	#30	3.263 mm	1.028	26.100 mm	(8x)	29.74 mm	.59 mm	4 mm	75 mm	V292872-X	143.50
.1300		3.300 mm	.390	9.900 mm	(3x)	12.75 mm	.60 mm	4 mm	63 mm	V446101-X	48.50
.1300		3.300 mm	.650	16.500 mm	(5x)	19.68 mm	.60 mm	4 mm	63 mm	V427484-X	62.50
.1300		3.300 mm	1.039	26.400 mm	(8x)	30.08 mm	.60 mm	4 mm	75 mm	V274069-X	143.50
.1338		3.400 mm	.402	10.200 mm	(3x)	13.14 mm	.62 mm	4 mm	63 mm	V345119-X	48.50
.1338		3.400 mm	.669	17.000 mm	(5x)	20.28 mm	.62 mm	4 mm	63 mm	V570427-X	62.50
.1338		3.400 mm	1.071	27.200 mm	(8x)	30.99 mm	.62 mm	4 mm	75 mm	V471156-X	143.50
.1360	#29	3.454 mm	.407	10.350 mm	(3x)	13.35 mm	.63 mm	4 mm	63 mm	V092841-X	48.50
.1360	#29	3.454 mm	.679	17.250 mm	(5x)	20.60 mm	.63 mm	4 mm	63 mm	V526120-X	62.50
.1360	#29	3.454 mm	1.089	27.650 mm	(8x)	31.48 mm	.63 mm	4 mm	75 mm	V832796-X	143.50
.1377		3.500 mm	.413	10.500 mm	(3x)	13.53 mm	.64 mm	4 mm	63 mm	V219223-X	48.50
.1377		3.500 mm	.689	17.500 mm	(5x)	20.88 mm	.64 mm	4 mm	63 mm	V969665-X	62.50
.1377		3.500 mm	1.102	28.000 mm	(8x)	31.90 mm	.64 mm	4 mm	75 mm	V715223-X	143.50
.1406 (9/64)	#28	3.571 mm	.421	10.700 mm	(3x)	13.80 mm	.65 mm	4 mm	63 mm	V119018-X	48.50
.1406 (9/64)	#28	3.571 mm	.703	17.850 mm	(5x)	21.30 mm	.65 mm	4 mm	63 mm	V859368-X	62.50
.1406 (9/64)	#28	3.571 mm	1.124	28.550 mm	(8x)	32.55 mm	.65 mm	4 mm	75 mm	V711502-X	143.50
.1417		3.600 mm	.425	10.800 mm	(3x)	13.91 mm	.66 mm	4 mm	63 mm	V171654-X	48.50
.1417		3.600 mm	.709	18.000 mm	(5x)	21.47 mm	.66 mm	4 mm	63 mm	V306978-X	62.50
.1417		3.600 mm	1.134	28.800 mm	(8x)	32.81 mm	.66 mm	4 mm	75 mm	V463513-X	143.50
.1440	#27	3.657 mm	.431	10.950 mm	(3x)	14.13 mm	.67 mm	4 mm	63 mm	V916358-X	48.50
.1440	#27	3.657 mm	.720	18.300 mm	(5x)	21.81 mm	.67 mm	4 mm	63 mm	V389475-X	62.50
.1440	#27	3.657 mm	1.152	29.250 mm	(8x)	33.33 mm	.67 mm	4 mm	75 mm	V633900-X	143.50
.1456		3.700 mm	.437	11.100 mm	(3x)	14.30 mm	.67 mm	4 mm	63 mm	V372278-X	48.50
.1456		3.700 mm	.728	18.500 mm	(5x)	22.07 mm	.67 mm	4 mm	63 mm	V418855-X	62.50
.1456		3.700 mm	1.165	29.600 mm	(8x)	33.72 mm	.67 mm	4 mm	75 mm	V648706-X	143.50
.1470	#26	3.733 mm	.441	11.200 mm	(3x)	14.43 mm	.68 mm	4 mm	63 mm	V407598-X	48.50
.1470	#26	3.733 mm	.734	18.650 mm	(5x)	22.27 mm	.68 mm	4 mm	63 mm	V865433-X	62.50
.1470	#26	3.733 mm	1.175	29.850 mm	(8x)	34.03 mm	.68 mm	4 mm	75 mm	V616959-X	143.50
.1495	#25	3.797 mm	.449	11.400 mm	(3x)	14.67 mm	.69 mm	4 mm	63 mm	V250225-X	48.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD
NEW	.1495	#25	3.797 mm	.748	19.000 mm	(5x)	22.65 mm	.69 mm	4 mm	63 mm	V386472-X	62.50
	.1495	#25	3.797 mm	1.197	30.400 mm	(8x)	34.61 mm	.69 mm	4 mm	75 mm	V500276-X	143.50
	.1496		3.800 mm	.449	11.400 mm	(3x)	14.69 mm	.69 mm	4 mm	63 mm	V381981-X	48.50
	.1496		3.800 mm	.748	19.000 mm	(5x)	22.67 mm	.69 mm	4 mm	63 mm	V770195-X	62.50
	.1496		3.800 mm	1.197	30.400 mm	(8x)	34.64 mm	.69 mm	4 mm	75 mm	V511673-X	143.50
NEW	.1520	#24	3.860 mm	.457	11.600 mm	(3x)	14.92 mm	.70 mm	4 mm	63 mm	V163242-X	48.50
	.1520	#24	3.860 mm	.760	19.300 mm	(5x)	23.02 mm	.70 mm	4 mm	63 mm	V846604-X	62.50
	.1520	#24	3.860 mm	1.217	30.900 mm	(8x)	35.18 mm	.70 mm	4 mm	75 mm	V769643-X	143.50
	.1535		3.900 mm	.461	11.700 mm	(3x)	15.07 mm	.71 mm	4 mm	63 mm	V464029-X	48.50
	.1535		3.900 mm	.768	19.500 mm	(5x)	23.26 mm	.71 mm	4 mm	63 mm	V916343-X	62.50
NEW	.1535		3.900 mm	1.228	31.200 mm	(8x)	35.55 mm	.71 mm	4 mm	75 mm	V641665-X	143.50
	.1540	#23	3.911 mm	.463	11.750 mm	(3x)	15.12 mm	.71 mm	4 mm	63 mm	V780940-X	48.50
	.1540	#23	3.911 mm	.770	19.550 mm	(5x)	23.33 mm	.71 mm	4 mm	63 mm	V098495-X	62.50
	.1540	#23	3.911 mm	1.232	31.300 mm	(8x)	35.65 mm	.71 mm	4 mm	75 mm	V832564-X	143.50
	.1562 (5/32)		3.968 mm	.469	11.900 mm	(3x)	15.34 mm	.72 mm	4 mm	63 mm	V535133-X	48.50
NEW	.1562 (5/32)		3.968 mm	.781	19.850 mm	(5x)	23.67 mm	.72 mm	4 mm	63 mm	V651106-X	62.50
	.1562 (5/32)		3.968 mm	1.250	31.750 mm	(8x)	36.17 mm	.72 mm	4 mm	75 mm	V484175-X	143.50
	.1570	#22	3.987 mm	.470	11.950 mm	(3x)	15.41 mm	.73 mm	4 mm	63 mm	V125785-X	48.50
	.1570	#22	3.987 mm	.785	19.950 mm	(5x)	23.78 mm	.73 mm	4 mm	63 mm	V743728-X	62.50
	.1570	#22	3.987 mm	1.256	31.900 mm	(8x)	36.34 mm	.73 mm	4 mm	75 mm	V142700-X	143.50
NEW	.1574		4.000 mm	.472	12.000 mm	(3x)	15.46 mm	.73 mm	6 mm	63 mm	V956543-X	48.50
	.1574		4.000 mm	.787	20.000 mm	(5x)	23.86 mm	.73 mm	6 mm	75 mm	V973327-X	62.50
	.1574		4.000 mm	1.260	32.000 mm	(8x)	36.46 mm	.73 mm	6 mm	100 mm	V228877-X	143.50
	.1590	#21	4.038 mm	.476	12.100 mm	(3x)	15.61 mm	.73 mm	6 mm	63 mm	V519799-X	52.00
	.1590	#21	4.038 mm	.795	20.200 mm	(5x)	24.09 mm	.73 mm	6 mm	75 mm	V444036-X	64.50
NEW	.1590	#21	4.038 mm	1.272	32.300 mm	(8x)	36.81 mm	.73 mm	6 mm	100 mm	V065060-X	143.50
	.1610	#20	4.089 mm	.482	12.250 mm	(3x)	15.80 mm	.74 mm	6 mm	63 mm	V829322-X	52.00
	.1610	#20	4.089 mm	.805	20.450 mm	(5x)	24.39 mm	.74 mm	6 mm	75 mm	V764234-X	64.50
	.1610	#20	4.089 mm	1.287	32.700 mm	(8x)	37.27 mm	.74 mm	6 mm	100 mm	V069918-X	143.50
	.1614		4.100 mm	.484	12.300 mm	(3x)	15.85 mm	.75 mm	6 mm	63 mm	V144711-X	52.00
NEW	.1614		4.100 mm	.807	20.500 mm	(5x)	24.46 mm	.75 mm	6 mm	75 mm	V159304-X	64.50
	.1614		4.100 mm	1.291	32.800 mm	(8x)	37.37 mm	.75 mm	6 mm	100 mm	V830649-X	143.50
	.1653		4.200 mm	.496	12.600 mm	(3x)	16.23 mm	.76 mm	6 mm	63 mm	V691502-X	52.00
	.1653		4.200 mm	.827	21.000 mm	(5x)	25.05 mm	.76 mm	6 mm	75 mm	V390642-X	64.50
	.1653		4.200 mm	1.323	33.600 mm	(8x)	38.28 mm	.76 mm	6 mm	100 mm	V717833-X	143.50
NEW	.1660	#19	4.216 mm	.498	12.650 mm	(3x)	16.29 mm	.77 mm	6 mm	63 mm	V895060-X	52.00
	.1660	#19	4.216 mm	.831	21.100 mm	(5x)	25.15 mm	.77 mm	6 mm	75 mm	V848390-X	64.50
	.1660	#19	4.216 mm	1.329	33.750 mm	(8x)	38.43 mm	.77 mm	6 mm	100 mm	V880136-X	143.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
		D ₁ (h8)*		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD
.1692		4.300 mm	.508	12.900 mm	(3x)	16.62 mm	.78 mm	6 mm	63 mm	V853410-X	52.00
.1692		4.300 mm	.846	21.500 mm	(5x)	25.65 mm	.78 mm	6 mm	75 mm	V641050-X	64.50
.1692		4.300 mm	1.354	34.400 mm	(8x)	39.19 mm	.78 mm	6 mm	100 mm	V349549-X	143.50
.1695	#18	4.305 mm	.508	12.900 mm	(3x)	16.64 mm	.78 mm	6 mm	63 mm	V612616-X	52.00
.1695	#18	4.305 mm	.846	21.500 mm	(5x)	25.68 mm	.78 mm	6 mm	75 mm	V968040-X	64.50
.1695	#18	4.305 mm	1.356	34.450 mm	(8x)	39.24 mm	.78 mm	6 mm	100 mm	V575045-X	143.50
.1718 (11/64)		4.365 mm	.516	13.100 mm	(3x)	16.87 mm	.79 mm	6 mm	63 mm	V690088-X	52.00
.1718 (11/64)		4.365 mm	.860	21.850 mm	(5x)	26.04 mm	.79 mm	6 mm	75 mm	V202897-X	64.50
.1718 (11/64)		4.365 mm	1.374	34.900 mm	(8x)	39.79 mm	.79 mm	6 mm	100 mm	V430080-X	143.50
.1730	#17	4.394 mm	.520	13.200 mm	(3x)	16.98 mm	.80 mm	6 mm	63 mm	V144303-X	52.00
.1730	#17	4.394 mm	.864	21.950 mm	(5x)	26.21 mm	.80 mm	6 mm	75 mm	V392102-X	64.50
.1730	#17	4.394 mm	1.384	35.150 mm	(8x)	40.05 mm	.80 mm	6 mm	100 mm	V221723-X	143.50
.1732		4.400 mm	.520	13.200 mm	(3x)	17.01 mm	.80 mm	6 mm	63 mm	V696930-X	52.00
.1732		4.400 mm	.866	22.000 mm	(5x)	26.25 mm	.80 mm	6 mm	75 mm	V454165-X	64.50
.1732		4.400 mm	1.386	35.200 mm	(8x)	40.11 mm	.80 mm	6 mm	100 mm	V609491-X	143.50
.1770	#16	4.495 mm	.531	13.500 mm	(3x)	17.37 mm	.82 mm	6 mm	63 mm	V440241-X	52.00
.1770	#16	4.495 mm	.886	22.500 mm	(5x)	26.81 mm	.82 mm	6 mm	75 mm	V525612-X	64.50
.1770	#16	4.495 mm	1.415	35.950 mm	(8x)	40.97 mm	.82 mm	6 mm	100 mm	V081143-X	143.50
.1771		4.500 mm	.531	13.500 mm	(3x)	17.39 mm	.82 mm	6 mm	63 mm	V945678-X	52.00
.1771		4.500 mm	.886	22.500 mm	(5x)	26.84 mm	.82 mm	6 mm	75 mm	V104541-X	64.50
.1771		4.500 mm	1.417	36.000 mm	(8x)	41.02 mm	.82 mm	6 mm	100 mm	V997034-X	143.50
.1800	#15	4.572 mm	.539	13.700 mm	(3x)	17.67 mm	.93 mm	6 mm	63 mm	V707657-X	52.00
.1800	#15	4.572 mm	.900	22.850 mm	(5x)	27.27 mm	.93 mm	6 mm	75 mm	V760636-X	64.50
.1800	#15	4.572 mm	1.441	36.600 mm	(8x)	41.67 mm	.93 mm	6 mm	100 mm	V270596-X	143.50
.1811		4.600 mm	.543	13.800 mm	(3x)	17.78 mm	.84 mm	6 mm	63 mm	V587145-X	52.00
.1811		4.600 mm	.906	23.000 mm	(5x)	27.44 mm	.84 mm	6 mm	75 mm	V781819-X	64.50
.1811		4.600 mm	1.449	36.800 mm	(8x)	41.93 mm	.84 mm	6 mm	100 mm	V997000-X	143.50
.1820	#14	4.622 mm	.545	13.850 mm	(3x)	17.86 mm	.84 mm	6 mm	63 mm	V087272-X	52.00
.1820	#14	4.622 mm	.909	23.100 mm	(5x)	27.57 mm	.84 mm	6 mm	75 mm	V269363-X	64.50
.1820	#14	4.622 mm	1.457	37.000 mm	(8x)	42.13 mm	.84 mm	6 mm	100 mm	V788648-X	143.50
.1850	#13	4.700 mm	.555	14.100 mm	(3x)	18.17 mm	.86 mm	6 mm	63 mm	V846796-X	52.00
.1850	#13	4.700 mm	.925	23.500 mm	(5x)	28.04 mm	.86 mm	6 mm	75 mm	V824714-X	64.50
.1850	#13	4.700 mm	1.480	37.600 mm	(8x)	42.84 mm	.86 mm	6 mm	100 mm	V896167-X	143.50
.1875 (3/16)		4.762 mm	.563	14.300 mm	(3x)	18.41 mm	.87 mm	6 mm	63 mm	V400615-X	52.00
.1875 (3/16)		4.762 mm	.937	23.800 mm	(5x)	28.41 mm	.87 mm	6 mm	75 mm	V236564-X	64.50
.1875 (3/16)		4.762 mm	1.500	38.100 mm	(8x)	43.41 mm	.87 mm	6 mm	100 mm	V126929-X	143.50
.1890	#12	4.800 mm	.567	14.400 mm	(3x)	18.55 mm	.87 mm	6 mm	63 mm	V834057-X	52.00
.1890	#12	4.800 mm	.945	24.000 mm	(5x)	28.63 mm	.87 mm	6 mm	75 mm	V321709-X	64.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD
NEW	.1890	#12	4.800 mm	1.512	38.400 mm	(8x)	43.75 mm	.87 mm	6 mm	100 mm	V290220-X	143.50
	.1910	#11	4.851 mm	.573	14.550 mm	(3x)	18.75 mm	.88 mm	6 mm	63 mm	V714367-X	52.00
	.1910	#11	4.851 mm	.955	24.250 mm	(5x)	28.94 mm	.88 mm	6 mm	75 mm	V342099-X	64.50
	.1910	#11	4.851 mm	1.528	38.800 mm	(8x)	44.22 mm	.88 mm	6 mm	100 mm	V972533-X	143.50
	.1930		4.900 mm	.579	14.700 mm	(3x)	18.94 mm	.89 mm	6 mm	63 mm	V745413-X	52.00
	.1930		4.900 mm	.965	24.500 mm	(5x)	29.23 mm	.89 mm	6 mm	75 mm	V381771-X	64.50
	.1930		4.900 mm	1.543	39.200 mm	(8x)	44.66 mm	.89 mm	6 mm	100 mm	V449962-X	143.50
NEW	.1935	#10	4.914 mm	.581	14.750 mm	(3x)	18.99 mm	.89 mm	6 mm	63 mm	V829999-X	52.00
	.1935	#10	4.914 mm	.967	24.550 mm	(5x)	29.31 mm	.89 mm	6 mm	75 mm	V454053-X	64.50
	.1935	#10	4.914 mm	1.547	39.300 mm	(8x)	44.79 mm	.89 mm	6 mm	100 mm	V551461-X	143.50
	.1960	#9	4.978 mm	.589	14.950 mm	(3x)	19.24 mm	.91 mm	6 mm	63 mm	V962379-X	52.00
NEW	.1960	#9	4.978 mm	.980	24.900 mm	(5x)	29.69 mm	.91 mm	6 mm	75 mm	V991542-X	64.50
	.1960	#9	4.978 mm	1.567	39.800 mm	(8x)	45.37 mm	.91 mm	6 mm	100 mm	V383898-X	143.50
	.1968		5.000 mm	.591	15.000 mm	(3x)	19.33 mm	.91 mm	6 mm	63 mm	V810779-X	52.00
	.1968		5.000 mm	.984	25.000 mm	(5x)	29.83 mm	.91 mm	6 mm	75 mm	V661786-X	64.50
NEW	.1968		5.000 mm	1.575	40.000 mm	(8x)	45.58 mm	.91 mm	6 mm	100 mm	V727149-X	143.50
	.1990	#8	5.054 mm	.596	15.150 mm	(3x)	19.53 mm	.92 mm	6 mm	63 mm	V380114-X	52.00
	.1990	#8	5.054 mm	.994	25.250 mm	(5x)	30.15 mm	.92 mm	6 mm	75 mm	V030512-X	64.50
	.1990	#8	5.054 mm	1.593	40.450 mm	(8x)	46.07 mm	.92 mm	6 mm	100 mm	V623253-X	143.50
	.2007		5.100 mm	.602	15.300 mm	(3x)	19.71 mm	.93 mm	6 mm	63 mm	V558333-X	52.00
	.2007		5.100 mm	1.004	25.500 mm	(5x)	30.42 mm	.93 mm	6 mm	75 mm	V683701-X	64.50
	.2007		5.100 mm	1.606	40.800 mm	(8x)	46.49 mm	.93 mm	6 mm	100 mm	V445203-X	143.50
NEW	.2009	#7	5.105 mm	.602	15.300 mm	(3x)	19.73 mm	.93 mm	6 mm	63 mm	V658342-X	52.00
	.2009	#7	5.105 mm	1.006	25.550 mm	(5x)	30.45 mm	.93 mm	6 mm	75 mm	V102485-X	64.50
	.2009	#7	5.105 mm	1.608	40.850 mm	(8x)	46.53 mm	.93 mm	6 mm	100 mm	V699646-X	143.50
	.2031 (13/64)		5.159 mm	.610	15.500 mm	(3x)	19.94 mm	.94 mm	6 mm	63 mm	V536622-X	52.00
	.2031 (13/64)		5.159 mm	1.016	25.800 mm	(5x)	30.77 mm	.94 mm	6 mm	75 mm	V743431-X	64.50
	.2031 (13/64)		5.159 mm	1.624	41.250 mm	(8x)	47.02 mm	.94 mm	6 mm	100 mm	V479533-X	143.50
	.2040	#6	5.181 mm	.612	15.550 mm	(3x)	20.03 mm	.94 mm	6 mm	63 mm	V393945-X	52.00
NEW	.2040	#6	5.181 mm	1.020	25.900 mm	(5x)	30.91 mm	.94 mm	6 mm	75 mm	V261951-X	64.50
	.2040	#6	5.181 mm	1.632	41.450 mm	(8x)	47.23 mm	.94 mm	6 mm	100 mm	V885884-X	143.50
	.2047		5.200 mm	.614	15.600 mm	(3x)	20.10 mm	.95 mm	6 mm	63 mm	V603666-X	52.00
	.2047		5.200 mm	1.024	26.000 mm	(5x)	31.02 mm	.95 mm	6 mm	75 mm	V663747-X	64.50
	.2047		5.200 mm	1.638	41.600 mm	(8x)	47.40 mm	.95 mm	6 mm	100 mm	V984977-X	143.50
NEW	.2055	#5	5.219 mm	.616	15.650 mm	(3x)	20.17 mm	.95 mm	6 mm	63 mm	V775825-X	52.00
	.2055	#5	5.219 mm	1.028	26.100 mm	(5x)	31.13 mm	.95 mm	6 mm	75 mm	V285401-X	64.50
	.2055	#5	5.219 mm	1.644	41.750 mm	(8x)	47.57 mm	.95 mm	6 mm	100 mm	V106208-X	143.50
	.2086		5.300 mm	.626	15.900 mm	(3x)	20.49 mm	.96 mm	6 mm	63 mm	V612145-X	52.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
		D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
.2086		5.300 mm	1.043	26.500 mm	(5x)	31.62 mm	.96 mm	6 mm	75 mm	V947811-X	64.50
.2086		5.300 mm	1.669	42.400 mm	(8x)	48.31 mm	.96 mm	6 mm	100 mm	V464644-X	143.50
.2090	#4	5.308 mm	.626	15.900 mm	(3x)	20.52 mm	.97 mm	6 mm	63 mm	V224982-X	52.00
.2090	#4	5.308 mm	1.045	26.550 mm	(5x)	31.66 mm	.97 mm	6 mm	75 mm	V496089-X	64.50
.2090	#4	5.308 mm	1.671	42.450 mm	(8x)	48.38 mm	.97 mm	6 mm	100 mm	V266878-X	143.50
.2125		5.400 mm	.638	16.200 mm	(3x)	20.87 mm	.98 mm	6 mm	63 mm	V103818-X	52.00
.2125		5.400 mm	1.063	27.000 mm	(5x)	32.21 mm	.98 mm	6 mm	75 mm	V231435-X	64.50
.2125		5.400 mm	1.701	43.200 mm	(8x)	49.22 mm	.98 mm	6 mm	100 mm	V848179-X	143.50
.2129	#3	5.410 mm	.640	16.250 mm	(3x)	20.91 mm	.98 mm	6 mm	63 mm	V679976-X	52.00
.2129	#3	5.410 mm	1.065	27.050 mm	(5x)	32.27 mm	.98 mm	6 mm	75 mm	V863158-X	64.50
.2129	#3	5.410 mm	1.705	43.300 mm	(8x)	49.31 mm	.98 mm	6 mm	100 mm	V680147-X	143.50
.2165		5.500 mm	.650	16.500 mm	(3x)	21.26 mm	1.00 mm	6 mm	63 mm	V245936-X	52.00
.2165		5.500 mm	1.083	27.500 mm	(5x)	32.81 mm	1.00 mm	6 mm	75 mm	V590469-X	64.50
.2165		5.500 mm	1.732	44.000 mm	(8x)	50.13 mm	1.00 mm	6 mm	100 mm	V881807-X	143.50
.2187 (7/32)		5.556 mm	.656	16.650 mm	(3x)	21.47 mm	1.01 mm	6 mm	63 mm	V412034-X	52.00
.2187 (7/32)		5.556 mm	1.094	27.800 mm	(5x)	33.14 mm	1.01 mm	6 mm	75 mm	V550391-X	64.50
.2187 (7/32)		5.556 mm	1.750	44.450 mm	(8x)	50.64 mm	1.01 mm	6 mm	100 mm	V682954-X	143.50
.2205		5.600 mm	.661	16.800 mm	(3x)	21.65 mm	1.02 mm	6 mm	63 mm	V869257-X	52.00
.2205		5.600 mm	1.102	28.000 mm	(5x)	33.41 mm	1.02 mm	6 mm	75 mm	V885614-X	64.50
.2205		5.600 mm	1.764	44.800 mm	(8x)	51.05 mm	1.02 mm	6 mm	100 mm	V372811-X	143.50
.2210	#2	5.613 mm	.663	16.850 mm	(3x)	21.70 mm	1.02 mm	6 mm	63 mm	V310563-X	52.00
.2210	#2	5.613 mm	1.104	28.050 mm	(5x)	33.48 mm	1.02 mm	6 mm	75 mm	V396615-X	64.50
.2210	#2	5.613 mm	1.768	44.900 mm	(8x)	51.16 mm	1.02 mm	6 mm	100 mm	V332349-X	143.50
.2244		5.700 mm	.673	17.100 mm	(3x)	22.03 mm	1.04 mm	6 mm	63 mm	V911021-X	52.00
.2244		5.700 mm	1.122	28.500 mm	(5x)	34.00 mm	1.04 mm	6 mm	75 mm	V674875-X	64.50
.2244		5.700 mm	1.795	45.600 mm	(8x)	51.96 mm	1.04 mm	6 mm	100 mm	V885969-X	143.50
.2280	#1	5.791 mm	.683	17.350 mm	(3x)	22.38 mm	1.05 mm	6 mm	63 mm	V988447-X	52.00
.2280	#1	5.791 mm	1.140	28.950 mm	(5x)	34.54 mm	1.05 mm	6 mm	75 mm	V928131-X	64.50
.2280	#1	5.791 mm	1.825	46.350 mm	(8x)	52.79 mm	1.05 mm	6 mm	100 mm	V958773-X	143.50
.2283		5.800 mm	.685	17.400 mm	(3x)	22.42 mm	1.06 mm	6 mm	63 mm	V439914-X	52.00
.2283		5.800 mm	1.142	29.000 mm	(5x)	34.60 mm	1.06 mm	6 mm	75 mm	V260690-X	64.50
.2283		5.800 mm	1.827	46.400 mm	(8x)	52.87 mm	1.06 mm	6 mm	100 mm	V751036-X	143.50
.2322		5.900 mm	.697	17.700 mm	(3x)	22.80 mm	1.07 mm	6 mm	63 mm	V603655-X	52.00
.2322		5.900 mm	1.161	29.500 mm	(5x)	35.19 mm	1.07 mm	6 mm	75 mm	V519010-X	64.50
.2322		5.900 mm	1.858	47.200 mm	(8x)	53.78 mm	1.07 mm	6 mm	100 mm	V549472-X	143.50
.2340	A	5.943 mm	.703	17.850 mm	(3x)	22.97 mm	1.08 mm	6 mm	63 mm	V040329-X	52.00
.2340	A	5.943 mm	1.169	29.700 mm	(5x)	35.45 mm	1.08 mm	6 mm	75 mm	V070045-X	64.50
.2340	A	5.943 mm	1.872	47.550 mm	(8x)	54.17 mm	1.08 mm	6 mm	100 mm	V047697-X	143.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
			D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
	.2343 (15/64)		5.953 mm	.703	17.850 mm	(3x)	23.01 mm	1.08 mm	6 mm	63 mm	V458998-X	52.00
	.2343 (15/64)		5.953 mm	1.171	29.750 mm	(5x)	35.51 mm	1.08 mm	6 mm	75 mm	V623370-X	64.50
	.2343 (15/64)		5.953 mm	1.874	47.600 mm	(8x)	54.26 mm	1.08 mm	6 mm	100 mm	V445403-X	143.50
	.2362		6.000 mm	.709	18.000 mm	(3x)	23.19 mm	1.09 mm	8 mm	75 mm	V106008-X	52.00
	.2362		6.000 mm	1.181	30.000 mm	(5x)	35.79 mm	1.09 mm	8 mm	100 mm	V170131-X	64.50
	.2362		6.000 mm	1.890	48.000 mm	(8x)	54.69 mm	1.09 mm	8 mm	125 mm	V345369-X	143.50
	.2380	B	6.045 mm	.715	18.150 mm	(3x)	23.37 mm	1.10 mm	8 mm	75 mm	V403538-X	62.50
	.2380	B	6.045 mm	1.191	30.250 mm	(5x)	36.06 mm	1.10 mm	8 mm	100 mm	V529618-X	74.50
NEW	.2380	B	6.045 mm	1.904	48.350 mm	(8x)	55.10 mm	1.10 mm	8 mm	125 mm	V839170-X	150.00
	.2401		6.100 mm	.720	18.300 mm	(3x)	23.58 mm	1.11 mm	8 mm	75 mm	V786634-X	62.50
	.2401		6.100 mm	1.201	30.500 mm	(5x)	36.39 mm	1.11 mm	8 mm	100 mm	V638795-X	74.50
	.2401		6.100 mm	1.921	48.800 mm	(8x)	55.60 mm	1.11 mm	8 mm	125 mm	V492775-X	150.00
	.2420	C	6.146 mm	.726	18.450 mm	(3x)	23.76 mm	1.12 mm	8 mm	75 mm	V675356-X	62.50
	.2420	C	6.146 mm	1.211	30.750 mm	(5x)	36.66 mm	1.12 mm	8 mm	100 mm	V940368-X	74.50
NEW	.2420	C	6.146 mm	1.935	49.150 mm	(8x)	56.02 mm	1.12 mm	8 mm	125 mm	V903833-X	150.00
	.2440		6.200 mm	.732	18.600 mm	(3x)	23.96 mm	1.13 mm	8 mm	75 mm	V156414-X	62.50
	.2440		6.200 mm	1.220	31.000 mm	(5x)	36.98 mm	1.13 mm	8 mm	100 mm	V246074-X	74.50
	.2440		6.200 mm	1.953	49.600 mm	(8x)	56.51 mm	1.13 mm	8 mm	125 mm	V936607-X	150.00
	.2460	D	6.248 mm	.738	18.750 mm	(3x)	24.15 mm	1.14 mm	8 mm	75 mm	V896027-X	62.50
	.2460	D	6.248 mm	1.230	31.250 mm	(5x)	37.27 mm	1.14 mm	8 mm	100 mm	V644178-X	74.50
NEW	.2460	D	6.248 mm	1.969	50.000 mm	(8x)	56.95 mm	1.14 mm	8 mm	125 mm	V678629-X	150.00
	.2480		6.300 mm	.744	18.900 mm	(3x)	24.35 mm	1.15 mm	8 mm	75 mm	V252509-X	62.50
	.2480		6.300 mm	1.240	31.500 mm	(5x)	37.58 mm	1.15 mm	8 mm	100 mm	V349769-X	74.50
	.2480		6.300 mm	1.984	50.400 mm	(8x)	57.43 mm	1.15 mm	8 mm	125 mm	V272919-X	150.00
	.2500 (1/4)	E	6.350 mm	.750	19.050 mm	(3x)	24.54 mm	1.16 mm	8 mm	75 mm	V809169-X	62.50
	.2500 (1/4)	E	6.350 mm	1.250	31.750 mm	(5x)	37.88 mm	1.16 mm	8 mm	100 mm	V715183-X	74.50
	.2500 (1/4)	E	6.350 mm	2.000	50.800 mm	(8x)	57.88 mm	1.16 mm	8 mm	125 mm	V316828-X	150.00
	.2520		6.400 mm	.756	19.200 mm	(3x)	24.74 mm	1.16 mm	8 mm	75 mm	V343209-X	62.50
	.2520		6.400 mm	1.260	32.000 mm	(5x)	38.18 mm	1.16 mm	8 mm	100 mm	V664864-X	74.50
	.2520		6.400 mm	2.016	51.200 mm	(8x)	58.34 mm	1.16 mm	8 mm	125 mm	V449441-X	150.00
	.2559		6.500 mm	.768	19.500 mm	(3x)	25.12 mm	1.18 mm	8 mm	75 mm	V749006-X	62.50
	.2559		6.500 mm	1.280	32.500 mm	(5x)	38.77 mm	1.18 mm	8 mm	100 mm	V976126-X	74.50
	.2559		6.500 mm	2.047	52.000 mm	(8x)	59.25 mm	1.18 mm	8 mm	125 mm	V426083-X	150.00
	.2570	F	6.528 mm	.772	19.600 mm	(3x)	25.23 mm	1.19 mm	8 mm	75 mm	V397741-X	62.50
	.2570	F	6.528 mm	1.285	32.650 mm	(5x)	38.94 mm	1.19 mm	8 mm	100 mm	V446155-X	77.00
NEW	.2570	F	6.528 mm	2.055	52.200 mm	(8x)	59.50 mm	1.19 mm	8 mm	125 mm	V944227-X	167.50
	.2598		6.600 mm	.780	19.800 mm	(3x)	25.51 mm	1.20 mm	8 mm	75 mm	V734311-X	66.00
	.2598		6.600 mm	1.299	33.000 mm	(5x)	39.37 mm	1.20 mm	8 mm	100 mm	V321248-X	77.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
		D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
.2598		6.600 mm	2.079	52.800 mm	(8x)	60.16 mm	1.20 mm	8 mm	125 mm	V978161-X	167.50
.2609	G	6.629 mm	.783	19.900 mm	(3x)	25.62 mm	1.21 mm	8 mm	75 mm	V541484-X	66.00
.2609	G	6.629 mm	1.305	33.150 mm	(5x)	39.54 mm	1.21 mm	8 mm	100 mm	V227853-X	77.00
.2609	G	6.629 mm	2.089	53.050 mm	(8x)	60.43 mm	1.21 mm	8 mm	125 mm	V960456-X	167.50
.2638		6.700 mm	.791	20.100 mm	(3x)	25.90 mm	1.22 mm	8 mm	75 mm	V695757-X	66.00
.2638		6.700 mm	1.319	33.500 mm	(5x)	39.97 mm	1.22 mm	8 mm	100 mm	V609211-X	77.00
.2638		6.700 mm	2.110	53.600 mm	(8x)	61.07 mm	1.22 mm	8 mm	125 mm	V416647-X	167.50
.2656 (17/64)		6.746 mm	.797	20.250 mm	(3x)	26.08 mm	1.23 mm	8 mm	75 mm	V577636-X	66.00
.2656 (17/64)		6.746 mm	1.329	33.750 mm	(5x)	40.24 mm	1.23 mm	8 mm	100 mm	V734759-X	77.00
.2656 (17/64)		6.746 mm	2.124	53.950 mm	(8x)	61.49 mm	1.23 mm	8 mm	125 mm	V738825-X	167.50
.2659	H	6.756 mm	.797	20.250 mm	(3x)	26.11 mm	1.23 mm	8 mm	75 mm	V614620-X	66.00
.2659	H	6.756 mm	1.331	33.800 mm	(5x)	40.30 mm	1.23 mm	8 mm	100 mm	V706729-X	77.00
.2659	H	6.756 mm	2.128	54.050 mm	(8x)	61.58 mm	1.23 mm	8 mm	125 mm	V616416-X	167.50
.2677		6.800 mm	.803	20.400 mm	(3x)	26.28 mm	1.24 mm	8 mm	75 mm	V338596-X	66.00
.2677		6.800 mm	1.339	34.000 mm	(5x)	40.56 mm	1.24 mm	8 mm	100 mm	V913970-X	77.00
.2677		6.800 mm	2.142	54.400 mm	(8x)	61.98 mm	1.24 mm	8 mm	125 mm	V219307-X	167.50
.2717		6.900 mm	.815	20.700 mm	(3x)	26.67 mm	1.26 mm	8 mm	75 mm	V291064-X	66.00
.2717		6.900 mm	1.358	34.500 mm	(5x)	41.16 mm	1.26 mm	8 mm	100 mm	V531112-X	77.00
.2717		6.900 mm	2.173	55.200 mm	(8x)	62.90 mm	1.26 mm	8 mm	125 mm	V950623-X	167.50
.2719	I	6.908 mm	.815	20.700 mm	(3x)	26.70 mm	1.26 mm	8 mm	75 mm	V014460-X	66.00
.2719	I	6.908 mm	1.360	34.550 mm	(5x)	41.21 mm	1.26 mm	8 mm	100 mm	V411425-X	77.00
.2719	I	6.908 mm	2.175	55.250 mm	(8x)	62.97 mm	1.26 mm	8 mm	125 mm	V803714-X	167.50
.2756		7.000 mm	.827	21.000 mm	(3x)	27.06 mm	1.27 mm	8 mm	75 mm	V663641-X	66.00
.2756		7.000 mm	1.378	35.000 mm	(5x)	41.76 mm	1.27 mm	8 mm	100 mm	V410825-X	77.00
.2756		7.000 mm	2.205	56.000 mm	(8x)	63.81 mm	1.27 mm	8 mm	125 mm	V604383-X	167.50
.2769	J	7.035 mm	.831	21.100 mm	(3x)	27.19 mm	1.28 mm	8 mm	75 mm	V699396-X	66.00
.2769	J	7.035 mm	1.384	35.150 mm	(5x)	41.97 mm	1.28 mm	8 mm	100 mm	V914380-X	81.00
.2769	J	7.035 mm	2.217	56.300 mm	(8x)	64.13 mm	1.28 mm	8 mm	125 mm	V061694-X	176.50
.2795		7.100 mm	.839	21.300 mm	(3x)	27.44 mm	1.29 mm	8 mm	75 mm	V600397-X	66.00
.2795		7.100 mm	1.398	35.500 mm	(5x)	42.35 mm	1.29 mm	8 mm	100 mm	V637495-X	81.00
.2795		7.100 mm	2.236	56.800 mm	(8x)	64.72 mm	1.29 mm	8 mm	125 mm	V993349-X	176.50
.2809	K	7.137 mm	.843	21.400 mm	(3x)	27.59 mm	1.30 mm	8 mm	75 mm	V345532-X	66.00
.2809	K	7.137 mm	1.406	35.700 mm	(5x)	42.57 mm	1.30 mm	8 mm	100 mm	V940604-X	81.00
.2810	K	7.137 mm	2.248	57.100 mm	(8x)	65.06 mm	1.30 mm	8 mm	125 mm	V571966-X	176.50
.2812 (9/32)		7.142 mm	.844	21.450 mm	(3x)	27.61 mm	1.30 mm	8 mm	75 mm	V952277-X	66.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
			D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
	.2812 (9/32)		7.142 mm	1.406	35.700 mm	(5x)	42.60 mm	1.30 mm	8 mm	100 mm	V425690-X	81.00
	.2812 (9/32)		7.142 mm	2.250	57.150 mm	(8x)	65.10 mm	1.30 mm	8 mm	125 mm	V956378-X	176.50
	.2834		7.200 mm	.850	21.600 mm	(3x)	27.83 mm	1.31 mm	8 mm	75 mm	V226899-X	66.00
	.2834		7.200 mm	1.417	36.000 mm	(5x)	42.95 mm	1.31 mm	8 mm	100 mm	V657275-X	81.00
	.2834		7.200 mm	2.268	57.600 mm	(8x)	65.63 mm	1.31 mm	8 mm	125 mm	V672970-X	176.50
	.2874		7.300 mm	.862	21.900 mm	(3x)	28.22 mm	1.33 mm	8 mm	75 mm	V653370-X	66.00
	.2874		7.300 mm	1.437	36.500 mm	(5x)	43.55 mm	1.33 mm	8 mm	100 mm	V195918-X	81.00
	.2874		7.300 mm	2.299	58.400 mm	(8x)	66.54 mm	1.33 mm	8 mm	125 mm	V727542-X	176.50
	.2900	L	7.366 mm	.870	22.100 mm	(3x)	28.47 mm	1.34 mm	8 mm	75 mm	V409490-X	66.00
	.2900	L	7.366 mm	1.451	36.850 mm	(5x)	43.94 mm	1.34 mm	8 mm	100 mm	V936211-X	81.00
NEW	.2900	L	7.366 mm	2.321	58.950 mm	(8x)	67.14 mm	1.34 mm	8 mm	125 mm	V636301-X	176.50
	.2913		7.400 mm	.874	22.200 mm	(3x)	28.60 mm	1.35 mm	8 mm	75 mm	V489342-X	66.00
	.2913		7.400 mm	1.457	37.000 mm	(5x)	44.14 mm	1.35 mm	8 mm	100 mm	V795527-X	81.00
	.2913		7.400 mm	2.331	59.200 mm	(8x)	67.45 mm	1.35 mm	8 mm	125 mm	V172694-X	176.50
	.2950	M	7.493 mm	.886	22.500 mm	(3x)	28.96 mm	1.36 mm	8 mm	75 mm	V871211-X	66.00
	.2950	M	7.493 mm	1.474	37.450 mm	(5x)	44.70 mm	1.36 mm	8 mm	100 mm	V641620-X	81.00
NEW	.2950	M	7.493 mm	2.360	59.950 mm	(8x)	68.30 mm	1.36 mm	8 mm	125 mm	V441573-X	176.50
	.2952		7.500 mm	.886	22.500 mm	(3x)	28.99 mm	1.36 mm	8 mm	75 mm	V148315-X	66.00
	.2952		7.500 mm	1.476	37.500 mm	(5x)	44.74 mm	1.36 mm	8 mm	100 mm	V103072-X	81.00
	.2952		7.500 mm	2.362	60.000 mm	(8x)	68.37 mm	1.36 mm	8 mm	125 mm	V145153-X	176.50
	.2969 (19/64)		7.541 mm	.890	22.600 mm	(3x)	29.15 mm	1.37 mm	8 mm	75 mm	V285522-X	66.00
	.2969 (19/64)		7.541 mm	1.484	37.700 mm	(5x)	44.99 mm	1.37 mm	8 mm	100 mm	V850668-X	81.00
	.2969 (19/64)		7.541 mm	2.376	60.350 mm	(8x)	68.74 mm	1.37 mm	8 mm	125 mm	V781588-X	176.50
	.2992		7.600 mm	.898	22.800 mm	(3x)	29.38 mm	1.38 mm	8 mm	75 mm	V558243-X	66.00
	.2992		7.600 mm	1.496	38.000 mm	(5x)	45.34 mm	1.38 mm	8 mm	100 mm	V707294-X	81.00
	.2992		7.600 mm	2.394	60.800 mm	(8x)	69.28 mm	1.38 mm	8 mm	125 mm	V944678-X	176.50
	.3020	N	7.671 mm	.906	23.000 mm	(3x)	29.65 mm	1.40 mm	8 mm	75 mm	V773769-X	66.00
	.3020	N	7.671 mm	1.510	38.350 mm	(5x)	45.76 mm	1.40 mm	8 mm	100 mm	V483074-X	81.00
NEW	.3020	N	7.671 mm	2.415	61.350 mm	(8x)	69.92 mm	1.40 mm	8 mm	125 mm	V825320-X	176.50
	.3031		7.700 mm	.909	23.100 mm	(3x)	29.76 mm	1.40 mm	8 mm	75 mm	V515094-X	66.00
	.3031		7.700 mm	1.516	38.500 mm	(5x)	45.93 mm	1.40 mm	8 mm	100 mm	V323536-X	81.00
	.3031		7.700 mm	2.425	61.600 mm	(8x)	70.19 mm	1.40 mm	8 mm	125 mm	V316193-X	176.50
	.3071		7.800 mm	.921	23.400 mm	(3x)	30.15 mm	1.42 mm	8 mm	75 mm	V613783-X	66.00
	.3071		7.800 mm	1.535	39.000 mm	(5x)	46.53 mm	1.42 mm	8 mm	100 mm	V225740-X	81.00
	.3071		7.800 mm	2.457	62.400 mm	(8x)	71.10 mm	1.42 mm	8 mm	125 mm	V543502-X	176.50
	.3110		7.900 mm	.933	23.700 mm	(3x)	30.54 mm	1.44 mm	8 mm	75 mm	V643419-X	66.00
	.3110		7.900 mm	1.555	39.500 mm	(5x)	47.13 mm	1.44 mm	8 mm	100 mm	V962384-X	81.00
	.3110		7.900 mm	2.488	63.200 mm	(8x)	72.01 mm	1.44 mm	8 mm	125 mm	V199008-X	176.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
		D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
.3125 (5/16)		7.937 mm	.937	23.800 mm	(3x)	30.68 mm	1.44 mm	8 mm	75 mm	V922027-X	66.00
.3125 (5/16)		7.937 mm	1.563	39.700 mm	(5x)	47.35 mm	1.44 mm	8 mm	100 mm	V962711-X	81.00
.3125 (5/16)		7.937 mm	2.500	63.500 mm	(8x)	72.35 mm	1.44 mm	8 mm	125 mm	V832006-X	176.50
.3150		8.000 mm	.945	24.000 mm	(3x)	30.92 mm	1.46 mm	10 mm	75 mm	V437355-X	66.00
.3150		8.000 mm	1.575	40.000 mm	(5x)	47.72 mm	1.46 mm	10 mm	100 mm	V432969-X	81.00
.3150		8.000 mm	2.520	64.000 mm	(8x)	72.92 mm	1.46 mm	10 mm	125 mm	V414548-X	176.50
.3159	O	8.026 mm	.949	24.100 mm	(3x)	31.02 mm	1.46 mm	10 mm	75 mm	V806706-X	79.00
.3159	O	8.026 mm	1.581	40.150 mm	(5x)	47.88 mm	1.46 mm	10 mm	100 mm	V761092-X	90.00
.3159	O	8.026 mm	2.528	64.200 mm	(8x)	73.16 mm	1.46 mm	10 mm	125 mm	V341982-X	200.50
.3189		8.100 mm	.957	24.300 mm	(3x)	31.31 mm	1.47 mm	10 mm	75 mm	V172150-X	79.00
.3189		8.100 mm	1.594	40.500 mm	(5x)	48.32 mm	1.47 mm	10 mm	100 mm	V805974-X	90.00
.3189		8.100 mm	2.551	64.800 mm	(8x)	73.84 mm	1.47 mm	10 mm	125 mm	V784040-X	200.50
.3228		8.200 mm	.969	24.600 mm	(3x)	31.70 mm	1.49 mm	10 mm	75 mm	V104389-X	79.00
.3228		8.200 mm	1.614	41.000 mm	(5x)	48.92 mm	1.49 mm	10 mm	100 mm	V797513-X	90.00
.3228		8.200 mm	2.583	65.600 mm	(8x)	74.75 mm	1.49 mm	10 mm	125 mm	V889280-X	200.50
.3229	P	8.204 mm	.969	24.600 mm	(3x)	31.71 mm	1.49 mm	10 mm	75 mm	V988983-X	79.00
.3229	P	8.204 mm	1.614	41.000 mm	(5x)	48.94 mm	1.49 mm	10 mm	100 mm	V113110-X	90.00
.3229	P	8.204 mm	2.585	65.650 mm	(8x)	74.78 mm	1.49 mm	10 mm	125 mm	V492467-X	200.50
.3268		8.300 mm	.980	24.900 mm	(3x)	32.08 mm	1.51 mm	10 mm	75 mm	V431404-X	79.00
.3268		8.300 mm	1.634	41.500 mm	(5x)	49.51 mm	1.51 mm	10 mm	100 mm	V464819-X	90.00
.3268		8.300 mm	2.614	66.400 mm	(8x)	75.66 mm	1.51 mm	10 mm	125 mm	V922989-X	200.50
.3281 (21/64)		8.333 mm	.984	25.000 mm	(3x)	32.21 mm	1.52 mm	10 mm	75 mm	V729711-X	79.00
.3281 (21/64)		8.333 mm	1.640	41.650 mm	(5x)	49.71 mm	1.52 mm	10 mm	100 mm	V276452-X	90.00
.3281 (21/64)		8.333 mm	2.624	66.650 mm	(8x)	75.96 mm	1.52 mm	10 mm	125 mm	V423225-X	200.50
.3307		8.400 mm	.992	25.200 mm	(3x)	32.47 mm	1.53 mm	10 mm	75 mm	V846086-X	79.00
.3307		8.400 mm	1.654	42.000 mm	(5x)	50.11 mm	1.53 mm	10 mm	100 mm	V619529-X	90.00
.3307		8.400 mm	2.646	67.200 mm	(8x)	76.57 mm	1.53 mm	10 mm	125 mm	V772576-X	200.50
.3319	Q	8.432 mm	.996	25.300 mm	(3x)	32.59 mm	1.53 mm	10 mm	75 mm	V186326-X	79.00
.3319	Q	8.432 mm	1.659	42.150 mm	(5x)	50.30 mm	1.53 mm	10 mm	100 mm	V569284-X	90.00

* For h6 and h8 tolerances, see page 8.

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Tech Tip

Select a material specific drill to avoid hole misalignment. Material specific drills are designed with geometries that will mitigate the specific challenges that each unique material presents.



High Performance Drills

For Steels (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD
NEW	.3319	Q	8.432 mm	2.656	67.450 mm	(8x)	76.86 mm	1.53 mm	10 mm	125 mm	V925171-X	200.50
	.3346		8.500 mm	1.004	25.500 mm	(3x)	32.86 mm	1.55 mm	10 mm	75 mm	V285498-X	79.00
	.3346		8.500 mm	1.673	42.500 mm	(5x)	50.71 mm	1.55 mm	10 mm	100 mm	V767363-X	90.00
	.3346		8.500 mm	2.677	68.000 mm	(8x)	77.48 mm	1.55 mm	10 mm	125 mm	V593996-X	200.50
	.3386		8.600 mm	1.016	25.800 mm	(3x)	33.24 mm	1.57 mm	10 mm	75 mm	V333326-X	79.00
	.3386		8.600 mm	1.693	43.000 mm	(5x)	51.30 mm	1.57 mm	10 mm	100 mm	V713312-X	90.00
	.3386		8.600 mm	2.709	68.800 mm	(8x)	78.39 mm	1.57 mm	10 mm	125 mm	V627207-X	200.50
	.3389	R	8.610 mm	1.018	25.850 mm	(3x)	33.28 mm	1.57 mm	10 mm	75 mm	V217044-X	79.00
NEW	.3389	R	8.610 mm	1.695	43.050 mm	(5x)	51.36 mm	1.57 mm	10 mm	100 mm	V366849-X	90.00
	.3389	R	8.610 mm	2.713	68.900 mm	(8x)	78.48 mm	1.57 mm	10 mm	125 mm	V677295-X	200.50
	.3425		8.700 mm	1.028	26.100 mm	(3x)	33.63 mm	1.58 mm	10 mm	75 mm	V812806-X	79.00
	.3425		8.700 mm	1.713	43.500 mm	(5x)	51.90 mm	1.58 mm	10 mm	100 mm	V322323-X	90.00
	.3425		8.700 mm	2.740	69.600 mm	(8x)	79.30 mm	1.58 mm	10 mm	125 mm	V697981-X	200.50
	.3438 (11/32)		8.732 mm	1.031	26.200 mm	(3x)	33.75 mm	1.59 mm	10 mm	75 mm	V270614-X	79.00
	.3438 (11/32)		8.732 mm	1.719	43.650 mm	(5x)	52.09 mm	1.59 mm	10 mm	100 mm	V831670-X	90.00
	.3438 (11/32)		8.732 mm	2.750	69.850 mm	(8x)	79.60 mm	1.59 mm	10 mm	125 mm	V867816-X	200.50
NEW	.3465		8.800 mm	1.039	26.400 mm	(3x)	34.02 mm	1.60 mm	10 mm	75 mm	V243786-X	79.00
	.3465		8.800 mm	1.732	44.000 mm	(5x)	52.50 mm	1.60 mm	10 mm	100 mm	V523931-X	90.00
	.3465		8.800 mm	2.772	70.400 mm	(8x)	80.22 mm	1.60 mm	10 mm	125 mm	V231271-X	200.50
	.3479	S	8.839 mm	1.043	26.500 mm	(3x)	34.17 mm	1.61 mm	10 mm	75 mm	V454746-X	79.00
	.3479	S	8.839 mm	1.740	44.200 mm	(5x)	52.73 mm	1.61 mm	10 mm	100 mm	V434931-X	90.00
	.3479	S	8.839 mm	2.783	70.700 mm	(8x)	80.57 mm	1.61 mm	10 mm	125 mm	V248375-X	200.50
	.3504		8.900 mm	1.051	26.700 mm	(3x)	34.40 mm	1.62 mm	10 mm	75 mm	V978768-X	79.00
	.3504		8.900 mm	1.752	44.500 mm	(5x)	53.09 mm	1.62 mm	10 mm	100 mm	V367699-X	90.00
NEW	.3504		8.900 mm	2.803	71.200 mm	(8x)	81.13 mm	1.62 mm	10 mm	150 mm	V699423-X	200.50
	.3543		9.000 mm	1.063	27.000 mm	(3x)	34.79 mm	1.64 mm	10 mm	75 mm	V820250-X	79.00
	.3543		9.000 mm	1.772	45.000 mm	(5x)	53.69 mm	1.64 mm	10 mm	100 mm	V605839-X	90.00
	.3543		9.000 mm	2.835	72.000 mm	(8x)	82.04 mm	1.64 mm	10 mm	150 mm	V477581-X	200.50
	.3579	T	9.093 mm	1.075	27.300 mm	(3x)	35.15 mm	1.65 mm	10 mm	75 mm	V861743-X	84.00
	.3579	T	9.093 mm	1.789	45.450 mm	(5x)	54.24 mm	1.65 mm	10 mm	100 mm	V091577-X	99.00
	.3579	T	9.093 mm	2.864	72.750 mm	(8x)	82.89 mm	1.65 mm	10 mm	150 mm	V536445-X	211.00
	.3583		9.100 mm	1.075	27.300 mm	(3x)	35.18 mm	1.66 mm	10 mm	75 mm	V926579-X	84.00
NEW	.3583		9.100 mm	1.791	45.500 mm	(5x)	54.29 mm	1.66 mm	10 mm	100 mm	V227340-X	99.00
	.3583		9.100 mm	2.866	72.800 mm	(8x)	82.95 mm	1.66 mm	10 mm	150 mm	V387177-X	211.00
	.3594 (23/64)		9.128 mm	1.079	27.400 mm	(3x)	35.28 mm	1.66 mm	10 mm	75 mm	V520702-X	84.00
	.3594 (23/64)		9.128 mm	1.797	45.650 mm	(5x)	54.45 mm	1.66 mm	10 mm	100 mm	V831468-X	99.00
	.3594 (23/64)		9.128 mm	2.874	73.000 mm	(8x)	83.21 mm	1.66 mm	10 mm	150 mm	V492754-X	211.00
	.3622		9.200 mm	1.087	27.600 mm	(3x)	35.56 mm	1.67 mm	10 mm	75 mm	V861199-X	84.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
		D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
.3622		9.200 mm	1.811	46.000 mm	(5x)	54.88 mm	1.67 mm	10 mm	100 mm	V909379-X	99.00
.3622		9.200 mm	2.898	73.600 mm	(8x)	83.86 mm	1.67 mm	10 mm	150 mm	V273373-X	211.00
.3661		9.300 mm	1.098	27.900 mm	(3x)	35.95 mm	1.69 mm	10 mm	75 mm	V341438-X	84.00
.3661		9.300 mm	1.831	46.500 mm	(5x)	55.48 mm	1.69 mm	10 mm	100 mm	V750726-X	99.00
.3661		9.300 mm	2.929	74.400 mm	(8x)	84.77 mm	1.69 mm	10 mm	150 mm	V491242-X	211.00
.3679	U	9.347 mm	1.104	28.050 mm	(3x)	36.13 mm	1.70 mm	10 mm	75 mm	V485586-X	84.00
.3679	U	9.347 mm	1.841	46.750 mm	(5x)	55.76 mm	1.70 mm	10 mm	100 mm	V822529-X	99.00
.3679	U	9.347 mm	2.945	74.800 mm	(8x)	85.20 mm	1.70 mm	10 mm	150 mm	V573758-X	211.00
.3701		9.400 mm	1.110	28.200 mm	(3x)	36.34 mm	1.71 mm	10 mm	75 mm	V245183-X	84.00
.3701		9.400 mm	1.850	47.000 mm	(5x)	56.08 mm	1.71 mm	10 mm	100 mm	V773243-X	99.00
.3701		9.400 mm	2.961	75.200 mm	(8x)	85.69 mm	1.71 mm	10 mm	150 mm	V292278-X	211.00
.3740		9.500 mm	1.122	28.500 mm	(3x)	36.72 mm	1.73 mm	10 mm	75 mm	V368486-X	84.00
.3740		9.500 mm	1.870	47.500 mm	(5x)	56.67 mm	1.73 mm	10 mm	100 mm	V767819-X	99.00
.3740		9.500 mm	2.992	76.000 mm	(8x)	86.60 mm	1.73 mm	10 mm	150 mm	V982412-X	211.00
.3750 (3/8)		9.525 mm	1.126	28.600 mm	(3x)	36.82 mm	1.73 mm	10 mm	75 mm	V543634-X	84.00
.3750 (3/8)		9.525 mm	1.876	47.650 mm	(5x)	56.82 mm	1.73 mm	10 mm	100 mm	V294737-X	99.00
.3750 (3/8)		9.525 mm	3.000	76.200 mm	(8x)	86.83 mm	1.73 mm	10 mm	150 mm	V643720-X	211.00
.3770	V	9.575 mm	1.130	28.700 mm	(3x)	37.01 mm	1.74 mm	10 mm	75 mm	V096342-X	84.00
.3770	V	9.575 mm	1.886	47.900 mm	(5x)	57.12 mm	1.74 mm	10 mm	100 mm	V468986-X	99.00
.3770	V	9.575 mm	3.016	76.600 mm	(8x)	87.28 mm	1.74 mm	10 mm	150 mm	V051864-X	211.00
.3780		9.600 mm	1.134	28.800 mm	(3x)	37.11 mm	1.75 mm	10 mm	75 mm	V558947-X	84.00
.3780		9.600 mm	1.890	48.000 mm	(5x)	57.27 mm	1.75 mm	10 mm	100 mm	V407796-X	99.00
.3780		9.600 mm	3.024	76.800 mm	(8x)	87.51 mm	1.75 mm	10 mm	150 mm	V407240-X	211.00
.3819		9.700 mm	1.146	29.100 mm	(3x)	37.50 mm	1.77 mm	10 mm	75 mm	V934556-X	84.00
.3819		9.700 mm	1.909	48.500 mm	(5x)	57.87 mm	1.77 mm	10 mm	100 mm	V538795-X	99.00
.3819		9.700 mm	3.055	77.600 mm	(8x)	88.42 mm	1.77 mm	10 mm	150 mm	V417626-X	211.00
.3858		9.800 mm	1.157	29.400 mm	(3x)	37.88 mm	1.78 mm	10 mm	75 mm	V229427-X	84.00
.3858		9.800 mm	1.929	49.000 mm	(5x)	58.46 mm	1.78 mm	10 mm	100 mm	V750562-X	99.00
.3858		9.800 mm	3.087	78.400 mm	(8x)	89.33 mm	1.78 mm	10 mm	150 mm	V797339-X	211.00
.3859	W	9.804 mm	1.157	29.400 mm	(3x)	37.90 mm	1.78 mm	10 mm	75 mm	V338997-X	84.00
.3859	W	9.804 mm	1.929	49.000 mm	(5x)	58.49 mm	1.78 mm	10 mm	100 mm	V653787-X	99.00
.3859	W	9.804 mm	3.089	78.450 mm	(8x)	89.37 mm	1.78 mm	10 mm	150 mm	V558526-X	211.00
.3898		9.900 mm	1.169	29.700 mm	(3x)	38.27 mm	1.80 mm	10 mm	75 mm	V869506-X	84.00
.3898		9.900 mm	1.949	49.500 mm	(5x)	59.06 mm	1.80 mm	10 mm	100 mm	V429736-X	99.00
.3898		9.900 mm	3.118	79.200 mm	(8x)	90.24 mm	1.80 mm	10 mm	150 mm	V304892-X	211.00
.3906 (25/64)		9.921 mm	1.171	29.750 mm	(3x)	38.35 mm	1.81 mm	10 mm	75 mm	V612861-X	84.00
.3906 (25/64)		9.921 mm	1.953	49.600 mm	(5x)	59.18 mm	1.81 mm	10 mm	100 mm	V804543-X	99.00
.3906 (25/64)		9.921 mm	3.124	79.350 mm	(8x)	90.44 mm	1.81 mm	10 mm	150 mm	V656076-X	211.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

continued from previous page

	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
			D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
NEW	.3937		10.000 mm	1.181	30.000 mm	(3x)	38.66 mm	1.82 mm	12 mm	100 mm	V562092-X	93.00
	.3937		10.000 mm	1.969	50.000 mm	(5x)	59.66 mm	1.82 mm	12 mm	125 mm	V550034-X	99.00
	.3937		10.000 mm	3.150	80.000 mm	(8x)	91.16 mm	1.82 mm	12 mm	150 mm	V834651-X	211.00
	.3969	X	10.083 mm	1.191	30.250 mm	(3x)	38.98 mm	1.82 mm	12 mm	100 mm	V965078-X	113.00
	.3969	X	10.083 mm	1.984	50.400 mm	(5x)	60.15 mm	1.82 mm	12 mm	125 mm	V475645-X	131.00
	.3969	X	10.083 mm	3.175	80.650 mm	(8x)	91.91 mm	1.82 mm	12 mm	150 mm	V614676-X	274.50
	.3976		10.100 mm	1.193	30.300 mm	(3x)	39.04 mm	1.84 mm	12 mm	100 mm	V297691-X	113.00
	.3976		10.100 mm	1.988	50.500 mm	(5x)	60.25 mm	1.84 mm	12 mm	125 mm	V717095-X	131.00
	.3976		10.100 mm	3.181	80.800 mm	(8x)	92.07 mm	1.84 mm	12 mm	150 mm	V946266-X	274.50
	.4016		10.200 mm	1.205	30.600 mm	(3x)	39.43 mm	1.86 mm	12 mm	100 mm	V829282-X	113.00
NEW	.4016		10.200 mm	2.008	51.000 mm	(5x)	60.85 mm	1.86 mm	12 mm	125 mm	V905204-X	131.00
	.4016		10.200 mm	3.213	81.600 mm	(8x)	92.98 mm	1.86 mm	12 mm	150 mm	V984655-X	274.50
	.4039	Y	10.261 mm	1.213	30.800 mm	(3x)	39.66 mm	1.87 mm	12 mm	100 mm	V816591-X	113.00
	.4039	Y	10.261 mm	2.020	51.300 mm	(5x)	61.21 mm	1.87 mm	12 mm	125 mm	V674869-X	131.00
	.4039	Y	10.261 mm	3.232	82.100 mm	(8x)	93.54 mm	1.87 mm	12 mm	150 mm	V643624-X	274.50
	.4055		10.300 mm	1.217	30.900 mm	(3x)	39.82 mm	1.87 mm	12 mm	100 mm	V755643-X	113.00
	.4055		10.300 mm	2.028	51.500 mm	(5x)	61.45 mm	1.87 mm	12 mm	125 mm	V473326-X	131.00
	.4055		10.300 mm	3.244	82.400 mm	(8x)	93.89 mm	1.87 mm	12 mm	150 mm	V319140-X	274.50
	.4062 (13/32)		10.317 mm	1.219	30.950 mm	(3x)	39.88 mm	1.88 mm	12 mm	100 mm	V558064-X	113.00
	.4062 (13/32)		10.317 mm	2.031	51.600 mm	(5x)	61.55 mm	1.88 mm	12 mm	125 mm	V617000-X	131.00
NEW	.4062 (13/32)		10.317 mm	3.250	82.550 mm	(8x)	94.05 mm	1.88 mm	12 mm	150 mm	V184156-X	274.50
	.4094		10.400 mm	1.228	31.200 mm	(3x)	40.20 mm	1.89 mm	12 mm	100 mm	V476483-X	113.00
	.4094		10.400 mm	2.047	52.000 mm	(5x)	62.04 mm	1.89 mm	12 mm	125 mm	V872922-X	131.00
	.4094		10.400 mm	3.276	83.200 mm	(8x)	94.80 mm	1.89 mm	12 mm	150 mm	V997876-X	274.50
	.4129	Z	10.490 mm	1.238	31.450 mm	(3x)	40.55 mm	1.91 mm	12 mm	100 mm	V628926-X	113.00
	.4129	Z	10.490 mm	2.065	52.450 mm	(5x)	62.58 mm	1.91 mm	12 mm	125 mm	V957058-X	131.00
	.4129	Z	10.490 mm	3.303	83.900 mm	(8x)	95.62 mm	1.91 mm	12 mm	150 mm	V852503-X	274.50
	.4134		10.500 mm	1.240	31.500 mm	(3x)	40.59 mm	1.91 mm	12 mm	100 mm	V804705-X	113.00
	.4134		10.500 mm	2.067	52.500 mm	(5x)	62.64 mm	1.91 mm	12 mm	125 mm	V656863-X	131.00
	.4134		10.500 mm	3.307	84.000 mm	(8x)	95.71 mm	1.91 mm	12 mm	150 mm	V959781-X	274.50
NEW	.4173		10.600 mm	1.252	31.800 mm	(3x)	40.98 mm	1.93 mm	12 mm	100 mm	V716473-X	113.00
	.4173		10.600 mm	2.087	53.000 mm	(5x)	63.24 mm	1.93 mm	12 mm	125 mm	V931959-X	131.00
	.4173		10.600 mm	3.339	84.800 mm	(8x)	96.63 mm	1.93 mm	12 mm	150 mm	V589985-X	274.50
	.4213		10.700 mm	1.264	32.100 mm	(3x)	41.36 mm	1.95 mm	12 mm	100 mm	V967963-X	113.00
	.4213		10.700 mm	2.106	53.500 mm	(5x)	63.83 mm	1.95 mm	12 mm	125 mm	V260341-X	131.00
	.4213		10.700 mm	3.370	85.600 mm	(8x)	97.54 mm	1.95 mm	12 mm	150 mm	V317299-X	274.50
	.4219 (27/64)		10.716 mm	1.266	32.150 mm	(3x)	41.42 mm	1.95 mm	12 mm	100 mm	V248338-X	113.00
	.4219 (27/64)		10.716 mm	2.110	53.600 mm	(5x)	63.93 mm	1.95 mm	12 mm	125 mm	V184802-X	131.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

continued from previous page

Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
.4219 (27/64)	10.716 mm		3.376	85.750 mm	(8x)	97.68 mm	1.95 mm	12 mm	150 mm	V459907-X	274.50
.4252	10.800 mm		1.276	32.400 mm	(3x)	41.75 mm	1.97 mm	12 mm	100 mm	V602726-X	113.00
.4252	10.800 mm		2.126	54.000 mm	(5x)	64.43 mm	1.97 mm	12 mm	125 mm	V247731-X	131.00
.4252	10.800 mm		3.402	86.400 mm	(8x)	98.45 mm	1.97 mm	12 mm	150 mm	V195896-X	274.50
.4291	10.900 mm		1.287	32.700 mm	(3x)	42.14 mm	1.98 mm	12 mm	100 mm	V429098-X	113.00
.4291	10.900 mm		2.146	54.500 mm	(5x)	65.03 mm	1.98 mm	12 mm	125 mm	V561591-X	131.00
.4291	10.900 mm		3.433	87.200 mm	(8x)	99.36 mm	1.98 mm	12 mm	175 mm	V726450-X	274.50
.4331	11.000 mm		1.299	33.000 mm	(3x)	42.52 mm	2.00 mm	12 mm	100 mm	V661693-X	113.00
.4331	11.000 mm		2.165	55.000 mm	(5x)	65.62 mm	2.00 mm	12 mm	125 mm	V111557-X	131.00
.4331	11.000 mm		3.465	88.000 mm	(8x)	100.27 mm	2.00 mm	12 mm	175 mm	V731416-X	274.50
.4370	11.100 mm		1.311	33.300 mm	(3x)	42.91 mm	2.02 mm	12 mm	100 mm	V144905-X	113.00
.4370	11.100 mm		2.185	55.500 mm	(5x)	66.22 mm	2.02 mm	12 mm	125 mm	V529674-X	131.00
.4370	11.100 mm		3.496	88.800 mm	(8x)	101.18 mm	2.02 mm	12 mm	175 mm	V768753-X	274.50
.4375 (7/16)	11.112 mm		1.313	33.350 mm	(3x)	42.95 mm	2.02 mm	12 mm	100 mm	V538378-X	113.00
.4375 (7/16)	11.112 mm		2.187	55.550 mm	(5x)	66.29 mm	2.02 mm	12 mm	125 mm	V533490-X	131.00
.4375 (7/16)	11.112 mm		3.500	88.900 mm	(8x)	101.29 mm	2.02 mm	12 mm	175 mm	V652629-X	274.50
.4409	11.200 mm		1.323	33.600 mm	(3x)	43.30 mm	2.04 mm	12 mm	100 mm	V543531-X	113.00
.4409	11.200 mm		2.205	56.000 mm	(5x)	66.82 mm	2.04 mm	12 mm	125 mm	V266717-X	131.00
.4409	11.200 mm		3.528	89.600 mm	(8x)	102.10 mm	2.04 mm	12 mm	175 mm	V188910-X	274.50
.4449	11.300 mm		1.335	33.900 mm	(3x)	43.68 mm	2.06 mm	12 mm	100 mm	V312875-X	113.00
.4449	11.300 mm		2.224	56.500 mm	(5x)	67.41 mm	2.06 mm	12 mm	125 mm	V579778-X	131.00
.4449	11.300 mm		3.559	90.400 mm	(8x)	103.01 mm	2.06 mm	12 mm	175 mm	V774245-X	274.50
.4488	11.400 mm		1.346	34.200 mm	(3x)	44.07 mm	2.07 mm	12 mm	100 mm	V650650-X	113.00
.4488	11.400 mm		2.244	57.000 mm	(5x)	68.01 mm	2.07 mm	12 mm	125 mm	V156993-X	131.00
.4488	11.400 mm		3.591	91.200 mm	(8x)	103.92 mm	2.07 mm	12 mm	175 mm	V872208-X	274.50
.4527	11.500 mm		1.358	34.500 mm	(3x)	44.45 mm	2.09 mm	12 mm	100 mm	V607294-X	113.00
.4527	11.500 mm		2.264	57.500 mm	(5x)	68.60 mm	2.09 mm	12 mm	125 mm	V663745-X	131.00
.4527	11.500 mm		3.622	92.000 mm	(8x)	104.83 mm	2.09 mm	12 mm	175 mm	V212865-X	274.50
.4531 (29/64)	11.508 mm		1.358	34.500 mm	(3x)	44.49 mm	2.09 mm	12 mm	100 mm	V564439-X	113.00
.4531 (29/64)	11.508 mm		2.266	57.550 mm	(5x)	68.65 mm	2.09 mm	12 mm	125 mm	V709414-X	131.00
.4531 (29/64)	11.508 mm		3.624	92.050 mm	(8x)	104.90 mm	2.09 mm	12 mm	175 mm	V208966-X	274.50
.4567	11.600 mm		1.370	34.800 mm	(3x)	44.84 mm	2.11 mm	12 mm	100 mm	V810836-X	122.50
.4567	11.600 mm		2.283	58.000 mm	(5x)	69.20 mm	2.11 mm	12 mm	125 mm	V824629-X	136.00
.4567	11.600 mm		3.654	92.800 mm	(8x)	105.74 mm	2.11 mm	12 mm	175 mm	V358116-X	274.50
.4606	11.700 mm		1.382	35.100 mm	(3x)	45.23 mm	2.13 mm	12 mm	100 mm	V125838-X	122.50
.4606	11.700 mm		2.303	58.500 mm	(5x)	69.80 mm	2.13 mm	12 mm	125 mm	V958629-X	136.00
.4606	11.700 mm		3.685	93.600 mm	(8x)	106.65 mm	2.13 mm	12 mm	175 mm	V540924-X	274.50
.4646	11.800 mm		1.394	35.400 mm	(3x)	45.61 mm	2.15 mm	12 mm	100 mm	V594549-X	122.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels (cont.)

continued from previous page

Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD
.4646		11.800 mm	2.323	59.000 mm	(5x)	70.39 mm	2.15 mm	12 mm	125 mm	V537993-X	136.00
.4646		11.800 mm	3.717	94.400 mm	(8x)	107.56 mm	2.15 mm	12 mm	175 mm	V956277-X	274.50
.4685		11.900 mm	1.406	35.700 mm	(3x)	46.00 mm	2.17 mm	12 mm	100 mm	V683774-X	122.50
.4685		11.900 mm	2.343	59.500 mm	(5x)	70.99 mm	2.17 mm	12 mm	125 mm	V603568-X	136.00
.4685		11.900 mm	3.748	95.200 mm	(8x)	108.48 mm	2.17 mm	12 mm	175 mm	V902085-X	274.50
.4688 (15/32)		11.907 mm	1.406	35.700 mm	(3x)	46.03 mm	2.17 mm	12 mm	100 mm	V354466-X	122.50
.4688 (15/32)		11.907 mm	2.344	59.550 mm	(5x)	71.03 mm	2.17 mm	12 mm	125 mm	V650664-X	136.00
.4688 (15/32)		11.907 mm	3.750	95.250 mm	(8x)	108.54 mm	2.17 mm	12 mm	175 mm	V230482-X	274.50
.4724		12.000 mm	1.417	36.000 mm	(3x)	46.39 mm	2.18 mm	14 mm	100 mm	V447728-X	122.50
.4724		12.000 mm	2.362	60.000 mm	(5x)	71.59 mm	2.18 mm	14 mm	125 mm	V524845-X	136.00
.4724		12.000 mm	3.780	96.000 mm	(8x)	109.39 mm	2.18 mm	14 mm	175 mm	V955704-X	274.50
.4764		12.100 mm	1.429	36.300 mm	(3x)	46.77 mm	2.20 mm	14 mm	100 mm	V663610-X	158.00
.4764		12.100 mm	2.382	60.500 mm	(5x)	72.18 mm	2.20 mm	14 mm	125 mm	V879285-X	178.00
.4764		12.100 mm	3.811	96.800 mm	(8x)	110.30 mm	2.20 mm	14 mm	175 mm	V329060-X	292.00
.4803		12.200 mm	1.441	36.600 mm	(3x)	47.16 mm	2.22 mm	14 mm	100 mm	V818824-X	158.00
.4803		12.200 mm	2.402	61.000 mm	(5x)	72.78 mm	2.22 mm	14 mm	125 mm	V602362-X	178.00
.4803		12.200 mm	3.843	97.600 mm	(8x)	111.21 mm	2.22 mm	14 mm	175 mm	V342029-X	292.00
.4843		12.300 mm	1.453	36.900 mm	(3x)	47.55 mm	2.24 mm	14 mm	100 mm	V771146-X	158.00
.4843		12.300 mm	2.421	61.500 mm	(5x)	73.38 mm	2.24 mm	14 mm	125 mm	V286389-X	178.00
.4843		12.300 mm	3.874	98.400 mm	(8x)	112.12 mm	2.24 mm	14 mm	175 mm	V673379-X	292.00
.4883 (31/64)		12.400 mm	1.465	37.200 mm	(3x)	47.93 mm	2.26 mm	14 mm	100 mm	V790461-X	158.00
.4883 (31/64)		12.400 mm	2.441	62.000 mm	(5x)	73.97 mm	2.26 mm	14 mm	125 mm	V930755-X	178.00
.4883 (31/64)		12.400 mm	3.906	99.200 mm	(8x)	113.03 mm	2.26 mm	14 mm	175 mm	V997694-X	292.00
.4921		12.500 mm	1.476	37.500 mm	(3x)	48.32 mm	2.27 mm	14 mm	100 mm	V202412-X	158.00
.4921		12.500 mm	2.461	62.500 mm	(5x)	74.57 mm	2.27 mm	14 mm	125 mm	V131343-X	178.00
.4921		12.500 mm	3.937	100.000 mm	(8x)	113.95 mm	2.27 mm	14 mm	175 mm	V668048-X	292.00
.4961		12.600 mm	1.488	37.800 mm	(3x)	48.71 mm	2.29 mm	14 mm	100 mm	V369910-X	158.00
.4961		12.600 mm	2.480	63.000 mm	(5x)	75.17 mm	2.29 mm	14 mm	125 mm	V981463-X	178.00
.4961		12.600 mm	3.969	100.800 mm	(8x)	114.86 mm	2.29 mm	14 mm	175 mm	V682916-X	292.00
.5000 (1/2)		12.700 mm	1.500	38.100 mm	(3x)	49.09 mm	2.31 mm	14 mm	100 mm	V608930-X	158.00
.5000 (1/2)		12.700 mm	2.500	63.500 mm	(5x)	75.76 mm	2.31 mm	14 mm	125 mm	V915134-X	178.00
.5000 (1/2)		12.700 mm	4.000	101.600 mm	(8x)	115.77 mm	2.31 mm	14 mm	175 mm	V703694-X	292.00

* For h6 and h8 tolerances, see page 8.





High Performance Drills

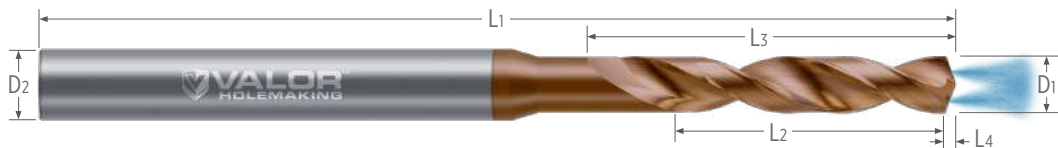
For Steels – Coolant-Through



Double margin design for increased stability

Unbeatable Performance When Coolant-Through Drilling 4140 Steel

- Optimized for best-in-class performance in 4140 Steel with superior performance in a wide variety of Steels and other Alloy Steels
- Provides excellent performance in Stainless Steels and Cast Iron
- Coolant-through channels further enhance chip evacuation
- Engineered double margin geometry provides performance and stability when drilling intersecting holes and/or exiting holes on inclined or irregular surfaces
- Pre and post polish process delivers reduced friction and ensures outstanding chip management
- 140° point angle with 4-facet geometry for improved self-centering
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- h6 shank tolerance for high precision tool holders
- Solid carbide



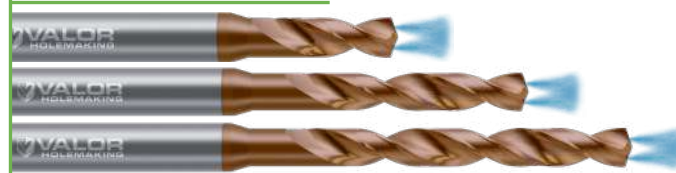
Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	USD
.0625 (1/16)		1.587 mm	.187	4.761 mm	(3x)	6.13 mm	.29 mm	3 mm	63 mm	V528958-X	66.00
.0625 (1/16)		1.587 mm	.313	7.950 mm	(5x)	9.46 mm	.29 mm	3 mm	63 mm	V189491-X	86.50
.0625 (1/16)		1.587 mm	.500	12.700 mm	(8x)	14.46 mm	.29 mm	3 mm	63 mm	V709480-X	152.50
.0630		1.600 mm	.189	4.800 mm	(3x)	6.18 mm	.29 mm	3 mm	63 mm	V978535-X	66.00
.0630		1.600 mm	.315	8.000 mm	(5x)	9.54 mm	.29 mm	3 mm	63 mm	V231543-X	86.50
.0630		1.600 mm	.504	12.800 mm	(8x)	14.58 mm	.29 mm	3 mm	63 mm	V886196-X	152.50
.0635	#52	1.612 mm	.190	4.836 mm	(3x)	6.23 mm	.29 mm	3 mm	63 mm	V082128-X	66.00
.0635	#52	1.612 mm	.317	8.050 mm	(5x)	9.61 mm	.29 mm	3 mm	63 mm	V927852-X	86.50
.0635	#52	1.612 mm	.508	12.900 mm	(8x)	14.69 mm	.29 mm	3 mm	63 mm	V852087-X	152.50
.0669	#51	1.700 mm	.201	5.100 mm	(3x)	6.57 mm	.31 mm	3 mm	63 mm	V136600-X	66.00
.0669	#51	1.700 mm	.335	8.500 mm	(5x)	10.14 mm	.31 mm	3 mm	63 mm	V282030-X	86.50
.0669	#51	1.700 mm	.535	13.600 mm	(8x)	15.49 mm	.31 mm	3 mm	63 mm	V538281-X	152.50
.0700	#50	1.778 mm	.210	5.334 mm	(3x)	6.87 mm	.32 mm	3 mm	63 mm	V926142-X	66.00
.0700	#50	1.778 mm	.350	8.900 mm	(5x)	10.60 mm	.32 mm	3 mm	63 mm	V248729-X	86.50

NEW

* For h6 and h8 tolerances, see page 8.

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Stocked in 3x, 5x, and 8x hole depths





High Performance Drills

For Steels – Coolant-Through (cont.)

continued from previous page

	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	USD
NEW	.0700	#50	1.778 mm	.559	14.200 mm	(8x)	16.20 mm	.32 mm	3 mm	63 mm	V102430-X	152.50
	.0708		1.800 mm	.213	5.400 mm	(3x)	6.95 mm	.33 mm	3 mm	63 mm	V000131-X	66.00
	.0708		1.800 mm	.354	9.000 mm	(5x)	10.73 mm	.33 mm	3 mm	63 mm	V148595-X	86.50
	.0708		1.800 mm	.567	14.400 mm	(8x)	16.40 mm	.33 mm	3 mm	63 mm	V604910-X	152.50
	.0730	#49	1.854 mm	.219	5.562 mm	(3x)	7.16 mm	.34 mm	3 mm	63 mm	V044496-X	66.00
	.0730	#49	1.854 mm	.364	9.250 mm	(5x)	11.06 mm	.34 mm	3 mm	63 mm	V111892-X	86.50
NEW	.0730	#49	1.854 mm	.585	14.850 mm	(8x)	16.90 mm	.34 mm	3 mm	63 mm	V375347-X	152.50
	.0748		1.900 mm	.224	5.700 mm	(3x)	7.34 mm	.35 mm	3 mm	63 mm	V059809-X	66.00
	.0748		1.900 mm	.374	9.500 mm	(5x)	11.33 mm	.35 mm	3 mm	63 mm	V525056-X	86.50
	.0748		1.900 mm	.598	15.200 mm	(8x)	17.32 mm	.35 mm	3 mm	63 mm	V766740-X	152.50
	.0760	#48	1.930 mm	.228	5.790 mm	(3x)	7.46 mm	.35 mm	3 mm	63 mm	V074632-X	66.00
	.0760	#48	1.930 mm	.380	9.650 mm	(5x)	11.51 mm	.35 mm	3 mm	63 mm	V701976-X	86.50
NEW	.0760	#48	1.930 mm	.608	15.450 mm	(8x)	17.59 mm	.35 mm	3 mm	63 mm	V504427-X	152.50
	.0781 (5/64)		1.984 mm	.234	5.952 mm	(3x)	7.67 mm	.36 mm	3 mm	63 mm	V161180-X	66.00
	.0781 (5/64)		1.984 mm	.390	9.900 mm	(5x)	11.83 mm	.36 mm	3 mm	63 mm	V622465-X	86.50
	.0781 (5/64)		1.984 mm	.624	15.850 mm	(8x)	18.08 mm	.36 mm	3 mm	63 mm	V830353-X	152.50
	.0785	#47	1.993 mm	.235	5.979 mm	(3x)	7.70 mm	.36 mm	3 mm	63 mm	V535794-X	66.00
	.0785	#47	1.993 mm	.392	9.950 mm	(5x)	11.89 mm	.36 mm	3 mm	63 mm	V927747-X	86.50
NEW	.0785	#47	1.993 mm	.628	15.950 mm	(8x)	18.16 mm	.36 mm	3 mm	63 mm	V419059-X	152.50
	.0787		2.000 mm	.236	6.000 mm	(3x)	7.73 mm	.36 mm	3 mm	63 mm	V221621-X	66.00
	.0787		2.000 mm	.394	10.000 mm	(5x)	11.93 mm	.36 mm	3 mm	63 mm	V995928-X	86.50
	.0787		2.000 mm	.630	16.000 mm	(8x)	18.23 mm	.36 mm	3 mm	63 mm	V475077-X	152.50
	.0810	#46	2.057 mm	.243	6.171 mm	(3x)	7.95 mm	.37 mm	3 mm	63 mm	V830608-X	66.00
	.0810	#46	2.057 mm	.406	10.300 mm	(5x)	12.27 mm	.37 mm	3 mm	63 mm	V378220-X	86.50
NEW	.0810	#46	2.057 mm	.648	16.450 mm	(8x)	18.75 mm	.37 mm	3 mm	63 mm	V807205-X	152.50
	.0820	#45	2.082 mm	.246	6.246 mm	(3x)	8.04 mm	.38 mm	3 mm	63 mm	V227427-X	66.00
	.0820	#45	2.082 mm	.409	10.400 mm	(5x)	12.42 mm	.38 mm	3 mm	63 mm	V580972-X	86.50
NEW	.0820	#45	2.082 mm	.656	16.650 mm	(8x)	18.97 mm	.38 mm	3 mm	63 mm	V206810-X	152.50
	.0826		2.100 mm	.248	6.300 mm	(3x)	8.11 mm	.38 mm	3 mm	63 mm	V287785-X	66.00
	.0826		2.100 mm	.413	10.500 mm	(5x)	12.52 mm	.38 mm	3 mm	63 mm	V507543-X	86.50
	.0826		2.100 mm	.661	16.800 mm	(8x)	19.14 mm	.38 mm	3 mm	63 mm	V870311-X	152.50
NEW	.0860	#44	2.184 mm	.258	6.552 mm	(3x)	8.44 mm	.40 mm	3 mm	63 mm	V899899-X	66.00
	.0860	#44	2.184 mm	.429	10.900 mm	(5x)	13.02 mm	.40 mm	3 mm	63 mm	V299597-X	86.50
	.0860	#44	2.184 mm	.687	17.450 mm	(8x)	19.90 mm	.40 mm	3 mm	63 mm	V378240-X	152.50
	.0866		2.200 mm	.260	6.600 mm	(3x)	8.50 mm	.40 mm	3 mm	63 mm	V550304-X	66.00
	.0866		2.200 mm	.433	11.000 mm	(5x)	13.12 mm	.40 mm	3 mm	63 mm	V344957-X	86.50
	.0866		2.200 mm	.693	17.600 mm	(8x)	20.05 mm	.40 mm	3 mm	63 mm	V324289-X	152.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Steels – Coolant-Through (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.0890	#43	2.260 mm	.267	6.780 mm	(3x)	8.73 mm	.41 mm	3 mm	63 mm	V946549-X	66.00
.0890	#43	2.260 mm	.445	11.300 mm	(5x)	13.48 mm	.41 mm	3 mm	63 mm	V406980-X	86.50
.0890	#43	2.260 mm	.713	18.100 mm	(8x)	20.60 mm	.41 mm	3 mm	63 mm	V834927-X	152.50
.0905		2.300 mm	.272	6.900 mm	(3x)	8.89 mm	.42 mm	3 mm	63 mm	V528922-X	66.00
.0905		2.300 mm	.453	11.500 mm	(5x)	13.72 mm	.42 mm	3 mm	63 mm	V869740-X	86.50
.0905		2.300 mm	.724	18.400 mm	(8x)	20.96 mm	.42 mm	3 mm	63 mm	V742025-X	152.50
.0935	#42	2.374 mm	.280	7.122 mm	(3x)	9.17 mm	.43 mm	3 mm	63 mm	V582182-X	66.00
.0935	#42	2.374 mm	.467	11.850 mm	(5x)	14.16 mm	.43 mm	3 mm	63 mm	V056590-X	86.50
.0935	#42	2.374 mm	.748	19.000 mm	(8x)	21.64 mm	.43 mm	3 mm	63 mm	V120933-X	152.50
.0937 (3/32)		2.381 mm	.281	7.143 mm	(3x)	9.20 mm	.43 mm	3 mm	63 mm	V673858-X	66.00
.0937 (3/32)		2.381 mm	.469	11.900 mm	(5x)	14.20 mm	.43 mm	3 mm	63 mm	V941421-X	86.50
.0937 (3/32)		2.381 mm	.750	19.050 mm	(8x)	21.70 mm	.43 mm	3 mm	63 mm	V250208-X	152.50
.0944		2.400 mm	.283	7.200 mm	(3x)	9.27 mm	.44 mm	3 mm	63 mm	V452307-X	66.00
.0944		2.400 mm	.472	12.000 mm	(5x)	14.31 mm	.44 mm	3 mm	63 mm	V307669-X	86.50
.0944		2.400 mm	.756	19.200 mm	(8x)	21.87 mm	.44 mm	3 mm	63 mm	V518131-X	152.50
.0960	#41	2.438 mm	.288	7.314 mm	(3x)	9.42 mm	.44 mm	3 mm	63 mm	V970133-X	66.00
.0960	#41	2.438 mm	.480	12.200 mm	(5x)	14.54 mm	.44 mm	3 mm	63 mm	V684805-X	86.50
.0960	#41	2.438 mm	.768	19.500 mm	(8x)	22.22 mm	.44 mm	3 mm	63 mm	V742916-X	152.50
.0980	#40	2.489 mm	.294	7.467 mm	(3x)	9.62 mm	.45 mm	3 mm	63 mm	V093191-X	66.00
.0980	#40	2.489 mm	.490	12.450 mm	(5x)	14.84 mm	.45 mm	3 mm	63 mm	V128419-X	86.50
.0980	#40	2.489 mm	.783	19.900 mm	(8x)	22.68 mm	.45 mm	3 mm	63 mm	V483480-X	152.50
.0984		2.500 mm	.295	7.500 mm	(3x)	9.66 mm	.45 mm	3 mm	63 mm	V463726-X	66.00
.0984		2.500 mm	.492	12.500 mm	(5x)	14.91 mm	.45 mm	3 mm	63 mm	V539575-X	86.50
.0984		2.500 mm	.787	20.000 mm	(8x)	22.79 mm	.45 mm	3 mm	63 mm	V411727-X	152.50
.0995	#39	2.527 mm	.298	7.581 mm	(3x)	9.76 mm	.46 mm	3 mm	63 mm	V899411-X	66.00
.0995	#39	2.527 mm	.498	12.650 mm	(5x)	15.07 mm	.46 mm	3 mm	63 mm	V459436-X	86.50
.0995	#39	2.527 mm	.795	20.200 mm	(8x)	23.03 mm	.46 mm	3 mm	63 mm	V573424-X	152.50
.1015	#38	2.578 mm	.304	7.734 mm	(3x)	9.96 mm	.47 mm	3 mm	63 mm	V470629-X	66.00
.1015	#38	2.578 mm	.508	12.900 mm	(5x)	15.38 mm	.47 mm	3 mm	63 mm	V170923-X	86.50
.1015	#38	2.578 mm	.811	20.600 mm	(8x)	23.50 mm	.47 mm	3 mm	63 mm	V633322-X	152.50
.1023		2.600 mm	.307	7.800 mm	(3x)	10.05 mm	.47 mm	3 mm	63 mm	V041570-X	66.00
.1023		2.600 mm	.512	13.000 mm	(5x)	15.51 mm	.47 mm	3 mm	63 mm	V216770-X	86.50
.1023		2.600 mm	.819	20.800 mm	(8x)	23.70 mm	.47 mm	3 mm	63 mm	V895404-X	152.50
.1040	#37	2.641 mm	.312	7.923 mm	(3x)	10.21 mm	.48 mm	3 mm	63 mm	V939278-X	66.00
.1040	#37	2.641 mm	.520	13.200 mm	(5x)	15.75 mm	.48 mm	3 mm	63 mm	V773027-X	86.50
.1040	#37	2.641 mm	.833	21.150 mm	(8x)	24.07 mm	.48 mm	3 mm	63 mm	V654051-X	152.50
.1062		2.700 mm	.319	8.100 mm	(3x)	10.43 mm	.49 mm	3 mm	63 mm	V947472-X	66.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	USD
NEW	.1062		2.700 mm	.531	13.500 mm	(5x)	16.10 mm	.49 mm	3 mm	63 mm	V324255-X	86.50
	.1062		2.700 mm	.850	21.600 mm	(8x)	24.61 mm	.49 mm	3 mm	63 mm	V455663-X	152.50
	.1065	#36	2.705 mm	.319	8.115 mm	(3x)	10.45 mm	.49 mm	3 mm	63 mm	V276098-X	66.00
	.1065	#36	2.705 mm	.533	13.550 mm	(5x)	16.13 mm	.49 mm	3 mm	63 mm	V230011-X	86.50
	.1065	#36	2.705 mm	.852	21.650 mm	(8x)	24.65 mm	.49 mm	3 mm	63 mm	V583703-X	152.50
	.1093 (7/64)		2.778 mm	.328	8.334 mm	(3x)	10.73 mm	.51 mm	3 mm	63 mm	V576449-X	66.00
	.1093 (7/64)		2.778 mm	.547	13.900 mm	(5x)	16.57 mm	.51 mm	3 mm	63 mm	V247870-X	86.50
	.1093 (7/64)		2.778 mm	.874	22.200 mm	(8x)	25.32 mm	.51 mm	3 mm	63 mm	V484388-X	152.50
NEW	.1100	#35	2.794 mm	.330	8.382 mm	(3x)	10.80 mm	.51 mm	3 mm	63 mm	V640258-X	66.00
	.1100	#35	2.794 mm	.549	13.950 mm	(5x)	16.66 mm	.51 mm	3 mm	63 mm	V958846-X	86.50
	.1100	#35	2.794 mm	.880	22.350 mm	(8x)	25.47 mm	.51 mm	3 mm	63 mm	V091377-X	152.50
	.1102		2.800 mm	.331	8.400 mm	(3x)	10.82 mm	.51 mm	3 mm	63 mm	V588125-X	66.00
	.1102		2.800 mm	.551	14.000 mm	(5x)	16.70 mm	.51 mm	3 mm	63 mm	V406948-X	86.50
	.1102		2.800 mm	.882	22.400 mm	(8x)	25.52 mm	.51 mm	3 mm	63 mm	V580945-X	152.50
	.1110	#34	2.819 mm	.333	8.457 mm	(3x)	10.89 mm	.51 mm	3 mm	63 mm	V136049-X	66.00
	.1110	#34	2.819 mm	.555	14.100 mm	(5x)	16.81 mm	.51 mm	3 mm	63 mm	V046228-X	86.50
NEW	.1110	#34	2.819 mm	.888	22.550 mm	(8x)	25.69 mm	.51 mm	3 mm	63 mm	V172103-X	152.50
NEW	.1130	#33	2.870 mm	.339	8.610 mm	(3x)	11.09 mm	.52 mm	3 mm	63 mm	V923830-X	66.00
	.1130	#33	2.870 mm	.565	14.350 mm	(5x)	17.12 mm	.52 mm	3 mm	63 mm	V625906-X	86.50
	.1130	#33	2.870 mm	.904	22.950 mm	(8x)	26.16 mm	.52 mm	3 mm	63 mm	V572915-X	152.50
	.1141		2.900 mm	.343	8.700 mm	(3x)	11.21 mm	.53 mm	3 mm	63 mm	V668976-X	66.00
	.1141		2.900 mm	.571	14.500 mm	(5x)	17.30 mm	.53 mm	3 mm	63 mm	V401097-X	86.50
	.1141		2.900 mm	.913	23.200 mm	(8x)	26.43 mm	.53 mm	3 mm	63 mm	V463539-X	152.50
	.1160	#32	2.946 mm	.348	8.838 mm	(3x)	11.38 mm	.54 mm	3 mm	63 mm	V693017-X	66.00
	.1160	#32	2.946 mm	.581	14.750 mm	(5x)	17.57 mm	.54 mm	3 mm	63 mm	V515243-X	86.50
NEW	.1160	#32	2.946 mm	.927	23.550 mm	(8x)	26.85 mm	.54 mm	3 mm	63 mm	V771859-X	152.50
NEW	.1181		3.000 mm	.354	9.000 mm	(3x)	11.59 mm	.55 mm	4 mm	63 mm	V644611-X	66.00
	.1181		3.000 mm	.591	15.000 mm	(5x)	17.89 mm	.55 mm	4 mm	63 mm	V801593-X	86.50
	.1181		3.000 mm	.945	24.000 mm	(8x)	27.34 mm	.55 mm	4 mm	75 mm	V457776-X	152.50
	.1200	#31	3.048 mm	.360	9.144 mm	(3x)	11.78 mm	.55 mm	4 mm	63 mm	V710810-X	66.00
	.1200	#31	3.048 mm	.600	15.250 mm	(5x)	18.18 mm	.55 mm	4 mm	63 mm	V659489-X	86.50
	.1200	#31	3.048 mm	.961	24.400 mm	(8x)	27.78 mm	.55 mm	4 mm	75 mm	V857218-X	152.50
	.1220		3.100 mm	.366	9.300 mm	(3x)	11.98 mm	.56 mm	4 mm	63 mm	V175641-X	66.00
	.1220		3.100 mm	.610	15.500 mm	(5x)	18.49 mm	.56 mm	4 mm	63 mm	V364491-X	86.50
NEW	.1220		3.100 mm	.976	24.800 mm	(8x)	28.25 mm	.56 mm	4 mm	75 mm	V220312-X	152.50
	.1250 (1/8)		3.175 mm	.375	9.525 mm	(3x)	12.27 mm	.58 mm	4 mm	63 mm	V316607-X	66.00

* For h6 and h8 tolerances, see page 8.

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
		D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
.1250 (1/8)		3.175 mm	.626	15.900 mm	(5x)	18.94 mm	.58 mm	4 mm	63 mm	V809756-X	86.50
.1250 (1/8)		3.175 mm	1.000	25.400 mm	(8x)	28.94 mm	.58 mm	4 mm	75 mm	V996102-X	152.50
.1260		3.200 mm	.378	9.600 mm	(3x)	12.37 mm	.58 mm	4 mm	63 mm	V070531-X	66.00
.1260		3.200 mm	.630	16.000 mm	(5x)	19.09 mm	.58 mm	4 mm	63 mm	V416396-X	86.50
.1260		3.200 mm	1.008	25.600 mm	(8x)	29.17 mm	.58 mm	4 mm	75 mm	V674784-X	152.50
.1285	#30	3.263 mm	.385	9.789 mm	(3x)	12.61 mm	.59 mm	4 mm	63 mm	V557446-X	66.00
.1285	#30	3.263 mm	.642	16.300 mm	(5x)	19.46 mm	.59 mm	4 mm	63 mm	V782008-X	86.50
.1285	#30	3.263 mm	1.028	26.100 mm	(8x)	29.74 mm	.59 mm	4 mm	75 mm	V059940-X	152.50
.1300		3.300 mm	.390	9.900 mm	(3x)	12.75 mm	.60 mm	4 mm	63 mm	V634310-X	66.00
.1300		3.300 mm	.650	16.500 mm	(5x)	19.68 mm	.60 mm	4 mm	63 mm	V512932-X	86.50
.1300		3.300 mm	1.039	26.400 mm	(8x)	30.08 mm	.60 mm	4 mm	75 mm	V397319-X	152.50
.1338		3.400 mm	.402	10.200 mm	(3x)	13.14 mm	.62 mm	4 mm	63 mm	V645727-X	66.00
.1338		3.400 mm	.669	17.000 mm	(5x)	20.28 mm	.62 mm	4 mm	63 mm	V618699-X	86.50
.1338		3.400 mm	1.071	27.200 mm	(8x)	30.99 mm	.62 mm	4 mm	75 mm	V677203-X	152.50
.1360	#29	3.454 mm	.408	10.362 mm	(3x)	13.35 mm	.63 mm	4 mm	63 mm	V756850-X	66.00
.1360	#29	3.454 mm	.679	17.250 mm	(5x)	20.60 mm	.63 mm	4 mm	63 mm	V031117-X	86.50
.1360	#29	3.454 mm	1.089	27.650 mm	(8x)	31.48 mm	.63 mm	4 mm	75 mm	V085811-X	152.50
.1377		3.500 mm	.413	10.500 mm	(3x)	13.53 mm	.64 mm	4 mm	63 mm	V471775-X	66.00
.1377		3.500 mm	.689	17.500 mm	(5x)	20.88 mm	.64 mm	4 mm	63 mm	V270510-X	86.50
.1377		3.500 mm	1.102	28.000 mm	(8x)	31.90 mm	.64 mm	4 mm	75 mm	V173165-X	152.50
.1406 (9/64)		3.571 mm	.422	10.713 mm	(3x)	13.80 mm	.65 mm	4 mm	63 mm	V300141-X	66.00
.1406 (9/64)		3.571 mm	.703	17.850 mm	(5x)	21.30 mm	.65 mm	4 mm	63 mm	V431644-X	86.50
.1406 (9/64)		3.571 mm	1.124	28.550 mm	(8x)	32.55 mm	.65 mm	4 mm	75 mm	V576472-X	152.50
.1417		3.600 mm	.425	10.800 mm	(3x)	13.91 mm	.66 mm	4 mm	63 mm	V419311-X	66.00
.1417		3.600 mm	.709	18.000 mm	(5x)	21.47 mm	.66 mm	4 mm	63 mm	V818634-X	86.50
.1417		3.600 mm	1.134	28.800 mm	(8x)	32.81 mm	.66 mm	4 mm	75 mm	V855115-X	152.50
.1440	#27	3.657 mm	.432	10.971 mm	(3x)	14.13 mm	.67 mm	4 mm	63 mm	V549363-X	66.00
.1440	#27	3.657 mm	.720	18.300 mm	(5x)	21.81 mm	.67 mm	4 mm	63 mm	V536160-X	86.50
.1440	#27	3.657 mm	1.152	29.250 mm	(8x)	33.33 mm	.67 mm	4 mm	75 mm	V172437-X	152.50
.1456		3.700 mm	.437	11.100 mm	(3x)	14.30 mm	.67 mm	4 mm	63 mm	V352105-X	66.00
.1456		3.700 mm	.728	18.500 mm	(5x)	22.07 mm	.67 mm	4 mm	63 mm	V800060-X	86.50
.1456		3.700 mm	1.165	29.600 mm	(8x)	33.72 mm	.67 mm	4 mm	75 mm	V947623-X	152.50
.1470	#26	3.733 mm	.441	11.199 mm	(3x)	14.43 mm	.68 mm	4 mm	63 mm	V937576-X	66.00
.1470	#26	3.733 mm	.734	18.650 mm	(5x)	22.27 mm	.68 mm	4 mm	63 mm	V189053-X	86.50
.1470	#26	3.733 mm	1.175	29.850 mm	(8x)	34.03 mm	.68 mm	4 mm	75 mm	V005838-X	152.50
.1495	#25	3.797 mm	.448	11.391 mm	(3x)	14.67 mm	.69 mm	4 mm	63 mm	V540669-X	66.00
.1495	#25	3.797 mm	.748	19.000 mm	(5x)	22.65 mm	.69 mm	4 mm	63 mm	V460246-X	86.50
.1495	#25	3.797 mm	1.197	30.400 mm	(8x)	34.61 mm	.69 mm	4 mm	75 mm	V954636-X	152.50

* For h6 and h8 tolerances, see page 8.

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	USD
NEW	.1496		3.800 mm	.449	11.400 mm	(3x)	14.69 mm	.69 mm	4 mm	63 mm	V639718-X	66.00
	.1496		3.800 mm	.748	19.000 mm	(5x)	22.67 mm	.69 mm	4 mm	63 mm	V598062-X	86.50
	.1496		3.800 mm	1.197	30.400 mm	(8x)	34.64 mm	.69 mm	4 mm	75 mm	V264988-X	152.50
	.1520	#24	3.860 mm	.456	11.580 mm	(3x)	14.92 mm	.70 mm	4 mm	63 mm	V977074-X	66.00
	.1520	#24	3.860 mm	.760	19.300 mm	(5x)	23.02 mm	.70 mm	4 mm	63 mm	V107747-X	86.50
	.1520	#24	3.860 mm	1.217	30.900 mm	(8x)	35.18 mm	.70 mm	4 mm	75 mm	V389130-X	152.50
	.1535		3.900 mm	.461	11.700 mm	(3x)	15.07 mm	.71 mm	4 mm	63 mm	V154062-X	66.00
	.1535		3.900 mm	.768	19.500 mm	(5x)	23.26 mm	.71 mm	4 mm	63 mm	V853122-X	86.50
	.1535		3.900 mm	1.228	31.200 mm	(8x)	35.55 mm	.71 mm	4 mm	75 mm	V704607-X	152.50
	.1540	#23	3.911 mm	.462	11.733 mm	(3x)	15.12 mm	.71 mm	4 mm	63 mm	V868199-X	66.00
NEW	.1540	#23	3.911 mm	.770	19.550 mm	(5x)	23.33 mm	.71 mm	4 mm	63 mm	V559415-X	86.50
	.1540	#23	3.911 mm	1.232	31.300 mm	(8x)	35.65 mm	.71 mm	4 mm	75 mm	V435041-X	152.50
	.1562 (5/32)		3.968 mm	.469	11.904 mm	(3x)	15.34 mm	.72 mm	4 mm	63 mm	V672559-X	66.00
	.1562 (5/32)		3.968 mm	.781	19.850 mm	(5x)	23.67 mm	.72 mm	4 mm	63 mm	V635360-X	86.50
NEW	.1562 (5/32)		3.968 mm	1.250	31.750 mm	(8x)	36.17 mm	.72 mm	4 mm	75 mm	V976984-X	152.50
	.1570	#22	3.987 mm	.471	11.961 mm	(3x)	15.41 mm	.73 mm	4 mm	63 mm	V255629-X	66.00
	.1570	#22	3.987 mm	.785	19.950 mm	(5x)	23.78 mm	.73 mm	4 mm	63 mm	V688450-X	86.50
	.1570	#22	3.987 mm	1.256	31.900 mm	(8x)	36.34 mm	.73 mm	4 mm	75 mm	V004777-X	152.50
	.1574		4.000 mm	.472	12.000 mm	(3x)	15.46 mm	.73 mm	6 mm	63 mm	V328975-X	66.00
	.1574		4.000 mm	.787	20.000 mm	(5x)	23.86 mm	.73 mm	6 mm	75 mm	V203097-X	86.50
NEW	.1574		4.000 mm	1.260	32.000 mm	(8x)	36.46 mm	.73 mm	6 mm	100 mm	V976894-X	152.50
	.1590	#21	4.038 mm	.477	12.114 mm	(3x)	15.61 mm	.73 mm	6 mm	63 mm	V366385-X	69.00
	.1590	#21	4.038 mm	.795	20.200 mm	(5x)	24.09 mm	.73 mm	6 mm	75 mm	V014463-X	94.50
	.1590	#21	4.038 mm	1.272	32.300 mm	(8x)	36.81 mm	.73 mm	6 mm	100 mm	V408150-X	156.50
	.1610	#20	4.089 mm	.483	12.267 mm	(3x)	15.80 mm	.74 mm	6 mm	63 mm	V347292-X	69.00
	.1610	#20	4.089 mm	.805	20.450 mm	(5x)	24.39 mm	.74 mm	6 mm	75 mm	V278069-X	94.50
NEW	.1610	#20	4.089 mm	1.287	32.700 mm	(8x)	37.27 mm	.74 mm	6 mm	100 mm	V775846-X	156.50
	.1614		4.100 mm	.484	12.300 mm	(3x)	15.85 mm	.75 mm	6 mm	63 mm	V901139-X	69.00
	.1614		4.100 mm	.807	20.500 mm	(5x)	24.46 mm	.75 mm	6 mm	75 mm	V123430-X	94.50
	.1614		4.100 mm	1.291	32.800 mm	(8x)	37.37 mm	.75 mm	6 mm	100 mm	V852607-X	156.50
	.1653		4.200 mm	.496	12.600 mm	(3x)	16.23 mm	.76 mm	6 mm	63 mm	V910836-X	69.00
	.1653		4.200 mm	.827	21.000 mm	(5x)	25.05 mm	.76 mm	6 mm	75 mm	V565742-X	94.50
NEW	.1653		4.200 mm	1.323	33.600 mm	(8x)	38.28 mm	.76 mm	6 mm	100 mm	V251176-X	156.50
	.1660	#19	4.216 mm	.498	12.648 mm	(3x)	16.29 mm	.77 mm	6 mm	63 mm	V405374-X	69.00
	.1660	#19	4.216 mm	.831	21.100 mm	(5x)	25.15 mm	.77 mm	6 mm	75 mm	V696277-X	94.50
	.1660	#19	4.216 mm	1.329	33.750 mm	(8x)	38.43 mm	.77 mm	6 mm	100 mm	V944965-X	156.50
	.1692		4.300 mm	.508	12.900 mm	(3x)	16.62 mm	.78 mm	6 mm	63 mm	V472643-X	69.00
	.1692		4.300 mm	.846	21.500 mm	(5x)	25.65 mm	.78 mm	6 mm	75 mm	V726600-X	94.50

* For h6 and h8 tolerances, see page 8.

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD
.1692		4.300 mm	1.354	34.400 mm	(8x)	39.19 mm	.78 mm	6 mm	100 mm	V898991-X	156.50
.1695	#18	4.305 mm	.508	12.915 mm	(3x)	16.64 mm	.78 mm	6 mm	63 mm	V492855-X	69.00
.1695	#18	4.305 mm	.846	21.500 mm	(5x)	25.68 mm	.78 mm	6 mm	75 mm	V029427-X	94.50
.1695	#18	4.305 mm	1.356	34.450 mm	(8x)	39.24 mm	.78 mm	6 mm	100 mm	V954357-X	156.50
.1718 (11/64)		4.365 mm	.516	13.095 mm	(3x)	16.87 mm	.79 mm	6 mm	63 mm	V600889-X	69.00
.1718 (11/64)		4.365 mm	.860	21.850 mm	(5x)	26.04 mm	.79 mm	6 mm	75 mm	V599958-X	94.50
.1718 (11/64)		4.365 mm	1.374	34.900 mm	(8x)	39.79 mm	.79 mm	6 mm	100 mm	V939471-X	156.50
.1730	#17	4.394 mm	.519	13.182 mm	(3x)	16.98 mm	.80 mm	6 mm	63 mm	V909391-X	69.00
.1730	#17	4.394 mm	.864	21.950 mm	(5x)	26.21 mm	.80 mm	6 mm	75 mm	V234239-X	94.50
.1730	#17	4.394 mm	1.384	35.150 mm	(8x)	40.05 mm	.80 mm	6 mm	100 mm	V350541-X	156.50
.1732		4.400 mm	.520	13.200 mm	(3x)	17.01 mm	.80 mm	6 mm	63 mm	V067636-X	69.00
.1732		4.400 mm	.866	22.000 mm	(5x)	26.25 mm	.80 mm	6 mm	75 mm	V910547-X	94.50
.1732		4.400 mm	1.386	35.200 mm	(8x)	40.11 mm	.80 mm	6 mm	100 mm	V336021-X	156.50
.1770	#16	4.495 mm	.531	13.485 mm	(3x)	17.37 mm	.82 mm	6 mm	63 mm	V632314-X	69.00
.1770	#16	4.495 mm	.886	22.500 mm	(5x)	26.81 mm	.82 mm	6 mm	75 mm	V121732-X	94.50
.1770	#16	4.495 mm	1.415	35.950 mm	(8x)	40.97 mm	.82 mm	6 mm	100 mm	V144216-X	156.50
.1771		4.500 mm	.531	13.500 mm	(3x)	17.39 mm	.82 mm	6 mm	63 mm	V634620-X	69.00
.1771		4.500 mm	.886	22.500 mm	(5x)	26.84 mm	.82 mm	6 mm	75 mm	V953328-X	94.50
.1771		4.500 mm	1.417	36.000 mm	(8x)	41.02 mm	.82 mm	6 mm	100 mm	V645357-X	156.50
.1800	#15	4.572 mm	.540	13.716 mm	(3x)	17.67 mm	.93 mm	6 mm	63 mm	V386258-X	69.00
.1800	#15	4.572 mm	.900	22.850 mm	(5x)	27.27 mm	.93 mm	6 mm	75 mm	V496542-X	94.50
.1800	#15	4.572 mm	1.441	36.600 mm	(8x)	41.67 mm	.93 mm	6 mm	100 mm	V627935-X	156.50
.1811		4.600 mm	.543	13.800 mm	(3x)	17.78 mm	.84 mm	6 mm	63 mm	V822175-X	69.00
.1811		4.600 mm	.906	23.000 mm	(5x)	27.44 mm	.84 mm	6 mm	75 mm	V522954-X	94.50
.1811		4.600 mm	1.449	36.800 mm	(8x)	41.93 mm	.84 mm	6 mm	100 mm	V696903-X	156.50
.1820	#14	4.622 mm	.546	13.866 mm	(3x)	17.86 mm	.84 mm	6 mm	63 mm	V872089-X	69.00
.1820	#14	4.622 mm	.909	23.100 mm	(5x)	27.57 mm	.84 mm	6 mm	75 mm	V062395-X	94.50
.1820	#14	4.622 mm	1.457	37.000 mm	(8x)	42.13 mm	.84 mm	6 mm	100 mm	V827400-X	156.50
.1850	#13	4.700 mm	.555	14.100 mm	(3x)	18.17 mm	.86 mm	6 mm	63 mm	V675595-X	69.00
.1850	#13	4.700 mm	.925	23.500 mm	(5x)	28.04 mm	.86 mm	6 mm	75 mm	V725949-X	94.50
.1850	#13	4.700 mm	1.480	37.600 mm	(8x)	42.84 mm	.86 mm	6 mm	100 mm	V572954-X	156.50
.1875 (3/16)		4.762 mm	.562	14.286 mm	(3x)	18.41 mm	.87 mm	6 mm	63 mm	V841193-X	69.00
.1875 (3/16)		4.762 mm	.937	23.800 mm	(5x)	28.41 mm	.87 mm	6 mm	75 mm	V897179-X	94.50
.1875 (3/16)		4.762 mm	1.500	38.100 mm	(8x)	43.41 mm	.87 mm	6 mm	100 mm	V900083-X	156.50
.1890	#12	4.800 mm	.567	14.400 mm	(3x)	18.55 mm	.87 mm	6 mm	63 mm	V456853-X	69.00
.1890	#12	4.800 mm	.945	24.000 mm	(5x)	28.63 mm	.87 mm	6 mm	75 mm	V787648-X	94.50
.1890	#12	4.800 mm	1.512	38.400 mm	(8x)	43.75 mm	.87 mm	6 mm	100 mm	V836739-X	156.50
.1910	#11	4.851 mm	.573	14.553 mm	(3x)	18.75 mm	.88 mm	6 mm	63 mm	V587966-X	69.00

* For h6 and h8 tolerances, see page 8.

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD
NEW	.1910	#11	4.851 mm	.955	24.250 mm	(5x)	28.94 mm	.88 mm	6 mm	75 mm	V732154-X	94.50
	.1910	#11	4.851 mm	1.528	38.800 mm	(8x)	44.22 mm	.88 mm	6 mm	100 mm	V793147-X	156.50
	.1930		4.900 mm	.579	14.700 mm	(3x)	18.94 mm	.89 mm	6 mm	63 mm	V973663-X	69.00
	.1930		4.900 mm	.965	24.500 mm	(5x)	29.23 mm	.89 mm	6 mm	75 mm	V709396-X	94.50
	.1930		4.900 mm	1.543	39.200 mm	(8x)	44.66 mm	.89 mm	6 mm	100 mm	V871826-X	156.50
NEW	.1935	#10	4.914 mm	.580	14.742 mm	(3x)	18.99 mm	.89 mm	6 mm	63 mm	V821519-X	69.00
	.1935	#10	4.914 mm	.967	24.550 mm	(5x)	29.31 mm	.89 mm	6 mm	75 mm	V884502-X	94.50
	.1935	#10	4.914 mm	1.547	39.300 mm	(8x)	44.79 mm	.89 mm	6 mm	100 mm	V928390-X	156.50
	.1960	#9	4.978 mm	.588	14.934 mm	(3x)	19.24 mm	.91 mm	6 mm	63 mm	V883543-X	69.00
	.1960	#9	4.978 mm	.980	24.900 mm	(5x)	29.69 mm	.91 mm	6 mm	75 mm	V382016-X	94.50
NEW	.1960	#9	4.978 mm	1.567	39.800 mm	(8x)	45.37 mm	.91 mm	6 mm	100 mm	V584304-X	156.50
	.1968		5.000 mm	.591	15.000 mm	(3x)	19.33 mm	.91 mm	6 mm	63 mm	V451900-X	69.00
	.1968		5.000 mm	.984	25.000 mm	(5x)	29.83 mm	.91 mm	6 mm	75 mm	V676356-X	94.50
	.1968		5.000 mm	1.575	40.000 mm	(8x)	45.58 mm	.91 mm	6 mm	100 mm	V826060-X	156.50
	.1990	#8	5.054 mm	.597	15.162 mm	(3x)	19.53 mm	.92 mm	6 mm	63 mm	V050407-X	72.50
NEW	.1990	#8	5.054 mm	.994	25.250 mm	(5x)	30.15 mm	.92 mm	6 mm	75 mm	V022248-X	98.00
	.1990	#8	5.054 mm	1.593	40.450 mm	(8x)	46.07 mm	.92 mm	6 mm	100 mm	V068185-X	156.50
	.2007		5.100 mm	.602	15.300 mm	(3x)	19.71 mm	.93 mm	6 mm	63 mm	V939681-X	72.50
	.2007		5.100 mm	1.004	25.500 mm	(5x)	30.42 mm	.93 mm	6 mm	75 mm	V123829-X	98.00
	.2007		5.100 mm	1.606	40.800 mm	(8x)	46.49 mm	.93 mm	6 mm	100 mm	V775217-X	156.50
NEW	.2009	#7	5.105 mm	.603	15.315 mm	(3x)	19.73 mm	.93 mm	6 mm	63 mm	V631504-X	72.50
	.2009	#7	5.105 mm	1.006	25.550 mm	(5x)	30.45 mm	.93 mm	6 mm	75 mm	V714773-X	98.00
	.2009	#7	5.105 mm	1.608	40.850 mm	(8x)	46.53 mm	.93 mm	6 mm	100 mm	V356504-X	156.50
	.2031 (13/64)		5.159 mm	.609	15.477 mm	(3x)	19.94 mm	.94 mm	6 mm	63 mm	V242343-X	72.50
	.2031 (13/64)		5.159 mm	1.016	25.800 mm	(5x)	30.77 mm	.94 mm	6 mm	75 mm	V709714-X	98.00
NEW	.2031 (13/64)		5.159 mm	1.624	41.250 mm	(8x)	47.02 mm	.94 mm	6 mm	100 mm	V486375-X	156.50
	.2040	#6	5.181 mm	.612	15.543 mm	(3x)	20.03 mm	.94 mm	6 mm	63 mm	V445382-X	72.50
	.2040	#6	5.181 mm	1.020	25.900 mm	(5x)	30.91 mm	.94 mm	6 mm	75 mm	V513806-X	98.00
	.2040	#6	5.181 mm	1.632	41.450 mm	(8x)	47.23 mm	.94 mm	6 mm	100 mm	V393842-X	156.50
	.2047		5.200 mm	.614	15.600 mm	(3x)	20.10 mm	.95 mm	6 mm	63 mm	V636675-X	72.50
NEW	.2047		5.200 mm	1.024	26.000 mm	(5x)	31.02 mm	.95 mm	6 mm	75 mm	V284483-X	98.00
	.2047		5.200 mm	1.638	41.600 mm	(8x)	47.40 mm	.95 mm	6 mm	100 mm	V489580-X	156.50
	.2055	#5	5.219 mm	.616	15.657 mm	(3x)	20.17 mm	.95 mm	6 mm	63 mm	V957318-X	72.50
	.2055	#5	5.219 mm	1.028	26.100 mm	(5x)	31.13 mm	.95 mm	6 mm	75 mm	V245286-X	98.00
	.2055	#5	5.219 mm	1.644	41.750 mm	(8x)	47.57 mm	.95 mm	6 mm	100 mm	V524323-X	156.50

* For h6 and h8 tolerances, see page 8.

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
		D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
.2086		5.300 mm	.626	15.900 mm	(3x)	20.49 mm	.96 mm	6 mm	63 mm	V439383-X	72.50
.2086		5.300 mm	1.043	26.500 mm	(5x)	31.62 mm	.96 mm	6 mm	75 mm	V505303-X	98.00
.2086		5.300 mm	1.669	42.400 mm	(8x)	48.31 mm	.96 mm	6 mm	100 mm	V397648-X	156.50
.2090	#4	5.308 mm	.627	15.924 mm	(3x)	20.52 mm	.97 mm	6 mm	63 mm	V135015-X	72.50
.2090	#4	5.308 mm	1.045	26.550 mm	(5x)	31.66 mm	.97 mm	6 mm	75 mm	V964340-X	98.00
.2090	#4	5.308 mm	1.671	42.450 mm	(8x)	48.38 mm	.97 mm	6 mm	100 mm	V052897-X	156.50
.2125		5.400 mm	.638	16.200 mm	(3x)	20.87 mm	.98 mm	6 mm	63 mm	V170867-X	72.50
.2125		5.400 mm	1.063	27.000 mm	(5x)	32.21 mm	.98 mm	6 mm	75 mm	V608241-X	98.00
.2125		5.400 mm	1.701	43.200 mm	(8x)	49.22 mm	.98 mm	6 mm	100 mm	V639671-X	156.50
.2129	#3	5.410 mm	.639	16.230 mm	(3x)	20.91 mm	.98 mm	6 mm	63 mm	V722985-X	72.50
.2129	#3	5.410 mm	1.065	27.050 mm	(5x)	32.27 mm	.98 mm	6 mm	75 mm	V074227-X	98.00
.2129	#3	5.410 mm	1.705	43.300 mm	(8x)	49.31 mm	.98 mm	6 mm	100 mm	V960981-X	156.50
.2165		5.500 mm	.650	16.500 mm	(3x)	21.26 mm	1.00 mm	6 mm	63 mm	V873400-X	72.50
.2165		5.500 mm	1.083	27.500 mm	(5x)	32.81 mm	1.00 mm	6 mm	75 mm	V563013-X	98.00
.2165		5.500 mm	1.732	44.000 mm	(8x)	50.13 mm	1.00 mm	6 mm	100 mm	V967384-X	156.50
.2187 (7/32)		5.556 mm	.656	16.668 mm	(3x)	21.47 mm	1.01 mm	6 mm	63 mm	V098917-X	72.50
.2187 (7/32)		5.556 mm	1.094	27.800 mm	(5x)	33.14 mm	1.01 mm	6 mm	75 mm	V435943-X	98.00
.2187 (7/32)		5.556 mm	1.750	44.450 mm	(8x)	50.64 mm	1.01 mm	6 mm	100 mm	V340002-X	156.50
.2205		5.600 mm	.661	16.800 mm	(3x)	21.65 mm	1.02 mm	6 mm	63 mm	V731025-X	72.50
.2205		5.600 mm	1.102	28.000 mm	(5x)	33.41 mm	1.02 mm	6 mm	75 mm	V687630-X	98.00
.2205		5.600 mm	1.764	44.800 mm	(8x)	51.05 mm	1.02 mm	6 mm	100 mm	V296219-X	156.50
.2210	#2	5.613 mm	.663	16.839 mm	(3x)	21.70 mm	1.02 mm	6 mm	63 mm	V167358-X	72.50
.2210	#2	5.613 mm	1.104	28.050 mm	(5x)	33.48 mm	1.02 mm	6 mm	75 mm	V152811-X	98.00
.2210	#2	5.613 mm	1.768	44.900 mm	(8x)	51.16 mm	1.02 mm	6 mm	100 mm	V264363-X	156.50
.2244		5.700 mm	.673	17.100 mm	(3x)	22.03 mm	1.04 mm	6 mm	63 mm	V389845-X	72.50
.2244		5.700 mm	1.122	28.500 mm	(5x)	34.00 mm	1.04 mm	6 mm	75 mm	V902097-X	98.00
.2244		5.700 mm	1.795	45.600 mm	(8x)	51.96 mm	1.04 mm	6 mm	100 mm	V190000-X	156.50
.2280	#1	5.791 mm	.684	17.373 mm	(3x)	22.38 mm	1.05 mm	6 mm	63 mm	V959913-X	72.50
.2280	#1	5.791 mm	1.140	28.950 mm	(5x)	34.54 mm	1.05 mm	6 mm	75 mm	V819899-X	98.00
.2280	#1	5.791 mm	1.825	46.350 mm	(8x)	52.79 mm	1.05 mm	6 mm	100 mm	V575829-X	156.50
.2283		5.800 mm	.685	17.400 mm	(3x)	22.42 mm	1.06 mm	6 mm	63 mm	V893357-X	72.50
.2283		5.800 mm	1.142	29.000 mm	(5x)	34.60 mm	1.06 mm	6 mm	75 mm	V860180-X	98.00
.2283		5.800 mm	1.827	46.400 mm	(8x)	52.87 mm	1.06 mm	6 mm	100 mm	V472294-X	156.50
.2322		5.900 mm	.697	17.700 mm	(3x)	22.80 mm	1.07 mm	6 mm	63 mm	V955966-X	72.50

* For h6 and h8 tolerances, see page 8.

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD
NEW	.2322		5.900 mm	1.161	29.500 mm	(5x)	35.19 mm	1.07 mm	6 mm	75 mm	V506705-X	98.00
	.2322		5.900 mm	1.858	47.200 mm	(8x)	53.78 mm	1.07 mm	6 mm	100 mm	V211763-X	156.50
	.2340	A	5.943 mm	.702	17.829 mm	(3x)	22.97 mm	1.08 mm	6 mm	63 mm	V846927-X	72.50
	.2340	A	5.943 mm	1.169	29.700 mm	(5x)	35.45 mm	1.08 mm	6 mm	75 mm	V982417-X	98.00
	.2340	A	5.943 mm	1.872	47.550 mm	(8x)	54.17 mm	1.08 mm	6 mm	100 mm	V804610-X	156.50
	.2343 (15/64)		5.953 mm	.703	17.859 mm	(3x)	23.01 mm	1.08 mm	6 mm	63 mm	V127445-X	72.50
	.2343 (15/64)		5.953 mm	1.171	29.750 mm	(5x)	35.51 mm	1.08 mm	6 mm	75 mm	V443731-X	98.00
	.2343 (15/64)		5.953 mm	1.874	47.600 mm	(8x)	54.26 mm	1.08 mm	6 mm	100 mm	V301658-X	156.50
	.2362		6.000 mm	.709	18.000 mm	(3x)	23.19 mm	1.09 mm	8 mm	75 mm	V215914-X	72.50
	.2362		6.000 mm	1.181	30.000 mm	(5x)	35.79 mm	1.09 mm	8 mm	100 mm	V316316-X	98.00
NEW	.2362		6.000 mm	1.890	48.000 mm	(8x)	54.69 mm	1.09 mm	8 mm	125 mm	V639871-X	156.50
	.2380	B	6.045 mm	.714	18.135 mm	(3x)	23.37 mm	1.10 mm	8 mm	75 mm	V506387-X	83.00
	.2380	B	6.045 mm	1.191	30.250 mm	(5x)	36.06 mm	1.10 mm	8 mm	100 mm	V244331-X	120.50
	.2380	B	6.045 mm	1.904	48.350 mm	(8x)	55.10 mm	1.10 mm	8 mm	125 mm	V554864-X	160.00
	.2401		6.100 mm	.720	18.300 mm	(3x)	23.58 mm	1.11 mm	8 mm	75 mm	V669465-X	83.00
	.2401		6.100 mm	1.201	30.500 mm	(5x)	36.39 mm	1.11 mm	8 mm	100 mm	V912503-X	120.50
	.2401		6.100 mm	1.921	48.800 mm	(8x)	55.60 mm	1.11 mm	8 mm	125 mm	V673335-X	160.00
	.2420	C	6.146 mm	.726	18.438 mm	(3x)	23.76 mm	1.12 mm	8 mm	75 mm	V292199-X	83.00
	.2420	C	6.146 mm	1.211	30.750 mm	(5x)	36.66 mm	1.12 mm	8 mm	100 mm	V957293-X	120.50
	.2420	C	6.146 mm	1.935	49.150 mm	(8x)	56.02 mm	1.12 mm	8 mm	125 mm	V277546-X	160.00
NEW	.2440		6.200 mm	.732	18.600 mm	(3x)	23.96 mm	1.13 mm	8 mm	75 mm	V511375-X	83.00
	.2440		6.200 mm	1.220	31.000 mm	(5x)	36.98 mm	1.13 mm	8 mm	100 mm	V898914-X	120.50
	.2440		6.200 mm	1.953	49.600 mm	(8x)	56.51 mm	1.13 mm	8 mm	125 mm	V252129-X	160.00
	.2460	D	6.248 mm	.738	18.744 mm	(3x)	24.15 mm	1.14 mm	8 mm	75 mm	V610152-X	83.00
	.2460	D	6.248 mm	1.230	31.250 mm	(5x)	37.27 mm	1.14 mm	8 mm	100 mm	V204745-X	120.50
	.2460	D	6.248 mm	1.969	50.000 mm	(8x)	56.95 mm	1.14 mm	8 mm	125 mm	V425968-X	160.00
	.2480		6.300 mm	.744	18.900 mm	(3x)	24.35 mm	1.15 mm	8 mm	75 mm	V485986-X	83.00
	.2480		6.300 mm	1.240	31.500 mm	(5x)	37.58 mm	1.15 mm	8 mm	100 mm	V361266-X	120.50
	.2480		6.300 mm	1.984	50.400 mm	(8x)	57.43 mm	1.15 mm	8 mm	125 mm	V948444-X	160.00
	.2500 (1/4)	E	6.350 mm	.750	19.050 mm	(3x)	24.54 mm	1.16 mm	8 mm	75 mm	V442981-X	83.00
NEW	.2500 (1/4)	E	6.350 mm	1.250	31.750 mm	(5x)	37.88 mm	1.16 mm	8 mm	100 mm	V596625-X	120.50
	.2500 (1/4)	E	6.350 mm	2.000	50.800 mm	(8x)	57.88 mm	1.16 mm	8 mm	125 mm	V471924-X	160.00
	.2520		6.400 mm	.756	19.200 mm	(3x)	24.74 mm	1.16 mm	8 mm	75 mm	V324632-X	83.00
	.2520		6.400 mm	1.260	32.000 mm	(5x)	38.18 mm	1.16 mm	8 mm	100 mm	V745398-X	120.50
	.2520		6.400 mm	2.016	51.200 mm	(8x)	58.34 mm	1.16 mm	8 mm	125 mm	V480804-X	160.00

* For h6 and h8 tolerances, see page 8.

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
		D1 (h8)*		L2		L3	L4	D2 (h6)*	L1	Tool #	\$USD
.2559		6.500 mm	.768	19.500 mm	(3x)	25.12 mm	1.18 mm	8 mm	75 mm	V590417-X	83.00
.2559		6.500 mm	1.280	32.500 mm	(5x)	38.77 mm	1.18 mm	8 mm	100 mm	V493400-X	120.50
.2559		6.500 mm	2.047	52.000 mm	(8x)	59.25 mm	1.18 mm	8 mm	125 mm	V486583-X	160.00
.2570	F	6.528 mm	.771	19.584 mm	(3x)	25.23 mm	1.19 mm	8 mm	75 mm	V818877-X	83.00
.2570	F	6.528 mm	1.285	32.650 mm	(5x)	38.94 mm	1.19 mm	8 mm	100 mm	V492822-X	120.50
.2570	F	6.528 mm	2.055	52.200 mm	(8x)	59.50 mm	1.19 mm	8 mm	125 mm	V183321-X	178.50
.2598		6.600 mm	.780	19.800 mm	(3x)	25.51 mm	1.20 mm	8 mm	75 mm	V713665-X	83.00
.2598		6.600 mm	1.299	33.000 mm	(5x)	39.37 mm	1.20 mm	8 mm	100 mm	V974827-X	120.50
.2598		6.600 mm	2.079	52.800 mm	(8x)	60.16 mm	1.20 mm	8 mm	125 mm	V348482-X	178.50
.2609	G	6.629 mm	.783	19.887 mm	(3x)	25.62 mm	1.21 mm	8 mm	75 mm	V986029-X	83.00
.2609	G	6.629 mm	1.305	33.150 mm	(5x)	39.54 mm	1.21 mm	8 mm	100 mm	V504791-X	120.50
.2609	G	6.629 mm	2.089	53.050 mm	(8x)	60.43 mm	1.21 mm	8 mm	125 mm	V512918-X	178.50
.2638		6.700 mm	.791	20.100 mm	(3x)	25.90 mm	1.22 mm	8 mm	75 mm	V530603-X	83.00
.2638		6.700 mm	1.319	33.500 mm	(5x)	39.97 mm	1.22 mm	8 mm	100 mm	V533319-X	120.50
.2638		6.700 mm	2.110	53.600 mm	(8x)	61.07 mm	1.22 mm	8 mm	125 mm	V354955-X	178.50
.2656 (17/64)		6.746 mm	.797	20.238 mm	(3x)	26.08 mm	1.23 mm	8 mm	75 mm	V759812-X	83.00
.2656 (17/64)		6.746 mm	1.329	33.750 mm	(5x)	40.24 mm	1.23 mm	8 mm	100 mm	V375598-X	120.50
.2656 (17/64)		6.746 mm	2.124	53.950 mm	(8x)	61.49 mm	1.23 mm	8 mm	125 mm	V286319-X	178.50
.2659	H	6.756 mm	.798	20.268 mm	(3x)	26.11 mm	1.23 mm	8 mm	75 mm	V392097-X	83.00
.2659	H	6.756 mm	1.331	33.800 mm	(5x)	40.30 mm	1.23 mm	8 mm	100 mm	V522067-X	120.50
.2659	H	6.756 mm	2.128	54.050 mm	(8x)	61.58 mm	1.23 mm	8 mm	125 mm	V460231-X	178.50
.2677		6.800 mm	.803	20.400 mm	(3x)	26.28 mm	1.24 mm	8 mm	75 mm	V572837-X	83.00
.2677		6.800 mm	1.339	34.000 mm	(5x)	40.56 mm	1.24 mm	8 mm	100 mm	V931711-X	120.50
.2677		6.800 mm	2.142	54.400 mm	(8x)	61.98 mm	1.24 mm	8 mm	125 mm	V685021-X	178.50
.2717		6.900 mm	.815	20.700 mm	(3x)	26.67 mm	1.26 mm	8 mm	75 mm	V711513-X	83.00
.2717		6.900 mm	1.358	34.500 mm	(5x)	41.16 mm	1.26 mm	8 mm	100 mm	V903976-X	120.50
.2717		6.900 mm	2.173	55.200 mm	(8x)	62.90 mm	1.26 mm	8 mm	125 mm	V577100-X	178.50
.2719	I	6.908 mm	.816	20.724 mm	(3x)	26.70 mm	1.26 mm	8 mm	75 mm	V262644-X	83.00
.2719	I	6.908 mm	1.360	34.550 mm	(5x)	41.21 mm	1.26 mm	8 mm	100 mm	V591145-X	120.50
.2719	I	6.908 mm	2.175	55.250 mm	(8x)	62.97 mm	1.26 mm	8 mm	125 mm	V886416-X	178.50
.2756		7.000 mm	.827	21.000 mm	(3x)	27.06 mm	1.27 mm	8 mm	75 mm	V026725-X	83.00
.2756		7.000 mm	1.378	35.000 mm	(5x)	41.76 mm	1.27 mm	8 mm	100 mm	V530079-X	120.50
.2756		7.000 mm	2.205	56.000 mm	(8x)	63.81 mm	1.27 mm	8 mm	125 mm	V914234-X	178.50
.2769	J	7.035 mm	.831	21.105 mm	(3x)	27.19 mm	1.28 mm	8 mm	75 mm	V601050-X	83.00
.2769	J	7.035 mm	1.384	35.150 mm	(5x)	41.97 mm	1.28 mm	8 mm	100 mm	V100940-X	120.50
.2769	J	7.035 mm	2.217	56.300 mm	(8x)	64.13 mm	1.28 mm	8 mm	125 mm	V583592-X	178.50
.2795		7.100 mm	.839	21.300 mm	(3x)	27.44 mm	1.29 mm	8 mm	75 mm	V032973-X	83.00
.2795		7.100 mm	1.398	35.500 mm	(5x)	42.35 mm	1.29 mm	8 mm	100 mm	V451380-X	120.50

* For h6 and h8 tolerances, see page 8.

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD
NEW	.2795		7.100 mm	2.236	56.800 mm	(8x)	64.72 mm	1.29 mm	8 mm	125 mm	V282100-X	178.50
	.2809	K	7.137 mm	.843	21.411 mm	(3x)	27.59 mm	1.30 mm	8 mm	75 mm	V281152-X	83.00
	.2809	K	7.137 mm	1.406	35.700 mm	(5x)	42.57 mm	1.30 mm	8 mm	100 mm	V476897-X	120.50
	.2809	K	7.137 mm	2.248	57.100 mm	(8x)	65.06 mm	1.30 mm	8 mm	125 mm	V092454-X	178.50
	.2812 (9/32)		7.142 mm	.844	21.426 mm	(3x)	27.61 mm	1.30 mm	8 mm	75 mm	V830347-X	83.00
	.2812 (9/32)		7.142 mm	1.406	35.700 mm	(5x)	42.60 mm	1.30 mm	8 mm	100 mm	V583258-X	120.50
	.2812 (9/32)		7.142 mm	2.250	57.150 mm	(8x)	65.10 mm	1.30 mm	8 mm	125 mm	V764606-X	178.50
	.2834		7.200 mm	.850	21.600 mm	(3x)	27.83 mm	1.31 mm	8 mm	75 mm	V913322-X	83.00
	.2834		7.200 mm	1.417	36.000 mm	(5x)	42.95 mm	1.31 mm	8 mm	100 mm	V258366-X	120.50
	.2834		7.200 mm	2.268	57.600 mm	(8x)	65.63 mm	1.31 mm	8 mm	125 mm	V215750-X	178.50
NEW	.2874		7.300 mm	.862	21.900 mm	(3x)	28.22 mm	1.33 mm	8 mm	75 mm	V210812-X	83.00
	.2874		7.300 mm	1.437	36.500 mm	(5x)	43.55 mm	1.33 mm	8 mm	100 mm	V684490-X	120.50
	.2874		7.300 mm	2.299	58.400 mm	(8x)	66.54 mm	1.33 mm	8 mm	125 mm	V446805-X	178.50
	.2900	L	7.366 mm	.870	22.098 mm	(3x)	28.47 mm	1.34 mm	8 mm	75 mm	V222594-X	83.00
	.2900	L	7.366 mm	1.451	36.850 mm	(5x)	43.94 mm	1.34 mm	8 mm	100 mm	V731426-X	120.50
	.2900	L	7.366 mm	2.321	58.950 mm	(8x)	67.14 mm	1.34 mm	8 mm	125 mm	V740071-X	178.50
	.2913		7.400 mm	.874	22.200 mm	(3x)	28.60 mm	1.35 mm	8 mm	75 mm	V771745-X	83.00
	.2913		7.400 mm	1.457	37.000 mm	(5x)	44.14 mm	1.35 mm	8 mm	100 mm	V391189-X	120.50
	.2913		7.400 mm	2.331	59.200 mm	(8x)	67.45 mm	1.35 mm	8 mm	125 mm	V568456-X	178.50
	.2950	M	7.493 mm	.885	22.479 mm	(3x)	28.96 mm	1.36 mm	8 mm	75 mm	V116607-X	83.00
NEW	.2950	M	7.493 mm	1.474	37.450 mm	(5x)	44.70 mm	1.36 mm	8 mm	100 mm	V893293-X	120.50
	.2950	M	7.493 mm	2.360	59.950 mm	(8x)	68.30 mm	1.36 mm	8 mm	125 mm	V179372-X	178.50
	.2952		7.500 mm	.886	22.500 mm	(3x)	28.99 mm	1.36 mm	8 mm	75 mm	V750188-X	83.00
	.2952		7.500 mm	1.476	37.500 mm	(5x)	44.74 mm	1.36 mm	8 mm	100 mm	V466533-X	120.50
	.2952		7.500 mm	2.362	60.000 mm	(8x)	68.37 mm	1.36 mm	8 mm	125 mm	V899537-X	178.50
	.2969 (19/64)		7.541 mm	.891	22.623 mm	(3x)	29.15 mm	1.37 mm	8 mm	75 mm	V862293-X	83.00
	.2969 (19/64)		7.541 mm	1.484	37.700 mm	(5x)	44.99 mm	1.37 mm	8 mm	100 mm	V130050-X	120.50
	.2969 (19/64)		7.541 mm	2.376	60.350 mm	(8x)	68.74 mm	1.37 mm	8 mm	125 mm	V555955-X	178.50
	.2992		7.600 mm	.898	22.800 mm	(3x)	29.38 mm	1.38 mm	8 mm	75 mm	V125895-X	83.00
	.2992		7.600 mm	1.496	38.000 mm	(5x)	45.34 mm	1.38 mm	8 mm	100 mm	V446731-X	120.50
NEW	.2992		7.600 mm	2.394	60.800 mm	(8x)	69.28 mm	1.38 mm	8 mm	125 mm	V473739-X	178.50
	.3020	N	7.671 mm	.906	23.013 mm	(3x)	29.65 mm	1.40 mm	8 mm	75 mm	V090928-X	83.00
	.3020	N	7.671 mm	1.510	38.350 mm	(5x)	45.76 mm	1.40 mm	8 mm	100 mm	V238434-X	120.50
	.3020	N	7.671 mm	2.415	61.350 mm	(8x)	69.92 mm	1.40 mm	8 mm	125 mm	V339843-X	178.50
	.3031		7.700 mm	.909	23.100 mm	(3x)	29.76 mm	1.40 mm	8 mm	75 mm	V193663-X	83.00
	.3031		7.700 mm	1.516	38.500 mm	(5x)	45.93 mm	1.40 mm	8 mm	100 mm	V623196-X	120.50
	.3031		7.700 mm	2.425	61.600 mm	(8x)	70.19 mm	1.40 mm	8 mm	125 mm	V597159-X	178.50
	.3071		7.800 mm	.921	23.400 mm	(3x)	30.15 mm	1.42 mm	8 mm	75 mm	V426305-X	83.00

* For h6 and h8 tolerances, see page 8.

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD
.3071		7.800 mm	1.535	39.000 mm	(5x)	46.53 mm	1.42 mm	8 mm	100 mm	V516266-X	120.50
.3071		7.800 mm	2.457	62.400 mm	(8x)	71.10 mm	1.42 mm	8 mm	125 mm	V980882-X	178.50
.3110		7.900 mm	.933	23.700 mm	(3x)	30.54 mm	1.44 mm	8 mm	75 mm	V714649-X	83.00
.3110		7.900 mm	1.555	39.500 mm	(5x)	47.13 mm	1.44 mm	8 mm	100 mm	V880723-X	120.50
.3110		7.900 mm	2.488	63.200 mm	(8x)	72.01 mm	1.44 mm	8 mm	125 mm	V592896-X	178.50
.3125 (5/16)		7.937 mm	.937	23.811 mm	(3x)	30.68 mm	1.44 mm	8 mm	75 mm	V524292-X	83.00
.3125 (5/16)		7.937 mm	1.563	39.700 mm	(5x)	47.35 mm	1.44 mm	8 mm	100 mm	V227077-X	120.50
.3125 (5/16)		7.937 mm	2.500	63.500 mm	(8x)	72.35 mm	1.44 mm	8 mm	125 mm	V284014-X	178.50
.3150		8.000 mm	.945	24.000 mm	(3x)	30.92 mm	1.46 mm	10 mm	75 mm	V448275-X	83.00
.3150		8.000 mm	1.575	40.000 mm	(5x)	47.72 mm	1.46 mm	10 mm	100 mm	V793102-X	120.50
.3150		8.000 mm	2.520	64.000 mm	(8x)	72.92 mm	1.46 mm	10 mm	125 mm	V543490-X	178.50
.3159	O	8.026 mm	.948	24.078 mm	(3x)	31.02 mm	1.46 mm	10 mm	75 mm	V714012-X	102.50
.3159	O	8.026 mm	1.581	40.150 mm	(5x)	47.88 mm	1.46 mm	10 mm	100 mm	V499875-X	146.00
.3159	O	8.026 mm	2.528	64.200 mm	(8x)	73.16 mm	1.46 mm	10 mm	125 mm	V475874-X	232.00
.3189		8.100 mm	.957	24.300 mm	(3x)	31.31 mm	1.47 mm	10 mm	75 mm	V523682-X	102.50
.3189		8.100 mm	1.594	40.500 mm	(5x)	48.32 mm	1.47 mm	10 mm	100 mm	V794819-X	146.00
.3189		8.100 mm	2.551	64.800 mm	(8x)	73.84 mm	1.47 mm	10 mm	125 mm	V558544-X	232.00
.3228		8.200 mm	.969	24.600 mm	(3x)	31.70 mm	1.49 mm	10 mm	75 mm	V929879-X	102.50
.3228		8.200 mm	1.614	41.000 mm	(5x)	48.92 mm	1.49 mm	10 mm	100 mm	V224541-X	146.00
.3228		8.200 mm	2.583	65.600 mm	(8x)	74.75 mm	1.49 mm	10 mm	125 mm	V791173-X	232.00
.3229	P	8.204 mm	.969	24.612 mm	(3x)	31.71 mm	1.49 mm	10 mm	75 mm	V285546-X	102.50
.3229	P	8.204 mm	1.614	41.000 mm	(5x)	48.94 mm	1.49 mm	10 mm	100 mm	V596005-X	146.00
.3229	P	8.204 mm	2.585	65.650 mm	(8x)	74.78 mm	1.49 mm	10 mm	125 mm	V667063-X	232.00
.3268		8.300 mm	.980	24.900 mm	(3x)	32.08 mm	1.51 mm	10 mm	75 mm	V398375-X	102.50
.3268		8.300 mm	1.634	41.500 mm	(5x)	49.51 mm	1.51 mm	10 mm	100 mm	V846287-X	146.00
.3268		8.300 mm	2.614	66.400 mm	(8x)	75.66 mm	1.51 mm	10 mm	125 mm	V847161-X	232.00
.3281 (21/64)		8.333 mm	.984	24.999 mm	(3x)	32.21 mm	1.52 mm	10 mm	75 mm	V929320-X	102.50
.3281 (21/64)		8.333 mm	1.640	41.650 mm	(5x)	49.71 mm	1.52 mm	10 mm	100 mm	V132654-X	146.00
.3281 (21/64)		8.333 mm	2.624	66.650 mm	(8x)	75.96 mm	1.52 mm	10 mm	125 mm	V837883-X	232.00
.3307		8.400 mm	.992	25.200 mm	(3x)	32.47 mm	1.53 mm	10 mm	75 mm	V744657-X	102.50
.3307		8.400 mm	1.654	42.000 mm	(5x)	50.11 mm	1.53 mm	10 mm	100 mm	V800950-X	146.00
.3307		8.400 mm	2.646	67.200 mm	(8x)	76.57 mm	1.53 mm	10 mm	125 mm	V429782-X	232.00
.3319	Q	8.432 mm	.996	25.296 mm	(3x)	32.59 mm	1.53 mm	10 mm	75 mm	V275821-X	102.50
.3319	Q	8.432 mm	1.659	42.150 mm	(5x)	50.30 mm	1.53 mm	10 mm	100 mm	V169793-X	146.00
.3319	Q	8.432 mm	2.656	67.450 mm	(8x)	76.86 mm	1.53 mm	10 mm	125 mm	V658721-X	232.00
.3346		8.500 mm	1.004	25.500 mm	(3x)	32.86 mm	1.55 mm	10 mm	75 mm	V360062-X	102.50
.3346		8.500 mm	1.673	42.500 mm	(5x)	50.71 mm	1.55 mm	10 mm	100 mm	V629626-X	146.00

* For h6 and h8 tolerances, see page 8.

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD
	.3346		8.500 mm	2.677	68.000 mm	(8x)	77.48 mm	1.55 mm	10 mm	125 mm	V365117-X	232.00
	.3386		8.600 mm	1.016	25.800 mm	(3x)	33.24 mm	1.57 mm	10 mm	75 mm	V964537-X	102.50
	.3386		8.600 mm	1.693	43.000 mm	(5x)	51.30 mm	1.57 mm	10 mm	100 mm	V934750-X	146.00
	.3386		8.600 mm	2.709	68.800 mm	(8x)	78.39 mm	1.57 mm	10 mm	125 mm	V672857-X	232.00
	.3389	R	8.610 mm	1.017	25.830 mm	(3x)	33.28 mm	1.57 mm	10 mm	75 mm	V977519-X	102.50
	.3389	R	8.610 mm	1.695	43.050 mm	(5x)	51.36 mm	1.57 mm	10 mm	100 mm	V267236-X	146.00
NEW	.3389	R	8.610 mm	2.713	68.900 mm	(8x)	78.48 mm	1.57 mm	10 mm	125 mm	V076800-X	232.00
	.3425		8.700 mm	1.028	26.100 mm	(3x)	33.63 mm	1.58 mm	10 mm	75 mm	V821625-X	102.50
	.3425		8.700 mm	1.713	43.500 mm	(5x)	51.90 mm	1.58 mm	10 mm	100 mm	V535214-X	146.00
	.3425		8.700 mm	2.740	69.600 mm	(8x)	79.30 mm	1.58 mm	10 mm	125 mm	V724736-X	232.00
	.3438 (11/32)		8.732 mm	1.031	26.196 mm	(3x)	33.75 mm	1.59 mm	10 mm	75 mm	V708182-X	102.50
	.3438 (11/32)		8.732 mm	1.719	43.650 mm	(5x)	52.09 mm	1.59 mm	10 mm	100 mm	V188406-X	146.00
	.3438 (11/32)		8.732 mm	2.750	69.850 mm	(8x)	79.60 mm	1.59 mm	10 mm	125 mm	V365910-X	232.00
	.3465		8.800 mm	1.039	26.400 mm	(3x)	34.02 mm	1.60 mm	10 mm	75 mm	V840409-X	102.50
	.3465		8.800 mm	1.732	44.000 mm	(5x)	52.50 mm	1.60 mm	10 mm	100 mm	V293144-X	146.00
	.3465		8.800 mm	2.772	70.400 mm	(8x)	80.22 mm	1.60 mm	10 mm	125 mm	V817884-X	232.00
	.3479	S	8.839 mm	1.044	26.517 mm	(3x)	34.17 mm	1.61 mm	10 mm	75 mm	V643544-X	102.50
	.3479	S	8.839 mm	1.740	44.200 mm	(5x)	52.73 mm	1.61 mm	10 mm	100 mm	V467117-X	146.00
NEW	.3479	S	8.839 mm	2.783	70.700 mm	(8x)	80.57 mm	1.61 mm	10 mm	125 mm	V561526-X	232.00
	.3504		8.900 mm	1.051	26.700 mm	(3x)	34.40 mm	1.62 mm	10 mm	75 mm	V025935-X	102.50
	.3504		8.900 mm	1.752	44.500 mm	(5x)	53.09 mm	1.62 mm	10 mm	100 mm	V818572-X	146.00
	.3504		8.900 mm	2.803	71.200 mm	(8x)	81.13 mm	1.62 mm	10 mm	150 mm	V648679-X	232.00
	.3543		9.000 mm	1.063	27.000 mm	(3x)	34.79 mm	1.64 mm	10 mm	75 mm	V406083-X	102.50
	.3543		9.000 mm	1.772	45.000 mm	(5x)	53.69 mm	1.64 mm	10 mm	100 mm	V936127-X	146.00
	.3543		9.000 mm	2.835	72.000 mm	(8x)	82.04 mm	1.64 mm	10 mm	150 mm	V150387-X	232.00
	.3579	T	9.093 mm	1.074	27.279 mm	(3x)	35.15 mm	1.65 mm	10 mm	75 mm	V737023-X	102.50
	.3579	T	9.093 mm	1.789	45.450 mm	(5x)	54.24 mm	1.65 mm	10 mm	100 mm	V693435-X	146.00
NEW	.3579	T	9.093 mm	2.864	72.750 mm	(8x)	82.89 mm	1.65 mm	10 mm	150 mm	V691532-X	232.00
	.3583		9.100 mm	1.075	27.300 mm	(3x)	35.18 mm	1.66 mm	10 mm	75 mm	V452355-X	102.50
	.3583		9.100 mm	1.791	45.500 mm	(5x)	54.29 mm	1.66 mm	10 mm	100 mm	V347102-X	146.00
	.3583		9.100 mm	2.866	72.800 mm	(8x)	82.95 mm	1.66 mm	10 mm	150 mm	V201118-X	232.00
	.3594 (23/64)		9.128 mm	1.078	27.384 mm	(3x)	35.28 mm	1.66 mm	10 mm	75 mm	V112137-X	102.50
	.3594 (23/64)		9.128 mm	1.797	45.650 mm	(5x)	54.45 mm	1.66 mm	10 mm	100 mm	V859797-X	146.00
	.3594 (23/64)		9.128 mm	2.874	73.000 mm	(8x)	83.21 mm	1.66 mm	10 mm	150 mm	V984555-X	232.00
	.3622		9.200 mm	1.087	27.600 mm	(3x)	35.56 mm	1.67 mm	10 mm	75 mm	V171898-X	102.50
	.3622		9.200 mm	1.811	46.000 mm	(5x)	54.88 mm	1.67 mm	10 mm	100 mm	V317969-X	146.00
	.3622		9.200 mm	2.898	73.600 mm	(8x)	83.86 mm	1.67 mm	10 mm	150 mm	V217215-X	232.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.3661		9.300 mm	1.098	27.900 mm	(3x)	35.95 mm	1.69 mm	10 mm	75 mm	V026241-X	102.50
.3661		9.300 mm	1.831	46.500 mm	(5x)	55.48 mm	1.69 mm	10 mm	100 mm	V400752-X	146.00
.3661		9.300 mm	2.929	74.400 mm	(8x)	84.77 mm	1.69 mm	10 mm	150 mm	V105289-X	232.00
.3679	U	9.347 mm	1.104	28.041 mm	(3x)	36.13 mm	1.70 mm	10 mm	75 mm	V703493-X	102.50
.3679	U	9.347 mm	1.841	46.750 mm	(5x)	55.76 mm	1.70 mm	10 mm	100 mm	V836040-X	146.00
.3679	U	9.347 mm	2.945	74.800 mm	(8x)	85.20 mm	1.70 mm	10 mm	150 mm	V346838-X	232.00
.3701		9.400 mm	1.110	28.200 mm	(3x)	36.34 mm	1.71 mm	10 mm	75 mm	V875360-X	102.50
.3701		9.400 mm	1.850	47.000 mm	(5x)	56.08 mm	1.71 mm	10 mm	100 mm	V220320-X	146.00
.3701		9.400 mm	2.961	75.200 mm	(8x)	85.69 mm	1.71 mm	10 mm	150 mm	V421207-X	232.00
.3740		9.500 mm	1.122	28.500 mm	(3x)	36.72 mm	1.73 mm	10 mm	75 mm	V362088-X	102.50
.3740		9.500 mm	1.870	47.500 mm	(5x)	56.67 mm	1.73 mm	10 mm	100 mm	V614370-X	146.00
.3740		9.500 mm	2.992	76.000 mm	(8x)	86.60 mm	1.73 mm	10 mm	150 mm	V888115-X	232.00
.3750 (3/8)		9.525 mm	1.125	28.575 mm	(3x)	36.82 mm	1.73 mm	10 mm	75 mm	V562756-X	102.50
.3750 (3/8)		9.525 mm	1.876	47.650 mm	(5x)	56.82 mm	1.73 mm	10 mm	100 mm	V527488-X	146.00
.3750 (3/8)		9.525 mm	3.000	76.200 mm	(8x)	86.83 mm	1.73 mm	10 mm	150 mm	V571908-X	232.00
.3770	V	9.575 mm	1.131	28.725 mm	(3x)	37.01 mm	1.74 mm	10 mm	75 mm	V781131-X	102.50
.3770	V	9.575 mm	1.886	47.900 mm	(5x)	57.12 mm	1.74 mm	10 mm	100 mm	V380969-X	146.00
.3770	V	9.575 mm	3.016	76.600 mm	(8x)	87.28 mm	1.74 mm	10 mm	150 mm	V569688-X	232.00
.3780		9.600 mm	1.134	28.800 mm	(3x)	37.11 mm	1.75 mm	10 mm	75 mm	V944108-X	115.00
.3780		9.600 mm	1.890	48.000 mm	(5x)	57.27 mm	1.75 mm	10 mm	100 mm	V602463-X	157.00
.3780		9.600 mm	3.024	76.800 mm	(8x)	87.51 mm	1.75 mm	10 mm	150 mm	V778318-X	232.00
.3819		9.700 mm	1.146	29.100 mm	(3x)	37.50 mm	1.77 mm	10 mm	75 mm	V962653-X	115.00
.3819		9.700 mm	1.909	48.500 mm	(5x)	57.87 mm	1.77 mm	10 mm	100 mm	V504675-X	157.00
.3819		9.700 mm	3.055	77.600 mm	(8x)	88.42 mm	1.77 mm	10 mm	150 mm	V739150-X	232.00
.3858		9.800 mm	1.157	29.400 mm	(3x)	37.88 mm	1.78 mm	10 mm	75 mm	V457838-X	115.00
.3858		9.800 mm	1.929	49.000 mm	(5x)	58.46 mm	1.78 mm	10 mm	100 mm	V803165-X	157.00
.3858		9.800 mm	3.087	78.400 mm	(8x)	89.33 mm	1.78 mm	10 mm	150 mm	V526907-X	232.00
.3859	W	9.804 mm	1.158	29.412 mm	(3x)	37.90 mm	1.78 mm	10 mm	75 mm	V495210-X	115.00
.3859	W	9.804 mm	1.929	49.000 mm	(5x)	58.49 mm	1.78 mm	10 mm	100 mm	V785975-X	157.00
.3859	W	9.804 mm	3.089	78.450 mm	(8x)	89.37 mm	1.78 mm	10 mm	150 mm	V668277-X	232.00
.3898		9.900 mm	1.169	29.700 mm	(3x)	38.27 mm	1.80 mm	10 mm	75 mm	V772972-X	115.00
.3898		9.900 mm	1.949	49.500 mm	(5x)	59.06 mm	1.80 mm	10 mm	100 mm	V162974-X	157.00
.3898		9.900 mm	3.118	79.200 mm	(8x)	90.24 mm	1.80 mm	10 mm	150 mm	V265965-X	232.00
.3906 (25/64)		9.921 mm	1.172	29.763 mm	(3x)	38.35 mm	1.81 mm	10 mm	75 mm	V555209-X	115.00
.3906 (25/64)		9.921 mm	1.953	49.600 mm	(5x)	59.18 mm	1.81 mm	10 mm	100 mm	V955537-X	157.00
.3906 (25/64)		9.921 mm	3.124	79.350 mm	(8x)	90.44 mm	1.81 mm	10 mm	150 mm	V598968-X	232.00
.3937		10.000 mm	1.181	30.000 mm	(3x)	38.66 mm	1.82 mm	12 mm	100 mm	V329143-X	130.50

* For h6 and h8 tolerances, see page 8.

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	USD
NEW	.3937		10.000 mm	1.969	50.000 mm	(5x)	59.66 mm	1.82 mm	12 mm	125 mm	V666168-X	157.00
	.3937		10.000 mm	3.150	80.000 mm	(8x)	91.16 mm	1.82 mm	12 mm	150 mm	V703861-X	232.00
	.3969	X	10.083 mm	1.191	30.249 mm	(3x)	38.98 mm	1.82 mm	12 mm	100 mm	V196241-X	139.00
	.3969	X	10.083 mm	1.984	50.400 mm	(5x)	60.15 mm	1.82 mm	12 mm	125 mm	V205577-X	202.00
	.3969	X	10.083 mm	3.175	80.650 mm	(8x)	91.91 mm	1.82 mm	12 mm	150 mm	V059986-X	310.00
	.3976		10.100 mm	1.193	30.300 mm	(3x)	39.04 mm	1.84 mm	12 mm	100 mm	V013421-X	139.00
	.3976		10.100 mm	1.988	50.500 mm	(5x)	60.25 mm	1.84 mm	12 mm	125 mm	V556342-X	202.00
	.3976		10.100 mm	3.181	80.800 mm	(8x)	92.07 mm	1.84 mm	12 mm	150 mm	V268015-X	310.00
	.4016		10.200 mm	1.205	30.600 mm	(3x)	39.43 mm	1.86 mm	12 mm	100 mm	V449574-X	139.00
	.4016		10.200 mm	2.008	51.000 mm	(5x)	60.85 mm	1.86 mm	12 mm	125 mm	V239429-X	202.00
NEW	.4016		10.200 mm	3.213	81.600 mm	(8x)	92.98 mm	1.86 mm	12 mm	150 mm	V358630-X	310.00
	.4039	Y	10.261 mm	1.212	30.783 mm	(3x)	39.66 mm	1.87 mm	12 mm	100 mm	V470957-X	139.00
	.4039	Y	10.261 mm	2.020	51.300 mm	(5x)	61.21 mm	1.87 mm	12 mm	125 mm	V272231-X	202.00
	.4039	Y	10.261 mm	3.232	82.100 mm	(8x)	93.54 mm	1.87 mm	12 mm	150 mm	V587312-X	310.00
	.4055		10.300 mm	1.217	30.900 mm	(3x)	39.82 mm	1.87 mm	12 mm	100 mm	V560875-X	139.00
	.4055		10.300 mm	2.028	51.500 mm	(5x)	61.45 mm	1.87 mm	12 mm	125 mm	V795138-X	202.00
	.4055		10.300 mm	3.244	82.400 mm	(8x)	93.89 mm	1.87 mm	12 mm	150 mm	V932200-X	310.00
	.4062 (13/32)		10.317 mm	1.219	30.951 mm	(3x)	39.88 mm	1.88 mm	12 mm	100 mm	V187401-X	139.00
	.4062 (13/32)		10.317 mm	2.031	51.600 mm	(5x)	61.55 mm	1.88 mm	12 mm	125 mm	V193040-X	202.00
	.4062 (13/32)		10.317 mm	3.250	82.550 mm	(8x)	94.05 mm	1.88 mm	12 mm	150 mm	V880263-X	310.00
NEW	.4094		10.400 mm	1.228	31.200 mm	(3x)	40.20 mm	1.89 mm	12 mm	100 mm	V328386-X	139.00
	.4094		10.400 mm	2.047	52.000 mm	(5x)	62.04 mm	1.89 mm	12 mm	125 mm	V455264-X	202.00
	.4094		10.400 mm	3.276	83.200 mm	(8x)	94.80 mm	1.89 mm	12 mm	150 mm	V403117-X	310.00
	.4129	Z	10.490 mm	1.239	31.470 mm	(3x)	40.55 mm	1.91 mm	12 mm	100 mm	V464183-X	139.00
	.4129	Z	10.490 mm	2.065	52.450 mm	(5x)	62.58 mm	1.91 mm	12 mm	125 mm	V455635-X	202.00
	.4129	Z	10.490 mm	3.303	83.900 mm	(8x)	95.62 mm	1.91 mm	12 mm	150 mm	V184872-X	310.00
	.4134		10.500 mm	1.240	31.500 mm	(3x)	40.59 mm	1.91 mm	12 mm	100 mm	V660047-X	139.00
	.4134		10.500 mm	2.067	52.500 mm	(5x)	62.64 mm	1.91 mm	12 mm	125 mm	V720867-X	202.00
	.4134		10.500 mm	3.307	84.000 mm	(8x)	95.71 mm	1.91 mm	12 mm	150 mm	V789723-X	310.00
	.4173		10.600 mm	1.252	31.800 mm	(3x)	40.98 mm	1.93 mm	12 mm	100 mm	V774128-X	139.00
	.4173		10.600 mm	2.087	53.000 mm	(5x)	63.24 mm	1.93 mm	12 mm	125 mm	V799193-X	202.00
	.4173		10.600 mm	3.339	84.800 mm	(8x)	96.63 mm	1.93 mm	12 mm	150 mm	V713139-X	310.00
	.4213		10.700 mm	1.264	32.100 mm	(3x)	41.36 mm	1.95 mm	12 mm	100 mm	V280227-X	139.00
	.4213		10.700 mm	2.106	53.500 mm	(5x)	63.83 mm	1.95 mm	12 mm	125 mm	V146857-X	202.00
	.4213		10.700 mm	3.370	85.600 mm	(8x)	97.54 mm	1.95 mm	12 mm	150 mm	V786898-X	310.00
	.4219 (27/64)		10.716 mm	1.266	32.148 mm	(3x)	41.42 mm	1.95 mm	12 mm	100 mm	V368628-X	139.00
	.4219 (27/64)		10.716 mm	2.110	53.600 mm	(5x)	63.93 mm	1.95 mm	12 mm	125 mm	V399606-X	202.00

* For h6 and h8 tolerances, see page 8.

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Drill Diameter		Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire metric	inch	metric	hole depth						
D ₁ (h8)*		L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.4219 (27/64)	10.716 mm	3.376	85.750 mm	(8x)	97.68 mm	1.95 mm	12 mm	150 mm	V248975-X	310.00
.4252	10.800 mm	1.276	32.400 mm	(3x)	41.75 mm	1.97 mm	12 mm	100 mm	V839268-X	139.00
.4252	10.800 mm	2.126	54.000 mm	(5x)	64.43 mm	1.97 mm	12 mm	125 mm	V422061-X	202.00
.4252	10.800 mm	3.402	86.400 mm	(8x)	98.45 mm	1.97 mm	12 mm	150 mm	V195955-X	310.00
.4291	10.900 mm	1.287	32.700 mm	(3x)	42.14 mm	1.98 mm	12 mm	100 mm	V848164-X	139.00
.4291	10.900 mm	2.146	54.500 mm	(5x)	65.03 mm	1.98 mm	12 mm	125 mm	V540329-X	202.00
.4291	10.900 mm	3.433	87.200 mm	(8x)	99.36 mm	1.98 mm	12 mm	175 mm	V876962-X	310.00
.4331	11.000 mm	1.299	33.000 mm	(3x)	42.52 mm	2.00 mm	12 mm	100 mm	V290969-X	139.00
.4331	11.000 mm	2.165	55.000 mm	(5x)	65.62 mm	2.00 mm	12 mm	125 mm	V343592-X	202.00
.4331	11.000 mm	3.465	88.000 mm	(8x)	100.27 mm	2.00 mm	12 mm	175 mm	V899093-X	310.00
.4370	11.100 mm	1.311	33.300 mm	(3x)	42.91 mm	2.02 mm	12 mm	100 mm	V814990-X	139.00
.4370	11.100 mm	2.185	55.500 mm	(5x)	66.22 mm	2.02 mm	12 mm	125 mm	V352322-X	202.00
.4370	11.100 mm	3.496	88.800 mm	(8x)	101.18 mm	2.02 mm	12 mm	175 mm	V760218-X	310.00
.4375 (7/16)	11.112 mm	1.312	33.336 mm	(3x)	42.95 mm	2.02 mm	12 mm	100 mm	V246600-X	139.00
.4375 (7/16)	11.112 mm	2.187	55.550 mm	(5x)	66.29 mm	2.02 mm	12 mm	125 mm	V845356-X	202.00
.4375 (7/16)	11.112 mm	3.500	88.900 mm	(8x)	101.29 mm	2.02 mm	12 mm	175 mm	V439028-X	310.00
.4409	11.200 mm	1.323	33.600 mm	(3x)	43.30 mm	2.04 mm	12 mm	100 mm	V087942-X	139.00
.4409	11.200 mm	2.205	56.000 mm	(5x)	66.82 mm	2.04 mm	12 mm	125 mm	V543395-X	202.00
.4409	11.200 mm	3.528	89.600 mm	(8x)	102.10 mm	2.04 mm	12 mm	175 mm	V275937-X	310.00
.4449	11.300 mm	1.335	33.900 mm	(3x)	43.68 mm	2.06 mm	12 mm	100 mm	V195640-X	139.00
.4449	11.300 mm	2.224	56.500 mm	(5x)	67.41 mm	2.06 mm	12 mm	125 mm	V274775-X	202.00
.4449	11.300 mm	3.559	90.400 mm	(8x)	103.01 mm	2.06 mm	12 mm	175 mm	V718898-X	310.00
.4488	11.400 mm	1.346	34.200 mm	(3x)	44.07 mm	2.07 mm	12 mm	100 mm	V678248-X	139.00
.4488	11.400 mm	2.244	57.000 mm	(5x)	68.01 mm	2.07 mm	12 mm	125 mm	V212694-X	202.00
.4488	11.400 mm	3.591	91.200 mm	(8x)	103.92 mm	2.07 mm	12 mm	175 mm	V700150-X	310.00
.4527	11.500 mm	1.358	34.500 mm	(3x)	44.45 mm	2.09 mm	12 mm	100 mm	V477127-X	139.00
.4527	11.500 mm	2.264	57.500 mm	(5x)	68.60 mm	2.09 mm	12 mm	125 mm	V711465-X	202.00
.4527	11.500 mm	3.622	92.000 mm	(8x)	104.83 mm	2.09 mm	12 mm	175 mm	V356032-X	310.00
.4531 (29/64)	11.508 mm	1.359	34.524 mm	(3x)	44.49 mm	2.09 mm	12 mm	100 mm	V275043-X	139.00
.4531 (29/64)	11.508 mm	2.266	57.550 mm	(5x)	68.65 mm	2.09 mm	12 mm	125 mm	V353391-X	202.00
.4531 (29/64)	11.508 mm	3.624	92.050 mm	(8x)	104.90 mm	2.09 mm	12 mm	175 mm	V409601-X	310.00
.4567	11.600 mm	1.370	34.800 mm	(3x)	44.84 mm	2.11 mm	12 mm	100 mm	V364920-X	139.00
.4567	11.600 mm	2.283	58.000 mm	(5x)	69.20 mm	2.11 mm	12 mm	125 mm	V646698-X	202.00
.4567	11.600 mm	3.654	92.800 mm	(8x)	105.74 mm	2.11 mm	12 mm	175 mm	V865206-X	310.00
.4606	11.700 mm	1.382	35.100 mm	(3x)	45.23 mm	2.13 mm	12 mm	100 mm	V958776-X	139.00
.4606	11.700 mm	2.303	58.500 mm	(5x)	69.80 mm	2.13 mm	12 mm	125 mm	V847917-X	202.00
.4606	11.700 mm	3.685	93.600 mm	(8x)	106.65 mm	2.13 mm	12 mm	175 mm	V559316-X	310.00

* For h6 and h8 tolerances, see page 8.

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.4646		11.800 mm	1.394	35.400 mm	(3x)	45.61 mm	2.15 mm	12 mm	100 mm	V019498-X	139.00
.4646		11.800 mm	2.323	59.000 mm	(5x)	70.39 mm	2.15 mm	12 mm	125 mm	V925309-X	202.00
.4646		11.800 mm	3.717	94.400 mm	(8x)	107.56 mm	2.15 mm	12 mm	175 mm	V336564-X	310.00
.4685		11.900 mm	1.406	35.700 mm	(3x)	46.00 mm	2.17 mm	12 mm	100 mm	V042932-X	139.00
.4685		11.900 mm	2.343	59.500 mm	(5x)	70.99 mm	2.17 mm	12 mm	125 mm	V168544-X	202.00
.4685		11.900 mm	3.748	95.200 mm	(8x)	108.48 mm	2.17 mm	12 mm	175 mm	V985664-X	310.00
.4688 (15/32)		11.907 mm	1.406	35.721 mm	(3x)	46.03 mm	2.17 mm	12 mm	100 mm	V344361-X	139.00
.4688 (15/32)		11.907 mm	2.344	59.550 mm	(5x)	71.03 mm	2.17 mm	12 mm	125 mm	V798383-X	202.00
.4688 (15/32)		11.907 mm	3.750	95.250 mm	(8x)	108.54 mm	2.17 mm	12 mm	175 mm	V603519-X	310.00
.4724		12.000 mm	1.417	36.000 mm	(3x)	46.39 mm	2.18 mm	14 mm	100 mm	V798303-X	139.00
.4724		12.000 mm	2.362	60.000 mm	(5x)	71.59 mm	2.18 mm	14 mm	125 mm	V282193-X	202.00
.4724		12.000 mm	3.780	96.000 mm	(8x)	109.39 mm	2.18 mm	14 mm	175 mm	V588339-X	310.00
.4764		12.100 mm	1.429	36.300 mm	(3x)	46.77 mm	2.20 mm	14 mm	100 mm	V420975-X	193.50
.4764		12.100 mm	2.382	60.500 mm	(5x)	72.18 mm	2.20 mm	14 mm	125 mm	V165416-X	266.50
.4764		12.100 mm	3.811	96.800 mm	(8x)	110.30 mm	2.20 mm	14 mm	175 mm	V611187-X	317.50
.4803		12.200 mm	1.441	36.600 mm	(3x)	47.16 mm	2.22 mm	14 mm	100 mm	V273123-X	193.50
.4803		12.200 mm	2.402	61.000 mm	(5x)	72.78 mm	2.22 mm	14 mm	125 mm	V499243-X	266.50
.4803		12.200 mm	3.843	97.600 mm	(8x)	111.21 mm	2.22 mm	14 mm	175 mm	V556731-X	317.50
.4843		12.300 mm	1.453	36.900 mm	(3x)	47.55 mm	2.24 mm	14 mm	100 mm	V670943-X	193.50
.4843		12.300 mm	2.421	61.500 mm	(5x)	73.38 mm	2.24 mm	14 mm	125 mm	V606643-X	266.50
.4843		12.300 mm	3.874	98.400 mm	(8x)	112.12 mm	2.24 mm	14 mm	175 mm	V449949-X	317.50
.4883 (31/64)		12.400 mm	1.465	37.200 mm	(3x)	47.93 mm	2.26 mm	14 mm	100 mm	V650447-X	193.50
.4883 (31/64)		12.400 mm	2.441	62.000 mm	(5x)	73.97 mm	2.26 mm	14 mm	125 mm	V619843-X	266.50
.4883 (31/64)		12.400 mm	3.906	99.200 mm	(8x)	113.03 mm	2.26 mm	14 mm	175 mm	V558340-X	317.50
.4921		12.500 mm	1.476	37.500 mm	(3x)	48.32 mm	2.27 mm	14 mm	100 mm	V635580-X	193.50
.4921		12.500 mm	2.461	62.500 mm	(5x)	74.57 mm	2.27 mm	14 mm	125 mm	V436056-X	266.50
.4921		12.500 mm	3.937	100.000 mm	(8x)	113.95 mm	2.27 mm	14 mm	175 mm	V744710-X	317.50
.4961		12.600 mm	1.488	37.800 mm	(3x)	48.71 mm	2.29 mm	14 mm	100 mm	V111256-X	193.50
.4961		12.600 mm	2.480	63.000 mm	(5x)	75.17 mm	2.29 mm	14 mm	125 mm	V509952-X	266.50
.4961		12.600 mm	3.969	100.800 mm	(8x)	114.86 mm	2.29 mm	14 mm	175 mm	V520602-X	317.50
.5000 (1/2)		12.700 mm	1.500	38.100 mm	(3x)	49.09 mm	2.31 mm	14 mm	100 mm	V199293-X	193.50
.5000 (1/2)		12.700 mm	2.500	63.500 mm	(5x)	75.76 mm	2.31 mm	14 mm	125 mm	V838117-X	266.50
.5000 (1/2)		12.700 mm	4.000	101.600 mm	(8x)	115.77 mm	2.31 mm	14 mm	175 mm	V188335-X	317.50

* For h6 and h8 tolerances, see page 8.





High Performance Drills

For Steels – Pilot Drills



Optimal for Piloting
When Drilling 8xD
and Deeper

Exceptional Performance in Ferrous Materials

- Optimized for best-in-class performance in 4140 Steel with superior performance in a wide variety of Steels and other Alloy Steels
- 140° point angle with 4-flute geometry for improved self-centering
- +0.005mm / +0.013mm (+0.0002" / +0.0005") Custom tolerance suitable for piloting when drilling 8xD or greater
- h6 shank tolerance for high precision tool holders
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth					Tool #	\$USD
D ₁ ^{+0.005mm} / _{+0.013mm}			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁		
.0625 (1/16)		1.587 mm	.187	4.764 mm	(3x)	6.328 mm	.289 mm	3 mm	63 mm	V149026-X	69.20
.0630		1.600 mm	.188	4.800 mm	(3x)	6.376 mm	.291 mm	3 mm	63 mm	V274283-X	69.20
.0635	#52	1.612 mm	.190	4.836 mm	(3x)	6.424 mm	.293 mm	3 mm	63 mm	V662146-X	69.20
.0669	#51	1.700 mm	.200	5.100 mm	(3x)	6.780 mm	.309 mm	3 mm	63 mm	V330705-X	69.20
.0700	#50	1.778 mm	.209	5.334 mm	(3x)	7.098 mm	.324 mm	3 mm	63 mm	V114888-X	69.20
.0708		1.800 mm	.212	5.400 mm	(3x)	7.187 mm	.328 mm	3 mm	63 mm	V657393-X	69.20
.0730	#49	1.854 mm	.218	5.562 mm	(3x)	7.404 mm	.337 mm	3 mm	63 mm	V684188-X	69.20
.0748		1.900 mm	.224	5.700 mm	(3x)	7.591 mm	.346 mm	3 mm	63 mm	V532377-X	69.20
.0760	#48	1.930 mm	.227	5.790 mm	(3x)	7.712 mm	.351 mm	3 mm	63 mm	V274788-X	69.20
.0781 (5/64)		1.984 mm	.233	5.953 mm	(3x)	7.932 mm	.361 mm	3 mm	63 mm	V309594-X	69.20
.0785	#47	1.993 mm	.234	5.979 mm	(3x)	7.968 mm	.363 mm	3 mm	63 mm	V582371-X	69.20
.0787		2.000 mm	.235	6.000 mm	(3x)	7.996 mm	.364 mm	3 mm	63 mm	V899736-X	69.20
.0810	#46	2.057 mm	.242	6.171 mm	(3x)	8.226 mm	.374 mm	3 mm	63 mm	V807118-X	69.20
.0820	#45	2.082 mm	.245	6.246 mm	(3x)	8.328 mm	.379 mm	3 mm	63 mm	V946607-X	69.20
.0826		2.100 mm	.247	6.300 mm	(3x)	8.400 mm	.382 mm	3 mm	63 mm	V189212-X	69.20
.0860	#44	2.184 mm	.257	6.552 mm	(3x)	8.740 mm	.397 mm	3 mm	63 mm	V739067-X	69.20
.0866		2.200 mm	.259	6.600 mm	(3x)	8.805 mm	.400 mm	3 mm	63 mm	V002340-X	69.20
.0890	#43	2.260 mm	.266	6.780 mm	(3x)	9.048 mm	.411 mm	3 mm	63 mm	V567872-X	69.20
.0905		2.300 mm	.271	6.900 mm	(3x)	9.211 mm	.419 mm	3 mm	63 mm	V479092-X	69.20
.0935	#42	2.374 mm	.279	7.122 mm	(3x)	9.510 mm	.432 mm	3 mm	63 mm	V897002-X	69.20

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High Performance Drills

For Steels – Pilot Drills (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth					Tool #	\$USD
		D ₁ ^{+0.005mm} ^{+0.013mm}		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁		
.0937 (3/32)		2.381 mm	.280	7.143 mm	(3x)	9.537 mm	.433 mm	3 mm	63 mm	V774530-X	69.20
.0944		2.400 mm	.282	7.200 mm	(3x)	9.615 mm	.437 mm	3 mm	63 mm	V139643-X	69.20
.0960	#41	2.438 mm	.287	7.314 mm	(3x)	9.769 mm	.444 mm	3 mm	63 mm	V155788-X	69.20
.0980	#40	2.489 mm	.293	7.467 mm	(3x)	9.975 mm	.453 mm	3 mm	63 mm	V357710-X	69.20
.0984		2.500 mm	.294	7.500 mm	(3x)	10.020 mm	.455 mm	3 mm	63 mm	V579507-X	69.20
.0995	#39	2.527 mm	.297	7.581 mm	(3x)	10.129 mm	.460 mm	3 mm	63 mm	V835105-X	69.20
.1015	#38	2.578 mm	.303	7.734 mm	(3x)	10.335 mm	.469 mm	3 mm	63 mm	V916727-X	69.20
.1023		2.600 mm	.306	7.800 mm	(3x)	10.424 mm	.473 mm	3 mm	63 mm	V691916-X	69.20
.1040	#37	2.641 mm	.311	7.923 mm	(3x)	10.591 mm	.481 mm	3 mm	63 mm	V009903-X	69.20
.1062		2.700 mm	.318	8.100 mm	(3x)	10.829 mm	.491 mm	3 mm	63 mm	V023238-X	69.20
.1065	#36	2.705 mm	.318	8.115 mm	(3x)	10.849 mm	.492 mm	3 mm	63 mm	V158513-X	69.20
.1093 (7/64)		2.778 mm	.327	8.334 mm	(3x)	11.146 mm	.506 mm	3 mm	63 mm	V929099-X	69.20
.1100	#35	2.794 mm	.329	8.382 mm	(3x)	11.209 mm	.508 mm	3 mm	63 mm	V442348-X	69.20
.1102		2.800 mm	.330	8.400 mm	(3x)	11.235 mm	.510 mm	3 mm	63 mm	V582954-X	69.20
.1110	#34	2.819 mm	.332	8.457 mm	(3x)	11.311 mm	.513 mm	3 mm	63 mm	V074192-X	69.20
.1130	#33	2.870 mm	.338	8.610 mm	(3x)	11.517 mm	.522 mm	3 mm	63 mm	V748353-X	69.20
.1141		2.900 mm	.341	8.700 mm	(3x)	11.639 mm	.528 mm	3 mm	63 mm	V591287-X	69.20
.1160	#32	2.946 mm	.347	8.838 mm	(3x)	11.825 mm	.536 mm	3 mm	63 mm	V529240-X	69.20
.1181		3.000 mm	.353	9.000 mm	(3x)	12.044 mm	.546 mm	4 mm	63 mm	V907892-X	69.20
.1200	#31	3.048 mm	.359	9.144 mm	(3x)	12.239 mm	.555 mm	4 mm	63 mm	V452777-X	69.20
.1220		3.100 mm	.365	9.300 mm	(3x)	12.448 mm	.564 mm	4 mm	63 mm	V969225-X	69.20
.1250 (1/8)		3.175 mm	.374	9.525 mm	(3x)	12.753 mm	.578 mm	4 mm	63 mm	V319555-X	69.20
.1260		3.200 mm	.377	9.600 mm	(3x)	12.853 mm	.582 mm	4 mm	63 mm	V361331-X	69.20
.1285	#30	3.263 mm	.384	9.789 mm	(3x)	13.109 mm	.594 mm	4 mm	63 mm	V376836-X	69.20
.1300		3.300 mm	.389	9.900 mm	(3x)	13.259 mm	.601 mm	4 mm	63 mm	V902732-X	69.20
.1338		3.400 mm	.400	10.200 mm	(3x)	13.663 mm	.619 mm	4 mm	63 mm	V112694-X	69.20
.1360	#29	3.454 mm	.407	10.362 mm	(3x)	13.882 mm	.629 mm	4 mm	63 mm	V182835-X	69.20
.1377		3.500 mm	.412	10.500 mm	(3x)	14.068 mm	.637 mm	4 mm	63 mm	V285993-X	69.20
.1406 (9/64)		3.571 mm	.421	10.713 mm	(3x)	14.355 mm	.650 mm	4 mm	63 mm	V788782-X	69.20
.1417		3.600 mm	.424	10.800 mm	(3x)	14.472 mm	.655 mm	4 mm	63 mm	V218834-X	69.20
.1440	#27	3.657 mm	.431	10.971 mm	(3x)	14.704 mm	.666 mm	4 mm	63 mm	V142155-X	69.20
.1456		3.700 mm	.436	11.100 mm	(3x)	14.877 mm	.673 mm	4 mm	63 mm	V391753-X	69.20
.1470	#26	3.733 mm	.440	11.199 mm	(3x)	15.010 mm	.679 mm	4 mm	63 mm	V058287-X	69.20
.1495	#25	3.797 mm	.447	11.391 mm	(3x)	15.270 mm	.691 mm	4 mm	63 mm	V313559-X	69.20
.1496		3.800 mm	.448	11.400 mm	(3x)	15.283 mm	.692 mm	4 mm	63 mm	V324973-X	69.20

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High Performance Drills

For Steels – Pilot Drills (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
		D ₁ ^{+0.005mm} _{+0.013mm}		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.1520	#24	3.860 mm	.455	11.580 mm	(3x)	15.524 mm	.702 mm	4 mm	63 mm	V771577-X	69.20
.1535		3.900 mm	.459	11.700 mm	(3x)	15.688 mm	.710 mm	4 mm	63 mm	V846637-X	69.20
.1540	#23	3.911 mm	.461	11.733 mm	(3x)	15.732 mm	.712 mm	4 mm	63 mm	V880550-X	69.20
.1562 (5/32)		3.968 mm	.467	11.904 mm	(3x)	15.962 mm	.722 mm	4 mm	63 mm	V455943-X	69.20
.1570	#22	3.987 mm	.470	11.961 mm	(3x)	16.040 mm	.726 mm	6 mm	63 mm	V691009-X	73.10
.1574		4.000 mm	.471	12.000 mm	(3x)	16.092 mm	.728 mm	6 mm	63 mm	V700864-X	73.10
.1590	#21	4.038 mm	.476	12.114 mm	(3x)	16.246 mm	.735 mm	6 mm	63 mm	V996354-X	73.10
.1610	#20	4.089 mm	.482	12.267 mm	(3x)	16.452 mm	.744 mm	6 mm	63 mm	V689086-X	73.10
.1614		4.100 mm	.483	12.300 mm	(3x)	16.496 mm	.746 mm	6 mm	63 mm	V865179-X	73.10
.1653		4.200 mm	.495	12.600 mm	(3x)	16.901 mm	.764 mm	6 mm	63 mm	V496966-X	73.10
.1660	#19	4.216 mm	.497	12.648 mm	(3x)	16.966 mm	.767 mm	6 mm	63 mm	V452652-X	73.10
.1692		4.300 mm	.506	12.900 mm	(3x)	17.307 mm	.783 mm	6 mm	63 mm	V291414-X	73.10
.1695	#18	4.305 mm	.507	12.915 mm	(3x)	17.326 mm	.783 mm	6 mm	63 mm	V402725-X	73.10
.1718 (11/64)		4.365 mm	.514	13.095 mm	(3x)	17.569 mm	.794 mm	6 mm	63 mm	V885519-X	73.10
.1730	#17	4.394 mm	.518	13.182 mm	(3x)	17.687 mm	.800 mm	6 mm	63 mm	V728512-X	73.10
.1732		4.400 mm	.518	13.200 mm	(3x)	17.712 mm	.801 mm	6 mm	63 mm	V862992-X	73.10
.1770	#16	4.495 mm	.529	13.485 mm	(3x)	18.096 mm	.818 mm	6 mm	63 mm	V068425-X	73.10
.1771		4.500 mm	.530	13.500 mm	(3x)	18.116 mm	.819 mm	6 mm	63 mm	V825652-X	73.10
.1800	#15	4.572 mm	.539	13.716 mm	(3x)	18.407 mm	.832 mm	6 mm	63 mm	V066989-X	73.10
.1811		4.600 mm	.542	13.800 mm	(3x)	18.520 mm	.837 mm	6 mm	63 mm	V441044-X	73.10
.1820	#14	4.622 mm	.544	13.866 mm	(3x)	18.609 mm	.841 mm	6 mm	63 mm	V885782-X	73.10
.1850		4.700 mm	.554	14.100 mm	(3x)	18.925 mm	.855 mm	6 mm	63 mm	V078298-X	73.10
.1871		4.763 mm	.561	14.289 mm	(3x)	19.181 mm	.867 mm	6 mm	63 mm	V719861-X	73.10
.1890		4.800 mm	.565	14.400 mm	(3x)	19.331 mm	.874 mm	6 mm	63 mm	V910857-X	73.10
.1910	#11	4.851 mm	.571	14.553 mm	(3x)	19.537 mm	.883 mm	6 mm	63 mm	V376601-X	73.10
.1930		4.900 mm	.577	14.700 mm	(3x)	19.736 mm	.892 mm	6 mm	63 mm	V561035-X	73.10
.1935	#10	4.914 mm	.579	14.742 mm	(3x)	19.791 mm	.894 mm	6 mm	63 mm	V738376-X	73.10
.1960	#9	4.978 mm	.586	14.934 mm	(3x)	20.051 mm	.906 mm	6 mm	63 mm	V162932-X	73.10
.1968		5.000 mm	.589	15.000 mm	(3x)	20.140 mm	.910 mm	6 mm	63 mm	V258642-X	73.10
.1990	#8	5.054 mm	.595	15.162 mm	(3x)	20.359 mm	.920 mm	6 mm	63 mm	V114790-X	73.10
.2007		5.100 mm	.601	15.300 mm	(3x)	20.544 mm	.928 mm	6 mm	63 mm	V774403-X	76.90
.2009	#7	5.105 mm	.601	15.315 mm	(3x)	20.565 mm	.929 mm	6 mm	63 mm	V350733-X	76.90
.2031 (13/64)		5.159 mm	.608	15.477 mm	(3x)	20.784 mm	.939 mm	6 mm	63 mm	V441612-X	76.90
.2040	#6	5.181 mm	.610	15.543 mm	(3x)	20.873 mm	.943 mm	6 mm	63 mm	V429312-X	76.90
.2047		5.200 mm	.613	15.600 mm	(3x)	20.949 mm	.946 mm	6 mm	63 mm	V456166-X	76.90

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High Performance Drills

For Steels – Pilot Drills (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D ₁ ^{+0.005mm} / _{+0.013mm}			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.2055	#5	5.219 mm	.615	15.657 mm	(3x)	21.027 mm	.950 mm	6 mm	63 mm	V442616-X	76.90
.2086		5.300 mm	.624	15.900 mm	(3x)	21.355 mm	.965 mm	6 mm	63 mm	V202331-X	76.90
.2090	#4	5.308 mm	.625	15.924 mm	(3x)	21.387 mm	.966 mm	6 mm	63 mm	V644269-X	76.90
.2125		5.400 mm	.636	16.200 mm	(3x)	21.760 mm	.983 mm	6 mm	63 mm	V066389-X	76.90
.2129	#3	5.410 mm	.637	16.230 mm	(3x)	21.801 mm	.985 mm	6 mm	63 mm	V269256-X	76.90
.2165		5.500 mm	.648	16.500 mm	(3x)	22.164 mm	1.001 mm	6 mm	63 mm	V243898-X	76.90
.2187 (7/32)		5.556 mm	.655	16.668 mm	(3x)	22.390 mm	1.011 mm	6 mm	63 mm	V194412-X	76.90
.2205		5.600 mm	.660	16.800 mm	(3x)	22.568 mm	1.019 mm	6 mm	63 mm	V659021-X	76.90
.2210	#2	5.613 mm	.661	16.839 mm	(3x)	22.620 mm	1.021 mm	6 mm	63 mm	V297376-X	76.90
.2244		5.700 mm	.672	17.100 mm	(3x)	22.973 mm	1.037 mm	6 mm	63 mm	V452575-X	76.90
.2280	#1	5.791 mm	.682	17.373 mm	(3x)	23.342 mm	1.054 mm	6 mm	63 mm	V900210-X	76.90
.2283		5.800 mm	.683	17.400 mm	(3x)	23.379 mm	1.056 mm	6 mm	63 mm	V367687-X	76.90
.2322		5.900 mm	.695	17.700 mm	(3x)	23.784 mm	1.074 mm	6 mm	63 mm	V249172-X	76.90
.2340	A	5.943 mm	.700	17.829 mm	(3x)	23.958 mm	1.082 mm	6 mm	63 mm	V556215-X	76.90
.2343 (15/64)		5.953 mm	.701	17.859 mm	(3x)	23.997 mm	1.083 mm	6 mm	63 mm	V532021-X	76.90
.2362		6.000 mm	.707	18.000 mm	(3x)	24.188 mm	1.092 mm	8 mm	75 mm	V324173-X	91.30
.2380	B	6.045 mm	.712	18.135 mm	(3x)	24.370 mm	1.100 mm	8 mm	75 mm	V793373-X	91.30
.2401		6.100 mm	.719	18.300 mm	(3x)	24.593 mm	1.110 mm	8 mm	75 mm	V328326-X	91.30
.2420	C	6.146 mm	.724	18.438 mm	(3x)	24.778 mm	1.118 mm	8 mm	75 mm	V015525-X	91.30
.2440		6.200 mm	.730	18.600 mm	(3x)	24.997 mm	1.128 mm	8 mm	75 mm	V901999-X	91.30
.2460	D	6.248 mm	.736	18.744 mm	(3x)	25.192 mm	1.137 mm	8 mm	75 mm	V148236-X	91.30
.2480		6.300 mm	.742	18.900 mm	(3x)	25.403 mm	1.147 mm	8 mm	75 mm	V343038-X	91.30
.2500 (1/4)		6.350 mm	.748	19.050 mm	(3x)	25.606 mm	1.156 mm	8 mm	75 mm	V645271-X	91.30
.2520		6.400 mm	.754	19.200 mm	(3x)	25.808 mm	1.165 mm	8 mm	75 mm	V492254-X	91.30
.2559		6.500 mm	.766	19.500 mm	(3x)	26.212 mm	1.183 mm	8 mm	75 mm	V806646-X	91.30
.2570	F	6.528 mm	.769	19.584 mm	(3x)	26.325 mm	1.188 mm	8 mm	75 mm	V884853-X	91.30
.2598		6.600 mm	.778	19.800 mm	(3x)	26.617 mm	1.201 mm	8 mm	75 mm	V114553-X	91.30
.2609	G	6.629 mm	.781	19.887 mm	(3x)	26.733 mm	1.206 mm	8 mm	75 mm	V915733-X	91.30
.2638		6.700 mm	.789	20.100 mm	(3x)	27.021 mm	1.219 mm	8 mm	75 mm	V195019-X	91.30
.2656 (17/64)		6.746 mm	.795	20.238 mm	(3x)	27.208 mm	1.228 mm	8 mm	75 mm	V885997-X	91.30
.2659	H	6.756 mm	.796	20.268 mm	(3x)	27.247 mm	1.229 mm	8 mm	75 mm	V840920-X	91.30
.2677		6.800 mm	.801	20.400 mm	(3x)	27.425 mm	1.237 mm	8 mm	75 mm	V966074-X	91.30
.2717		6.900 mm	.813	20.700 mm	(3x)	27.832 mm	1.256 mm	8 mm	75 mm	V192147-X	91.30
.2719	I	6.908 mm	.814	20.724 mm	(3x)	27.863 mm	1.257 mm	8 mm	75 mm	V787695-X	91.30
.2756		7.000 mm	.825	21.000 mm	(3x)	28.236 mm	1.274 mm	8 mm	75 mm	V063226-X	91.30

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High Performance Drills

For Steels – Pilot Drills (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D ₁ ^{+0.005mm} / _{+0.013mm}			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.2769	J	7.035 mm	.829	21.105 mm	(3x)	28.377 mm	1.280 mm	8 mm	75 mm	V397474-X	91.30
.2795		7.100 mm	.837	21.300 mm	(3x)	28.641 mm	1.292 mm	8 mm	75 mm	V850424-X	91.30
.2809	K	7.137 mm	.841	21.411 mm	(3x)	28.791 mm	1.299 mm	8 mm	75 mm	V690930-X	91.30
.2812 (9/32)		7.142 mm	.842	21.426 mm	(3x)	28.811 mm	1.300 mm	8 mm	75 mm	V789561-X	91.30
.2834		7.200 mm	.848	21.600 mm	(3x)	29.045 mm	1.310 mm	8 mm	75 mm	V604334-X	91.30
.2874		7.300 mm	.860	21.900 mm	(3x)	29.449 mm	1.328 mm	8 mm	75 mm	V609549-X	91.30
.2900	L	7.366 mm	.868	22.098 mm	(3x)	29.719 mm	1.341 mm	8 mm	75 mm	V120820-X	91.30
.2913		7.400 mm	.872	22.200 mm	(3x)	29.856 mm	1.347 mm	8 mm	75 mm	V610439-X	91.30
.2950	M	7.493 mm	.883	22.479 mm	(3x)	30.232 mm	1.364 mm	8 mm	75 mm	V436509-X	91.30
.2952		7.500 mm	.884	22.500 mm	(3x)	30.260 mm	1.365 mm	8 mm	75 mm	V660900-X	91.30
.2969 (19/64)		7.541 mm	.889	22.623 mm	(3x)	30.425 mm	1.372 mm	8 mm	75 mm	V221413-X	91.30
.2992		7.600 mm	.896	22.800 mm	(3x)	30.665 mm	1.383 mm	8 mm	75 mm	V856555-X	91.30
.3020	N	7.671 mm	.904	23.013 mm	(3x)	30.952 mm	1.396 mm	8 mm	75 mm	V987247-X	91.30
.3031		7.700 mm	.907	23.100 mm	(3x)	31.069 mm	1.401 mm	8 mm	75 mm	V132161-X	91.30
.3071		7.800 mm	.919	23.400 mm	(3x)	31.473 mm	1.419 mm	8 mm	75 mm	V447341-X	91.30
.3110		7.900 mm	.931	23.700 mm	(3x)	31.880 mm	1.438 mm	8 mm	75 mm	V163633-X	91.30
#N/A		7.938 mm	.935	23.814 mm	(3x)	32.034 mm	1.445 mm	8 mm	75 mm	V571876-X	91.30
.3150		8.000 mm	.943	24.000 mm	(3x)	32.284 mm	1.456 mm	10 mm	75 mm	V674731-X	102.70
.3159	O	8.026 mm	.946	24.078 mm	(3x)	32.390 mm	1.461 mm	10 mm	75 mm	V301435-X	102.70
.3189		8.100 mm	.954	24.300 mm	(3x)	32.689 mm	1.474 mm	10 mm	75 mm	V973710-X	102.70
.3228		8.200 mm	.966	24.600 mm	(3x)	33.093 mm	1.492 mm	10 mm	75 mm	V639222-X	102.70
.3229	P	8.204 mm	.967	24.612 mm	(3x)	33.110 mm	1.493 mm	10 mm	75 mm	V201063-X	102.70
.3268		8.300 mm	.978	24.900 mm	(3x)	33.498 mm	1.510 mm	10 mm	75 mm	V813866-X	102.70
.3281 (21/64)		8.333 mm	.982	24.999 mm	(3x)	33.631 mm	1.516 mm	10 mm	75 mm	V263984-X	102.70
.3307		8.400 mm	.990	25.200 mm	(3x)	33.904 mm	1.529 mm	10 mm	75 mm	V981973-X	102.70

continued on next page

Tech Tip

Opt for a coolant-through drill to assist with heat management at the drill point and chip evacuation by flushing the chips from a hole, drastically increasing tool life and lubricity.



High Performance Drills

For Steels – Pilot Drills (cont.)

continued from previous page

Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
		D ₁ ^{+0.005mm} _{+0.013mm}		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.3319	Q	8.432 mm	.994	25.296 mm	(3x)	34.032 mm	1.534 mm	10 mm	75 mm	V836619-X	102.70
.3346		8.500 mm	1.002	25.500 mm	(3x)	34.308 mm	1.547 mm	10 mm	75 mm	V797559-X	102.70
.3386		8.600 mm	1.013	25.800 mm	(3x)	34.713 mm	1.565 mm	10 mm	75 mm	V959435-X	102.70
.3389	R	8.610 mm	1.015	25.830 mm	(3x)	34.754 mm	1.567 mm	10 mm	75 mm	V121905-X	102.70
.3425		8.700 mm	1.025	26.100 mm	(3x)	35.117 mm	1.583 mm	10 mm	75 mm	V205213-X	102.70
.3438 (11/32)		8.732 mm	1.029	26.196 mm	(3x)	35.247 mm	1.589 mm	10 mm	75 mm	V734871-X	102.70
.3465		8.800 mm	1.037	26.400 mm	(3x)	35.522 mm	1.601 mm	10 mm	75 mm	V411577-X	102.70
.3479	S	8.839 mm	1.042	26.517 mm	(3x)	35.681 mm	1.609 mm	10 mm	75 mm	V415903-X	102.70
.3504		8.900 mm	1.049	26.700 mm	(3x)	35.928 mm	1.620 mm	10 mm	75 mm	V751074-X	102.70
.3543		9.000 mm	1.061	27.000 mm	(3x)	36.332 mm	1.638 mm	10 mm	75 mm	V573760-X	102.70
.3579	T	9.093 mm	1.072	27.279 mm	(3x)	36.709 mm	1.655 mm	10 mm	75 mm	V297828-X	102.70
.3583		9.100 mm	1.072	27.300 mm	(3x)	36.737 mm	1.656 mm	10 mm	75 mm	V054766-X	102.70
.3594 (23/64)		9.128 mm	1.076	27.384 mm	(3x)	36.850 mm	1.661 mm	10 mm	75 mm	V643474-X	102.70
.3622		9.200 mm	1.084	27.600 mm	(3x)	37.141 mm	1.674 mm	10 mm	75 mm	V458794-X	102.70
.3661		9.300 mm	1.096	27.900 mm	(3x)	37.546 mm	1.692 mm	10 mm	75 mm	V629261-X	102.70
.3679	U	9.347 mm	1.102	28.041 mm	(3x)	37.737 mm	1.701 mm	10 mm	75 mm	V668083-X	102.70
.3701		9.400 mm	1.108	28.200 mm	(3x)	37.952 mm	1.711 mm	10 mm	75 mm	V785118-X	102.70
.3740		9.500 mm	1.120	28.500 mm	(3x)	38.356 mm	1.729 mm	10 mm	75 mm	V525849-X	102.70
.3750 (3/8)		9.525 mm	1.122	28.575 mm	(3x)	38.457 mm	1.733 mm	10 mm	75 mm	V599656-X	102.70
.3770	V	9.575 mm	1.128	28.725 mm	(3x)	38.661 mm	1.743 mm	10 mm	75 mm	V164506-X	102.70
.3780		9.600 mm	1.131	28.800 mm	(3x)	38.761 mm	1.747 mm	10 mm	75 mm	V728829-X	102.70
.3819		9.700 mm	1.143	29.100 mm	(3x)	39.165 mm	1.765 mm	10 mm	75 mm	V336130-X	102.70
.3858		9.800 mm	1.155	29.400 mm	(3x)	39.570 mm	1.783 mm	10 mm	75 mm	V408197-X	102.70
.3859	W	9.804 mm	1.155	29.412 mm	(3x)	39.586 mm	1.784 mm	10 mm	75 mm	V514197-X	102.70
.3898		9.900 mm	1.167	29.700 mm	(3x)	39.976 mm	1.802 mm	10 mm	75 mm	V413649-X	102.70
.3906 (25/64)		9.921 mm	1.169	29.763 mm	(3x)	40.059 mm	1.805 mm	10 mm	75 mm	V897834-X	102.70
.3937		10.000 mm	1.179	30.000 mm	(3x)	40.381 mm	1.820 mm	12 mm	100 mm	V615223-X	138.50
.3969	X	10.083 mm	1.188	30.249 mm	(3x)	40.716 mm	1.835 mm	12 mm	100 mm	V158286-X	138.50
.3976		10.100 mm	1.190	30.300 mm	(3x)	40.785 mm	1.838 mm	12 mm	100 mm	V252667-X	138.50
.4016		10.200 mm	1.202	30.600 mm	(3x)	41.189 mm	1.856 mm	12 mm	100 mm	V567799-X	138.50
.4039	Y	10.261 mm	1.209	30.783 mm	(3x)	41.436 mm	1.867 mm	12 mm	100 mm	V761337-X	138.50
.4055		10.300 mm	1.214	30.900 mm	(3x)	41.594 mm	1.874 mm	12 mm	100 mm	V732573-X	138.50
.4062 (13/32)		10.317 mm	1.216	30.951 mm	(3x)	41.664 mm	1.878 mm	12 mm	100 mm	V420346-X	138.50
.4094		10.400 mm	1.226	31.200 mm	(3x)	42.000 mm	1.893 mm	12 mm	100 mm	V408072-X	138.50
.4129	Z	10.490 mm	1.236	31.470 mm	(3x)	42.364 mm	1.909 mm	12 mm	100 mm	V466110-X	138.50

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High Performance Drills

For Steels – Pilot Drills (cont.)

continued from previous page

Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
	D ₁	^{+0.005mm} _{+0.013mm}		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.4134		10.500 mm	1.237	31.500 mm	(3x)	42.405 mm	1.911 mm	12 mm	100 mm	V299501-X	138.50
.4173		10.600 mm	1.249	31.800 mm	(3x)	42.809 mm	1.929 mm	12 mm	100 mm	V149208-X	138.50
.4213		10.700 mm	1.261	32.100 mm	(3x)	43.213 mm	1.947 mm	12 mm	100 mm	V521937-X	138.50
.4219 (27/64)		10.716 mm	1.263	32.148 mm	(3x)	43.278 mm	1.950 mm	12 mm	100 mm	V618225-X	138.50
.4252		10.800 mm	1.273	32.400 mm	(3x)	43.618 mm	1.965 mm	12 mm	100 mm	V924462-X	138.50
.4291		10.900 mm	1.285	32.700 mm	(3x)	44.024 mm	1.984 mm	12 mm	100 mm	V564526-X	138.50
.4331		11.000 mm	1.296	33.000 mm	(3x)	44.429 mm	2.002 mm	12 mm	100 mm	V675423-X	138.50
.4370		11.100 mm	1.308	33.300 mm	(3x)	44.833 mm	2.020 mm	12 mm	100 mm	V888482-X	138.50
.4375 (7/16)		11.113 mm	1.310	33.339 mm	(3x)	44.885 mm	2.022 mm	12 mm	100 mm	V997356-X	138.50
.4409		11.200 mm	1.320	33.600 mm	(3x)	45.237 mm	2.038 mm	12 mm	100 mm	V379752-X	138.50
.4449		11.300 mm	1.332	33.900 mm	(3x)	45.642 mm	2.056 mm	12 mm	100 mm	V022309-X	138.50
.4488		11.400 mm	1.344	34.200 mm	(3x)	46.048 mm	2.075 mm	12 mm	100 mm	V674665-X	138.50
.4527		11.500 mm	1.355	34.500 mm	(3x)	46.453 mm	2.093 mm	12 mm	100 mm	V931811-X	138.50
.4531 (29/64)		11.508 mm	1.356	34.524 mm	(3x)	46.484 mm	2.094 mm	12 mm	100 mm	V841399-X	138.50
.4567		11.600 mm	1.367	34.800 mm	(3x)	46.857 mm	2.111 mm	12 mm	100 mm	V023983-X	138.50
.4606		11.700 mm	1.379	35.100 mm	(3x)	47.261 mm	2.129 mm	12 mm	100 mm	V105297-X	138.50
.4646		11.800 mm	1.391	35.400 mm	(3x)	47.666 mm	2.147 mm	12 mm	100 mm	V425545-X	138.50
.4685		11.900 mm	1.403	35.700 mm	(3x)	48.072 mm	2.166 mm	12 mm	100 mm	V023000-X	138.50
.4688 (15/32)		11.907 mm	1.403	35.721 mm	(3x)	48.100 mm	2.167 mm	12 mm	100 mm	V874686-X	138.50
.4724		12.000 mm	1.414	36.000 mm	(3x)	48.477 mm	2.184 mm	14 mm	100 mm	V287698-X	189.60
.4764		12.100 mm	1.426	36.300 mm	(3x)	48.881 mm	2.202 mm	14 mm	100 mm	V569271-X	189.60
.4803		12.200 mm	1.438	36.600 mm	(3x)	49.286 mm	2.220 mm	14 mm	100 mm	V688758-X	189.60
.4843 (31/64)		12.300 mm	1.450	36.900 mm	(3x)	49.690 mm	2.238 mm	14 mm	100 mm	V789930-X	189.60
.4882		12.400 mm	1.461	37.200 mm	(3x)	50.096 mm	2.257 mm	14 mm	100 mm	V928923-X	189.60
.4921		12.500 mm	1.473	37.500 mm	(3x)	50.501 mm	2.275 mm	14 mm	100 mm	V770794-X	189.60
.4961		12.600 mm	1.485	37.800 mm	(3x)	50.905 mm	2.293 mm	14 mm	100 mm	V372961-X	189.60
.5000 (1/2)		12.700 mm	1.497	38.100 mm	(3x)	51.310 mm	2.311 mm	14 mm	100 mm	V668058-X	189.60



Speeds & Feeds

High Performance Drills for Steels

Important Notes

Values in table are in inches and are based on standard (up to 7x Dia) length of flute solid carbide drills.

Longer lengths of flute: table values of IPR must be reduced (for 8x, reduce to 75%) and SFM must be reduced (for 8x, reduce to 80%).

Steels at 29-37 Rc: an initial peck should be 2-3x Diameter, and each subsequent peck should be 1-2x Diameter.

Harder steels at 38-45 Rc: 1-2x Diameter is recommended for an initial peck, and each subsequent peck should be .5-1x Diameter.

For complete speeds and feeds charts, please see <https://www.valorholemaking.com/resources/speeds-feeds>.

Coolant-Through Notes

For Coolant-through carbide drills, table values of IPR must be reduced (reduced to 90%) and SFM can increase (increase up to 125%).

For best results, the following steps are recommended:

- For hole depths of 7x Diameter or greater, drill a pilot hole up to 1.5-2x D in depth using a drill with 3x LOF or shorter.
- Insert primary drill at low speed (~50-500 RPM) and start coolant flow.
- Increase speed and feed to recommended parameters.
- Under optimal conditions, a pecking cycle should not be needed.
- On through holes, reduce feed rate by 50% just before break through with drill point.
- Feed at 50% to final depth.
- After reaching desired hole depth, reduce speed (~500 RPM) before retracting the drill.
- Cutting oil is recommended. As an alternative, it is possible to use emulsions with EP additives. Use a fine mesh prefilter (=5µm) on spindle through coolant to prevent a blockage of the coolant hole. A minimum coolant pressure of 600-800 PSI is recommended.

Material Guide		SFM	Chip Load (IPR) by Drill Diameter									
			1/16	5/64	3/32	1/8	3/16	1/4	5/16	3/8	7/16	1/2
Carbon Steel	10XX, 11XX, 12XX, 12LXX, ASTM A27, ASTM A36	475-560	.002-.003	.002-.003	.003-.004	.004-.005	.004-.006	.005-.007	.006-.008	.007-.010	.008-.011	.009-.013
Low Alloy Steel	13XX, 41XX, 43XX, 51XX, 86XX, 93XX	360-500	.003-.004	.003-.004	.004-.005	.005-.006	.005-.007	.006-.008	.008-.010	.009-.012	.010-.013	.011-.015
Tool Steel	A2, H13, L6, P20, S7	200-275	.002-.003	.002-.003	.003-.004	.004-.005	.004-.006	.005-.007	.006-.008	.007-.010	.008-.011	.009-.013
Austenitic Stainless Steels	Nitronic 50, Nitronic 60, 301, 303, 304, 304L, Incoloy 27-7MO, 316, 316L, 321, 347	150-275	.002-.003	.002-.003	.003-.004	.003-.004	.004-.006	.005-.007	.006-.008	.007-.010	.008-.011	.009-.013
Martensitic & Ferritic Stainless Steels	403, 410, 416, 420, 440, 430, 446	150-275	.002-.003	.002-.003	.003-.004	.003-.004	.004-.006	.005-.007	.006-.008	.007-.010	.008-.011	.009-.013
PH Stainless Steels	15-5, 17-4, Carpenter 450, Carpenter 465	100-200	.002-.003	.002-.003	.003-.004	.003-.004	.004-.006	.005-.007	.006-.008	.007-.010	.008-.011	.009-.013
Gray Cast Irons	SAE J431, ASTM A48	525-690	.002-.003	.002-.003	.003-.004	.003-.004	.004-.006	.005-.007	.006-.008	.007-.010	.008-.011	.009-.013
Malleable Cast Irons	ASTM A47, ASTM A220, ASTM A602	425-460	.002-.003	.002-.003	.003-.004	.003-.004	.004-.006	.005-.007	.006-.008	.007-.010	.008-.011	.009-.013
Nodular (Ductile) Cast Irons	ASTM A536, ASTM 897	360-500	.002-.003	.002-.003	.003-.004	.003-.004	.004-.006	.005-.007	.006-.008	.007-.010	.008-.011	.009-.013

General Notes

All posted speed and feed parameters are suggested starting values that may be increased given optimal setup conditions.

If you require additional information, Valor Holemaking has a team of technical experts available to assist you through even the most challenging applications. Please contact us at **866-840-1505** or Valortech@harveyperformance.com.





High Performance Drills for Stainless Steels & Titanium

Engineered To Perform. Built To Last

At Valor Holemaking, we set out to solve one of the most complex challenges in machining: **drilling stainless steel and titanium**—two materials known for their toughness and strength, poor thermal conductivity, and tendency to work harden.

To overcome these obstacles, **we engineered a new drill line** optimized for 300 & 400 series stainless steels and grade 5 titanium, with proven consistency across high-temp, low-conductivity alloys.

High-Speed, High-Efficiency Cutting

Engineered for aggressive speeds and feeds to reduce cycle times and boost productivity.

Ultra-Low Cutting Forces

Minimizes deflection and enhances performance in thin walls and cross-hole applications.

Exceptional Hole Quality

Achieves tight tolerances with minimal vibration—reducing exit burrs and improving part finish.



More Holes. Tighter Tolerances. No Compromises.

In production environments where consistency matters, Valor drills deliver. Tested under rigorous conditions and benchmarked against best-in-class competitors, our tools drilled the most holes, while maintaining the best quality, so you can experience unmatched cost-per-hole without sacrificing precision.



Stainless Steel Testing Information	
Material	AISI 316L (200 HB)
Valor Drill	SKU: V623060-X Diameter: 12.7 mm L/D: 5XD Coating: Val-Max-X
Holder	Cat40 Hydraulic Holder
Parameters	Drilling depth: 2.3000" Speed & Feeds: 200 SFM, 0.010 IPR Coolant: Blaser Vasco 7000 (9%) at 1,000 PSI

Testing Results in Stainless Steel

Dominate Stainless Steel Drilling

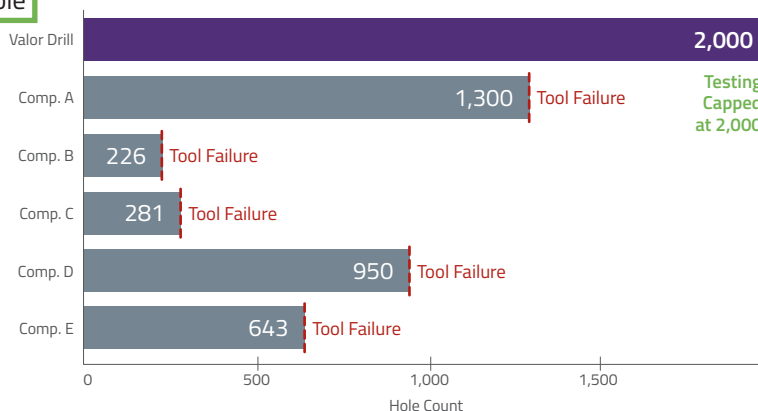
Where other drills struggle in stainless, Valor stands out. In head-to-head testing against best-in-class competitors, Valor delivered cleaner holes, fewer burrs, and tighter true position, without slowing down. This drill holds tolerance, minimizes post-processing, and delivers reliable, high-quality results on every hole.

Unbeatable Tool Life

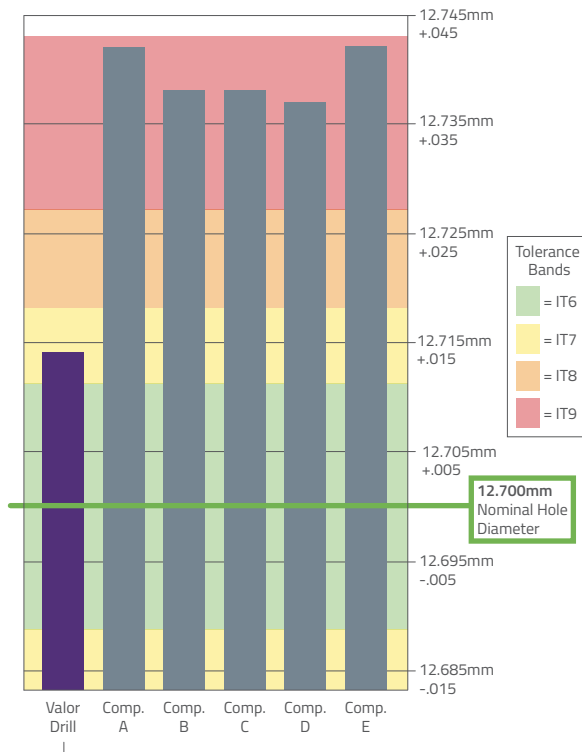
Valor's drill reached the 2,000-hole testing cap without signs of failure—more than doubling the tool life of many best-in-class competitor drills in 316L Stainless.

<\$0.13
per hole

Valor's Hole Count in Stainless Steel vs. Leading Competitors



Valor's Finished Hole Diameter in Stainless Steel vs. Leading Competitors



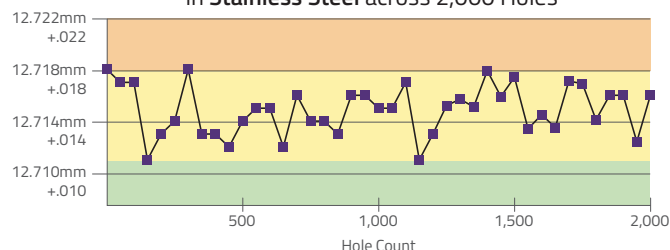
Precision That Lasts 2,000 Holes

43 μ m True position | **24 μ m** Cylindricity | **11 μ m** Straightness

IT7 Hole Consistency

Valor's 12.7 mm drill maintained precision from start to finish, consistently staying within the IT7 band across all 2,000 holes. Competing tools fell short on both accuracy and longevity.

Valor Drill - Finished Hole Diameter in Stainless Steel across 2,000 Holes





Testing Results in Titanium

Drill Titanium Without Compromise

Titanium components demand precision, strength, and consistency, and Valor's new drills deliver. Its advanced gash geometry and cutting-edge design hold position and evacuate chips effortlessly so you can drill with confidence, hole after hole.

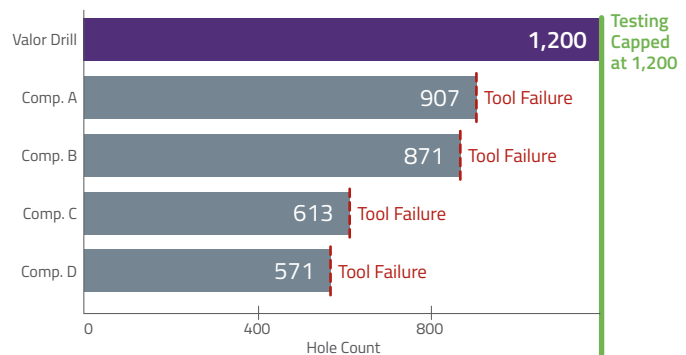
Titanium Testing Information	
Material	Ti-6Al-4V(33HRC)
Valor Drill	SKU: V623060-X Diameter: 12.7 mm L/D: 5XD Coating: Val-Max-X
Holder	Cat40 Hydraulic Holder
Parameters	Drilling depth: 2.3000" Speed & Feeds: 130 SFM, 0.005 IPR Coolant: Blaser Vasco 7000 (9%) at 1,000 PSI

Longest Lasting. Lowest Cost.

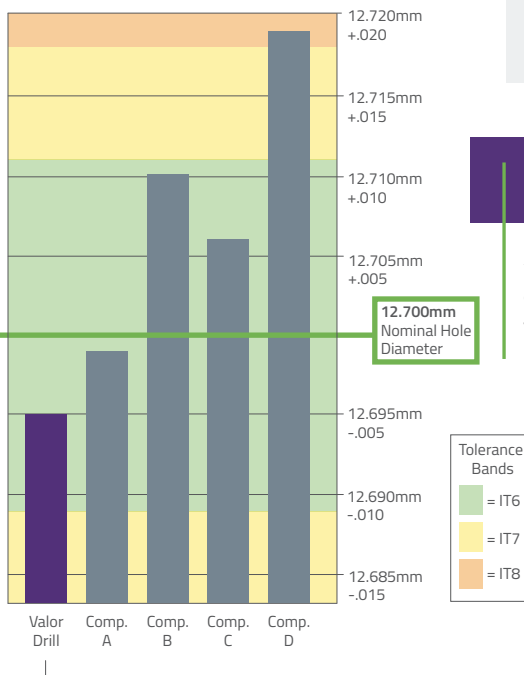
<\$0.22
per hole

When every competitor tapped out early, Valor kept cutting. Reaching the 1,200-hole test cap with no signs of failure, it proved why it's the new standard in tool life.

Valor's Hole Count in Titanium vs. Leading Competitors



Valor's Finished Hole Diameter in Titanium vs. Leading Competitors



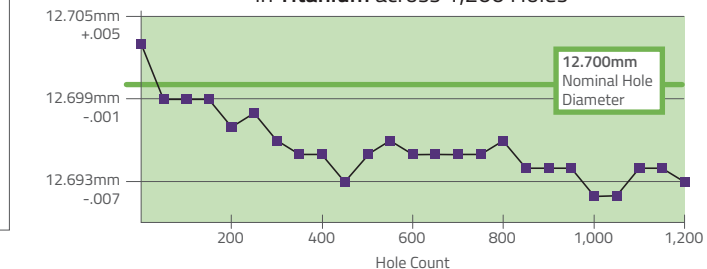
1,200 Holes. Dialed-In Precision.

46 μ m True position | **23 μ m** Cylindricity | **7 μ m** Straightness

Dialed In at IT6 from Start to Finish

Across a test drilling 1,200 holes, Valor held IT6-level accuracy, consistently staying within .009mm of the 12.7mm target – a hallmark of high-performance machining.

Valor Drill - Finished Hole Diameter in Titanium across 1,200 Holes





Advanced flute design accelerates chip formation

High Performance Drills

For Stainless Steels & Titanium

Provides Elite Performance in 316L Stainless Steel and Ti-6Al-4V Titanium

- Optimized for best-in-class performance in 316L Stainless Steel and Ti-6Al-4V Titanium, with proven consistency in high-temp, low-conductivity alloys
- Outperforms top competitors in tool life, hole quality, and cost-per-hole across stainless steel and titanium applications
- Engineered relief design suppresses work-hardening and maintains bore integrity under demanding conditions
- Advanced flute architecture accelerates chip formation and evacuation, reducing heat and minimizing tool wear
- Ultra-low cutting forces and minimal vibration deliver exceptional hole quality in thin plate applications
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, Titanium, and other high hardness materials
- Solid carbide
- Precision manufactured in the USA



	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	USD
NEW	.0625 (1/16)		1.587 mm	.187	4.764 mm	(3x)	6.57 mm	.29 mm	3 mm	63 mm	V785271-X	55.00
NEW	.0630		1.600 mm	.188	4.800 mm	(3x)	6.63 mm	.29 mm	3 mm	63 mm	V809006-X	55.00
NEW	.0669	#51	1.700 mm	.200	5.100 mm	(3x)	7.05 mm	.31 mm	3 mm	63 mm	V599382-X	55.00
NEW	.0708		1.800 mm	.212	5.400 mm	(3x)	7.47 mm	.33 mm	3 mm	63 mm	V464374-X	55.00
NEW	.0748		1.900 mm	.224	5.700 mm	(3x)	7.88 mm	.35 mm	3 mm	63 mm	V677708-X	55.00
NEW	.0781 (5/64)		1.984 mm	.234	5.952 mm	(3x)	8.23 mm	.36 mm	3 mm	63 mm	V604025-X	55.00
NEW	.0787		2.000 mm	.236	6.000 mm	(3x)	8.30 mm	.36 mm	3 mm	63 mm	V763995-X	55.00
NEW	.0826		2.100 mm	.248	6.300 mm	(3x)	8.71 mm	.38 mm	3 mm	63 mm	V344300-X	55.00
NEW	.0866		2.200 mm	.259	6.600 mm	(3x)	9.13 mm	.40 mm	3 mm	63 mm	V361606-X	55.00
NEW	.0905		2.300 mm	.271	6.900 mm	(3x)	9.54 mm	.42 mm	3 mm	63 mm	V624642-X	55.00
NEW	.0937 (3/32)		2.381 mm	.281	7.143 mm	(3x)	9.89 mm	.43 mm	3 mm	63 mm	V127576-X	55.00
NEW	.0944		2.400 mm	.283	7.200 mm	(3x)	9.96 mm	.44 mm	3 mm	63 mm	V173701-X	55.00
NEW	.0984		2.500 mm	.295	7.500 mm	(3x)	10.38 mm	.45 mm	3 mm	63 mm	V032263-X	55.00
NEW	.1023		2.600 mm	.307	7.800 mm	(3x)	10.79 mm	.47 mm	3 mm	63 mm	V443384-X	55.00
NEW	.1062		2.700 mm	.318	8.100 mm	(3x)	11.21 mm	.49 mm	3 mm	63 mm	V467629-X	55.00
NEW	.1093 (7/64)		2.778 mm	.328	8.334 mm	(3x)	11.55 mm	.51 mm	3 mm	63 mm	V471962-X	55.00
NEW	.1102		2.800 mm	.330	8.400 mm	(3x)	11.62 mm	.51 mm	3 mm	63 mm	V862603-X	55.00
NEW	.1141		2.900 mm	.342	8.700 mm	(3x)	12.04 mm	.53 mm	3 mm	63 mm	V354896-X	55.00
NEW	.1181		3.000 mm	.354	9.000 mm	(3x)	12.45 mm	.55 mm	4 mm	63 mm	V510848-X	55.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Stainless Steels & Titanium (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
.1220		3.100 mm	.366	9.300 mm	(3x)	12.87 mm	.56 mm	4 mm	63 mm	V044642-X	48.50
.1250 (1/8)		3.175 mm	.374	9.525 mm	(3x)	13.15 mm	.58 mm	4 mm	63 mm	V414878-X	48.50
.1260		3.200 mm	.377	9.600 mm	(3x)	13.28 mm	.58 mm	4 mm	63 mm	V519628-X	48.50
.1300		3.300 mm	.389	9.900 mm	(3x)	13.70 mm	.60 mm	4 mm	63 mm	V893686-X	48.50
.1338		3.400 mm	.401	10.200 mm	(3x)	14.12 mm	.62 mm	4 mm	63 mm	V403776-X	48.50
.1377		3.500 mm	.413	10.500 mm	(3x)	14.53 mm	.64 mm	4 mm	63 mm	V060358-X	48.50
.1406 (9/64)	#28	3.571 mm	.421	10.713 mm	(3x)	14.81 mm	.65 mm	4 mm	63 mm	V953954-X	48.50
.1417		3.600 mm	.425	10.800 mm	(3x)	14.95 mm	.66 mm	4 mm	63 mm	V541351-X	48.50
.1456		3.700 mm	.437	11.100 mm	(3x)	15.36 mm	.67 mm	4 mm	63 mm	V264803-X	48.50
.1496		3.800 mm	.448	11.400 mm	(3x)	15.78 mm	.69 mm	4 mm	63 mm	V155729-X	48.50
.1535		3.900 mm	.460	11.700 mm	(3x)	16.19 mm	.71 mm	4 mm	63 mm	V562896-X	48.50
.1562 (5/32)		3.968 mm	.468	11.904 mm	(3x)	16.47 mm	.72 mm	4 mm	63 mm	V795025-X	48.50
.1574		4.000 mm	.472	12.000 mm	(3x)	16.61 mm	.73 mm	6 mm	63 mm	V764619-X	48.50
.1614		4.100 mm	.484	12.300 mm	(3x)	17.02 mm	.75 mm	6 mm	63 mm	V122719-X	52.00
.1653		4.200 mm	.496	12.600 mm	(3x)	17.44 mm	.76 mm	6 mm	63 mm	V046250-X	52.00
.1692		4.300 mm	.507	12.900 mm	(3x)	17.86 mm	.78 mm	6 mm	63 mm	V053523-X	52.00
.1718 (11/64)		4.365 mm	.515	13.095 mm	(3x)	18.13 mm	.79 mm	6 mm	63 mm	V439949-X	52.00
.1732		4.400 mm	.519	13.200 mm	(3x)	18.27 mm	.80 mm	6 mm	63 mm	V527685-X	52.00
.1771		4.500 mm	.531	13.500 mm	(3x)	18.69 mm	.82 mm	6 mm	63 mm	V141384-X	52.00
.1811		4.600 mm	.543	13.800 mm	(3x)	19.10 mm	.84 mm	6 mm	63 mm	V179711-X	52.00
.1850	#13	4.700 mm	.555	14.100 mm	(3x)	19.52 mm	.86 mm	6 mm	63 mm	V393670-X	52.00
.1875 (3/16)		4.762 mm	.562	14.286 mm	(3x)	19.79 mm	.87 mm	6 mm	63 mm	V382815-X	52.00
.1890	#12	4.800 mm	.566	14.400 mm	(3x)	19.93 mm	.87 mm	6 mm	63 mm	V259490-X	52.00
.1930		4.900 mm	.578	14.700 mm	(3x)	20.35 mm	.89 mm	6 mm	63 mm	V564421-X	52.00
.1968		5.000 mm	.590	15.000 mm	(3x)	20.77 mm	.91 mm	6 mm	63 mm	V318991-X	52.00
.2007		5.100 mm	.602	15.300 mm	(3x)	21.18 mm	.93 mm	6 mm	63 mm	V695516-X	52.00
.2031 (13/64)		5.159 mm	.609	15.477 mm	(3x)	21.45 mm	.94 mm	6 mm	63 mm	V542227-X	52.00
.2047		5.200 mm	.614	15.600 mm	(3x)	21.60 mm	.95 mm	6 mm	63 mm	V572036-X	52.00
.2086		5.300 mm	.625	15.900 mm	(3x)	22.01 mm	.96 mm	6 mm	63 mm	V418533-X	52.00
.2125		5.400 mm	.637	16.200 mm	(3x)	22.43 mm	.98 mm	6 mm	63 mm	V923643-X	52.00
.2165		5.500 mm	.649	16.500 mm	(3x)	22.84 mm	1.00 mm	6 mm	63 mm	V046301-X	52.00
.2187 (7/32)		5.556 mm	.656	16.668 mm	(3x)	23.06 mm	1.01 mm	6 mm	63 mm	V620768-X	52.00
.2205		5.600 mm	.661	16.800 mm	(3x)	23.26 mm	1.02 mm	6 mm	63 mm	V375834-X	52.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Stainless Steels & Titanium (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
NEW	.2244		5.700 mm	.673	17.100 mm	(3x)	23.67 mm	1.04 mm	6 mm	63 mm	V513831-X	52.00
NEW	.2283		5.800 mm	.685	17.400 mm	(3x)	24.09 mm	1.06 mm	6 mm	63 mm	V055259-X	52.00
NEW	.2322		5.900 mm	.696	17.700 mm	(3x)	24.51 mm	1.07 mm	6 mm	63 mm	V725074-X	52.00
NEW	.2343 (15/64)		5.953 mm	.703	17.859 mm	(3x)	24.72 mm	1.08 mm	6 mm	63 mm	V749857-X	52.00
NEW	.2362		6.000 mm	.708	18.000 mm	(3x)	24.92 mm	1.09 mm	8 mm	75 mm	V105720-X	52.00
NEW	.2401		6.100 mm	.720	18.300 mm	(3x)	25.34 mm	1.11 mm	8 mm	75 mm	V237883-X	62.50
NEW	.2440		6.200 mm	.732	18.600 mm	(3x)	25.75 mm	1.13 mm	8 mm	75 mm	V706763-X	62.50
NEW	.2480		6.300 mm	.744	18.900 mm	(3x)	26.17 mm	1.15 mm	8 mm	75 mm	V919346-X	62.50
NEW	.2500 (1/4)	E	6.350 mm	.749	19.050 mm	(3x)	26.38 mm	1.16 mm	8 mm	75 mm	V528432-X	62.50
NEW	.2520		6.400 mm	.755	19.200 mm	(3x)	26.58 mm	1.16 mm	8 mm	75 mm	V900727-X	62.50
NEW	.2559		6.500 mm	.767	19.500 mm	(3x)	27.00 mm	1.18 mm	8 mm	75 mm	V077394-X	62.50
NEW	.2598		6.600 mm	.779	19.800 mm	(3x)	27.42 mm	1.20 mm	8 mm	75 mm	V013230-X	66.00
NEW	.2638		6.700 mm	.791	20.100 mm	(3x)	27.83 mm	1.22 mm	8 mm	75 mm	V929918-X	66.00
NEW	.2656 (17/64)		6.746 mm	.796	20.238 mm	(3x)	28.03 mm	1.23 mm	8 mm	75 mm	V740217-X	66.00
NEW	.2677		6.800 mm	.803	20.400 mm	(3x)	28.25 mm	1.24 mm	8 mm	75 mm	V446296-X	66.00
NEW	.2717		6.900 mm	.814	20.700 mm	(3x)	28.66 mm	1.26 mm	8 mm	75 mm	V317773-X	66.00
NEW	.2756		7.000 mm	.826	21.000 mm	(3x)	29.08 mm	1.27 mm	8 mm	75 mm	V881876-X	66.00
NEW	.2795		7.100 mm	.838	21.300 mm	(3x)	29.49 mm	1.29 mm	8 mm	75 mm	V980781-X	66.00
NEW	.2812 (9/32)		7.142 mm	.843	21.426 mm	(3x)	29.69 mm	1.30 mm	8 mm	75 mm	V706404-X	66.00
NEW	.2834		7.200 mm	.850	21.600 mm	(3x)	29.91 mm	1.31 mm	8 mm	75 mm	V091061-X	66.00
NEW	.2874		7.300 mm	.862	21.900 mm	(3x)	30.32 mm	1.33 mm	8 mm	75 mm	V072312-X	66.00
NEW	.2913		7.400 mm	.874	22.200 mm	(3x)	30.74 mm	1.35 mm	8 mm	75 mm	V117842-X	66.00
NEW	.2952		7.500 mm	.885	22.500 mm	(3x)	31.16 mm	1.36 mm	8 mm	75 mm	V273458-X	66.00
NEW	.2969 (19/64)		7.541 mm	.890	22.623 mm	(3x)	31.30 mm	1.37 mm	8 mm	75 mm	V871923-X	66.00
NEW	.2992		7.600 mm	.897	22.800 mm	(3x)	31.57 mm	1.38 mm	8 mm	75 mm	V291052-X	66.00
NEW	.3031		7.700 mm	.909	23.100 mm	(3x)	31.99 mm	1.40 mm	8 mm	75 mm	V974175-X	66.00
NEW	.3071		7.800 mm	.921	23.400 mm	(3x)	32.40 mm	1.42 mm	8 mm	75 mm	V658026-X	66.00
NEW	.3110		7.900 mm	.933	23.700 mm	(3x)	32.82 mm	1.44 mm	8 mm	75 mm	V306961-X	66.00
NEW	.3125 (5/16)		7.937 mm	.937	23.811 mm	(3x)	32.96 mm	1.44 mm	8 mm	75 mm	V832028-X	66.00
NEW	.3150		8.000 mm	.944	24.000 mm	(3x)	33.23 mm	1.46 mm	10 mm	75 mm	V014845-X	66.00
NEW	.3189		8.100 mm	.956	24.300 mm	(3x)	33.65 mm	1.47 mm	10 mm	75 mm	V374608-X	79.00
NEW	.3228		8.200 mm	.968	24.600 mm	(3x)	34.06 mm	1.49 mm	10 mm	75 mm	V312274-X	79.00
NEW	.3268		8.300 mm	.980	24.900 mm	(3x)	34.48 mm	1.51 mm	10 mm	75 mm	V401956-X	79.00
NEW	.3281 (21/64)		8.333 mm	.984	24.999 mm	(3x)	34.62 mm	1.52 mm	10 mm	75 mm	V477604-X	79.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Stainless Steels & Titanium (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
	D ₁ (h8)*			L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD
.3307	8.400 mm		.992	25.200 mm (3x)		34.90 mm	1.53 mm	10 mm	75 mm	V482475-X	79.00
.3346	8.500 mm		1.003	25.500 mm (3x)		35.31 mm	1.55 mm	10 mm	75 mm	V027755-X	79.00
.3386	8.600 mm		1.015	25.800 mm (3x)		35.73 mm	1.57 mm	10 mm	75 mm	V918234-X	79.00
.3425	8.700 mm		1.027	26.100 mm (3x)		36.14 mm	1.58 mm	10 mm	75 mm	V419831-X	79.00
.3438 (11/32)	8.732 mm		1.031	26.196 mm (3x)		36.28 mm	1.59 mm	10 mm	75 mm	V088005-X	79.00
.3465	8.800 mm		1.039	26.400 mm (3x)		36.56 mm	1.60 mm	10 mm	75 mm	V768196-X	79.00
.3504	8.900 mm		1.051	26.700 mm (3x)		36.97 mm	1.62 mm	10 mm	75 mm	V868051-X	79.00
.3543	9.000 mm		1.062	27.000 mm (3x)		37.39 mm	1.64 mm	10 mm	75 mm	V189782-X	79.00
.3583	9.100 mm		1.074	27.300 mm (3x)		37.81 mm	1.66 mm	10 mm	75 mm	V061011-X	84.00
.3594 (23/64)	9.128 mm		1.078	27.384 mm (3x)		37.94 mm	1.66 mm	10 mm	75 mm	V664990-X	84.00
.3622	9.200 mm		1.086	27.600 mm (3x)		38.22 mm	1.67 mm	10 mm	75 mm	V832903-X	84.00
.3661	9.300 mm		1.098	27.900 mm (3x)		38.64 mm	1.69 mm	10 mm	75 mm	V628536-X	84.00
.3701	9.400 mm		1.110	28.200 mm (3x)		39.05 mm	1.71 mm	10 mm	75 mm	V276540-X	84.00
.3740	9.500 mm		1.122	28.500 mm (3x)		39.47 mm	1.73 mm	10 mm	75 mm	V661679-X	84.00
.3750 (3/8)	9.525 mm		1.124	28.575 mm (3x)		39.60 mm	1.73 mm	10 mm	75 mm	V863529-X	84.00
.3780	9.600 mm		1.133	28.800 mm (3x)		39.88 mm	1.75 mm	10 mm	75 mm	V298627-X	84.00
.3819	9.700 mm		1.145	29.100 mm (3x)		40.30 mm	1.77 mm	10 mm	75 mm	V518811-X	84.00
.3858	9.800 mm		1.157	29.400 mm (3x)		40.71 mm	1.78 mm	10 mm	75 mm	V653964-X	84.00
.3898	9.900 mm		1.169	29.700 mm (3x)		41.13 mm	1.80 mm	10 mm	75 mm	V189877-X	84.00
.3906 (25/64)	9.921 mm		1.171	29.763 mm (3x)		41.20 mm	1.81 mm	10 mm	75 mm	V633794-X	84.00
.3937	10.000 mm		1.181	30.000 mm (3x)		41.55 mm	1.82 mm	12 mm	100 mm	V903575-X	93.00
.3976	10.100 mm		1.192	30.300 mm (3x)		41.96 mm	1.84 mm	12 mm	100 mm	V021699-X	113.00
.4016	10.200 mm		1.204	30.600 mm (3x)		42.38 mm	1.86 mm	12 mm	100 mm	V342003-X	113.00
.4055	10.300 mm		1.216	30.900 mm (3x)		42.79 mm	1.87 mm	12 mm	100 mm	V023520-X	113.00
.4062 (13/32)	10.317 mm		1.218	30.951 mm (3x)		42.86 mm	1.88 mm	12 mm	100 mm	V954003-X	113.00
.4094	10.400 mm		1.228	31.200 mm (3x)		43.21 mm	1.89 mm	12 mm	100 mm	V066889-X	113.00
.4134	10.500 mm		1.240	31.500 mm (3x)		43.62 mm	1.91 mm	12 mm	100 mm	V448008-X	113.00
.4173	10.600 mm		1.251	31.800 mm (3x)		44.04 mm	1.93 mm	12 mm	100 mm	V712696-X	113.00
.4213	10.700 mm		1.263	32.100 mm (3x)		44.45 mm	1.95 mm	12 mm	100 mm	V701361-X	113.00
.4219 (27/64)	10.716 mm		1.265	32.148 mm (3x)		44.52 mm	1.95 mm	12 mm	100 mm	V562749-X	113.00
.4252	10.800 mm		1.275	32.400 mm (3x)		44.87 mm	1.97 mm	12 mm	100 mm	V643526-X	113.00
.4291	10.900 mm		1.287	32.700 mm (3x)		45.29 mm	1.98 mm	12 mm	100 mm	V693141-X	113.00
.4331	11.000 mm		1.299	33.000 mm (3x)		45.70 mm	2.00 mm	12 mm	100 mm	V912700-X	113.00
.4370	11.100 mm		1.311	33.300 mm (3x)		46.12 mm	2.02 mm	12 mm	100 mm	V156477-X	113.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Stainless Steels & Titanium (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD
NEW	.4375 (7/16)		11.112 mm	1.312	33.336 mm	(3x)	46.18 mm	2.02 mm	12 mm	100 mm	V804740-X	113.00
NEW	.4409		11.200 mm	1.322	33.600 mm	(3x)	46.53 mm	2.04 mm	12 mm	100 mm	V944699-X	113.00
NEW	.4449		11.300 mm	1.334	33.900 mm	(3x)	46.95 mm	2.06 mm	12 mm	100 mm	V357027-X	113.00
NEW	.4488		11.400 mm	1.346	34.200 mm	(3x)	47.36 mm	2.07 mm	12 mm	100 mm	V911807-X	113.00
NEW	.4527		11.500 mm	1.358	34.500 mm	(3x)	47.78 mm	2.09 mm	12 mm	100 mm	V833836-X	113.00
NEW	.4531 (29/64)		11.508 mm	1.359	34.524 mm	(3x)	47.79 mm	2.09 mm	12 mm	100 mm	V113939-X	113.00
NEW	.4567		11.600 mm	1.370	34.800 mm	(3x)	48.20 mm	2.11 mm	12 mm	100 mm	V937238-X	122.50
NEW	.4606		11.700 mm	1.381	35.100 mm	(3x)	48.61 mm	2.13 mm	12 mm	100 mm	V409496-X	122.50
NEW	.4646		11.800 mm	1.393	35.400 mm	(3x)	49.03 mm	2.15 mm	12 mm	100 mm	V539946-X	122.50
NEW	.4685		11.900 mm	1.405	35.700 mm	(3x)	49.44 mm	2.17 mm	12 mm	100 mm	V365024-X	122.50
NEW	.4688 (15/32)		11.907 mm	1.406	35.721 mm	(3x)	49.45 mm	2.17 mm	12 mm	100 mm	V878948-X	122.50
NEW	.4724		12.000 mm	1.417	36.000 mm	(3x)	49.86 mm	2.18 mm	14 mm	100 mm	V407806-X	122.50
NEW	.4764		12.100 mm	1.429	36.300 mm	(3x)	50.27 mm	2.20 mm	14 mm	100 mm	V998428-X	158.00
NEW	.4803		12.200 mm	1.440	36.600 mm	(3x)	50.69 mm	2.22 mm	14 mm	100 mm	V298650-X	158.00
NEW	.4843		12.300 mm	1.452	36.900 mm	(3x)	51.10 mm	2.24 mm	14 mm	100 mm	V842887-X	158.00
NEW	.4883 (31/64)		12.400 mm	1.464	37.200 mm	(3x)	51.52 mm	2.26 mm	14 mm	100 mm	V014085-X	158.00
NEW	.4921		12.500 mm	1.476	37.500 mm	(3x)	51.94 mm	2.27 mm	14 mm	100 mm	V297632-X	158.00
NEW	.4961		12.600 mm	1.488	37.800 mm	(3x)	52.35 mm	2.29 mm	14 mm	100 mm	V422945-X	158.00
NEW	.5000 (1/2)		12.700 mm	1.499	38.100 mm	(3x)	52.77 mm	2.31 mm	14 mm	100 mm	V795885-X	158.00

* For h6 and h8 tolerances, see page 8.



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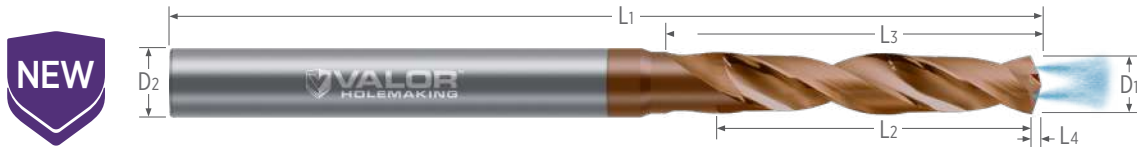
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For Stainless Steels & Titanium – Coolant-Through

Built to Outperform in 316L Stainless Steel and Ti-6Al-4V Titanium



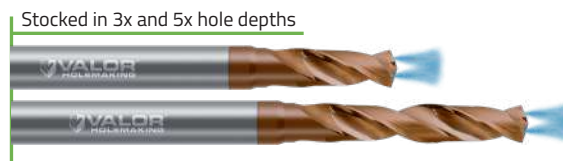
- Optimized for best-in-class performance in 316L Stainless Steel and Ti-6Al-4V Titanium, with proven consistency in high-temp, low-conductivity alloys
- Outperforms top competitors in tool life, hole quality, and cost-per-hole across stainless steel and titanium applications
- Coolant-through channels drive high-pressure fluid directly to the cut, ensuring thermal control and uninterrupted chip evacuation
- Engineered relief design suppresses work-hardening and maintains bore integrity under demanding conditions
- Advanced flute architecture accelerates chip formation and evacuation, reducing heat and minimizing tool wear
- Ultra-low cutting forces and minimal vibration deliver exceptional hole quality in thin plate applications
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, Titanium, and other high hardness materials
- Solid carbide
- Precision manufactured in the USA



Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth					Tool #	\$USD
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD
.0625 (1/16)		1.587 mm	.187	4.764 mm	(3x)	6.57 mm	.29 mm	3 mm	63 mm	V044458-X	66.00
.0625 (1/16)		1.587 mm	.312	7.950 mm	(5x)	9.93 mm	.29 mm	3 mm	63 mm	V296959-X	86.50
.0630		1.600 mm	.188	4.800 mm	(3x)	6.63 mm	.29 mm	3 mm	63 mm	V699282-X	66.00
.0630		1.600 mm	.314	8.000 mm	(5x)	9.99 mm	.29 mm	3 mm	63 mm	V351581-X	86.50
.0669	#51	1.700 mm	.200	5.100 mm	(3x)	7.05 mm	.31 mm	3 mm	63 mm	V867698-X	66.00
.0669	#51	1.700 mm	.334	8.500 mm	(5x)	10.62 mm	.31 mm	3 mm	63 mm	V902405-X	86.50
.0708		1.800 mm	.212	5.400 mm	(3x)	7.47 mm	.33 mm	3 mm	63 mm	V015479-X	66.00
.0708		1.800 mm	.354	9.000 mm	(5x)	11.25 mm	.33 mm	3 mm	63 mm	V927713-X	86.50
.0748		1.900 mm	.224	5.700 mm	(3x)	7.88 mm	.35 mm	3 mm	63 mm	V658267-X	66.00
.0748		1.900 mm	.374	9.500 mm	(5x)	11.87 mm	.35 mm	3 mm	63 mm	V127154-X	86.50
.0781 (5/64)		1.984 mm	.234	5.952 mm	(3x)	8.23 mm	.36 mm	3 mm	63 mm	V567827-X	66.00
.0781 (5/64)		1.984 mm	.389	9.900 mm	(5x)	12.38 mm	.36 mm	3 mm	63 mm	V907159-X	86.50
.0787		2.000 mm	.236	6.000 mm	(3x)	8.30 mm	.36 mm	3 mm	63 mm	V056430-X	66.00
.0787		2.000 mm	.393	10.000 mm	(5x)	12.50 mm	.36 mm	3 mm	63 mm	V139592-X	86.50
.0826		2.100 mm	.248	6.300 mm	(3x)	8.71 mm	.38 mm	3 mm	63 mm	V220226-X	66.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Stainless Steels & Titanium – Coolant-Through (cont.)

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	Drill Diameter		Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire metric	inch	metric	hole depth						
	D ₁ (h8)*		L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
NEW	.0826		.413	10.500 mm	(5x)	13.12 mm	.38 mm	3 mm	63 mm	V359835-X	86.50
NEW	.0866		.259	6.600 mm	(3x)	9.13 mm	.40 mm	3 mm	63 mm	V377807-X	66.00
NEW	.0866		.433	11.000 mm	(5x)	13.75 mm	.40 mm	3 mm	63 mm	V542573-X	86.50
NEW	.0905		.271	6.900 mm	(3x)	9.54 mm	.42 mm	3 mm	63 mm	V075094-X	66.00
NEW	.0905		.452	11.500 mm	(5x)	14.37 mm	.42 mm	3 mm	63 mm	V065453-X	86.50
NEW	.0937 (3/32)		.281	7.143 mm	(3x)	9.89 mm	.43 mm	3 mm	63 mm	V547504-X	66.00
NEW	.0937 (3/32)		.468	11.900 mm	(5x)	14.88 mm	.43 mm	3 mm	63 mm	V307161-X	86.50
NEW	.0944		.283	7.200 mm	(3x)	9.96 mm	.44 mm	3 mm	63 mm	V563988-X	66.00
NEW	.0944		.472	12.000 mm	(5x)	15.00 mm	.44 mm	3 mm	63 mm	V328426-X	86.50
NEW	.0984		.295	7.500 mm	(3x)	10.38 mm	.45 mm	3 mm	63 mm	V181847-X	66.00
NEW	.0984		.492	12.500 mm	(5x)	15.63 mm	.45 mm	3 mm	63 mm	V190224-X	86.50
NEW	.1023		.307	7.800 mm	(3x)	10.79 mm	.47 mm	3 mm	63 mm	V272050-X	66.00
NEW	.1023		.511	13.000 mm	(5x)	16.25 mm	.47 mm	3 mm	63 mm	V197522-X	86.50
NEW	.1062		.318	8.100 mm	(3x)	11.21 mm	.49 mm	3 mm	63 mm	V911077-X	66.00
NEW	.1062		.531	13.500 mm	(5x)	16.88 mm	.49 mm	3 mm	63 mm	V377306-X	86.50
NEW	.1093 (7/64)		.328	8.334 mm	(3x)	11.55 mm	.51 mm	3 mm	63 mm	V700134-X	66.00
NEW	.1093 (7/64)		.547	13.900 mm	(5x)	17.37 mm	.51 mm	3 mm	63 mm	V424945-X	86.50
NEW	.1102		.330	8.400 mm	(3x)	11.62 mm	.51 mm	3 mm	63 mm	V875130-X	66.00
NEW	.1102		.551	14.000 mm	(5x)	17.50 mm	.51 mm	3 mm	63 mm	V798664-X	86.50
NEW	.1141		.342	8.700 mm	(3x)	12.04 mm	.53 mm	3 mm	63 mm	V575648-X	66.00
NEW	.1141		.570	14.500 mm	(5x)	18.13 mm	.53 mm	3 mm	63 mm	V920701-X	86.50
NEW	.1181		.354	9.000 mm	(3x)	12.45 mm	.55 mm	4 mm	63 mm	V381885-X	66.00
NEW	.1181		.590	15.000 mm	(5x)	18.75 mm	.55 mm	4 mm	63 mm	V943402-X	86.50
NEW	.1220		.366	9.300 mm	(3x)	12.87 mm	.56 mm	4 mm	63 mm	V581276-X	66.00
NEW	.1220		.610	15.500 mm	(5x)	19.38 mm	.56 mm	4 mm	63 mm	V619311-X	86.50
NEW	.1250 (1/8)		.374	9.525 mm	(3x)	13.15 mm	.58 mm	4 mm	63 mm	V812003-X	66.00
NEW	.1250 (1/8)		.625	15.900 mm	(5x)	19.87 mm	.58 mm	4 mm	63 mm	V727194-X	86.50
NEW	.1260		.377	9.600 mm	(3x)	13.28 mm	.58 mm	4 mm	63 mm	V473395-X	66.00
NEW	.1260		.629	16.000 mm	(5x)	20.00 mm	.58 mm	4 mm	63 mm	V832101-X	86.50
NEW	.1300		.389	9.900 mm	(3x)	13.70 mm	.60 mm	4 mm	63 mm	V190740-X	66.00
NEW	.1300		.649	16.500 mm	(5x)	20.63 mm	.60 mm	4 mm	63 mm	V972189-X	86.50
NEW	.1338		.401	10.200 mm	(3x)	14.12 mm	.62 mm	4 mm	63 mm	V393652-X	66.00
NEW	.1338		.669	17.000 mm	(5x)	21.26 mm	.62 mm	4 mm	63 mm	V680798-X	86.50
NEW	.1377		.413	10.500 mm	(3x)	14.53 mm	.64 mm	4 mm	63 mm	V400296-X	66.00
NEW	.1377		.688	17.500 mm	(5x)	21.88 mm	.64 mm	4 mm	63 mm	V938216-X	86.50
NEW	.1406 (9/64)	#28	.421	10.713 mm	(3x)	14.81 mm	.65 mm	4 mm	63 mm	V868193-X	66.00
NEW	.1406 (9/64)	#28	.702	17.850 mm	(5x)	22.32 mm	.65 mm	4 mm	63 mm	V469303-X	86.50
NEW	.1417		.425	10.800 mm	(3x)	14.95 mm	.66 mm	4 mm	63 mm	V081427-X	66.00

* For h6 and h8 tolerances, see page 8.

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD
.1417		3.600 mm	.708	18.000 mm	(5x)	22.51 mm	.66 mm	4 mm	63 mm	V626431-X	86.50
.1456		3.700 mm	.437	11.100 mm	(3x)	15.36 mm	.67 mm	4 mm	63 mm	V936514-X	66.00
.1456		3.700 mm	.728	18.500 mm	(5x)	23.13 mm	.67 mm	4 mm	63 mm	V816975-X	86.50
.1496		3.800 mm	.448	11.400 mm	(3x)	15.78 mm	.69 mm	4 mm	63 mm	V110819-X	66.00
.1496		3.800 mm	.748	19.000 mm	(5x)	23.76 mm	.69 mm	4 mm	63 mm	V292259-X	86.50
.1535		3.900 mm	.460	11.700 mm	(3x)	16.19 mm	.71 mm	4 mm	63 mm	V349036-X	66.00
.1535		3.900 mm	.767	19.500 mm	(5x)	24.38 mm	.71 mm	4 mm	63 mm	V282671-X	86.50
.1562 (5/32)		3.968 mm	.468	11.904 mm	(3x)	16.47 mm	.72 mm	4 mm	63 mm	V493130-X	66.00
.1562 (5/32)		3.968 mm	.781	19.850 mm	(5x)	24.82 mm	.72 mm	4 mm	63 mm	V668880-X	86.50
.1574		4.000 mm	.472	12.000 mm	(3x)	16.61 mm	.73 mm	6 mm	63 mm	V817792-X	66.00
.1574		4.000 mm	.787	20.000 mm	(5x)	25.01 mm	.73 mm	6 mm	75 mm	V739537-X	86.50
.1614		4.100 mm	.484	12.300 mm	(3x)	17.02 mm	.75 mm	6 mm	63 mm	V028087-X	69.00
.1614		4.100 mm	.807	20.500 mm	(5x)	25.63 mm	.75 mm	6 mm	75 mm	V509506-X	94.50
.1653		4.200 mm	.496	12.600 mm	(3x)	17.44 mm	.76 mm	6 mm	63 mm	V989430-X	69.00
.1653		4.200 mm	.826	21.000 mm	(5x)	26.26 mm	.76 mm	6 mm	75 mm	V832392-X	94.50
.1692		4.300 mm	.507	12.900 mm	(3x)	17.86 mm	.78 mm	6 mm	63 mm	V682422-X	69.00
.1692		4.300 mm	.846	21.500 mm	(5x)	26.89 mm	.78 mm	6 mm	75 mm	V046141-X	94.50
.1718 (11/64)		4.365 mm	.515	13.095 mm	(3x)	18.13 mm	.79 mm	6 mm	63 mm	V113522-X	69.00
.1718 (11/64)		4.365 mm	.860	21.850 mm	(5x)	27.32 mm	.79 mm	6 mm	75 mm	V741827-X	94.50
.1732		4.400 mm	.519	13.200 mm	(3x)	18.27 mm	.80 mm	6 mm	63 mm	V847476-X	69.00
.1732		4.400 mm	.866	22.000 mm	(5x)	27.51 mm	.80 mm	6 mm	75 mm	V850327-X	94.50
.1771		4.500 mm	.531	13.500 mm	(3x)	18.69 mm	.82 mm	6 mm	63 mm	V474459-X	69.00
.1771		4.500 mm	.885	22.500 mm	(5x)	28.14 mm	.82 mm	6 mm	75 mm	V909190-X	94.50
.1811		4.600 mm	.543	13.800 mm	(3x)	19.10 mm	.84 mm	6 mm	63 mm	V219076-X	69.00
.1811		4.600 mm	.905	23.000 mm	(5x)	28.76 mm	.84 mm	6 mm	75 mm	V703225-X	94.50
.1850	#13	4.700 mm	.555	14.100 mm	(3x)	19.52 mm	.86 mm	6 mm	63 mm	V437795-X	69.00
.1850	#13	4.700 mm	.925	23.500 mm	(5x)	29.39 mm	.86 mm	6 mm	75 mm	V059397-X	94.50
.1875 (3/16)		4.762 mm	.562	14.286 mm	(3x)	19.79 mm	.87 mm	6 mm	63 mm	V667510-X	69.00
.1875 (3/16)		4.762 mm	.937	23.800 mm	(5x)	29.77 mm	.87 mm	6 mm	75 mm	V137831-X	94.50
.1890	#12	4.800 mm	.566	14.400 mm	(3x)	19.93 mm	.87 mm	6 mm	63 mm	V828610-X	69.00
.1890	#12	4.800 mm	.944	24.000 mm	(5x)	30.01 mm	.87 mm	6 mm	75 mm	V782535-X	94.50
.1930		4.900 mm	.578	14.700 mm	(3x)	20.35 mm	.89 mm	6 mm	63 mm	V073121-X	69.00
.1930		4.900 mm	.964	24.500 mm	(5x)	30.64 mm	.89 mm	6 mm	75 mm	V123660-X	94.50
.1968		5.000 mm	.590	15.000 mm	(3x)	20.77 mm	.91 mm	6 mm	63 mm	V484498-X	69.00
.1968		5.000 mm	.984	25.000 mm	(5x)	31.27 mm	.91 mm	6 mm	75 mm	V751126-X	94.50
.2007		5.100 mm	.602	15.300 mm	(3x)	21.18 mm	.93 mm	6 mm	63 mm	V300574-X	72.50
.2007		5.100 mm	1.003	25.500 mm	(5x)	31.89 mm	.93 mm	6 mm	75 mm	V288963-X	98.00
.2031 (13/64)		5.159 mm	.609	15.477 mm	(3x)	21.45 mm	.94 mm	6 mm	63 mm	V785778-X	72.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD
NEW	.2031 (13/64)		5.159 mm	1.015	25.800 mm	(5x)	32.27 mm	.94 mm	6 mm	75 mm	V164206-X	98.00
NEW	.2047		5.200 mm	.614	15.600 mm	(3x)	21.60 mm	.95 mm	6 mm	63 mm	V047919-X	72.50
NEW	.2047		5.200 mm	1.023	26.000 mm	(5x)	32.52 mm	.95 mm	6 mm	75 mm	V580070-X	98.00
NEW	.2086		5.300 mm	.625	15.900 mm	(3x)	22.01 mm	.96 mm	6 mm	63 mm	V073105-X	72.50
NEW	.2086		5.300 mm	1.043	26.500 mm	(5x)	33.14 mm	.96 mm	6 mm	75 mm	V398136-X	98.00
NEW	.2125		5.400 mm	.637	16.200 mm	(3x)	22.43 mm	.98 mm	6 mm	63 mm	V341205-X	72.50
NEW	.2125		5.400 mm	1.062	27.000 mm	(5x)	33.77 mm	.98 mm	6 mm	75 mm	V967907-X	98.00
NEW	.2165		5.500 mm	.649	16.500 mm	(3x)	22.84 mm	1.00 mm	6 mm	63 mm	V021998-X	72.50
NEW	.2165		5.500 mm	1.082	27.500 mm	(5x)	34.39 mm	1.00 mm	6 mm	75 mm	V819546-X	98.00
NEW	.2187 (7/32)		5.556 mm	.656	16.668 mm	(3x)	23.06 mm	1.01 mm	6 mm	63 mm	V096926-X	72.50
NEW	.2187 (7/32)		5.556 mm	1.094	27.800 mm	(5x)	34.76 mm	1.01 mm	6 mm	75 mm	V869668-X	98.00
NEW	.2205		5.600 mm	.661	16.800 mm	(3x)	23.26 mm	1.02 mm	6 mm	63 mm	V509244-X	72.50
NEW	.2205		5.600 mm	1.102	28.000 mm	(5x)	35.02 mm	1.02 mm	6 mm	75 mm	V729481-X	98.00
NEW	.2244		5.700 mm	.673	17.100 mm	(3x)	23.67 mm	1.04 mm	6 mm	63 mm	V141553-X	72.50
NEW	.2244		5.700 mm	1.122	28.500 mm	(5x)	35.64 mm	1.04 mm	6 mm	75 mm	V290026-X	98.00
NEW	.2283		5.800 mm	.685	17.400 mm	(3x)	24.09 mm	1.06 mm	6 mm	63 mm	V305966-X	72.50
NEW	.2283		5.800 mm	1.141	29.000 mm	(5x)	36.27 mm	1.06 mm	6 mm	75 mm	V082056-X	98.00
NEW	.2322		5.900 mm	.696	17.700 mm	(3x)	24.51 mm	1.07 mm	6 mm	63 mm	V247863-X	72.50
NEW	.2322		5.900 mm	1.161	29.500 mm	(5x)	36.90 mm	1.07 mm	6 mm	75 mm	V036592-X	98.00
NEW	.2343 (15/64)		5.953 mm	.703	17.859 mm	(3x)	24.72 mm	1.08 mm	6 mm	63 mm	V836918-X	72.50
NEW	.2343 (15/64)		5.953 mm	1.171	29.750 mm	(5x)	37.21 mm	1.08 mm	6 mm	75 mm	V715585-X	98.00
NEW	.2362		6.000 mm	.708	18.000 mm	(3x)	24.92 mm	1.09 mm	8 mm	75 mm	V942982-X	72.50
NEW	.2362		6.000 mm	1.181	30.000 mm	(5x)	37.52 mm	1.09 mm	8 mm	100 mm	V038336-X	98.00
NEW	.2401		6.100 mm	.720	18.300 mm	(3x)	25.34 mm	1.11 mm	8 mm	75 mm	V257569-X	83.00
NEW	.2401		6.100 mm	1.200	30.500 mm	(5x)	38.15 mm	1.11 mm	8 mm	100 mm	V115190-X	120.50
NEW	.2440		6.200 mm	.732	18.600 mm	(3x)	25.75 mm	1.13 mm	8 mm	75 mm	V824313-X	83.00
NEW	.2440		6.200 mm	1.220	31.000 mm	(5x)	38.77 mm	1.13 mm	8 mm	100 mm	V599524-X	120.50
NEW	.2480		6.300 mm	.744	18.900 mm	(3x)	26.17 mm	1.15 mm	8 mm	75 mm	V178937-X	83.00
NEW	.2480		6.300 mm	1.240	31.500 mm	(5x)	39.40 mm	1.15 mm	8 mm	100 mm	V777989-X	120.50
NEW	.2500 (1/4)	E	6.350 mm	.749	19.050 mm	(3x)	26.38 mm	1.16 mm	8 mm	75 mm	V095081-X	83.00
NEW	.2500 (1/4)	E	6.350 mm	1.249	31.750 mm	(5x)	39.71 mm	1.16 mm	8 mm	100 mm	V253741-X	120.50
NEW	.2520		6.400 mm	.755	19.200 mm	(3x)	26.58 mm	1.16 mm	8 mm	75 mm	V336214-X	83.00
NEW	.2520		6.400 mm	1.259	32.000 mm	(5x)	40.02 mm	1.16 mm	8 mm	100 mm	V689486-X	120.50
NEW	.2559		6.500 mm	.767	19.500 mm	(3x)	27.00 mm	1.18 mm	8 mm	75 mm	V385155-X	83.00
NEW	.2559		6.500 mm	1.279	32.500 mm	(5x)	40.65 mm	1.18 mm	8 mm	100 mm	V031548-X	120.50
NEW	.2598		6.600 mm	.779	19.800 mm	(3x)	27.42 mm	1.20 mm	8 mm	75 mm	V649705-X	83.00
NEW	.2598		6.600 mm	1.299	33.000 mm	(5x)	41.28 mm	1.20 mm	8 mm	100 mm	V572799-X	120.50
NEW	.2638		6.700 mm	.791	20.100 mm	(3x)	27.83 mm	1.22 mm	8 mm	75 mm	V205522-X	83.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD
.2638		6.700 mm	1.318	33.500 mm	(5x)	41.90 mm	1.22 mm	8 mm	100 mm	V331763-X	120.50
.2656 (17/64)		6.746 mm	.796	20.238 mm	(3x)	28.03 mm	1.23 mm	8 mm	75 mm	V694191-X	83.00
.2656 (17/64)		6.746 mm	1.328	33.750 mm	(5x)	42.21 mm	1.23 mm	8 mm	100 mm	V951821-X	120.50
.2677		6.800 mm	.803	20.400 mm	(3x)	28.25 mm	1.24 mm	8 mm	75 mm	V390651-X	83.00
.2677		6.800 mm	1.338	34.000 mm	(5x)	42.53 mm	1.24 mm	8 mm	100 mm	V929912-X	120.50
.2717		6.900 mm	.814	20.700 mm	(3x)	28.66 mm	1.26 mm	8 mm	75 mm	V598853-X	83.00
.2717		6.900 mm	1.358	34.500 mm	(5x)	43.15 mm	1.26 mm	8 mm	100 mm	V472892-X	120.50
.2756		7.000 mm	.826	21.000 mm	(3x)	29.08 mm	1.27 mm	8 mm	75 mm	V272926-X	83.00
.2756		7.000 mm	1.377	35.000 mm	(5x)	43.78 mm	1.27 mm	8 mm	100 mm	V157449-X	120.50
.2795		7.100 mm	.838	21.300 mm	(3x)	29.49 mm	1.29 mm	8 mm	75 mm	V831588-X	83.00
.2795		7.100 mm	1.397	35.500 mm	(5x)	44.40 mm	1.29 mm	8 mm	100 mm	V493449-X	120.50
.2812 (9/32)		7.142 mm	.843	21.426 mm	(3x)	29.69 mm	1.30 mm	8 mm	75 mm	V456797-X	83.00
.2812 (9/32)		7.142 mm	1.405	35.700 mm	(5x)	44.66 mm	1.30 mm	8 mm	100 mm	V658176-X	120.50
.2834		7.200 mm	.850	21.600 mm	(3x)	29.91 mm	1.31 mm	8 mm	75 mm	V159492-X	83.00
.2834		7.200 mm	1.417	36.000 mm	(5x)	45.03 mm	1.31 mm	8 mm	100 mm	V715239-X	120.50
.2874		7.300 mm	.862	21.900 mm	(3x)	30.32 mm	1.33 mm	8 mm	75 mm	V409291-X	83.00
.2874		7.300 mm	1.437	36.500 mm	(5x)	45.65 mm	1.33 mm	8 mm	100 mm	V796677-X	120.50
.2913		7.400 mm	.874	22.200 mm	(3x)	30.74 mm	1.35 mm	8 mm	75 mm	V855190-X	83.00
.2913		7.400 mm	1.456	37.000 mm	(5x)	46.28 mm	1.35 mm	8 mm	100 mm	V518446-X	120.50
.2952		7.500 mm	.885	22.500 mm	(3x)	31.16 mm	1.36 mm	8 mm	75 mm	V315516-X	83.00
.2952		7.500 mm	1.476	37.500 mm	(5x)	46.91 mm	1.36 mm	8 mm	100 mm	V126036-X	120.50
.2969 (19/64)		7.541 mm	.890	22.623 mm	(3x)	31.30 mm	1.37 mm	8 mm	75 mm	V850747-X	83.00
.2969 (19/64)		7.541 mm	1.484	37.700 mm	(5x)	47.16 mm	1.37 mm	8 mm	100 mm	V648255-X	120.50
.2992		7.600 mm	.897	22.800 mm	(3x)	31.57 mm	1.38 mm	8 mm	75 mm	V415124-X	83.00
.2992		7.600 mm	1.496	38.000 mm	(5x)	47.53 mm	1.38 mm	8 mm	100 mm	V853084-X	120.50
.3031		7.700 mm	.909	23.100 mm	(3x)	31.99 mm	1.40 mm	8 mm	75 mm	V936317-X	83.00
.3031		7.700 mm	1.515	38.500 mm	(5x)	48.16 mm	1.40 mm	8 mm	100 mm	V507733-X	120.50
.3071		7.800 mm	.921	23.400 mm	(3x)	32.40 mm	1.42 mm	8 mm	75 mm	V310961-X	83.00
.3071		7.800 mm	1.535	39.000 mm	(5x)	48.78 mm	1.42 mm	8 mm	100 mm	V723130-X	120.50
.3110		7.900 mm	.933	23.700 mm	(3x)	32.82 mm	1.44 mm	8 mm	75 mm	V087300-X	83.00
.3110		7.900 mm	1.555	39.500 mm	(5x)	49.41 mm	1.44 mm	8 mm	100 mm	V585087-X	120.50
.3125 (5/16)		7.937 mm	.937	23.811 mm	(3x)	32.96 mm	1.44 mm	8 mm	75 mm	V113712-X	83.00
.3125 (5/16)		7.937 mm	1.562	39.700 mm	(5x)	49.66 mm	1.44 mm	8 mm	100 mm	V663243-X	120.50
.3150		8.000 mm	.944	24.000 mm	(3x)	33.23 mm	1.46 mm	10 mm	75 mm	V508173-X	83.00
.3150		8.000 mm	1.574	40.000 mm	(5x)	50.03 mm	1.46 mm	10 mm	100 mm	V243058-X	120.50
.3189		8.100 mm	.956	24.300 mm	(3x)	33.65 mm	1.47 mm	10 mm	75 mm	V048369-X	102.50
.3189		8.100 mm	1.594	40.500 mm	(5x)	50.66 mm	1.47 mm	10 mm	100 mm	V077678-X	146.00
.3228		8.200 mm	.968	24.600 mm	(3x)	34.06 mm	1.49 mm	10 mm	75 mm	V653840-X	102.50

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Stainless Steels & Titanium – Coolant-Through (cont.)

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	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	\$USD
NEW	.3228		8.200 mm	1.614	41.000 mm	(5x)	51.28 mm	1.49 mm	10 mm	100 mm	V982879-X	146.00
NEW	.3268		8.300 mm	.980	24.900 mm	(3x)	34.48 mm	1.51 mm	10 mm	75 mm	V621090-X	102.50
NEW	.3268		8.300 mm	1.633	41.500 mm	(5x)	51.91 mm	1.51 mm	10 mm	100 mm	V057067-X	146.00
NEW	.3281 (21/64)		8.333 mm	.984	24.999 mm	(3x)	34.62 mm	1.52 mm	10 mm	75 mm	V809487-X	102.50
NEW	.3281 (21/64)		8.333 mm	1.639	41.650 mm	(5x)	52.10 mm	1.52 mm	10 mm	100 mm	V545413-X	146.00
NEW	.3307		8.400 mm	.992	25.200 mm	(3x)	34.90 mm	1.53 mm	10 mm	75 mm	V410740-X	102.50
NEW	.3307		8.400 mm	1.653	42.000 mm	(5x)	52.54 mm	1.53 mm	10 mm	100 mm	V970209-X	146.00
NEW	.3346		8.500 mm	1.003	25.500 mm	(3x)	35.31 mm	1.55 mm	10 mm	75 mm	V454166-X	102.50
NEW	.3346		8.500 mm	1.673	42.500 mm	(5x)	53.16 mm	1.55 mm	10 mm	100 mm	V630105-X	146.00
NEW	.3386		8.600 mm	1.015	25.800 mm	(3x)	35.73 mm	1.57 mm	10 mm	75 mm	V195844-X	102.50
NEW	.3386		8.600 mm	1.692	43.000 mm	(5x)	53.79 mm	1.57 mm	10 mm	100 mm	V748486-X	146.00
NEW	.3425		8.700 mm	1.027	26.100 mm	(3x)	36.14 mm	1.58 mm	10 mm	75 mm	V310245-X	102.50
NEW	.3425		8.700 mm	1.712	43.500 mm	(5x)	54.41 mm	1.58 mm	10 mm	100 mm	V066828-X	146.00
NEW	.3438 (11/32)		8.732 mm	1.031	26.196 mm	(3x)	36.28 mm	1.59 mm	10 mm	75 mm	V847377-X	102.50
NEW	.3438 (11/32)		8.732 mm	1.718	43.650 mm	(5x)	54.60 mm	1.59 mm	10 mm	100 mm	V160725-X	146.00
NEW	.3465		8.800 mm	1.039	26.400 mm	(3x)	36.56 mm	1.60 mm	10 mm	75 mm	V076197-X	102.50
NEW	.3465		8.800 mm	1.732	44.000 mm	(5x)	55.04 mm	1.60 mm	10 mm	100 mm	V897719-X	146.00
NEW	.3504		8.900 mm	1.051	26.700 mm	(3x)	36.97 mm	1.62 mm	10 mm	75 mm	V625970-X	102.50
NEW	.3504		8.900 mm	1.751	44.500 mm	(5x)	55.66 mm	1.62 mm	10 mm	100 mm	V934130-X	146.00
NEW	.3543		9.000 mm	1.062	27.000 mm	(3x)	37.39 mm	1.64 mm	10 mm	75 mm	V904051-X	102.50
NEW	.3543		9.000 mm	1.771	45.000 mm	(5x)	56.29 mm	1.64 mm	10 mm	100 mm	V390288-X	146.00
NEW	.3583		9.100 mm	1.074	27.300 mm	(3x)	37.81 mm	1.66 mm	10 mm	75 mm	V257385-X	102.50
NEW	.3583		9.100 mm	1.791	45.500 mm	(5x)	56.92 mm	1.66 mm	10 mm	100 mm	V335580-X	146.00
NEW	.3594 (23/64)		9.128 mm	1.078	27.384 mm	(3x)	37.94 mm	1.66 mm	10 mm	75 mm	V407505-X	102.50
NEW	.3594 (23/64)		9.128 mm	1.797	45.650 mm	(5x)	57.10 mm	1.66 mm	10 mm	100 mm	V101529-X	146.00
NEW	.3622		9.200 mm	1.086	27.600 mm	(3x)	38.22 mm	1.67 mm	10 mm	75 mm	V964230-X	102.50
NEW	.3622		9.200 mm	1.811	46.000 mm	(5x)	57.54 mm	1.67 mm	10 mm	100 mm	V238391-X	146.00
NEW	.3661		9.300 mm	1.098	27.900 mm	(3x)	38.64 mm	1.69 mm	10 mm	75 mm	V183279-X	102.50
NEW	.3661		9.300 mm	1.830	46.500 mm	(5x)	58.17 mm	1.69 mm	10 mm	100 mm	V654509-X	146.00
NEW	.3701		9.400 mm	1.110	28.200 mm	(3x)	39.05 mm	1.71 mm	10 mm	75 mm	V614666-X	102.50
NEW	.3701		9.400 mm	1.850	47.000 mm	(5x)	58.79 mm	1.71 mm	10 mm	100 mm	V042150-X	146.00
NEW	.3740		9.500 mm	1.122	28.500 mm	(3x)	39.47 mm	1.73 mm	10 mm	75 mm	V736047-X	102.50
NEW	.3740		9.500 mm	1.870	47.500 mm	(5x)	59.42 mm	1.73 mm	10 mm	100 mm	V532410-X	146.00
NEW	.3750 (3/8)		9.525 mm	1.124	28.575 mm	(3x)	39.60 mm	1.73 mm	10 mm	75 mm	V197163-X	102.50
NEW	.3750 (3/8)		9.525 mm	1.875	47.650 mm	(5x)	59.60 mm	1.73 mm	10 mm	100 mm	V600637-X	146.00
NEW	.3780		9.600 mm	1.133	28.800 mm	(3x)	39.88 mm	1.75 mm	10 mm	75 mm	V483555-X	115.00
NEW	.3780		9.600 mm	1.889	48.000 mm	(5x)	60.04 mm	1.75 mm	10 mm	100 mm	V100481-X	157.00
NEW	.3819		9.700 mm	1.145	29.100 mm	(3x)	40.30 mm	1.77 mm	10 mm	75 mm	V495081-X	115.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Stainless Steels & Titanium – Coolant-Through (cont.)

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Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	\$USD
.3819		9.700 mm	1.909	48.500 mm	(5x)	60.67 mm	1.77 mm	10 mm	100 mm	V106447-X	157.00
.3858		9.800 mm	1.157	29.400 mm	(3x)	40.71 mm	1.78 mm	10 mm	75 mm	V556862-X	115.00
.3858		9.800 mm	1.929	49.000 mm	(5x)	61.29 mm	1.78 mm	10 mm	100 mm	V181429-X	157.00
.3898		9.900 mm	1.169	29.700 mm	(3x)	41.13 mm	1.80 mm	10 mm	75 mm	V275628-X	115.00
.3898		9.900 mm	1.948	49.500 mm	(5x)	61.92 mm	1.80 mm	10 mm	100 mm	V844479-X	157.00
.3906 (25/64)		9.921 mm	1.171	29.763 mm	(3x)	41.20 mm	1.81 mm	10 mm	75 mm	V928365-X	115.00
.3906 (25/64)		9.921 mm	1.952	49.600 mm	(5x)	62.05 mm	1.81 mm	10 mm	100 mm	V536684-X	157.00
.3937		10.000 mm	1.181	30.000 mm	(3x)	41.55 mm	1.82 mm	12 mm	100 mm	V584169-X	130.50
.3937		10.000 mm	1.968	50.000 mm	(5x)	62.55 mm	1.82 mm	12 mm	125 mm	V909472-X	157.00
.3976		10.100 mm	1.192	30.300 mm	(3x)	41.96 mm	1.84 mm	12 mm	100 mm	V820058-X	139.00
.3976		10.100 mm	1.988	50.500 mm	(5x)	63.17 mm	1.84 mm	12 mm	125 mm	V065116-X	202.00
.4016		10.200 mm	1.204	30.600 mm	(3x)	42.38 mm	1.86 mm	12 mm	100 mm	V501783-X	139.00
.4016		10.200 mm	2.007	51.000 mm	(5x)	63.80 mm	1.86 mm	12 mm	125 mm	V845495-X	202.00
.4055		10.300 mm	1.216	30.900 mm	(3x)	42.79 mm	1.87 mm	12 mm	100 mm	V992818-X	139.00
.4055		10.300 mm	2.027	51.500 mm	(5x)	64.42 mm	1.87 mm	12 mm	125 mm	V673518-X	202.00
.4062 (13/32)		10.317 mm	1.218	30.951 mm	(3x)	42.86 mm	1.88 mm	12 mm	100 mm	V243681-X	139.00
.4062 (13/32)		10.317 mm	2.031	51.600 mm	(5x)	64.54 mm	1.88 mm	12 mm	125 mm	V776874-X	202.00
.4094		10.400 mm	1.228	31.200 mm	(3x)	43.21 mm	1.89 mm	12 mm	100 mm	V755513-X	139.00
.4094		10.400 mm	2.047	52.000 mm	(5x)	65.05 mm	1.89 mm	12 mm	125 mm	V169491-X	202.00
.4134		10.500 mm	1.240	31.500 mm	(3x)	43.62 mm	1.91 mm	12 mm	100 mm	V643343-X	139.00
.4134		10.500 mm	2.066	52.500 mm	(5x)	65.67 mm	1.91 mm	12 mm	125 mm	V564918-X	202.00
.4173		10.600 mm	1.251	31.800 mm	(3x)	44.04 mm	1.93 mm	12 mm	100 mm	V056084-X	139.00
.4173		10.600 mm	2.086	53.000 mm	(5x)	66.30 mm	1.93 mm	12 mm	125 mm	V597451-X	202.00
.4213		10.700 mm	1.263	32.100 mm	(3x)	44.45 mm	1.95 mm	12 mm	100 mm	V199121-X	139.00
.4213		10.700 mm	2.106	53.500 mm	(5x)	66.92 mm	1.95 mm	12 mm	125 mm	V644133-X	202.00
.4219 (27/64)		10.716 mm	1.265	32.148 mm	(3x)	44.52 mm	1.95 mm	12 mm	100 mm	V014054-X	139.00
.4219 (27/64)		10.716 mm	2.110	53.600 mm	(5x)	67.05 mm	1.95 mm	12 mm	125 mm	V525671-X	202.00
.4252		10.800 mm	1.275	32.400 mm	(3x)	44.87 mm	1.97 mm	12 mm	100 mm	V125925-X	139.00
.4252		10.800 mm	2.125	54.000 mm	(5x)	67.55 mm	1.97 mm	12 mm	125 mm	V643320-X	202.00
.4291		10.900 mm	1.287	32.700 mm	(3x)	45.29 mm	1.98 mm	12 mm	100 mm	V884008-X	139.00
.4291		10.900 mm	2.145	54.500 mm	(5x)	68.18 mm	1.98 mm	12 mm	125 mm	V838185-X	202.00
.4331		11.000 mm	1.299	33.000 mm	(3x)	45.70 mm	2.00 mm	12 mm	100 mm	V078151-X	139.00
.4331		11.000 mm	2.165	55.000 mm	(5x)	68.80 mm	2.00 mm	12 mm	125 mm	V628383-X	202.00
.4370		11.100 mm	1.311	33.300 mm	(3x)	46.12 mm	2.02 mm	12 mm	100 mm	V225721-X	139.00
.4370		11.100 mm	2.185	55.500 mm	(5x)	69.43 mm	2.02 mm	12 mm	125 mm	V993009-X	202.00
.4375 (7/16)		11.112 mm	1.312	33.336 mm	(3x)	46.18 mm	2.02 mm	12 mm	100 mm	V418006-X	139.00
.4375 (7/16)		11.112 mm	2.187	55.550 mm	(5x)	69.49 mm	2.02 mm	12 mm	125 mm	V202863-X	202.00

* For h6 and h8 tolerances, see page 8.

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High Performance Drills

For Stainless Steels & Titanium – Coolant-Through (cont.)

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	Drill Diameter		Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire metric	inch	metric	hole depth						
	D ₁ (h8)*		L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	USD
NEW	.4409	11.200 mm	1.322	33.600 mm	(3x)	46.53 mm	2.04 mm	12 mm	100 mm	V241059-X	139.00
NEW	.4409	11.200 mm	2.204	56.000 mm	(5x)	70.05 mm	2.04 mm	12 mm	125 mm	V385734-X	202.00
NEW	.4449	11.300 mm	1.334	33.900 mm	(3x)	46.95 mm	2.06 mm	12 mm	100 mm	V066503-X	139.00
NEW	.4449	11.300 mm	2.224	56.500 mm	(5x)	70.68 mm	2.06 mm	12 mm	125 mm	V704840-X	202.00
NEW	.4488	11.400 mm	1.346	34.200 mm	(3x)	47.36 mm	2.07 mm	12 mm	100 mm	V094132-X	139.00
NEW	.4488	11.400 mm	2.244	57.000 mm	(5x)	71.30 mm	2.07 mm	12 mm	125 mm	V890140-X	202.00
NEW	.4527	11.500 mm	1.358	34.500 mm	(3x)	47.78 mm	2.09 mm	12 mm	100 mm	V582870-X	139.00
NEW	.4527	11.500 mm	2.263	57.500 mm	(5x)	71.93 mm	2.09 mm	12 mm	125 mm	V025380-X	202.00
NEW	.4531 (29/64)	11.508 mm	1.359	34.524 mm	(3x)	47.79 mm	2.09 mm	12 mm	100 mm	V002091-X	139.00
NEW	.4531 (29/64)	11.508 mm	2.265	57.550 mm	(5x)	71.99 mm	2.09 mm	12 mm	125 mm	V719624-X	202.00
NEW	.4567	11.600 mm	1.370	34.800 mm	(3x)	48.20 mm	2.11 mm	12 mm	100 mm	V136755-X	139.00
NEW	.4567	11.600 mm	2.283	58.000 mm	(5x)	72.56 mm	2.11 mm	12 mm	125 mm	V767310-X	202.00
NEW	.4606	11.700 mm	1.381	35.100 mm	(3x)	48.61 mm	2.13 mm	12 mm	100 mm	V406063-X	139.00
NEW	.4606	11.700 mm	2.303	58.500 mm	(5x)	73.18 mm	2.13 mm	12 mm	125 mm	V842324-X	202.00
NEW	.4646	11.800 mm	1.393	35.400 mm	(3x)	49.03 mm	2.15 mm	12 mm	100 mm	V598551-X	139.00
NEW	.4646	11.800 mm	2.322	59.000 mm	(5x)	73.81 mm	2.15 mm	12 mm	125 mm	V042831-X	202.00
NEW	.4685	11.900 mm	1.405	35.700 mm	(3x)	49.44 mm	2.17 mm	12 mm	100 mm	V975609-X	139.00
NEW	.4685	11.900 mm	2.342	59.500 mm	(5x)	74.43 mm	2.17 mm	12 mm	125 mm	V067673-X	202.00
NEW	.4688 (15/32)	11.907 mm	1.406	35.721 mm	(3x)	49.45 mm	2.17 mm	12 mm	100 mm	V095045-X	139.00
NEW	.4688 (15/32)	11.907 mm	2.344	59.550 mm	(5x)	74.49 mm	2.17 mm	12 mm	125 mm	V508836-X	202.00
NEW	.4724	12.000 mm	1.417	36.000 mm	(3x)	49.86 mm	2.18 mm	14 mm	100 mm	V107463-X	139.00
NEW	.4724	12.000 mm	2.362	60.000 mm	(5x)	75.06 mm	2.18 mm	14 mm	125 mm	V565669-X	202.00
NEW	.4764	12.100 mm	1.429	36.300 mm	(3x)	50.27 mm	2.20 mm	14 mm	100 mm	V146567-X	193.50
NEW	.4764	12.100 mm	2.382	60.500 mm	(5x)	75.68 mm	2.20 mm	14 mm	125 mm	V794271-X	266.50
NEW	.4803	12.200 mm	1.440	36.600 mm	(3x)	50.69 mm	2.22 mm	14 mm	100 mm	V814676-X	193.50
NEW	.4803	12.200 mm	2.401	61.000 mm	(5x)	76.31 mm	2.22 mm	14 mm	125 mm	V247588-X	266.50
NEW	.4843	12.300 mm	1.452	36.900 mm	(3x)	51.10 mm	2.24 mm	14 mm	100 mm	V885282-X	193.50
NEW	.4843	12.300 mm	2.421	61.500 mm	(5x)	76.93 mm	2.24 mm	14 mm	125 mm	V578500-X	266.50
NEW	.4883 (31/64)	12.400 mm	1.464	37.200 mm	(3x)	51.52 mm	2.26 mm	14 mm	100 mm	V485704-X	193.50
NEW	.4883 (31/64)	12.400 mm	2.440	62.000 mm	(5x)	77.56 mm	2.26 mm	14 mm	125 mm	V660535-X	266.50
NEW	.4921	12.500 mm	1.476	37.500 mm	(3x)	51.94 mm	2.27 mm	14 mm	100 mm	V569822-X	193.50
NEW	.4921	12.500 mm	2.460	62.500 mm	(5x)	78.19 mm	2.27 mm	14 mm	125 mm	V956144-X	266.50
NEW	.4961	12.600 mm	1.488	37.800 mm	(3x)	52.35 mm	2.29 mm	14 mm	100 mm	V659893-X	193.50
NEW	.4961	12.600 mm	2.480	63.000 mm	(5x)	78.81 mm	2.29 mm	14 mm	125 mm	V656477-X	266.50
NEW	.5000 (1/2)	12.700 mm	1.499	38.100 mm	(3x)	52.77 mm	2.31 mm	14 mm	100 mm	V818968-X	193.50
NEW	.5000 (1/2)	12.700 mm	2.499	63.500 mm	(5x)	79.44 mm	2.31 mm	14 mm	125 mm	V623060-X	266.50

* For h6 and h8 tolerances, see page 8.





Combined Drill & Countersinks



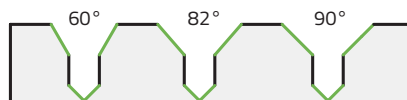
Outstanding in High Performance Countersinking Applications

- Designed for predrilling 60°, 82°, or 90° live center holes
- Double-ended design for minimized downtime and increased productivity
- 2 flutes
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



Included Angle	Size	Drill Diameter	Drill Length	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
A ^{+1°} _{-1°}		D1 ^{+0.015"} _{+0.005"}	L2 ^{+0.005"} _{-0.000"}	D2	L1	Tool #	\$USD	Tool #	\$USD
60°	000	.020	.020	1/8	1-1/2	V556663	31.80	V556663-X	38.80
	00	.025	.025	1/8	1-1/2	V185274	24.80	V185274-X	31.90
	0	1/32	1/32	1/8	1-1/2	V859307	24.80	V859307-X	31.90
	1	3/64	3/64	1/8	1-1/2	V302266	20.80	V302266-X	27.80
	2	5/64	5/64	3/16	2	V894928	31.80	V894928-X	39.80
	3	7/64	7/64	1/4	2	V866774	36.10	V866774-X	45.70
	4	1/8	1/8	5/16	2-1/2	V903674	49.40	V903674-X	61.70
	5	3/16	3/16	7/16	2-3/4	V797008	73.90	V797008-X	90.80
82°	00	.025	.025	1/8	1-1/2	V929455	26.60	V929455-X	33.60
	0	1/32	1/32	1/8	1-1/2	V909420	26.30	V909420-X	33.30
	1	3/64	3/64	1/8	1-1/2	V217225	22.00	V217225-X	29.10
	2	5/64	5/64	3/16	2	V237177	33.80	V237177-X	41.80
	3	7/64	7/64	1/4	2	V364987	38.50	V364987-X	48.10
	4	1/8	1/8	5/16	2-1/2	V905694	52.20	V905694-X	64.40
	5	3/16	3/16	7/16	2-3/4	V256631	78.50	V256631-X	95.30
90°	000	.020	.020	1/8	1-1/2	V358715	32.80	V358715-X	39.90
	00	.025	.025	1/8	1-1/2	V493350	25.60	V493350-X	32.70
	0	1/32	1/32	1/8	1-1/2	V914209	25.60	V914209-X	32.70
	1	3/64	3/64	1/8	1-1/2	V734917	21.60	V734917-X	28.60
	2	5/64	5/64	3/16	2	V813931	32.80	V813931-X	40.80
	3	7/64	7/64	1/4	2	V814543	37.30	V814543-X	46.80
	4	1/8	1/8	5/16	2-1/2	V690770	50.70	V690770-X	62.80
	5	3/16	3/16	7/16	2-3/4	V698131	76.10	V698131-X	92.90

Stocked in three included angles





High Performance Chamfer Cutters

Helically Fluted



Helical Flute
Geometry for
Superior Part Finish

Excellent Choice for Predrilling Applications

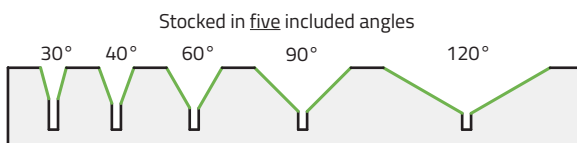
- Optimized for countersinking and chamfering operations while providing excellent performance in deburring applications
- Free cutting action design provides excellent surface finish and chip evacuation
- Engineered with a specialized helical flute design for superior performance
- Offered in Type I pointed and Type II flat end (non-cutting) styles
- 2, 3, 4, and 5 flute options
- h6 shank tolerance for high precision tool holders
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



	Included Angle	Diameter	Flutes	Tip	Type	Length of Cut		Overall Length		Uncoated		Val-Max X Coated	
	A $+0^\circ30'$ $-0^\circ30'$	D2 (h6)		T*		L2	L4 (Max.)	L1		Tool #	\$USD	Tool #	\$USD
NEW	30°	1/8	3	.040	II	.159	.078	1-1/2		V923005	24.60	V923005-X	31.70
NEW		1/4	3	.060	II	.355	.116	2-1/2		V472038	38.40	V472038-X	48.60
NEW		1/4	5	.060	II	.355	.116	2-1/2		V353237	41.90	V353237-X	52.10
NEW		3/8	5	.070	II	.569	.134	2-1/2		V217389	51.50	V217389-X	66.00
NEW		1/2	5	.080	II	.783	.153	3		V524443	72.10	V524443-X	91.80
NEW	40°	1/8	3	.040	II	.117	.058	1-1/2		V798991	24.60	V798991-X	31.70
NEW		1/4	3	.060	II	.261	.085	2-1/2		V730755	38.40	V730755-X	48.60
NEW		1/4	5	.060	II	.261	.085	2-1/2		V052260	41.90	V052260-X	52.10
NEW		3/8	5	.070	II	.419	.099	2-1/2		V725260	51.50	V725260-X	66.00
NEW		1/2	5	.080	II	.577	.113	3		V995335	72.10	V995335-X	91.80
	60°	1/8	2	.010	I	.100		1-1/2		V303773	24.10	V303773-X	31.10
		1/8	3	.040	II	.074	.036	1-1/2		V672817	24.60	V672817-X	31.70
		1/8	5	.040	II	.074	.036	1-1/2		V295829	26.60	V295829-X	33.60
		3/16	2	.010	I	.154		2		V699490	33.20	V699490-X	41.10
		3/16	3	.050	II	.119	.045	2		V337326	33.20	V337326-X	41.10
		3/16	5	.050	II	.119	.045	2		V752883	35.40	V752883-X	43.40

*Tolerance for Type I is $+.000"/-.005"$. Tolerance for Type II is $+.002"/-.002"$

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High Performance Chamfer Cutters

Helically Fluted (cont.)

continued from previous page

Included Angle	Diameter	Flutes	Tip	Type	Length of Cut		Overall Length	Uncoated		Val-Max X Coated	
A $+0^{\circ}30'$ $-0^{\circ}30'$	D2 (h6)		T*		L2	L4 (Max.)	L1	Tool #	\$USD	Tool #	\$USD
60°	1/4	2	.010	I	.208		2-1/2	V127405	41.00	V127405-X	51.20
	1/4	3	.060	II	.164	.054	2-1/2	V209624	38.40	V209624-X	48.60
	1/4	4	.010	I	.208		2-1/2	V712592	43.30	V712592-X	53.50
	1/4	5	.060	II	.164	.054	2-1/2	V806101	41.90	V806101-X	52.10
	3/8	2	.010	I	.316		2-1/2	V313911	54.80	V313911-X	69.30
	3/8	3	.070	II	.264	.062	2-1/2	V124536	51.50	V124536-X	66.00
	3/8	4	.010	I	.316		2-1/2	V164693	54.80	V164693-X	69.30
	3/8	5	.070	II	.264	.062	2-1/2	V631112	51.50	V631112-X	66.00
	1/2	2	.010	I	.424		3	V419548	76.90	V419548-X	96.50
	1/2	3	.080	II	.364	.071	3	V660602	72.10	V660602-X	91.90
	1/2	4	.010	I	.424		3	V349044	76.90	V349044-X	96.50
	1/2	5	.080	II	.364	.071	3	V927193	72.10	V927193-X	91.90
	5/8	3	.090	II	.463	.080	3	V241682	98.60	V241682-X	121.40
	3/4	4	.015	I	.637		3	V747817	124.60	V747817-X	151.80
	3/4	5	.100	II	.562	.088	3	V812943	124.60	V812943-X	151.80
90°	1/8	2	.010	I	.058		1-1/2	V429507	24.10	V429507-X	31.10
	1/8	3	.040	II	.043	.021	1-1/2	V200401	24.10	V200401-X	31.10
	1/8	4	.010	I	.058		1-1/2	V786295	26.60	V786295-X	33.60
	1/8	4	.010	I	.058		3	V213440	26.60	V213440-X	34.00
	1/8	5	.040	II	.043	.021	1-1/2	V908769	26.60	V908769-X	33.60
	1/8	5	.040	II	.043	.021	3	V306828	26.60	V306828-X	34.00
	1/8	5	.040	III	.043	.021	1-1/2	V613872	26.60	V613872-X	33.60
	3/16	2	.010	I	.089		2	V531414	32.50	V531414-X	40.50
	3/16	3	.050	II	.069	.026	2	V811095	32.50	V811095-X	40.50
	3/16	4	.010	I	.089		2	V622369	34.70	V622369-X	42.60
	3/16	5	.050	II	.069	.026	2	V527430	34.70	V527430-X	42.60
	1/4	2	.010	I	.120		2-1/2	V919405	41.00	V919405-X	51.20
	1/4	3	.060	II	.095	.031	2-1/2	V280810	38.40	V280810-X	48.60
	1/4	4	.010	I	.120		2-1/2	V958539	43.30	V958539-X	53.50
	1/4	4	.010	I	.120		4	V527058	43.30	V527058-X	54.20
	1/4	5	.060	II	.095	.031	2-1/2	V790762	40.70	V790762-X	50.90
	1/4	5	.060	II	.095	.031	4	V066336	43.30	V066336-X	54.20
	1/4	5	.060	III	.095	.031	2-1/2	V329758	41.90	V329758-X	52.10
	5/16	5	.060	II	.126	.031	2-1/2	V773573	51.50	V773573-X	63.60
	3/8	2	.010	I	.183		2-1/2	V311320	54.80	V311320-X	69.30
	3/8	3	.070	II	.153	.036	2-1/2	V345394	51.50	V345394-X	66.00
	3/8	4	.010	I	.183		2-1/2	V236486	54.80	V236486-X	69.30
	3/8	5	.070	II	.153	.036	2-1/2	V612425	51.50	V612425-X	66.00

*Tolerance for Type I is $+.000"/-0.005"$. Tolerance for Type II is $+.002"/-0.002"$

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High Performance Chamfer Cutters

Helically Fluted (cont.)

continued from previous page

	Included Angle	Diameter	Flutes	Tip	Type	Length of Cut		Overall Length	Uncoated		Val-Max X Coated	
	A $+0^{\circ}30'$ $-0^{\circ}30'$	D2 (h6)		T*		L2	L4 (Max.)	L1	Tool #	\$USD	Tool #	\$USD
NEW	90°	3/8	5	.070	II	.153	.036	4	V134933	54.80	V134933-X	70.40
NEW		3/8	5	.070	III	.153	.036	2-1/2	V409553	51.50	V409553-X	66.00
		1/2	2	.010	I	.245		3	V666461	76.90	V666461-X	96.50
		1/2	3	.080	II	.210	.041	3	V966684	72.10	V966684-X	91.90
		1/2	4	.010	I	.245		3	V800918	76.90	V800918-X	96.50
		1/2	5	.080	II	.210	.041	3	V796283	72.10	V796283-X	91.90
NEW		1/2	5	.080	III	.210	.041	3	V427825	72.10	V427825-X	91.80
NEW		5/8	5	.090	II	.268	.046	3	V074518	98.60	V074518-X	121.40
NEW		3/4	4	.015	I	.368		3	V230332	124.60	V230332-X	151.80
NEW		3/4	5	.100	II	.325	.051	3	V684019	124.60	V684019-X	151.80
NEW	100°	1/4	3	.060	II	0.08	.026	2-1/2	V124439	38.40	V124439-X	48.60
NEW		1/4	5	.060	II	0.08	.026	2-1/2	V207301	41.90	V207301-X	52.10
NEW		3/8	5	.070	II	0.128	.030	2-1/2	V424561	51.50	V424561-X	66.00
NEW		1/2	3	.080	II	0.176	.034	3	V265592	72.10	V265592-X	91.80
NEW		1/2	5	.080	II	0.176	.034	3	V746953	72.10	V746953-X	91.80
NEW	120°	1/8	2	.010	I	.033		1-1/2	V712928	26.60	V712928-X	33.60
		3/16	2	.010	I	.051		2	V289865	33.20	V289865-X	41.10
		3/16	4	.010	I	.051		2	V100906	33.20	V100906-X	41.10
		1/4	2	.010	I	.069		2-1/2	V190535	41.00	V190535-X	51.20
		1/4	3	.060	II	.057	.018	2-1/2	V373551	39.40	V373551-X	49.60
		1/4	4	.010	I	.069		2-1/2	V724215	43.30	V724215-X	53.50
		1/4	5	.060	II	.057	.018	2-1/2	V199619	41.90	V199619-X	52.10
		3/8	2	.010	I	.105		2-1/2	V295545	55.90	V295545-X	70.40
		3/8	3	.070	II	.091	.021	2-1/2	V546651	51.50	V546651-X	66.00
		3/8	4	.010	I	.105		2-1/2	V647726	58.10	V647726-X	72.70
		3/8	5	.070	II	.091	.021	2-1/2	V590509	55.10	V590509-X	69.50
		1/2	2	.010	I	.141		3	V998108	76.90	V998108-X	96.50
		1/2	3	.080	II	.126	.024	3	V327236	74.20	V327236-X	93.90
		1/2	4	.010	I	.141		3	V147300	76.90	V147300-X	96.50
		1/2	5	.080	II	.126	.024	3	V628260	76.50	V628260-X	96.20
NEW		5/8	5	.090	II	.157		3	V117374	98.60	V117374-X	121.40
NEW		3/4	4	.015	I	.212		3	V591185	124.60	V591185-X	151.80
NEW		3/4	5	.100	II	.195		3	V777920	124.60	V777920-X	151.80

*Tolerance for Type I is $+0.000/-0.005$ ". Tolerance for Type II is $+0.002/-0.002$ "





High Performance Chamfer Cutters

Straight Flutes

Unmatched Versatility for Precision Countersinking and Chamfering



Available in Type I and Type II styles

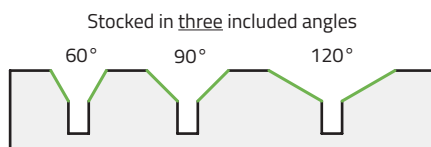
- Optimized for countersinking and chamfering operations while providing excellent performance in deburring applications
- Offered in Type I and Type II styles
 - Type 1 - Pointed - 2 flute style for deburring and chamfering in narrow grooves, slots and small holes
 - Type II - Flat End - (non-cutting) multi-flute design improves tool life and finish for profiling and chamfering larger features
- Offered in 60°, 90°, and 120° included angles
- 2, 3, and 4 flute options
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide
- Precision manufactured in the USA



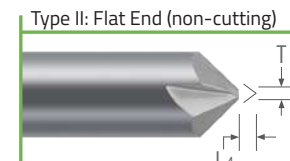
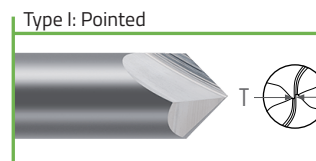
Included Angle	Diameter	Flutes	Tip	Type	Length of Cut		Overall Length		Uncoated		Val-Max X Coated	
A $+0^{\circ}30'$ $-0^{\circ}30'$	D2 (h6)		T*		L2	L4 (Max.)	L1		Tool #	\$USD	Tool #	\$USD
60°	1/8	2	.010	I	.108		1-1/2		V398780	20.40	V398780-X	27.50
	1/8	3	.040	II	.074	.035	1-1/2		V595568	22.00	V595568-X	29.10
	3/16	2	.010	I	.162		2		V685267	28.60	V685267-X	36.60
	3/16	3	.040	II	.128	.035	2		V169034	35.70	V169034-X	43.70
	1/4	2	.010	I	.217		2-1/2		V530102	41.10	V530102-X	51.30
	1/4	3	.060	II	.165	.052	2-1/2		V291783	38.20	V291783-X	48.40
	3/8	2	.010	I	.325		2-1/2		V971795	55.20	V971795-X	69.80
	3/8	3	.060	II	.273	.052	2-1/2		V027306	51.30	V027306-X	65.80
	1/2	2	.010	I	.433		3		V968317	87.80	V968317-X	107.40
	1/2	4	.080	II	.364	.069	3		V317802	71.70	V317802-X	91.30

*Tolerance for Type I is $+.000''/-0.005''$. Tolerance for Type II is $+.000''/-0.010''$

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Stocked in three included angles





High Performance Chamfer Cutters

Straight Flutes (cont.)

continued from previous page

	Included Angle	Diameter	Flutes	Tip	Type	Length of Cut		Overall Length	Uncoated		Val-Max X Coated	
		D ₂ (h6)		T*		L ₂	L ₄ (Max.)	L ₁	Tool #	\$USD	Tool #	\$USD
NEW	90°	1/8	2	.010	I	.063		1-1/2	V546206	20.40	V546206-X	27.50
NEW		1/8	3	.040	II	.043	.020	1-1/2	V788085	22.00	V788085-X	29.10
NEW		3/16	2	.010	I	.094		2	V982561	28.60	V982561-X	36.60
NEW		3/16	3	.040	II	.074	.020	2	V770370	35.70	V770370-X	43.70
NEW		1/4	2	.010	I	.125		2-1/2	V782609	41.10	V782609-X	51.30
NEW		1/4	3	.060	II	.095	.030	2-1/2	V488749	38.20	V488749-X	48.40
NEW		3/8	2	.010	I	.188		2-1/2	V770520	55.20	V770520-X	69.80
NEW		3/8	3	.060	II	.158	.030	2-1/2	V705344	51.30	V705344-X	65.80
NEW		1/2	2	.010	I	.250		3	V928664	87.80	V928664-X	107.40
NEW		1/2	4	.080	II	.210	.040	3	V430621	71.70	V430621-X	91.30
NEW	120°	1/8	2	.010	I	.036		1-1/2	V873024	20.40	V873024-X	27.50
NEW		1/8	3	.040	II	.025	.012	1-1/2	V321639	22.00	V321639-X	29.10
NEW		3/16	2	.010	I	.054		2	V366625	28.60	V366625-X	36.60
NEW		3/16	3	.040	II	.043	.012	2	V385880	35.70	V385880-X	43.70
NEW		1/4	2	.010	I	.072		2-1/2	V500110	41.10	V500110-X	51.30
NEW		1/4	3	.060	II	.055	.017	2-1/2	V984854	38.20	V984854-X	48.40
NEW		3/8	2	.010	I	.108		2-1/2	V802313	55.20	V802313-X	69.80
NEW		3/8	3	.060	II	.091	.017	2-1/2	V086024	51.30	V086024-X	65.80
NEW		1/2	2	.010	I	.144		3	V173792	87.80	V173792-X	107.40
NEW		1/2	4	.080	II	.121	.023	3	V441657	71.70	V441657-X	91.30

*Tolerance for Type I is +.000"/-.005". Tolerance for Type II is +.000"/-.010"





Counterbores

Flat Bottom

Outstanding for Flat Bottom Reaming or Straightening Misaligned Holes

- Flat bottom design (no dish) allows for spot facing or counterboring on irregular surfaces commonly found on rounded or complex parts
- Provides excellent performance when flat bottom reaming or straightening misaligned holes
- Ground with full cylindrical margin (not side cutting)
- Center cutting
- 15° helix
- 4 flutes
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



Flat Bottom
4 Flute Design

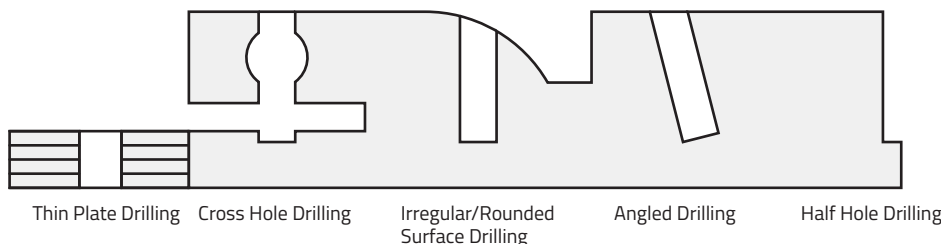


Cutter Diameter	Flute Length	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
D1 ^{+0.000*} -0.005	L2 ^{+0.030"} -0.000"	D2	L1	Tool #	\$USD	Tool #	\$USD
.0625 (1/16)	1/4	1/8	1-1/2	V695306	52.30	V695306-X	59.40
.0781 (5/64)	5/16	1/8	1-1/2	V778476	52.30	V778476-X	59.40
.0787 (2 mm)	5/16	1/8	1-1/2	V408316	52.30	V408316-X	59.40
.0937 (3/32)	3/8	1/8	1-1/2	V892625	52.30	V892625-X	59.40
.1094 (7/64)	3/8	1/8	1-1/2	V745187	52.30	V745187-X	59.40
.1181 (3 mm)	3/8	1/8	1-1/2	V939405	52.30	V939405-X	59.40
.1250 (1/8)	1/2	1/8	1-1/2	V527625	52.30	V527625-X	59.40
.1406 (9/64)	9/16	3/16	2	V783531	50.00	V783531-X	58.00
.1562 (5/32)	5/8	3/16	2	V321622	50.00	V321622-X	58.00
.1575 (4 mm)	5/8	3/16	2	V372376	50.00	V372376-X	58.00
.1719 (11/64)	5/8	3/16	2	V508715	50.00	V508715-X	58.00
.1875 (3/16)	3/4	3/16	2	V370840	50.00	V370840-X	58.00
.1968 (5 mm)	3/4	1/4	2-1/2	V699368	68.40	V699368-X	78.60

*Tolerance refers to uncoated counterbores. Tolerance for Val-Max X coated counterbores is +.0002"/-.0005".

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Flat Bottom Counterbore Applications





Counterbores

Flat Bottom (cont.)

continued from previous page

Cutter Diameter	Flute Length	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
D ₁ ^{+0.000*} -0.005	L ₂ ^{+0.030"} -0.000"	D ₂	L ₁	Tool #	\$USD	Tool #	\$USD
.2031 (13/64)	3/4	1/4	2-1/2	V568926	68.40	V568926-X	78.60
.2187 (7/32)	3/4	1/4	2-1/2	V631036	68.40	V631036-X	78.60
.2344 (15/64)	7/8	1/4	2-1/2	V478565	68.40	V478565-X	78.60
.2362 (6 mm)	7/8	1/4	2-1/2	V105885	68.40	V105885-X	78.60
.2500 (1/4)	7/8	1/4	2-1/2	V472098	68.40	V472098-X	78.60
.2656 (17/64)	7/8	5/16	2-1/2	V418764	84.40	V418764-X	96.50
.2812 (9/32)	7/8	5/16	2-1/2	V865510	84.40	V865510-X	96.50
.2969 (19/64)	7/8	5/16	2-1/2	V700371	84.40	V700371-X	96.50
.3125 (5/16)	1	5/16	2-1/2	V487755	84.40	V487755-X	96.50
.3150 (8 mm)	1	3/8	2-1/2	V740046	100.80	V740046-X	115.30
.3281 (21/64)	1	3/8	2-1/2	V202645	100.80	V202645-X	115.30
.3437 (11/32)	1	3/8	2-1/2	V538304	100.80	V538304-X	115.30
.3594 (23/64)	1	3/8	2-1/2	V311756	100.80	V311756-X	115.30
.3750 (3/8)	1	3/8	2-1/2	V712621	100.80	V712621-X	115.30
.3937 (10 mm)	1	7/16	2-3/4	V802980	124.40	V802980-X	141.30
.4062 (13/32)	1	7/16	2-3/4	V217929	124.40	V217929-X	141.30
.4375 (7/16)	1	7/16	2-3/4	V151214	124.40	V151214-X	141.30
.4724 (12 mm)	1	1/2	3	V585315	163.60	V585315-X	183.20
.5000 (1/2)	1	1/2	3	V847030	163.60	V847030-X	183.20
.5625 (9/16)	1-1/2	5/8	3-1/2	V294033	232.30	V294033-X	256.80
.6250 (5/8)	1-1/2	5/8	3-1/2	V127143	260.20	V127143-X	284.70
.7500 (3/4)	1-1/2	3/4	4	V988795	377.20	V988795-X	406.30

*Tolerance refers to uncoated counterbores. Tolerance for Val-Max X coated counterbores is +.0002"/-.0005".

Tech Tip

When drilling into an extremely irregular surface, a spot drill may not be sufficient to keep holes in the correct position. For these applications, first use a Flat Bottom Counterbore to **level off the area you intend to machine**, then continue to a spotting application.





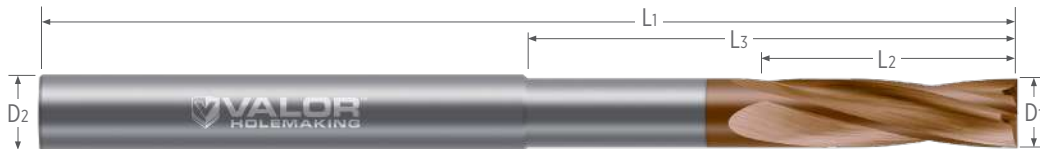
Counterbores

Flat Bottom – Long Reach



Unmatched Precision in Long Reach Counterboring Applications

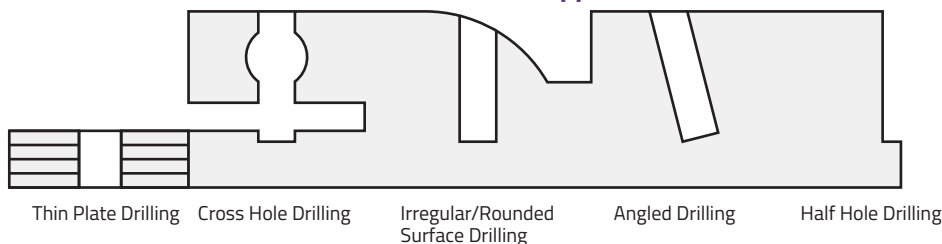
- Engineered with an undersized neck to avoid heeling
- Flat bottom design (no dish) allows for spot facing or counterboring on irregular surfaces commonly found on rounded or complex parts
- Provides excellent performance when flat bottom reaming or straightening misaligned holes
- Ground with full cylindrical margin (not side cutting)
- Center cutting
- 15° helix
- 4 flutes
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



Cutter Diameter	Flute Length	Overall Reach	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
$D_1^{+.0000*}_{-.0005}$	$L_2^{+.030}_{-.000}$	$L_3^{+.030}_{-.000}$	D_2	L_1	Tool #	\$USD	Tool #	\$USD
.0625 (1/16)	1/4	1/2	1/8	2-1/2	V198627	62.50	V198627-X	70.00
.0937 (3/32)	3/8	3/4	1/8	2-1/2	V916746	62.50	V916746-X	70.00
.1181 (3 mm)	3/8	1	1/8	2-1/2	V951006	62.50	V951006-X	70.00
.1250 (1/8)	1/2	1	1/8	2-1/2	V970511	62.50	V970511-X	70.00
.1406 (9/64)	9/16	1-1/8	3/16	3	V416335	76.10	V416335-X	84.60
.1562 (5/32)	5/8	1-1/4	3/16	3	V663791	76.10	V663791-X	84.60
.1719 (11/64)	5/8	1-3/8	3/16	3	V809396	76.10	V809396-X	84.60
.1875 (3/16)	3/4	1-1/2	3/16	3	V595314	76.10	V595314-X	84.60
.2187 (7/32)	3/4	1-3/4	1/4	4	V912152	101.00	V912152-X	111.90
.2500 (1/4)	7/8	2	1/4	4	V655322	101.00	V655322-X	111.90
.3125 (5/16)	1	2-1/2	5/16	4	V184545	128.10	V184545-X	141.20
.3437 (11/32)	1	2-3/4	3/8	4	V484325	154.50	V484325-X	170.00
.3750 (3/8)	1	3	3/8	4	V559859	154.50	V559859-X	170.00
.4375 (7/16)	1	3	7/16	4	V317536	179.40	V317536-X	197.40
.5000 (1/2)	1	3	1/2	4	V593960	219.80	V593960-X	240.90

* Tolerance refers to uncoated counterbores. Tolerance for Val-Max X coating is $+.0002"/- .0005"$

Flat Bottom Counterbore Applications





Tip of Included Angle
Ground to a Point

Thread Mills

Single Form – UN Threads

Outstanding Versatility When Right & Left Hand Thread Milling

- Single thread form for universal pitch applications
- Specifically engineered to cut internal and external 60° UN threads
- Designed to mill right hand and left hand threads for added versatility
- Tip of included angle ground to a point
- Solid carbide



Thread Size	Cutter Diameter	Neck Diameter	Max Depth of Thread	Flutes	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
	$D_1 \begin{smallmatrix} +.000" \\ -.002" \end{smallmatrix}$		$L_3 \begin{smallmatrix} +.020" \\ -.000" \end{smallmatrix}$		D_2	L_1	Tool #	\$USD	Tool #	\$USD
0	.044	.024	.125	2	1/8	1-1/2	V374670	93.80	V374670-X	100.90
0	.044	.024	.187	2	1/8	1-1/2	V857292	100.90	V857292-X	108.00
0	.044	.024	.250	2	1/8	1-1/2	V816292	105.60	V816292-X	112.60
1	.054	.032	.187	2	1/8	1-1/2	V797147	93.80	V797147-X	100.90
1	.054	.032	.250	2	1/8	1-1/2	V765023	100.90	V765023-X	108.00
1	.054	.032	.312	2	1/8	1-1/2	V311882	105.60	V311882-X	112.60
2	.064	.038	.156	2	1/8	1-1/2	V666896	88.30	V666896-X	95.40
2	.064	.038	.219	2	1/8	1-1/2	V849467	93.80	V849467-X	100.90
2	.064	.038	.312	2	1/8	1-1/2	V929367	100.90	V929367-X	108.00
3	.072	.040	.250	2	1/8	1-1/2	V286839	93.80	V286839-X	100.90
3	.072	.040	.375	2	1/8	1-1/2	V397197	100.90	V397197-X	108.00
4	.080	.040	.250	2	3/16	2	V952299	94.00	V952299-X	102.00
4	.080	.040	.375	2	3/16	2	V375540	101.30	V375540-X	109.30
4	.080	.040	.500	2	3/16	2	V071905	106.40	V071905-X	114.40
5	.093	.050	.187	4	3/16	2	V220015	88.30	V220015-X	96.30
5	.093	.050	.375	4	3/16	2	V354031	93.80	V354031-X	101.80
6	.098	.050	.250	4	3/16	2	V691318	88.50	V691318-X	96.50
6	.098	.050	.375	4	3/16	2	V834182	94.00	V834182-X	102.00
6	.098	.050	.500	4	3/16	2	V795068	101.30	V795068-X	109.30

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Thread Mills

Single Form – UN Threads (cont.)

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Thread Size	Cutter Diameter	Neck Diameter	Max Depth of Thread	Flutes	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
							Tool #	\$USD	Tool #	\$USD
	D ₁ ^{+0.000"} -0.002"		L ₃ ^{+0.020"} -0.000"		D ₂	L ₁				
8	.120	.070	.312	4	1/4	2-1/2	V392285	90.80	V392285-X	101.00
8	.120	.070	.500	4	1/4	2-1/2	V021297	96.90	V021297-X	107.10
8	.120	.070	.625	4	1/4	2-1/2	V684779	103.60	V684779-X	113.80
8	.120	.070	.750	4	1/4	2-1/2	V088642	111.70	V088642-X	121.90
10	.135	.070	.312	4	1/4	2-1/2	V126879	90.80	V126879-X	101.00
10	.135	.070	.500	4	1/4	2-1/2	V235973	96.90	V235973-X	107.10
10	.135	.070	.625	4	1/4	2-1/2	V215174	103.60	V215174-X	113.80
10	.135	.070	.875	4	1/4	2-1/2	V437426	111.70	V437426-X	121.90
12	.160	.095	.375	4	1/4	2-1/2	V849952	90.80	V849952-X	101.00
12	.160	.095	.625	4	1/4	2-1/2	V423474	96.90	V423474-X	107.10
1/4	.180	.115	.312	4	1/4	2-1/2	V174373	89.80	V174373-X	100.00
1/4	.180	.115	.500	4	1/4	2-1/2	V821186	90.80	V821186-X	101.00
1/4	.180	.115	.625	4	1/4	2-1/2	V123664	93.80	V123664-X	104.00
1/4	.180	.115	.750	4	1/4	2-1/2	V307054	96.90	V307054-X	107.10
1/4	.180	.115	.875	4	1/4	2-1/2	V343612	100.20	V343612-X	110.30
1/4	.180	.115	1.000	4	1/4	2-1/2	V820147	103.60	V820147-X	113.80
5/16	.240	.160	.500	4	1/4	2-1/2	V406719	90.80	V406719-X	101.00
5/16	.240	.160	.750	4	1/4	2-1/2	V665688	96.90	V665688-X	107.10
5/16	.240	.160	1.000	4	1/4	2-1/2	V987678	107.00	V987678-X	117.20
3/8	.300	.218	.750	4	3/8	2-1/2	V283772	118.30	V283772-X	132.90
3/8	.300	.218	1.000	4	3/8	2-1/2	V801924	124.20	V801924-X	138.80
3/8	.300	.218	1.250	4	3/8	2-1/2	V394175	130.20	V394175-X	144.70
7/16	.340	.230	.750	4	3/8	2-1/2	V487548	133.30	V487548-X	147.80
7/16	.340	.230	1.000	4	3/8	2-1/2	V912847	139.00	V912847-X	153.50
1/2	.388	.250	.750	4	1/2	3	V482228	133.30	V482228-X	152.90
1/2	.388	.250	1.250	4	1/2	3	V645876	139.50	V645876-X	159.10
1/2	.388	.250	1.750	4	1/2	4	V886275	148.80	V886275-X	169.90
5/8	.450	.300	1.000	6	1/2	3	V407017	139.30	V407017-X	158.90
5/8	.450	.300	1.375	6	1/2	3	V139989	145.80	V139989-X	165.50
3/4	.495	.325	1.000	6	1/2	3	V308628	139.30	V308628-X	158.90
3/4	.495	.325	1.375	6	1/2	3	V012906	145.80	V012906-X	165.50
3/4	.495	.325	1.750	6	1/2	4	V250610	153.60	V250610-X	174.70
3/4	.495	.325	2.250	6	1/2	4	V299955	160.30	V299955-X	181.30



Tip of Included Angle
Ground to a Point

Thread Mills

Single Form – Metric

Amazingly Versatile When Cutting Universal Pitch Applications

- Single thread form for universal pitch applications
- Specifically engineered to cut internal and external 60° Metric threads
- Designed to mill right hand and left hand threads for added versatility
- Tip of included angle ground to a point
- Solid carbide



Thread Size	Cutter Diameter $D_1 \begin{smallmatrix} +.00 \text{ mm} \\ -.05 \text{ mm} \end{smallmatrix}$	Neck Diameter	Max Depth of Thread $L_3 \begin{smallmatrix} +.50 \text{ mm} \\ -.00 \text{ mm} \end{smallmatrix}$	Flutes	Shank Diameter D_2	Overall Length L_1	Uncoated		Val-Max X Coated	
							Tool #	\$USD	Tool #	\$USD
M1.6	1.16 mm	0.70 mm	2.10 mm	2	3 mm	38 mm	V071240	95.30	V071240-X	102.30
M1.6	1.16 mm	0.70 mm	3.50 mm	2	3 mm	38 mm	V128446	95.30	V128446-X	102.30
M1.6	1.16 mm	0.70 mm	5.60 mm	2	3 mm	38 mm	V177086	98.00	V177086-X	105.00
M2	1.50 mm	0.90 mm	2.70 mm	2	3 mm	38 mm	V202678	95.30	V202678-X	102.30
M2	1.50 mm	0.90 mm	4.50 mm	2	3 mm	38 mm	V806971	95.30	V806971-X	102.30
M2	1.50 mm	0.90 mm	7.00 mm	2	3 mm	38 mm	V813131	98.00	V813131-X	105.00
M2	1.50 mm	0.90 mm	9.00 mm	2	3 mm	38 mm	V924310	99.50	V924310-X	106.60
M2.5	1.90 mm	1.14 mm	3.50 mm	2	3 mm	38 mm	V162434	96.10	V162434-X	103.20
M2.5	1.90 mm	1.14 mm	5.80 mm	2	3 mm	38 mm	V772821	95.30	V772821-X	102.30
M2.5	1.90 mm	1.14 mm	9.00 mm	2	3 mm	38 mm	V957719	98.00	V957719-X	105.00
M3	2.30 mm	1.38 mm	4.00 mm	4	3 mm	38 mm	V060028	95.30	V060028-X	102.30
M3	2.30 mm	1.38 mm	6.80 mm	4	3 mm	38 mm	V191849	95.30	V191849-X	102.30
M3	2.30 mm	1.38 mm	11.00 mm	4	3 mm	38 mm	V545903	98.00	V545903-X	105.00
M3	2.30 mm	1.38 mm	14.00 mm	4	3 mm	38 mm	V855346	99.50	V855346-X	106.60
M4	3.00 mm	1.80 mm	5.50 mm	4	3 mm	38 mm	V113870	96.50	V113870-X	103.60
M4	3.00 mm	1.80 mm	9.00 mm	4	3 mm	38 mm	V351952	98.00	V351952-X	105.00
M4	3.00 mm	1.80 mm	14.00 mm	4	3 mm	38 mm	V532470	100.90	V532470-X	108.00
M4	3.00 mm	1.80 mm	18.00 mm	4	3 mm	50 mm	V848812	102.50	V848812-X	109.50
M5	4.00 mm	2.40 mm	7.00 mm	4	4 mm	50 mm	V007166	98.00	V007166-X	106.00
M5	4.00 mm	2.40 mm	12.00 mm	4	4 mm	50 mm	V291431	100.90	V291431-X	108.90
M5	4.00 mm	2.40 mm	19.00 mm	4	4 mm	50 mm	V672555	104.20	V672555-X	112.20
M6	4.80 mm	2.88 mm	8.50 mm	4	6 mm	50 mm	V086653	96.50	V086653-X	106.10
M6	4.80 mm	2.88 mm	14.00 mm	4	6 mm	50 mm	V572542	98.00	V572542-X	107.50
M6	4.80 mm	2.88 mm	23.00 mm	4	6 mm	63 mm	V654417	105.60	V654417-X	115.70
M8	6.00 mm	3.60 mm	11.00 mm	4	6 mm	50 mm	V178933	98.00	V178933-X	107.50
M8	6.00 mm	3.60 mm	18.00 mm	4	6 mm	50 mm	V692670	104.20	V692670-X	113.80
M10	8.00 mm	4.80 mm	15.00 mm	4	8 mm	63 mm	V018779	126.90	V018779-X	141.50
M10	8.00 mm	4.80 mm	24.00 mm	4	8 mm	63 mm	V113509	133.80	V113509-X	148.30
M16	13.70 mm	8.22 mm	25.00 mm	6	14 mm	75 mm	V216820	149.80	V216820-X	174.30
M16	13.70 mm	8.22 mm	42.00 mm	6	14 mm	89 mm	V711447	165.00	V711447-X	187.90





Thread Mills

Multi-Form – UN Threads



Common Thread Sizes Available

Amazingly Versatile in Right & Left Hand Thread Milling

- Specifically engineered to cut internal and external 60° UN threads
- Designed to mill right hand and left hand threads for added versatility
- Able to cut larger threads of the same pitch
- Offered in 3, 4, and 6 helical flutes
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



Thread Size	Cutter Diameter	Length of Cut	Flutes	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated		
	D1 ^{+0.005} _{-0.005}	L2		D2	L1	Tool #	\$USD	Tool #	\$USD	
2-56	.065	.125	3*	1/8	2	V776212	112.30	V776212-X	119.40	
3-48	.075	.167	3*	1/8	2	V223050	118.60	V223050-X	125.70	
4-40	.085	.175	3*	1/8	2	V825130	118.60	V825130-X	125.70	
5-44	.095	.228	3	1/8	2	V333694	118.60	V333694-X	125.70	
6-32	.100	.218	3	1/8	2	V729602	122.80	V729602-X	129.90	
8-32	.115	.250	3	1/8	2	V619489	131.70	V619489-X	138.80	
8-36	.115	.250	3	1/8	2	V338962	131.70	V338962-X	138.80	
10-24	.120	.312	3	1/8	2	V196853	138.60	V196853-X	145.60	
10-28	.120	.312	3	1/8	2	V862714	138.60	V862714-X	145.60	NEW
10-32	.120	.312	3	1/8	2	V370770	138.60	V370770-X	145.60	
1/4-20	.180	.500	3	3/16	2-1/2	V740289	165.90	V740289-X	174.40	
1/4-28	.180	.500	3	3/16	2-1/2	V605861	165.90	V605861-X	174.40	
5/16-18	.235	.625	3	1/4	2-1/2	V728692	179.70	V728692-X	189.90	
5/16-24	.235	.625	3	1/4	2-1/2	V794382	203.10	V794382-X	213.30	
3/8-16	.285	.750	4	5/16	3	V397436	241.90	V397436-X	254.10	
3/8-24	.285	.750	4	5/16	3	V891917	241.90	V891917-X	254.10	
7/16-14	.305	.750	4	5/16	3	V801115	241.90	V801115-X	254.10	
7/16-20	.335	.875	4	3/8	3-1/2	V198821	261.10	V198821-X	276.50	
1/2-13	.350	.875	4	3/8	3-1/2	V274534	269.80	V274534-X	285.20	
1/2-20	.370	1.000	6	3/8	3-1/2	V547751	283.30	V547751-X	298.70	
1/2-32	.370	1.000	6	3/8	3-1/2	V475524	244.20	V475524-X	259.80	NEW
9/16-12	.370	.875	4	3/8	3-1/2	V892991	232.70	V892991-X	248.30	NEW
9/16-18	.370	.875	4	3/8	3-1/2	V992366	232.70	V992366-X	248.30	NEW
5/8-11	.470	1.250	4	1/2	3-1/2	V523464	287.70	V523464-X	308.80	NEW
7/8-14	.490	1.250	4	1/2	3-1/2	V007110	293.40	V007110-X	314.50	NEW
3/4-16	.490	1.250	4	1/2	3-1/2	V278731	293.40	V278731-X	314.50	NEW
3/4-10	.495	1.250	4	1/2	3-1/2	V069581	287.70	V069581-X	308.80	NEW
3/4-12	.495	1.250	4	1/2	3-1/2	V274773	287.70	V274773-X	308.80	NEW
7/8-9	.620	1.375	4	5/8	4	V148181	441.40	V148181-X	465.90	NEW
1-8	.620	1.375	4	5/8	4	V725029	441.40	V725029-X	465.90	NEW
1-12	.745	1.500	6	3/4	4	V836280	552.30	V836280-X	581.50	NEW

*Straight flutes



Geometry
optimized for
hardened steels

Thread Mills

Multi-Form – UN Threads – Hardened Steels

Built for Clean Threads in the Toughest Materials

- Delivers reliable threading in hardened steels from 46–68 Rc
- Specifically engineered to cut internal and external 60° UN threads
- Designed to mill right hand and left hand threads for added versatility
- Able to cut larger threads of the same pitch
- Offered in 3 and 4 helical flutes
- Variable helix design reduces chatter and harmonics and produces more accurate threads
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide
- Precision manufactured in the USA



	Thread Size	Cutter Diameter	Length of Cut	Flutes	Shank Diameter	Overall Length	Val-Max X Coated	
		$D_1 \begin{smallmatrix} +.0005 \\ -.0005 \end{smallmatrix}$	L_2		D_2	L_1	Tool #	USD
NEW	2-56	.065	.125	3	1/8	2	V802015-X	119.40
NEW	4-40	.085	.180	3	1/8	2	V319832-X	125.70
NEW	5-44	.095	.228	3	1/8	2	V288496-X	125.70
NEW	6-32	.100	.218	3	1/8	2	V748003-X	125.70
NEW	8-32	.115	.250	3	1/8	2	V297349-X	129.90
NEW	10-24	.120	.312	3	3/16	2	V234781-X	138.80
NEW	10-32	.120	.312	3	3/16	2	V791425-X	138.80
NEW	1/4-20	.180	.500	3	3/16	2-1/2	V120320-X	145.60
NEW	1/4-28	.180	.500	3	3/16	2-1/2	V773388-X	145.60
NEW	5/16-18	.240	.625	3	1/4	2-1/2	V344838-X	174.40
NEW	5/16-24	.240	.625	3	1/4	2-1/2	V732023-X	174.40
NEW	3/8-16	.285	.750	4	5/16	3	V567957-X	189.90
NEW	3/8-24	.285	.750	4	5/16	3	V705430-X	213.30
NEW	7/16-20	.335	.875	4	3/8	3-1/2	V542316-X	254.10
NEW	1/2-13	.350	.875	4	3/8	3-1/2	V705623-X	254.10
NEW	3/4-16	.495	1.250	4	1/2	3-1/2	V073876-X	254.10





Thread Mills

Multi-Form – UN Threads – Coolant-Through



Single Coolant-Through Channel Design

Enhanced Coolant-Through Design for Superior Chip Ejection

- Coolant-through design allows for maximum chip ejection in blind holes
- Designed to mill right hand and left hand 60° UN threads
- Able to cut larger threads of the same pitch
- Offered in 3 and 4 helical flutes
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



Thread Size	Cutter Diameter D ₁ ^{+0.000} / _{-.002}	Length of Cut L ₂	Flutes	Shank Diameter D ₂	Overall Length L ₁	Uncoated		Val-Max X Coated	
						Tool #	\$USD	Tool #	\$USD
2-56	.065	.125	3	1/8	1-1/2	V227674	139.50	V227674-X	146.60
4-40	.085	.175	3	1/8	1-1/2	V351845	139.50	V351845-X	146.60
6-32	.100	.218	3	1/8	1-1/2	V737685	139.50	V737685-X	146.60
10-24	.145	.312	3	3/16	2-3/8	V396731	152.80	V396731-X	161.20
10-32	.150	.312	3	3/16	2-3/8	V889790	152.80	V889790-X	161.20
1/4-20	.180	.500	3	3/16	2-3/8	V656064	183.50	V656064-X	192.00
1/4-28	.180	.500	3	3/16	2-3/8	V989312	183.50	V989312-X	192.00
5/16-18	.235	.625	3	1/4	2-3/8	V843484	197.70	V843484-X	207.90
5/16-24	.235	.625	3	1/4	2-3/8	V722664	231.00	V722664-X	241.10
3/8-16	.285	.750	4	5/16	3	V720638	266.70	V720638-X	278.80
3/8-24	.285	.750	4	5/16	3	V756737	266.70	V756737-X	278.80
7/16-14	.305	.750	4	5/16	3	V217976	266.70	V217976-X	278.80
7/16-20	.335	.875	4	3/8	3	V454378	287.20	V454378-X	301.60
1/2-13	.350	.875	4	3/8	3	V492881	296.30	V492881-X	310.80

NEW
NEW
NEW

Tech Tip

Opt for a coolant-through thread mill in blind hole applications. The coolant-through ability of the tool produces **superior chip evacuation** while also delivering coolant directly to the tip of the tool, decreasing friction and allowing for increased cutting speeds.



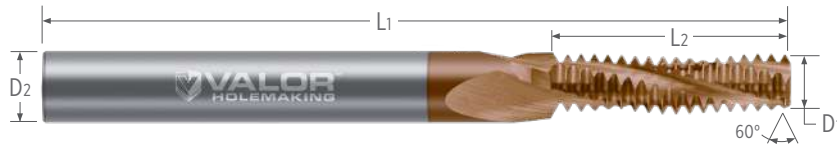
Long Flute Design
for Deep Threading

Thread Mills

Multi-Form – UN Threads – Long Flute

Superb Strength in UN Applications

- Specifically designed for deep threaded applications
- Increased cutter diameter allows for maximum strength while achieving 60% threads
- Designed to mill right hand and left hand internal 60° UN threads
- Able to cut larger threads of the same pitch
- Offered in 3 and 4 helical flutes
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials up to 65 Rc
- Solid carbide



Thread Size	Cutter Diameter	Length of Cut	Flutes	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
	$D_1 \begin{smallmatrix} +.0005 \\ -.0005 \end{smallmatrix}$	L_2		D_2	L_1	Tool #	\$USD	Tool #	\$USD
2-56	.069	.215	3	1/8	2	V862814	142.30	V862814-X	149.40
3-48	.079	.250	3	1/8	2	V175206	149.50	V175206-X	156.50
4-40	.089	.275	3	1/8	2	V764399	149.50	V764399-X	156.50
6-32	.110	.375	3	1/8	2	V139322	149.50	V139322-X	156.50
8-32	.131	.407	3	3/16	2-1/2	V911231	159.10	V911231-X	167.60
8-36	.131	.417	3	3/16	2-1/2	V109682	167.30	V109682-X	175.70
10-24	.145	.500	3	3/16	2-1/2	V547075	196.40	V547075-X	204.80
10-32	.150	.500	3	3/16	2-1/2	V571131	196.40	V571131-X	204.80
1/4-20	.195	.750	3	1/4	2-1/2	V904085	199.60	V904085-X	209.80
1/4-28	.195	.750	3	1/4	2-1/2	V377926	199.60	V377926-X	209.80
5/16-18	.245	.944	3	5/16	3	V455088	259.30	V455088-X	271.50
5/16-24	.245	.958	3	5/16	3	V184026	266.10	V184026-X	278.30
3/8-16	.300	1.125	4	3/8	3-1/2	V868122	309.20	V868122-X	324.70
3/8-24	.300	1.125	4	3/8	3-1/2	V558722	318.30	V558722-X	333.80
7/16-20	.350	1.300	4	3/8	3-1/2	V108189	318.30	V108189-X	333.80
1/2-13	.400	1.308	4	1/2	3-1/2	V518107	322.80	V518107-X	343.90
9/16-18	.450	1.500	4	1/2	3-1/2	V413594	322.80	V413594-X	343.90
5/8-11	.490	1.820	4	1/2	4	V875847	342.90	V875847-X	363.90
3/4-16	.580	1.875	4	5/8	4	V561697	442.50	V561697-X	467.00

NEW
NEW
NEW





Thread Mills

Multi-Form – Metric Threads



Common Thread Sizes Available

Efficiently Machines Both Internal & External Metric Threads

- Specifically engineered to cut internal and external 60° Metric threads
- Designed to mill right hand and left hand Metric threads for added versatility
- Able to cut larger threads of the same pitch
- Offered in 3 and 4 helical flutes
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



Thread Size	Cutter Diameter	Length of Cut	Flutes	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated		
	D1 ^{+0.005} _{-0.005}	L2		D2	L1	Tool #	\$USD	Tool #	\$USD	
M2.5-0.45	.059	.142	3	1/8	2	V483840	136.80	V483840-X	143.90	NEW
M2.5-0.45	.059	.126	3	1/8	2	V801444	136.80	V801444-X	143.90	NEW
M3-0.50	.085	.178	3	1/8	2	V705769	136.80	V705769-X	143.90	
M4-0.70	.115	.276	3	1/8	2	V221421	136.80	V221421-X	143.90	
M4.5-0.75	.120	.250	3	1/8	2	V751646	136.80	V751646-X	143.90	
M5-0.80	.120	.312	3	1/8	2	V520089	136.80	V520089-X	143.90	
M6-0.75	.170	.366	3	3/16	2-1/2	V576137	166.10	V576137-X	174.60	NEW
M6-1.00	.170	.500	3	3/16	2-1/2	V411343	166.10	V411343-X	174.60	
M8-1.00	.235	.625	3	1/4	2-1/2	V158486	178.50	V158486-X	188.70	NEW
M8-1.25	.235	.625	3	1/4	2-1/2	V689550	178.50	V689550-X	188.70	
M10-1.00	.300	.750	4	5/16	3	V537015	240.80	V537015-X	253.00	NEW
M10-1.50	.300	.750	4	5/16	3	V473531	240.80	V473531-X	253.10	
M12-1.75	.360	.875	4	3/8	3-1/2	V550418	268.00	V550418-X	283.50	
M14-1.50	.370	.875	4	3/8	3-1/2	V956048	268.00	V956048-X	283.50	
M16-2.00	.470	1.250	4	1/2	3-1/2	V326565	285.40	V326565-X	306.50	NEW
M18-1.50	.490	1.250	4	1/2	3-1/2	V091587	285.40	V091587-X	306.50	NEW
M20-2.50	.495	1.250	4	1/2	3-1/2	V364201	285.40	V364201-X	306.50	NEW



Single
Coolant-Through
Channel Design

Thread Mills

Multi-Form – Metric Threads – Coolant-Through

Maximum Chip Ejection in Blind Hole Applications

- Coolant-through design allows for maximum chip ejection in blind holes
- Designed to mill right hand and left hand 60° Metric threads
- Able to cut larger threads of the same pitch
- 3 helical flutes
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



Thread Size	Cutter Diameter $D_1^{+0.000}_{-0.002}$	Length of Cut L_2	Flutes	Shank Diameter D_2	Overall Length L_1	Uncoated		Val-Max X Coated	
						Tool #	\$USD	Tool #	\$USD
M3-0.50	.085	.1780	3	1/8	2	V757297	157.40	V757297-X	164.40
M4-0.70	.115	.2760	3	1/8	2	V954960	157.40	V954960-X	164.40
M5-0.80	.120	.3125	3	1/8	2	V490771	157.40	V490771-X	164.40
M6-1.00	.170	.5000	3	3/16	2-1/2	V875636	191.20	V875636-X	199.60
M8-1.25	.235	.6250	3	1/4	2-1/2	V388421	205.40	V388421-X	215.60

Tech Tip

Provide an immediate boost in your threading jobs with a multi-form thread mill, as they are optimized to produce a **full thread in a single helical interpolation**. Additionally, they allow a machinist to quickly turn around production-style jobs.





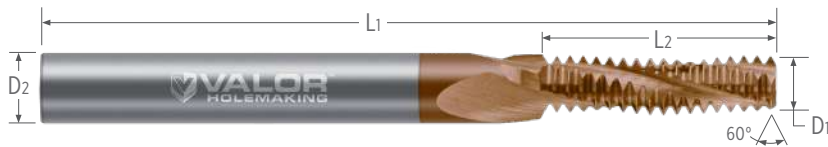
Thread Mills

Multi-Form – Metric Threads – Long Flute



Excellent in Deep Threading Metric Applications

- Specifically designed for deep threaded applications
- Increased cutter diameter allows for maximum strength while achieving 60% threads
- Designed to mill right hand and left hand internal 60° Metric threads
- Able to cut larger threads of the same pitch
- Offered in 3 and 4 helical flutes
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



Thread Size	Cutter Diameter	Length of Cut	Flutes	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
						Tool #	USD	Tool #	USD
	$D_1^{+.0005}_{-.0005}$	L ₂		D ₂	L ₁				
M3-0.50	.090	.276	3	1/8	2	V837004	176.00	V837004-X	183.10
M4-0.70	.124	.441	3	3/16	2-1/2	V503448	180.40	V503448-X	188.90
M5-0.80	.155	.504	3	3/16	2-1/2	V256903	180.40	V256903-X	188.90
M6-1.00	.186	.748	3	1/4	2-1/2	V790009	208.90	V790009-X	219.10
M8-1.25	.245	.984	3	5/16	2-1/2	V659859	268.70	V659859-X	280.90
M10-1.50	.311	1.122	4	3/8	3-1/2	V975146	337.40	V975146-X	352.80
M16-2.00	.490	1.890	4	1/2	3-1/2	V318978	351.90	V318978-X	373.00

NEW

Tech Tip

When your job requires deep threads, opt for a Long Flute Thread Mill. They are engineered with a **large cutter diameter and core**, equipping them with the necessary geometries for superior tool strength and stability.



Available in 3 and
4 Helical Flutes

Thread Mills

Multi-Form – NPT Threads

Optimized Specifically for Internal & External 60° NPT Threads

- Engineered to cut internal and external 60° National Pipe Taper (NPT) threads
- Designed to mill right hand and left hand threads for added versatility
- Offered in 3 and 4 helical flutes
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



Thread Size	Major Cutter Diameter	Length of Cut	Flutes	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
	$D_1^{+0.0005}_{-0.0005}$	L2		D2	L1	Tool #	\$USD	Tool #	\$USD
1/16, 1/8-27	.245	.437	3	1/4	2-1/2	V614054	169.70	V614054-X	179.90
1/4, 3/8-18	.305	.625	4	5/16	3	V897256	232.60	V897256-X	244.90
1/4, 3/8-18	.363	.680	4	3/8	3-1/2	V224635	247.50	V224635-X	263.00
1/2, 3/4-14	.495	.875	4	1/2	3-1/2	V641508	271.40	V641508-X	292.50
1, 2-11.5	.620	1.125	4	5/8	4	V175728	383.90	V175728-X	408.30



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Thread Mills

Multi-Form – NPTF Threads

Efficiency-Boosting Design for Right Hand & Left Hand Thread Milling



Geometry designed for NPTF Threading

- Engineered to cut internal and external 60° National Pipe Taper Fuel (NPTF) threads
- Designed to mill right hand and left hand threads for added versatility
- Offered in 3 and 4 helical flutes
- Uncoated option well-suited for Aluminum Alloys and other Non-Ferrous Alloys
- Proprietary Val-Max X coating for improved tool life and heat resistance in ferrous materials, including Alloy Steels, Stainless Steels, Nickel Alloys, and other high hardness materials
- Solid carbide



Thread Size	Major Cutter Diameter	Length of Cut	Flutes	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
	$D_1^{+0.0005}_{-0.0005}$	L ₂		D ₂	L ₁	Tool #	\$USD	Tool #	\$USD
1/16, 1/8-27	.245	.437	3	1/4	2-1/2	V284224	198.30	V284224-X	208.40
1/4, 3/8-18	.305	.625	4	5/16	3	V169267	236.80	V169267-X	249.00
1/2, 3/4-14	.495	.875	4	1/2	3-1/2	V683311	307.40	V683311-X	328.40
1, 2-11.5	.620	1.125	4	5/8	4	V633813	457.40	V633813-X	481.90

Tech Tip

When selecting a thread mill, choose only a cutter diameter as large as your job requires. A smaller cutter diameter will help achieve higher quality threads.



Technical Information

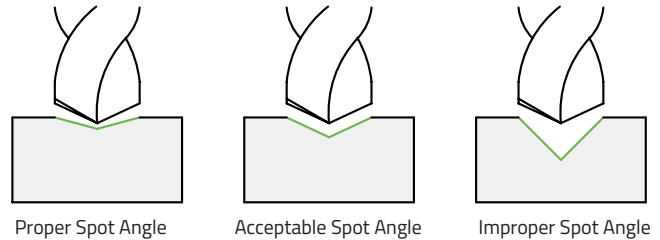
Properly Select a Valor Holemaking High Performance Spotting Drill

Drilling an ultra-precise hole is often tough, but it doesn't have to be. A Valor Holemaking High Performance Spotting Drill, if used properly, will eliminate the chance of drill walking and will help to ensure a more accurate final product. A Spotting Drill's purpose is to create a small divot to correctly locate the center of a drill when initiating a plunge.

Choosing a High Performance Spotting Drill

Point Angle

Ideally, the center of a carbide drill should always be the first point to contact your part. Therefore, a spotting drill should have a **slightly larger point angle** than that of your drill. If a spotting drill with a smaller point angle than your drill is used, your drill may be damaged due to shock loading when the outer portion of its cutting surface contacts the workpiece before the center. Using a drill angle equal to the drill angle is also an acceptable situation.



Valor Holemaking High Performance Spotting Drills are offered with **90°**, **135°**, and **140°** point angles.

Drill Diameter

Valor Holemaking High Performance Spotting Drills are offered in 3.00 mm, 4.00 mm, 6.00 mm, 8.00 mm, 10.00 mm, 12.00 mm, and 16.00 mm drill diameters for each of its point angle options. Opting for a Spotting Drill drill diameter of at least 67% of your High Performance Drill diameter, is a great starting point.

When Won't a Spot Drill Work for My Application?

When drilling into an extremely irregular surface, such as the side of a cylinder or an inclined plane, a High Performance Spotting Drill alone may not be sufficient to keep holes in the correct position. For these applications, Flat Bottom Counterbores may be needed to creating accurate features. Explore Counterbores on page 58 of this catalog.

Coolant Usage Best Practices & Recommendations

There are several advantages to following a proper coolant strategy when performing a CNC drilling operation, regardless of if the Valor Holemaking High Performance Drill being used is enabled with coolant-through geometry or not.

Coolant-through geometry allows for coolant to travel within the drill, itself, and be applied directly to the cutting location. In doing so, concerns of chip packing in blind hole applications are mitigated, even in depths beyond 5x that of the drill diameter (5xD), as chips are easily removed from the created hole via high pressure coolant. Because of this, coolant-through geometry is extremely beneficial to a high performance drilling application, and should be a machinist's first choice.

At a minimum, coolant pressure of 600-800 psi is recommended for deep hole drilling in applications that exceed a drill depth of larger than 8xD. When coolant-through geometry is not an option due to machine or material concerns, flood coolant or other means of coolant will be necessary.

Did You Know?

When Using a Valor Holemaking Coolant-Through High Performance Drill, a pecking cycle is not needed under optimal conditions. When using a solid round drill, a pecking cycle approach may be needed when exceeding depths of 3xD. Please review Speeds & Feeds information for each Valor Holemaking High Performance Drill offering on pages 31 or 54 for more information.



Technical Information

Decimal Equivalent Chart

Drill Size & Fractions	MM	Inch	Drill Size & Fractions	MM	Inch	Drill Size & Fractions	MM	Inch	Drill Size & Fractions	MM	Inch	Drill Size & Fractions	MM	Inch
-	0.05	0.0020	#53	-	0.0595	#27	-	0.1440	-	6.9	0.2717	-	11.5	0.4528
-	0.1	0.0039	-	1.55	0.0610	-	3.7	0.1457	I	-	0.2720	29/64 in	-	0.4531
#97	0.15	0.0059	1/16 in	-	0.0625	#26	-	0.1470	-	7	0.2756	-	11.6	0.4567
#96	-	0.0063	-	1.6	0.0630	-	3.75	0.1476	J	-	0.2770	-	11.7	0.4606
#95	-	0.0067	#52	-	0.0635	#25	-	0.1495	-	7.1	0.2795	-	11.8	0.4646
#94	-	0.0071	-	1.65	0.0650	-	3.8	0.1496	K	-	0.2810	-	11.9	0.4685
#93	-	0.0075	-	1.7	0.0669	-	3.85	0.1516	9/32 in	-	0.2813	15/32 in	-	0.4688
#92	0.2	0.0079	#51	-	0.0670	#24	-	0.1520	-	7.2	0.2835	-	12	0.4724
#91	-	0.0083	-	1.75	0.0689	-	3.9	0.1535	-	7.3	0.2874	-	12.1	0.4764
#90	-	0.0087	#50	-	0.0700	#23	-	0.1540	L	-	0.2900	-	12.2	0.4803
#89	-	0.0091	-	1.8	0.0709	-	3.95	0.1555	-	7.4	0.2913	-	12.3	0.4843
#88	-	0.0095	-	1.85	0.0728	5/32 in	-	0.1563	M	-	0.2950	31/64 in	-	0.4844
-	0.25	0.0098	#49	-	0.0730	#22	-	0.1570	-	7.5	0.2953	-	12.4	0.4882
#87	-	0.0100	-	1.9	0.0748	-	4	0.1575	19/64 in	-	0.2969	-	12.5	0.4921
#86	-	0.0105	#48	-	0.0760	#21	-	0.1590	-	7.6	0.2992	-	12.6	0.4961
#85	-	0.0110	-	1.95	0.0768	#20	-	0.1610	N	-	0.3020	1/2 in	12.7	0.5000
#84	-	0.0115	5/64 in	-	0.0781	-	4.1	0.1614	-	7.7	0.3031	-	12.8	0.5039
-	0.3	0.0118	#47	-	0.0785	-	4.2	0.1654	-	7.8	0.3071	-	12.9	0.5079
#83	-	0.0120	-	2	0.0787	#19	-	0.1660	-	7.9	0.3110	-	13	0.5118
#82	-	0.0125	-	2.05	0.0807	-	4.3	0.1693	5/16 in	-	0.3125	33/64 in	-	0.5156
#81	-	0.0130	#46	-	0.0810	#18	-	0.1695	-	8	0.3150	17/32 in	-	0.5313
#80	-	0.0135	#45	-	0.0820	11/64 in	-	0.1719	O	-	0.3160	-	13.5	0.5315
-	0.35	0.0138	-	2.1	0.0827	#17	-	0.1730	-	8.1	0.3189	35/64 in	-	0.5469
#79	-	0.0145	-	2.15	0.0846	-	4.4	0.1732	-	8.2	0.3228	-	14	0.5512
1/64 in	-	0.0156	#44	-	0.0860	#16	-	0.1770	P	-	0.3230	9/16 in	-	0.5625
-	0.4	0.0157	-	2.2	0.0866	-	4.5	0.1772	-	8.3	0.3268	-	14.5	0.5709
#78	-	0.0160	-	2.25	0.0886	#15	-	0.1800	21/64 in	-	0.3281	37/64 in	-	0.5781
-	0.45	0.0177	#43	-	0.0890	-	4.6	0.1811	-	8.4	0.3307	-	15	0.5906
#77	-	0.0180	-	2.3	0.0906	#14	-	0.1820	Q	-	0.3320	19/32 in	-	0.5938
-	0.5	0.0197	-	2.35	0.0925	#13	4.7	0.1850	-	8.5	0.3346	39/64 in	-	0.6094
#76	-	0.0200	#42	-	0.0935	3/16 in	-	0.1875	-	8.6	0.3386	-	15.5	0.6102
#75	-	0.0210	3/32 in	-	0.0938	#12	4.8	0.1890	R	-	0.3390	5/8 in	-	0.6250
-	0.55	0.0217	-	2.4	0.0945	#11	-	0.1910	-	8.7	0.3425	-	16	0.6299
#74	-	0.0225	#41	-	0.0960	-	4.9	0.1929	11/32 in	-	0.3438	41/64 in	-	0.6406
-	0.6	0.0236	-	2.45	0.0965	#10	-	0.1935	-	8.8	0.3465	-	16.5	0.6496
#73	-	0.0240	#40	-	0.0980	#9	-	0.1960	S	-	0.3480	21/32 in	-	0.6563
#72	-	0.0250	-	2.5	0.0984	-	5	0.1969	-	8.9	0.3504	-	17	0.6693
-	0.65	0.0256	#39	-	0.0995	#8	-	0.1990	-	9	0.3543	43/64 in	-	0.6719
#71	-	0.0260	-	2.55	0.1004	-	5.1	0.2008	T	-	0.3580	11/16 in	-	0.6875
-	0.7	0.0276	#38	-	0.1015	#7	-	0.2010	-	9.1	0.3583	-	17.5	0.6890
#70	-	0.0280	-	2.6	0.1024	13/64 in	-	0.2031	23/64 in	-	0.3594	45/64 in	-	0.7031
#69	-	0.0292	#37	-	0.1040	#6	-	0.2040	-	9.2	0.3622	-	18	0.7087
-	0.75	0.0295	-	2.65	0.1043	-	5.2	0.2047	-	9.3	0.3661	23/32 in	-	0.7188
#68	-	0.0310	-	2.7	0.1063	#5	-	0.2055	U	-	0.3680	-	18.5	0.7283
1/32 in	-	0.0313	#36	-	0.1065	-	5.3	0.2087	-	9.4	0.3701	47/64 in	-	0.7344
-	0.8	0.0315	-	2.75	0.1083	#4	-	0.2090	-	9.5	0.3740	-	19	0.7480
#67	-	0.0320	7/64 in	-	0.1094	-	5.4	0.2126	3/8 in	-	0.3750	3/4 in	-	0.7500
#66	-	0.0330	#35	-	0.1100	#3	-	0.2130	V	-	0.3770	49/64 in	-	0.7656
-	0.85	0.0335	-	2.8	0.1102	-	5.5	0.2165	-	9.6	0.3780	-	19.5	0.7677
#65	-	0.0350	#34	-	0.1110	7/32 in	-	0.2188	-	9.7	0.3819	25/32 in	-	0.7813
-	0.9	0.0354	-	2.85	0.1122	-	5.6	0.2205	-	9.8	0.3858	-	20	0.7874
#64	-	0.0360	#33	-	0.1130	#2	-	0.2210	W	-	0.3860	51/64 in	-	0.7969
#63	-	0.0370	-	2.9	0.1142	-	5.7	0.2244	-	9.9	0.3898	-	20.5	0.8071
-	0.95	0.0374	#32	-	0.1160	#1	-	0.2280	25/64 in	-	0.3906	13/16 in	-	0.8125
#62	-	0.0380	-	2.95	0.1161	-	5.8	0.2283	-	10	0.3937	-	21	0.8268
#61	-	0.0390	-	3	0.1181	-	5.9	0.2323	X	-	0.3970	53/64 in	-	0.8281
-	1	0.0394	#31	-	0.1200	A	-	0.2340	-	10.1	0.3976	27/32 in	-	0.8438
#60	-	0.0400	-	3.05	0.1201	15/64 in	-	0.2344	-	10.2	0.4016	-	21.5	0.8465
#59	-	0.0410	-	3.1	0.1220	-	6	0.2362	Y	-	0.4040	55/64 in	-	0.8594
-	1.05	0.0413	-	3.15	0.1240	B	-	0.2380	-	10.3	0.4055	-	22	0.8661
#58	-	0.0420	1/8 in	-	0.1250	-	6.1	0.2402	13/32 in	-	0.4063	7/8 in	-	0.8750
#57	-	0.0430	-	3.2	0.1260	C	-	0.2420	-	10.4	0.4094	-	22.5	0.8858
-	1.1	0.0433	-	3.25	0.1280	-	6.2	0.2441	Z	-	0.4130	57/64 in	-	0.8906
-	1.15	0.0453	#30	-	0.1285	D	-	0.2460	-	10.5	0.4134	-	23	0.9055
#56	-	0.0465	-	3.3	0.1299	-	6.3	0.2480	-	10.6	0.4173	29/32 in	-	0.9063
3/64 in	-	0.0469	-	3.35	0.1319	1/4 in - E	-	0.2500	-	10.7	0.4213	59/64 in	-	0.9219
-	1.2	0.0472	-	3.4	0.1339	-	6.4	0.2520	27/64 in	-	0.4219	-	23.5	0.9252
-	1.25	0.0492	-	3.45	0.1358	-	6.5	0.2559	-	10.8	0.4252	15/16 in	-	0.9375
-	1.3	0.0512	#29	-	0.1360	F	-	0.2570	-	10.9	0.4291	-	24	0.9449
#55	-	0.0520	-	3.5	0.1378	-	6.6	0.2598	-	11	0.4331	61/64 in	-	0.9531
-	1.35	0.0531	-	3.55	0.1398	G	-	0.2610	-	11.1	0.4370	-	24.5	0.9646
#54	-	0.0550	#28	-	0.1405	-	6.7	0.2638	7/16 in	-	0.4375	31/32 in	-	0.9688
-	1.4	0.0551	9/64 in	-	0.1406	17/64 in	-	0.2656	-	11.2	0.4409	-	25	0.9843
-	1.45	0.0571	-	3.6	0.1417	H	-	0.2660	-	11.3	0.4449	63/64 in	-	0.9844
-	1.5	0.0591	-	3.65	0.1437	-	6.8	0.2677	-	11.4	0.4488	1 in	25.4	1.0000



Tap Size	CUT TAPS - Target Theor. % of Thread			FORM TAPS - Target Theor. % of Thread		
	-55%	-65%	-75%	-55%	-65%	-75%
0 - 80	1.30 mm	1.25 mm	1.20 mm	1.40 mm	1.38 mm	1.36 mm
M1.6 x 0.35	1.35 mm	1.30 mm	1.25 mm	1.47 mm	1.44 mm	1.42 mm
M1.8 x 0.35	1.55 mm	1.50 mm	1.45 mm	1.67 mm	1.64 mm	1.62 mm
1 - 64	1/16 in	# 53	1.45 mm	# 51	1.68 mm	1.65 mm
1 - 72	1.60 mm	1.55 mm	# 53	1.72 mm	1.70 mm	1.67 mm
M2 x 0.40	# 51	1.65 mm	1.60 mm	# 49	1.82 mm	1.79 mm
2 - 56	# 49	1.80 mm	1.73 mm	2.01 mm	5/64 in	1.95 mm
2 - 64	1.87 mm	# 49	1.80 mm	2.03 mm	2.00 mm	5/64 in
M2.2 x 0.45	# 49	1.80 mm	1.75 mm	2.03 mm	2.00 mm	1.97 mm
M2.5 x 0.45	# 44	2.10 mm	# 46	2.33 mm	2.30 mm	2.27 mm
3 - 48	2.12 mm	# 46	2.00 mm	2.32 mm	2.27 mm	2.24 mm
3 - 56	# 44	2.13 mm	# 46	2.34 mm	2.30 mm	2.28 mm
4 - 40	3/32 in	2.30 mm	2.20 mm	2.60 mm	2.55 mm	2.52 mm
4 - 48	2.45 mm	3/32 in	2.32 mm	# 37	2.60 mm	# 38
M3 x 0.50	# 37	# 38	2.50 mm	2.80 mm	7/64 in	2.75 mm
M3 x 0.35	2.75 mm	2.70 mm	2.65 mm	# 33	2.85 mm	# 34
5 - 40	# 36	# 37	# 39	2.93 mm	2.88 mm	2.85 mm
5 - 44	2.75 mm	2.70 mm	2.60 mm	2.95 mm	2.92 mm	# 33
M3.5 x 0.60	# 31	3.00 mm	2.90 mm	3.27 mm	3.23 mm	3.20 mm
M3.5 x 0.35	3.25 mm	3.20 mm	3.15 mm	3.37 mm	3.35 mm	3.32 mm
6 - 32	# 32	# 34	# 36	3.20 mm	3.15 mm	3.10 mm
6 - 40	# 31	# 32	# 33	# 30	3.22 mm	1/8 in
M4 x 0.70	3.50 mm	3.40 mm	3.30 mm	# 26	3.70 mm	3.65 mm
M4 x 0.50	3.65 mm	9/64 in	3.50 mm	# 25	3.77 mm	3.77 mm
8 - 32	3.60 mm	3.50 mm	3.40 mm	# 24	# 25	3.75 mm
8 - 36	# 27	9/64 in	# 29	3.90 mm	# 24	# 25
M4.5 x 0.75	5/32 in	# 24	# 25	# 19	4.15 mm	4.10 mm
M4.5 x 0.50	4.15 mm	4.06 mm	4.00 mm	# 18	4.27 mm	4.25 mm
10 - 24	# 21	# 23	# 25	4.42 mm	11/64 in	4.27 mm
10 - 32	4.25 mm	4.15 mm	# 21	4.52 mm	4.45 mm	4.40 mm
M5 x 0.80	4.40 mm	4.30 mm	4.20 mm	# 13	4.65 mm	4.60 mm
M5 x 0.50	# 14	# 15	# 16	# 12	3/16 in	4.75 mm
12 - 24	# 13	4.60 mm	4.45 mm	5.06 mm	5.00 mm	4.95 mm
12 - 28	# 12	# 13	4.60 mm	5.15 mm	5.06 mm	5.00 mm
M6 x 1.00	5.25 mm	13/64 in	5.00 mm	# 2	7/32 in	5.50 mm
M6 x 0.75	5.45 mm	5.35 mm	5.25 mm	5.70 mm	5.65 mm	# 2
1/4 - 20	# 3	# 5	# 7	5.85 mm	# 1	5.70 mm
1/4 - 28	5.70 mm	7/32 in	5.45 mm	6.00 mm	15/64 in	5.90 mm
M7 x 1.00	Ltr D	Ltr C	6.00 mm	Ltr G	Ltr F	6.50 mm
M7 x 0.75	6.40 mm	1/4 in	Ltr D	6.70 mm	6.65 mm	6.60 mm
5/16 - 18	Ltr I	17/64 in	Ltr F	7.40 mm	7.30 mm	7.20 mm
5/16 - 24	9/32 in	Ltr J	Ltr I	19/64 in	7.45 mm	7.40 mm
M8 x 1.25	7.10 mm	Ltr I	Ltr H	19/64 in	7.45 mm	Ltr L
M8 x 1.00	7.25 mm	9/32 in	7.00 mm	7.60 mm	19/64 in	7.50 mm
3/8 - 16	8.40 mm	Ltr P	5/16 in	8.90 mm	8.80 mm	11/32 in
3/8 - 24	11/32 in	Ltr R	8.50 mm	23/64 in	9.05 mm	9.00 mm
M10 x 1.50	8.90 mm	11/32 in	8.50 mm	9.40 mm	9.30 mm	9.20 mm
M10 x 1.25	9.10 mm	8.90 mm	11/32 in	3/8 in	9.45 mm	Ltr U
M10 x 1.00	9.25 mm	23/64 in	9.00 mm	9.60 mm	9.55 mm	9.50 mm
7/16 - 14	Ltr W	Ltr V	Ltr U	10.40 mm	10.30 mm	10.20 mm
7/16 - 20	10.20 mm	10.00 mm	9.95 mm	10.60 mm	10.50 mm	Ltr Z
M12 x 1.75	27/64 in	10.50 mm	10.30 mm	11.30 mm	11.20 mm	7/16 in
M12 x 1.50	10.90 mm	27/64 in	10.50 mm	11.40 mm	11.30 mm	11.20 mm
M12 x 1.00	11.25 mm	7/16 in	11.00 mm	11.60 mm	11.55 mm	11.50 mm
1/2 - 13	11.30 mm	11.00 mm	27/64 in	15/32 in	11.80 mm	11.70 mm
1/2 - 20	11.80 mm	11.60 mm	11.40 mm	12.20 mm	12.10 mm	12.05 mm
M14 x 2.00	12.50 mm	31/64 in	12.00 mm	13.20 mm	33/64 in	13.00 mm
M14 x 1.50	12.90 mm	1/2 in	12.50 mm	13.40 mm	13.30 mm	13.20 mm
9/16 - 12	1/2 in	12.50 mm	12.20 mm	17/32 in	13.30 mm	13.20 mm
9/16 - 18	13.25 mm	33/64 in	12.90 mm	13.75 mm	13.65 mm	13.55 mm
5/8 - 11	14.20 mm	13.90 mm	13.60 mm	15.00 mm	14.80 mm	37/64 in
5/8 - 18	14.80 mm	37/64 in	14.50 mm	15.30 mm	15.25 mm	15.15 mm
M16 x 2.00	14.50 mm	9/16 in	14.00 mm	15.25 mm	15.10 mm	15.00 mm
M16 x 1.50	14.90 mm	14.70 mm	14.50 mm	15.40 mm	15.30 mm	15.20 mm
M18 x 2.50	16.20 mm	5/8 in	15.50 mm	43/64 in	6.90 mm	16.75 mm
M18 x 1.50	16.90 mm	21/32 in	16.50 mm	17.40 mm	17.30 mm	17.25 mm
3/4 - 10	17.20 mm	16.90 mm	16.50 mm	18.10 mm	45/64 in	17.70 mm
3/4 - 16	17.90 mm	17.70 mm	17.50 mm	18.40 mm	18.30 mm	23/32 in
M20 x 2.50	18.20 mm	45/64 in	17.50 mm	3/4 in	18.90 mm	47/64 in
M20 x 1.50	18.90 mm	18.75 mm	8.50 mm	49/64 in	9.30 mm	19.25 mm
M22 x 2.50	51/64 in	25/32 in	9.50 mm	53/64 in	20.90 mm	20.75 mm
M22 x 1.50	20.90 mm	20.75 mm	20.50 mm	27/32 in	21.30 mm	21.25 mm
7/8 - 9	51/64 in	25/32 in	19.50 mm	21.10 mm	21.00 mm	20.75 mm
7/8 - 14	20.90 mm	13/16 in	20.40 mm	21.50 mm	27/32 in	21.30 mm
M24 x 3.00	55/64 in	27/32 in	53/64 in	22.80 mm	57/64 in	22.50 mm
M24 x 2.00	22.50 mm	7/8 in	22.00 mm	23.25 mm	23.10 mm	23.00 mm
1 - 8	29/32 in	57/64 in	22.25 mm	61/64 in	24.00 mm	23.75 mm
1 - 12	15/16 in	23.60 mm	23.30 mm	31/32 in	24.40 mm	24.25 mm

- = approximately

UNC/UNF Taps: Calculating Drill Size for Specific % of Thread

$$\text{Cut Taps Drill Size (in)} = \frac{\text{BD} - \text{Desired \% of Thread} \times .01299}{\text{TPI}}$$

$$\text{Form Taps Drill Size (in)} = \frac{\text{BD} - \text{Desired \% of Thread} \times .0068}{\text{TPI}}$$

M/MF Taps: Calculating Drill Size for Specific % of Thread

$$\text{Cut Taps Drill Size (mm)} = \frac{\text{BD} - \text{Desired \% of Thread} \times \text{Pitch}}{76.98}$$

$$\text{Form Taps Drill Size (mm)} = \frac{\text{BD} - \text{Desired \% of Thread} \times \text{Pitch}}{10.5}$$

Speed / Feed Equations

$$\text{RPM} = \frac{\text{SFM}}{\text{Dia. in}} \times 3.82 \quad \text{RPM} = \frac{\text{SFM}}{\text{Dia. (mm)}} \times 97.028$$

$$\text{IPR} = \frac{1}{\text{TPI}} \quad \text{IPR} = \text{Pitch (mm)} \times 0.0394$$

End Mill Equations

$$\text{SFM} = 0.26 \times \text{RPM} \times \text{Dia. in}$$

$$\text{IPM} = \text{No. of teeth} \times \text{IPT} \times \text{RPM}$$

$$\text{Cut time sec} = \frac{\text{Milling Length}}{\text{IPM}} \times 60$$

$$\text{Q} = \text{Depth of Cut in.} \times \text{Width of Cut in.}$$

$$\text{RPM} = \frac{\text{SFM}}{\text{Dia. in}} \times 3.82$$

Drill Equations

$$\text{IPM} = \text{IPR} \times \text{R}$$

$$\text{SFM} = 0.26 \times \text{RPM} \times \text{Dia. in} \quad \text{RPM} = \frac{\text{SFM}}{\text{Dia. in}} \times 3.82$$

$$\text{Cut time sec} = \frac{\text{Milling Length}}{\text{IPM}} \times 60$$

Conversions

$$\text{Inch} = \frac{\text{mm}}{25.4} \quad \text{Gal} = \frac{\text{Liter}}{3.79} \quad \text{PSI} = \text{Bar} \times 14.7$$

$$\text{SFM} = \text{m/min.} \times 3.28 \quad \text{IPR} = \frac{\text{mm/rev.}}{25.4} \quad \text{Torque} = \text{NM} \times 0.7376$$

$$\text{HP} = \text{KW} \times 1.34$$

Equation Key

SFM = Surface Foot Per Min. PSI = Pounds Per Square Inch
RPM = Rotations Per Minute Q = Minimum Cutting Depth
IPT = Inches Per Tooth HP = Horse Power
TPI = Threads Per Inch KW = Kilowatts Per Hour
IPR = Inches Per Revolution BD = Basic Diameter





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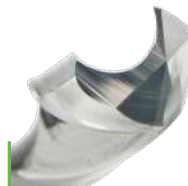
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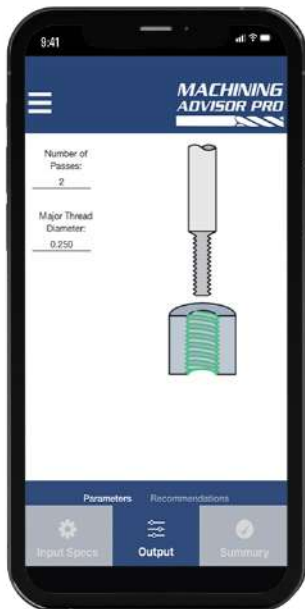
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