



VALOR[®]
HOLEMAKING

Victory Starts With Valor Holemaking

**1,600+ NEW Tools to
Revolutionize Your Drilling Routine**

**2024
Digital
Product
Catalog**

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



**Think Harvey
Tool First**

More than 29,000 miniature
and specialty end mills.
Ship today, in your
machine tomorrow.



**Let Helical
Impress You**

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



**Make More with
Micro 100**

Exceptional quality turning
tools designed for durability
and performance in a range of
difficult-to-machine materials.



**Trust in
Titan USA**

Broad assortment
of quality, fully stocked
cutting tools
at exceptional value.



**Innovative Tools for
Innovative Materials**

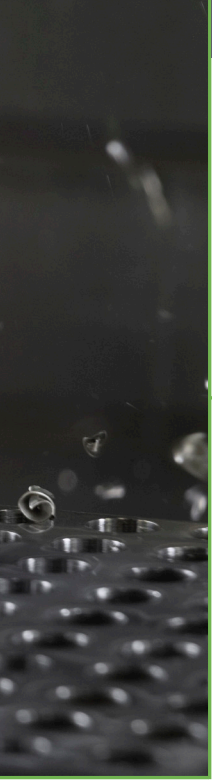
The industry's most
innovative and advanced
composite and honeycomb
core cutting tools.



**Victory Starts with
Valor Holmaking**

High performance drills &
complementary tooling
solutions that revolutionize
CNC holmaking.





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



13 High Performance Drills for Aluminum & Aluminum Alloys



50 High Performance Drills for Steels



92 Combined Drill & Countersinks



93 High Performance Chamfer Cutters



95 Counterbores



98 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 drill more quickly, effectively, and reliably, providing you with unbeatable cost savings.

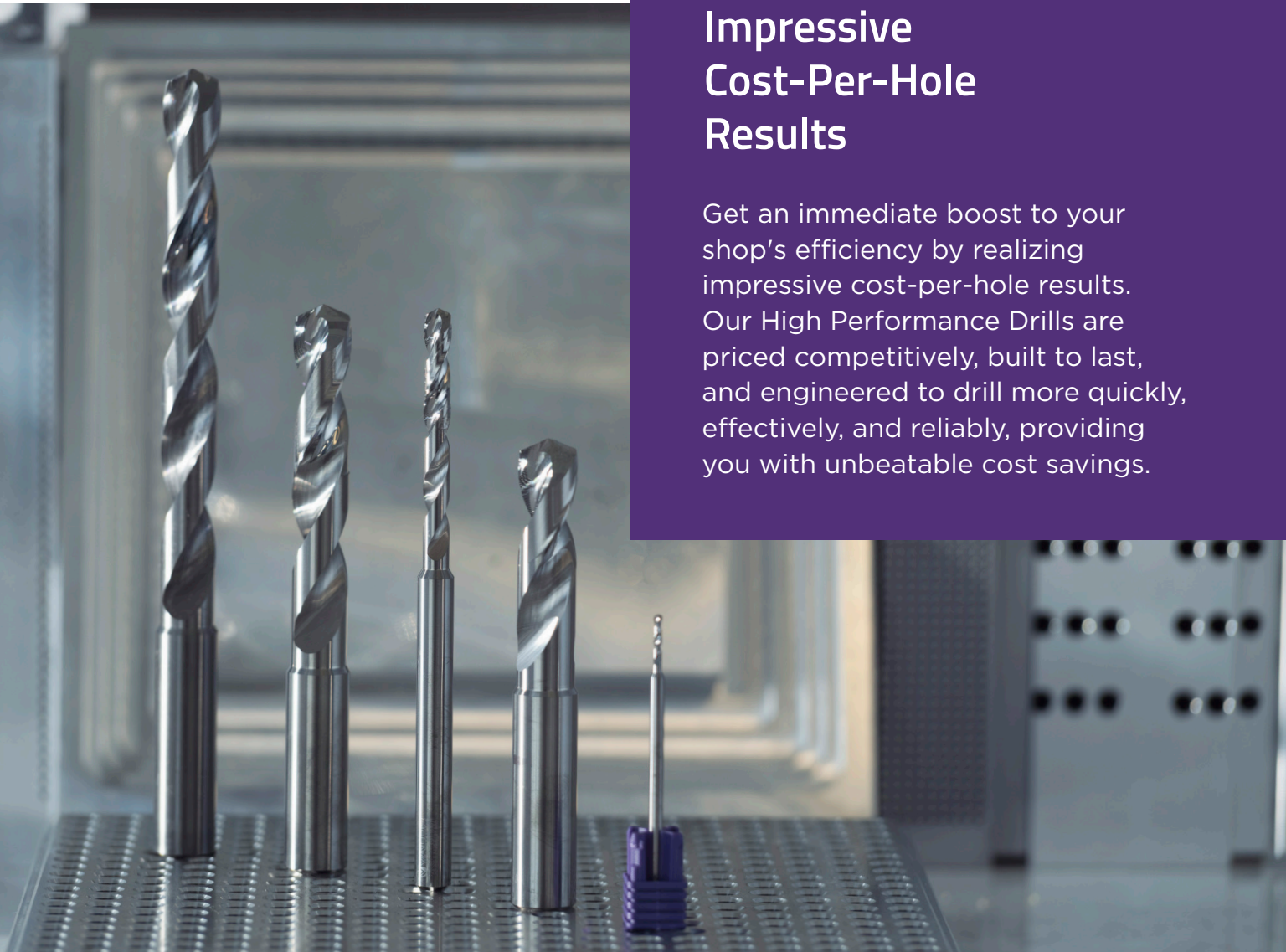




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Pilot Drills



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High Performance Drills for Steels



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High Performance Drills for Steels - Pilot Drills

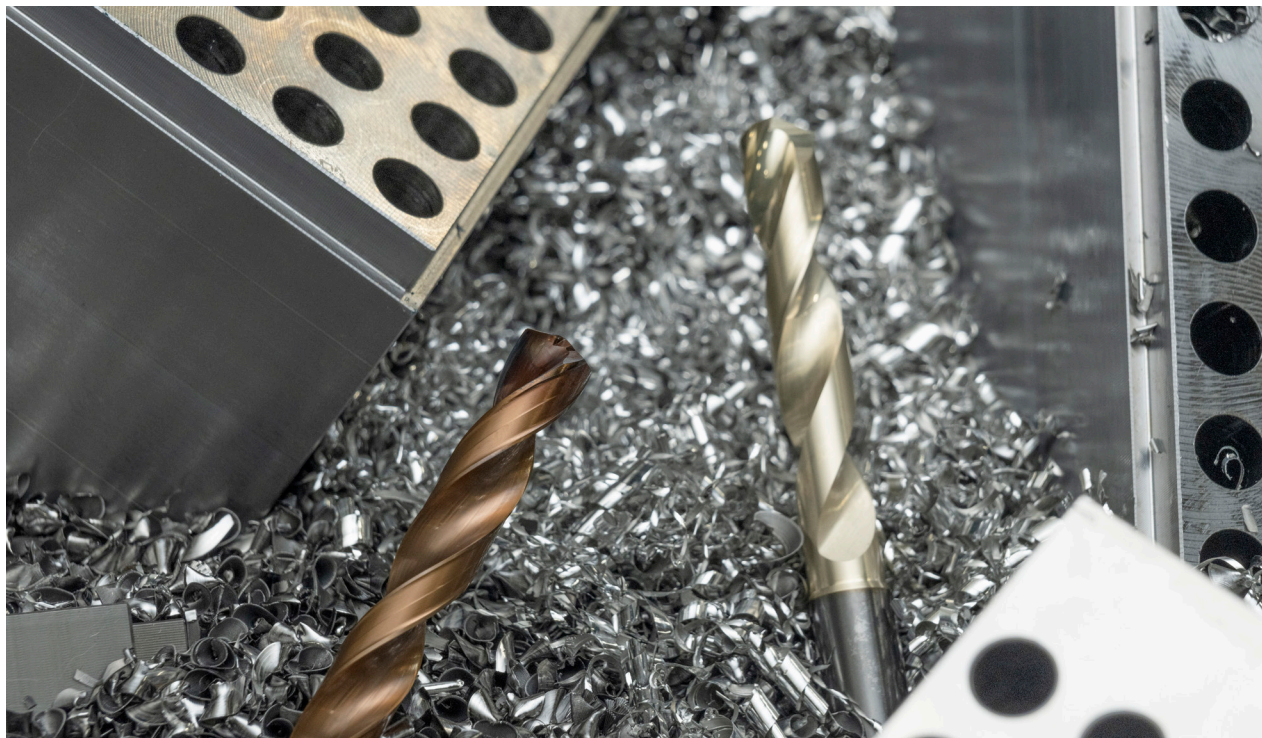




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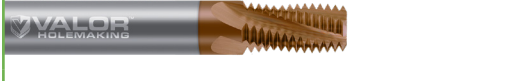
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Val-Max Coating Technology

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, 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, and Nickel Alloys
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



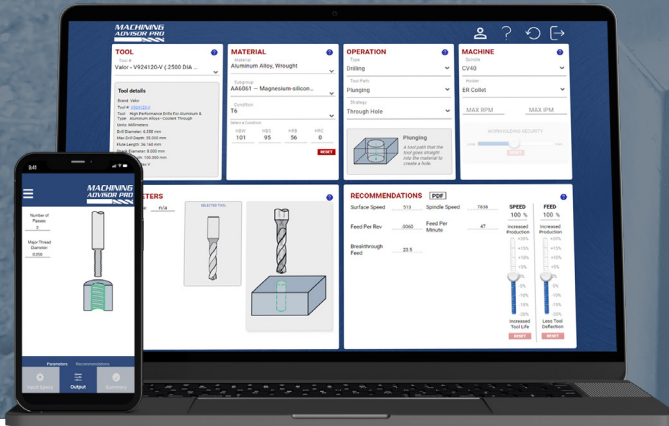
The Cutting-Edge Resource You Need to Take You Further at the Spindle



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MACHINING ADVISOR PRO



Take your **Valor Holemaking** products further by generating and following customized running parameters for your specific setup and workpiece material.

CAM Partners

Valor Holemaking is proud to partner with these industry-leading CAM software packages so using our tools is as simple as possible.

Valuable Time Savings

Import tool libraries directly into CAM software, so you can spend more time at the machine.

Confident Machining

Program confidently with accurate tool dimensions and CAM-specific tool data.

Growing Libraries & Partnerships

Count on up-to-date product libraries across a roster of leading CAM partners.

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Valor Holesmaking is also equipped with several technical resources, from Sim Files and Speeds & Feeds charts to CAM Tool Libraries, we complement your high quality tool with equally beneficial resources.



Simply and quickly search for a Valor Holesmaking tool, then receive results for its product page, as well as for every technical resource relevant to that tool, presented in one click to save you valuable time and money.



Find the perfect Valor Holesmaking tool for your job quickly and easily by using the filtering functionality on each product table, sorting through an expansive and always growing product offering.



Machining
Advisor Pro



Speeds &
Feeds



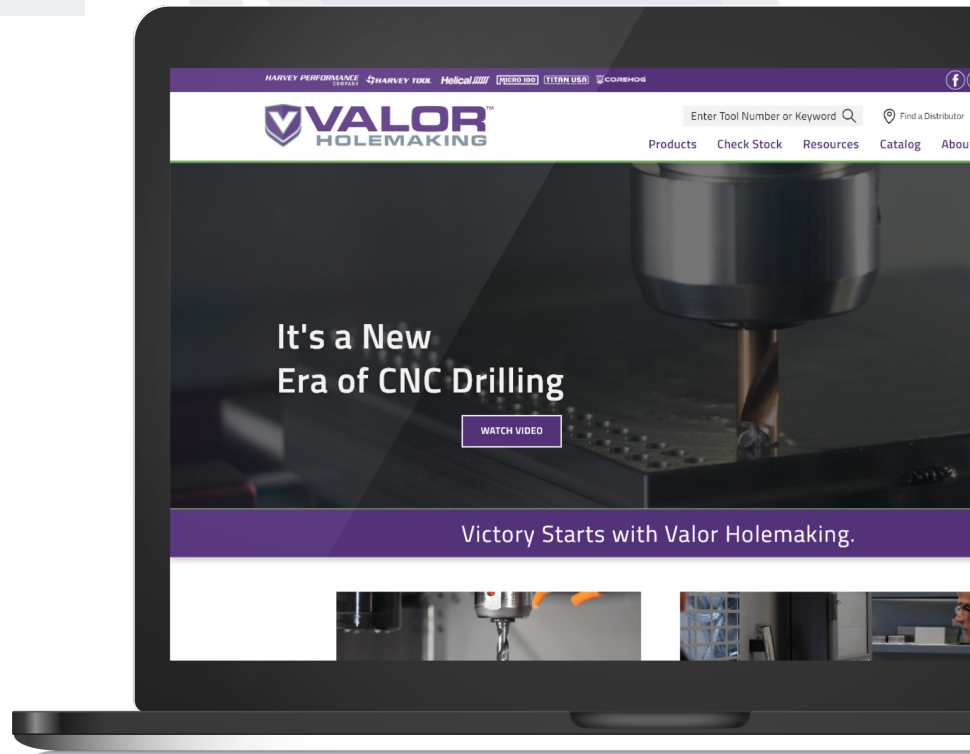
Simulation
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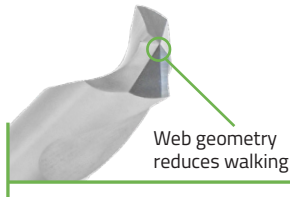


CAM
Partnerships



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

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				Tool #	Price	Tool #	Price
90°	D1 (h8)*		L2		L4	D2 (h6)*	L1				
	.1181	3.00 mm	.3937	10.00 mm	1.50 mm	3 mm	63 mm	V528289	28.60	V528289-X	35.80
	.1575	4.00 mm	.5905	15.00 mm	2.00 mm	4 mm	63 mm	V401556	31.80	V401556-X	40.00
	.2362	6.00 mm	.7874	20.00 mm	3.00 mm	6 mm	63 mm	V133679	49.00	V133679-X	58.80
	.3150	8.00 mm	.7874	20.00 mm	4.00 mm	8 mm	75 mm	V925137	66.00	V925137-X	80.00
	.3937	10.00 mm	.9842	25.00 mm	5.00 mm	10 mm	75 mm	V870885	69.80	V870885-X	86.00
	.4724	12.00 mm	1.1811	30.00 mm	6.00 mm	12 mm	100 mm	V625792	120.80	V625792-X	141.10
135°	.6299	16.00 mm	1.5748	40.00 mm	8.00 mm	16 mm	100 mm	V397909	175.80	V397909-X	203.90
	.1181	3.00 mm	.3937	10.00 mm	0.62 mm	3 mm	63 mm	V828908	28.60	V828908-X	35.80
	.1575	4.00 mm	.5905	15.00 mm	0.82 mm	4 mm	63 mm	V578430	31.80	V578430-X	40.00
	.2362	6.00 mm	.7874	20.00 mm	1.24 mm	6 mm	63 mm	V126235	49.00	V126235-X	58.80
	.3150	8.00 mm	.7874	20.00 mm	1.65 mm	8 mm	75 mm	V965469	66.00	V965469-X	80.00
	.3937	10.00 mm	.9842	25.00 mm	2.07 mm	10 mm	75 mm	V856609	69.80	V856609-X	86.00
	.4724	12.00 mm	1.1811	30.00 mm	2.48 mm	12 mm	100 mm	V705482	120.80	V705482-X	141.10
140°	.6299	16.00 mm	1.5748	40.00 mm	3.31 mm	16 mm	100 mm	V827330	175.80	V827330-X	203.90
	.1181	3.00 mm	.3937	10.00 mm	0.54 mm	3 mm	63 mm	V261312	28.60	V261312-X	35.80
	.1575	4.00 mm	.5905	15.00 mm	0.72 mm	4 mm	63 mm	V589772	31.80	V589772-X	40.00
	.2362	6.00 mm	.7874	20.00 mm	1.09 mm	6 mm	63 mm	V661563	49.00	V661563-X	58.80
	.3150	8.00 mm	.7874	20.00 mm	1.45 mm	8 mm	75 mm	V102716	66.00	V102716-X	80.00
	.3937	10.00 mm	.9842	25.00 mm	1.81 mm	10 mm	75 mm	V634710	69.80	V634710-X	86.00
	.4724	12.00 mm	1.1811	30.00 mm	2.18 mm	12 mm	100 mm	V443621	120.80	V443621-X	141.10
	.6299	16.00 mm	1.5748	40.00 mm	2.91 mm	16 mm	100 mm	V941564	175.80	V941564-X	203.90

* For h6 and h8 tolerances, see page 8.





Speeds & Feeds

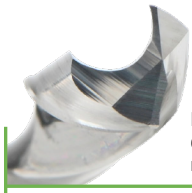
High Performance Spotting Drills

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							
	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**.



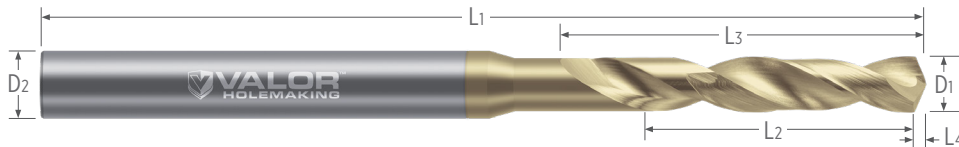
Point geometry designed to minimize burrs

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

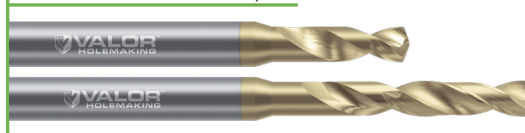


	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
	inch	wire	metric	inch	metric	hole depth					Tool #	Price	Tool #	Price
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1				
	.0625 (1/16)		1.587 mm	.186	4.75 mm	(3x)	6.17 mm	.33 mm	3 mm	63 mm	V194685	43.50	V194685-V	49.00
	.0625 (1/16)		1.587 mm	.312	7.95 mm	(5x)	9.51 mm	.33 mm	3 mm	63 mm	V810911	80.00	V810911-V	85.50
	.0630		1.600 mm	.188	4.80 mm	(3x)	6.22 mm	.33 mm	3 mm	63 mm	V350774	43.50	V350774-V	49.00
	.0630		1.600 mm	.314	8.00 mm	(5x)	9.58 mm	.33 mm	3 mm	63 mm	V440239	80.00	V440239-V	85.50
NEW	.0635	#52	1.612 mm	.190	4.85 mm	(3x)	6.27 mm	.33 mm	3 mm	63 mm	V848954	43.50	V848954-V	49.00
NEW	.0635	#52	1.612 mm	.316	8.05 mm	(5x)	9.65 mm	.33 mm	3 mm	63 mm	V770019	80.00	V770019-V	85.50
	.0669	#51	1.700 mm	.200	5.10 mm	(3x)	6.61 mm	.35 mm	3 mm	63 mm	V912750	43.50	V912750-V	49.00
	.0669	#51	1.700 mm	.334	8.50 mm	(5x)	10.18 mm	.35 mm	3 mm	63 mm	V962712	80.00	V962712-V	85.50
NEW	.0700	#50	1.778 mm	.210	5.35 mm	(3x)	6.92 mm	.37 mm	3 mm	63 mm	V927808	43.50	V927808-V	49.00
NEW	.0700	#50	1.778 mm	.349	8.90 mm	(5x)	10.65 mm	.37 mm	3 mm	63 mm	V116492	80.00	V116492-V	85.50
	.0708		1.800 mm	.212	5.40 mm	(3x)	7.00 mm	.37 mm	3 mm	63 mm	V354482	43.50	V354482-V	49.00
	.0708		1.800 mm	.353	9.00 mm	(5x)	10.78 mm	.37 mm	3 mm	63 mm	V269342	80.00	V269342-V	85.50
NEW	.0730	#49	1.854 mm	.218	5.55 mm	(3x)	7.21 mm	.38 mm	3 mm	63 mm	V066676	43.50	V066676-V	49.00
NEW	.0730	#49	1.854 mm	.363	9.25 mm	(5x)	11.11 mm	.38 mm	3 mm	63 mm	V606543	80.00	V606543-V	85.50
	.0748		1.900 mm	.224	5.70 mm	(3x)	7.39 mm	.39 mm	3 mm	63 mm	V491940	43.50	V491940-V	49.00
	.0748		1.900 mm	.373	9.50 mm	(5x)	11.38 mm	.39 mm	3 mm	63 mm	V732481	80.00	V732481-V	85.50

* For h6 and h8 tolerances, see page 8.

continued on next page

Stocked in 3x and 5x hole depths





High Performance Drills

For Aluminum & Aluminum Alloys (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					Tool #	Price	Tool #	Price
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁				
.0760	#48	1.930 mm	.227	5.80 mm	(3x)	7.51 mm	.40 mm	3 mm	63 mm	V139953	43.50	V139953-V	49.00
.0760	#48	1.930 mm	.379	9.65 mm	(5x)	11.56 mm	.40 mm	3 mm	63 mm	V933801	80.00	V933801-V	85.50
.0781 (5/64)		1.984 mm	.233	5.95 mm	(3x)	7.72 mm	.41 mm	3 mm	63 mm	V380076	43.50	V380076-V	49.00
.0781 (5/64)		1.984 mm	.389	9.90 mm	(5x)	11.88 mm	.41 mm	3 mm	63 mm	V870254	80.00	V870254-V	85.50
.0785	#47	1.993 mm	.235	6.00 mm	(3x)	7.75 mm	.41 mm	3 mm	63 mm	V060682	43.50	V060682-V	49.00
.0785	#47	1.993 mm	.391	9.95 mm	(5x)	11.94 mm	.41 mm	3 mm	63 mm	V005189	80.00	V005189-V	85.50
.0787		2.000 mm	.235	6.00 mm	(3x)	7.78 mm	.41 mm	3 mm	63 mm	V692266	43.50	V692266-V	49.00
.0787		2.000 mm	.393	10.00 mm	(5x)	11.98 mm	.41 mm	3 mm	63 mm	V843172	80.00	V843172-V	85.50
.0810	#46	2.057 mm	.241	6.15 mm	(3x)	8.00 mm	.43 mm	3 mm	63 mm	V652507	43.50	V652507-V	49.00
.0810	#46	2.057 mm	.404	10.30 mm	(5x)	12.32 mm	.43 mm	3 mm	63 mm	V056306	80.00	V056306-V	85.50
.0820	#45	2.082 mm	.245	6.25 mm	(3x)	8.10 mm	.43 mm	3 mm	63 mm	V562507	43.50	V562507-V	49.00
.0820	#45	2.082 mm	.408	10.40 mm	(5x)	12.47 mm	.43 mm	3 mm	63 mm	V299345	80.00	V299345-V	85.50
.0826		2.100 mm	.247	6.30 mm	(3x)	8.17 mm	.43 mm	3 mm	63 mm	V352580	43.50	V352580-V	49.00
.0826		2.100 mm	.412	10.50 mm	(5x)	12.58 mm	.43 mm	3 mm	63 mm	V249129	80.00	V249129-V	85.50
.0860	#44	2.184 mm	.257	6.55 mm	(3x)	8.50 mm	.45 mm	3 mm	63 mm	V299357	43.50	V299357-V	49.00
.0860	#44	2.184 mm	.428	10.90 mm	(5x)	13.08 mm	.45 mm	3 mm	63 mm	V685778	80.00	V685778-V	85.50
.0866		2.200 mm	.259	6.60 mm	(3x)	8.56 mm	.46 mm	3 mm	63 mm	V666234	43.50	V666234-V	49.00
.0866		2.200 mm	.432	11.00 mm	(5x)	13.18 mm	.46 mm	3 mm	63 mm	V259897	80.00	V259897-V	85.50
.0890	#43	2.260 mm	.267	6.80 mm	(3x)	8.79 mm	.47 mm	3 mm	63 mm	V709733	43.50	V709733-V	49.00
.0890	#43	2.260 mm	.444	11.30 mm	(5x)	13.54 mm	.47 mm	3 mm	63 mm	V161734	80.00	V161734-V	85.50
.0905		2.300 mm	.271	6.90 mm	(3x)	8.95 mm	.48 mm	3 mm	63 mm	V599496	43.50	V599496-V	49.00
.0905		2.300 mm	.451	11.50 mm	(5x)	13.78 mm	.48 mm	3 mm	63 mm	V652049	80.00	V652049-V	85.50
.0935	#42	2.374 mm	.279	7.10 mm	(3x)	9.24 mm	.49 mm	3 mm	63 mm	V593613	43.50	V593613-V	49.00
.0935	#42	2.374 mm	.465	11.85 mm	(5x)	14.22 mm	.49 mm	3 mm	63 mm	V619035	80.00	V619035-V	85.50
.0937 (3/32)		2.381 mm	.280	7.15 mm	(3x)	9.26 mm	.49 mm	3 mm	63 mm	V538054	43.50	V538054-V	49.00
.0937 (3/32)		2.381 mm	.467	11.90 mm	(5x)	14.26 mm	.49 mm	3 mm	63 mm	V572375	80.00	V572375-V	85.50
.0944		2.400 mm	.282	7.20 mm	(3x)	9.34 mm	.50 mm	3 mm	63 mm	V431788	43.50	V431788-V	49.00
.0944		2.400 mm	.471	12.00 mm	(5x)	14.38 mm	.50 mm	3 mm	63 mm	V785917	80.00	V785917-V	85.50
.0960	#41	2.438 mm	.286	7.30 mm	(3x)	9.48 mm	.50 mm	3 mm	63 mm	V898724	43.50	V898724-V	49.00
.0960	#41	2.438 mm	.479	12.20 mm	(5x)	14.60 mm	.50 mm	3 mm	63 mm	V931555	80.00	V931555-V	85.50
.0980	#40	2.489 mm	.292	7.45 mm	(3x)	9.68 mm	.52 mm	3 mm	63 mm	V712233	43.50	V712233-V	49.00
.0980	#40	2.489 mm	.489	12.45 mm	(5x)	14.91 mm	.52 mm	3 mm	63 mm	V800908	80.00	V800908-V	85.50
.0984		2.500 mm	.294	7.50 mm	(3x)	9.73 mm	.52 mm	3 mm	63 mm	V536698	43.50	V536698-V	49.00
.0984		2.500 mm	.491	12.50 mm	(5x)	14.98 mm	.52 mm	3 mm	63 mm	V445649	80.00	V445649-V	85.50
.0995	#39	2.527 mm	.298	7.60 mm	(3x)	9.83 mm	.52 mm	3 mm	63 mm	V411934	43.50	V411934-V	49.00
.0995	#39	2.527 mm	.497	12.65 mm	(5x)	15.14 mm	.52 mm	3 mm	63 mm	V828685	80.00	V828685-V	85.50

* 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	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 #	Price	Tool #	Price
NEW	.1015	#38	2.578 mm	.304	7.75 mm	(3x)	10.03 mm	.53 mm	3 mm	63 mm	V839028	43.50	V839028-V	49.00
NEW	.1015	#38	2.578 mm	.506	12.90 mm	(5x)	15.44 mm	.53 mm	3 mm	63 mm	V471230	80.00	V471230-V	85.50
	.1023		2.600 mm	.306	7.80 mm	(3x)	10.12 mm	.54 mm	3 mm	63 mm	V315845	43.50	V315845-V	49.00
	.1023		2.600 mm	.510	13.00 mm	(5x)	15.58 mm	.54 mm	3 mm	63 mm	V788414	80.00	V788414-V	85.50
NEW	.1040	#37	2.641 mm	.310	7.90 mm	(3x)	10.27 mm	.55 mm	3 mm	63 mm	V480351	43.50	V480351-V	49.00
NEW	.1040	#37	2.641 mm	.518	13.20 mm	(5x)	15.82 mm	.55 mm	3 mm	63 mm	V127253	80.00	V127253-V	85.50
	.1062		2.700 mm	.318	8.10 mm	(3x)	10.50 mm	.56 mm	3 mm	63 mm	V481040	43.50	V481040-V	49.00
	.1062		2.700 mm	.530	13.50 mm	(5x)	16.17 mm	.56 mm	3 mm	63 mm	V165528	80.00	V165528-V	85.50
NEW	.1065	#36	2.705 mm	.318	8.10 mm	(3x)	10.52 mm	.56 mm	3 mm	63 mm	V396022	43.50	V396022-V	49.00
NEW	.1065	#36	2.705 mm	.532	13.55 mm	(5x)	16.20 mm	.56 mm	3 mm	63 mm	V243691	80.00	V243691-V	85.50
	.1093 (7/64)		2.778 mm	.328	8.35 mm	(3x)	10.81 mm	.58 mm	3 mm	63 mm	V954203	43.50	V954203-V	49.00
	.1093 (7/64)		2.778 mm	.546	13.90 mm	(5x)	16.64 mm	.58 mm	3 mm	63 mm	V195817	80.00	V195817-V	85.50
NEW	.1100	#35	2.794 mm	.330	8.40 mm	(3x)	10.87 mm	.58 mm	3 mm	63 mm	V973247	43.50	V973247-V	49.00
NEW	.1100	#35	2.794 mm	.548	13.95 mm	(5x)	16.74 mm	.58 mm	3 mm	63 mm	V525217	80.00	V525217-V	85.50
	.1102		2.800 mm	.330	8.40 mm	(3x)	10.89 mm	.58 mm	3 mm	63 mm	V838163	43.50	V838163-V	49.00
	.1102		2.800 mm	.550	14.00 mm	(5x)	16.77 mm	.58 mm	3 mm	63 mm	V802613	80.00	V802613-V	85.50
NEW	.1110	#34	2.819 mm	.332	8.45 mm	(3x)	10.97 mm	.58 mm	3 mm	63 mm	V501205	43.50	V501205-V	49.00
NEW	.1110	#34	2.819 mm	.554	14.10 mm	(5x)	16.89 mm	.58 mm	3 mm	63 mm	V222388	80.00	V222388-V	85.50
NEW	.1130	#33	2.870 mm	.337	8.60 mm	(3x)	11.17 mm	.59 mm	3 mm	63 mm	V138783	43.50	V138783-V	49.00
NEW	.1130	#33	2.870 mm	.563	14.35 mm	(5x)	17.19 mm	.59 mm	3 mm	63 mm	V963537	80.00	V963537-V	85.50
	.1141		2.900 mm	.341	8.70 mm	(3x)	11.28 mm	.60 mm	3 mm	63 mm	V729681	43.50	V729681-V	49.00
	.1141		2.900 mm	.569	14.50 mm	(5x)	17.37 mm	.60 mm	3 mm	63 mm	V960568	80.00	V960568-V	85.50
NEW	.1160	#32	2.946 mm	.347	8.85 mm	(3x)	11.46 mm	.61 mm	3 mm	63 mm	V431133	43.50	V431133-V	49.00
NEW	.1160	#32	2.946 mm	.579	14.75 mm	(5x)	17.65 mm	.61 mm	3 mm	63 mm	V660128	80.00	V660128-V	85.50
	.1181		3.000 mm	.353	9.00 mm	(3x)	11.67 mm	.62 mm	4 mm	63 mm	V438428	43.50	V438428-V	50.00
	.1181		3.000 mm	.589	15.00 mm	(5x)	17.97 mm	.62 mm	4 mm	63 mm	V116498	80.00	V116498-V	86.50
NEW	.1200	#31	3.048 mm	.359	9.15 mm	(3x)	11.86 mm	.63 mm	4 mm	63 mm	V710387	43.50	V710387-V	50.00
NEW	.1200	#31	3.048 mm	.599	15.25 mm	(5x)	18.26 mm	.63 mm	4 mm	63 mm	V232225	80.00	V232225-V	86.50
	.1220		3.100 mm	.365	9.30 mm	(3x)	12.06 mm	.64 mm	4 mm	63 mm	V793541	43.50	V793541-V	50.00
	.1220		3.100 mm	.609	15.50 mm	(5x)	18.57 mm	.64 mm	4 mm	63 mm	V569668	80.00	V569668-V	86.50
	.1250 (1/8)		3.175 mm	.373	9.50 mm	(3x)	12.35 mm	.66 mm	4 mm	63 mm	V367456	43.50	V367456-V	50.00
	.1250 (1/8)		3.175 mm	.624	15.90 mm	(5x)	19.02 mm	.66 mm	4 mm	63 mm	V844439	80.00	V844439-V	86.50
	.1260		3.200 mm	.377	9.60 mm	(3x)	12.45 mm	.66 mm	4 mm	63 mm	V660156	43.50	V660156-V	50.00
	.1260		3.200 mm	.628	16.00 mm	(5x)	19.17 mm	.66 mm	4 mm	63 mm	V390641	80.00	V390641-V	86.50
NEW	.1285	#30	3.263 mm	.385	9.80 mm	(3x)	12.70 mm	.68 mm	4 mm	63 mm	V171673	43.50	V171673-V	50.00
NEW	.1285	#30	3.263 mm	.640	16.30 mm	(5x)	19.55 mm	.68 mm	4 mm	63 mm	V761951	80.00	V761951-V	86.50

* 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	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 #	Price	Tool #	Price
.1300		3.300 mm	.389	9.90 mm	(3x)	12.84 mm	.68 mm	4 mm	63 mm	V171897	43.50	V171897-V	50.00
.1300		3.300 mm	.648	16.50 mm	(5x)	19.77 mm	.68 mm	4 mm	63 mm	V999845	80.00	V999845-V	86.50
.1338		3.400 mm	.400	10.20 mm	(3x)	13.23 mm	.70 mm	4 mm	63 mm	V781405	43.50	V781405-V	50.00
.1338		3.400 mm	.668	17.00 mm	(5x)	20.37 mm	.70 mm	4 mm	63 mm	V262808	80.00	V262808-V	86.50
.1360	#29	3.454 mm	.406	10.35 mm	(3x)	13.44 mm	.72 mm	4 mm	63 mm	V723395	43.50	V723395-V	50.00
.1360	#29	3.454 mm	.677	17.25 mm	(5x)	20.69 mm	.72 mm	4 mm	63 mm	V038060	80.00	V038060-V	86.50
.1377		3.500 mm	.412	10.50 mm	(3x)	13.62 mm	.72 mm	4 mm	63 mm	V839259	43.50	V839259-V	50.00
.1377		3.500 mm	.687	17.50 mm	(5x)	20.97 mm	.72 mm	4 mm	63 mm	V920406	80.00	V920406-V	86.50
.1406 (9/64)	#28	3.571 mm	.420	10.70 mm	(3x)	13.89 mm	.74 mm	4 mm	63 mm	V740344	43.50	V740344-V	50.00
.1406 (9/64)	#28	3.571 mm	.701	17.85 mm	(5x)	21.39 mm	.74 mm	4 mm	63 mm	V747490	80.00	V747490-V	86.50
.1417		3.600 mm	.424	10.80 mm	(3x)	14.01 mm	.75 mm	4 mm	63 mm	V137136	43.50	V137136-V	50.00
.1417		3.600 mm	.707	18.00 mm	(5x)	21.57 mm	.75 mm	4 mm	63 mm	V813201	80.00	V813201-V	86.50
.1440	#27	3.657 mm	.430	10.95 mm	(3x)	14.23 mm	.76 mm	4 mm	63 mm	V463566	43.50	V463566-V	50.00
.1440	#27	3.657 mm	.719	18.30 mm	(5x)	21.91 mm	.76 mm	4 mm	63 mm	V437622	80.00	V437622-V	86.50
.1456		3.700 mm	.436	11.10 mm	(3x)	14.40 mm	.77 mm	4 mm	63 mm	V282861	43.50	V282861-V	50.00
.1456		3.700 mm	.727	18.50 mm	(5x)	22.17 mm	.77 mm	4 mm	63 mm	V334748	80.00	V334748-V	86.50
.1470	#26	3.733 mm	.440	11.20 mm	(3x)	14.53 mm	.77 mm	4 mm	63 mm	V735522	43.50	V735522-V	50.00
.1470	#26	3.733 mm	.732	18.65 mm	(5x)	22.36 mm	.77 mm	4 mm	63 mm	V898871	80.00	V898871-V	86.50
.1495	#25	3.797 mm	.448	11.40 mm	(3x)	14.77 mm	.79 mm	4 mm	63 mm	V988586	43.50	V988586-V	50.00
.1495	#25	3.797 mm	.746	19.00 mm	(5x)	22.75 mm	.79 mm	4 mm	63 mm	V075083	80.00	V075083-V	86.50
.1496		3.800 mm	.448	11.40 mm	(3x)	14.79 mm	.79 mm	4 mm	63 mm	V728547	43.50	V728547-V	50.00
.1496		3.800 mm	.746	19.00 mm	(5x)	22.77 mm	.79 mm	4 mm	63 mm	V454017	80.00	V454017-V	86.50
.1520	#24	3.860 mm	.455	11.60 mm	(3x)	15.02 mm	.80 mm	4 mm	63 mm	V350429	43.50	V350429-V	50.00
.1520	#24	3.860 mm	.758	19.30 mm	(5x)	23.13 mm	.80 mm	4 mm	63 mm	V338360	80.00	V338360-V	86.50
.1535		3.900 mm	.459	11.70 mm	(3x)	15.18 mm	.81 mm	4 mm	63 mm	V438470	43.50	V438470-V	50.00
.1535		3.900 mm	.766	19.50 mm	(5x)	23.37 mm	.81 mm	4 mm	63 mm	V878966	80.00	V878966-V	86.50
.1540	#23	3.911 mm	.461	11.75 mm	(3x)	15.22 mm	.81 mm	4 mm	63 mm	V457996	43.50	V457996-V	50.00
.1540	#23	3.911 mm	.768	19.55 mm	(5x)	23.43 mm	.81 mm	4 mm	63 mm	V135119	80.00	V135119-V	86.50
.1562 (5/32)		3.968 mm	.467	11.90 mm	(3x)	15.44 mm	.82 mm	4 mm	63 mm	V648893	43.50	V648893-V	50.00
.1562 (5/32)		3.968 mm	.780	19.85 mm	(5x)	23.77 mm	.82 mm	4 mm	63 mm	V458952	80.00	V458952-V	86.50
.1570	#22	3.987 mm	.469	11.95 mm	(3x)	15.51 mm	.83 mm	4 mm	63 mm	V982304	43.50	V982304-V	50.00
.1570	#22	3.987 mm	.784	19.95 mm	(5x)	23.89 mm	.83 mm	4 mm	63 mm	V389031	80.00	V389031-V	86.50
.1574		4.000 mm	.471	12.00 mm	(3x)	15.56 mm	.83 mm	6 mm	63 mm	V421509	43.50	V421509-V	51.00
.1574		4.000 mm	.786	20.00 mm	(5x)	23.96 mm	.83 mm	6 mm	75 mm	V338334	80.00	V338334-V	87.50
.1590	#21	4.038 mm	.475	12.10 mm	(3x)	15.71 mm	.84 mm	6 mm	63 mm	V305616	50.50	V305616-V	58.00
.1590	#21	4.038 mm	.793	20.20 mm	(5x)	24.19 mm	.84 mm	6 mm	75 mm	V600359	87.50	V600359-V	95.00

* 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					Tool #	Price
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁			Tool #	Price
NEW	.1610	#20	4.089 mm	.481	12.25 mm	(3x)	15.91 mm	.85 mm	6 mm	63 mm	V842765	50.50	V842765-V	58.00
NEW	.1610	#20	4.089 mm	.803	20.45 mm	(5x)	24.50 mm	.85 mm	6 mm	75 mm	V916972	87.50	V916972-V	95.00
	.1614		4.100 mm	.483	12.30 mm	(3x)	15.95 mm	.85 mm	6 mm	63 mm	V174492	50.50	V174492-V	58.00
	.1614		4.100 mm	.805	20.50 mm	(5x)	24.56 mm	.85 mm	6 mm	75 mm	V885910	87.50	V885910-V	95.00
	.1653		4.200 mm	.495	12.60 mm	(3x)	16.34 mm	.87 mm	6 mm	63 mm	V106883	50.50	V106883-V	58.00
	.1653		4.200 mm	.825	21.00 mm	(5x)	25.16 mm	.87 mm	6 mm	75 mm	V261808	87.50	V261808-V	95.00
NEW	.1660	#19	4.216 mm	.497	12.65 mm	(3x)	16.41 mm	.87 mm	6 mm	63 mm	V420755	50.50	V420755-V	58.00
NEW	.1660	#19	4.216 mm	.829	21.10 mm	(5x)	25.26 mm	.87 mm	6 mm	75 mm	V884494	87.50	V884494-V	95.00
	.1692		4.300 mm	.506	12.90 mm	(3x)	16.73 mm	.89 mm	6 mm	63 mm	V831806	50.50	V831806-V	58.00
	.1692		4.300 mm	.844	21.50 mm	(5x)	25.76 mm	.89 mm	6 mm	75 mm	V911321	87.50	V911321-V	95.00
NEW	.1695	#18	4.305 mm	.506	12.90 mm	(3x)	16.75 mm	.89 mm	6 mm	63 mm	V589699	50.50	V589699-V	58.00
NEW	.1695	#18	4.305 mm	.844	21.50 mm	(5x)	25.79 mm	.89 mm	6 mm	75 mm	V293587	87.50	V293587-V	95.00
	.1718 (11/64)		4.365 mm	.514	13.10 mm	(3x)	16.99 mm	.90 mm	6 mm	63 mm	V639993	50.50	V639993-V	58.00
	.1718 (11/64)		4.365 mm	.858	21.85 mm	(5x)	26.15 mm	.90 mm	6 mm	75 mm	V374159	87.50	V374159-V	95.00
NEW	.1730	#17	4.394 mm	.518	13.20 mm	(3x)	17.10 mm	.91 mm	6 mm	63 mm	V911686	50.50	V911686-V	58.00
NEW	.1730	#17	4.394 mm	.862	21.95 mm	(5x)	26.33 mm	.91 mm	6 mm	75 mm	V097719	87.50	V097719-V	95.00
	.1732		4.400 mm	.518	13.20 mm	(3x)	17.12 mm	.91 mm	6 mm	63 mm	V582968	50.50	V582968-V	58.00
	.1732		4.400 mm	.864	22.00 mm	(5x)	26.36 mm	.91 mm	6 mm	75 mm	V197740	87.50	V197740-V	95.00
NEW	.1770	#16	4.495 mm	.530	13.50 mm	(3x)	17.49 mm	.93 mm	6 mm	63 mm	V906585	50.50	V906585-V	58.00
NEW	.1770	#16	4.495 mm	.884	22.50 mm	(5x)	26.93 mm	.93 mm	6 mm	75 mm	V258860	87.50	V258860-V	95.00
	.1771		4.500 mm	.530	13.50 mm	(3x)	17.51 mm	.93 mm	6 mm	63 mm	V956195	50.50	V956195-V	58.00
	.1771		4.500 mm	.884	22.50 mm	(5x)	26.96 mm	.93 mm	6 mm	75 mm	V441617	87.50	V441617-V	95.00
NEW	.1800	#15	4.572 mm	.538	13.70 mm	(3x)	17.79 mm	.95 mm	6 mm	63 mm	V952252	50.50	V952252-V	58.00
NEW	.1800	#15	4.572 mm	.898	22.85 mm	(5x)	27.39 mm	.95 mm	6 mm	75 mm	V603476	87.50	V603476-V	95.00
	.1811		4.600 mm	.542	13.80 mm	(3x)	17.90 mm	.95 mm	6 mm	63 mm	V866527	50.50	V866527-V	58.00
	.1811		4.600 mm	.903	23.00 mm	(5x)	27.56 mm	.95 mm	6 mm	75 mm	V224773	87.50	V224773-V	95.00
NEW	.1820	#14	4.622 mm	.544	13.85 mm	(3x)	17.99 mm	.96 mm	6 mm	63 mm	V697062	50.50	V697062-V	58.00
NEW	.1820	#14	4.622 mm	.907	23.10 mm	(5x)	27.69 mm	.96 mm	6 mm	75 mm	V777354	87.50	V777354-V	95.00
	.1850	#13	4.700 mm	.554	14.10 mm	(3x)	18.29 mm	.97 mm	6 mm	63 mm	V344265	50.50	V344265-V	58.00
	.1850	#13	4.700 mm	.923	23.50 mm	(5x)	28.16 mm	.97 mm	6 mm	75 mm	V433090	87.50	V433090-V	95.00
	.1875 (3/16)		4.762 mm	.561	14.30 mm	(3x)	18.53 mm	.99 mm	6 mm	63 mm	V850660	50.50	V850660-V	58.00
	.1875 (3/16)		4.762 mm	.935	23.80 mm	(5x)	28.53 mm	.99 mm	6 mm	75 mm	V771194	87.50	V771194-V	95.00
	.1890	#12	4.800 mm	.565	14.40 mm	(3x)	18.68 mm	.99 mm	6 mm	63 mm	V568557	50.50	V568557-V	58.00
	.1890	#12	4.800 mm	.943	24.00 mm	(5x)	28.76 mm	.99 mm	6 mm	75 mm	V856912	87.50	V856912-V	95.00
NEW	.1910	#11	4.851 mm	.571	14.55 mm	(3x)	18.88 mm	1.00 mm	6 mm	63 mm	V747801	50.50	V747801-V	58.00
NEW	.1910	#11	4.851 mm	.953	24.25 mm	(5x)	29.06 mm	1.00 mm	6 mm	75 mm	V532445	87.50	V532445-V	95.00

* 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 #	Price	Tool #	Price
.1930		4.900 mm	.577	14.70 mm	(3x)	19.07 mm	1.01 mm	6 mm	63 mm	V728480	50.50	V728480-V	58.00
.1930		4.900 mm	.962	24.50 mm	(5x)	29.36 mm	1.01 mm	6 mm	75 mm	V367252	87.50	V367252-V	95.00
.1935	#10	4.914 mm	.579	14.75 mm	(3x)	19.12 mm	1.02 mm	6 mm	63 mm	V700659	50.50	V700659-V	58.00
.1935	#10	4.914 mm	.964	24.55 mm	(5x)	29.44 mm	1.02 mm	6 mm	75 mm	V676032	87.50	V676032-V	95.00
.1960	#9	4.978 mm	.587	14.95 mm	(3x)	19.37 mm	1.03 mm	6 mm	63 mm	V043384	50.50	V043384-V	58.00
.1960	#9	4.978 mm	.978	24.90 mm	(5x)	29.83 mm	1.03 mm	6 mm	75 mm	V590355	87.50	V590355-V	95.00
.1968		5.000 mm	.589	15.00 mm	(3x)	19.46 mm	1.04 mm	6 mm	63 mm	V330699	50.50	V330699-V	58.00
.1968		5.000 mm	.982	25.00 mm	(5x)	29.96 mm	1.04 mm	6 mm	75 mm	V234458	87.50	V234458-V	95.00
.1990	#8	5.054 mm	.595	15.15 mm	(3x)	19.67 mm	1.05 mm	6 mm	63 mm	V565140	50.50	V565140-V	58.00
.1990	#8	5.054 mm	.992	25.25 mm	(5x)	30.28 mm	1.05 mm	6 mm	75 mm	V140225	87.50	V140225-V	95.00
.2007		5.100 mm	.601	15.30 mm	(3x)	19.85 mm	1.06 mm	6 mm	63 mm	V368184	50.50	V368184-V	58.00
.2007		5.100 mm	1.002	25.50 mm	(5x)	30.56 mm	1.06 mm	6 mm	75 mm	V224687	87.50	V224687-V	95.00
.2009	#7	5.105 mm	.601	15.30 mm	(3x)	19.87 mm	1.06 mm	6 mm	63 mm	V246045	50.50	V246045-V	58.00
.2009	#7	5.105 mm	1.004	25.55 mm	(5x)	30.59 mm	1.06 mm	6 mm	75 mm	V221870	87.50	V221870-V	95.00
.2031 (13/64)		5.159 mm	.609	15.50 mm	(3x)	20.08 mm	1.07 mm	6 mm	63 mm	V977882	50.50	V977882-V	58.00
.2031 (13/64)		5.159 mm	1.013	25.80 mm	(5x)	30.91 mm	1.07 mm	6 mm	75 mm	V420736	87.50	V420736-V	95.00
.2040	#6	5.181 mm	.611	15.55 mm	(3x)	20.16 mm	1.07 mm	6 mm	63 mm	V538548	50.50	V538548-V	58.00
.2040	#6	5.181 mm	1.017	25.90 mm	(5x)	31.04 mm	1.07 mm	6 mm	75 mm	V376545	87.50	V376545-V	95.00
.2047		5.200 mm	.613	15.60 mm	(3x)	20.24 mm	1.08 mm	6 mm	63 mm	V485216	50.50	V485216-V	58.00
.2047		5.200 mm	1.021	26.00 mm	(5x)	31.16 mm	1.08 mm	6 mm	75 mm	V357300	87.50	V357300-V	95.00
.2055	#5	5.219 mm	.615	15.65 mm	(3x)	20.31 mm	1.08 mm	6 mm	63 mm	V875933	50.50	V875933-V	58.00
.2055	#5	5.219 mm	1.025	26.10 mm	(5x)	31.27 mm	1.08 mm	6 mm	75 mm	V303034	87.50	V303034-V	95.00
.2086		5.300 mm	.624	15.90 mm	(3x)	20.63 mm	1.10 mm	6 mm	63 mm	V110782	50.50	V110782-V	58.00
.2086		5.300 mm	1.041	26.50 mm	(5x)	31.76 mm	1.10 mm	6 mm	75 mm	V727361	87.50	V727361-V	95.00
.2090	#4	5.308 mm	.624	15.90 mm	(3x)	20.66 mm	1.10 mm	6 mm	63 mm	V241018	50.50	V241018-V	58.00
.2090	#4	5.308 mm	1.043	26.55 mm	(5x)	31.80 mm	1.10 mm	6 mm	75 mm	V968866	87.50	V968866-V	95.00
.2125		5.400 mm	.636	16.20 mm	(3x)	21.01 mm	1.12 mm	6 mm	63 mm	V836676	50.50	V836676-V	58.00
.2125		5.400 mm	1.061	27.00 mm	(5x)	32.35 mm	1.12 mm	6 mm	75 mm	V834281	87.50	V834281-V	95.00
.2129	#3	5.410 mm	.638	16.25 mm	(3x)	21.05 mm	1.12 mm	6 mm	63 mm	V321229	50.50	V321229-V	58.00
.2129	#3	5.410 mm	1.063	27.05 mm	(5x)	32.41 mm	1.12 mm	6 mm	75 mm	V336628	87.50	V336628-V	95.00
.2165		5.500 mm	.648	16.50 mm	(3x)	21.40 mm	1.14 mm	6 mm	63 mm	V106542	50.50	V106542-V	58.00
.2165		5.500 mm	1.080	27.50 mm	(5x)	32.95 mm	1.14 mm	6 mm	75 mm	V492013	87.50	V492013-V	95.00
.2187 (7/32)		5.556 mm	.654	16.65 mm	(3x)	21.62 mm	1.15 mm	6 mm	63 mm	V656902	50.50	V656902-V	58.00
.2187 (7/32)		5.556 mm	1.092	27.80 mm	(5x)	33.29 mm	1.15 mm	6 mm	75 mm	V700600	87.50	V700600-V	95.00
.2205		5.600 mm	.660	16.80 mm	(3x)	21.79 mm	1.16 mm	6 mm	63 mm	V770182	50.50	V770182-V	58.00
.2205		5.600 mm	1.100	28.00 mm	(5x)	33.55 mm	1.16 mm	6 mm	75 mm	V896743	87.50	V896743-V	95.00

* 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 #	Price	Tool #	Price
NEW	.2210	#2	5.613 mm	.662	16.85 mm	(3x)	21.84 mm	1.16 mm	6 mm	63 mm	V531725	50.50	V531725-V	58.00
NEW	.2210	#2	5.613 mm	1.102	28.05 mm	(5x)	33.63 mm	1.16 mm	6 mm	75 mm	V403428	87.50	V403428-V	95.00
	.2244		5.700 mm	.672	17.10 mm	(3x)	22.18 mm	1.18 mm	6 mm	63 mm	V403734	50.50	V403734-V	58.00
	.2244		5.700 mm	1.120	28.50 mm	(5x)	34.15 mm	1.18 mm	6 mm	75 mm	V770664	87.50	V770664-V	95.00
NEW	.2280	#1	5.791 mm	.681	17.35 mm	(3x)	22.54 mm	1.20 mm	6 mm	63 mm	V642955	50.50	V642955-V	58.00
NEW	.2280	#1	5.791 mm	1.137	28.95 mm	(5x)	34.70 mm	1.20 mm	6 mm	75 mm	V547450	87.50	V547450-V	95.00
	.2283		5.800 mm	.683	17.40 mm	(3x)	22.57 mm	1.20 mm	6 mm	63 mm	V899133	50.50	V899133-V	58.00
	.2283		5.800 mm	1.139	29.00 mm	(5x)	34.75 mm	1.20 mm	6 mm	75 mm	V380680	87.50	V380680-V	95.00
	.2322		5.900 mm	.695	17.70 mm	(3x)	22.96 mm	1.22 mm	6 mm	63 mm	V590239	50.50	V590239-V	58.00
	.2322		5.900 mm	1.159	29.50 mm	(5x)	35.35 mm	1.22 mm	6 mm	75 mm	V537399	87.50	V537399-V	95.00
NEW	.2340	A	5.943 mm	.701	17.85 mm	(3x)	23.13 mm	1.23 mm	6 mm	63 mm	V286479	50.50	V286479-V	58.00
NEW	.2340	A	5.943 mm	1.167	29.70 mm	(5x)	35.61 mm	1.23 mm	6 mm	75 mm	V785134	87.50	V785134-V	95.00
	.2343 (15/64)		5.953 mm	.701	17.85 mm	(3x)	23.17 mm	1.23 mm	6 mm	63 mm	V353700	50.50	V353700-V	58.00
	.2343 (15/64)		5.953 mm	1.169	29.75 mm	(5x)	35.67 mm	1.23 mm	6 mm	75 mm	V430775	87.50	V430775-V	95.00
	.2362		6.000 mm	.707	18.00 mm	(3x)	23.35 mm	1.24 mm	8 mm	75 mm	V234178	50.50	V234178-V	59.50
	.2362		6.000 mm	1.179	30.00 mm	(5x)	35.95 mm	1.24 mm	8 mm	100 mm	V927207	87.50	V927207-V	97.50
NEW	.2380	B	6.045 mm	.713	18.15 mm	(3x)	23.52 mm	1.25 mm	8 mm	75 mm	V288432	53.00	V288432-V	62.00
NEW	.2380	B	6.045 mm	1.188	30.25 mm	(5x)	36.22 mm	1.25 mm	8 mm	100 mm	V892981	101.50	V892981-V	111.50
	.2401		6.100 mm	.719	18.30 mm	(3x)	23.74 mm	1.26 mm	8 mm	75 mm	V524686	53.00	V524686-V	62.00
	.2401		6.100 mm	1.198	30.50 mm	(5x)	36.55 mm	1.26 mm	8 mm	100 mm	V699896	101.50	V699896-V	111.50
NEW	.2420	C	6.146 mm	.725	18.45 mm	(3x)	23.92 mm	1.27 mm	8 mm	75 mm	V168340	53.00	V168340-V	62.00
NEW	.2420	C	6.146 mm	1.208	30.75 mm	(5x)	36.82 mm	1.27 mm	8 mm	100 mm	V337360	101.50	V337360-V	111.50
	.2440		6.200 mm	.730	18.60 mm	(3x)	24.13 mm	1.28 mm	8 mm	75 mm	V147676	53.00	V147676-V	62.00
	.2440		6.200 mm	1.218	31.00 mm	(5x)	37.15 mm	1.28 mm	8 mm	100 mm	V973436	101.50	V973436-V	111.50
NEW	.2460	D	6.248 mm	.736	18.75 mm	(3x)	24.32 mm	1.29 mm	8 mm	75 mm	V441246	53.00	V441246-V	62.00
NEW	.2460	D	6.248 mm	1.228	31.25 mm	(5x)	37.44 mm	1.29 mm	8 mm	100 mm	V572625	101.50	V572625-V	111.50
	.2480		6.300 mm	.742	18.90 mm	(3x)	24.52 mm	1.30 mm	8 mm	75 mm	V627609	53.00	V627609-V	62.00
	.2480		6.300 mm	1.237	31.50 mm	(5x)	37.75 mm	1.30 mm	8 mm	100 mm	V753195	101.50	V753195-V	111.50
	.2500 (1/4)	E	6.350 mm	.748	19.05 mm	(3x)	24.71 mm	1.32 mm	8 mm	75 mm	V463324	53.00	V463324-V	62.00
	.2500 (1/4)	E	6.350 mm	1.247	31.75 mm	(5x)	38.05 mm	1.32 mm	8 mm	100 mm	V890966	101.50	V890966-V	111.50
	.2520		6.400 mm	.754	19.20 mm	(3x)	24.91 mm	1.33 mm	8 mm	75 mm	V470320	53.00	V470320-V	62.00
	.2520		6.400 mm	1.257	32.00 mm	(5x)	38.35 mm	1.33 mm	8 mm	100 mm	V610421	101.50	V610421-V	111.50
	.2559		6.500 mm	.766	19.50 mm	(3x)	25.30 mm	1.35 mm	8 mm	75 mm	V904272	53.00	V904272-V	62.00
	.2559		6.500 mm	1.277	32.50 mm	(5x)	38.95 mm	1.35 mm	8 mm	100 mm	V503831	101.50	V503831-V	111.50
NEW	.2570	F	6.528 mm	.770	19.60 mm	(3x)	25.40 mm	1.35 mm	8 mm	75 mm	V682687	53.00	V682687-V	62.00
NEW	.2570	F	6.528 mm	1.283	32.65 mm	(5x)	39.11 mm	1.35 mm	8 mm	100 mm	V989829	101.50	V989829-V	111.50

* 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	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 #	Price	Tool #	Price
.2598		6.600 mm	.778	19.80 mm	(3x)	25.69 mm	1.37 mm	8 mm	75 mm	V591811	53.00	V591811-V	62.00
.2598		6.600 mm	1.296	33.00 mm	(5x)	39.55 mm	1.37 mm	8 mm	100 mm	V548894	101.50	V548894-V	111.50
.2609	G	6.629 mm	.782	19.90 mm	(3x)	25.80 mm	1.37 mm	8 mm	75 mm	V650465	53.00	V650465-V	62.00
.2609	G	6.629 mm	1.302	33.15 mm	(5x)	39.72 mm	1.37 mm	8 mm	100 mm	V150997	101.50	V150997-V	111.50
.2638		6.700 mm	.789	20.10 mm	(3x)	26.07 mm	1.39 mm	8 mm	75 mm	V863925	53.00	V863925-V	62.00
.2638		6.700 mm	1.316	33.50 mm	(5x)	40.14 mm	1.39 mm	8 mm	100 mm	V956352	101.50	V956352-V	111.50
.2656 (17/64)		6.746 mm	.795	20.25 mm	(3x)	26.25 mm	1.40 mm	8 mm	75 mm	V230372	53.00	V230372-V	62.00
.2656 (17/64)		6.746 mm	1.326	33.75 mm	(5x)	40.42 mm	1.40 mm	8 mm	100 mm	V330745	101.50	V330745-V	111.50
.2659	H	6.756 mm	.795	20.25 mm	(3x)	26.29 mm	1.40 mm	8 mm	75 mm	V290623	53.00	V290623-V	62.00
.2659	H	6.756 mm	1.328	33.80 mm	(5x)	40.48 mm	1.40 mm	8 mm	100 mm	V436154	101.50	V436154-V	111.50
.2677		6.800 mm	.801	20.40 mm	(3x)	26.46 mm	1.41 mm	8 mm	75 mm	V586533	53.00	V586533-V	62.00
.2677		6.800 mm	1.336	34.00 mm	(5x)	40.74 mm	1.41 mm	8 mm	100 mm	V112067	101.50	V112067-V	111.50
.2717		6.900 mm	.813	20.70 mm	(3x)	26.85 mm	1.43 mm	8 mm	75 mm	V585346	53.00	V585346-V	62.00
.2717		6.900 mm	1.355	34.50 mm	(5x)	41.34 mm	1.43 mm	8 mm	100 mm	V766452	101.50	V766452-V	111.50
.2719	I	6.908 mm	.813	20.70 mm	(3x)	26.88 mm	1.43 mm	8 mm	75 mm	V953821	53.00	V953821-V	62.00
.2719	I	6.908 mm	1.357	34.55 mm	(5x)	41.39 mm	1.43 mm	8 mm	100 mm	V300138	101.50	V300138-V	111.50
.2756		7.000 mm	.825	21.00 mm	(3x)	27.24 mm	1.45 mm	8 mm	75 mm	V793057	53.00	V793057-V	62.00
.2756		7.000 mm	1.375	35.00 mm	(5x)	41.94 mm	1.45 mm	8 mm	100 mm	V812884	101.50	V812884-V	111.50
.2769	J	7.035 mm	.829	21.10 mm	(3x)	27.38 mm	1.46 mm	8 mm	75 mm	V796718	55.00	V796718-V	64.00
.2769	J	7.035 mm	1.381	35.15 mm	(5x)	42.15 mm	1.46 mm	8 mm	100 mm	V390365	103.50	V390365-V	113.50
.2795		7.100 mm	.837	21.30 mm	(3x)	27.63 mm	1.47 mm	8 mm	75 mm	V971883	55.00	V971883-V	64.00
.2795		7.100 mm	1.395	35.50 mm	(5x)	42.54 mm	1.47 mm	8 mm	100 mm	V526212	103.50	V526212-V	113.50
.2809	K	7.137 mm	.841	21.40 mm	(3x)	27.78 mm	1.48 mm	8 mm	75 mm	V031270	55.00	V031270-V	64.00
.2809	K	7.137 mm	1.403	35.70 mm	(5x)	42.76 mm	1.48 mm	8 mm	100 mm	V215139	103.50	V215139-V	113.50
.2812 (9/32)		7.142 mm	.842	21.45 mm	(3x)	27.79 mm	1.48 mm	8 mm	75 mm	V745358	55.00	V745358-V	64.00
.2812 (9/32)		7.142 mm	1.403	35.70 mm	(5x)	42.79 mm	1.48 mm	8 mm	100 mm	V974925	103.50	V974925-V	113.50
.2834		7.200 mm	.848	21.60 mm	(3x)	28.02 mm	1.49 mm	8 mm	75 mm	V318182	55.00	V318182-V	64.00
.2834		7.200 mm	1.414	36.00 mm	(5x)	43.14 mm	1.49 mm	8 mm	100 mm	V243742	103.50	V243742-V	113.50
.2874		7.300 mm	.860	21.90 mm	(3x)	28.41 mm	1.51 mm	8 mm	75 mm	V400766	55.00	V400766-V	64.00
.2874		7.300 mm	1.434	36.50 mm	(5x)	43.74 mm	1.51 mm	8 mm	100 mm	V340474	103.50	V340474-V	113.50
.2900	L	7.366 mm	.868	22.10 mm	(3x)	28.67 mm	1.53 mm	8 mm	75 mm	V081281	55.00	V081281-V	64.00
.2900	L	7.366 mm	1.448	36.85 mm	(5x)	44.14 mm	1.53 mm	8 mm	100 mm	V266244	103.50	V266244-V	113.50
.2913		7.400 mm	.872	22.20 mm	(3x)	28.80 mm	1.53 mm	8 mm	75 mm	V583325	55.00	V583325-V	64.00
.2913		7.400 mm	1.454	37.00 mm	(5x)	44.34 mm	1.53 mm	8 mm	100 mm	V884228	103.50	V884228-V	113.50
.2950	M	7.493 mm	.884	22.50 mm	(3x)	29.16 mm	1.55 mm	8 mm	75 mm	V818677	55.00	V818677-V	64.00
.2950	M	7.493 mm	1.471	37.45 mm	(5x)	44.90 mm	1.55 mm	8 mm	100 mm	V520509	103.50	V520509-V	113.50

* 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	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 #	Price	Tool #	Price
	.2952		7.500 mm	.884	22.50 mm	(3x)	29.19 mm	1.55 mm	8 mm	75 mm	V833945	55.00	V833945-V	64.00
	.2952		7.500 mm	1.473	37.50 mm	(5x)	44.94 mm	1.55 mm	8 mm	100 mm	V759862	103.50	V759862-V	113.50
	.2969 (19/64)		7.541 mm	.888	22.60 mm	(3x)	29.35 mm	1.56 mm	8 mm	75 mm	V222380	55.00	V222380-V	64.00
	.2969 (19/64)		7.541 mm	1.481	37.70 mm	(5x)	45.18 mm	1.56 mm	8 mm	100 mm	V440832	103.50	V440832-V	113.50
	.2992		7.600 mm	.896	22.80 mm	(3x)	29.58 mm	1.57 mm	8 mm	75 mm	V931842	55.00	V931842-V	64.00
	.2992		7.600 mm	1.493	38.00 mm	(5x)	45.54 mm	1.57 mm	8 mm	100 mm	V883385	103.50	V883385-V	113.50
NEW	.3020	N	7.671 mm	.903	23.00 mm	(3x)	29.85 mm	1.59 mm	8 mm	75 mm	V016939	55.00	V016939-V	64.00
NEW	.3020	N	7.671 mm	1.507	38.35 mm	(5x)	45.96 mm	1.59 mm	8 mm	100 mm	V415219	103.50	V415219-V	113.50
	.3031		7.700 mm	.907	23.10 mm	(3x)	29.97 mm	1.59 mm	8 mm	75 mm	V649826	55.00	V649826-V	64.00
	.3031		7.700 mm	1.513	38.50 mm	(5x)	46.14 mm	1.59 mm	8 mm	100 mm	V696121	103.50	V696121-V	113.50
	.3071		7.800 mm	.919	23.40 mm	(3x)	30.36 mm	1.62 mm	8 mm	75 mm	V402097	55.00	V402097-V	64.00
	.3071		7.800 mm	1.532	39.00 mm	(5x)	46.74 mm	1.62 mm	8 mm	100 mm	V914982	103.50	V914982-V	113.50
	.3110		7.900 mm	.931	23.70 mm	(3x)	30.75 mm	1.64 mm	8 mm	75 mm	V217709	55.00	V217709-V	64.00
	.3110		7.900 mm	1.552	39.50 mm	(5x)	47.34 mm	1.64 mm	8 mm	100 mm	V960211	103.50	V960211-V	113.50
	.3125 (5/16)		7.937 mm	.935	23.80 mm	(3x)	30.89 mm	1.64 mm	8 mm	75 mm	V785367	55.00	V785367-V	64.00
	.3125 (5/16)		7.937 mm	1.560	39.70 mm	(5x)	47.56 mm	1.64 mm	8 mm	100 mm	V504447	103.50	V504447-V	113.50
	.3150		8.000 mm	.943	24.00 mm	(3x)	31.13 mm	1.66 mm	10 mm	75 mm	V899583	55.00	V899583-V	66.00
	.3150		8.000 mm	1.572	40.00 mm	(5x)	47.93 mm	1.66 mm	10 mm	100 mm	V959977	103.50	V959977-V	115.00
NEW	.3159	O	8.026 mm	.947	24.10 mm	(3x)	31.24 mm	1.66 mm	10 mm	75 mm	V032635	62.50	V032635-V	73.50
NEW	.3159	O	8.026 mm	1.577	40.15 mm	(5x)	48.09 mm	1.66 mm	10 mm	100 mm	V141969	122.00	V141969-V	133.50
	.3189		8.100 mm	.954	24.30 mm	(3x)	31.52 mm	1.68 mm	10 mm	75 mm	V926444	62.50	V926444-V	73.50
	.3189		8.100 mm	1.591	40.50 mm	(5x)	48.53 mm	1.68 mm	10 mm	100 mm	V759625	122.00	V759625-V	133.50
	.3228		8.200 mm	.966	24.60 mm	(3x)	31.91 mm	1.70 mm	10 mm	75 mm	V724837	62.50	V724837-V	73.50
	.3228		8.200 mm	1.611	41.00 mm	(5x)	49.13 mm	1.70 mm	10 mm	100 mm	V873208	122.00	V873208-V	133.50
NEW	.3229	P	8.204 mm	.966	24.60 mm	(3x)	31.93 mm	1.70 mm	10 mm	75 mm	V372182	62.50	V372182-V	73.50
NEW	.3229	P	8.204 mm	1.611	41.00 mm	(5x)	49.16 mm	1.70 mm	10 mm	100 mm	V236956	122.00	V236956-V	133.50
	.3268		8.300 mm	.978	24.90 mm	(3x)	32.30 mm	1.72 mm	10 mm	75 mm	V555652	62.50	V555652-V	73.50
	.3268		8.300 mm	1.630	41.50 mm	(5x)	49.73 mm	1.72 mm	10 mm	100 mm	V573287	122.00	V573287-V	133.50
	.3281 (21/64)		8.333 mm	.982	25.00 mm	(3x)	32.43 mm	1.73 mm	10 mm	75 mm	V733277	62.50	V733277-V	73.50
	.3281 (21/64)		8.333 mm	1.636	41.65 mm	(5x)	49.93 mm	1.73 mm	10 mm	100 mm	V919579	122.00	V919579-V	133.50
	.3307		8.400 mm	.990	25.20 mm	(3x)	32.69 mm	1.74 mm	10 mm	75 mm	V167766	62.50	V167766-V	73.50
	.3307		8.400 mm	1.650	42.00 mm	(5x)	50.33 mm	1.74 mm	10 mm	100 mm	V633981	122.00	V633981-V	133.50
NEW	.3319	Q	8.432 mm	.994	25.30 mm	(3x)	32.82 mm	1.75 mm	10 mm	75 mm	V701245	62.50	V701245-V	73.50
NEW	.3319	Q	8.432 mm	1.656	42.15 mm	(5x)	50.52 mm	1.75 mm	10 mm	100 mm	V433751	122.00	V433751-V	133.50
	.3346		8.500 mm	1.002	25.50 mm	(3x)	33.08 mm	1.76 mm	10 mm	75 mm	V408664	62.50	V408664-V	73.50
	.3346		8.500 mm	1.670	42.50 mm	(5x)	50.93 mm	1.76 mm	10 mm	100 mm	V861150	122.00	V861150-V	133.50

* 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	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 #	Price	Tool #	Price
.3386		8.600 mm	1.013	25.80 mm	(3x)	33.47 mm	1.78 mm	10 mm	75 mm	V390096	62.50	V390096-V	73.50
.3386		8.600 mm	1.689	43.00 mm	(5x)	51.53 mm	1.78 mm	10 mm	100 mm	V844326	122.00	V844326-V	133.50
.3389	R	8.610 mm	1.015	25.85 mm	(3x)	33.51 mm	1.78 mm	10 mm	75 mm	V992693	62.50	V992693-V	73.50
.3389	R	8.610 mm	1.691	43.05 mm	(5x)	51.59 mm	1.78 mm	10 mm	100 mm	V332666	122.00	V332666-V	133.50
.3425		8.700 mm	1.025	26.10 mm	(3x)	33.86 mm	1.80 mm	10 mm	75 mm	V151969	62.50	V151969-V	73.50
.3425		8.700 mm	1.709	43.50 mm	(5x)	52.13 mm	1.80 mm	10 mm	100 mm	V879893	122.00	V879893-V	133.50
.3438 (11/32)		8.732 mm	1.029	26.20 mm	(3x)	33.98 mm	1.81 mm	10 mm	75 mm	V104671	62.50	V104671-V	73.50
.3438 (11/32)		8.732 mm	1.715	43.65 mm	(5x)	52.32 mm	1.81 mm	10 mm	100 mm	V335452	122.00	V335452-V	133.50
.3465		8.800 mm	1.037	26.40 mm	(3x)	34.25 mm	1.82 mm	10 mm	75 mm	V891293	62.50	V891293-V	73.50
.3465		8.800 mm	1.729	44.00 mm	(5x)	52.73 mm	1.82 mm	10 mm	100 mm	V260828	122.00	V260828-V	133.50
.3479	S	8.839 mm	1.041	26.50 mm	(3x)	34.40 mm	1.83 mm	10 mm	75 mm	V165338	62.50	V165338-V	73.50
.3479	S	8.839 mm	1.737	44.20 mm	(5x)	52.96 mm	1.83 mm	10 mm	100 mm	V926902	122.00	V926902-V	133.50
.3504		8.900 mm	1.049	26.70 mm	(3x)	34.64 mm	1.84 mm	10 mm	75 mm	V365922	62.50	V365922-V	73.50
.3504		8.900 mm	1.748	44.50 mm	(5x)	53.33 mm	1.84 mm	10 mm	100 mm	V781535	122.00	V781535-V	133.50
.3543		9.000 mm	1.061	27.00 mm	(3x)	35.03 mm	1.86 mm	10 mm	75 mm	V386241	62.50	V386241-V	73.50
.3543		9.000 mm	1.768	45.00 mm	(5x)	53.93 mm	1.86 mm	10 mm	100 mm	V656849	122.00	V656849-V	133.50
.3579	T	9.093 mm	1.072	27.30 mm	(3x)	35.39 mm	1.88 mm	10 mm	75 mm	V202316	82.00	V202316-V	93.00
.3579	T	9.093 mm	1.786	45.45 mm	(5x)	54.48 mm	1.88 mm	10 mm	100 mm	V113760	136.50	V113760-V	148.00
.3583		9.100 mm	1.072	27.30 mm	(3x)	35.42 mm	1.88 mm	10 mm	75 mm	V637527	82.00	V637527-V	93.00
.3583		9.100 mm	1.788	45.50 mm	(5x)	54.53 mm	1.88 mm	10 mm	100 mm	V134756	136.50	V134756-V	148.00
.3594 (23/64)		9.128 mm	1.076	27.40 mm	(3x)	35.53 mm	1.89 mm	10 mm	75 mm	V324647	82.00	V324647-V	93.00
.3594 (23/64)		9.128 mm	1.794	45.65 mm	(5x)	54.69 mm	1.89 mm	10 mm	100 mm	V928900	136.50	V928900-V	148.00
.3622		9.200 mm	1.084	27.60 mm	(3x)	35.81 mm	1.91 mm	10 mm	75 mm	V332586	82.00	V332586-V	93.00
.3622		9.200 mm	1.807	46.00 mm	(5x)	55.13 mm	1.91 mm	10 mm	100 mm	V326648	136.50	V326648-V	148.00
.3661		9.300 mm	1.096	27.90 mm	(3x)	36.19 mm	1.93 mm	10 mm	75 mm	V589859	82.00	V589859-V	93.00
.3661		9.300 mm	1.827	46.50 mm	(5x)	55.72 mm	1.93 mm	10 mm	100 mm	V975106	136.50	V975106-V	148.00
.3679	U	9.347 mm	1.102	28.05 mm	(3x)	36.38 mm	1.94 mm	10 mm	75 mm	V143815	82.00	V143815-V	93.00
.3679	U	9.347 mm	1.837	46.75 mm	(5x)	56.01 mm	1.94 mm	10 mm	100 mm	V429034	136.50	V429034-V	148.00
.3701		9.400 mm	1.108	28.20 mm	(3x)	36.58 mm	1.95 mm	10 mm	75 mm	V656422	82.00	V656422-V	93.00
.3701		9.400 mm	1.847	47.00 mm	(5x)	56.32 mm	1.95 mm	10 mm	100 mm	V807457	136.50	V807457-V	148.00
.3740		9.500 mm	1.120	28.50 mm	(3x)	36.97 mm	1.97 mm	10 mm	75 mm	V306233	82.00	V306233-V	93.00
.3740		9.500 mm	1.866	47.50 mm	(5x)	56.92 mm	1.97 mm	10 mm	100 mm	V983594	136.50	V983594-V	148.00
.3750 (3/8)		9.525 mm	1.123	28.60 mm	(3x)	37.07 mm	1.97 mm	10 mm	75 mm	V893492	82.00	V893492-V	93.00
.3750 (3/8)		9.525 mm	1.872	47.65 mm	(5x)	57.07 mm	1.97 mm	10 mm	100 mm	V937306	136.50	V937306-V	148.00
.3770	V	9.575 mm	1.127	28.70 mm	(3x)	37.27 mm	1.98 mm	10 mm	75 mm	V043059	82.00	V043059-V	93.00
.3770	V	9.575 mm	1.882	47.90 mm	(5x)	57.37 mm	1.98 mm	10 mm	100 mm	V541568	136.50	V541568-V	148.00

* 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 #	Price	Tool #	Price
NEW	.3780		9.600 mm	1.131	28.80 mm	(3x)	37.36 mm	1.99 mm	10 mm	75 mm	V883648	82.00	V883648-V	93.00
	.3780		9.600 mm	1.886	48.00 mm	(5x)	57.52 mm	1.99 mm	10 mm	100 mm	V796500	136.50	V796500-V	148.00
	.3819		9.700 mm	1.143	29.10 mm	(3x)	37.75 mm	2.01 mm	10 mm	75 mm	V695542	82.00	V695542-V	93.00
	.3819		9.700 mm	1.906	48.50 mm	(5x)	58.12 mm	2.01 mm	10 mm	100 mm	V247210	136.50	V247210-V	148.00
	.3858		9.800 mm	1.155	29.40 mm	(3x)	38.14 mm	2.03 mm	10 mm	75 mm	V676169	82.00	V676169-V	93.00
	.3858		9.800 mm	1.925	49.00 mm	(5x)	58.72 mm	2.03 mm	10 mm	100 mm	V823528	136.50	V823528-V	148.00
	.3859	W	9.804 mm	1.155	29.40 mm	(3x)	38.16 mm	2.03 mm	10 mm	75 mm	V556517	82.00	V556517-V	93.00
	.3859	W	9.804 mm	1.925	49.00 mm	(5x)	58.75 mm	2.03 mm	10 mm	100 mm	V743002	136.50	V743002-V	148.00
	.3898		9.900 mm	1.167	29.70 mm	(3x)	38.53 mm	2.05 mm	10 mm	75 mm	V263386	82.00	V263386-V	93.00
	.3898		9.900 mm	1.945	49.50 mm	(5x)	59.32 mm	2.05 mm	10 mm	100 mm	V879509	136.50	V879509-V	148.00
NEW	.3906 (25/64)		9.921 mm	1.169	29.75 mm	(3x)	38.61 mm	2.05 mm	10 mm	75 mm	V405503	82.00	V405503-V	93.00
	.3906 (25/64)		9.921 mm	1.949	49.60 mm	(5x)	59.45 mm	2.05 mm	10 mm	100 mm	V287196	136.50	V287196-V	148.00
	.3937		10.000 mm	1.179	30.00 mm	(3x)	38.92 mm	2.07 mm	12 mm	100 mm	V532196	82.00	V532196-V	98.00
	.3937		10.000 mm	1.965	50.00 mm	(5x)	59.92 mm	2.07 mm	12 mm	125 mm	V856596	136.50	V856596-V	153.50
	.3969	X	10.083 mm	1.188	30.25 mm	(3x)	39.24 mm	2.09 mm	12 mm	100 mm	V869635	105.60	V869635-V	121.50
	.3969	X	10.083 mm	1.980	50.40 mm	(5x)	60.42 mm	2.09 mm	12 mm	125 mm	V213558	204.60	V213558-V	221.60
	.3976		10.100 mm	1.190	30.30 mm	(3x)	39.31 mm	2.09 mm	12 mm	100 mm	V621639	105.60	V621639-V	121.50
	.3976		10.100 mm	1.984	50.50 mm	(5x)	60.52 mm	2.09 mm	12 mm	125 mm	V848057	204.60	V848057-V	221.50
	.4016		10.200 mm	1.202	30.60 mm	(3x)	39.70 mm	2.11 mm	12 mm	100 mm	V641835	105.60	V641835-V	121.50
	.4016		10.200 mm	2.004	51.00 mm	(5x)	61.12 mm	2.11 mm	12 mm	125 mm	V210101	204.60	V210101-V	221.50
NEW	.4039	Y	10.261 mm	1.210	30.80 mm	(3x)	39.94 mm	2.13 mm	12 mm	100 mm	V411827	105.60	V411827-V	121.50
	.4039	Y	10.261 mm	2.016	51.30 mm	(5x)	61.48 mm	2.13 mm	12 mm	125 mm	V625795	204.60	V625795-V	221.60
	.4055		10.300 mm	1.214	30.90 mm	(3x)	40.09 mm	2.13 mm	12 mm	100 mm	V589355	105.60	V589355-V	121.50
	.4055		10.300 mm	2.023	51.50 mm	(5x)	61.72 mm	2.13 mm	12 mm	125 mm	V333787	204.60	V333787-V	221.50
	.4062 (13/32)		10.317 mm	1.216	30.95 mm	(3x)	40.15 mm	2.14 mm	12 mm	100 mm	V576080	105.60	V576080-V	121.50
	.4062 (13/32)		10.317 mm	2.027	51.60 mm	(5x)	61.82 mm	2.14 mm	12 mm	125 mm	V227073	204.60	V227073-V	221.50
	.4094		10.400 mm	1.226	31.20 mm	(3x)	40.48 mm	2.15 mm	12 mm	100 mm	V708410	105.60	V708410-V	121.50
	.4094		10.400 mm	2.043	52.00 mm	(5x)	62.32 mm	2.15 mm	12 mm	125 mm	V195280	204.60	V195280-V	221.50
	.4129	Z	10.490 mm	1.235	31.45 mm	(3x)	40.83 mm	2.17 mm	12 mm	100 mm	V471254	105.60	V471254-V	122.60
	.4129	Z	10.490 mm	2.061	52.45 mm	(5x)	62.86 mm	2.17 mm	12 mm	125 mm	V994112	204.60	V994112-V	221.60
NEW	.4134		10.500 mm	1.237	31.50 mm	(3x)	40.87 mm	2.17 mm	12 mm	100 mm	V879946	105.60	V879946-V	121.50
	.4134		10.500 mm	2.063	52.50 mm	(5x)	62.92 mm	2.17 mm	12 mm	125 mm	V496598	204.60	V496598-V	221.50
	.4173		10.600 mm	1.249	31.80 mm	(3x)	41.26 mm	2.20 mm	12 mm	100 mm	V455218	105.60	V455218-V	121.50
	.4173		10.600 mm	2.082	53.00 mm	(5x)	63.52 mm	2.20 mm	12 mm	125 mm	V452314	204.60	V452314-V	221.50
	.4213		10.700 mm	1.261	32.10 mm	(3x)	41.64 mm	2.22 mm	12 mm	100 mm	V155404	105.60	V155404-V	121.50
	.4213		10.700 mm	2.102	53.50 mm	(5x)	64.11 mm	2.22 mm	12 mm	125 mm	V634560	204.60	V634560-V	221.50

* 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	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 #	Price	Tool #	Price
.4219 (27/64)		10.716 mm	1.263	32.15 mm	(3x)	41.71 mm	2.22 mm	12 mm	100 mm	V826638	105.60	V826638-V	121.50
.4219 (27/64)		10.716 mm	2.106	53.60 mm	(5x)	64.21 mm	2.22 mm	12 mm	125 mm	V814056	204.60	V814056-V	221.50
.4252		10.800 mm	1.273	32.40 mm	(3x)	42.03 mm	2.24 mm	12 mm	100 mm	V213641	105.60	V213641-V	121.50
.4252		10.800 mm	2.122	54.00 mm	(5x)	64.71 mm	2.24 mm	12 mm	125 mm	V455956	204.60	V455956-V	221.50
.4291		10.900 mm	1.285	32.70 mm	(3x)	42.42 mm	2.26 mm	12 mm	100 mm	V681558	105.60	V681558-V	121.50
.4291		10.900 mm	2.141	54.50 mm	(5x)	65.31 mm	2.26 mm	12 mm	125 mm	V872776	204.60	V872776-V	221.50
.4331		11.000 mm	1.296	33.00 mm	(3x)	42.81 mm	2.28 mm	12 mm	100 mm	V486441	105.60	V486441-V	121.50
.4331		11.000 mm	2.161	55.00 mm	(5x)	65.91 mm	2.28 mm	12 mm	125 mm	V840142	204.60	V840142-V	221.50
.4370		11.100 mm	1.308	33.30 mm	(3x)	43.20 mm	2.30 mm	12 mm	100 mm	V569821	115.00	V569821-V	131.00
.4370		11.100 mm	2.181	55.50 mm	(5x)	66.51 mm	2.30 mm	12 mm	125 mm	V786789	210.00	V786789-V	227.00
.4375 (7/16)		11.112 mm	1.310	33.35 mm	(3x)	43.25 mm	2.30 mm	12 mm	100 mm	V194265	115.00	V194265-V	131.00
.4375 (7/16)		11.112 mm	2.183	55.55 mm	(5x)	66.58 mm	2.30 mm	12 mm	125 mm	V266796	210.00	V266796-V	227.00
.4409		11.200 mm	1.320	33.60 mm	(3x)	43.59 mm	2.32 mm	12 mm	100 mm	V800667	115.00	V800667-V	131.00
.4409		11.200 mm	2.200	56.00 mm	(5x)	67.11 mm	2.32 mm	12 mm	125 mm	V503159	210.00	V503159-V	227.00
.4449		11.300 mm	1.332	33.90 mm	(3x)	43.98 mm	2.34 mm	12 mm	100 mm	V309259	115.00	V309259-V	131.00
.4449		11.300 mm	2.220	56.50 mm	(5x)	67.71 mm	2.34 mm	12 mm	125 mm	V346861	210.00	V346861-V	227.00
.4488		11.400 mm	1.344	34.20 mm	(3x)	44.37 mm	2.36 mm	12 mm	100 mm	V434511	115.00	V434511-V	131.00
.4488		11.400 mm	2.240	57.00 mm	(5x)	68.31 mm	2.36 mm	12 mm	125 mm	V662862	210.00	V662862-V	227.00
.4527		11.500 mm	1.355	34.50 mm	(3x)	44.76 mm	2.38 mm	12 mm	100 mm	V848030	115.00	V848030-V	131.00
.4527		11.500 mm	2.259	57.50 mm	(5x)	68.91 mm	2.38 mm	12 mm	125 mm	V786485	210.00	V786485-V	227.00
.4531 (29/64)		11.508 mm	1.355	34.50 mm	(3x)	44.79 mm	2.38 mm	12 mm	100 mm	V293298	115.00	V293298-V	131.00
.4531 (29/64)		11.508 mm	2.261	57.55 mm	(5x)	68.96 mm	2.38 mm	12 mm	125 mm	V128189	210.00	V128189-V	227.00
.4567		11.600 mm	1.367	34.80 mm	(3x)	45.15 mm	2.40 mm	12 mm	100 mm	V713188	115.00	V713188-V	131.00
.4567		11.600 mm	2.279	58.00 mm	(5x)	69.51 mm	2.40 mm	12 mm	125 mm	V314182	210.00	V314182-V	227.00
.4606		11.700 mm	1.379	35.10 mm	(3x)	45.54 mm	2.42 mm	12 mm	100 mm	V136399	115.00	V136399-V	131.00
.4606		11.700 mm	2.299	58.50 mm	(5x)	70.11 mm	2.42 mm	12 mm	125 mm	V357863	210.00	V357863-V	227.00
.4646		11.800 mm	1.391	35.40 mm	(3x)	45.93 mm	2.44 mm	12 mm	100 mm	V891844	115.00	V891844-V	131.00
.4646		11.800 mm	2.318	59.00 mm	(5x)	70.71 mm	2.44 mm	12 mm	125 mm	V101325	210.00	V101325-V	227.00
.4685		11.900 mm	1.403	35.70 mm	(3x)	46.32 mm	2.46 mm	12 mm	100 mm	V393491	115.00	V393491-V	131.00
.4685		11.900 mm	2.338	59.50 mm	(5x)	71.31 mm	2.46 mm	12 mm	125 mm	V470839	210.00	V470839-V	227.00
.4688 (15/32)		11.907 mm	1.403	35.70 mm	(3x)	46.34 mm	2.47 mm	12 mm	100 mm	V477349	115.00	V477349-V	131.00
.4688 (15/32)		11.907 mm	2.340	59.55 mm	(5x)	71.35 mm	2.47 mm	12 mm	125 mm	V910118	210.00	V910118-V	227.00
.4724		12.000 mm	1.414	36.00 mm	(3x)	46.70 mm	2.49 mm	14 mm	100 mm	V890909	115.00	V890909-V	133.50
.4724		12.000 mm	2.358	60.00 mm	(5x)	71.90 mm	2.49 mm	14 mm	125 mm	V660828	210.00	V660828-V	229.50
.4764		12.100 mm	1.426	36.30 mm	(3x)	47.09 mm	2.51 mm	14 mm	100 mm	V634940	151.50	V634940-V	170.00
.4764		12.100 mm	2.377	60.50 mm	(5x)	72.50 mm	2.51 mm	14 mm	125 mm	V932711	263.00	V932711-V	282.50

* 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	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 #	Price	Tool #	Price
.4803		12.200 mm	1.438	36.60 mm	(3x)	47.48 mm	2.53 mm	14 mm	100 mm	V905748	151.50	V905748-V	170.00
.4803		12.200 mm	2.397	61.00 mm	(5x)	73.10 mm	2.53 mm	14 mm	125 mm	V781595	263.00	V781595-V	282.50
.4843		12.300 mm	1.450	36.90 mm	(3x)	47.87 mm	2.55 mm	14 mm	100 mm	V170687	151.50	V170687-V	170.00
.4843		12.300 mm	2.416	61.50 mm	(5x)	73.70 mm	2.55 mm	14 mm	125 mm	V699007	263.00	V699007-V	282.50
.4882 (31/64)		12.400 mm	1.461	37.20 mm	(3x)	48.26 mm	2.57 mm	14 mm	100 mm	V359843	151.50	V359843-V	170.00
.4882 (31/64)		12.400 mm	2.436	62.00 mm	(5x)	74.30 mm	2.57 mm	14 mm	125 mm	V692988	263.00	V692988-V	282.50
.4921		12.500 mm	1.473	37.50 mm	(3x)	48.65 mm	2.59 mm	14 mm	100 mm	V512726	151.50	V512726-V	170.00
.4921		12.500 mm	2.456	62.50 mm	(5x)	74.90 mm	2.59 mm	14 mm	125 mm	V684136	263.00	V684136-V	282.50
.4961		12.600 mm	1.485	37.80 mm	(3x)	49.04 mm	2.61 mm	14 mm	100 mm	V622722	165.20	V622722-V	183.50
.4961		12.600 mm	2.475	63.00 mm	(5x)	75.50 mm	2.61 mm	14 mm	125 mm	V951870	263.00	V951870-V	282.50
.5000 (1/2)		12.700 mm	1.497	38.10 mm	(3x)	49.43 mm	2.63 mm	14 mm	100 mm	V503316	165.20	V503316-V	183.50
.5000 (1/2)		12.700 mm	2.495	63.50 mm	(5x)	76.10 mm	2.63 mm	14 mm	125 mm	V805106	263.00	V805106-V	282.50

* For h6 and h8 tolerances, see page 8.





High Performance Drills

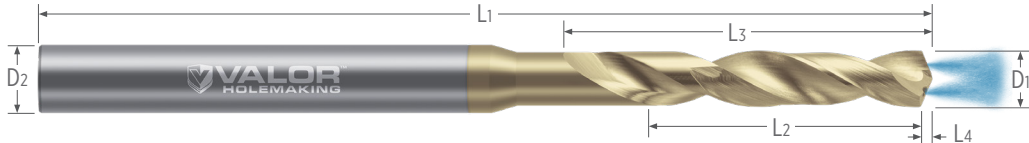
For Aluminum & Aluminum Alloys – Coolant-Through



Point geometry designed to minimize burrs

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

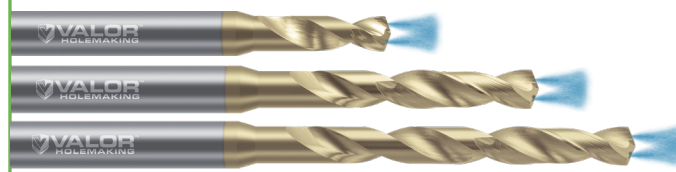


Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Uncoated		Val-Max V Coated	
inch	wire	metric	inch	metric	hole depth					Tool #	Price	Tool #	Price
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1				
.0625 (1/16)		1.587 mm	.187	4.76 mm	(3x)	6.17 mm	.33 mm	3 mm	63 mm			V547443-V	75.90
.0625 (1/16)		1.587 mm	.312	7.95 mm	(5x)	9.51 mm	.33 mm	3 mm	63 mm	V995092	95.50	V995092-V	101.00
.0625 (1/16)		1.587 mm	.499	12.70 mm	(8x)	14.50 mm	.33 mm	3 mm	63 mm	V484828	162.50	V484828-V	168.00
.0630		1.600 mm	.188	4.80 mm	(3x)	6.22 mm	.33 mm	3 mm	63 mm			V590503-V	75.90
.0630		1.600 mm	.314	8.00 mm	(5x)	9.58 mm	.33 mm	3 mm	63 mm	V501534	95.50	V501534-V	101.00
.0630		1.600 mm	.503	12.80 mm	(8x)	14.62 mm	.33 mm	3 mm	63 mm	V680349	162.50	V680349-V	168.00
.0635	#52	1.612 mm	.190	4.84 mm	(3x)	6.27 mm	.33 mm	3 mm	63 mm			V052869-V	75.90
.0635	#52	1.612 mm	.316	8.05 mm	(5x)	9.65 mm	.33 mm	3 mm	63 mm	V069599	95.50	V069599-V	101.00
.0669	#51	1.700 mm	.200	5.10 mm	(3x)	6.61 mm	.35 mm	3 mm	63 mm			V072870-V	75.90
.0669	#51	1.700 mm	.334	8.50 mm	(5x)	10.18 mm	.35 mm	3 mm	63 mm	V605780	95.50	V605780-V	101.00
.0669	#51	1.700 mm	.534	13.60 mm	(8x)	15.54 mm	.35 mm	3 mm	63 mm	V910907	162.50	V910907-V	168.00
.0700	#50	1.778 mm	.209	5.33 mm	(3x)	6.92 mm	.37 mm	3 mm	63 mm			V925403-V	75.90
.0700	#50	1.778 mm	.349	8.90 mm	(5x)	10.65 mm	.37 mm	3 mm	63 mm	V337086	95.50	V337086-V	101.00
.0708		1.800 mm	.212	5.40 mm	(3x)	7.00 mm	.37 mm	3 mm	63 mm			V036635-V	75.90
.0708		1.800 mm	.353	9.00 mm	(5x)	10.78 mm	.37 mm	3 mm	63 mm	V322492	95.50	V322492-V	101.00
.0708		1.800 mm	.565	14.40 mm	(8x)	16.45 mm	.37 mm	3 mm	63 mm	V882014	162.50	V882014-V	168.00

* For h6 and h8 tolerances, see page 8.

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





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 #	Price	Tool #	Price
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁				
NEW	.0730	#49	1.854 mm	.218	5.56 mm	(3x)	7.21 mm	.38 mm	3 mm	63 mm			V322276-V	75.90
NEW	.0730	#49	1.854 mm	.363	9.25 mm	(5x)	11.11 mm	.38 mm	3 mm	63 mm	V500638	95.50	V500638-V	101.00
NEW	.0748		1.900 mm	.224	5.70 mm	(3x)	7.39 mm	.39 mm	3 mm	63 mm			V028978-V	75.90
	.0748		1.900 mm	.373	9.50 mm	(5x)	11.38 mm	.39 mm	3 mm	63 mm	V531576	95.50	V531576-V	101.00
	.0748		1.900 mm	.597	15.20 mm	(8x)	17.37 mm	.39 mm	3 mm	63 mm	V421746	162.50	V421746-V	168.00
NEW	.0760	#48	1.930 mm	.227	5.79 mm	(3x)	7.51 mm	.40 mm	3 mm	63 mm			V526503-V	75.90
NEW	.0760	#48	1.930 mm	.379	9.65 mm	(5x)	11.56 mm	.40 mm	3 mm	63 mm	V762830	95.50	V762830-V	101.00
NEW	.0781 (5/64)		1.984 mm	.233	5.95 mm	(3x)	7.72 mm	.41 mm	3 mm	63 mm			V155062-V	75.90
	.0781 (5/64)		1.984 mm	.389	9.90 mm	(5x)	11.88 mm	.41 mm	3 mm	63 mm	V658747	95.50	V658747-V	101.00
	.0781 (5/64)		1.984 mm	.622	15.85 mm	(8x)	18.13 mm	.41 mm	3 mm	63 mm	V880813	162.50	V880813-V	168.00
NEW	.0785	#47	1.993 mm	.234	5.98 mm	(3x)	7.75 mm	.41 mm	3 mm	63 mm			V331214-V	75.90
NEW	.0785	#47	1.993 mm	.391	9.95 mm	(5x)	11.94 mm	.41 mm	3 mm	63 mm	V371261	95.50	V371261-V	101.00
NEW	.0787		2.000 mm	.235	6.00 mm	(3x)	7.78 mm	.41 mm	3 mm	63 mm			V863052-V	75.90
	.0787		2.000 mm	.393	10.00 mm	(5x)	11.98 mm	.41 mm	3 mm	63 mm	V420395	95.50	V420395-V	101.00
	.0787		2.000 mm	.628	16.00 mm	(8x)	18.28 mm	.41 mm	3 mm	63 mm	V492205	162.50	V492205-V	168.00
NEW	.0810	#46	2.057 mm	.242	6.17 mm	(3x)	8.00 mm	.43 mm	3 mm	63 mm			V710082-V	75.90
NEW	.0810	#46	2.057 mm	.404	10.30 mm	(5x)	12.32 mm	.43 mm	3 mm	63 mm	V522450	95.50	V522450-V	101.00
NEW	.0820	#45	2.082 mm	.245	6.25 mm	(3x)	8.10 mm	.43 mm	3 mm	63 mm			V749355-V	75.90
NEW	.0820	#45	2.082 mm	.408	10.40 mm	(5x)	12.47 mm	.43 mm	3 mm	63 mm	V648740	95.50	V648740-V	101.00
NEW	.0826		2.100 mm	.247	6.30 mm	(3x)	8.17 mm	.43 mm	3 mm	63 mm			V386451-V	75.90
	.0826		2.100 mm	.412	10.50 mm	(5x)	12.58 mm	.43 mm	3 mm	63 mm	V260199	95.50	V260199-V	101.00
	.0826		2.100 mm	.660	16.80 mm	(8x)	19.19 mm	.43 mm	3 mm	63 mm	V390543	162.50	V390543-V	168.00
NEW	.0860	#44	2.184 mm	.257	6.55 mm	(3x)	8.50 mm	.45 mm	3 mm	63 mm			V057641-V	75.90
NEW	.0860	#44	2.184 mm	.428	10.90 mm	(5x)	13.08 mm	.45 mm	3 mm	63 mm	V921873	95.50	V921873-V	101.00
NEW	.0866		2.200 mm	.259	6.60 mm	(3x)	8.56 mm	.46 mm	3 mm	63 mm			V465235-V	75.90
	.0866		2.200 mm	.432	11.00 mm	(5x)	13.18 mm	.46 mm	3 mm	63 mm	V507605	95.50	V507605-V	101.00
	.0866		2.200 mm	.691	17.60 mm	(8x)	20.11 mm	.46 mm	3 mm	63 mm	V841569	162.50	V841569-V	168.00
NEW	.0890	#43	2.260 mm	.266	6.78 mm	(3x)	8.79 mm	.47 mm	3 mm	63 mm			V499129-V	75.90
NEW	.0890	#43	2.260 mm	.444	11.30 mm	(5x)	13.54 mm	.47 mm	3 mm	63 mm	V877543	95.50	V877543-V	101.00
NEW	.0905		2.300 mm	.271	6.90 mm	(3x)	8.95 mm	.48 mm	3 mm	63 mm			V862144-V	75.90
	.0905		2.300 mm	.451	11.50 mm	(5x)	13.78 mm	.48 mm	3 mm	63 mm	V303320	95.50	V303320-V	101.00
	.0905		2.300 mm	.723	18.40 mm	(8x)	21.02 mm	.48 mm	3 mm	63 mm	V664000	162.50	V664000-V	168.00
NEW	.0935	#42	2.374 mm	.279	7.12 mm	(3x)	9.24 mm	.49 mm	3 mm	63 mm			V446936-V	75.90
NEW	.0935	#42	2.374 mm	.465	11.85 mm	(5x)	14.22 mm	.49 mm	3 mm	63 mm	V913199	95.50	V913199-V	101.00

* 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 #	Price	Tool #	Price
.0937 (3/32)		2.381 mm	.280	7.14 mm	(3x)	9.26 mm	.49 mm	3 mm	63 mm			V928820-V	75.90 NEW
.0937 (3/32)		2.381 mm	.467	11.90 mm	(5x)	14.26 mm	.49 mm	3 mm	63 mm	V626473	95.50	V626473-V	101.00
.0937 (3/32)		2.381 mm	.748	19.05 mm	(8x)	21.76 mm	.49 mm	3 mm	63 mm	V773519	162.50	V773519-V	168.00
.0944		2.400 mm	.282	7.20 mm	(3x)	9.34 mm	.50 mm	3 mm	63 mm			V757681-V	75.90 NEW
.0944		2.400 mm	.471	12.00 mm	(5x)	14.38 mm	.50 mm	3 mm	63 mm	V199489	95.50	V199489-V	101.00
.0944		2.400 mm	.754	19.20 mm	(8x)	21.94 mm	.50 mm	3 mm	63 mm	V234473	162.50	V234473-V	168.00
.0960	#41	2.438 mm	.287	7.31 mm	(3x)	9.48 mm	.50 mm	3 mm	63 mm			V121658-V	75.90 NEW
.0960	#41	2.438 mm	.479	12.20 mm	(5x)	14.60 mm	.50 mm	3 mm	63 mm	V233440	95.50	V233440-V	101.00 NEW
.0980	#40	2.489 mm	.293	7.47 mm	(3x)	9.68 mm	.52 mm	3 mm	63 mm			V712971-V	75.90 NEW
.0980	#40	2.489 mm	.489	12.45 mm	(5x)	14.91 mm	.52 mm	3 mm	63 mm	V355218	95.50	V355218-V	101.00 NEW
.0984		2.500 mm	.294	7.50 mm	(3x)	9.73 mm	.52 mm	3 mm	63 mm			V010689-V	75.90 NEW
.0984		2.500 mm	.491	12.50 mm	(5x)	14.98 mm	.52 mm	3 mm	63 mm	V302724	95.50	V302724-V	101.00
.0984		2.500 mm	.786	20.00 mm	(8x)	22.85 mm	.52 mm	3 mm	63 mm	V755519	162.50	V755519-V	168.00
.0995	#39	2.527 mm	.297	7.58 mm	(3x)	9.83 mm	.52 mm	3 mm	63 mm			V148811-V	75.90 NEW
.0995	#39	2.527 mm	.497	12.65 mm	(5x)	15.14 mm	.52 mm	3 mm	63 mm	V389949	95.50	V389949-V	101.00 NEW
.1015	#38	2.578 mm	.303	7.73 mm	(3x)	10.03 mm	.53 mm	3 mm	63 mm			V021100-V	75.90 NEW
.1015	#38	2.578 mm	.506	12.90 mm	(5x)	15.44 mm	.53 mm	3 mm	63 mm	V180642	95.50	V180642-V	101.00 NEW
.1023		2.600 mm	.306	7.80 mm	(3x)	10.12 mm	.54 mm	3 mm	63 mm			V315631-V	75.90 NEW
.1023		2.600 mm	.510	13.00 mm	(5x)	15.58 mm	.54 mm	3 mm	63 mm	V520958	95.50	V520958-V	101.00
.1023		2.600 mm	.817	20.80 mm	(8x)	23.77 mm	.54 mm	3 mm	63 mm	V492168	162.50	V492168-V	168.00
.1040	#37	2.641 mm	.311	7.92 mm	(3x)	10.27 mm	.55 mm	3 mm	63 mm			V361116-V	75.90 NEW
.1040	#37	2.641 mm	.518	13.20 mm	(5x)	15.82 mm	.55 mm	3 mm	63 mm	V319625	95.50	V319625-V	101.00 NEW
.1062		2.700 mm	.318	8.10 mm	(3x)	10.50 mm	.56 mm	3 mm	63 mm			V381880-V	75.90 NEW
.1062		2.700 mm	.530	13.50 mm	(5x)	16.17 mm	.56 mm	3 mm	63 mm	V527387	95.50	V527387-V	101.00
.1062		2.700 mm	.848	21.60 mm	(8x)	24.68 mm	.56 mm	3 mm	63 mm	V196896	162.50	V196896-V	168.00
.1065	#36	2.705 mm	.318	8.12 mm	(3x)	10.52 mm	.56 mm	3 mm	63 mm			V542977-V	75.90 NEW
.1065	#36	2.705 mm	.532	13.55 mm	(5x)	16.20 mm	.56 mm	3 mm	63 mm	V425882	95.50	V425882-V	101.00 NEW
.1093 (7/64)		2.778 mm	.327	8.33 mm	(3x)	10.81 mm	.58 mm	3 mm	63 mm			V501094-V	75.90 NEW
.1093 (7/64)		2.778 mm	.546	13.90 mm	(5x)	16.64 mm	.58 mm	3 mm	63 mm	V278759	95.50	V278759-V	101.00
.1093 (7/64)		2.778 mm	.872	22.20 mm	(8x)	25.39 mm	.58 mm	3 mm	63 mm	V618198	162.50	V618198-V	168.00
.1100	#35	2.794 mm	.329	8.38 mm	(3x)	10.87 mm	.58 mm	3 mm	63 mm			V557769-V	75.90 NEW
.1100	#35	2.794 mm	.548	13.95 mm	(5x)	16.74 mm	.58 mm	3 mm	63 mm	V793423	95.50	V793423-V	101.00 NEW
.1102		2.800 mm	.330	8.40 mm	(3x)	10.89 mm	.58 mm	3 mm	63 mm			V568444-V	75.90 NEW
.1102		2.800 mm	.550	14.00 mm	(5x)	16.77 mm	.58 mm	3 mm	63 mm	V730812	95.50	V730812-V	101.00
.1102		2.800 mm	.880	22.40 mm	(8x)	25.59 mm	.58 mm	3 mm	63 mm	V963101	162.50	V963101-V	168.00

* 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					Tool #	Price	Tool #	Price
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁				
NEW	.1110	#34	2.819 mm	.332	8.46 mm	(3x)	10.97 mm	.58 mm	3 mm	63 mm			V309636-V	75.90
NEW	.1110	#34	2.819 mm	.554	14.10 mm	(5x)	16.89 mm	.58 mm	3 mm	63 mm	V383269	95.50	V383269-V	101.00
NEW	.1130	#33	2.870 mm	.338	8.61 mm	(3x)	11.17 mm	.59 mm	3 mm	63 mm			V484647-V	75.90
NEW	.1130	#33	2.870 mm	.563	14.35 mm	(5x)	17.19 mm	.59 mm	3 mm	63 mm	V954704	95.50	V954704-V	101.00
NEW	.1141		2.900 mm	.341	8.70 mm	(3x)	11.28 mm	.60 mm	3 mm	63 mm			V233124-V	75.90
	.1141		2.900 mm	.569	14.50 mm	(5x)	17.37 mm	.60 mm	3 mm	63 mm	V882240	95.50	V882240-V	101.00
	.1141		2.900 mm	.911	23.20 mm	(8x)	26.51 mm	.60 mm	3 mm	63 mm	V385580	162.50	V385580-V	168.00
NEW	.1160	#32	2.946 mm	.347	8.84 mm	(3x)	11.46 mm	.61 mm	3 mm	63 mm			V890345-V	75.90
NEW	.1160	#32	2.946 mm	.579	14.75 mm	(5x)	17.65 mm	.61 mm	3 mm	63 mm	V040624	95.50	V040624-V	101.00
NEW	.1181		3.000 mm	.353	9.00 mm	(3x)	11.67 mm	.62 mm	4 mm	63 mm			V118419-V	76.90
	.1181		3.000 mm	.589	15.00 mm	(5x)	17.97 mm	.62 mm	4 mm	63 mm	V187918	95.50	V187918-V	102.00
	.1181		3.000 mm	.943	24.00 mm	(8x)	27.42 mm	.62 mm	4 mm	75 mm	V860963	162.50	V860963-V	169.00
NEW	.1200	#31	3.048 mm	.359	9.14 mm	(3x)	11.86 mm	.63 mm	4 mm	63 mm			V074456-V	76.90
NEW	.1200	#31	3.048 mm	.599	15.25 mm	(5x)	18.26 mm	.63 mm	4 mm	63 mm	V115638	95.50	V115638-V	102.00
NEW	.1220		3.100 mm	.365	9.30 mm	(3x)	12.06 mm	.64 mm	4 mm	63 mm			V318260-V	76.90
	.1220		3.100 mm	.609	15.50 mm	(5x)	18.57 mm	.64 mm	4 mm	63 mm	V443746	95.50	V443746-V	102.00
	.1220		3.100 mm	.974	24.80 mm	(8x)	28.34 mm	.64 mm	4 mm	75 mm	V577751	162.50	V577751-V	169.00
NEW	.1250 (1/8)		3.175 mm	.374	9.53 mm	(3x)	12.35 mm	.66 mm	4 mm	63 mm			V338039-V	76.90
	.1250 (1/8)		3.175 mm	.624	15.90 mm	(5x)	19.02 mm	.66 mm	4 mm	63 mm	V877822	95.50	V877822-V	102.00
	.1250 (1/8)		3.175 mm	.998	25.40 mm	(8x)	29.02 mm	.66 mm	4 mm	75 mm	V846347	162.50	V846347-V	169.00
NEW	.1260		3.200 mm	.377	9.60 mm	(3x)	12.45 mm	.66 mm	4 mm	63 mm			V998572-V	76.90
	.1260		3.200 mm	.628	16.00 mm	(5x)	19.17 mm	.66 mm	4 mm	63 mm	V527462	95.50	V527462-V	102.00
	.1260		3.200 mm	1.006	25.60 mm	(8x)	29.25 mm	.66 mm	4 mm	75 mm	V478157	162.50	V478157-V	169.00
NEW	.1285	#30	3.263 mm	.384	9.79 mm	(3x)	12.70 mm	.68 mm	4 mm	63 mm			V728607-V	76.90
NEW	.1285	#30	3.263 mm	.640	16.30 mm	(5x)	19.55 mm	.68 mm	4 mm	63 mm	V238651	95.50	V238651-V	102.00
NEW	.1300		3.300 mm	.389	9.90 mm	(3x)	12.84 mm	.68 mm	4 mm	63 mm			V704855-V	76.90
	.1300		3.300 mm	.648	16.50 mm	(5x)	19.77 mm	.68 mm	4 mm	63 mm	V584441	95.50	V584441-V	102.00
	.1300		3.300 mm	1.037	26.40 mm	(8x)	30.17 mm	.68 mm	4 mm	75 mm	V828022	162.50	V828022-V	169.00
NEW	.1338		3.400 mm	.400	10.20 mm	(3x)	13.23 mm	.70 mm	4 mm	63 mm			V556576-V	76.90
	.1338		3.400 mm	.668	17.00 mm	(5x)	20.37 mm	.70 mm	4 mm	63 mm	V837035	95.50	V837035-V	102.00
	.1338		3.400 mm	1.068	27.20 mm	(8x)	31.08 mm	.70 mm	4 mm	75 mm	V915819	162.50	V915819-V	169.00
NEW	.1360	#29	3.454 mm	.407	10.36 mm	(3x)	13.44 mm	.72 mm	4 mm	63 mm			V571251-V	76.90
NEW	.1360	#29	3.454 mm	.677	17.25 mm	(5x)	20.69 mm	.72 mm	4 mm	63 mm	V757997	95.50	V757997-V	102.00
NEW	.1377		3.500 mm	.412	10.50 mm	(3x)	13.62 mm	.72 mm	4 mm	63 mm			V971540-V	76.90
	.1377		3.500 mm	.687	17.50 mm	(5x)	20.97 mm	.72 mm	4 mm	63 mm	V357695	95.50	V357695-V	102.00
	.1377		3.500 mm	1.100	28.00 mm	(8x)	31.99 mm	.72 mm	4 mm	75 mm	V261340	162.50	V261340-V	169.00

* 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	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 #	Price	Tool #	Price
.1406 (9/64)		3.571 mm	.421	10.71 mm	(3x)	14.01 mm	.75 mm	4 mm	63 mm			V424417-V	76.90 NEW
.1406 (9/64)		3.571 mm	.701	17.85 mm	(5x)	21.39 mm	.74 mm	4 mm	63 mm	V767730	95.50	V767730-V	102.00
.1406 (9/64)		3.571 mm	1.122	28.55 mm	(8x)	32.64 mm	.74 mm	4 mm	75 mm	V333089	162.50	V333089-V	169.00
.1417		3.600 mm	.424	10.80 mm	(3x)	14.23 mm	.76 mm	4 mm	63 mm			V549176-V	76.90 NEW
.1417		3.600 mm	.707	18.00 mm	(5x)	21.57 mm	.75 mm	4 mm	63 mm	V139840	95.50	V139840-V	102.00
.1417		3.600 mm	1.131	28.80 mm	(8x)	32.91 mm	.75 mm	4 mm	75 mm	V241917	162.50	V241917-V	169.00
.1440	#27	3.657 mm	.431	10.97 mm	(3x)	14.40 mm	.77 mm	4 mm	63 mm			V360112-V	76.90 NEW
.1440	#27	3.657 mm	.719	18.30 mm	(5x)	21.91 mm	.76 mm	4 mm	63 mm	V113280	95.50	V113280-V	102.00 NEW
.1456		3.700 mm	.436	11.10 mm	(3x)	14.53 mm	.77 mm	4 mm	63 mm			V397478-V	76.90 NEW
.1456		3.700 mm	.727	18.50 mm	(5x)	22.17 mm	.77 mm	4 mm	63 mm	V441225	95.50	V441225-V	102.00
.1456		3.700 mm	1.163	29.60 mm	(8x)	33.82 mm	.77 mm	4 mm	75 mm	V869984	162.50	V869984-V	169.00
.1470	#26	3.733 mm	.440	11.20 mm	(3x)	14.77 mm	.79 mm	4 mm	63 mm			V282547-V	76.90 NEW
.1470	#26	3.733 mm	.732	18.65 mm	(5x)	22.36 mm	.77 mm	4 mm	63 mm	V365564	95.50	V365564-V	102.00 NEW
.1495	#25	3.797 mm	.447	11.39 mm	(3x)	14.79 mm	.79 mm	4 mm	63 mm			V799624-V	76.90 NEW
.1495	#25	3.797 mm	.746	19.00 mm	(5x)	22.75 mm	.79 mm	4 mm	63 mm	V106662	95.50	V106662-V	102.00 NEW
.1496		3.800 mm	.448	11.40 mm	(3x)	15.02 mm	.80 mm	4 mm	63 mm			V442431-V	76.90 NEW
.1496		3.800 mm	.746	19.00 mm	(5x)	22.77 mm	.79 mm	4 mm	63 mm	V818024	95.50	V818024-V	102.00
.1496		3.800 mm	1.194	30.40 mm	(8x)	34.74 mm	.79 mm	4 mm	75 mm	V756236	162.50	V756236-V	169.00
.1520	#24	3.860 mm	.455	11.58 mm	(3x)	15.18 mm	.81 mm	4 mm	63 mm			V925751-V	76.90 NEW
.1520	#24	3.860 mm	.758	19.30 mm	(5x)	23.13 mm	.80 mm	4 mm	63 mm	V580926	95.50	V580926-V	102.00 NEW
.1535		3.900 mm	.459	11.70 mm	(3x)	15.22 mm	.81 mm	4 mm	63 mm			V319983-V	76.90 NEW
.1535		3.900 mm	.766	19.50 mm	(5x)	23.37 mm	.81 mm	4 mm	63 mm	V429888	95.50	V429888-V	102.00
.1535		3.900 mm	1.226	31.20 mm	(8x)	35.65 mm	.81 mm	4 mm	75 mm	V832803	162.50	V832803-V	169.00
.1540	#23	3.911 mm	.461	11.73 mm	(3x)	15.44 mm	.82 mm	4 mm	63 mm			V174079-V	76.90 NEW
.1540	#23	3.911 mm	.768	19.55 mm	(5x)	23.43 mm	.81 mm	4 mm	63 mm	V009162	95.50	V009162-V	102.00 NEW
.1562 (5/32)		3.968 mm	.467	11.90 mm	(3x)	15.51 mm	.83 mm	4 mm	63 mm			V654306-V	76.90 NEW
.1562 (5/32)		3.968 mm	.780	19.85 mm	(5x)	23.77 mm	.82 mm	4 mm	63 mm	V205668	95.50	V205668-V	102.00
.1562 (5/32)		3.968 mm	1.247	31.75 mm	(8x)	36.27 mm	.82 mm	4 mm	75 mm	V576052	162.50	V576052-V	169.00
.1570	#22	3.987 mm	.470	11.96 mm	(3x)	15.56 mm	.83 mm	4 mm	63 mm			V783489-V	76.90 NEW
.1570	#22	3.987 mm	.784	19.95 mm	(5x)	23.89 mm	.83 mm	4 mm	63 mm	V205615	95.50	V205615-V	102.00 NEW
.1574		4.000 mm	.471	12.00 mm	(3x)	15.56 mm	.83 mm	6 mm	63 mm			V065768-V	77.90 NEW
.1574		4.000 mm	.786	20.00 mm	(5x)	23.96 mm	.83 mm	6 mm	75 mm	V131303	99.50	V131303-V	107.00
.1574		4.000 mm	1.257	32.00 mm	(8x)	36.56 mm	.83 mm	6 mm	100 mm	V305691	162.50	V305691-V	170.50
.1590	#21	4.038 mm	.476	12.11 mm	(3x)	15.71 mm	.84 mm	6 mm	63 mm			V122161-V	77.90 NEW
.1590	#21	4.038 mm	.793	20.20 mm	(5x)	24.19 mm	.84 mm	6 mm	75 mm	V991193	99.50	V991193-V	107.00 NEW

* 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	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 #	Price	Tool #	Price
NEW	.1610	#20	4.089 mm	.482	12.27 mm	(3x)	15.91 mm	.85 mm	6 mm	63 mm			V214813-V	77.90
NEW	.1610	#20	4.089 mm	.803	20.45 mm	(5x)	24.50 mm	.85 mm	6 mm	75 mm	V997846	99.50	V997846-V	107.00
NEW	.1614		4.100 mm	.483	12.30 mm	(3x)	15.95 mm	.85 mm	6 mm	63 mm			V923337-V	77.90
	.1614		4.100 mm	.805	20.50 mm	(5x)	24.56 mm	.85 mm	6 mm	75 mm	V679258	99.50	V679258-V	107.00
	.1614		4.100 mm	1.289	32.80 mm	(8x)	37.48 mm	.85 mm	6 mm	100 mm	V557129	162.50	V557129-V	170.50
NEW	.1653		4.200 mm	.495	12.60 mm	(3x)	16.34 mm	.87 mm	6 mm	63 mm			V470004-V	77.90
	.1653		4.200 mm	.825	21.00 mm	(5x)	25.16 mm	.87 mm	6 mm	75 mm	V803894	99.50	V803894-V	107.00
	.1653		4.200 mm	1.320	33.60 mm	(8x)	38.39 mm	.87 mm	6 mm	100 mm	V752243	162.50	V752243-V	170.50
NEW	.1660	#19	4.216 mm	.497	12.65 mm	(3x)	16.41 mm	.87 mm	6 mm	63 mm			V900344-V	77.90
NEW	.1660	#19	4.216 mm	.829	21.10 mm	(5x)	25.26 mm	.87 mm	6 mm	75 mm	V796179	99.50	V796179-V	107.00
NEW	.1692		4.300 mm	.506	12.90 mm	(3x)	16.73 mm	.89 mm	6 mm	63 mm			V759323-V	77.90
	.1692		4.300 mm	.844	21.50 mm	(5x)	25.76 mm	.89 mm	6 mm	75 mm	V223762	99.50	V223762-V	107.00
	.1692		4.300 mm	1.351	34.40 mm	(8x)	39.31 mm	.89 mm	6 mm	100 mm	V775572	162.50	V775572-V	170.50
NEW	.1695	#18	4.305 mm	.507	12.92 mm	(3x)	16.75 mm	.89 mm	6 mm	63 mm			V784872-V	77.90
NEW	.1695	#18	4.305 mm	.844	21.50 mm	(5x)	25.79 mm	.89 mm	6 mm	75 mm	V167389	99.50	V167389-V	107.00
NEW	.1718 (11/64)		4.365 mm	.514	13.10 mm	(3x)	16.99 mm	.90 mm	6 mm	63 mm			V895219-V	77.90
	.1718 (11/64)		4.365 mm	.858	21.85 mm	(5x)	26.15 mm	.90 mm	6 mm	75 mm	V639751	99.50	V639751-V	107.00
	.1718 (11/64)		4.365 mm	1.371	34.90 mm	(8x)	39.90 mm	.90 mm	6 mm	100 mm	V849166	162.50	V849166-V	170.50
NEW	.1730	#17	4.394 mm	.518	13.18 mm	(3x)	17.10 mm	.91 mm	6 mm	63 mm			V184046-V	77.90
NEW	.1730	#17	4.394 mm	.862	21.95 mm	(5x)	26.33 mm	.91 mm	6 mm	75 mm	V127788	99.50	V127788-V	107.00
NEW	.1732		4.400 mm	.518	13.20 mm	(3x)	17.12 mm	.91 mm	6 mm	63 mm			V653274-V	77.90
	.1732		4.400 mm	.864	22.00 mm	(5x)	26.36 mm	.91 mm	6 mm	75 mm	V918663	99.50	V918663-V	107.00
	.1732		4.400 mm	1.383	35.20 mm	(8x)	40.22 mm	.91 mm	6 mm	100 mm	V356654	162.50	V356654-V	170.50
NEW	.1770	#16	4.495 mm	.529	13.49 mm	(3x)	17.49 mm	.93 mm	6 mm	63 mm			V501836-V	77.90
NEW	.1770	#16	4.495 mm	.884	22.50 mm	(5x)	26.93 mm	.93 mm	6 mm	75 mm	V901338	99.50	V901338-V	107.00
NEW	.1771		4.500 mm	.530	13.50 mm	(3x)	17.51 mm	.93 mm	6 mm	63 mm			V419182-V	77.90
	.1771		4.500 mm	.884	22.50 mm	(5x)	26.96 mm	.93 mm	6 mm	75 mm	V383315	99.50	V383315-V	107.00
	.1771		4.500 mm	1.414	36.00 mm	(8x)	41.14 mm	.93 mm	6 mm	100 mm	V703950	162.50	V703950-V	170.50
NEW	.1800	#15	4.572 mm	.539	13.72 mm	(3x)	17.79 mm	.95 mm	6 mm	63 mm			V456860-V	77.90
NEW	.1800	#15	4.572 mm	.898	22.85 mm	(5x)	27.39 mm	.95 mm	6 mm	75 mm	V658639	99.50	V658639-V	107.00
NEW	.1811		4.600 mm	.542	13.80 mm	(3x)	17.90 mm	.95 mm	6 mm	63 mm			V320501-V	77.90
	.1811		4.600 mm	.903	23.00 mm	(5x)	27.56 mm	.95 mm	6 mm	75 mm	V342441	99.50	V342441-V	107.00
	.1811		4.600 mm	1.446	36.80 mm	(8x)	42.05 mm	.95 mm	6 mm	100 mm	V202174	162.50	V202174-V	170.50
NEW	.1820	#14	4.622 mm	.544	13.87 mm	(3x)	17.99 mm	.96 mm	6 mm	63 mm			V621276-V	77.90
NEW	.1820	#14	4.622 mm	.907	23.10 mm	(5x)	27.69 mm	.96 mm	6 mm	75 mm	V204402	99.50	V204402-V	107.00

* 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	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 #	Price	Tool #	Price
.1850	#13	4.700 mm	.554	14.10 mm	(3x)	18.29 mm	.97 mm	6 mm	63 mm			V358610-V	77.90
.1850	#13	4.700 mm	.923	23.50 mm	(5x)	28.16 mm	.97 mm	6 mm	75 mm	V689582	99.50	V689582-V	107.00
.1850	#13	4.700 mm	1.477	37.60 mm	(8x)	42.96 mm	.97 mm	6 mm	100 mm	V928497	162.50	V928497-V	170.50
.1875 (3/16)		4.762 mm	.561	14.29 mm	(3x)	18.53 mm	.99 mm	6 mm	63 mm			V381118-V	77.90
.1875 (3/16)		4.762 mm	.935	23.80 mm	(5x)	28.53 mm	.99 mm	6 mm	75 mm	V675548	99.50	V675548-V	107.00
.1875 (3/16)		4.762 mm	1.497	38.10 mm	(8x)	43.53 mm	.99 mm	6 mm	100 mm	V431500	162.50	V431500-V	170.50
.1890	#12	4.800 mm	.565	14.40 mm	(3x)	18.68 mm	.99 mm	6 mm	63 mm			V618153-V	77.90
.1890	#12	4.800 mm	.943	24.00 mm	(5x)	28.76 mm	.99 mm	6 mm	75 mm	V926654	99.50	V926654-V	107.00
.1890	#12	4.800 mm	1.509	38.40 mm	(8x)	43.88 mm	.99 mm	6 mm	100 mm	V253484	162.50	V253484-V	170.50
.1910	#11	4.851 mm	.571	14.55 mm	(3x)	18.88 mm	1.00 mm	6 mm	63 mm			V528760-V	77.90
.1910	#11	4.851 mm	.953	24.25 mm	(5x)	29.06 mm	1.00 mm	6 mm	75 mm	V191226	99.50	V191226-V	107.00
.1930		4.900 mm	.577	14.70 mm	(3x)	19.07 mm	1.01 mm	6 mm	63 mm			V351892-V	77.90
.1930		4.900 mm	.962	24.50 mm	(5x)	29.36 mm	1.01 mm	6 mm	75 mm	V417508	99.50	V417508-V	107.00
.1930		4.900 mm	1.540	39.20 mm	(8x)	44.79 mm	1.01 mm	6 mm	100 mm	V904772	162.50	V904772-V	170.50
.1935	#10	4.914 mm	.579	14.74 mm	(3x)	19.12 mm	1.02 mm	6 mm	63 mm			V578183-V	77.90
.1935	#10	4.914 mm	.964	24.55 mm	(5x)	29.44 mm	1.02 mm	6 mm	75 mm	V620990	99.50	V620990-V	107.00
.1960	#9	4.978 mm	.586	14.93 mm	(3x)	19.37 mm	1.03 mm	6 mm	63 mm			V407470-V	77.90
.1960	#9	4.978 mm	.978	24.90 mm	(5x)	29.83 mm	1.03 mm	6 mm	75 mm	V140803	99.50	V140803-V	107.00
.1968		5.000 mm	.589	15.00 mm	(3x)	19.46 mm	1.04 mm	6 mm	63 mm			V537001-V	77.90
.1968		5.000 mm	.982	25.00 mm	(5x)	29.96 mm	1.04 mm	6 mm	75 mm	V761883	99.50	V761883-V	107.00
.1968		5.000 mm	1.572	40.00 mm	(8x)	45.71 mm	1.04 mm	6 mm	100 mm	V858075	162.50	V858075-V	170.50
.1990	#8	5.054 mm	.595	15.16 mm	(3x)	19.67 mm	1.05 mm	6 mm	63 mm			V656928-V	77.90
.1990	#8	5.054 mm	.992	25.25 mm	(5x)	30.28 mm	1.05 mm	6 mm	75 mm	V252688	99.50	V252688-V	107.00
.2007		5.100 mm	.601	15.30 mm	(3x)	19.85 mm	1.06 mm	6 mm	63 mm			V670090-V	77.90
.2007		5.100 mm	1.002	25.50 mm	(5x)	30.56 mm	1.06 mm	6 mm	75 mm	V487502	99.50	V487502-V	107.00
.2007		5.100 mm	1.603	40.80 mm	(8x)	46.62 mm	1.06 mm	6 mm	100 mm	V663020	162.50	V663020-V	170.50
.2009	#7	5.105 mm	.601	15.32 mm	(3x)	19.87 mm	1.06 mm	6 mm	63 mm			V314719-V	77.90
.2009	#7	5.105 mm	1.004	25.55 mm	(5x)	30.59 mm	1.06 mm	6 mm	75 mm	V394192	99.50	V394192-V	107.00
.2031 (13/64)		5.159 mm	.608	15.48 mm	(3x)	20.08 mm	1.07 mm	6 mm	63 mm			V556983-V	77.90
.2031 (13/64)		5.159 mm	1.013	25.80 mm	(5x)	30.91 mm	1.07 mm	6 mm	75 mm	V802986	99.50	V802986-V	107.00
.2031 (13/64)		5.159 mm	1.621	41.25 mm	(8x)	47.16 mm	1.07 mm	6 mm	100 mm	V386945	162.50	V386945-V	170.50
.2040	#6	5.181 mm	.610	15.54 mm	(3x)	20.16 mm	1.07 mm	6 mm	63 mm			V550881-V	77.90
.2040	#6	5.181 mm	1.017	25.90 mm	(5x)	31.04 mm	1.07 mm	6 mm	75 mm	V438225	99.50	V438225-V	107.00
.2047		5.200 mm	.613	15.60 mm	(3x)	20.24 mm	1.08 mm	6 mm	63 mm			V051333-V	77.90
.2047		5.200 mm	1.021	26.00 mm	(5x)	31.16 mm	1.08 mm	6 mm	75 mm	V411179	99.50	V411179-V	107.00
.2047		5.200 mm	1.634	41.60 mm	(8x)	47.54 mm	1.08 mm	6 mm	100 mm	V855920	162.50	V855920-V	170.50

* 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	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 #	Price	Tool #	Price
NEW	.2055	#5	5.219 mm	.615	15.66 mm	(3x)	20.31 mm	1.08 mm	6 mm	63 mm			V744785-V	77.90
NEW	.2055	#5	5.219 mm	1.025	26.10 mm	(5x)	31.27 mm	1.08 mm	6 mm	75 mm	V086467	99.50	V086467-V	107.00
NEW	.2086		5.300 mm	.624	15.90 mm	(3x)	20.63 mm	1.10 mm	6 mm	63 mm			V835905-V	77.90
	.2086		5.300 mm	1.041	26.50 mm	(5x)	31.76 mm	1.10 mm	6 mm	75 mm	V969066	99.50	V969066-V	107.00
	.2086		5.300 mm	1.666	42.40 mm	(8x)	48.45 mm	1.10 mm	6 mm	100 mm	V555520	162.50	V555520-V	170.50
NEW	.2090	#4	5.308 mm	.625	15.92 mm	(3x)	20.66 mm	1.10 mm	6 mm	63 mm			V555221-V	77.90
NEW	.2090	#4	5.308 mm	1.043	26.55 mm	(5x)	31.80 mm	1.10 mm	6 mm	75 mm	V250479	99.50	V250479-V	107.00
NEW	.2125		5.400 mm	.636	16.20 mm	(3x)	21.01 mm	1.12 mm	6 mm	63 mm			V192173-V	77.90
	.2125		5.400 mm	1.061	27.00 mm	(5x)	32.35 mm	1.12 mm	6 mm	75 mm	V923077	99.50	V923077-V	107.00
	.2125		5.400 mm	1.697	43.20 mm	(8x)	49.36 mm	1.12 mm	6 mm	100 mm	V412862	162.50	V412862-V	170.50
NEW	.2129	#3	5.410 mm	.637	16.23 mm	(3x)	21.05 mm	1.12 mm	6 mm	63 mm			V915275-V	77.90
NEW	.2129	#3	5.410 mm	1.063	27.05 mm	(5x)	32.41 mm	1.12 mm	6 mm	75 mm	V448801	99.50	V448801-V	107.00
NEW	.2165		5.500 mm	.648	16.50 mm	(3x)	21.40 mm	1.14 mm	6 mm	63 mm			V791535-V	77.90
	.2165		5.500 mm	1.080	27.50 mm	(5x)	32.95 mm	1.14 mm	6 mm	75 mm	V332947	99.50	V332947-V	107.00
	.2165		5.500 mm	1.729	44.00 mm	(8x)	50.28 mm	1.14 mm	6 mm	100 mm	V692720	162.50	V692720-V	170.50
NEW	.2187 (7/32)		5.556 mm	.655	16.67 mm	(3x)	21.62 mm	1.15 mm	6 mm	63 mm			V418970-V	77.90
	.2187 (7/32)		5.556 mm	1.092	27.80 mm	(5x)	33.29 mm	1.15 mm	6 mm	75 mm	V192488	99.50	V192488-V	107.00
	.2187 (7/32)		5.556 mm	1.746	44.45 mm	(8x)	50.79 mm	1.15 mm	6 mm	100 mm	V421981	162.50	V421981-V	170.50
NEW	.2205		5.600 mm	.660	16.80 mm	(3x)	21.79 mm	1.16 mm	6 mm	63 mm			V439639-V	77.90
	.2205		5.600 mm	1.100	28.00 mm	(5x)	33.55 mm	1.16 mm	6 mm	75 mm	V300624	99.50	V300624-V	107.00
	.2205		5.600 mm	1.760	44.80 mm	(8x)	51.19 mm	1.16 mm	6 mm	100 mm	V625957	162.50	V625957-V	170.50
NEW	.2210	#2	5.613 mm	.661	16.84 mm	(3x)	21.84 mm	1.16 mm	6 mm	63 mm			V902817-V	77.90
NEW	.2210	#2	5.613 mm	1.102	28.05 mm	(5x)	33.63 mm	1.16 mm	6 mm	75 mm	V494998	99.50	V494998-V	107.00
NEW	.2244		5.700 mm	.672	17.10 mm	(3x)	22.18 mm	1.18 mm	6 mm	63 mm			V695857-V	77.90
	.2244		5.700 mm	1.120	28.50 mm	(5x)	34.15 mm	1.18 mm	6 mm	75 mm	V932148	99.50	V932148-V	107.00
	.2244		5.700 mm	1.792	45.60 mm	(8x)	52.11 mm	1.18 mm	6 mm	100 mm	V662636	162.50	V662636-V	170.50
NEW	.2280	#1	5.791 mm	.682	17.37 mm	(3x)	22.54 mm	1.20 mm	6 mm	63 mm			V707928-V	77.90
NEW	.2280	#1	5.791 mm	1.137	28.95 mm	(5x)	34.70 mm	1.20 mm	6 mm	75 mm	V446839	99.50	V446839-V	107.00
NEW	.2283		5.800 mm	.683	17.40 mm	(3x)	22.57 mm	1.20 mm	6 mm	63 mm			V712558-V	77.90
	.2283		5.800 mm	1.139	29.00 mm	(5x)	34.75 mm	1.20 mm	6 mm	75 mm	V583286	99.50	V583286-V	107.00
	.2283		5.800 mm	1.823	46.40 mm	(8x)	53.02 mm	1.20 mm	6 mm	100 mm	V664218	162.50	V664218-V	170.50
NEW	.2322		5.900 mm	.695	17.70 mm	(3x)	22.96 mm	1.22 mm	6 mm	63 mm			V689805-V	77.90
	.2322		5.900 mm	1.159	29.50 mm	(5x)	35.35 mm	1.22 mm	6 mm	75 mm	V424468	99.50	V424468-V	107.00
	.2322		5.900 mm	1.854	47.20 mm	(8x)	53.94 mm	1.22 mm	6 mm	100 mm	V406472	162.50	V406472-V	170.50
NEW	.2340	A	5.943 mm	.700	17.83 mm	(3x)	23.13 mm	1.23 mm	6 mm	63 mm			V193451-V	77.90
NEW	.2340	A	5.943 mm	1.167	29.70 mm	(5x)	35.61 mm	1.23 mm	6 mm	75 mm	V290384	99.50	V290384-V	107.00

* 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	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 #	Price	Tool #	Price
.2343 (15/64)	5.953 mm	.701	17.86 mm	(3x)	23.17 mm	1.23 mm	6 mm	75 mm			V103321-V	77.90
.2343 (15/64)	5.953 mm	1.169	29.75 mm	(5x)	35.67 mm	1.23 mm	6 mm	75 mm	V483232	99.50	V483232-V	107.00
.2343 (15/64)	5.953 mm	1.870	47.60 mm	(8x)	54.42 mm	1.23 mm	6 mm	100 mm	V857943	162.50	V857943-V	170.50
.2362	6.000 mm	.707	18.00 mm	(3x)	23.35 mm	1.24 mm	8 mm	75 mm			V191882-V	79.40
.2362	6.000 mm	1.179	30.00 mm	(5x)	35.95 mm	1.24 mm	8 mm	100 mm	V514442	99.50	V514442-V	109.50
.2362	6.000 mm	1.886	48.00 mm	(8x)	54.85 mm	1.24 mm	8 mm	125 mm	V965807	162.50	V965807-V	173.00
.2380	B 6.045 mm	.712	18.14 mm	(3x)	23.52 mm	1.25 mm	8 mm	75 mm			V253319-V	111.10
.2380	B 6.045 mm	1.188	30.25 mm	(5x)	36.22 mm	1.25 mm	8 mm	100 mm	V100164	128.50	V100164-V	138.50
.2401	6.100 mm	.719	18.30 mm	(3x)	23.74 mm	1.26 mm	8 mm	75 mm			V882361-V	111.10
.2401	6.100 mm	1.198	30.50 mm	(5x)	36.55 mm	1.26 mm	8 mm	100 mm	V699389	128.50	V699389-V	138.50
.2401	6.100 mm	1.917	48.80 mm	(8x)	55.76 mm	1.26 mm	8 mm	125 mm	V512364	223.00	V512364-V	233.50
.2420	C 6.146 mm	.724	18.44 mm	(3x)	23.92 mm	1.27 mm	8 mm	75 mm			V165832-V	111.10
.2420	C 6.146 mm	1.208	30.75 mm	(5x)	36.82 mm	1.27 mm	8 mm	100 mm	V150659	128.50	V150659-V	138.50
.2440	6.200 mm	.730	18.60 mm	(3x)	24.13 mm	1.28 mm	8 mm	75 mm			V600300-V	111.10
.2440	6.200 mm	1.218	31.00 mm	(5x)	37.15 mm	1.28 mm	8 mm	100 mm	V333318	128.50	V333318-V	138.50
.2440	6.200 mm	1.949	49.60 mm	(8x)	56.68 mm	1.28 mm	8 mm	125 mm	V246360	223.00	V246360-V	233.50
.2460	D 6.248 mm	.736	18.74 mm	(3x)	24.32 mm	1.29 mm	8 mm	75 mm			V983825-V	111.10
.2460	D 6.248 mm	1.228	31.25 mm	(5x)	37.44 mm	1.29 mm	8 mm	100 mm	V888234	128.50	V888234-V	138.50
.2480	6.300 mm	.742	18.90 mm	(3x)	24.52 mm	1.30 mm	8 mm	75 mm			V897423-V	111.10
.2480	6.300 mm	1.237	31.50 mm	(5x)	37.75 mm	1.30 mm	8 mm	100 mm	V716403	128.50	V716403-V	138.50
.2480	6.300 mm	1.980	50.40 mm	(8x)	57.59 mm	1.30 mm	8 mm	125 mm	V171510	223.00	V171510-V	233.50
.2500 (1/4)	E 6.350 mm	.748	19.05 mm	(3x)	24.71 mm	1.32 mm	8 mm	75 mm			V063190-V	111.10
.2500 (1/4)	E 6.350 mm	1.247	31.75 mm	(5x)	38.05 mm	1.32 mm	8 mm	100 mm	V924120	128.50	V924120-V	138.50
.2500 (1/4)	E 6.350 mm	1.996	50.80 mm	(8x)	58.05 mm	1.32 mm	8 mm	125 mm	V515046	223.00	V515046-V	233.50
.2520	6.400 mm	.754	19.20 mm	(3x)	24.91 mm	1.33 mm	8 mm	75 mm			V740956-V	111.10
.2520	6.400 mm	1.257	32.00 mm	(5x)	38.35 mm	1.33 mm	8 mm	100 mm	V952739	128.50	V952739-V	138.50
.2520	6.400 mm	2.012	51.20 mm	(8x)	58.51 mm	1.33 mm	8 mm	125 mm	V442929	223.00	V442929-V	233.50
.2559	6.500 mm	.766	19.50 mm	(3x)	25.30 mm	1.35 mm	8 mm	75 mm			V140273-V	111.10
.2559	6.500 mm	1.277	32.50 mm	(5x)	38.95 mm	1.35 mm	8 mm	100 mm	V252657	128.50	V252657-V	138.50
.2559	6.500 mm	2.043	52.00 mm	(8x)	59.42 mm	1.35 mm	8 mm	125 mm	V981850	223.00	V981850-V	233.50
.2570	F 6.528 mm	.769	19.58 mm	(3x)	25.40 mm	1.35 mm	8 mm	75 mm			V586018-V	111.10
.2570	F 6.528 mm	1.283	32.65 mm	(5x)	39.11 mm	1.35 mm	8 mm	100 mm	V245556	128.50	V245556-V	138.50
.2598	6.600 mm	.778	19.80 mm	(3x)	25.69 mm	1.37 mm	8 mm	75 mm			V754441-V	111.10
.2598	6.600 mm	1.296	33.00 mm	(5x)	39.55 mm	1.37 mm	8 mm	100 mm	V522677	128.50	V522677-V	138.50
.2598	6.600 mm	2.075	52.80 mm	(8x)	60.34 mm	1.37 mm	8 mm	125 mm	V583091	223.00	V583091-V	233.50
.2609	G 6.629 mm	.781	19.89 mm	(3x)	25.80 mm	1.37 mm	8 mm	75 mm			V163302-V	111.10
.2609	G 6.629 mm	1.302	33.15 mm	(5x)	39.72 mm	1.37 mm	8 mm	100 mm	V703189	128.50	V703189-V	138.50

* 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	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 #	Price	Tool #	Price
NEW	.2638	6.700 mm	.789	20.10 mm	(3x)	26.07 mm	1.39 mm	8 mm	75 mm			V848441-V	111.10
	.2638	6.700 mm	1.316	33.50 mm	(5x)	40.14 mm	1.39 mm	8 mm	100 mm	V144907	128.50	V144907-V	138.50
	.2638	6.700 mm	2.106	53.60 mm	(8x)	61.25 mm	1.39 mm	8 mm	125 mm	V320537	223.00	V320537-V	233.50
NEW	.2656 (17/64)	6.746 mm	.795	20.24 mm	(3x)	26.25 mm	1.40 mm	8 mm	75 mm			V234999-V	111.10
	.2656 (17/64)	6.746 mm	1.326	33.75 mm	(5x)	40.42 mm	1.40 mm	8 mm	100 mm	V822656	128.50	V822656-V	138.50
	.2656 (17/64)	6.746 mm	2.120	53.95 mm	(8x)	61.67 mm	1.40 mm	8 mm	125 mm	V403247	223.00	V403247-V	233.50
NEW	.2659	H 6.756 mm	.796	20.27 mm	(3x)	26.29 mm	1.40 mm	8 mm	75 mm			V647097-V	111.10
NEW	.2659	H 6.756 mm	1.328	33.80 mm	(5x)	40.48 mm	1.40 mm	8 mm	100 mm	V908338	128.50	V908338-V	138.50
NEW	.2677	6.800 mm	.801	20.40 mm	(3x)	26.46 mm	1.41 mm	8 mm	75 mm			V122946-V	111.10
	.2677	6.800 mm	1.336	34.00 mm	(5x)	40.74 mm	1.41 mm	8 mm	100 mm	V390334	128.50	V390334-V	138.50
	.2677	6.800 mm	2.137	54.40 mm	(8x)	62.16 mm	1.41 mm	8 mm	125 mm	V892039	223.00	V892039-V	233.50
NEW	.2717	6.900 mm	.813	20.70 mm	(3x)	26.85 mm	1.43 mm	8 mm	75 mm			V784229-V	111.10
	.2717	6.900 mm	1.355	34.50 mm	(5x)	41.34 mm	1.43 mm	8 mm	100 mm	V359934	128.50	V359934-V	138.50
	.2717	6.900 mm	2.169	55.20 mm	(8x)	63.08 mm	1.43 mm	8 mm	125 mm	V272766	223.00	V272766-V	233.50
NEW	.2719	I 6.908 mm	.814	20.72 mm	(3x)	26.88 mm	1.43 mm	8 mm	75 mm			V990261-V	111.10
NEW	.2719	I 6.908 mm	1.357	34.55 mm	(5x)	41.39 mm	1.43 mm	8 mm	100 mm	V584949	128.50	V584949-V	138.50
NEW	.2756	7.000 mm	.825	21.00 mm	(3x)	27.24 mm	1.45 mm	8 mm	75 mm			V488914-V	111.10
	.2756	7.000 mm	1.375	35.00 mm	(5x)	41.94 mm	1.45 mm	8 mm	100 mm	V849487	128.50	V849487-V	138.50
	.2756	7.000 mm	2.200	56.00 mm	(8x)	63.99 mm	1.45 mm	8 mm	125 mm	V582978	223.00	V582978-V	233.50
NEW	.2769	J 7.035 mm	.829	21.11 mm	(3x)	27.38 mm	1.46 mm	8 mm	75 mm			V540821-V	111.10
NEW	.2769	J 7.035 mm	1.381	35.15 mm	(5x)	42.15 mm	1.46 mm	8 mm	100 mm	V706581	128.50	V706581-V	138.50
NEW	.2795	7.100 mm	.837	21.30 mm	(3x)	27.63 mm	1.47 mm	8 mm	75 mm			V128432-V	111.10
	.2795	7.100 mm	1.395	35.50 mm	(5x)	42.54 mm	1.47 mm	8 mm	100 mm	V608576	128.50	V608576-V	138.50
	.2795	7.100 mm	2.232	56.80 mm	(8x)	64.91 mm	1.47 mm	8 mm	125 mm	V700117	223.00	V700117-V	233.50
NEW	.2809	K 7.137 mm	.841	21.41 mm	(3x)	27.78 mm	1.48 mm	8 mm	75 mm			V602705-V	111.10
NEW	.2809	K 7.137 mm	1.403	35.70 mm	(5x)	42.76 mm	1.48 mm	8 mm	100 mm	V608935	128.50	V608935-V	138.50
NEW	.2812 (9/32)	7.142 mm	.842	21.43 mm	(3x)	27.79 mm	1.48 mm	8 mm	75 mm			V166927-V	111.10
	.2812 (9/32)	7.142 mm	1.403	35.70 mm	(5x)	42.79 mm	1.48 mm	8 mm	100 mm	V808410	128.50	V808410-V	138.50
	.2812 (9/32)	7.142 mm	2.245	57.15 mm	(8x)	65.29 mm	1.48 mm	8 mm	125 mm	V298615	223.00	V298615-V	233.50
NEW	.2834	7.200 mm	.848	21.60 mm	(3x)	28.02 mm	1.49 mm	8 mm	75 mm			V283687-V	111.10
	.2834	7.200 mm	1.414	36.00 mm	(5x)	43.14 mm	1.49 mm	8 mm	100 mm	V476150	128.50	V476150-V	138.50
	.2834	7.200 mm	2.263	57.60 mm	(8x)	65.82 mm	1.49 mm	8 mm	125 mm	V933182	223.00	V933182-V	233.50
NEW	.2874	7.300 mm	.860	21.90 mm	(3x)	28.41 mm	1.51 mm	8 mm	75 mm			V026525-V	111.10
	.2874	7.300 mm	1.434	36.50 mm	(5x)	43.74 mm	1.51 mm	8 mm	100 mm	V207592	128.50	V207592-V	138.50
	.2874	7.300 mm	2.295	58.40 mm	(8x)	66.73 mm	1.51 mm	8 mm	125 mm	V359441	223.00	V359441-V	233.50
NEW	.2900	L 7.366 mm	.868	22.10 mm	(3x)	28.67 mm	1.53 mm	8 mm	75 mm			V565679-V	111.10
NEW	.2900	L 7.366 mm	1.448	36.85 mm	(5x)	44.14 mm	1.53 mm	8 mm	100 mm	V705607	128.50	V705607-V	138.50

* 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	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 #	Price	Tool #	Price
.2913		7.400 mm	.872	22.20 mm	(3x)	28.80 mm	1.53 mm	8 mm	75 mm			V291133-V	111.10
.2913		7.400 mm	1.454	37.00 mm	(5x)	44.34 mm	1.53 mm	8 mm	100 mm	V902089	128.50	V902089-V	138.50
.2913		7.400 mm	2.326	59.20 mm	(8x)	67.65 mm	1.53 mm	8 mm	125 mm	V654235	223.00	V654235-V	233.50
.2950	M	7.493 mm	.883	22.48 mm	(3x)	29.16 mm	1.55 mm	8 mm	75 mm			V726436-V	111.10
.2950	M	7.493 mm	1.471	37.45 mm	(5x)	44.90 mm	1.55 mm	8 mm	100 mm	V321251	128.50	V321251-V	138.50
.2952		7.500 mm	.884	22.50 mm	(3x)	29.19 mm	1.55 mm	8 mm	75 mm			V769530-V	111.10
.2952		7.500 mm	1.473	37.50 mm	(5x)	44.94 mm	1.55 mm	8 mm	100 mm	V137771	128.50	V137771-V	138.50
.2952		7.500 mm	2.358	60.00 mm	(8x)	68.56 mm	1.55 mm	8 mm	125 mm	V444829	223.00	V444829-V	233.50
.2969 (19/64)		7.541 mm	.889	22.62 mm	(3x)	29.35 mm	1.56 mm	8 mm	75 mm			V525410-V	111.10
.2969 (19/64)		7.541 mm	1.481	37.70 mm	(5x)	45.18 mm	1.56 mm	8 mm	100 mm	V645522	128.50	V645522-V	138.50
.2969 (19/64)		7.541 mm	2.371	60.35 mm	(8x)	68.94 mm	1.56 mm	8 mm	125 mm	V319299	223.00	V319299-V	233.50
.2992		7.600 mm	.896	22.80 mm	(3x)	29.58 mm	1.57 mm	8 mm	75 mm			V517743-V	111.10
.2992		7.600 mm	1.493	38.00 mm	(5x)	45.54 mm	1.57 mm	8 mm	100 mm	V871764	128.50	V871764-V	138.50
.2992		7.600 mm	2.389	60.80 mm	(8x)	69.48 mm	1.57 mm	8 mm	125 mm	V937150	223.00	V937150-V	233.50
.3020	N	7.671 mm	.904	23.01 mm	(3x)	29.85 mm	1.59 mm	8 mm	75 mm			V736522-V	111.10
.3020	N	7.671 mm	1.507	38.35 mm	(5x)	45.96 mm	1.59 mm	8 mm	100 mm	V560802	128.50	V560802-V	138.50
.3031		7.700 mm	.907	23.10 mm	(3x)	29.97 mm	1.59 mm	8 mm	75 mm			V853902-V	111.10
.3031		7.700 mm	1.513	38.50 mm	(5x)	46.14 mm	1.59 mm	8 mm	100 mm	V272800	128.50	V272800-V	138.50
.3031		7.700 mm	2.420	61.60 mm	(8x)	70.39 mm	1.59 mm	8 mm	125 mm	V733422	223.00	V733422-V	233.50
.3071		7.800 mm	.919	23.40 mm	(3x)	30.36 mm	1.62 mm	8 mm	75 mm			V400489-V	111.10
.3071		7.800 mm	1.532	39.00 mm	(5x)	46.74 mm	1.62 mm	8 mm	100 mm	V444378	128.50	V444378-V	138.50
.3071		7.800 mm	2.452	62.40 mm	(8x)	71.31 mm	1.62 mm	8 mm	125 mm	V467902	223.00	V467902-V	233.50
.3110		7.900 mm	.931	23.70 mm	(3x)	30.75 mm	1.64 mm	8 mm	75 mm			V624164-V	111.10
.3110		7.900 mm	1.552	39.50 mm	(5x)	47.34 mm	1.64 mm	8 mm	100 mm	V838506	128.50	V838506-V	138.50
.3110		7.900 mm	2.483	63.20 mm	(8x)	72.22 mm	1.64 mm	8 mm	125 mm	V118204	223.00	V118204-V	233.50
.3125 (5/16)		7.937 mm	.935	23.81 mm	(3x)	30.89 mm	1.64 mm	8 mm	75 mm			V160019-V	111.10
.3125 (5/16)		7.937 mm	1.560	39.70 mm	(5x)	47.56 mm	1.64 mm	8 mm	100 mm	V534118	128.50	V534118-V	138.50
.3125 (5/16)		7.937 mm	2.495	63.50 mm	(8x)	72.56 mm	1.64 mm	8 mm	125 mm	V181162	223.00	V181162-V	233.50
.3150		8.000 mm	.943	24.00 mm	(3x)	31.13 mm	1.66 mm	10 mm	75 mm			V770448-V	113.10
.3150		8.000 mm	1.572	40.00 mm	(5x)	47.93 mm	1.66 mm	10 mm	100 mm	V631086	128.50	V631086-V	140.00
.3150		8.000 mm	2.515	64.00 mm	(8x)	73.13 mm	1.66 mm	10 mm	125 mm	V372448	223.00	V372448-V	235.50
.3159	O	8.026 mm	.946	24.08 mm	(3x)	31.24 mm	1.66 mm	10 mm	75 mm			V871268-V	127.80
.3159	O	8.026 mm	1.577	40.15 mm	(5x)	48.09 mm	1.66 mm	10 mm	100 mm	V736656	146.50	V736656-V	158.00
.3189		8.100 mm	.954	24.30 mm	(3x)	31.52 mm	1.68 mm	10 mm	75 mm			V635177-V	127.80
.3189		8.100 mm	1.591	40.50 mm	(5x)	48.53 mm	1.68 mm	10 mm	100 mm	V480410	146.50	V480410-V	158.00
.3189		8.100 mm	2.546	64.80 mm	(8x)	74.05 mm	1.68 mm	10 mm	125 mm	V373765	244.50	V373765-V	257.00
.3228		8.200 mm	.966	24.60 mm	(3x)	31.91 mm	1.70 mm	10 mm	75 mm			V858422-V	127.80
.3228		8.200 mm	1.611	41.00 mm	(5x)	49.13 mm	1.70 mm	10 mm	100 mm	V668382	146.50	V668382-V	158.00
.3228		8.200 mm	2.578	65.60 mm	(8x)	74.96 mm	1.70 mm	10 mm	125 mm	V581134	244.50	V581134-V	257.00

* 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	Uncoated		Val-Max V Coated	
	inch	wire	metric	inch	metric	hole depth								
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	Price	Tool #	Price
NEW	.3229	P	8.204 mm	.967	24.61 mm	(3x)	31.93 mm	1.70 mm	10 mm	75 mm			V133443-V	127.80
NEW	.3229	P	8.204 mm	1.611	41.00 mm	(5x)	49.16 mm	1.70 mm	10 mm	100 mm	V418883	146.50	V418883-V	158.00
NEW	.3268		8.300 mm	.978	24.90 mm	(3x)	32.30 mm	1.72 mm	10 mm	75 mm			V726928-V	127.80
	.3268		8.300 mm	1.630	41.50 mm	(5x)	49.73 mm	1.72 mm	10 mm	100 mm	V386606	146.50	V386606-V	158.00
	.3268		8.300 mm	2.609	66.40 mm	(8x)	75.88 mm	1.72 mm	10 mm	125 mm	V496970	244.50	V496970-V	257.00
NEW	.3281 (21/64)		8.333 mm	.982	25.00 mm	(3x)	32.43 mm	1.73 mm	10 mm	75 mm			V161221-V	127.80
	.3281 (21/64)		8.333 mm	1.636	41.65 mm	(5x)	49.93 mm	1.73 mm	10 mm	100 mm	V904466	146.50	V904466-V	158.00
	.3281 (21/64)		8.333 mm	2.619	66.65 mm	(8x)	76.18 mm	1.73 mm	10 mm	125 mm	V185340	244.50	V185340-V	257.00
NEW	.3307		8.400 mm	.990	25.20 mm	(3x)	32.69 mm	1.74 mm	10 mm	75 mm			V665263-V	127.80
	.3307		8.400 mm	1.650	42.00 mm	(5x)	50.33 mm	1.74 mm	10 mm	100 mm	V336999	146.50	V336999-V	158.00
	.3307		8.400 mm	2.640	67.20 mm	(8x)	76.79 mm	1.74 mm	10 mm	125 mm	V555396	244.50	V555396-V	257.00
NEW	.3319	Q	8.432 mm	.994	25.30 mm	(3x)	32.82 mm	1.75 mm	10 mm	75 mm			V863233-V	127.80
NEW	.3319	Q	8.432 mm	1.656	42.15 mm	(5x)	50.52 mm	1.75 mm	10 mm	100 mm	V869008	146.50	V869008-V	158.00
NEW	.3346		8.500 mm	1.002	25.50 mm	(3x)	33.08 mm	1.76 mm	10 mm	75 mm			V120027-V	127.80
	.3346		8.500 mm	1.670	42.50 mm	(5x)	50.93 mm	1.76 mm	10 mm	100 mm	V944598	146.50	V944598-V	158.00
	.3346		8.500 mm	2.672	68.00 mm	(8x)	77.71 mm	1.76 mm	10 mm	125 mm	V102862	244.50	V102862-V	257.00
NEW	.3386		8.600 mm	1.013	25.80 mm	(3x)	33.47 mm	1.78 mm	10 mm	75 mm			V441571-V	127.80
	.3386		8.600 mm	1.689	43.00 mm	(5x)	51.53 mm	1.78 mm	10 mm	100 mm	V129890	146.50	V129890-V	158.00
	.3386		8.600 mm	2.703	68.80 mm	(8x)	78.62 mm	1.78 mm	10 mm	125 mm	V259256	244.50	V259256-V	257.00
NEW	.3389	R	8.610 mm	1.015	25.83 mm	(3x)	33.51 mm	1.78 mm	10 mm	75 mm			V157109-V	127.80
NEW	.3389	R	8.610 mm	1.691	43.05 mm	(5x)	51.59 mm	1.78 mm	10 mm	100 mm	V467935	146.50	V467935-V	158.00
NEW	.3425		8.700 mm	1.025	26.10 mm	(3x)	33.86 mm	1.80 mm	10 mm	75 mm			V682490-V	127.80
	.3425		8.700 mm	1.709	43.50 mm	(5x)	52.13 mm	1.80 mm	10 mm	100 mm	V364436	146.50	V364436-V	158.00
	.3425		8.700 mm	2.735	69.60 mm	(8x)	79.53 mm	1.80 mm	10 mm	125 mm	V578927	244.50	V578927-V	257.00
NEW	.3438 (11/32)		8.732 mm	1.029	26.20 mm	(3x)	33.98 mm	1.81 mm	10 mm	75 mm			V097646-V	127.80
	.3438 (11/32)		8.732 mm	1.715	43.65 mm	(5x)	52.32 mm	1.81 mm	10 mm	100 mm	V960893	146.50	V960893-V	158.00
	.3438 (11/32)		8.732 mm	2.745	69.85 mm	(8x)	79.83 mm	1.81 mm	10 mm	125 mm	V828826	244.50	V828826-V	257.00
NEW	.3465		8.800 mm	1.037	26.40 mm	(3x)	34.25 mm	1.82 mm	10 mm	75 mm			V421988-V	127.80
	.3465		8.800 mm	1.729	44.00 mm	(5x)	52.73 mm	1.82 mm	10 mm	100 mm	V295589	146.50	V295589-V	158.00
	.3465		8.800 mm	2.766	70.40 mm	(8x)	80.45 mm	1.82 mm	10 mm	125 mm	V682221	244.50	V682221-V	257.00
NEW	.3479	S	8.839 mm	1.042	26.52 mm	(3x)	34.40 mm	1.83 mm	10 mm	75 mm			V769820-V	127.80
NEW	.3479	S	8.839 mm	1.737	44.20 mm	(5x)	52.96 mm	1.83 mm	10 mm	100 mm	V788883	146.50	V788883-V	158.00
NEW	.3504		8.900 mm	1.049	26.70 mm	(3x)	34.64 mm	1.84 mm	10 mm	75 mm			V260713-V	127.80
	.3504		8.900 mm	1.748	44.50 mm	(5x)	53.33 mm	1.84 mm	10 mm	100 mm	V837355	146.50	V837355-V	158.00
	.3504		8.900 mm	2.798	71.20 mm	(8x)	81.36 mm	1.84 mm	10 mm	150 mm	V650588	244.50	V650588-V	258.00
NEW	.3543		9.000 mm	1.061	27.00 mm	(3x)	35.03 mm	1.86 mm	10 mm	75 mm			V330816-V	127.80
	.3543		9.000 mm	1.768	45.00 mm	(5x)	53.93 mm	1.86 mm	10 mm	100 mm	V883001	146.50	V883001-V	158.00
	.3543		9.000 mm	2.829	72.00 mm	(8x)	82.28 mm	1.86 mm	10 mm	150 mm	V158250	244.50	V158250-V	258.00

* 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	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 #	Price	Tool #	Price
.3579	T	9.093 mm	1.072	27.28 mm	(3x)	35.39 mm	1.88 mm	10 mm	75 mm			V630569-V	127.80 NEW
.3579	T	9.093 mm	1.786	45.45 mm	(5x)	54.48 mm	1.88 mm	10 mm	100 mm	V852432	146.50	V852432-V	158.00 NEW
.3583		9.100 mm	1.072	27.30 mm	(3x)	35.42 mm	1.88 mm	10 mm	75 mm			V029659-V	127.80 NEW
.3583		9.100 mm	1.788	45.50 mm	(5x)	54.53 mm	1.88 mm	10 mm	100 mm	V819645	146.50	V819645-V	158.00
.3583		9.100 mm	2.861	72.80 mm	(8x)	83.19 mm	1.88 mm	10 mm	150 mm	V132901	244.50	V132901-V	258.00
.3594 (23/64)		9.128 mm	1.076	27.38 mm	(3x)	35.53 mm	1.89 mm	10 mm	75 mm			V258548-V	127.80 NEW
.3594 (23/64)		9.128 mm	1.794	45.65 mm	(5x)	54.69 mm	1.89 mm	10 mm	100 mm	V655775	146.50	V655775-V	158.00
.3594 (23/64)		9.128 mm	2.868	73.00 mm	(8x)	83.45 mm	1.89 mm	10 mm	150 mm	V272571	244.50	V272571-V	258.00
.3622		9.200 mm	1.084	27.60 mm	(3x)	35.81 mm	1.91 mm	10 mm	75 mm			V090970-V	127.80 NEW
.3622		9.200 mm	1.807	46.00 mm	(5x)	55.13 mm	1.91 mm	10 mm	100 mm	V687657	146.50	V687657-V	158.00
.3622		9.200 mm	2.892	73.60 mm	(8x)	84.11 mm	1.91 mm	10 mm	150 mm	V871378	244.50	V871378-V	258.00
.3661		9.300 mm	1.096	27.90 mm	(3x)	36.19 mm	1.93 mm	10 mm	75 mm			V598581-V	127.80 NEW
.3661		9.300 mm	1.827	46.50 mm	(5x)	55.72 mm	1.93 mm	10 mm	100 mm	V787709	146.50	V787709-V	158.00
.3661		9.300 mm	2.923	74.40 mm	(8x)	85.02 mm	1.93 mm	10 mm	150 mm	V503354	244.50	V503354-V	258.00
.3679	U	9.347 mm	1.102	28.04 mm	(3x)	36.38 mm	1.94 mm	10 mm	75 mm			V145702-V	127.80 NEW
.3679	U	9.347 mm	1.837	46.75 mm	(5x)	56.01 mm	1.94 mm	10 mm	100 mm	V811370	146.50	V811370-V	158.00 NEW
.3701		9.400 mm	1.108	28.20 mm	(3x)	36.58 mm	1.95 mm	10 mm	75 mm			V523020-V	127.80 NEW
.3701		9.400 mm	1.847	47.00 mm	(5x)	56.32 mm	1.95 mm	10 mm	100 mm	V307018	146.50	V307018-V	158.00
.3701		9.400 mm	2.955	75.20 mm	(8x)	85.93 mm	1.95 mm	10 mm	150 mm	V207468	244.50	V207468-V	258.00
.3740		9.500 mm	1.120	28.50 mm	(3x)	36.97 mm	1.97 mm	10 mm	75 mm			V391187-V	127.80 NEW
.3740		9.500 mm	1.866	47.50 mm	(5x)	56.92 mm	1.97 mm	10 mm	100 mm	V718117	146.50	V718117-V	158.00
.3740		9.500 mm	2.986	76.00 mm	(8x)	86.85 mm	1.97 mm	10 mm	150 mm	V732216	244.50	V732216-V	258.00
.3750 (3/8)		9.525 mm	1.122	28.58 mm	(3x)	37.07 mm	1.97 mm	10 mm	75 mm			V645795-V	127.80 NEW
.3750 (3/8)		9.525 mm	1.872	47.65 mm	(5x)	57.07 mm	1.97 mm	10 mm	100 mm	V210563	146.50	V210563-V	158.00
.3750 (3/8)		9.525 mm	2.994	76.20 mm	(8x)	87.08 mm	1.97 mm	10 mm	150 mm	V224674	244.50	V224674-V	258.00
.3770	V	9.575 mm	1.128	28.73 mm	(3x)	37.27 mm	1.98 mm	10 mm	75 mm			V681972-V	127.80 NEW
.3770	V	9.575 mm	1.882	47.90 mm	(5x)	57.37 mm	1.98 mm	10 mm	100 mm	V195378	146.50	V195378-V	158.00 NEW
.3780		9.600 mm	1.131	28.80 mm	(3x)	37.36 mm	1.99 mm	10 mm	75 mm			V161354-V	127.80 NEW
.3780		9.600 mm	1.886	48.00 mm	(5x)	57.52 mm	1.99 mm	10 mm	100 mm	V417983	146.50	V417983-V	158.00
.3780		9.600 mm	3.018	76.80 mm	(8x)	87.76 mm	1.99 mm	10 mm	150 mm	V845546	244.50	V845546-V	258.00
.3819		9.700 mm	1.143	29.10 mm	(3x)	37.75 mm	2.01 mm	10 mm	75 mm			V773539-V	127.80 NEW
.3819		9.700 mm	1.906	48.50 mm	(5x)	58.12 mm	2.01 mm	10 mm	100 mm	V211508	146.50	V211508-V	158.00
.3819		9.700 mm	3.049	77.60 mm	(8x)	88.68 mm	2.01 mm	10 mm	150 mm	V283637	244.50	V283637-V	258.00
.3858		9.800 mm	1.155	29.40 mm	(3x)	38.14 mm	2.03 mm	10 mm	75 mm			V159548-V	127.80 NEW
.3858		9.800 mm	1.925	49.00 mm	(5x)	58.72 mm	2.03 mm	10 mm	100 mm	V183783	146.50	V183783-V	158.00
.3858		9.800 mm	3.081	78.40 mm	(8x)	89.59 mm	2.03 mm	10 mm	150 mm	V456526	244.50	V456526-V	258.00
.3859	W	9.804 mm	1.155	29.41 mm	(3x)	38.16 mm	2.03 mm	10 mm	75 mm			V403914-V	127.80 NEW
.3859	W	9.804 mm	1.925	49.00 mm	(5x)	58.75 mm	2.03 mm	10 mm	100 mm	V437927	146.50	V437927-V	158.00 NEW

* For h6 and h8 tolerances, see page 8.

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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 #	Price	Tool #	Price
NEW	.3898		9.900 mm	1.167	29.70 mm	(3x)	38.53 mm	2.05 mm	10 mm	75 mm			V197695-V	127.80
	.3898		9.900 mm	1.945	49.50 mm	(5x)	59.32 mm	2.05 mm	10 mm	100 mm	V828417	146.50	V828417-V	158.00
	.3898		9.900 mm	3.112	79.20 mm	(8x)	90.51 mm	2.05 mm	10 mm	150 mm	V591316	244.50	V591316-V	258.00
NEW	.3906 (25/64)		9.921 mm	1.169	29.76 mm	(3x)	38.61 mm	2.05 mm	10 mm	100 mm			V245767-V	128.30
	.3906 (25/64)		9.921 mm	1.949	49.60 mm	(5x)	59.45 mm	2.05 mm	10 mm	100 mm	V206750	146.50	V206750-V	158.00
	.3906 (25/64)		9.921 mm	3.118	79.35 mm	(8x)	90.70 mm	2.05 mm	10 mm	150 mm	V592921	244.50	V592921-V	258.00
NEW	.3937		10.000 mm	1.179	30.00 mm	(3x)	38.92 mm	2.07 mm	12 mm	100 mm			V289395-V	132.70
	.3937		10.000 mm	1.965	50.00 mm	(5x)	59.92 mm	2.07 mm	12 mm	125 mm	V510346	146.50	V510346-V	163.50
	.3937		10.000 mm	3.144	80.00 mm	(8x)	91.42 mm	2.07 mm	12 mm	150 mm	V906154	244.50	V906154-V	263.00
NEW	.3969	X	10.083 mm	1.188	30.25 mm	(3x)	39.24 mm	2.09 mm	12 mm	100 mm			V426173-V	173.60
NEW	.3969	X	10.083 mm	1.980	50.40 mm	(5x)	60.42 mm	2.09 mm	12 mm	125 mm	V370331	206.00	V370331-V	223.00
NEW	.3976		10.100 mm	1.190	30.30 mm	(3x)	39.31 mm	2.09 mm	12 mm	100 mm			V484703-V	173.60
	.3976		10.100 mm	1.984	50.50 mm	(5x)	60.52 mm	2.09 mm	12 mm	125 mm	V393209	206.00	V393209-V	223.00
	.3976		10.100 mm	3.175	80.80 mm	(8x)	92.33 mm	2.09 mm	12 mm	150 mm	V912984	323.50	V912984-V	342.00
NEW	.4016		10.200 mm	1.202	30.60 mm	(3x)	39.70 mm	2.11 mm	12 mm	100 mm			V083994-V	173.60
	.4016		10.200 mm	2.004	51.00 mm	(5x)	61.12 mm	2.11 mm	12 mm	125 mm	V241050	206.00	V241050-V	223.00
	.4016		10.200 mm	3.206	81.60 mm	(8x)	93.25 mm	2.11 mm	12 mm	150 mm	V781707	323.50	V781707-V	342.00
NEW	.4039	Y	10.261 mm	1.209	30.78 mm	(3x)	39.94 mm	2.13 mm	12 mm	100 mm			V186932-V	173.60
NEW	.4039	Y	10.261 mm	2.016	51.30 mm	(5x)	61.48 mm	2.13 mm	12 mm	125 mm	V417796	206.00	V417796-V	223.00
NEW	.4055		10.300 mm	1.214	30.90 mm	(3x)	40.09 mm	2.13 mm	12 mm	100 mm			V825264-V	173.60
	.4055		10.300 mm	2.023	51.50 mm	(5x)	61.72 mm	2.13 mm	12 mm	125 mm	V693701	206.00	V693701-V	223.00
	.4055		10.300 mm	3.238	82.40 mm	(8x)	94.16 mm	2.13 mm	12 mm	150 mm	V507787	323.50	V507787-V	342.00
NEW	.4062 (13/32)		10.317 mm	1.216	30.95 mm	(3x)	40.15 mm	2.14 mm	12 mm	100 mm			V287054-V	173.60
	.4062 (13/32)		10.317 mm	2.027	51.60 mm	(5x)	61.82 mm	2.14 mm	12 mm	125 mm	V426663	206.00	V426663-V	223.00
	.4062 (13/32)		10.317 mm	3.244	82.55 mm	(8x)	94.32 mm	2.14 mm	12 mm	150 mm	V165261	323.50	V165261-V	342.00
NEW	.4094		10.400 mm	1.226	31.20 mm	(3x)	40.48 mm	2.15 mm	12 mm	100 mm			V642336-V	173.60
	.4094		10.400 mm	2.043	52.00 mm	(5x)	62.32 mm	2.15 mm	12 mm	125 mm	V805959	206.00	V805959-V	223.00
	.4094		10.400 mm	3.269	83.20 mm	(8x)	95.08 mm	2.15 mm	12 mm	150 mm	V585515	323.50	V585515-V	342.00
NEW	.4129	Z	10.490 mm	1.236	31.47 mm	(3x)	40.83 mm	2.17 mm	12 mm	100 mm			V832098-V	173.60
NEW	.4129	Z	10.490 mm	2.061	52.45 mm	(5x)	62.86 mm	2.17 mm	12 mm	125 mm	V262198	206.00	V262198-V	223.00
NEW	.4134		10.500 mm	1.237	31.50 mm	(3x)	40.87 mm	2.17 mm	12 mm	100 mm			V897877-V	173.60
	.4134		10.500 mm	2.063	52.50 mm	(5x)	62.92 mm	2.17 mm	12 mm	125 mm	V891328	206.00	V891328-V	223.00
	.4134		10.500 mm	3.301	84.00 mm	(8x)	95.99 mm	2.17 mm	12 mm	150 mm	V656520	323.50	V656520-V	342.00
NEW	.4173		10.600 mm	1.249	31.80 mm	(3x)	41.26 mm	2.20 mm	12 mm	100 mm			V794597-V	173.60
	.4173		10.600 mm	2.082	53.00 mm	(5x)	63.52 mm	2.20 mm	12 mm	125 mm	V811500	206.00	V811500-V	223.00
	.4173		10.600 mm	3.332	84.80 mm	(8x)	96.91 mm	2.20 mm	12 mm	150 mm	V517271	323.50	V517271-V	342.00
NEW	.4213		10.700 mm	1.261	32.10 mm	(3x)	41.64 mm	2.22 mm	12 mm	100 mm			V807669-V	173.60
	.4213		10.700 mm	2.102	53.50 mm	(5x)	64.11 mm	2.22 mm	12 mm	125 mm	V980072	206.00	V980072-V	223.00
	.4213		10.700 mm	3.364	85.60 mm	(8x)	97.82 mm	2.22 mm	12 mm	150 mm	V352223	323.50	V352223-V	342.00

* 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 #	Price	Tool #	Price
.4219 (27/64)		10.716 mm	1.263	32.15 mm	(3x)	41.71 mm	2.22 mm	12 mm	100 mm			V187034-V	173.60 NEW
.4219 (27/64)		10.716 mm	2.106	53.60 mm	(5x)	64.21 mm	2.22 mm	12 mm	125 mm	V422407	206.00	V422407-V	223.00
.4219 (27/64)		10.716 mm	3.369	85.75 mm	(8x)	97.97 mm	2.22 mm	12 mm	150 mm	V628625	323.50	V628625-V	342.00
.4252		10.800 mm	1.273	32.40 mm	(3x)	42.03 mm	2.24 mm	12 mm	100 mm			V643097-V	173.60 NEW
.4252		10.800 mm	2.122	54.00 mm	(5x)	64.71 mm	2.24 mm	12 mm	125 mm	V433000	206.00	V433000-V	223.00
.4252		10.800 mm	3.395	86.40 mm	(8x)	98.73 mm	2.24 mm	12 mm	150 mm	V876124	323.50	V876124-V	342.00
.4291		10.900 mm	1.285	32.70 mm	(3x)	42.42 mm	2.26 mm	12 mm	100 mm			V178979-V	173.60 NEW
.4291		10.900 mm	2.141	54.50 mm	(5x)	65.31 mm	2.26 mm	12 mm	125 mm	V507576	206.00	V507576-V	223.00
.4291		10.900 mm	3.426	87.20 mm	(8x)	99.65 mm	2.26 mm	12 mm	175 mm	V959173	323.50	V959173-V	343.50
.4331		11.000 mm	1.296	33.00 mm	(3x)	42.81 mm	2.28 mm	12 mm	100 mm			V702251-V	173.60 NEW
.4331		11.000 mm	2.161	55.00 mm	(5x)	65.91 mm	2.28 mm	12 mm	125 mm	V216634	206.00	V216634-V	223.00
.4331		11.000 mm	3.458	88.00 mm	(8x)	100.56 mm	2.28 mm	12 mm	175 mm	V705619	323.50	V705619-V	343.50
.4370		11.100 mm	1.308	33.30 mm	(3x)	43.20 mm	2.30 mm	12 mm	100 mm			V794183-V	173.60 NEW
.4370		11.100 mm	2.181	55.50 mm	(5x)	66.51 mm	2.30 mm	12 mm	125 mm	V838445	206.00	V838445-V	223.00
.4370		11.100 mm	3.489	88.80 mm	(8x)	101.48 mm	2.30 mm	12 mm	175 mm	V554353	323.50	V554353-V	343.50
.4375 (7/16)		11.112 mm	1.310	33.34 mm	(3x)	43.25 mm	2.30 mm	12 mm	100 mm			V559493-V	173.60 NEW
.4375 (7/16)		11.112 mm	2.183	55.55 mm	(5x)	66.58 mm	2.30 mm	12 mm	125 mm	V258691	206.00	V258691-V	223.00
.4375 (7/16)		11.112 mm	3.493	88.90 mm	(8x)	101.59 mm	2.30 mm	12 mm	175 mm	V865610	323.50	V865610-V	343.50
.4409		11.200 mm	1.320	33.60 mm	(3x)	43.59 mm	2.32 mm	12 mm	100 mm			V665834-V	173.60 NEW
.4409		11.200 mm	2.200	56.00 mm	(5x)	67.11 mm	2.32 mm	12 mm	125 mm	V837182	206.00	V837182-V	223.00
.4409		11.200 mm	3.521	89.60 mm	(8x)	102.39 mm	2.32 mm	12 mm	175 mm	V638291	323.50	V638291-V	343.50
.4449		11.300 mm	1.332	33.90 mm	(3x)	43.98 mm	2.34 mm	12 mm	100 mm			V675652-V	173.60 NEW
.4449		11.300 mm	2.220	56.50 mm	(5x)	67.71 mm	2.34 mm	12 mm	125 mm	V104347	206.00	V104347-V	223.00
.4449		11.300 mm	3.552	90.40 mm	(8x)	103.30 mm	2.34 mm	12 mm	175 mm	V923125	323.50	V923125-V	343.50
.4488		11.400 mm	1.344	34.20 mm	(3x)	44.37 mm	2.36 mm	12 mm	100 mm			V967508-V	173.60 NEW
.4488		11.400 mm	2.240	57.00 mm	(5x)	68.31 mm	2.36 mm	12 mm	125 mm	V145663	206.00	V145663-V	223.00
.4488		11.400 mm	3.584	91.20 mm	(8x)	104.22 mm	2.36 mm	12 mm	175 mm	V218282	323.50	V218282-V	343.50
.4527		11.500 mm	1.355	34.50 mm	(3x)	44.76 mm	2.38 mm	12 mm	100 mm			V170874-V	173.60 NEW
.4527		11.500 mm	2.259	57.50 mm	(5x)	68.91 mm	2.38 mm	12 mm	125 mm	V845377	206.00	V845377-V	223.00
.4527		11.500 mm	3.615	92.00 mm	(8x)	105.13 mm	2.38 mm	12 mm	175 mm	V679783	323.50	V679783-V	343.50
.4531 (29/64)		11.508 mm	1.356	34.52 mm	(3x)	44.79 mm	2.38 mm	12 mm	100 mm			V229337-V	173.60 NEW
.4531 (29/64)		11.508 mm	2.261	57.55 mm	(5x)	68.96 mm	2.38 mm	12 mm	125 mm	V520815	206.00	V520815-V	223.00
.4531 (29/64)		11.508 mm	3.617	92.05 mm	(8x)	105.21 mm	2.38 mm	12 mm	175 mm	V960077	323.50	V960077-V	343.50
.4567		11.600 mm	1.367	34.80 mm	(3x)	45.15 mm	2.40 mm	12 mm	100 mm			V426961-V	173.60 NEW
.4567		11.600 mm	2.279	58.00 mm	(5x)	69.51 mm	2.40 mm	12 mm	125 mm	V214907	206.00	V214907-V	223.00
.4567		11.600 mm	3.647	92.80 mm	(8x)	106.05 mm	2.40 mm	12 mm	175 mm	V307195	323.50	V307195-V	343.50
.4606		11.700 mm	1.379	35.10 mm	(3x)	45.54 mm	2.42 mm	12 mm	100 mm			V674164-V	173.60 NEW
.4606		11.700 mm	2.299	58.50 mm	(5x)	70.11 mm	2.42 mm	12 mm	125 mm	V858509	206.00	V858509-V	223.00
.4606		11.700 mm	3.678	93.60 mm	(8x)	106.96 mm	2.42 mm	12 mm	175 mm	V313087	323.50	V313087-V	343.50

* 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 #	Price	Tool #	Price
NEW	.4646		11.800 mm	1.391	35.40 mm	(3x)	45.93 mm	2.44 mm	12 mm	100 mm			V950044-V	173.60
	.4646		11.800 mm	2.318	59.00 mm	(5x)	70.71 mm	2.44 mm	12 mm	125 mm	V216870	206.00	V216870-V	223.00
	.4646		11.800 mm	3.709	94.40 mm	(8x)	107.88 mm	2.44 mm	12 mm	175 mm	V902922	323.50	V902922-V	343.50
NEW	.4685		11.900 mm	1.403	35.70 mm	(3x)	46.32 mm	2.46 mm	12 mm	100 mm			V987332-V	173.60
	.4685		11.900 mm	2.338	59.50 mm	(5x)	71.31 mm	2.46 mm	12 mm	125 mm	V722943	206.00	V722943-V	223.00
	.4685		11.900 mm	3.741	95.20 mm	(8x)	108.79 mm	2.46 mm	12 mm	175 mm	V889227	323.50	V889227-V	343.50
NEW	.4688 (15/32)		11.907 mm	1.403	35.72 mm	(3x)	46.34 mm	2.47 mm	12 mm	100 mm			V204593-V	173.60
	.4688 (15/32)		11.907 mm	2.340	59.55 mm	(5x)	71.35 mm	2.47 mm	12 mm	125 mm	V715708	206.00	V715708-V	223.00
	.4688 (15/32)		11.907 mm	3.743	95.25 mm	(8x)	108.85 mm	2.47 mm	12 mm	175 mm	V209677	323.50	V209677-V	343.50
NEW	.4724		12.000 mm	1.414	36.00 mm	(3x)	46.70 mm	2.49 mm	14 mm	100 mm			V399399-V	176.20
	.4724		12.000 mm	2.358	60.00 mm	(5x)	71.90 mm	2.49 mm	14 mm	125 mm	V312296	206.00	V312296-V	225.50
	.4724		12.000 mm	3.772	96.00 mm	(8x)	109.70 mm	2.49 mm	14 mm	175 mm	V339609	323.50	V339609-V	346.50
NEW	.4764		12.100 mm	1.426	36.30 mm	(3x)	47.09 mm	2.51 mm	14 mm	100 mm			V599386-V	193.70
	.4764		12.100 mm	2.377	60.50 mm	(5x)	72.50 mm	2.51 mm	14 mm	125 mm	V904889	284.00	V904889-V	303.50
	.4764		12.100 mm	3.804	96.80 mm	(8x)	110.62 mm	2.51 mm	14 mm	175 mm	V264702	437.50	V264702-V	460.50
NEW	.4803		12.200 mm	1.438	36.60 mm	(3x)	47.48 mm	2.53 mm	14 mm	100 mm			V624214-V	193.70
	.4803		12.200 mm	2.397	61.00 mm	(5x)	73.10 mm	2.53 mm	14 mm	125 mm	V727024	284.00	V727024-V	303.50
	.4803		12.200 mm	3.835	97.60 mm	(8x)	111.53 mm	2.53 mm	14 mm	175 mm	V954879	437.50	V954879-V	460.50
NEW	.4843		12.300 mm	1.450	36.90 mm	(3x)	47.87 mm	2.55 mm	14 mm	100 mm			V571635-V	193.70
	.4843		12.300 mm	2.416	61.50 mm	(5x)	73.70 mm	2.55 mm	14 mm	125 mm	V804318	284.00	V804318-V	303.50
	.4843		12.300 mm	3.867	98.40 mm	(8x)	112.45 mm	2.55 mm	14 mm	175 mm	V559229	437.50	V559229-V	460.50
NEW	.4882 (31/64)		12.400 mm	1.461	37.20 mm	(3x)	48.26 mm	2.57 mm	14 mm	100 mm			V937094-V	193.70
	.4882 (31/64)		12.400 mm	2.436	62.00 mm	(5x)	74.30 mm	2.57 mm	14 mm	125 mm	V680043	284.00	V680043-V	303.50
	.4882 (31/64)		12.400 mm	3.898	99.20 mm	(8x)	113.36 mm	2.57 mm	14 mm	175 mm	V597636	437.50	V597636-V	460.50
NEW	.4921		12.500 mm	1.473	37.50 mm	(3x)	48.65 mm	2.59 mm	14 mm	100 mm			V065955-V	193.70
	.4921		12.500 mm	2.456	62.50 mm	(5x)	74.90 mm	2.59 mm	14 mm	125 mm	V396773	284.00	V396773-V	303.50
	.4921		12.500 mm	3.930	100.00 mm	(8x)	114.28 mm	2.59 mm	14 mm	175 mm	V576237	437.50	V576237-V	460.50
NEW	.4961		12.600 mm	1.485	37.80 mm	(3x)	49.04 mm	2.61 mm	14 mm	100 mm			V196713-V	193.70
	.4961		12.600 mm	2.475	63.00 mm	(5x)	75.50 mm	2.61 mm	14 mm	125 mm	V560508	284.00	V560508-V	303.50
	.4961		12.600 mm	3.961	100.80 mm	(8x)	115.19 mm	2.61 mm	14 mm	175 mm	V511270	437.50	V511270-V	460.50
NEW	.5000 (1/2)		12.700 mm	1.497	38.10 mm	(3x)	49.43 mm	2.63 mm	14 mm	100 mm			V312578-V	193.70
	.5000 (1/2)		12.700 mm	2.495	63.50 mm	(5x)	76.10 mm	2.63 mm	14 mm	125 mm	V346191	284.00	V346191-V	303.50
	.5000 (1/2)		12.700 mm	3.992	101.60 mm	(8x)	116.10 mm	2.63 mm	14 mm	175 mm	V190634	437.50	V190634-V	460.50

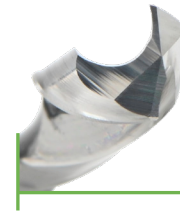
* For h6 and h8 tolerances, see page 8.





High Performance Drills

For Aluminum & Aluminum Alloys – Pilot Drills



4-Facet
Geometry Improves
Self-Centering

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					Tool #	Price
		D1 +0.005mm +0.013mm		L2		L3	L4	D2 (h6)*	L1		
.0625 (1/16)		1.587 mm	.187	4.764 mm	(3x)	6.410 mm	.329 mm	3 mm	63 mm	V458626-V	65.00 NEW
.0630		1.600 mm	.188	4.800 mm	(3x)	6.458 mm	.331 mm	3 mm	63 mm	V051849-V	65.00 NEW
.0635	#52	1.612 mm	.190	4.836 mm	(3x)	6.508 mm	.334 mm	3 mm	63 mm	V944412-V	65.00 NEW
.0669	#51	1.700 mm	.200	5.100 mm	(3x)	6.869 mm	.352 mm	3 mm	63 mm	V484514-V	65.00 NEW
.0700	#50	1.778 mm	.209	5.334 mm	(3x)	7.188 mm	.368 mm	3 mm	63 mm	V744721-V	65.00 NEW
.0708		1.800 mm	.212	5.400 mm	(3x)	7.279 mm	.373 mm	3 mm	63 mm	V954481-V	65.00 NEW
.0730	#49	1.854 mm	.218	5.562 mm	(3x)	7.500 mm	.384 mm	3 mm	63 mm	V901336-V	65.00 NEW
.0748		1.900 mm	.224	5.700 mm	(3x)	7.690 mm	.394 mm	3 mm	63 mm	V813801-V	65.00 NEW
.0760	#48	1.930 mm	.227	5.790 mm	(3x)	7.812 mm	.400 mm	3 mm	63 mm	V937161-V	65.00 NEW
.0781 (5/64)		1.984 mm	.233	5.953 mm	(3x)	8.035 mm	.411 mm	3 mm	63 mm	V008120-V	65.00 NEW
.0785	#47	1.993 mm	.234	5.979 mm	(3x)	8.070 mm	.413 mm	3 mm	63 mm	V387681-V	65.00 NEW
.0787		2.000 mm	.235	6.000 mm	(3x)	8.098 mm	.414 mm	3 mm	63 mm	V639954-V	65.00 NEW
.0810	#46	2.057 mm	.242	6.171 mm	(3x)	8.332 mm	.426 mm	3 mm	63 mm	V674940-V	65.00 NEW
.0820	#45	2.082 mm	.245	6.246 mm	(3x)	8.434 mm	.431 mm	3 mm	63 mm	V340272-V	65.00 NEW
.0826		2.100 mm	.247	6.300 mm	(3x)	8.509 mm	.435 mm	3 mm	63 mm	V983413-V	65.00 NEW
.0860	#44	2.184 mm	.257	6.552 mm	(3x)	8.852 mm	.452 mm	3 mm	63 mm	V594959-V	65.00 NEW
.0866		2.200 mm	.259	6.600 mm	(3x)	8.919 mm	.456 mm	3 mm	63 mm	V117359-V	65.00 NEW
.0890	#43	2.260 mm	.266	6.780 mm	(3x)	9.164 mm	.468 mm	3 mm	63 mm	V236916-V	65.00 NEW
.0905		2.300 mm	.271	6.900 mm	(3x)	9.328 mm	.476 mm	3 mm	63 mm	V152442-V	65.00 NEW
.0935	#42	2.374 mm	.279	7.122 mm	(3x)	9.633 mm	.492 mm	3 mm	63 mm	V193528-V	65.00 NEW

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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 #	Price
NEW	.0937 (3/32)		2.381 mm	.280	7.143 mm	(3x)	9.660 mm	.493 mm	3 mm	63 mm	V492791-V	65.00
NEW	.0944		2.400 mm	.282	7.200 mm	(3x)	9.738 mm	.497 mm	3 mm	63 mm	V420577-V	65.00
NEW	.0960	#41	2.438 mm	.287	7.314 mm	(3x)	9.894 mm	.505 mm	3 mm	63 mm	V325738-V	65.00
NEW	.0980	#40	2.489 mm	.293	7.467 mm	(3x)	10.102 mm	.515 mm	3 mm	63 mm	V378369-V	65.00
NEW	.0984		2.500 mm	.294	7.500 mm	(3x)	10.149 mm	.518 mm	3 mm	63 mm	V471766-V	65.00
NEW	.0995	#39	2.527 mm	.297	7.581 mm	(3x)	10.258 mm	.523 mm	3 mm	63 mm	V820933-V	65.00
NEW	.1015	#38	2.578 mm	.303	7.734 mm	(3x)	10.468 mm	.534 mm	3 mm	63 mm	V258840-V	65.00
NEW	.1023		2.600 mm	.306	7.800 mm	(3x)	10.557 mm	.538 mm	3 mm	63 mm	V445631-V	65.00
NEW	.1040	#37	2.641 mm	.311	7.923 mm	(3x)	10.727 mm	.547 mm	3 mm	63 mm	V724470-V	65.00
NEW	.1062		2.700 mm	.318	8.100 mm	(3x)	10.968 mm	.559 mm	3 mm	63 mm	V943398-V	65.00
NEW	.1065	#36	2.705 mm	.318	8.115 mm	(3x)	10.988 mm	.560 mm	3 mm	63 mm	V063704-V	65.00
NEW	.1093 (7/64)		2.778 mm	.327	8.334 mm	(3x)	11.287 mm	.575 mm	3 mm	63 mm	V205869-V	65.00
NEW	.1100	#35	2.794 mm	.329	8.382 mm	(3x)	11.354 mm	.579 mm	3 mm	63 mm	V737537-V	65.00
NEW	.1102		2.800 mm	.330	8.400 mm	(3x)	11.379 mm	.580 mm	3 mm	63 mm	V064456-V	65.00
NEW	.1110	#34	2.819 mm	.332	8.457 mm	(3x)	11.457 mm	.584 mm	3 mm	63 mm	V456898-V	65.00
NEW	.1130	#33	2.870 mm	.338	8.610 mm	(3x)	11.664 mm	.594 mm	3 mm	63 mm	V582091-V	65.00
NEW	.1141		2.900 mm	.341	8.700 mm	(3x)	11.789 mm	.601 mm	3 mm	63 mm	V244320-V	65.00
NEW	.1160	#32	2.946 mm	.347	8.838 mm	(3x)	11.977 mm	.610 mm	3 mm	63 mm	V694716-V	65.00
NEW	.1181		3.000 mm	.353	9.000 mm	(3x)	12.198 mm	.621 mm	4 mm	63 mm	V065889-V	65.00
NEW	.1200	#31	3.048 mm	.359	9.144 mm	(3x)	12.394 mm	.631 mm	4 mm	63 mm	V103193-V	65.00
NEW	.1220		3.100 mm	.365	9.300 mm	(3x)	12.608 mm	.642 mm	4 mm	63 mm	V386809-V	65.00
NEW	.1250 (1/8)		3.175 mm	.374	9.525 mm	(3x)	12.917 mm	.658 mm	4 mm	63 mm	V418253-V	65.00
NEW	.1260		3.200 mm	.377	9.600 mm	(3x)	13.019 mm	.663 mm	4 mm	63 mm	V588882-V	65.00
NEW	.1285	#30	3.263 mm	.384	9.789 mm	(3x)	13.277 mm	.676 mm	4 mm	63 mm	V553542-V	65.00
NEW	.1300		3.300 mm	.389	9.900 mm	(3x)	13.427 mm	.683 mm	4 mm	63 mm	V566373-V	65.00
NEW	.1338		3.400 mm	.400	10.200 mm	(3x)	13.838 mm	.704 mm	4 mm	63 mm	V716833-V	65.00
NEW	.1360	#29	3.454 mm	.407	10.362 mm	(3x)	14.059 mm	.715 mm	4 mm	63 mm	V338904-V	65.00
NEW	.1377		3.500 mm	.412	10.500 mm	(3x)	14.248 mm	.725 mm	4 mm	63 mm	V099276-V	65.00
NEW	.1406 (9/64)		3.571 mm	.421	10.713 mm	(3x)	14.540 mm	.740 mm	4 mm	63 mm	V855494-V	65.00
NEW	.1417		3.600 mm	.424	10.800 mm	(3x)	14.659 mm	.746 mm	4 mm	63 mm	V562361-V	65.00
NEW	.1440	#27	3.657 mm	.431	10.971 mm	(3x)	14.891 mm	.757 mm	4 mm	63 mm	V800899-V	65.00
NEW	.1456		3.700 mm	.436	11.100 mm	(3x)	15.067 mm	.766 mm	4 mm	63 mm	V115601-V	65.00
NEW	.1470	#26	3.733 mm	.440	11.199 mm	(3x)	15.203 mm	.773 mm	4 mm	63 mm	V676338-V	65.00
NEW	.1495	#25	3.797 mm	.447	11.391 mm	(3x)	15.465 mm	.786 mm	4 mm	63 mm	V620544-V	65.00
NEW	.1496		3.800 mm	.448	11.400 mm	(3x)	15.478 mm	.787 mm	4 mm	63 mm	V227035-V	65.00
NEW	.1520	#24	3.860 mm	.455	11.580 mm	(3x)	15.723 mm	.799 mm	4 mm	63 mm	V199002-V	65.00

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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 #	Price
.1535		3.900 mm	.459	11.700 mm	(3x)	15.888 mm	.808 mm	4 mm	63 mm	V416708-V	65.00
.1540	#23	3.911 mm	.461	11.733 mm	(3x)	15.933 mm	.810 mm	4 mm	63 mm	V553952-V	65.00
.1562 (5/32)		3.968 mm	.467	11.904 mm	(3x)	16.167 mm	.822 mm	4 mm	63 mm	V913887-V	65.00
.1570	#22	3.987 mm	.470	11.961 mm	(3x)	16.245 mm	.826 mm	6 mm	63 mm	V749740-V	68.10
.1574		4.000 mm	.471	12.000 mm	(3x)	16.297 mm	.828 mm	6 mm	63 mm	V901121-V	68.10
.1590	#21	4.038 mm	.476	12.114 mm	(3x)	16.453 mm	.836 mm	6 mm	63 mm	V027671-V	68.10
.1610	#20	4.089 mm	.482	12.267 mm	(3x)	16.663 mm	.847 mm	6 mm	63 mm	V641258-V	68.10
.1614		4.100 mm	.483	12.300 mm	(3x)	16.707 mm	.849 mm	6 mm	63 mm	V898128-V	68.10
.1653		4.200 mm	.495	12.600 mm	(3x)	17.118 mm	.870 mm	6 mm	63 mm	V106381-V	68.10
.1660	#19	4.216 mm	.497	12.648 mm	(3x)	17.183 mm	.873 mm	6 mm	63 mm	V571579-V	68.10
.1692		4.300 mm	.506	12.900 mm	(3x)	17.529 mm	.891 mm	6 mm	63 mm	V420107-V	68.10
.1695	#18	4.305 mm	.507	12.915 mm	(3x)	17.549 mm	.892 mm	6 mm	63 mm	V864636-V	68.10
.1718 (11/64)		4.365 mm	.514	13.095 mm	(3x)	17.794 mm	.904 mm	6 mm	63 mm	V284000-V	68.10
.1730	#17	4.394 mm	.518	13.182 mm	(3x)	17.913 mm	.910 mm	6 mm	63 mm	V839238-V	68.10
.1732		4.400 mm	.518	13.200 mm	(3x)	17.937 mm	.911 mm	6 mm	63 mm	V103214-V	68.10
.1770	#16	4.495 mm	.529	13.485 mm	(3x)	18.327 mm	.931 mm	6 mm	63 mm	V807306-V	68.10
.1771		4.500 mm	.530	13.500 mm	(3x)	18.348 mm	.932 mm	6 mm	63 mm	V767553-V	68.10
.1800	#15	4.572 mm	.539	13.716 mm	(3x)	18.643 mm	.947 mm	6 mm	63 mm	V208619-V	68.10
.1811		4.600 mm	.542	13.800 mm	(3x)	18.758 mm	.953 mm	6 mm	63 mm	V328325-V	68.10
.1820	#14	4.622 mm	.544	13.866 mm	(3x)	18.847 mm	.957 mm	6 mm	63 mm	V114824-V	68.10
.1850		4.700 mm	.554	14.100 mm	(3x)	19.167 mm	.973 mm	6 mm	63 mm	V402525-V	68.10
#N/A		4.763 mm	.561	14.289 mm	(3x)	19.425 mm	.986 mm	6 mm	63 mm	V088553-V	68.10
.1890		4.800 mm	.565	14.400 mm	(3x)	19.577 mm	.994 mm	6 mm	63 mm	V288713-V	68.10
.1910	#11	4.851 mm	.571	14.553 mm	(3x)	19.787 mm	1.005 mm	6 mm	63 mm	V846941-V	68.10
.1930		4.900 mm	.577	14.700 mm	(3x)	19.988 mm	1.015 mm	6 mm	63 mm	V724943-V	68.10
.1935	#10	4.914 mm	.579	14.742 mm	(3x)	20.045 mm	1.018 mm	6 mm	63 mm	V410868-V	68.10
.1960	#9	4.978 mm	.586	14.934 mm	(3x)	20.307 mm	1.031 mm	6 mm	63 mm	V807602-V	68.10
.1968		5.000 mm	.589	15.000 mm	(3x)	20.398 mm	1.036 mm	6 mm	63 mm	V335851-V	68.10
.1990	#8	5.054 mm	.595	15.162 mm	(3x)	20.619 mm	1.047 mm	6 mm	63 mm	V579484-V	68.10
.2007		5.100 mm	.601	15.300 mm	(3x)	20.807 mm	1.056 mm	6 mm	63 mm	V589265-V	71.80
.2009	#7	5.105 mm	.601	15.315 mm	(3x)	20.827 mm	1.057 mm	6 mm	63 mm	V581245-V	71.80
.2031 (13/64)		5.159 mm	.608	15.477 mm	(3x)	21.048 mm	1.068 mm	6 mm	63 mm	V748735-V	71.80
.2040	#6	5.181 mm	.610	15.543 mm	(3x)	21.139 mm	1.073 mm	6 mm	63 mm	V596663-V	71.80
.2047		5.200 mm	.613	15.600 mm	(3x)	21.217 mm	1.077 mm	6 mm	63 mm	V097296-V	71.80
.2055	#5	5.219 mm	.615	15.657 mm	(3x)	21.295 mm	1.081 mm	6 mm	63 mm	V481995-V	71.80

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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 #	Price
NEW	.2086		5.300 mm	.624	15.900 mm	(3x)	21.628 mm	1.098 mm	6 mm	63 mm	V558286-V	71.80
NEW	.2090	#4	5.308 mm	.625	15.924 mm	(3x)	21.659 mm	1.099 mm	6 mm	63 mm	V674180-V	71.80
NEW	.2125		5.400 mm	.636	16.200 mm	(3x)	22.036 mm	1.118 mm	6 mm	63 mm	V865361-V	71.80
NEW	.2129	#3	5.410 mm	.637	16.230 mm	(3x)	22.077 mm	1.120 mm	6 mm	63 mm	V465690-V	71.80
NEW	.2165		5.500 mm	.648	16.500 mm	(3x)	22.447 mm	1.139 mm	6 mm	63 mm	V568878-V	71.80
NEW	.2187 (7/32)		5.556 mm	.655	16.668 mm	(3x)	22.677 mm	1.151 mm	6 mm	63 mm	V263148-V	71.80
NEW	.2205		5.600 mm	.660	16.800 mm	(3x)	22.858 mm	1.160 mm	6 mm	63 mm	V474787-V	71.80
NEW	.2210	#2	5.613 mm	.661	16.839 mm	(3x)	22.909 mm	1.162 mm	6 mm	63 mm	V503997-V	71.80
NEW	.2244		5.700 mm	.672	17.100 mm	(3x)	23.268 mm	1.181 mm	6 mm	63 mm	V254088-V	71.80
NEW	.2280	#1	5.791 mm	.682	17.373 mm	(3x)	23.639 mm	1.199 mm	6 mm	63 mm	V315466-V	71.80
NEW	.2283		5.800 mm	.683	17.400 mm	(3x)	23.677 mm	1.201 mm	6 mm	63 mm	V356303-V	71.80
NEW	.2322		5.900 mm	.695	17.700 mm	(3x)	24.087 mm	1.222 mm	6 mm	63 mm	V391569-V	71.80
NEW	.2340	A	5.943 mm	.700	17.829 mm	(3x)	24.264 mm	1.231 mm	6 mm	63 mm	V239595-V	71.80
NEW	.2343 (15/64)		5.953 mm	.701	17.859 mm	(3x)	24.304 mm	1.233 mm	6 mm	63 mm	V800362-V	71.80
NEW	.2362		6.000 mm	.707	18.000 mm	(3x)	24.498 mm	1.243 mm	8 mm	75 mm	V267137-V	83.00
NEW	.2380	B	6.045 mm	.712	18.135 mm	(3x)	24.681 mm	1.252 mm	8 mm	75 mm	V712858-V	83.00
NEW	.2401		6.100 mm	.719	18.300 mm	(3x)	24.906 mm	1.263 mm	8 mm	75 mm	V928963-V	83.00
NEW	.2420	C	6.146 mm	.724	18.438 mm	(3x)	25.096 mm	1.273 mm	8 mm	75 mm	V897943-V	83.00
NEW	.2440		6.200 mm	.730	18.600 mm	(3x)	25.317 mm	1.284 mm	8 mm	75 mm	V985047-V	83.00
NEW	.2460	D	6.248 mm	.736	18.744 mm	(3x)	25.514 mm	1.294 mm	8 mm	75 mm	V950741-V	83.00
NEW	.2480		6.300 mm	.742	18.900 mm	(3x)	25.727 mm	1.305 mm	8 mm	75 mm	V223715-V	83.00
NEW	.2500 (1/4)		6.350 mm	.748	19.050 mm	(3x)	25.932 mm	1.315 mm	8 mm	75 mm	V924252-V	83.00
NEW	.2520		6.400 mm	.754	19.200 mm	(3x)	26.136 mm	1.325 mm	8 mm	75 mm	V007268-V	83.00
NEW	.2559		6.500 mm	.766	19.500 mm	(3x)	26.546 mm	1.346 mm	8 mm	75 mm	V963679-V	83.00
NEW	.2570	F	6.528 mm	.769	19.584 mm	(3x)	26.662 mm	1.352 mm	8 mm	75 mm	V046389-V	83.00
NEW	.2598		6.600 mm	.778	19.800 mm	(3x)	26.957 mm	1.367 mm	8 mm	75 mm	V200152-V	83.00
NEW	.2609	G	6.629 mm	.781	19.887 mm	(3x)	27.076 mm	1.373 mm	8 mm	75 mm	V691416-V	83.00
NEW	.2638		6.700 mm	.789	20.100 mm	(3x)	27.367 mm	1.388 mm	8 mm	75 mm	V056975-V	83.00
NEW	.2656 (17/64)		6.746 mm	.795	20.238 mm	(3x)	27.555 mm	1.397 mm	8 mm	75 mm	V841619-V	83.00
NEW	.2659	H	6.756 mm	.796	20.268 mm	(3x)	27.596 mm	1.399 mm	8 mm	75 mm	V487063-V	83.00
NEW	.2677		6.800 mm	.801	20.400 mm	(3x)	27.776 mm	1.408 mm	8 mm	75 mm	V342842-V	83.00
NEW	.2717		6.900 mm	.813	20.700 mm	(3x)	28.186 mm	1.429 mm	8 mm	75 mm	V449547-V	83.00
NEW	.2719	I	6.908 mm	.814	20.724 mm	(3x)	28.220 mm	1.431 mm	8 mm	75 mm	V931296-V	83.00
NEW	.2756		7.000 mm	.825	21.000 mm	(3x)	28.597 mm	1.450 mm	8 mm	75 mm	V140440-V	83.00
NEW	.2769	J	7.035 mm	.829	21.105 mm	(3x)	28.740 mm	1.457 mm	8 mm	75 mm	V725889-V	83.00

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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 #	Price
.2795		7.100 mm	.837	21.300 mm	(3x)	29.006 mm	1.470 mm	8 mm	75 mm	V583032-V	83.00
.2809	K	7.137 mm	.841	21.411 mm	(3x)	29.158 mm	1.478 mm	8 mm	75 mm	V868628-V	83.00
.2812 (9/32)		7.142 mm	.842	21.426 mm	(3x)	29.178 mm	1.479 mm	8 mm	75 mm	V217626-V	83.00
.2834		7.200 mm	.848	21.600 mm	(3x)	29.416 mm	1.491 mm	8 mm	75 mm	V398105-V	83.00
.2874		7.300 mm	.860	21.900 mm	(3x)	29.827 mm	1.512 mm	8 mm	75 mm	V279932-V	83.00
.2900	L	7.366 mm	.868	22.098 mm	(3x)	30.098 mm	1.526 mm	8 mm	75 mm	V410801-V	83.00
.2913		7.400 mm	.872	22.200 mm	(3x)	30.237 mm	1.533 mm	8 mm	75 mm	V485479-V	83.00
.2950	M	7.493 mm	.883	22.479 mm	(3x)	30.618 mm	1.552 mm	8 mm	75 mm	V777580-V	83.00
.2952		7.500 mm	.884	22.500 mm	(3x)	30.646 mm	1.553 mm	8 mm	75 mm	V908748-V	83.00
.2969 (19/64)		7.541 mm	.889	22.623 mm	(3x)	30.815 mm	1.562 mm	8 mm	75 mm	V321343-V	83.00
.2992		7.600 mm	.896	22.800 mm	(3x)	31.056 mm	1.574 mm	8 mm	75 mm	V757081-V	83.00
.3020	N	7.671 mm	.904	23.013 mm	(3x)	31.348 mm	1.589 mm	8 mm	75 mm	V261069-V	83.00
.3031		7.700 mm	.907	23.100 mm	(3x)	31.467 mm	1.595 mm	8 mm	75 mm	V318644-V	83.00
.3071		7.800 mm	.919	23.400 mm	(3x)	31.875 mm	1.615 mm	8 mm	75 mm	V404642-V	83.00
.3110		7.900 mm	.931	23.700 mm	(3x)	32.286 mm	1.636 mm	8 mm	75 mm	V092027-V	83.00
#N/A		7.938 mm	.935	23.814 mm	(3x)	32.442 mm	1.644 mm	8 mm	75 mm	V838105-V	83.00
.3150		8.000 mm	.943	24.000 mm	(3x)	32.696 mm	1.657 mm	10 mm	75 mm	V228756-V	93.70
.3159	O	8.026 mm	.946	24.078 mm	(3x)	32.802 mm	1.662 mm	10 mm	75 mm	V489628-V	93.70
.3189		8.100 mm	.954	24.300 mm	(3x)	33.107 mm	1.678 mm	10 mm	75 mm	V739367-V	93.70
.3228		8.200 mm	.966	24.600 mm	(3x)	33.515 mm	1.698 mm	10 mm	75 mm	V955716-V	93.70
.3229	P	8.204 mm	.967	24.612 mm	(3x)	33.532 mm	1.699 mm	10 mm	75 mm	V829599-V	93.70
.3268		8.300 mm	.978	24.900 mm	(3x)	33.926 mm	1.719 mm	10 mm	75 mm	V920803-V	93.70
.3281 (21/64)		8.333 mm	.982	24.999 mm	(3x)	34.062 mm	1.726 mm	10 mm	75 mm	V937074-V	93.70
.3307		8.400 mm	.990	25.200 mm	(3x)	34.337 mm	1.740 mm	10 mm	75 mm	V060993-V	93.70
.3319	Q	8.432 mm	.994	25.296 mm	(3x)	34.466 mm	1.746 mm	10 mm	75 mm	V451333-V	93.70
.3346		8.500 mm	1.002	25.500 mm	(3x)	34.745 mm	1.760 mm	10 mm	75 mm	V946050-V	93.70
.3386		8.600 mm	1.013	25.800 mm	(3x)	35.156 mm	1.781 mm	10 mm	75 mm	V419120-V	93.70
.3389	R	8.610 mm	1.015	25.830 mm	(3x)	35.196 mm	1.783 mm	10 mm	75 mm	V452517-V	93.70
.3425		8.700 mm	1.025	26.100 mm	(3x)	35.566 mm	1.802 mm	10 mm	75 mm	V572097-V	93.70
.3438 (11/32)		8.732 mm	1.029	26.196 mm	(3x)	35.696 mm	1.808 mm	10 mm	75 mm	V064894-V	93.70
.3465		8.800 mm	1.037	26.400 mm	(3x)	35.977 mm	1.823 mm	10 mm	75 mm	V621535-V	93.70
.3479	S	8.839 mm	1.042	26.517 mm	(3x)	36.136 mm	1.831 mm	10 mm	75 mm	V727509-V	93.70
.3504		8.900 mm	1.049	26.700 mm	(3x)	36.385 mm	1.843 mm	10 mm	75 mm	V632579-V	93.70
.3543		9.000 mm	1.061	27.000 mm	(3x)	36.796 mm	1.864 mm	10 mm	75 mm	V594228-V	93.70
.3579	T	9.093 mm	1.072	27.279 mm	(3x)	37.176 mm	1.883 mm	10 mm	75 mm	V721337-V	93.70

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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						
			$D_1^{+0.005\text{mm}}_{+0.013\text{mm}}$		L_2		L_3	L_4	$D_2 (h6)^*$	L_1	Tool #	Price
NEW	.3583		9.100 mm	1.072	27.300 mm	(3x)	37.206 mm	1.885 mm	10 mm	75 mm	V323708-V	93.70
NEW	.3594 (23/64)		9.128 mm	1.076	27.384 mm	(3x)	37.319 mm	1.890 mm	10 mm	75 mm	V451113-V	93.70
NEW	.3622		9.200 mm	1.084	27.600 mm	(3x)	37.615 mm	1.905 mm	10 mm	75 mm	V713991-V	93.70
NEW	.3661		9.300 mm	1.096	27.900 mm	(3x)	38.025 mm	1.926 mm	10 mm	75 mm	V525767-V	93.70
NEW	.3679	U	9.347 mm	1.102	28.041 mm	(3x)	38.219 mm	1.936 mm	10 mm	75 mm	V273056-V	93.70
NEW	.3701		9.400 mm	1.108	28.200 mm	(3x)	38.436 mm	1.947 mm	10 mm	75 mm	V459157-V	93.70
NEW	.3740		9.500 mm	1.120	28.500 mm	(3x)	38.846 mm	1.968 mm	10 mm	75 mm	V598764-V	93.70
NEW	.3750 (3/8)		9.525 mm	1.122	28.575 mm	(3x)	38.949 mm	1.973 mm	10 mm	75 mm	V851522-V	93.70
NEW	.3770	V	9.575 mm	1.128	28.725 mm	(3x)	39.153 mm	1.983 mm	10 mm	75 mm	V430817-V	93.70
NEW	.3780		9.600 mm	1.131	28.800 mm	(3x)	39.255 mm	1.988 mm	10 mm	75 mm	V591250-V	93.70
NEW	.3819		9.700 mm	1.143	29.100 mm	(3x)	39.665 mm	2.009 mm	10 mm	75 mm	V166101-V	93.70
NEW	.3858		9.800 mm	1.155	29.400 mm	(3x)	40.076 mm	2.030 mm	10 mm	75 mm	V875839-V	93.70
NEW	.3859	W	9.804 mm	1.155	29.412 mm	(3x)	40.091 mm	2.030 mm	10 mm	75 mm	V207633-V	93.70
NEW	.3898		9.900 mm	1.167	29.700 mm	(3x)	40.485 mm	2.050 mm	10 mm	75 mm	V918890-V	93.70
NEW	.3906 (25/64)		9.921 mm	1.169	29.763 mm	(3x)	40.572 mm	2.055 mm	10 mm	75 mm	V096397-V	93.70
NEW	.3937		10.000 mm	1.179	30.000 mm	(3x)	40.895 mm	2.071 mm	12 mm	100 mm	V002587-V	129.00
NEW	.3969	X	10.083 mm	1.188	30.249 mm	(3x)	41.235 mm	2.088 mm	12 mm	100 mm	V817473-V	129.00
NEW	.3976		10.100 mm	1.190	30.300 mm	(3x)	41.306 mm	2.092 mm	12 mm	100 mm	V385093-V	129.00
NEW	.4016		10.200 mm	1.202	30.600 mm	(3x)	41.714 mm	2.112 mm	12 mm	100 mm	V429038-V	129.00
NEW	.4039	Y	10.261 mm	1.209	30.783 mm	(3x)	41.965 mm	2.125 mm	12 mm	100 mm	V666877-V	129.00
NEW	.4055		10.300 mm	1.214	30.900 mm	(3x)	42.125 mm	2.133 mm	12 mm	100 mm	V203780-V	129.00
NEW	.4062 (13/32)		10.317 mm	1.216	30.951 mm	(3x)	42.195 mm	2.137 mm	12 mm	100 mm	V970330-V	129.00
NEW	.4094		10.400 mm	1.226	31.200 mm	(3x)	42.535 mm	2.154 mm	12 mm	100 mm	V616669-V	129.00
NEW	.4129	Z	10.490 mm	1.236	31.470 mm	(3x)	42.905 mm	2.173 mm	12 mm	100 mm	V106038-V	129.00
NEW	.4134		10.500 mm	1.237	31.500 mm	(3x)	42.946 mm	2.175 mm	12 mm	100 mm	V833765-V	129.00
NEW	.4173		10.600 mm	1.249	31.800 mm	(3x)	43.354 mm	2.195 mm	12 mm	100 mm	V879604-V	129.00
NEW	.4213		10.700 mm	1.261	32.100 mm	(3x)	43.765 mm	2.216 mm	12 mm	100 mm	V303153-V	129.00
NEW	.4219 (27/64)		10.716 mm	1.263	32.148 mm	(3x)	43.830 mm	2.219 mm	12 mm	100 mm	V451607-V	129.00
NEW	.4252		10.800 mm	1.273	32.400 mm	(3x)	44.175 mm	2.237 mm	12 mm	100 mm	V385455-V	129.00
NEW	.4291		10.900 mm	1.285	32.700 mm	(3x)	44.584 mm	2.257 mm	12 mm	100 mm	V340534-V	129.00
NEW	.4331		11.000 mm	1.296	33.000 mm	(3x)	44.994 mm	2.278 mm	12 mm	100 mm	V609059-V	129.00
NEW	.4370		11.100 mm	1.308	33.300 mm	(3x)	45.405 mm	2.299 mm	12 mm	100 mm	V697882-V	129.00
NEW	.4375 (7/16)		11.112 mm	1.310	33.339 mm	(3x)	45.459 mm	2.302 mm	12 mm	100 mm	V752391-V	129.00
NEW	.4409		11.200 mm	1.320	33.600 mm	(3x)	45.816 mm	2.320 mm	12 mm	100 mm	V308736-V	129.00
NEW	.4449		11.300 mm	1.332	33.900 mm	(3x)	46.224 mm	2.340 mm	12 mm	100 mm	V085336-V	129.00

continued on next page





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					Tool #	Price
	D ₁	$+0.005\text{mm}$ $+0.013\text{mm}$		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁		
.4488		11.400 mm	1.344	34.200 mm	(3x)	46.635 mm	2.361 mm	12 mm	100 mm	V278802-V	129.00
.4527		11.500 mm	1.355	34.500 mm	(3x)	47.045 mm	2.382 mm	12 mm	100 mm	V359451-V	129.00
.4531 (29/64)		11.508 mm	1.356	34.524 mm	(3x)	47.077 mm	2.383 mm	12 mm	100 mm	V479130-V	129.00
.4567		11.600 mm	1.367	34.800 mm	(3x)	47.454 mm	2.402 mm	12 mm	100 mm	V369135-V	129.00
.4606		11.700 mm	1.379	35.100 mm	(3x)	47.864 mm	2.423 mm	12 mm	100 mm	V495494-V	129.00
.4646		11.800 mm	1.391	35.400 mm	(3x)	48.275 mm	2.444 mm	12 mm	100 mm	V584626-V	129.00
.4685		11.900 mm	1.403	35.700 mm	(3x)	48.685 mm	2.465 mm	12 mm	100 mm	V061982-V	129.00
.4688 (15/32)		11.907 mm	1.403	35.721 mm	(3x)	48.713 mm	2.466 mm	12 mm	100 mm	V906738-V	129.00
.4724		12.000 mm	1.414	36.000 mm	(3x)	49.094 mm	2.485 mm	14 mm	100 mm	V223074-V	177.60
.4764		12.100 mm	1.426	36.300 mm	(3x)	49.504 mm	2.506 mm	14 mm	100 mm	V283132-V	177.60
.4803		12.200 mm	1.438	36.600 mm	(3x)	49.915 mm	2.527 mm	14 mm	100 mm	V084646-V	177.60
.4843		12.300 mm	1.450	36.900 mm	(3x)	50.323 mm	2.547 mm	14 mm	100 mm	V199080-V	177.60
.4882 (31/64)		12.400 mm	1.461	37.200 mm	(3x)	50.734 mm	2.568 mm	14 mm	100 mm	V134445-V	177.60
.4921		12.500 mm	1.473	37.500 mm	(3x)	51.144 mm	2.589 mm	14 mm	100 mm	V314545-V	177.60
.4961		12.600 mm	1.485	37.800 mm	(3x)	51.555 mm	2.610 mm	14 mm	100 mm	V795498-V	177.60
.5000 (1/2)		12.700 mm	1.497	38.100 mm	(3x)	51.964 mm	2.630 mm	14 mm	100 mm	V333309-V	177.60

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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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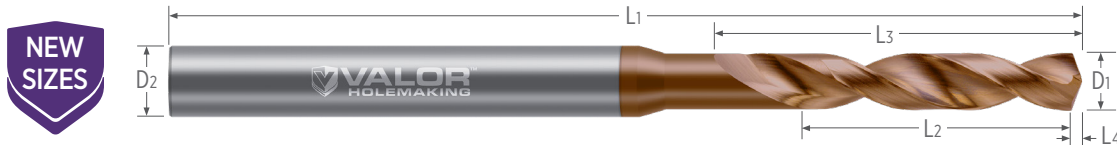
High Performance Drills

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

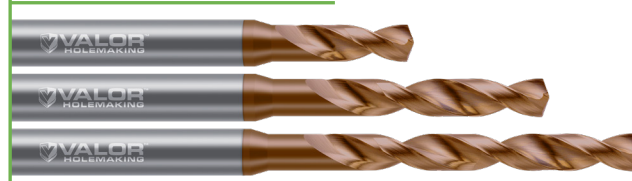


Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
inch	wire	metric	inch	metric	hole depth					Tool #	Price
D1 (h8)*			L2			L3	L4	D2 (h6)*	L1		
.0625 (1/16)		1.587 mm	.186	4.75 mm	(3x)	6.13 mm	.290 mm	3 mm	63 mm	V973517-X	66.50
.0625 (1/16)		1.587 mm	.312	7.95 mm	(5x)	9.46 mm	.290 mm	3 mm	63 mm	V296154-X	85.50
.0625 (1/16)		1.587 mm	.499	12.70 mm	(8x)	14.46 mm	.290 mm	3 mm	63 mm	V623340-X	114.50
.0630		1.600 mm	.188	4.80 mm	(3x)	6.18 mm	.290 mm	3 mm	63 mm	V957351-X	66.50
.0630		1.600 mm	.314	8.00 mm	(5x)	9.54 mm	.290 mm	3 mm	63 mm	V462279-X	85.50
.0630		1.600 mm	.503	12.80 mm	(8x)	14.58 mm	.290 mm	3 mm	63 mm	V305247-X	114.50
.0635	#52	1.612 mm	.190	4.85 mm	(3x)	6.23 mm	.290 mm	3 mm	63 mm	V825539-X	66.50
.0635	#52	1.612 mm	.316	8.05 mm	(5x)	9.61 mm	.290 mm	3 mm	63 mm	V815480-X	85.50
.0669	#51	1.700 mm	.200	5.10 mm	(3x)	6.57 mm	.310 mm	3 mm	63 mm	V868330-X	66.50
.0669	#51	1.700 mm	.334	8.50 mm	(5x)	10.14 mm	.310 mm	3 mm	63 mm	V118791-X	85.50
.0669	#51	1.700 mm	.534	13.60 mm	(8x)	15.49 mm	.310 mm	3 mm	63 mm	V896049-X	114.50
.0700	#50	1.778 mm	.210	5.35 mm	(3x)	6.87 mm	.320 mm	3 mm	63 mm	V595411-X	66.50
.0700	#50	1.778 mm	.349	8.90 mm	(5x)	10.60 mm	.320 mm	3 mm	63 mm	V331444-X	85.50
.0708		1.800 mm	.212	5.40 mm	(3x)	6.95 mm	.330 mm	3 mm	63 mm	V779567-X	66.50
.0708		1.800 mm	.353	9.00 mm	(5x)	10.73 mm	.330 mm	3 mm	63 mm	V794019-X	85.50

* 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.)

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 (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	Price
	.0708		1.800 mm	.565	14.40 mm	(8x)	16.40 mm	.330 mm	3 mm	63 mm	V178926-X	114.50
NEW	.0730	#49	1.854 mm	.218	5.55 mm	(3x)	7.16 mm	.340 mm	3 mm	63 mm	V298663-X	66.50
NEW	.0730	#49	1.854 mm	.363	9.25 mm	(5x)	11.06 mm	.340 mm	3 mm	63 mm	V013385-X	85.50
	.0748		1.900 mm	.224	5.70 mm	(3x)	7.34 mm	.350 mm	3 mm	63 mm	V185449-X	66.50
	.0748		1.900 mm	.373	9.50 mm	(5x)	11.33 mm	.350 mm	3 mm	63 mm	V249203-X	85.50
	.0748		1.900 mm	.597	15.20 mm	(8x)	17.32 mm	.350 mm	3 mm	63 mm	V483409-X	114.50
NEW	.0760	#48	1.930 mm	.227	5.80 mm	(3x)	7.46 mm	.350 mm	3 mm	63 mm	V204652-X	66.50
NEW	.0760	#48	1.930 mm	.379	9.65 mm	(5x)	11.51 mm	.350 mm	3 mm	63 mm	V465245-X	85.50
	.0781 (5/64)		1.984 mm	.233	5.95 mm	(3x)	7.67 mm	.360 mm	3 mm	63 mm	V467156-X	66.50
	.0781 (5/64)		1.984 mm	.389	9.90 mm	(5x)	11.83 mm	.360 mm	3 mm	63 mm	V224870-X	85.50
	.0781 (5/64)		1.984 mm	.622	15.85 mm	(8x)	18.08 mm	.360 mm	3 mm	63 mm	V911271-X	114.50
NEW	.0785	#47	1.993 mm	.235	6.00 mm	(3x)	7.70 mm	.360 mm	3 mm	63 mm	V242846-X	66.50
NEW	.0785	#47	1.993 mm	.391	9.95 mm	(5x)	11.89 mm	.360 mm	3 mm	63 mm	V969398-X	85.50
	.0787		2.000 mm	.235	6.00 mm	(3x)	7.73 mm	.360 mm	3 mm	63 mm	V826750-X	66.50
	.0787		2.000 mm	.393	10.00 mm	(5x)	11.93 mm	.360 mm	3 mm	63 mm	V979538-X	92.00
	.0787		2.000 mm	.628	16.00 mm	(8x)	18.23 mm	.360 mm	3 mm	63 mm	V918445-X	119.50
NEW	.0810	#46	2.057 mm	.241	6.15 mm	(3x)	7.95 mm	.370 mm	3 mm	63 mm	V250128-X	66.50
NEW	.0810	#46	2.057 mm	.404	10.30 mm	(5x)	12.27 mm	.370 mm	3 mm	63 mm	V527406-X	92.00
NEW	.0820	#45	2.082 mm	.245	6.25 mm	(3x)	8.04 mm	.380 mm	3 mm	63 mm	V102713-X	66.50
NEW	.0820	#45	2.082 mm	.408	10.40 mm	(5x)	12.42 mm	.380 mm	3 mm	63 mm	V884916-X	92.00
	.0826		2.100 mm	.247	6.30 mm	(3x)	8.11 mm	.380 mm	3 mm	63 mm	V110651-X	66.50
	.0826		2.100 mm	.412	10.50 mm	(5x)	12.52 mm	.380 mm	3 mm	63 mm	V392180-X	92.00
	.0826		2.100 mm	.660	16.80 mm	(8x)	19.14 mm	.380 mm	3 mm	63 mm	V704770-X	119.50
NEW	.0860	#44	2.184 mm	.257	6.55 mm	(3x)	8.44 mm	.400 mm	3 mm	63 mm	V623358-X	66.50
NEW	.0860	#44	2.184 mm	.428	10.90 mm	(5x)	13.02 mm	.400 mm	3 mm	63 mm	V250148-X	92.00
	.0866		2.200 mm	.259	6.60 mm	(3x)	8.50 mm	.400 mm	3 mm	63 mm	V569646-X	66.50
	.0866		2.200 mm	.432	11.00 mm	(5x)	13.12 mm	.400 mm	3 mm	63 mm	V659262-X	92.00
	.0866		2.200 mm	.691	17.60 mm	(8x)	20.05 mm	.400 mm	3 mm	63 mm	V259528-X	119.50
NEW	.0890	#43	2.260 mm	.267	6.80 mm	(3x)	8.73 mm	.410 mm	3 mm	63 mm	V808685-X	66.50
NEW	.0890	#43	2.260 mm	.444	11.30 mm	(5x)	13.48 mm	.410 mm	3 mm	63 mm	V221091-X	92.00
	.0905		2.300 mm	.271	6.90 mm	(3x)	8.89 mm	.420 mm	3 mm	63 mm	V519827-X	66.50
	.0905		2.300 mm	.451	11.50 mm	(5x)	13.72 mm	.420 mm	3 mm	63 mm	V941185-X	92.00
	.0905		2.300 mm	.723	18.40 mm	(8x)	20.96 mm	.420 mm	3 mm	63 mm	V962527-X	119.50
NEW	.0935	#42	2.374 mm	.279	7.10 mm	(3x)	9.17 mm	.430 mm	3 mm	63 mm	V985856-X	66.50
NEW	.0935	#42	2.374 mm	.465	11.85 mm	(5x)	14.16 mm	.430 mm	3 mm	63 mm	V233135-X	92.00

* 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						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	Price
.0937 (3/32)		2.381 mm	.280	7.15 mm	(3x)	9.20 mm	.430 mm	3 mm	63 mm	V964923-X	66.50
.0937 (3/32)		2.381 mm	.467	11.90 mm	(5x)	14.20 mm	.430 mm	3 mm	63 mm	V170896-X	92.00
.0937 (3/32)		2.381 mm	.748	19.05 mm	(8x)	21.70 mm	.430 mm	3 mm	63 mm	V630268-X	119.50
.0944		2.400 mm	.282	7.20 mm	(3x)	9.27 mm	.440 mm	3 mm	63 mm	V713265-X	66.50
.0944		2.400 mm	.471	12.00 mm	(5x)	14.31 mm	.440 mm	3 mm	63 mm	V766011-X	92.00
.0944		2.400 mm	.754	19.20 mm	(8x)	21.87 mm	.440 mm	3 mm	63 mm	V931255-X	119.50
.0960	#41	2.438 mm	.286	7.30 mm	(3x)	9.42 mm	.440 mm	3 mm	63 mm	V247674-X	66.50 NEW
.0960	#41	2.438 mm	.479	12.20 mm	(5x)	14.54 mm	.440 mm	3 mm	63 mm	V282589-X	92.00 NEW
.0980	#40	2.489 mm	.292	7.45 mm	(3x)	9.62 mm	.450 mm	3 mm	63 mm	V166537-X	66.50 NEW
.0980	#40	2.489 mm	.489	12.45 mm	(5x)	14.84 mm	.450 mm	3 mm	63 mm	V115909-X	92.00 NEW
.0984		2.500 mm	.294	7.50 mm	(3x)	9.66 mm	.450 mm	3 mm	63 mm	V441162-X	68.50
.0984		2.500 mm	.491	12.50 mm	(5x)	14.91 mm	.450 mm	3 mm	63 mm	V665871-X	94.50
.0984		2.500 mm	.786	20.00 mm	(8x)	22.79 mm	.450 mm	3 mm	63 mm	V753719-X	127.00
.0995	#39	2.527 mm	.298	7.60 mm	(3x)	9.76 mm	.460 mm	3 mm	63 mm	V672137-X	68.50 NEW
.0995	#39	2.527 mm	.497	12.65 mm	(5x)	15.07 mm	.460 mm	3 mm	63 mm	V220844-X	94.50 NEW
.1015	#38	2.578 mm	.304	7.75 mm	(3x)	9.96 mm	.470 mm	3 mm	63 mm	V450989-X	68.50 NEW
.1015	#38	2.578 mm	.506	12.90 mm	(5x)	15.38 mm	.470 mm	3 mm	63 mm	V246934-X	94.50 NEW
.1023		2.600 mm	.306	7.80 mm	(3x)	10.05 mm	.470 mm	3 mm	63 mm	V776161-X	68.50
.1023		2.600 mm	.510	13.00 mm	(5x)	15.51 mm	.470 mm	3 mm	63 mm	V935510-X	94.50
.1023		2.600 mm	.817	20.80 mm	(8x)	23.70 mm	.470 mm	3 mm	63 mm	V864115-X	127.00
.1040	#37	2.641 mm	.310	7.90 mm	(3x)	10.21 mm	.480 mm	3 mm	63 mm	V588494-X	68.50 NEW
.1040	#37	2.641 mm	.518	13.20 mm	(5x)	15.75 mm	.480 mm	3 mm	63 mm	V985795-X	94.50 NEW
.1062		2.700 mm	.318	8.10 mm	(3x)	10.43 mm	.490 mm	3 mm	63 mm	V375655-X	68.50
.1062		2.700 mm	.530	13.50 mm	(5x)	16.10 mm	.490 mm	3 mm	63 mm	V120072-X	94.50
.1062		2.700 mm	.848	21.60 mm	(8x)	24.61 mm	.490 mm	3 mm	63 mm	V111219-X	127.00
.1065	#36	2.705 mm	.318	8.10 mm	(3x)	10.45 mm	.490 mm	3 mm	63 mm	V764150-X	68.50 NEW
.1065	#36	2.705 mm	.532	13.55 mm	(5x)	16.13 mm	.490 mm	3 mm	63 mm	V191261-X	94.50 NEW
.1093 (7/64)		2.778 mm	.328	8.35 mm	(3x)	10.73 mm	.510 mm	3 mm	63 mm	V959991-X	68.50
.1093 (7/64)		2.778 mm	.546	13.90 mm	(5x)	16.57 mm	.510 mm	3 mm	63 mm	V610313-X	94.50
.1093 (7/64)		2.778 mm	.872	22.20 mm	(8x)	25.32 mm	.510 mm	3 mm	63 mm	V254288-X	127.00
.1100	#35	2.794 mm	.330	8.40 mm	(3x)	10.80 mm	.510 mm	3 mm	63 mm	V253432-X	68.50 NEW
.1100	#35	2.794 mm	.548	13.95 mm	(5x)	16.66 mm	.510 mm	3 mm	63 mm	V835618-X	94.50 NEW
.1102		2.800 mm	.330	8.40 mm	(3x)	10.82 mm	.510 mm	3 mm	63 mm	V113654-X	68.50
.1102		2.800 mm	.550	14.00 mm	(5x)	16.70 mm	.510 mm	3 mm	63 mm	V555135-X	94.50
.1102		2.800 mm	.880	22.40 mm	(8x)	25.52 mm	.510 mm	3 mm	63 mm	V587228-X	127.00
.1110	#34	2.819 mm	.332	8.45 mm	(3x)	10.89 mm	.510 mm	3 mm	63 mm	V266486-X	68.50 NEW
.1110	#34	2.819 mm	.554	14.10 mm	(5x)	16.81 mm	.510 mm	3 mm	63 mm	V637059-X	94.50 NEW

* 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 #	Price
NEW	.1130	#33	2.870 mm	.337	8.60 mm	(3x)	11.09 mm	.520 mm	3 mm	63 mm	V210487-X	68.50
NEW	.1130	#33	2.870 mm	.563	14.35 mm	(5x)	17.12 mm	.520 mm	3 mm	63 mm	V445436-X	94.50
	.1141		2.900 mm	.341	8.70 mm	(3x)	11.21 mm	.530 mm	3 mm	63 mm	V934711-X	68.50
	.1141		2.900 mm	.569	14.50 mm	(5x)	17.30 mm	.530 mm	3 mm	63 mm	V425270-X	94.50
	.1141		2.900 mm	.911	23.20 mm	(8x)	26.43 mm	.530 mm	3 mm	63 mm	V466163-X	127.00
NEW	.1160	#32	2.946 mm	.347	8.85 mm	(3x)	11.38 mm	.540 mm	3 mm	63 mm	V731454-X	68.50
NEW	.1160	#32	2.946 mm	.579	14.75 mm	(5x)	17.57 mm	.540 mm	3 mm	63 mm	V917679-X	94.50
	.1181		3.000 mm	.353	9.00 mm	(3x)	11.59 mm	.550 mm	4 mm	63 mm	V448334-X	68.50
	.1181		3.000 mm	.589	15.00 mm	(5x)	17.89 mm	.550 mm	4 mm	63 mm	V728184-X	94.50
	.1181		3.000 mm	.943	24.00 mm	(8x)	27.34 mm	.550 mm	4 mm	75 mm	V816162-X	127.00
NEW	.1200	#31	3.048 mm	.359	9.15 mm	(3x)	11.78 mm	.550 mm	4 mm	63 mm	V814529-X	68.50
NEW	.1200	#31	3.048 mm	.599	15.25 mm	(5x)	18.18 mm	.550 mm	4 mm	63 mm	V340108-X	94.50
	.1220		3.100 mm	.365	9.30 mm	(3x)	11.98 mm	.560 mm	4 mm	63 mm	V980525-X	58.50
	.1220		3.100 mm	.609	15.50 mm	(5x)	18.49 mm	.560 mm	4 mm	63 mm	V262531-X	75.50
	.1220		3.100 mm	.974	24.80 mm	(8x)	28.25 mm	.560 mm	4 mm	75 mm	V175931-X	173.00
	.1250 (1/8)		3.175 mm	.373	9.50 mm	(3x)	12.27 mm	.580 mm	4 mm	63 mm	V757262-X	58.50
	.1250 (1/8)		3.175 mm	.624	15.90 mm	(5x)	18.94 mm	.580 mm	4 mm	63 mm	V407402-X	75.50
	.1250 (1/8)		3.175 mm	.998	25.40 mm	(8x)	28.94 mm	.580 mm	4 mm	75 mm	V143044-X	173.00
	.1260		3.200 mm	.377	9.60 mm	(3x)	12.37 mm	.580 mm	4 mm	63 mm	V241601-X	58.50
	.1260		3.200 mm	.628	16.00 mm	(5x)	19.09 mm	.580 mm	4 mm	63 mm	V864366-X	75.50
	.1260		3.200 mm	1.006	25.60 mm	(8x)	29.17 mm	.580 mm	4 mm	75 mm	V191656-X	173.00
NEW	.1285	#30	3.263 mm	.385	9.80 mm	(3x)	12.61 mm	.590 mm	4 mm	63 mm	V966769-X	58.50
NEW	.1285	#30	3.263 mm	.640	16.30 mm	(5x)	19.46 mm	.590 mm	4 mm	63 mm	V282918-X	75.50
	.1300		3.300 mm	.389	9.90 mm	(3x)	12.75 mm	.600 mm	4 mm	63 mm	V446101-X	58.50
	.1300		3.300 mm	.648	16.50 mm	(5x)	19.68 mm	.600 mm	4 mm	63 mm	V427484-X	75.50
	.1300		3.300 mm	1.037	26.40 mm	(8x)	30.08 mm	.600 mm	4 mm	75 mm	V274069-X	173.00
	.1338		3.400 mm	.400	10.20 mm	(3x)	13.14 mm	.620 mm	4 mm	63 mm	V345119-X	58.50
	.1338		3.400 mm	.668	17.00 mm	(5x)	20.28 mm	.620 mm	4 mm	63 mm	V570427-X	75.50
	.1338		3.400 mm	1.068	27.20 mm	(8x)	30.99 mm	.620 mm	4 mm	75 mm	V471156-X	173.00
NEW	.1360	#29	3.454 mm	.406	10.35 mm	(3x)	13.35 mm	.630 mm	4 mm	63 mm	V092841-X	58.50
NEW	.1360	#29	3.454 mm	.677	17.25 mm	(5x)	20.60 mm	.630 mm	4 mm	63 mm	V526120-X	75.50
	.1377		3.500 mm	.412	10.50 mm	(3x)	13.53 mm	.640 mm	4 mm	63 mm	V219223-X	58.50
	.1377		3.500 mm	.687	17.50 mm	(5x)	20.88 mm	.640 mm	4 mm	63 mm	V969665-X	75.50
	.1377		3.500 mm	1.100	28.00 mm	(8x)	31.90 mm	.640 mm	4 mm	75 mm	V715223-X	173.00
NEW	.1406 (9/64)	#28	3.571 mm	.420	10.70 mm	(3x)	13.80 mm	.650 mm	4 mm	63 mm	V119018-X	58.50
NEW	.1406 (9/64)	#28	3.571 mm	.701	17.85 mm	(5x)	21.30 mm	.650 mm	4 mm	63 mm	V859368-X	75.50
	.1406 (9/64)	#28	3.571 mm	1.122	28.55 mm	(8x)	32.55 mm	.650 mm	4 mm	75 mm	V711502-X	173.00

* 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 #	Price
.1417		3.600 mm	.424	10.80 mm	(3x)	13.91 mm	.660 mm	4 mm	63 mm	V171654-X	58.50
.1417		3.600 mm	.707	18.00 mm	(5x)	21.47 mm	.660 mm	4 mm	63 mm	V306978-X	75.50
.1417		3.600 mm	1.131	28.80 mm	(8x)	32.81 mm	.660 mm	4 mm	75 mm	V463513-X	173.00
.1440	#27	3.657 mm	.430	10.95 mm	(3x)	14.13 mm	.670 mm	4 mm	63 mm	V916358-X	58.50
.1440	#27	3.657 mm	.719	18.30 mm	(5x)	21.81 mm	.670 mm	4 mm	63 mm	V389475-X	75.50
.1456		3.700 mm	.436	11.10 mm	(3x)	14.30 mm	.670 mm	4 mm	63 mm	V372278-X	58.50
.1456		3.700 mm	.727	18.50 mm	(5x)	22.07 mm	.670 mm	4 mm	63 mm	V418855-X	75.50
.1456		3.700 mm	1.163	29.60 mm	(8x)	33.72 mm	.670 mm	4 mm	75 mm	V648706-X	173.00
.1470	#26	3.733 mm	.440	11.20 mm	(3x)	14.43 mm	.680 mm	4 mm	63 mm	V407598-X	58.50
.1470	#26	3.733 mm	.732	18.65 mm	(5x)	22.27 mm	.680 mm	4 mm	63 mm	V865433-X	75.50
.1495	#25	3.797 mm	.448	11.40 mm	(3x)	14.67 mm	.690 mm	4 mm	63 mm	V250225-X	58.50
.1495	#25	3.797 mm	.746	19.00 mm	(5x)	22.65 mm	.690 mm	4 mm	63 mm	V386472-X	75.50
.1496		3.800 mm	.448	11.40 mm	(3x)	14.69 mm	.690 mm	4 mm	63 mm	V381981-X	58.50
.1496		3.800 mm	.746	19.00 mm	(5x)	22.67 mm	.690 mm	4 mm	63 mm	V770195-X	75.50
.1496		3.800 mm	1.194	30.40 mm	(8x)	34.64 mm	.690 mm	4 mm	75 mm	V511673-X	173.00
.1520	#24	3.860 mm	.455	11.60 mm	(3x)	14.92 mm	.700 mm	4 mm	63 mm	V163242-X	58.50
.1520	#24	3.860 mm	.758	19.30 mm	(5x)	23.02 mm	.700 mm	4 mm	63 mm	V846604-X	75.50
.1535		3.900 mm	.459	11.70 mm	(3x)	15.07 mm	.710 mm	4 mm	63 mm	V464029-X	58.50
.1535		3.900 mm	.766	19.50 mm	(5x)	23.26 mm	.710 mm	4 mm	63 mm	V916343-X	75.50
.1535		3.900 mm	1.226	31.20 mm	(8x)	35.55 mm	.710 mm	4 mm	75 mm	V641665-X	173.00
.1540	#23	3.911 mm	.461	11.75 mm	(3x)	15.12 mm	.710 mm	4 mm	63 mm	V780940-X	58.50
.1540	#23	3.911 mm	.768	19.55 mm	(5x)	23.33 mm	.710 mm	4 mm	63 mm	V098495-X	75.50
.1562 (5/32)		3.968 mm	.467	11.90 mm	(3x)	15.34 mm	.720 mm	4 mm	63 mm	V535133-X	58.50
.1562 (5/32)		3.968 mm	.780	19.85 mm	(5x)	23.67 mm	.720 mm	4 mm	63 mm	V651106-X	75.50
.1562 (5/32)		3.968 mm	1.247	31.75 mm	(8x)	36.17 mm	.720 mm	4 mm	75 mm	V484175-X	173.00
.1570	#22	3.987 mm	.469	11.95 mm	(3x)	15.41 mm	.730 mm	4 mm	63 mm	V125785-X	58.50
.1570	#22	3.987 mm	.784	19.95 mm	(5x)	23.78 mm	.730 mm	4 mm	63 mm	V743728-X	75.50
.1574		4.000 mm	.471	12.00 mm	(3x)	15.46 mm	.730 mm	6 mm	63 mm	V956543-X	62.50
.1574		4.000 mm	.786	20.00 mm	(5x)	23.86 mm	.730 mm	6 mm	75 mm	V973327-X	77.50
.1574		4.000 mm	1.257	32.00 mm	(8x)	36.46 mm	.730 mm	6 mm	100 mm	V228877-X	173.00
.1590	#21	4.038 mm	.475	12.10 mm	(3x)	15.61 mm	.730 mm	6 mm	63 mm	V519799-X	62.50
.1590	#21	4.038 mm	.793	20.20 mm	(5x)	24.09 mm	.730 mm	6 mm	75 mm	V444036-X	77.50
.1610	#20	4.089 mm	.481	12.25 mm	(3x)	15.80 mm	.740 mm	6 mm	63 mm	V829322-X	62.50
.1610	#20	4.089 mm	.803	20.45 mm	(5x)	24.39 mm	.740 mm	6 mm	75 mm	V764234-X	77.50
.1614		4.100 mm	.483	12.30 mm	(3x)	15.85 mm	.750 mm	6 mm	63 mm	V144711-X	62.50
.1614		4.100 mm	.805	20.50 mm	(5x)	24.46 mm	.750 mm	6 mm	75 mm	V159304-X	77.50

* 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 #	Price
NEW	.1614		4.100 mm	1.289	32.80 mm	(8x)	37.37 mm	.750 mm	6 mm	100 mm	V830649-X	173.00
	.1653		4.200 mm	.495	12.60 mm	(3x)	16.23 mm	.760 mm	6 mm	63 mm	V691502-X	62.50
	.1653		4.200 mm	.825	21.00 mm	(5x)	25.05 mm	.760 mm	6 mm	75 mm	V390642-X	77.50
	.1653		4.200 mm	1.320	33.60 mm	(8x)	38.28 mm	.760 mm	6 mm	100 mm	V717833-X	173.00
	.1660	#19	4.216 mm	.497	12.65 mm	(3x)	16.29 mm	.770 mm	6 mm	63 mm	V895060-X	62.50
	.1660	#19	4.216 mm	.829	21.10 mm	(5x)	25.15 mm	.770 mm	6 mm	75 mm	V848390-X	77.50
	.1692		4.300 mm	.506	12.90 mm	(3x)	16.62 mm	.780 mm	6 mm	63 mm	V853410-X	62.50
	.1692		4.300 mm	.844	21.50 mm	(5x)	25.65 mm	.780 mm	6 mm	75 mm	V641050-X	77.50
NEW	.1692		4.300 mm	1.351	34.40 mm	(8x)	39.19 mm	.780 mm	6 mm	100 mm	V349549-X	173.00
	.1695	#18	4.305 mm	.506	12.90 mm	(3x)	16.64 mm	.780 mm	6 mm	63 mm	V612616-X	62.50
NEW	.1695	#18	4.305 mm	.844	21.50 mm	(5x)	25.68 mm	.780 mm	6 mm	75 mm	V968040-X	77.50
	.1718 (11/64)		4.365 mm	.514	13.10 mm	(3x)	16.87 mm	.790 mm	6 mm	63 mm	V690088-X	62.50
	.1718 (11/64)		4.365 mm	.858	21.85 mm	(5x)	26.04 mm	.790 mm	6 mm	75 mm	V202897-X	77.50
	.1718 (11/64)		4.365 mm	1.371	34.90 mm	(8x)	39.79 mm	.790 mm	6 mm	100 mm	V430080-X	173.00
NEW	.1730	#17	4.394 mm	.518	13.20 mm	(3x)	16.98 mm	.800 mm	6 mm	63 mm	V144303-X	62.50
	.1730	#17	4.394 mm	.862	21.95 mm	(5x)	26.21 mm	.800 mm	6 mm	75 mm	V392102-X	77.50
	.1732		4.400 mm	.518	13.20 mm	(3x)	17.01 mm	.800 mm	6 mm	63 mm	V696930-X	62.50
	.1732		4.400 mm	.864	22.00 mm	(5x)	26.25 mm	.800 mm	6 mm	75 mm	V454165-X	77.50
	.1732		4.400 mm	1.383	35.20 mm	(8x)	40.11 mm	.800 mm	6 mm	100 mm	V609491-X	173.00
	.1770	#16	4.495 mm	.530	13.50 mm	(3x)	17.37 mm	.820 mm	6 mm	63 mm	V440241-X	62.50
NEW	.1770	#16	4.495 mm	.884	22.50 mm	(5x)	26.81 mm	.820 mm	6 mm	75 mm	V525612-X	77.50
	.1771		4.500 mm	.530	13.50 mm	(3x)	17.39 mm	.820 mm	6 mm	63 mm	V945678-X	62.50
	.1771		4.500 mm	.884	22.50 mm	(5x)	26.84 mm	.820 mm	6 mm	75 mm	V104541-X	77.50
	.1771		4.500 mm	1.414	36.00 mm	(8x)	41.02 mm	.820 mm	6 mm	100 mm	V997034-X	173.00
NEW	.1800	#15	4.572 mm	.538	13.70 mm	(3x)	17.67 mm	.930 mm	6 mm	63 mm	V707657-X	62.50
	.1800	#15	4.572 mm	.898	22.85 mm	(5x)	27.27 mm	.930 mm	6 mm	75 mm	V760636-X	77.50
	.1811		4.600 mm	.542	13.80 mm	(3x)	17.78 mm	.840 mm	6 mm	63 mm	V587145-X	62.50
	.1811		4.600 mm	.903	23.00 mm	(5x)	27.44 mm	.840 mm	6 mm	75 mm	V781819-X	77.50
	.1811		4.600 mm	1.446	36.80 mm	(8x)	41.93 mm	.840 mm	6 mm	100 mm	V997000-X	173.00
	.1820	#14	4.622 mm	.544	13.85 mm	(3x)	17.86 mm	.840 mm	6 mm	63 mm	V087272-X	62.50
NEW	.1820	#14	4.622 mm	.907	23.10 mm	(5x)	27.57 mm	.840 mm	6 mm	75 mm	V269363-X	77.50
	.1850	#13	4.700 mm	.554	14.10 mm	(3x)	18.17 mm	.860 mm	6 mm	63 mm	V846796-X	62.50
	.1850	#13	4.700 mm	.923	23.50 mm	(5x)	28.04 mm	.860 mm	6 mm	75 mm	V824714-X	77.50
	.1850	#13	4.700 mm	1.477	37.60 mm	(8x)	42.84 mm	.860 mm	6 mm	100 mm	V896167-X	173.00
	.1875 (3/16)		4.762 mm	.561	14.30 mm	(3x)	18.41 mm	.870 mm	6 mm	63 mm	V400615-X	62.50
	.1875 (3/16)		4.762 mm	.935	23.80 mm	(5x)	28.41 mm	.870 mm	6 mm	75 mm	V236564-X	77.50
	.1875 (3/16)		4.762 mm	1.497	38.10 mm	(8x)	43.41 mm	.870 mm	6 mm	100 mm	V126929-X	173.00

* 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						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	Price
.1890	#12	4.800 mm	.565	14.40 mm	(3x)	18.55 mm	.870 mm	6 mm	63 mm	V834057-X	62.50
.1890	#12	4.800 mm	.943	24.00 mm	(5x)	28.63 mm	.870 mm	6 mm	75 mm	V321709-X	77.50
.1890	#12	4.800 mm	1.509	38.40 mm	(8x)	43.75 mm	.870 mm	6 mm	100 mm	V290220-X	173.00
.1910	#11	4.851 mm	.571	14.55 mm	(3x)	18.75 mm	.880 mm	6 mm	63 mm	V714367-X	62.50
.1910	#11	4.851 mm	.953	24.25 mm	(5x)	28.94 mm	.880 mm	6 mm	75 mm	V342099-X	77.50
.1930		4.900 mm	.577	14.70 mm	(3x)	18.94 mm	.890 mm	6 mm	63 mm	V745413-X	62.50
.1930		4.900 mm	.962	24.50 mm	(5x)	29.23 mm	.890 mm	6 mm	75 mm	V381771-X	77.50
.1930		4.900 mm	1.540	39.20 mm	(8x)	44.66 mm	.890 mm	6 mm	100 mm	V449962-X	173.00
.1935	#10	4.914 mm	.579	14.75 mm	(3x)	18.99 mm	.890 mm	6 mm	63 mm	V829999-X	62.50
.1935	#10	4.914 mm	.964	24.55 mm	(5x)	29.31 mm	.890 mm	6 mm	75 mm	V454053-X	77.50
.1960	#9	4.978 mm	.587	14.95 mm	(3x)	19.24 mm	.910 mm	6 mm	63 mm	V962379-X	62.50
.1960	#9	4.978 mm	.978	24.90 mm	(5x)	29.69 mm	.910 mm	6 mm	75 mm	V991542-X	77.50
.1968		5.000 mm	.589	15.00 mm	(3x)	19.33 mm	.910 mm	6 mm	63 mm	V810779-X	62.50
.1968		5.000 mm	.982	25.00 mm	(5x)	29.83 mm	.910 mm	6 mm	75 mm	V661786-X	77.50
.1968		5.000 mm	1.572	40.00 mm	(8x)	45.58 mm	.910 mm	6 mm	100 mm	V727149-X	173.00
.1990	#8	5.054 mm	.595	15.15 mm	(3x)	19.53 mm	.920 mm	6 mm	63 mm	V380114-X	62.50
.1990	#8	5.054 mm	.992	25.25 mm	(5x)	30.15 mm	.920 mm	6 mm	75 mm	V030512-X	77.50
.2007		5.100 mm	.601	15.30 mm	(3x)	19.71 mm	.930 mm	6 mm	63 mm	V558333-X	62.50
.2007		5.100 mm	1.002	25.50 mm	(5x)	30.42 mm	.930 mm	6 mm	75 mm	V683701-X	77.50
.2007		5.100 mm	1.603	40.80 mm	(8x)	46.49 mm	.930 mm	6 mm	100 mm	V445203-X	173.00
.2009	#7	5.105 mm	.601	15.30 mm	(3x)	19.73 mm	.930 mm	6 mm	63 mm	V658342-X	62.50
.2009	#7	5.105 mm	1.004	25.55 mm	(5x)	30.45 mm	.930 mm	6 mm	75 mm	V102485-X	77.50
.2031 (13/64)		5.159 mm	.609	15.50 mm	(3x)	19.94 mm	.940 mm	6 mm	63 mm	V536622-X	62.50
.2031 (13/64)		5.159 mm	1.013	25.80 mm	(5x)	30.77 mm	.940 mm	6 mm	75 mm	V743431-X	77.50
.2031 (13/64)		5.159 mm	1.621	41.25 mm	(8x)	47.02 mm	.940 mm	6 mm	100 mm	V479533-X	173.00
.2040	#6	5.181 mm	.611	15.55 mm	(3x)	20.03 mm	.940 mm	6 mm	63 mm	V393945-X	62.50
.2040	#6	5.181 mm	1.017	25.90 mm	(5x)	30.91 mm	.940 mm	6 mm	75 mm	V261951-X	77.50
.2047		5.200 mm	.613	15.60 mm	(3x)	20.10 mm	.950 mm	6 mm	63 mm	V603666-X	62.50
.2047		5.200 mm	1.021	26.00 mm	(5x)	31.02 mm	.950 mm	6 mm	75 mm	V663747-X	77.50
.2047		5.200 mm	1.634	41.60 mm	(8x)	47.40 mm	.950 mm	6 mm	100 mm	V984977-X	173.00
.2055	#5	5.219 mm	.615	15.65 mm	(3x)	20.17 mm	.950 mm	6 mm	63 mm	V775825-X	62.50
.2055	#5	5.219 mm	1.025	26.10 mm	(5x)	31.13 mm	.950 mm	6 mm	75 mm	V285401-X	77.50
.2086		5.300 mm	.624	15.90 mm	(3x)	20.49 mm	.960 mm	6 mm	63 mm	V612145-X	62.50
.2086		5.300 mm	1.041	26.50 mm	(5x)	31.62 mm	.960 mm	6 mm	75 mm	V947811-X	77.50
.2086		5.300 mm	1.666	42.40 mm	(8x)	48.31 mm	.960 mm	6 mm	100 mm	V464644-X	173.00

* 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 #	Price
NEW	.2090	#4	5.308 mm	.624	15.90 mm	(3x)	20.52 mm	.970 mm	6 mm	63 mm	V224982-X	62.50
NEW	.2090	#4	5.308 mm	1.043	26.55 mm	(5x)	31.66 mm	.970 mm	6 mm	75 mm	V496089-X	77.50
	.2125		5.400 mm	.636	16.20 mm	(3x)	20.87 mm	.980 mm	6 mm	63 mm	V103818-X	62.50
	.2125		5.400 mm	1.061	27.00 mm	(5x)	32.21 mm	.980 mm	6 mm	75 mm	V231435-X	77.50
	.2125		5.400 mm	1.697	43.20 mm	(8x)	49.22 mm	.980 mm	6 mm	100 mm	V848179-X	173.00
NEW	.2129	#3	5.410 mm	.638	16.25 mm	(3x)	20.91 mm	.980 mm	6 mm	63 mm	V679976-X	62.50
NEW	.2129	#3	5.410 mm	1.063	27.05 mm	(5x)	32.27 mm	.980 mm	6 mm	75 mm	V863158-X	77.50
	.2165		5.500 mm	.648	16.50 mm	(3x)	21.26 mm	1.000 mm	6 mm	63 mm	V245936-X	62.50
	.2165		5.500 mm	1.080	27.50 mm	(5x)	32.81 mm	1.000 mm	6 mm	75 mm	V590469-X	77.50
	.2165		5.500 mm	1.729	44.00 mm	(8x)	50.13 mm	1.000 mm	6 mm	100 mm	V881807-X	173.00
	.2187 (7/32)		5.556 mm	.654	16.65 mm	(3x)	21.47 mm	1.010 mm	6 mm	63 mm	V412034-X	62.50
	.2187 (7/32)		5.556 mm	1.092	27.80 mm	(5x)	33.14 mm	1.010 mm	6 mm	75 mm	V550391-X	77.50
	.2187 (7/32)		5.556 mm	1.746	44.45 mm	(8x)	50.64 mm	1.010 mm	6 mm	100 mm	V682954-X	173.00
	.2205		5.600 mm	.660	16.80 mm	(3x)	21.65 mm	1.020 mm	6 mm	63 mm	V869257-X	62.50
	.2205		5.600 mm	1.100	28.00 mm	(5x)	33.41 mm	1.020 mm	6 mm	75 mm	V885614-X	77.50
	.2205		5.600 mm	1.760	44.80 mm	(8x)	51.05 mm	1.020 mm	6 mm	100 mm	V372811-X	173.00
NEW	.2210	#2	5.613 mm	.662	16.85 mm	(3x)	21.70 mm	1.020 mm	6 mm	63 mm	V310563-X	62.50
NEW	.2210	#2	5.613 mm	1.102	28.05 mm	(5x)	33.48 mm	1.020 mm	6 mm	75 mm	V396615-X	77.50
	.2244		5.700 mm	.672	17.10 mm	(3x)	22.03 mm	1.040 mm	6 mm	63 mm	V911021-X	62.50
	.2244		5.700 mm	1.120	28.50 mm	(5x)	34.00 mm	1.040 mm	6 mm	75 mm	V674875-X	77.50
	.2244		5.700 mm	1.792	45.60 mm	(8x)	51.96 mm	1.040 mm	6 mm	100 mm	V885969-X	173.00
NEW	.2280	#1	5.791 mm	.681	17.35 mm	(3x)	22.38 mm	1.050 mm	6 mm	63 mm	V988447-X	62.50
NEW	.2280	#1	5.791 mm	1.137	28.95 mm	(5x)	34.54 mm	1.050 mm	6 mm	75 mm	V928131-X	77.50
	.2283		5.800 mm	.683	17.40 mm	(3x)	22.42 mm	1.060 mm	6 mm	63 mm	V439914-X	62.50
	.2283		5.800 mm	1.139	29.00 mm	(5x)	34.60 mm	1.060 mm	6 mm	75 mm	V260690-X	77.50
	.2283		5.800 mm	1.823	46.40 mm	(8x)	52.87 mm	1.060 mm	6 mm	100 mm	V751036-X	173.00
	.2322		5.900 mm	.695	17.70 mm	(3x)	22.80 mm	1.070 mm	6 mm	63 mm	V603655-X	62.50
	.2322		5.900 mm	1.159	29.50 mm	(5x)	35.19 mm	1.070 mm	6 mm	75 mm	V519010-X	77.50
	.2322		5.900 mm	1.854	47.20 mm	(8x)	53.78 mm	1.070 mm	6 mm	100 mm	V549472-X	173.00
NEW	.2340	A	5.943 mm	.701	17.85 mm	(3x)	22.97 mm	1.080 mm	6 mm	63 mm	V040329-X	62.50
NEW	.2340	A	5.943 mm	1.167	29.70 mm	(5x)	35.45 mm	1.080 mm	6 mm	75 mm	V070045-X	77.50
	.2343 (15/64)		5.953 mm	.701	17.85 mm	(3x)	23.01 mm	1.080 mm	6 mm	63 mm	V458998-X	62.50
	.2343 (15/64)		5.953 mm	1.169	29.75 mm	(5x)	35.51 mm	1.080 mm	6 mm	75 mm	V623370-X	77.50
	.2343 (15/64)		5.953 mm	1.870	47.60 mm	(8x)	54.26 mm	1.080 mm	6 mm	100 mm	V445403-X	173.00
	.2362		6.000 mm	.707	18.00 mm	(3x)	23.19 mm	1.090 mm	8 mm	75 mm	V106008-X	62.50
	.2362		6.000 mm	1.179	30.00 mm	(5x)	35.79 mm	1.090 mm	8 mm	100 mm	V170131-X	77.50

* 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 #	Price
.2362		6.000 mm	1.886	48.00 mm	(8x)	54.69 mm	1.090 mm	8 mm	125 mm	V345369-X	173.00
.2380	B	6.045 mm	.713	18.15 mm	(3x)	23.37 mm	1.100 mm	8 mm	75 mm	V403538-X	62.50 NEW
.2380	B	6.045 mm	1.188	30.25 mm	(5x)	36.06 mm	1.100 mm	8 mm	100 mm	V529618-X	77.50 NEW
.2401		6.100 mm	.719	18.30 mm	(3x)	23.58 mm	1.110 mm	8 mm	75 mm	V786634-X	75.00
.2401		6.100 mm	1.198	30.50 mm	(5x)	36.39 mm	1.110 mm	8 mm	100 mm	V638795-X	89.50
.2401		6.100 mm	1.917	48.80 mm	(8x)	55.60 mm	1.110 mm	8 mm	125 mm	V492775-X	181.00
.2420	C	6.146 mm	.725	18.45 mm	(3x)	23.76 mm	1.120 mm	8 mm	75 mm	V675356-X	75.00 NEW
.2420	C	6.146 mm	1.208	30.75 mm	(5x)	36.66 mm	1.120 mm	8 mm	100 mm	V940368-X	89.50 NEW
.2440		6.200 mm	.730	18.60 mm	(3x)	23.96 mm	1.130 mm	8 mm	75 mm	V156414-X	75.00
.2440		6.200 mm	1.218	31.00 mm	(5x)	36.98 mm	1.130 mm	8 mm	100 mm	V246074-X	89.50
.2440		6.200 mm	1.949	49.60 mm	(8x)	56.51 mm	1.130 mm	8 mm	125 mm	V936607-X	181.00
.2460	D	6.248 mm	.736	18.75 mm	(3x)	24.15 mm	1.140 mm	8 mm	75 mm	V896027-X	75.00 NEW
.2460	D	6.248 mm	1.228	31.25 mm	(5x)	37.27 mm	1.140 mm	8 mm	100 mm	V644178-X	89.50 NEW
.2480		6.300 mm	.742	18.90 mm	(3x)	24.35 mm	1.150 mm	8 mm	75 mm	V252509-X	75.00
.2480		6.300 mm	1.237	31.50 mm	(5x)	37.58 mm	1.150 mm	8 mm	100 mm	V349769-X	89.50
.2480		6.300 mm	1.980	50.40 mm	(8x)	57.43 mm	1.150 mm	8 mm	125 mm	V272919-X	181.00
.2500 (1/4)	E	6.350 mm	.748	19.05 mm	(3x)	24.54 mm	1.160 mm	8 mm	75 mm	V809169-X	75.00
.2500 (1/4)	E	6.350 mm	1.247	31.75 mm	(5x)	37.88 mm	1.160 mm	8 mm	100 mm	V715183-X	89.50
.2500 (1/4)	E	6.350 mm	1.996	50.80 mm	(8x)	57.88 mm	1.160 mm	8 mm	125 mm	V316828-X	181.00
.2520		6.400 mm	.754	19.20 mm	(3x)	24.74 mm	1.160 mm	8 mm	75 mm	V343209-X	75.00
.2520		6.400 mm	1.257	32.00 mm	(5x)	38.18 mm	1.160 mm	8 mm	100 mm	V664864-X	89.50
.2520		6.400 mm	2.012	51.20 mm	(8x)	58.34 mm	1.160 mm	8 mm	125 mm	V449441-X	181.00
.2559		6.500 mm	.766	19.50 mm	(3x)	25.12 mm	1.180 mm	8 mm	75 mm	V749006-X	75.00
.2559		6.500 mm	1.277	32.50 mm	(5x)	38.77 mm	1.180 mm	8 mm	100 mm	V976126-X	89.50
.2559		6.500 mm	2.043	52.00 mm	(8x)	59.25 mm	1.180 mm	8 mm	125 mm	V426083-X	181.00
.2570	F	6.528 mm	.770	19.60 mm	(3x)	25.23 mm	1.190 mm	8 mm	75 mm	V397741-X	78.50 NEW
.2570	F	6.528 mm	1.283	32.65 mm	(5x)	38.94 mm	1.190 mm	8 mm	100 mm	V446155-X	89.50 NEW
.2598		6.600 mm	.778	19.80 mm	(3x)	25.51 mm	1.200 mm	8 mm	75 mm	V734311-X	78.50
.2598		6.600 mm	1.296	33.00 mm	(5x)	39.37 mm	1.200 mm	8 mm	100 mm	V321248-X	92.50
.2598		6.600 mm	2.075	52.80 mm	(8x)	60.16 mm	1.200 mm	8 mm	125 mm	V978161-X	202.00
.2609	G	6.629 mm	.782	19.90 mm	(3x)	25.62 mm	1.210 mm	8 mm	75 mm	V541484-X	78.50 NEW
.2609	G	6.629 mm	1.302	33.15 mm	(5x)	39.54 mm	1.210 mm	8 mm	100 mm	V227853-X	89.50 NEW
.2638		6.700 mm	.789	20.10 mm	(3x)	25.90 mm	1.220 mm	8 mm	75 mm	V695757-X	78.50
.2638		6.700 mm	1.316	33.50 mm	(5x)	39.97 mm	1.220 mm	8 mm	100 mm	V609211-X	92.50
.2638		6.700 mm	2.106	53.60 mm	(8x)	61.07 mm	1.220 mm	8 mm	125 mm	V416647-X	202.00
.2656 (17/64)		6.746 mm	.795	20.25 mm	(3x)	26.08 mm	1.230 mm	8 mm	75 mm	V577636-X	78.50

* 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 #	Price
NEW	.2656 (17/64)			6.746 mm	1.326	33.75 mm	(5x)	40.24 mm	1.230 mm	8 mm	100 mm	V734759-X	92.50
	.2656 (17/64)			6.746 mm	2.120	53.95 mm	(8x)	61.49 mm	1.230 mm	8 mm	125 mm	V738825-X	202.00
	.2659	H	6.756 mm	.795	20.25 mm	(3x)	26.11 mm	1.230 mm	8 mm	75 mm	V614620-X	78.50	
	.2659	H	6.756 mm	1.328	33.80 mm	(5x)	40.30 mm	1.230 mm	8 mm	100 mm	V706729-X	92.50	
	.2677		6.800 mm	.801	20.40 mm	(3x)	26.28 mm	1.240 mm	8 mm	75 mm	V338596-X	78.50	
	.2677		6.800 mm	1.336	34.00 mm	(5x)	40.56 mm	1.240 mm	8 mm	100 mm	V913970-X	92.50	
NEW	.2677			6.800 mm	2.137	54.40 mm	(8x)	61.98 mm	1.240 mm	8 mm	125 mm	V219307-X	202.00
	.2717			6.900 mm	.813	20.70 mm	(3x)	26.67 mm	1.260 mm	8 mm	75 mm	V291064-X	78.50
	.2717			6.900 mm	1.355	34.50 mm	(5x)	41.16 mm	1.260 mm	8 mm	100 mm	V531112-X	92.50
	.2717			6.900 mm	2.169	55.20 mm	(8x)	62.90 mm	1.260 mm	8 mm	125 mm	V950623-X	202.00
	.2719	I	6.908 mm	.813	20.70 mm	(3x)	26.70 mm	1.260 mm	8 mm	75 mm	V014460-X	78.50	
	.2719	I	6.908 mm	1.357	34.55 mm	(5x)	41.21 mm	1.260 mm	8 mm	100 mm	V411425-X	92.50	
NEW	.2756			7.000 mm	.825	21.00 mm	(3x)	27.06 mm	1.270 mm	8 mm	75 mm	V663641-X	78.50
	.2756			7.000 mm	1.375	35.00 mm	(5x)	41.76 mm	1.270 mm	8 mm	100 mm	V410825-X	92.50
	.2756			7.000 mm	2.200	56.00 mm	(8x)	63.81 mm	1.270 mm	8 mm	125 mm	V604383-X	202.00
	.2769	J	7.035 mm	.829	21.10 mm	(3x)	27.19 mm	1.280 mm	8 mm	75 mm	V699396-X	78.50	
	.2769	J	7.035 mm	1.381	35.15 mm	(5x)	41.97 mm	1.280 mm	8 mm	100 mm	V914380-X	92.50	
	.2795			7.100 mm	.837	21.30 mm	(3x)	27.44 mm	1.290 mm	8 mm	75 mm	V600397-X	79.50
NEW	.2795			7.100 mm	1.395	35.50 mm	(5x)	42.35 mm	1.290 mm	8 mm	100 mm	V637495-X	97.50
	.2795			7.100 mm	2.232	56.80 mm	(8x)	64.72 mm	1.290 mm	8 mm	125 mm	V993349-X	212.50
	.2809	K	7.137 mm	.841	21.40 mm	(3x)	27.59 mm	1.300 mm	8 mm	75 mm	V345532-X	79.50	
	.2809	K	7.137 mm	1.403	35.70 mm	(5x)	42.57 mm	1.300 mm	8 mm	100 mm	V940604-X	97.50	
	.2812 (9/32)			7.142 mm	.842	21.45 mm	(3x)	27.61 mm	1.300 mm	8 mm	75 mm	V952277-X	79.50
	.2812 (9/32)			7.142 mm	1.403	35.70 mm	(5x)	42.60 mm	1.300 mm	8 mm	100 mm	V425690-X	97.50
NEW	.2812 (9/32)			7.142 mm	2.245	57.15 mm	(8x)	65.10 mm	1.300 mm	8 mm	125 mm	V956378-X	212.50
	.2834			7.200 mm	.848	21.60 mm	(3x)	27.83 mm	1.310 mm	8 mm	75 mm	V226899-X	79.50
	.2834			7.200 mm	1.414	36.00 mm	(5x)	42.95 mm	1.310 mm	8 mm	100 mm	V657275-X	97.50
	.2834			7.200 mm	2.263	57.60 mm	(8x)	65.63 mm	1.310 mm	8 mm	125 mm	V672970-X	212.50
	.2874			7.300 mm	.860	21.90 mm	(3x)	28.22 mm	1.330 mm	8 mm	75 mm	V653370-X	79.50
	.2874			7.300 mm	1.434	36.50 mm	(5x)	43.55 mm	1.330 mm	8 mm	100 mm	V195918-X	97.50
NEW	.2874			7.300 mm	2.295	58.40 mm	(8x)	66.54 mm	1.330 mm	8 mm	125 mm	V727542-X	212.50
	.2900	L	7.366 mm	.868	22.10 mm	(3x)	28.47 mm	1.340 mm	8 mm	75 mm	V409490-X	79.50	
	.2900	L	7.366 mm	1.448	36.85 mm	(5x)	43.94 mm	1.340 mm	8 mm	100 mm	V936211-X	97.50	
	.2913			7.400 mm	.872	22.20 mm	(3x)	28.60 mm	1.350 mm	8 mm	75 mm	V489342-X	79.50
	.2913			7.400 mm	1.454	37.00 mm	(5x)	44.14 mm	1.350 mm	8 mm	100 mm	V795527-X	97.50
	.2913			7.400 mm	2.326	59.20 mm	(8x)	67.45 mm	1.350 mm	8 mm	125 mm	V172694-X	212.50

* 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 #	Price	
.2950	M	7.493 mm	.884	22.50 mm	(3x)	28.96 mm	1.360 mm	8 mm	75 mm	V871211-X	79.50	NEW
.2950	M	7.493 mm	1.471	37.45 mm	(5x)	44.70 mm	1.360 mm	8 mm	100 mm	V641620-X	97.50	NEW
.2952		7.500 mm	.884	22.50 mm	(3x)	28.99 mm	1.360 mm	8 mm	75 mm	V148315-X	79.50	
.2952		7.500 mm	1.473	37.50 mm	(5x)	44.74 mm	1.360 mm	8 mm	100 mm	V103072-X	97.50	
.2952		7.500 mm	2.358	60.00 mm	(8x)	68.37 mm	1.360 mm	8 mm	125 mm	V145153-X	212.50	
.2969 (19/64)		7.541 mm	.888	22.60 mm	(3x)	29.15 mm	1.370 mm	8 mm	75 mm	V285522-X	79.50	
.2969 (19/64)		7.541 mm	1.481	37.70 mm	(5x)	44.99 mm	1.370 mm	8 mm	100 mm	V850668-X	97.50	
.2969 (19/64)		7.541 mm	2.371	60.35 mm	(8x)	68.74 mm	1.370 mm	8 mm	125 mm	V781588-X	212.50	
.2992		7.600 mm	.896	22.80 mm	(3x)	29.38 mm	1.380 mm	8 mm	75 mm	V558243-X	79.50	
.2992		7.600 mm	1.493	38.00 mm	(5x)	45.34 mm	1.380 mm	8 mm	100 mm	V707294-X	97.50	
.2992		7.600 mm	2.389	60.80 mm	(8x)	69.28 mm	1.380 mm	8 mm	125 mm	V944678-X	212.50	
.3020	N	7.671 mm	.903	23.00 mm	(3x)	29.65 mm	1.400 mm	8 mm	75 mm	V773769-X	79.50	NEW
.3020	N	7.671 mm	1.507	38.35 mm	(5x)	45.76 mm	1.400 mm	8 mm	100 mm	V483074-X	97.50	NEW
.3031		7.700 mm	.907	23.10 mm	(3x)	29.76 mm	1.400 mm	8 mm	75 mm	V515094-X	79.50	
.3031		7.700 mm	1.513	38.50 mm	(5x)	45.93 mm	1.400 mm	8 mm	100 mm	V323536-X	97.50	
.3031		7.700 mm	2.420	61.60 mm	(8x)	70.19 mm	1.400 mm	8 mm	125 mm	V316193-X	212.50	
.3071		7.800 mm	.919	23.40 mm	(3x)	30.15 mm	1.420 mm	8 mm	75 mm	V613783-X	79.50	
.3071		7.800 mm	1.532	39.00 mm	(5x)	46.53 mm	1.420 mm	8 mm	100 mm	V225740-X	97.50	
.3071		7.800 mm	2.452	62.40 mm	(8x)	71.10 mm	1.420 mm	8 mm	125 mm	V543502-X	212.50	
.3110		7.900 mm	.931	23.70 mm	(3x)	30.54 mm	1.440 mm	8 mm	75 mm	V643419-X	79.50	
.3110		7.900 mm	1.552	39.50 mm	(5x)	47.13 mm	1.440 mm	8 mm	100 mm	V962384-X	97.50	
.3110		7.900 mm	2.483	63.20 mm	(8x)	72.01 mm	1.440 mm	8 mm	125 mm	V199008-X	212.50	
.3125 (5/16)		7.937 mm	.935	23.80 mm	(3x)	30.68 mm	1.440 mm	8 mm	75 mm	V922027-X	79.50	
.3125 (5/16)		7.937 mm	1.560	39.70 mm	(5x)	47.35 mm	1.440 mm	8 mm	100 mm	V962711-X	97.50	
.3125 (5/16)		7.937 mm	2.495	63.50 mm	(8x)	72.35 mm	1.440 mm	8 mm	125 mm	V832006-X	212.50	
.3150		8.000 mm	.943	24.00 mm	(3x)	30.92 mm	1.460 mm	10 mm	75 mm	V437355-X	79.50	
.3150		8.000 mm	1.572	40.00 mm	(5x)	47.72 mm	1.460 mm	10 mm	100 mm	V432969-X	97.50	
.3150		8.000 mm	2.515	64.00 mm	(8x)	72.92 mm	1.460 mm	10 mm	125 mm	V414548-X	212.50	
.3159	O	8.026 mm	.947	24.10 mm	(3x)	31.02 mm	1.460 mm	10 mm	75 mm	V806706-X	95.00	NEW
.3159	O	8.026 mm	1.577	40.15 mm	(5x)	47.88 mm	1.460 mm	10 mm	100 mm	V761092-X	108.50	NEW
.3189		8.100 mm	.954	24.30 mm	(3x)	31.31 mm	1.470 mm	10 mm	75 mm	V172150-X	95.00	
.3189		8.100 mm	1.591	40.50 mm	(5x)	48.32 mm	1.470 mm	10 mm	100 mm	V805974-X	108.50	
.3189		8.100 mm	2.546	64.80 mm	(8x)	73.84 mm	1.470 mm	10 mm	125 mm	V784040-X	241.50	
.3228		8.200 mm	.966	24.60 mm	(3x)	31.70 mm	1.490 mm	10 mm	75 mm	V104389-X	95.00	
.3228		8.200 mm	1.611	41.00 mm	(5x)	48.92 mm	1.490 mm	10 mm	100 mm	V797513-X	108.50	
.3228		8.200 mm	2.578	65.60 mm	(8x)	74.75 mm	1.490 mm	10 mm	125 mm	V889280-X	241.50	

* 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 #	Price
NEW	.3229	P	8.204 mm	.966	24.60 mm	(3x)	31.71 mm	1.490 mm	10 mm	75 mm	V988983-X	95.00
NEW	.3229	P	8.204 mm	1.611	41.00 mm	(5x)	48.94 mm	1.490 mm	10 mm	100 mm	V113110-X	108.50
	.3268		8.300 mm	.978	24.90 mm	(3x)	32.08 mm	1.510 mm	10 mm	75 mm	V431404-X	95.00
	.3268		8.300 mm	1.630	41.50 mm	(5x)	49.51 mm	1.510 mm	10 mm	100 mm	V464819-X	108.50
	.3268		8.300 mm	2.609	66.40 mm	(8x)	75.66 mm	1.510 mm	10 mm	125 mm	V922989-X	241.50
	.3281 (21/64)		8.333 mm	.982	25.00 mm	(3x)	32.21 mm	1.520 mm	10 mm	75 mm	V729711-X	95.00
	.3281 (21/64)		8.333 mm	1.636	41.65 mm	(5x)	49.71 mm	1.520 mm	10 mm	100 mm	V276452-X	108.50
	.3281 (21/64)		8.333 mm	2.619	66.65 mm	(8x)	75.96 mm	1.520 mm	10 mm	125 mm	V423225-X	241.50
	.3307		8.400 mm	.990	25.20 mm	(3x)	32.47 mm	1.530 mm	10 mm	75 mm	V846086-X	95.00
	.3307		8.400 mm	1.650	42.00 mm	(5x)	50.11 mm	1.530 mm	10 mm	100 mm	V619529-X	108.50
	.3307		8.400 mm	2.640	67.20 mm	(8x)	76.57 mm	1.530 mm	10 mm	125 mm	V772576-X	241.50
NEW	.3319	Q	8.432 mm	.994	25.30 mm	(3x)	32.59 mm	1.530 mm	10 mm	75 mm	V186326-X	95.00
NEW	.3319	Q	8.432 mm	1.656	42.15 mm	(5x)	50.30 mm	1.530 mm	10 mm	100 mm	V569284-X	108.50
	.3346		8.500 mm	1.002	25.50 mm	(3x)	32.86 mm	1.550 mm	10 mm	75 mm	V285498-X	95.00
	.3346		8.500 mm	1.670	42.50 mm	(5x)	50.71 mm	1.550 mm	10 mm	100 mm	V767363-X	108.50
	.3346		8.500 mm	2.672	68.00 mm	(8x)	77.48 mm	1.550 mm	10 mm	125 mm	V593996-X	241.50
	.3386		8.600 mm	1.013	25.80 mm	(3x)	33.24 mm	1.570 mm	10 mm	75 mm	V333326-X	95.00
	.3386		8.600 mm	1.689	43.00 mm	(5x)	51.30 mm	1.570 mm	10 mm	100 mm	V713312-X	108.50
	.3386		8.600 mm	2.703	68.80 mm	(8x)	78.39 mm	1.570 mm	10 mm	125 mm	V627207-X	241.50
NEW	.3389	R	8.610 mm	1.015	25.85 mm	(3x)	33.28 mm	1.570 mm	10 mm	75 mm	V217044-X	95.00
NEW	.3389	R	8.610 mm	1.691	43.05 mm	(5x)	51.36 mm	1.570 mm	10 mm	100 mm	V366849-X	108.50
	.3425		8.700 mm	1.025	26.10 mm	(3x)	33.63 mm	1.580 mm	10 mm	75 mm	V812806-X	95.00
	.3425		8.700 mm	1.709	43.50 mm	(5x)	51.90 mm	1.580 mm	10 mm	100 mm	V322323-X	108.50
	.3425		8.700 mm	2.735	69.60 mm	(8x)	79.30 mm	1.580 mm	10 mm	125 mm	V697981-X	241.50
	.3438 (11/32)		8.732 mm	1.029	26.20 mm	(3x)	33.75 mm	1.590 mm	10 mm	75 mm	V270614-X	95.00
	.3438 (11/32)		8.732 mm	1.715	43.65 mm	(5x)	52.09 mm	1.590 mm	10 mm	100 mm	V831670-X	108.50
	.3438 (11/32)		8.732 mm	2.745	69.85 mm	(8x)	79.60 mm	1.590 mm	10 mm	125 mm	V867816-X	241.50
	.3465		8.800 mm	1.037	26.40 mm	(3x)	34.02 mm	1.600 mm	10 mm	75 mm	V243786-X	95.00
	.3465		8.800 mm	1.729	44.00 mm	(5x)	52.50 mm	1.600 mm	10 mm	100 mm	V523931-X	108.50
	.3465		8.800 mm	2.766	70.40 mm	(8x)	80.22 mm	1.600 mm	10 mm	125 mm	V231271-X	241.50
NEW	.3479	S	8.839 mm	1.041	26.50 mm	(3x)	34.17 mm	1.610 mm	10 mm	75 mm	V454746-X	95.00
NEW	.3479	S	8.839 mm	1.737	44.20 mm	(5x)	52.73 mm	1.610 mm	10 mm	100 mm	V434931-X	108.50
	.3504		8.900 mm	1.049	26.70 mm	(3x)	34.40 mm	1.620 mm	10 mm	75 mm	V978768-X	95.00
	.3504		8.900 mm	1.748	44.50 mm	(5x)	53.09 mm	1.620 mm	10 mm	100 mm	V367699-X	108.50
	.3504		8.900 mm	2.798	71.20 mm	(8x)	81.13 mm	1.620 mm	10 mm	150 mm	V699423-X	241.50
	.3543		9.000 mm	1.061	27.00 mm	(3x)	34.79 mm	1.640 mm	10 mm	75 mm	V820250-X	95.00

* 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						
		D ₁ (h8)*		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	Price
.3543		9.000 mm	1.768	45.00 mm (5x)		53.69 mm	1.640 mm	10 mm	100 mm	V605839-X	108.50
.3543		9.000 mm	2.829	72.00 mm (8x)		82.04 mm	1.640 mm	10 mm	150 mm	V477581-X	241.50
.3579	T	9.093 mm	1.072	27.30 mm (3x)		35.15 mm	1.650 mm	10 mm	75 mm	V861743-X	95.00 NEW
.3579	T	9.093 mm	1.786	45.45 mm (5x)		54.24 mm	1.650 mm	10 mm	100 mm	V091577-X	108.50 NEW
.3583		9.100 mm	1.072	27.30 mm (3x)		35.18 mm	1.660 mm	10 mm	75 mm	V926579-X	101.00
.3583		9.100 mm	1.788	45.50 mm (5x)		54.29 mm	1.660 mm	10 mm	100 mm	V227340-X	119.00
.3583		9.100 mm	2.861	72.80 mm (8x)		82.95 mm	1.660 mm	10 mm	150 mm	V387177-X	254.50
.3594 (23/64)		9.128 mm	1.076	27.40 mm (3x)		35.28 mm	1.660 mm	10 mm	75 mm	V520702-X	101.00
.3594 (23/64)		9.128 mm	1.794	45.65 mm (5x)		54.45 mm	1.660 mm	10 mm	100 mm	V831468-X	119.00
.3594 (23/64)		9.128 mm	2.868	73.00 mm (8x)		83.21 mm	1.660 mm	10 mm	150 mm	V492754-X	254.50
.3622		9.200 mm	1.084	27.60 mm (3x)		35.56 mm	1.670 mm	10 mm	75 mm	V861199-X	101.00
.3622		9.200 mm	1.807	46.00 mm (5x)		54.88 mm	1.670 mm	10 mm	100 mm	V909379-X	119.00
.3622		9.200 mm	2.892	73.60 mm (8x)		83.86 mm	1.670 mm	10 mm	150 mm	V273373-X	254.50
.3661		9.300 mm	1.096	27.90 mm (3x)		35.95 mm	1.690 mm	10 mm	75 mm	V341438-X	101.00
.3661		9.300 mm	1.827	46.50 mm (5x)		55.48 mm	1.690 mm	10 mm	100 mm	V750726-X	119.00
.3661		9.300 mm	2.923	74.40 mm (8x)		84.77 mm	1.690 mm	10 mm	150 mm	V491242-X	254.50
.3679	U	9.347 mm	1.102	28.05 mm (3x)		36.13 mm	1.700 mm	10 mm	75 mm	V485586-X	101.00 NEW
.3679	U	9.347 mm	1.837	46.75 mm (5x)		55.76 mm	1.700 mm	10 mm	100 mm	V822529-X	119.00 NEW
.3701		9.400 mm	1.108	28.20 mm (3x)		36.34 mm	1.710 mm	10 mm	75 mm	V245183-X	101.00
.3701		9.400 mm	1.847	47.00 mm (5x)		56.08 mm	1.710 mm	10 mm	100 mm	V773243-X	119.00
.3701		9.400 mm	2.955	75.20 mm (8x)		85.69 mm	1.710 mm	10 mm	150 mm	V292278-X	254.50
.3740		9.500 mm	1.120	28.50 mm (3x)		36.72 mm	1.730 mm	10 mm	75 mm	V368486-X	101.00
.3740		9.500 mm	1.866	47.50 mm (5x)		56.67 mm	1.730 mm	10 mm	100 mm	V767819-X	119.00
.3740		9.500 mm	2.986	76.00 mm (8x)		86.60 mm	1.730 mm	10 mm	150 mm	V982412-X	254.50
.3750 (3/8)		9.525 mm	1.123	28.60 mm (3x)		36.82 mm	1.730 mm	10 mm	75 mm	V543634-X	101.00
.3750 (3/8)		9.525 mm	1.872	47.65 mm (5x)		56.82 mm	1.730 mm	10 mm	100 mm	V294737-X	119.00
.3750 (3/8)		9.525 mm	2.994	76.20 mm (8x)		86.83 mm	1.730 mm	10 mm	150 mm	V643720-X	254.50
.3770	V	9.575 mm	1.127	28.70 mm (3x)		37.01 mm	1.740 mm	10 mm	75 mm	V096342-X	101.00 NEW
.3770	V	9.575 mm	1.882	47.90 mm (5x)		57.12 mm	1.740 mm	10 mm	100 mm	V468986-X	119.00 NEW
.3780		9.600 mm	1.131	28.80 mm (3x)		37.11 mm	1.750 mm	10 mm	75 mm	V558947-X	101.00
.3780		9.600 mm	1.886	48.00 mm (5x)		57.27 mm	1.750 mm	10 mm	100 mm	V407796-X	119.00
.3780		9.600 mm	3.018	76.80 mm (8x)		87.51 mm	1.750 mm	10 mm	150 mm	V407240-X	254.50
.3819		9.700 mm	1.143	29.10 mm (3x)		37.50 mm	1.770 mm	10 mm	75 mm	V934556-X	101.00
.3819		9.700 mm	1.906	48.50 mm (5x)		57.87 mm	1.770 mm	10 mm	100 mm	V538795-X	119.00
.3819		9.700 mm	3.049	77.60 mm (8x)		88.42 mm	1.770 mm	10 mm	150 mm	V417626-X	254.50
.3858		9.800 mm	1.155	29.40 mm (3x)		37.88 mm	1.780 mm	10 mm	75 mm	V229427-X	101.00

* 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 #	Price
NEW	.3858		9.800 mm	1.925	49.00 mm	(5x)	58.46 mm	1.780 mm	10 mm	100 mm	V750562-X	119.00
	.3858		9.800 mm	3.081	78.40 mm	(8x)	89.33 mm	1.780 mm	10 mm	150 mm	V797339-X	254.50
	.3859	W	9.804 mm	1.155	29.40 mm	(3x)	37.90 mm	1.780 mm	10 mm	75 mm	V338997-X	101.00
NEW	.3859	W	9.804 mm	1.925	49.00 mm	(5x)	58.49 mm	1.780 mm	10 mm	100 mm	V653787-X	119.00
	.3898		9.900 mm	1.167	29.70 mm	(3x)	38.27 mm	1.800 mm	10 mm	75 mm	V869506-X	101.00
	.3898		9.900 mm	1.945	49.50 mm	(5x)	59.06 mm	1.800 mm	10 mm	100 mm	V429736-X	119.00
	.3898		9.900 mm	3.112	79.20 mm	(8x)	90.24 mm	1.800 mm	10 mm	150 mm	V304892-X	254.50
	.3906 (25/64)		9.921 mm	1.169	29.75 mm	(3x)	38.35 mm	1.810 mm	10 mm	75 mm	V612861-X	101.00
	.3906 (25/64)		9.921 mm	1.949	49.60 mm	(5x)	59.18 mm	1.810 mm	10 mm	100 mm	V804543-X	119.00
	.3906 (25/64)		9.921 mm	3.118	79.35 mm	(8x)	90.44 mm	1.810 mm	10 mm	150 mm	V656076-X	254.50
	.3937		10.000 mm	1.179	30.00 mm	(3x)	38.66 mm	1.820 mm	12 mm	100 mm	V562092-X	101.00
	.3937		10.000 mm	1.965	50.00 mm	(5x)	59.66 mm	1.820 mm	12 mm	125 mm	V550034-X	119.00
	.3937		10.000 mm	3.144	80.00 mm	(8x)	91.16 mm	1.820 mm	12 mm	150 mm	V834651-X	254.50
NEW	.3969	X	10.083 mm	1.188	30.25 mm	(3x)	38.98 mm	1.820 mm	12 mm	100 mm	V965078-X	136.00
NEW	.3969	X	10.083 mm	1.980	50.40 mm	(5x)	60.15 mm	1.820 mm	12 mm	125 mm	V475645-X	158.00
	.3976		10.100 mm	1.190	30.30 mm	(3x)	39.04 mm	1.840 mm	12 mm	100 mm	V297691-X	136.00
	.3976		10.100 mm	1.984	50.50 mm	(5x)	60.25 mm	1.840 mm	12 mm	125 mm	V717095-X	158.00
	.3976		10.100 mm	3.175	80.80 mm	(8x)	92.07 mm	1.840 mm	12 mm	150 mm	V946266-X	331.00
	.4016		10.200 mm	1.202	30.60 mm	(3x)	39.43 mm	1.860 mm	12 mm	100 mm	V829282-X	136.00
	.4016		10.200 mm	2.004	51.00 mm	(5x)	60.85 mm	1.860 mm	12 mm	125 mm	V905204-X	158.00
	.4016		10.200 mm	3.206	81.60 mm	(8x)	92.98 mm	1.860 mm	12 mm	150 mm	V984655-X	331.00
NEW	.4039	Y	10.261 mm	1.210	30.80 mm	(3x)	39.66 mm	1.870 mm	12 mm	100 mm	V816591-X	136.00
NEW	.4039	Y	10.261 mm	2.016	51.30 mm	(5x)	61.21 mm	1.870 mm	12 mm	125 mm	V674869-X	158.00
	.4055		10.300 mm	1.214	30.90 mm	(3x)	39.82 mm	1.870 mm	12 mm	100 mm	V755643-X	136.00
	.4055		10.300 mm	2.023	51.50 mm	(5x)	61.45 mm	1.870 mm	12 mm	125 mm	V473326-X	158.00
	.4055		10.300 mm	3.238	82.40 mm	(8x)	93.89 mm	1.870 mm	12 mm	150 mm	V319140-X	331.00
	.4062 (13/32)		10.317 mm	1.216	30.95 mm	(3x)	39.88 mm	1.880 mm	12 mm	100 mm	V558064-X	136.00
	.4062 (13/32)		10.317 mm	2.027	51.60 mm	(5x)	61.55 mm	1.880 mm	12 mm	125 mm	V617000-X	158.00
	.4062 (13/32)		10.317 mm	3.244	82.55 mm	(8x)	94.05 mm	1.880 mm	12 mm	150 mm	V184156-X	331.00
	.4094		10.400 mm	1.226	31.20 mm	(3x)	40.20 mm	1.890 mm	12 mm	100 mm	V476483-X	136.00
	.4094		10.400 mm	2.043	52.00 mm	(5x)	62.04 mm	1.890 mm	12 mm	125 mm	V872922-X	158.00
	.4094		10.400 mm	3.269	83.20 mm	(8x)	94.80 mm	1.890 mm	12 mm	150 mm	V997876-X	331.00
NEW	.4129	Z	10.490 mm	1.235	31.45 mm	(3x)	40.55 mm	1.910 mm	12 mm	100 mm	V628926-X	136.00
NEW	.4129	Z	10.490 mm	2.061	52.45 mm	(5x)	62.58 mm	1.910 mm	12 mm	125 mm	V957058-X	158.00
	.4134		10.500 mm	1.237	31.50 mm	(3x)	40.59 mm	1.910 mm	12 mm	100 mm	V804705-X	136.00
	.4134		10.500 mm	2.063	52.50 mm	(5x)	62.64 mm	1.910 mm	12 mm	125 mm	V656863-X	158.00

* 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						
		D ₁ (h8)*		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	Price
.4134		10.500 mm	3.301	84.00 mm	(8x)	95.71 mm	1.910 mm	12 mm	150 mm	V959781-X	331.00
.4173		10.600 mm	1.249	31.80 mm	(3x)	40.98 mm	1.930 mm	12 mm	100 mm	V716473-X	136.00
.4173		10.600 mm	2.082	53.00 mm	(5x)	63.24 mm	1.930 mm	12 mm	125 mm	V931959-X	158.00
.4173		10.600 mm	3.332	84.80 mm	(8x)	96.63 mm	1.930 mm	12 mm	150 mm	V589985-X	331.00
.4213		10.700 mm	1.261	32.10 mm	(3x)	41.36 mm	1.950 mm	12 mm	100 mm	V967963-X	136.00
.4213		10.700 mm	2.102	53.50 mm	(5x)	63.83 mm	1.950 mm	12 mm	125 mm	V260341-X	158.00
.4213		10.700 mm	3.364	85.60 mm	(8x)	97.54 mm	1.950 mm	12 mm	150 mm	V317299-X	331.00
.4219 (27/64)		10.716 mm	1.263	32.15 mm	(3x)	41.42 mm	1.950 mm	12 mm	100 mm	V248338-X	136.00
.4219 (27/64)		10.716 mm	2.106	53.60 mm	(5x)	63.93 mm	1.950 mm	12 mm	125 mm	V184802-X	158.00
.4219 (27/64)		10.716 mm	3.369	85.75 mm	(8x)	97.68 mm	1.950 mm	12 mm	150 mm	V459907-X	331.00
.4252		10.800 mm	1.273	32.40 mm	(3x)	41.75 mm	1.970 mm	12 mm	100 mm	V602726-X	136.00
.4252		10.800 mm	2.122	54.00 mm	(5x)	64.43 mm	1.970 mm	12 mm	125 mm	V247731-X	158.00
.4252		10.800 mm	3.395	86.40 mm	(8x)	98.45 mm	1.970 mm	12 mm	150 mm	V195896-X	331.00
.4291		10.900 mm	1.285	32.70 mm	(3x)	42.14 mm	1.980 mm	12 mm	100 mm	V429098-X	136.00
.4291		10.900 mm	2.141	54.50 mm	(5x)	65.03 mm	1.980 mm	12 mm	125 mm	V561591-X	158.00
.4291		10.900 mm	3.426	87.20 mm	(8x)	99.36 mm	1.980 mm	12 mm	175 mm	V726450-X	331.00
.4331		11.000 mm	1.296	33.00 mm	(3x)	42.52 mm	2.000 mm	12 mm	100 mm	V661693-X	136.00
.4331		11.000 mm	2.161	55.00 mm	(5x)	65.62 mm	2.000 mm	12 mm	125 mm	V111557-X	158.00
.4331		11.000 mm	3.458	88.00 mm	(8x)	100.27 mm	2.000 mm	12 mm	175 mm	V731416-X	331.00
.4370		11.100 mm	1.308	33.30 mm	(3x)	42.91 mm	2.020 mm	12 mm	100 mm	V144905-X	136.00
.4370		11.100 mm	2.181	55.50 mm	(5x)	66.22 mm	2.020 mm	12 mm	125 mm	V529674-X	158.00
.4370		11.100 mm	3.489	88.80 mm	(8x)	101.18 mm	2.020 mm	12 mm	175 mm	V768753-X	331.00
.4375 (7/16)		11.112 mm	1.310	33.35 mm	(3x)	42.95 mm	2.020 mm	12 mm	100 mm	V538378-X	136.00
.4375 (7/16)		11.112 mm	2.183	55.55 mm	(5x)	66.29 mm	2.020 mm	12 mm	125 mm	V533490-X	158.00
.4375 (7/16)		11.112 mm	3.493	88.90 mm	(8x)	101.29 mm	2.020 mm	12 mm	175 mm	V652629-X	331.00
.4409		11.200 mm	1.320	33.60 mm	(3x)	43.30 mm	2.040 mm	12 mm	100 mm	V543531-X	136.00
.4409		11.200 mm	2.200	56.00 mm	(5x)	66.82 mm	2.040 mm	12 mm	125 mm	V266717-X	158.00
.4409		11.200 mm	3.521	89.60 mm	(8x)	102.10 mm	2.040 mm	12 mm	175 mm	V188910-X	331.00
.4449		11.300 mm	1.332	33.90 mm	(3x)	43.68 mm	2.060 mm	12 mm	100 mm	V312875-X	136.00
.4449		11.300 mm	2.220	56.50 mm	(5x)	67.41 mm	2.060 mm	12 mm	125 mm	V579778-X	158.00
.4449		11.300 mm	3.552	90.40 mm	(8x)	103.01 mm	2.060 mm	12 mm	175 mm	V774245-X	331.00
.4488		11.400 mm	1.344	34.20 mm	(3x)	44.07 mm	2.070 mm	12 mm	100 mm	V650650-X	136.00
.4488		11.400 mm	2.240	57.00 mm	(5x)	68.01 mm	2.070 mm	12 mm	125 mm	V156993-X	158.00
.4488		11.400 mm	3.584	91.20 mm	(8x)	103.92 mm	2.070 mm	12 mm	175 mm	V872208-X	331.00
.4527		11.500 mm	1.355	34.50 mm	(3x)	44.45 mm	2.090 mm	12 mm	100 mm	V607294-X	136.00
.4527		11.500 mm	2.259	57.50 mm	(5x)	68.60 mm	2.090 mm	12 mm	125 mm	V663745-X	158.00

* 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						
		D _i (h8)*		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	Price
.4527		11.500 mm	3.615	92.00 mm	(8x)	104.83 mm	2.090 mm	12 mm	175 mm	V212865-X	331.00
.4531 (29/64)		11.508 mm	1.355	34.50 mm	(3x)	44.49 mm	2.090 mm	12 mm	100 mm	V564439-X	136.00
.4531 (29/64)		11.508 mm	2.261	57.55 mm	(5x)	68.65 mm	2.090 mm	12 mm	125 mm	V709414-X	158.00
.4531 (29/64)		11.508 mm	3.617	92.05 mm	(8x)	104.90 mm	2.090 mm	12 mm	175 mm	V208966-X	331.00
.4567		11.600 mm	1.367	34.80 mm	(3x)	44.84 mm	2.110 mm	12 mm	100 mm	V810836-X	142.50
.4567		11.600 mm	2.279	58.00 mm	(5x)	69.20 mm	2.110 mm	12 mm	125 mm	V824629-X	164.00
.4567		11.600 mm	3.647	92.80 mm	(8x)	105.74 mm	2.110 mm	12 mm	175 mm	V358116-X	331.00
.4606		11.700 mm	1.379	35.10 mm	(3x)	45.23 mm	2.130 mm	12 mm	100 mm	V125838-X	142.50
.4606		11.700 mm	2.299	58.50 mm	(5x)	69.80 mm	2.130 mm	12 mm	125 mm	V958629-X	164.00
.4606		11.700 mm	3.678	93.60 mm	(8x)	106.65 mm	2.130 mm	12 mm	175 mm	V540924-X	331.00
.4646		11.800 mm	1.391	35.40 mm	(3x)	45.61 mm	2.150 mm	12 mm	100 mm	V594549-X	142.50
.4646		11.800 mm	2.318	59.00 mm	(5x)	70.39 mm	2.150 mm	12 mm	125 mm	V537993-X	164.00
.4646		11.800 mm	3.709	94.40 mm	(8x)	107.56 mm	2.150 mm	12 mm	175 mm	V956277-X	331.00
.4685		11.900 mm	1.403	35.70 mm	(3x)	46.00 mm	2.170 mm	12 mm	100 mm	V683774-X	142.50
.4685		11.900 mm	2.338	59.50 mm	(5x)	70.99 mm	2.170 mm	12 mm	125 mm	V603568-X	164.00
.4685		11.900 mm	3.741	95.20 mm	(8x)	108.48 mm	2.170 mm	12 mm	175 mm	V902085-X	331.00
.4688 (15/32)		11.907 mm	1.403	35.70 mm	(3x)	46.03 mm	2.170 mm	12 mm	100 mm	V354466-X	142.50
.4688 (15/32)		11.907 mm	2.340	59.55 mm	(5x)	71.03 mm	2.170 mm	12 mm	125 mm	V650664-X	164.00
.4688 (15/32)		11.907 mm	3.743	95.25 mm	(8x)	108.54 mm	2.170 mm	12 mm	175 mm	V230482-X	331.00
.4724		12.000 mm	1.414	36.00 mm	(3x)	46.39 mm	2.180 mm	14 mm	100 mm	V447728-X	142.50
.4724		12.000 mm	2.358	60.00 mm	(5x)	71.59 mm	2.180 mm	14 mm	125 mm	V524845-X	164.00
.4724		12.000 mm	3.772	96.00 mm	(8x)	109.39 mm	2.180 mm	14 mm	175 mm	V955704-X	331.00
.4764		12.100 mm	1.426	36.30 mm	(3x)	46.77 mm	2.200 mm	14 mm	100 mm	V663610-X	184.00
.4764		12.100 mm	2.377	60.50 mm	(5x)	72.18 mm	2.200 mm	14 mm	125 mm	V879285-X	214.00
.4764		12.100 mm	3.804	96.80 mm	(8x)	110.30 mm	2.200 mm	14 mm	175 mm	V329060-X	352.00
.4803		12.200 mm	1.438	36.60 mm	(3x)	47.16 mm	2.220 mm	14 mm	100 mm	V818824-X	184.00
.4803		12.200 mm	2.397	61.00 mm	(5x)	72.78 mm	2.220 mm	14 mm	125 mm	V602362-X	214.00
.4803		12.200 mm	3.835	97.60 mm	(8x)	111.21 mm	2.220 mm	14 mm	175 mm	V342029-X	352.00
.4843		12.300 mm	1.450	36.90 mm	(3x)	47.55 mm	2.240 mm	14 mm	100 mm	V771146-X	184.00
.4843		12.300 mm	2.416	61.50 mm	(5x)	73.38 mm	2.240 mm	14 mm	125 mm	V286389-X	214.00
.4843		12.300 mm	3.867	98.40 mm	(8x)	112.12 mm	2.240 mm	14 mm	175 mm	V673379-X	352.00
.4882 (31/64)		12.400 mm	1.461	37.20 mm	(3x)	47.93 mm	2.260 mm	14 mm	100 mm	V790461-X	184.00
.4882 (31/64)		12.400 mm	2.436	62.00 mm	(5x)	73.97 mm	2.260 mm	14 mm	125 mm	V930755-X	214.00
.4882 (31/64)		12.400 mm	3.898	99.20 mm	(8x)	113.03 mm	2.260 mm	14 mm	175 mm	V997694-X	352.00
.4921		12.500 mm	1.473	37.50 mm	(3x)	48.32 mm	2.270 mm	14 mm	100 mm	V202412-X	184.00
.4921		12.500 mm	2.456	62.50 mm	(5x)	74.57 mm	2.270 mm	14 mm	125 mm	V131343-X	214.00

* 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						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	Price
.4921		12.500 mm	3.930	100.00 mm	(8x)	113.95 mm	2.270 mm	14 mm	175 mm	V668048-X	352.00
.4961		12.600 mm	1.485	37.80 mm	(3x)	48.71 mm	2.290 mm	14 mm	100 mm	V369910-X	184.00
.4961		12.600 mm	2.475	63.00 mm	(5x)	75.17 mm	2.290 mm	14 mm	125 mm	V981463-X	214.00
.4961		12.600 mm	3.961	100.80 mm	(8x)	114.86 mm	2.290 mm	14 mm	175 mm	V682916-X	352.00
.5000 (1/2)		12.700 mm	1.497	38.10 mm	(3x)	49.09 mm	2.310 mm	14 mm	100 mm	V608930-X	184.00
.5000 (1/2)		12.700 mm	2.495	63.50 mm	(5x)	75.76 mm	2.310 mm	14 mm	125 mm	V915134-X	214.00
.5000 (1/2)		12.700 mm	3.992	101.60 mm	(8x)	115.77 mm	2.310 mm	14 mm	175 mm	V703694-X	352.00

* For h6 and h8 tolerances, see page 8.





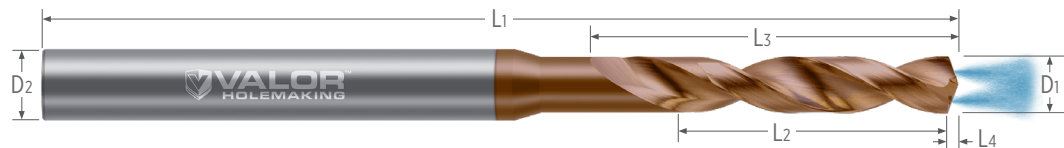
Double margin
design for
increased stability

High Performance Drills

For Steels – Coolant-Through

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

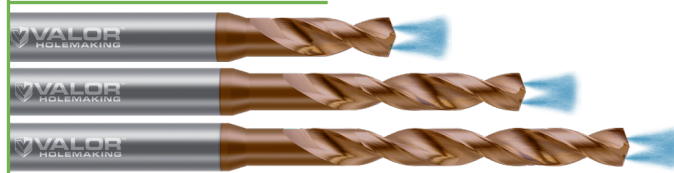


	Drill Diameter			Max Drill Depth			Flute Length	Point Angle Length	Shank Dia.	Overall Length	Val-Max X Coated	
	inch	wire	metric	inch	metric	hole depth					Tool #	Price
			D1 (h8)*		L2		L3	L4	D2 (h6)*	L1		
NEW	.0625 (1/16)		1.587 mm	.187	4.76 mm	(3x)	6.13 mm	.29 mm	3 mm	63 mm	V528958-X	79.40
	.0625 (1/16)		1.587 mm	.312	7.95 mm	(5x)	9.46 mm	.29 mm	3 mm	63 mm	V189491-X	104.50
	.0625 (1/16)		1.587 mm	.499	12.70 mm	(8x)	14.46 mm	.29 mm	3 mm	63 mm	V709480-X	184.00
NEW	.0630		1.600 mm	.188	4.80 mm	(3x)	6.18 mm	.29 mm	3 mm	63 mm	V978535-X	79.40
	.0630		1.600 mm	.314	8.00 mm	(5x)	9.54 mm	.29 mm	3 mm	63 mm	V231543-X	104.50
	.0630		1.600 mm	.503	12.80 mm	(8x)	14.58 mm	.29 mm	3 mm	63 mm	V886196-X	184.00
NEW	.0635	#52	1.612 mm	.190	4.84 mm	(3x)	6.23 mm	.29 mm	3 mm	63 mm	V082128-X	79.40
NEW	.0635	#52	1.612 mm	.316	8.05 mm	(5x)	9.61 mm	.29 mm	3 mm	63 mm	V927852-X	104.50
NEW	.0669		1.700 mm	.200	5.10 mm	(3x)	6.57 mm	.31 mm	3 mm	63 mm	V136600-X	79.40
	.0669		1.700 mm	.334	8.50 mm	(5x)	10.14 mm	.31 mm	3 mm	63 mm	V282030-X	104.50
	.0669		1.700 mm	.534	13.60 mm	(8x)	15.49 mm	.31 mm	3 mm	63 mm	V538281-X	184.00
NEW	.0700	#50	1.778 mm	.209	5.33 mm	(3x)	6.87 mm	.32 mm	3 mm	63 mm	V926142-X	79.40
NEW	.0700	#50	1.778 mm	.349	8.90 mm	(5x)	10.60 mm	.32 mm	3 mm	63 mm	V248729-X	104.50

* 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.)

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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 #	Price	
.0708		1.800 mm	.212	5.40 mm	(3x)	6.95 mm	.33 mm	3 mm	63 mm	V000131-X	79.40	NEW
.0708		1.800 mm	.353	9.00 mm	(5x)	10.73 mm	.33 mm	3 mm	63 mm	V148595-X	104.50	
.0708		1.800 mm	.565	14.40 mm	(8x)	16.40 mm	.33 mm	3 mm	63 mm	V604910-X	184.00	
.0730	#49	1.854 mm	.218	5.56 mm	(3x)	7.16 mm	.34 mm	3 mm	63 mm	V044496-X	79.40	NEW
.0730	#49	1.854 mm	.363	9.25 mm	(5x)	11.06 mm	.34 mm	3 mm	63 mm	V111892-X	104.50	NEW
.0748		1.900 mm	.224	5.70 mm	(3x)	7.34 mm	.35 mm	3 mm	63 mm	V059809-X	79.40	NEW
.0748		1.900 mm	.373	9.50 mm	(5x)	11.33 mm	.35 mm	3 mm	63 mm	V525056-X	104.50	
.0748		1.900 mm	.597	15.20 mm	(8x)	17.32 mm	.35 mm	3 mm	63 mm	V766740-X	184.00	
.0760	#48	1.930 mm	.227	5.79 mm	(3x)	7.46 mm	.35 mm	3 mm	63 mm	V074632-X	79.40	NEW
.0760	#48	1.930 mm	.379	9.65 mm	(5x)	11.51 mm	.35 mm	3 mm	63 mm	V701976-X	104.50	NEW
.0781 (5/64)		1.984 mm	.233	5.95 mm	(3x)	7.67 mm	.36 mm	3 mm	63 mm	V161180-X	79.40	NEW
.0781 (5/64)		1.984 mm	.389	9.90 mm	(5x)	11.83 mm	.36 mm	3 mm	63 mm	V622465-X	104.50	
.0781 (5/64)		1.984 mm	.622	15.85 mm	(8x)	18.08 mm	.36 mm	3 mm	63 mm	V830353-X	184.00	
.0785	#47	1.993 mm	.234	5.98 mm	(3x)	7.70 mm	.36 mm	3 mm	63 mm	V535794-X	79.40	NEW
.0785	#47	1.993 mm	.391	9.95 mm	(5x)	11.89 mm	.36 mm	3 mm	63 mm	V927747-X	104.50	NEW
.0787		2.000 mm	.235	6.00 mm	(3x)	7.73 mm	.36 mm	3 mm	63 mm	V221621-X	79.40	NEW
.0787		2.000 mm	.393	10.00 mm	(5x)	11.93 mm	.36 mm	3 mm	63 mm	V995928-X	104.50	
.0787		2.000 mm	.628	16.00 mm	(8x)	18.23 mm	.36 mm	3 mm	63 mm	V475077-X	184.00	
.0810	#46	2.057 mm	.242	6.17 mm	(3x)	7.95 mm	.37 mm	3 mm	63 mm	V830608-X	79.40	NEW
.0810	#46	2.057 mm	.404	10.30 mm	(5x)	12.27 mm	.37 mm	3 mm	63 mm	V378220-X	104.50	NEW
.0820	#45	2.082 mm	.245	6.25 mm	(3x)	8.04 mm	.38 mm	3 mm	63 mm	V227427-X	79.40	NEW
.0820	#45	2.082 mm	.408	10.40 mm	(5x)	12.42 mm	.38 mm	3 mm	63 mm	V580972-X	104.50	NEW
.0826		2.100 mm	.247	6.30 mm	(3x)	8.11 mm	.38 mm	3 mm	63 mm	V287785-X	79.40	NEW
.0826		2.100 mm	.412	10.50 mm	(5x)	12.52 mm	.38 mm	3 mm	63 mm	V507543-X	104.50	
.0826		2.100 mm	.660	16.80 mm	(8x)	19.14 mm	.38 mm	3 mm	63 mm	V870311-X	184.00	
.0860	#44	2.184 mm	.257	6.55 mm	(3x)	8.44 mm	.40 mm	3 mm	63 mm	V899899-X	79.40	NEW
.0860	#44	2.184 mm	.428	10.90 mm	(5x)	13.02 mm	.40 mm	3 mm	63 mm	V299597-X	104.50	NEW
.0866		2.200 mm	.259	6.60 mm	(3x)	8.50 mm	.40 mm	3 mm	63 mm	V550304-X	79.40	NEW
.0866		2.200 mm	.432	11.00 mm	(5x)	13.12 mm	.40 mm	3 mm	63 mm	V344957-X	104.50	
.0866		2.200 mm	.691	17.60 mm	(8x)	20.05 mm	.40 mm	3 mm	63 mm	V324289-X	184.00	
.0890	#43	2.260 mm	.266	6.78 mm	(3x)	8.73 mm	.41 mm	3 mm	63 mm	V946549-X	79.40	NEW
.0890	#43	2.260 mm	.444	11.30 mm	(5x)	13.48 mm	.41 mm	3 mm	63 mm	V406980-X	104.50	NEW
.0905		2.300 mm	.271	6.90 mm	(3x)	8.89 mm	.42 mm	3 mm	63 mm	V528922-X	79.40	NEW
.0905		2.300 mm	.451	11.50 mm	(5x)	13.72 mm	.42 mm	3 mm	63 mm	V869740-X	104.50	
.0905		2.300 mm	.723	18.40 mm	(8x)	20.96 mm	.42 mm	3 mm	63 mm	V742025-X	184.00	
.0935	#42	2.374 mm	.279	7.12 mm	(3x)	9.17 mm	.43 mm	3 mm	63 mm	V582182-X	79.40	NEW
.0935	#42	2.374 mm	.465	11.85 mm	(5x)	14.16 mm	.43 mm	3 mm	63 mm	V056590-X	104.50	NEW

* 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 #	Price
NEW	.0937 (3/32)	2.381 mm	.280	7.14 mm	(3x)	9.20 mm	.43 mm	3 mm	63 mm	V673858-X	79.40
	.0937 (3/32)	2.381 mm	.467	11.90 mm	(5x)	14.20 mm	.43 mm	3 mm	63 mm	V941421-X	104.50
	.0937 (3/32)	2.381 mm	.748	19.05 mm	(8x)	21.70 mm	.43 mm	3 mm	63 mm	V250208-X	184.00
NEW	.0944	2.400 mm	.282	7.20 mm	(3x)	9.27 mm	.44 mm	3 mm	63 mm	V452307-X	79.40
	.0944	2.400 mm	.471	12.00 mm	(5x)	14.31 mm	.44 mm	3 mm	63 mm	V307669-X	104.50
	.0944	2.400 mm	.754	19.20 mm	(8x)	21.87 mm	.44 mm	3 mm	63 mm	V518131-X	184.00
NEW	.0960	#41 2.438 mm	.287	7.31 mm	(3x)	9.42 mm	.44 mm	3 mm	63 mm	V970133-X	79.40
NEW	.0960	#41 2.438 mm	.479	12.20 mm	(5x)	14.54 mm	.44 mm	3 mm	63 mm	V684805-X	104.50
NEW	.0980	#40 2.489 mm	.293	7.47 mm	(3x)	9.62 mm	.45 mm	3 mm	63 mm	V093191-X	79.40
NEW	.0980	#40 2.489 mm	.489	12.45 mm	(5x)	14.84 mm	.45 mm	3 mm	63 mm	V128419-X	104.50
NEW	.0984	2.500 mm	.294	7.50 mm	(3x)	9.66 mm	.45 mm	3 mm	63 mm	V463726-X	79.40
	.0984	2.500 mm	.491	12.50 mm	(5x)	14.91 mm	.45 mm	3 mm	63 mm	V539575-X	104.50
	.0984	2.500 mm	.786	20.00 mm	(8x)	22.79 mm	.45 mm	3 mm	63 mm	V411727-X	184.00
NEW	.0995	#39 2.527 mm	.297	7.58 mm	(3x)	9.76 mm	.46 mm	3 mm	63 mm	V899411-X	79.40
NEW	.0995	#39 2.527 mm	.497	12.65 mm	(5x)	15.07 mm	.46 mm	3 mm	63 mm	V459436-X	104.50
NEW	.1015	#38 2.578 mm	.303	7.73 mm	(3x)	9.96 mm	.47 mm	3 mm	63 mm	V470629-X	79.40
NEW	.1015	#38 2.578 mm	.506	12.90 mm	(5x)	15.38 mm	.47 mm	3 mm	63 mm	V170923-X	104.50
NEW	.1023	2.600 mm	.306	7.80 mm	(3x)	10.05 mm	.47 mm	3 mm	63 mm	V041570-X	79.40
	.1023	2.600 mm	.510	13.00 mm	(5x)	15.51 mm	.47 mm	3 mm	63 mm	V216770-X	104.50
	.1023	2.600 mm	.817	20.80 mm	(8x)	23.70 mm	.47 mm	3 mm	63 mm	V895404-X	184.00
NEW	.1040	#37 2.641 mm	.311	7.92 mm	(3x)	10.21 mm	.48 mm	3 mm	63 mm	V939278-X	79.40
NEW	.1040	#37 2.641 mm	.518	13.20 mm	(5x)	15.75 mm	.48 mm	3 mm	63 mm	V773027-X	104.50
NEW	.1062	2.700 mm	.318	8.10 mm	(3x)	10.43 mm	.49 mm	3 mm	63 mm	V947472-X	79.40
	.1062	2.700 mm	.530	13.50 mm	(5x)	16.10 mm	.49 mm	3 mm	63 mm	V324255-X	104.50
	.1062	2.700 mm	.848	21.60 mm	(8x)	24.61 mm	.49 mm	3 mm	63 mm	V455663-X	184.00
NEW	.1065	#36 2.705 mm	.318	8.12 mm	(3x)	10.45 mm	.49 mm	3 mm	63 mm	V276098-X	79.40
NEW	.1065	#36 2.705 mm	.532	13.55 mm	(5x)	16.13 mm	.49 mm	3 mm	63 mm	V230011-X	104.50
NEW	.1093 (7/64)	2.778 mm	.327	8.33 mm	(3x)	10.73 mm	.51 mm	3 mm	63 mm	V576449-X	79.40
	.1093 (7/64)	2.778 mm	.546	13.90 mm	(5x)	16.57 mm	.51 mm	3 mm	63 mm	V247870-X	104.50
	.1093 (7/64)	2.778 mm	.872	22.20 mm	(8x)	25.32 mm	.51 mm	3 mm	63 mm	V484388-X	184.00
NEW	.1100	#35 2.794 mm	.329	8.38 mm	(3x)	10.80 mm	.51 mm	3 mm	63 mm	V640258-X	79.40
NEW	.1100	#35 2.794 mm	.548	13.95 mm	(5x)	16.66 mm	.51 mm	3 mm	63 mm	V958846-X	104.50
NEW	.1102	2.800 mm	.330	8.40 mm	(3x)	10.82 mm	.51 mm	3 mm	63 mm	V588125-X	79.40
	.1102	2.800 mm	.550	14.00 mm	(5x)	16.70 mm	.51 mm	3 mm	63 mm	V406948-X	104.50
	.1102	2.800 mm	.880	22.40 mm	(8x)	25.52 mm	.51 mm	3 mm	63 mm	V580945-X	184.00

* 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 #	Price	
.1110	#34	2.819 mm	.332	8.46 mm	(3x)	10.89 mm	.51 mm	3 mm	63 mm	V136049-X	79.40	NEW
.1110	#34	2.819 mm	.554	14.10 mm	(5x)	16.81 mm	.51 mm	3 mm	63 mm	V046228-X	104.50	NEW
.1130	#33	2.870 mm	.338	8.61 mm	(3x)	11.09 mm	.52 mm	3 mm	63 mm	V923830-X	79.40	NEW
.1130	#33	2.870 mm	.563	14.35 mm	(5x)	17.12 mm	.52 mm	3 mm	63 mm	V625906-X	104.50	NEW
.1141		2.900 mm	.341	8.70 mm	(3x)	11.21 mm	.53 mm	3 mm	63 mm	V668976-X	79.40	NEW
.1141		2.900 mm	.569	14.50 mm	(5x)	17.30 mm	.53 mm	3 mm	63 mm	V401097-X	104.50	
.1141		2.900 mm	.911	23.20 mm	(8x)	26.43 mm	.53 mm	3 mm	63 mm	V463539-X	184.00	
.1160	#32	2.946 mm	.347	8.84 mm	(3x)	11.38 mm	.54 mm	3 mm	63 mm	V693017-X	79.40	NEW
.1160	#32	2.946 mm	.579	14.75 mm	(5x)	17.57 mm	.54 mm	3 mm	63 mm	V515243-X	104.50	NEW
.1181		3.000 mm	.353	9.00 mm	(3x)	11.59 mm	.55 mm	4 mm	63 mm	V644611-X	79.40	NEW
.1181		3.000 mm	.589	15.00 mm	(5x)	17.89 mm	.55 mm	4 mm	63 mm	V801593-X	104.50	
.1181		3.000 mm	.943	24.00 mm	(8x)	27.34 mm	.55 mm	4 mm	75 mm	V457776-X	184.00	
.1200	#31	3.048 mm	.359	9.14 mm	(3x)	11.78 mm	.55 mm	4 mm	63 mm	V710810-X	79.40	NEW
.1200	#31	3.048 mm	.599	15.25 mm	(5x)	18.18 mm	.55 mm	4 mm	63 mm	V659489-X	104.50	NEW
.1220		3.100 mm	.365	9.30 mm	(3x)	11.98 mm	.56 mm	4 mm	63 mm	V175641-X	79.40	NEW
.1220		3.100 mm	.609	15.50 mm	(5x)	18.49 mm	.56 mm	4 mm	63 mm	V364491-X	104.50	
.1220		3.100 mm	.974	24.80 mm	(8x)	28.25 mm	.56 mm	4 mm	75 mm	V220312-X	184.00	
.1250 (1/8)		3.175 mm	.374	9.53 mm	(3x)	12.27 mm	.58 mm	4 mm	63 mm	V316607-X	79.40	NEW
.1250 (1/8)		3.175 mm	.624	15.90 mm	(5x)	18.94 mm	.58 mm	4 mm	63 mm	V809756-X	104.50	
.1250 (1/8)		3.175 mm	.998	25.40 mm	(8x)	28.94 mm	.58 mm	4 mm	75 mm	V996102-X	184.00	
.1260		3.200 mm	.377	9.60 mm	(3x)	12.37 mm	.58 mm	4 mm	63 mm	V070531-X	79.40	NEW
.1260		3.200 mm	.628	16.00 mm	(5x)	19.09 mm	.58 mm	4 mm	63 mm	V416396-X	104.50	
.1260		3.200 mm	1.006	25.60 mm	(8x)	29.17 mm	.58 mm	4 mm	75 mm	V674784-X	184.00	
.1285	#30	3.263 mm	.384	9.79 mm	(3x)	12.61 mm	.59 mm	4 mm	63 mm	V557446-X	79.40	NEW
.1285	#30	3.263 mm	.640	16.30 mm	(5x)	19.46 mm	.59 mm	4 mm	63 mm	V782008-X	104.50	NEW
.1300		3.300 mm	.389	9.90 mm	(3x)	12.75 mm	.60 mm	4 mm	63 mm	V634310-X	79.40	NEW
.1300		3.300 mm	.648	16.50 mm	(5x)	19.68 mm	.60 mm	4 mm	63 mm	V512932-X	104.50	
.1300		3.300 mm	1.037	26.40 mm	(8x)	30.08 mm	.60 mm	4 mm	75 mm	V397319-X	184.00	
.1338		3.400 mm	.400	10.20 mm	(3x)	13.14 mm	.62 mm	4 mm	63 mm	V645727-X	79.40	NEW
.1338		3.400 mm	.668	17.00 mm	(5x)	20.28 mm	.62 mm	4 mm	63 mm	V618699-X	104.50	
.1338		3.400 mm	1.068	27.20 mm	(8x)	30.99 mm	.62 mm	4 mm	75 mm	V677203-X	184.00	
.1360	#29	3.454 mm	.407	10.36 mm	(3x)	13.35 mm	.63 mm	4 mm	63 mm	V756850-X	79.40	NEW
.1360	#29	3.454 mm	.677	17.25 mm	(5x)	20.60 mm	.63 mm	4 mm	63 mm	V031117-X	104.50	NEW
.1377		3.500 mm	.412	10.50 mm	(3x)	13.53 mm	.64 mm	4 mm	63 mm	V471775-X	79.40	NEW
.1377		3.500 mm	.687	17.50 mm	(5x)	20.88 mm	.64 mm	4 mm	63 mm	V270510-X	104.50	
.1377		3.500 mm	1.100	28.00 mm	(8x)	31.90 mm	.64 mm	4 mm	75 mm	V173165-X	184.00	

* 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					Tool #	Price
	D ₁ (h8)*		L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁		
NEW	.1406 (9/64)	3.571 mm	.421	10.71 mm	(3x)	13.80 mm	.65 mm	4 mm	63 mm	V300141-X	79.40
	.1406 (9/64)	3.571 mm	.701	17.85 mm	(5x)	21.30 mm	.65 mm	4 mm	63 mm	V431644-X	104.50
	.1406 (9/64)	3.571 mm	1.122	28.55 mm	(8x)	32.55 mm	.65 mm	4 mm	75 mm	V576472-X	184.00
NEW	.1417	3.600 mm	.424	10.80 mm	(3x)	13.91 mm	.66 mm	4 mm	63 mm	V419311-X	79.40
	.1417	3.600 mm	.707	18.00 mm	(5x)	21.47 mm	.66 mm	4 mm	63 mm	V818634-X	104.50
	.1417	3.600 mm	1.131	28.80 mm	(8x)	32.81 mm	.66 mm	4 mm	75 mm	V855115-X	184.00
NEW	.1440	#27 3.657 mm	.431	10.97 mm	(3x)	14.13 mm	.67 mm	4 mm	63 mm	V549363-X	79.40
NEW	.1440	#27 3.657 mm	.719	18.30 mm	(5x)	21.81 mm	.67 mm	4 mm	63 mm	V536160-X	104.50
NEW	.1456	3.700 mm	.436	11.10 mm	(3x)	14.30 mm	.67 mm	4 mm	63 mm	V352105-X	79.40
	.1456	3.700 mm	.727	18.50 mm	(5x)	22.07 mm	.67 mm	4 mm	63 mm	V800060-X	104.50
	.1456	3.700 mm	1.163	29.60 mm	(8x)	33.72 mm	.67 mm	4 mm	75 mm	V947623-X	184.00
NEW	.1470	#26 3.733 mm	.440	11.20 mm	(3x)	14.43 mm	.68 mm	4 mm	63 mm	V937576-X	79.40
NEW	.1470	#26 3.733 mm	.732	18.65 mm	(5x)	22.27 mm	.68 mm	4 mm	63 mm	V189053-X	104.50
NEW	.1495	#25 3.797 mm	.447	11.39 mm	(3x)	14.67 mm	.69 mm	4 mm	63 mm	V540669-X	79.40
NEW	.1495	#25 3.797 mm	.746	19.00 mm	(5x)	22.65 mm	.69 mm	4 mm	63 mm	V460246-X	104.50
NEW	.1496	3.800 mm	.448	11.40 mm	(3x)	14.69 mm	.69 mm	4 mm	63 mm	V639718-X	79.40
	.1496	3.800 mm	.746	19.00 mm	(5x)	22.67 mm	.69 mm	4 mm	63 mm	V598062-X	104.50
	.1496	3.800 mm	1.194	30.40 mm	(8x)	34.64 mm	.69 mm	4 mm	75 mm	V264988-X	184.00
NEW	.1520	#24 3.860 mm	.455	11.58 mm	(3x)	14.92 mm	.70 mm	4 mm	63 mm	V977074-X	79.40
NEW	.1520	#24 3.860 mm	.758	19.30 mm	(5x)	23.02 mm	.70 mm	4 mm	63 mm	V107747-X	104.50
NEW	.1535	3.900 mm	.459	11.70 mm	(3x)	15.07 mm	.71 mm	4 mm	63 mm	V154062-X	79.40
	.1535	3.900 mm	.766	19.50 mm	(5x)	23.26 mm	.71 mm	4 mm	63 mm	V853122-X	104.50
	.1535	3.900 mm	1.226	31.20 mm	(8x)	35.55 mm	.71 mm	4 mm	75 mm	V704607-X	184.00
NEW	.1540	#23 3.911 mm	.461	11.73 mm	(3x)	15.12 mm	.71 mm	4 mm	63 mm	V868199-X	79.40
NEW	.1540	#23 3.911 mm	.768	19.55 mm	(5x)	23.33 mm	.71 mm	4 mm	63 mm	V559415-X	104.50
NEW	.1562 (5/32)	3.968 mm	.467	11.90 mm	(3x)	15.34 mm	.72 mm	4 mm	63 mm	V672559-X	79.40
	.1562 (5/32)	3.968 mm	.780	19.85 mm	(5x)	23.67 mm	.72 mm	4 mm	63 mm	V635360-X	104.50
	.1562 (5/32)	3.968 mm	1.247	31.75 mm	(8x)	36.17 mm	.72 mm	4 mm	75 mm	V976984-X	184.00
NEW	.1570	#22 3.987 mm	.470	11.96 mm	(3x)	15.41 mm	.73 mm	4 mm	63 mm	V255629-X	79.40
NEW	.1570	#22 3.987 mm	.784	19.95 mm	(5x)	23.78 mm	.73 mm	4 mm	63 mm	V688450-X	104.50
NEW	.1574	4.000 mm	.471	12.00 mm	(3x)	15.46 mm	.73 mm	6 mm	63 mm	V328975-X	83.40
	.1574	4.000 mm	.786	20.00 mm	(5x)	23.86 mm	.73 mm	6 mm	75 mm	V203097-X	114.00
	.1574	4.000 mm	1.257	32.00 mm	(8x)	36.46 mm	.73 mm	6 mm	100 mm	V976894-X	188.50
NEW	.1590	#21 4.038 mm	.476	12.11 mm	(3x)	15.61 mm	.73 mm	6 mm	63 mm	V366385-X	83.40
NEW	.1590	#21 4.038 mm	.793	20.20 mm	(5x)	24.09 mm	.73 mm	6 mm	75 mm	V014463-X	114.00

* 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 #	Price	
.1610	#20	4.089 mm	.482	12.27 mm	(3x)	15.80 mm	.74 mm	6 mm	63 mm	V347292-X	83.40	NEW
.1610	#20	4.089 mm	.803	20.45 mm	(5x)	24.39 mm	.74 mm	6 mm	75 mm	V278069-X	114.00	NEW
.1614		4.100 mm	.483	12.30 mm	(3x)	15.85 mm	.75 mm	6 mm	63 mm	V901139-X	83.40	NEW
.1614		4.100 mm	.805	20.50 mm	(5x)	24.46 mm	.75 mm	6 mm	75 mm	V123430-X	114.00	
.1614		4.100 mm	1.289	32.80 mm	(8x)	37.37 mm	.75 mm	6 mm	100 mm	V852607-X	188.50	
.1653		4.200 mm	.495	12.60 mm	(3x)	16.23 mm	.76 mm	6 mm	63 mm	V910836-X	83.40	NEW
.1653		4.200 mm	.825	21.00 mm	(5x)	25.05 mm	.76 mm	6 mm	75 mm	V565742-X	114.00	
.1653		4.200 mm	1.320	33.60 mm	(8x)	38.28 mm	.76 mm	6 mm	100 mm	V251176-X	188.50	
.1660	#19	4.216 mm	.497	12.65 mm	(3x)	16.29 mm	.77 mm	6 mm	63 mm	V405374-X	83.40	NEW
.1660	#19	4.216 mm	.829	21.10 mm	(5x)	25.15 mm	.77 mm	6 mm	75 mm	V696277-X	114.00	NEW
.1692		4.300 mm	.506	12.90 mm	(3x)	16.62 mm	.78 mm	6 mm	63 mm	V472643-X	83.40	NEW
.1692		4.300 mm	.844	21.50 mm	(5x)	25.65 mm	.78 mm	6 mm	75 mm	V726600-X	114.00	
.1692		4.300 mm	1.351	34.40 mm	(8x)	39.19 mm	.78 mm	6 mm	100 mm	V898991-X	188.50	
.1695	#18	4.305 mm	.507	12.92 mm	(3x)	16.64 mm	.78 mm	6 mm	63 mm	V492855-X	83.40	NEW
.1695	#18	4.305 mm	.844	21.50 mm	(5x)	25.68 mm	.78 mm	6 mm	75 mm	V029427-X	114.00	NEW
.1718 (11/64)		4.365 mm	.514	13.10 mm	(3x)	16.87 mm	.79 mm	6 mm	63 mm	V600889-X	83.40	NEW
.1718 (11/64)		4.365 mm	.858	21.85 mm	(5x)	26.04 mm	.79 mm	6 mm	75 mm	V599958-X	114.00	
.1718 (11/64)		4.365 mm	1.371	34.90 mm	(8x)	39.79 mm	.79 mm	6 mm	100 mm	V939471-X	188.50	
.1730	#17	4.394 mm	.518	13.18 mm	(3x)	16.98 mm	.80 mm	6 mm	63 mm	V909391-X	83.40	NEW
.1730	#17	4.394 mm	.862	21.95 mm	(5x)	26.21 mm	.80 mm	6 mm	75 mm	V234239-X	114.00	NEW
.1732		4.400 mm	.518	13.20 mm	(3x)	17.01 mm	.80 mm	6 mm	63 mm	V067636-X	83.40	NEW
.1732		4.400 mm	.864	22.00 mm	(5x)	26.25 mm	.80 mm	6 mm	75 mm	V910547-X	114.00	
.1732		4.400 mm	1.383	35.20 mm	(8x)	40.11 mm	.80 mm	6 mm	100 mm	V336021-X	188.50	
.1770	#16	4.495 mm	.529	13.49 mm	(3x)	17.37 mm	.82 mm	6 mm	63 mm	V632314-X	83.40	NEW
.1770	#16	4.495 mm	.884	22.50 mm	(5x)	26.81 mm	.82 mm	6 mm	75 mm	V121732-X	114.00	NEW
.1771		4.500 mm	.530	13.50 mm	(3x)	17.39 mm	.82 mm	6 mm	63 mm	V634620-X	83.40	NEW
.1771		4.500 mm	.884	22.50 mm	(5x)	26.84 mm	.82 mm	6 mm	75 mm	V953328-X	114.00	
.1771		4.500 mm	1.414	36.00 mm	(8x)	41.02 mm	.82 mm	6 mm	100 mm	V645357-X	188.50	
.1800	#15	4.572 mm	.539	13.72 mm	(3x)	17.67 mm	.93 mm	6 mm	63 mm	V386258-X	83.40	NEW
.1800	#15	4.572 mm	.898	22.85 mm	(5x)	27.27 mm	.93 mm	6 mm	75 mm	V496542-X	114.00	NEW
.1811		4.600 mm	.542	13.80 mm	(3x)	17.78 mm	.84 mm	6 mm	63 mm	V822175-X	83.40	NEW
.1811		4.600 mm	.903	23.00 mm	(5x)	27.44 mm	.84 mm	6 mm	75 mm	V522954-X	114.00	
.1811		4.600 mm	1.446	36.80 mm	(8x)	41.93 mm	.84 mm	6 mm	100 mm	V696903-X	188.50	
.1820	#14	4.622 mm	.544	13.87 mm	(3x)	17.86 mm	.84 mm	6 mm	63 mm	V872089-X	83.40	NEW
.1820	#14	4.622 mm	.907	23.10 mm	(5x)	27.57 mm	.84 mm	6 mm	75 mm	V062395-X	114.00	NEW
.1850	#13	4.700 mm	.554	14.10 mm	(3x)	18.17 mm	.86 mm	6 mm	63 mm	V675595-X	83.40	NEW

* 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					Tool #	Price
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1		
NEW	.1850	#13	4.700 mm	.923	23.50 mm	(5x)	28.04 mm	.86 mm	6 mm	75 mm	V725949-X	114.00
	.1850	#13	4.700 mm	1.477	37.60 mm	(8x)	42.84 mm	.86 mm	6 mm	100 mm	V572954-X	188.50
	.1875 (3/16)		4.762 mm	.561	14.29 mm	(3x)	18.41 mm	.87 mm	6 mm	63 mm	V841193-X	83.40
	.1875 (3/16)		4.762 mm	.935	23.80 mm	(5x)	28.41 mm	.87 mm	6 mm	75 mm	V897179-X	114.00
NEW	.1875 (3/16)		4.762 mm	1.497	38.10 mm	(8x)	43.41 mm	.87 mm	6 mm	100 mm	V900083-X	188.50
	.1890	#12	4.800 mm	.565	14.40 mm	(3x)	18.55 mm	.87 mm	6 mm	63 mm	V456853-X	83.40
	.1890	#12	4.800 mm	.943	24.00 mm	(5x)	28.63 mm	.87 mm	6 mm	75 mm	V787648-X	114.00
	.1890	#12	4.800 mm	1.509	38.40 mm	(8x)	43.75 mm	.87 mm	6 mm	100 mm	V836739-X	188.50
NEW	.1910	#11	4.851 mm	.571	14.55 mm	(3x)	18.75 mm	.88 mm	6 mm	63 mm	V587966-X	83.40
NEW	.1910	#11	4.851 mm	.953	24.25 mm	(5x)	28.94 mm	.88 mm	6 mm	75 mm	V732154-X	114.00
NEW	.1930		4.900 mm	.577	14.70 mm	(3x)	18.94 mm	.89 mm	6 mm	63 mm	V973663-X	83.40
	.1930		4.900 mm	.962	24.50 mm	(5x)	29.23 mm	.89 mm	6 mm	75 mm	V709396-X	114.00
	.1930		4.900 mm	1.540	39.20 mm	(8x)	44.66 mm	.89 mm	6 mm	100 mm	V871826-X	188.50
NEW	.1935	#10	4.914 mm	.579	14.74 mm	(3x)	18.99 mm	.89 mm	6 mm	63 mm	V821519-X	83.40
NEW	.1935	#10	4.914 mm	.964	24.55 mm	(5x)	29.31 mm	.89 mm	6 mm	75 mm	V884502-X	114.00
NEW	.1960	#9	4.978 mm	.586	14.93 mm	(3x)	19.24 mm	.91 mm	6 mm	63 mm	V883543-X	83.40
NEW	.1960	#9	4.978 mm	.978	24.90 mm	(5x)	29.69 mm	.91 mm	6 mm	75 mm	V382016-X	114.00
NEW	.1968		5.000 mm	.589	15.00 mm	(3x)	19.33 mm	.91 mm	6 mm	63 mm	V451900-X	83.40
	.1968		5.000 mm	.982	25.00 mm	(5x)	29.83 mm	.91 mm	6 mm	75 mm	V676356-X	118.00
	.1968		5.000 mm	1.572	40.00 mm	(8x)	45.58 mm	.91 mm	6 mm	100 mm	V826060-X	188.50
NEW	.1990	#8	5.054 mm	.595	15.16 mm	(3x)	19.53 mm	.92 mm	6 mm	63 mm	V050407-X	83.40
NEW	.1990	#8	5.054 mm	.992	25.25 mm	(5x)	30.15 mm	.92 mm	6 mm	75 mm	V022248-X	114.00
NEW	.2007		5.100 mm	.601	15.30 mm	(3x)	19.71 mm	.93 mm	6 mm	63 mm	V939681-X	87.10
	.2007		5.100 mm	1.002	25.50 mm	(5x)	30.42 mm	.93 mm	6 mm	75 mm	V123829-X	118.00
	.2007		5.100 mm	1.603	40.80 mm	(8x)	46.49 mm	.93 mm	6 mm	100 mm	V775217-X	188.50
NEW	.2009	#7	5.105 mm	.601	15.32 mm	(3x)	19.73 mm	.93 mm	6 mm	63 mm	V631504-X	87.10
NEW	.2009	#7	5.105 mm	1.004	25.55 mm	(5x)	30.45 mm	.93 mm	6 mm	75 mm	V714773-X	118.00
NEW	.2031 (13/64)		5.159 mm	.608	15.48 mm	(3x)	19.94 mm	.94 mm	6 mm	63 mm	V242343-X	87.10
	.2031 (13/64)		5.159 mm	1.013	25.80 mm	(5x)	30.77 mm	.94 mm	6 mm	75 mm	V709714-X	118.00
	.2031 (13/64)		5.159 mm	1.621	41.25 mm	(8x)	47.02 mm	.94 mm	6 mm	100 mm	V486375-X	188.50
NEW	.2040	#6	5.181 mm	.610	15.54 mm	(3x)	20.03 mm	.94 mm	6 mm	63 mm	V445382-X	87.10
NEW	.2040	#6	5.181 mm	1.017	25.90 mm	(5x)	30.91 mm	.94 mm	6 mm	75 mm	V513806-X	118.00
NEW	.2047		5.200 mm	.613	15.60 mm	(3x)	20.10 mm	.95 mm	6 mm	63 mm	V636675-X	87.10
	.2047		5.200 mm	1.021	26.00 mm	(5x)	31.02 mm	.95 mm	6 mm	75 mm	V284483-X	118.00
	.2047		5.200 mm	1.634	41.60 mm	(8x)	47.40 mm	.95 mm	6 mm	100 mm	V489580-X	188.50

* 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						
D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	Price
.2055	#5	5.219 mm	.615	15.66 mm	(3x)	20.17 mm	.95 mm	6 mm	63 mm	V957318-X	87.10
.2055	#5	5.219 mm	1.025	26.10 mm	(5x)	31.13 mm	.95 mm	6 mm	75 mm	V245286-X	118.00
.2086		5.300 mm	.624	15.90 mm	(3x)	20.49 mm	.96 mm	6 mm	63 mm	V439383-X	87.10
.2086		5.300 mm	1.041	26.50 mm	(5x)	31.62 mm	.96 mm	6 mm	75 mm	V505303-X	118.00
.2086		5.300 mm	1.666	42.40 mm	(8x)	48.31 mm	.96 mm	6 mm	100 mm	V397648-X	188.50
.2090	#4	5.308 mm	.625	15.92 mm	(3x)	20.52 mm	.97 mm	6 mm	63 mm	V135015-X	87.10
.2090	#4	5.308 mm	1.043	26.55 mm	(5x)	31.66 mm	.97 mm	6 mm	75 mm	V964340-X	118.00
.2125		5.400 mm	.636	16.20 mm	(3x)	20.87 mm	.98 mm	6 mm	63 mm	V170867-X	87.10
.2125		5.400 mm	1.061	27.00 mm	(5x)	32.21 mm	.98 mm	6 mm	75 mm	V608241-X	118.00
.2125		5.400 mm	1.697	43.20 mm	(8x)	49.22 mm	.98 mm	6 mm	100 mm	V639671-X	188.50
.2129	#3	5.410 mm	.637	16.23 mm	(3x)	20.91 mm	.98 mm	6 mm	63 mm	V722985-X	87.10
.2129	#3	5.410 mm	1.063	27.05 mm	(5x)	32.27 mm	.98 mm	6 mm	75 mm	V074227-X	118.00
.2165		5.500 mm	.648	16.50 mm	(3x)	21.26 mm	1.00 mm	6 mm	63 mm	V873400-X	87.10
.2165		5.500 mm	1.080	27.50 mm	(5x)	32.81 mm	1.00 mm	6 mm	75 mm	V563013-X	118.00
.2165		5.500 mm	1.729	44.00 mm	(8x)	50.13 mm	1.00 mm	6 mm	100 mm	V967384-X	188.50
.2187 (7/32)		5.556 mm	.655	16.67 mm	(3x)	21.47 mm	1.01 mm	6 mm	63 mm	V098917-X	87.10
.2187 (7/32)		5.556 mm	1.092	27.80 mm	(5x)	33.14 mm	1.01 mm	6 mm	75 mm	V435943-X	118.00
.2187 (7/32)		5.556 mm	1.746	44.45 mm	(8x)	50.64 mm	1.01 mm	6 mm	100 mm	V340002-X	188.50
.2205		5.600 mm	.660	16.80 mm	(3x)	21.65 mm	1.02 mm	6 mm	63 mm	V731025-X	87.10
.2205		5.600 mm	1.100	28.00 mm	(5x)	33.41 mm	1.02 mm	6 mm	75 mm	V687630-X	118.00
.2205		5.600 mm	1.760	44.80 mm	(8x)	51.05 mm	1.02 mm	6 mm	100 mm	V296219-X	188.50
.2210	#2	5.613 mm	.661	16.84 mm	(3x)	21.70 mm	1.02 mm	6 mm	63 mm	V167358-X	87.10
.2210	#2	5.613 mm	1.102	28.05 mm	(5x)	33.48 mm	1.02 mm	6 mm	75 mm	V152811-X	118.00
.2244		5.700 mm	.672	17.10 mm	(3x)	22.03 mm	1.04 mm	6 mm	63 mm	V389845-X	87.10
.2244		5.700 mm	1.120	28.50 mm	(5x)	34.00 mm	1.04 mm	6 mm	75 mm	V902097-X	118.00
.2244		5.700 mm	1.792	45.60 mm	(8x)	51.96 mm	1.04 mm	6 mm	100 mm	V190000-X	188.50
.2280	#1	5.791 mm	.682	17.37 mm	(3x)	22.38 mm	1.05 mm	6 mm	63 mm	V959913-X	87.10
.2280	#1	5.791 mm	1.137	28.95 mm	(5x)	34.54 mm	1.05 mm	6 mm	75 mm	V819899-X	118.00
.2283		5.800 mm	.683	17.40 mm	(3x)	22.42 mm	1.06 mm	6 mm	63 mm	V893357-X	87.10
.2283		5.800 mm	1.139	29.00 mm	(5x)	34.60 mm	1.06 mm	6 mm	75 mm	V860180-X	118.00
.2283		5.800 mm	1.823	46.40 mm	(8x)	52.87 mm	1.06 mm	6 mm	100 mm	V472294-X	188.50
.2322		5.900 mm	.695	17.70 mm	(3x)	22.80 mm	1.07 mm	6 mm	63 mm	V955966-X	87.10
.2322		5.900 mm	1.159	29.50 mm	(5x)	35.19 mm	1.07 mm	6 mm	75 mm	V506705-X	118.00
.2322		5.900 mm	1.854	47.20 mm	(8x)	53.78 mm	1.07 mm	6 mm	100 mm	V211763-X	188.50

* 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						
	D ₁ (h8)*			L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	Price
NEW	.2340	A	5.943 mm	.700	17.83 mm	(3x)	22.97 mm	1.08 mm	6 mm	63 mm	V846927-X	87.10
NEW	.2340	A	5.943 mm	1.167	29.70 mm	(5x)	35.45 mm	1.08 mm	6 mm	75 mm	V982417-X	118.00
NEW	.2343 (15/64)		5.953 mm	.701	17.86 mm	(3x)	23.01 mm	1.08 mm	6 mm	63 mm	V127445-X	87.10
	.2343 (15/64)		5.953 mm	1.169	29.75 mm	(5x)	35.51 mm	1.08 mm	6 mm	75 mm	V443731-X	118.00
	.2343 (15/64)		5.953 mm	1.870	47.60 mm	(8x)	54.26 mm	1.08 mm	6 mm	100 mm	V301658-X	188.50
NEW	.2362		6.000 mm	.707	18.00 mm	(3x)	23.19 mm	1.09 mm	8 mm	75 mm	V215914-X	87.10
	.2362		6.000 mm	1.179	30.00 mm	(5x)	35.79 mm	1.09 mm	8 mm	100 mm	V316316-X	118.00
	.2362		6.000 mm	1.886	48.00 mm	(8x)	54.69 mm	1.09 mm	8 mm	125 mm	V639871-X	188.50
NEW	.2380	B	6.045 mm	.712	18.14 mm	(3x)	23.37 mm	1.10 mm	8 mm	75 mm	V506387-X	99.70
NEW	.2380	B	6.045 mm	1.188	30.25 mm	(5x)	36.06 mm	1.10 mm	8 mm	100 mm	V244331-X	145.00
NEW	.2401		6.100 mm	.719	18.30 mm	(3x)	23.58 mm	1.11 mm	8 mm	75 mm	V669465-X	99.70
	.2401		6.100 mm	1.198	30.50 mm	(5x)	36.39 mm	1.11 mm	8 mm	100 mm	V912503-X	145.00
	.2401		6.100 mm	1.917	48.80 mm	(8x)	55.60 mm	1.11 mm	8 mm	125 mm	V673335-X	193.00
NEW	.2420	C	6.146 mm	.724	18.44 mm	(3x)	23.76 mm	1.12 mm	8 mm	75 mm	V292199-X	99.70
NEW	.2420	C	6.146 mm	1.208	30.75 mm	(5x)	36.66 mm	1.12 mm	8 mm	100 mm	V957293-X	145.00
NEW	.2440		6.200 mm	.730	18.60 mm	(3x)	23.96 mm	1.13 mm	8 mm	75 mm	V511375-X	99.70
	.2440		6.200 mm	1.218	31.00 mm	(5x)	36.98 mm	1.13 mm	8 mm	100 mm	V898914-X	145.00
	.2440		6.200 mm	1.949	49.60 mm	(8x)	56.51 mm	1.13 mm	8 mm	125 mm	V252129-X	193.00
NEW	.2460	D	6.248 mm	.736	18.74 mm	(3x)	24.15 mm	1.14 mm	8 mm	75 mm	V610152-X	99.70
NEW	.2460	D	6.248 mm	1.228	31.25 mm	(5x)	37.27 mm	1.14 mm	8 mm	100 mm	V204745-X	145.00
NEW	.2480		6.300 mm	.742	18.90 mm	(3x)	24.35 mm	1.15 mm	8 mm	75 mm	V485986-X	99.70
	.2480		6.300 mm	1.237	31.50 mm	(5x)	37.58 mm	1.15 mm	8 mm	100 mm	V361266-X	145.00
	.2480		6.300 mm	1.980	50.40 mm	(8x)	57.43 mm	1.15 mm	8 mm	125 mm	V948444-X	193.00
NEW	.2500 (1/4)	E	6.350 mm	.748	19.05 mm	(3x)	24.54 mm	1.16 mm	8 mm	75 mm	V442981-X	99.70
	.2500 (1/4)	E	6.350 mm	1.247	31.75 mm	(5x)	37.88 mm	1.16 mm	8 mm	100 mm	V596625-X	145.00
	.2500 (1/4)	E	6.350 mm	1.996	50.80 mm	(8x)	57.88 mm	1.16 mm	8 mm	125 mm	V471924-X	193.00
NEW	.2520		6.400 mm	.754	19.20 mm	(3x)	24.74 mm	1.16 mm	8 mm	75 mm	V324632-X	99.70
	.2520		6.400 mm	1.257	32.00 mm	(5x)	38.18 mm	1.16 mm	8 mm	100 mm	V745398-X	145.00
	.2520		6.400 mm	2.012	51.20 mm	(8x)	58.34 mm	1.16 mm	8 mm	125 mm	V480804-X	193.00
NEW	.2559		6.500 mm	.766	19.50 mm	(3x)	25.12 mm	1.18 mm	8 mm	75 mm	V590417-X	99.70
	.2559		6.500 mm	1.277	32.50 mm	(5x)	38.77 mm	1.18 mm	8 mm	100 mm	V493400-X	145.00
	.2559		6.500 mm	2.043	52.00 mm	(8x)	59.25 mm	1.18 mm	8 mm	125 mm	V486583-X	193.00
NEW	.2570	F	6.528 mm	.769	19.58 mm	(3x)	25.23 mm	1.19 mm	8 mm	75 mm	V818877-X	99.70
NEW	.2570	F	6.528 mm	1.283	32.65 mm	(5x)	38.94 mm	1.19 mm	8 mm	100 mm	V492822-X	145.00

* 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 #	Price
.2598		6.600 mm	.778	19.80 mm	(3x)	25.51 mm	1.20 mm	8 mm	75 mm	V713665-X	99.70
.2598		6.600 mm	1.296	33.00 mm	(5x)	39.37 mm	1.20 mm	8 mm	100 mm	V974827-X	145.00
.2598		6.600 mm	2.075	52.80 mm	(8x)	60.16 mm	1.20 mm	8 mm	125 mm	V348482-X	215.00
.2609	G	6.629 mm	.781	19.89 mm	(3x)	25.62 mm	1.21 mm	8 mm	75 mm	V986029-X	99.70
.2609	G	6.629 mm	1.302	33.15 mm	(5x)	39.54 mm	1.21 mm	8 mm	100 mm	V504791-X	145.00
.2638		6.700 mm	.789	20.10 mm	(3x)	25.90 mm	1.22 mm	8 mm	75 mm	V530603-X	99.70
.2638		6.700 mm	1.316	33.50 mm	(5x)	39.97 mm	1.22 mm	8 mm	100 mm	V533319-X	145.00
.2638		6.700 mm	2.106	53.60 mm	(8x)	61.07 mm	1.22 mm	8 mm	125 mm	V354955-X	215.00
.2656 (17/64)		6.746 mm	.795	20.24 mm	(3x)	26.08 mm	1.23 mm	8 mm	75 mm	V759812-X	99.70
.2656 (17/64)		6.746 mm	1.326	33.75 mm	(5x)	40.24 mm	1.23 mm	8 mm	100 mm	V375598-X	145.00
.2656 (17/64)		6.746 mm	2.120	53.95 mm	(8x)	61.49 mm	1.23 mm	8 mm	125 mm	V286319-X	215.00
.2659	H	6.756 mm	.796	20.27 mm	(3x)	26.11 mm	1.23 mm	8 mm	75 mm	V392097-X	99.70
.2659	H	6.756 mm	1.328	33.80 mm	(5x)	40.30 mm	1.23 mm	8 mm	100 mm	V522067-X	145.00
.2677		6.800 mm	.801	20.40 mm	(3x)	26.28 mm	1.24 mm	8 mm	75 mm	V572837-X	99.70
.2677		6.800 mm	1.336	34.00 mm	(5x)	40.56 mm	1.24 mm	8 mm	100 mm	V931711-X	145.00
.2677		6.800 mm	2.137	54.40 mm	(8x)	61.98 mm	1.24 mm	8 mm	125 mm	V685021-X	215.00
.2717		6.900 mm	.813	20.70 mm	(3x)	26.67 mm	1.26 mm	8 mm	75 mm	V711513-X	99.70
.2717		6.900 mm	1.355	34.50 mm	(5x)	41.16 mm	1.26 mm	8 mm	100 mm	V903976-X	145.00
.2717		6.900 mm	2.169	55.20 mm	(8x)	62.90 mm	1.26 mm	8 mm	125 mm	V577100-X	215.00
.2719	I	6.908 mm	.814	20.72 mm	(3x)	26.70 mm	1.26 mm	8 mm	75 mm	V262644-X	99.70
.2719	I	6.908 mm	1.357	34.55 mm	(5x)	41.21 mm	1.26 mm	8 mm	100 mm	V591145-X	145.00
.2756		7.000 mm	.825	21.00 mm	(3x)	27.06 mm	1.27 mm	8 mm	75 mm	V026725-X	99.70
.2756		7.000 mm	1.375	35.00 mm	(5x)	41.76 mm	1.27 mm	8 mm	100 mm	V530079-X	145.00
.2756		7.000 mm	2.200	56.00 mm	(8x)	63.81 mm	1.27 mm	8 mm	125 mm	V914234-X	215.00
.2769	J	7.035 mm	.829	21.11 mm	(3x)	27.19 mm	1.28 mm	8 mm	75 mm	V601050-X	99.70
.2769	J	7.035 mm	1.381	35.15 mm	(5x)	41.97 mm	1.28 mm	8 mm	100 mm	V100940-X	145.00
.2795		7.100 mm	.837	21.30 mm	(3x)	27.44 mm	1.29 mm	8 mm	75 mm	V032973-X	99.70
.2795		7.100 mm	1.395	35.50 mm	(5x)	42.35 mm	1.29 mm	8 mm	100 mm	V451380-X	145.00
.2795		7.100 mm	2.232	56.80 mm	(8x)	64.72 mm	1.29 mm	8 mm	125 mm	V282100-X	215.00
.2809	K	7.137 mm	.841	21.41 mm	(3x)	27.59 mm	1.30 mm	8 mm	75 mm	V281152-X	99.70
.2809	K	7.137 mm	1.403	35.70 mm	(5x)	42.57 mm	1.30 mm	8 mm	100 mm	V476897-X	145.00
.2812 (9/32)		7.142 mm	.842	21.43 mm	(3x)	27.61 mm	1.30 mm	8 mm	75 mm	V830347-X	99.70
.2812 (9/32)		7.142 mm	1.403	35.70 mm	(5x)	42.60 mm	1.30 mm	8 mm	100 mm	V583258-X	145.00
.2812 (9/32)		7.142 mm	2.245	57.15 mm	(8x)	65.10 mm	1.30 mm	8 mm	125 mm	V764606-X	215.00

* 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 #	Price
NEW	.2834		7.200 mm	.848	21.60 mm	(3x)	27.83 mm	1.31 mm	8 mm	75 mm	V913322-X	99.70
	.2834		7.200 mm	1.414	36.00 mm	(5x)	42.95 mm	1.31 mm	8 mm	100 mm	V258366-X	145.00
	.2834		7.200 mm	2.263	57.60 mm	(8x)	65.63 mm	1.31 mm	8 mm	125 mm	V215750-X	215.00
NEW	.2874		7.300 mm	.860	21.90 mm	(3x)	28.22 mm	1.33 mm	8 mm	75 mm	V210812-X	99.70
	.2874		7.300 mm	1.434	36.50 mm	(5x)	43.55 mm	1.33 mm	8 mm	100 mm	V684490-X	145.00
	.2874		7.300 mm	2.295	58.40 mm	(8x)	66.54 mm	1.33 mm	8 mm	125 mm	V446805-X	215.00
NEW	.2900	L	7.366 mm	.868	22.10 mm	(3x)	28.47 mm	1.34 mm	8 mm	75 mm	V222594-X	99.70
NEW	.2900	L	7.366 mm	1.448	36.85 mm	(5x)	43.94 mm	1.34 mm	8 mm	100 mm	V731426-X	145.00
NEW	.2913		7.400 mm	.872	22.20 mm	(3x)	28.60 mm	1.35 mm	8 mm	75 mm	V771745-X	99.70
	.2913		7.400 mm	1.454	37.00 mm	(5x)	44.14 mm	1.35 mm	8 mm	100 mm	V391189-X	145.00
	.2913		7.400 mm	2.326	59.20 mm	(8x)	67.45 mm	1.35 mm	8 mm	125 mm	V568456-X	215.00
NEW	.2950	M	7.493 mm	.883	22.48 mm	(3x)	28.96 mm	1.36 mm	8 mm	75 mm	V116607-X	99.70
NEW	.2950	M	7.493 mm	1.471	37.45 mm	(5x)	44.70 mm	1.36 mm	8 mm	100 mm	V893293-X	145.00
NEW	.2952		7.500 mm	.884	22.50 mm	(3x)	28.99 mm	1.36 mm	8 mm	75 mm	V750188-X	99.70
	.2952		7.500 mm	1.473	37.50 mm	(5x)	44.74 mm	1.36 mm	8 mm	100 mm	V466533-X	145.00
	.2952		7.500 mm	2.358	60.00 mm	(8x)	68.37 mm	1.36 mm	8 mm	125 mm	V899537-X	215.00
NEW	.2969 (19/64)		7.541 mm	.889	22.62 mm	(3x)	29.15 mm	1.37 mm	8 mm	75 mm	V862293-X	99.70
	.2969 (19/64)		7.541 mm	1.481	37.70 mm	(5x)	44.99 mm	1.37 mm	8 mm	100 mm	V130050-X	145.00
	.2969 (19/64)		7.541 mm	2.371	60.35 mm	(8x)	68.74 mm	1.37 mm	8 mm	125 mm	V555955-X	215.00
NEW	.2992		7.600 mm	.896	22.80 mm	(3x)	29.38 mm	1.38 mm	8 mm	75 mm	V125895-X	99.70
	.2992		7.600 mm	1.493	38.00 mm	(5x)	45.34 mm	1.38 mm	8 mm	100 mm	V446731-X	145.00
	.2992		7.600 mm	2.389	60.80 mm	(8x)	69.28 mm	1.38 mm	8 mm	125 mm	V473739-X	215.00
NEW	.3020	N	7.671 mm	.904	23.01 mm	(3x)	29.65 mm	1.40 mm	8 mm	75 mm	V090928-X	99.70
NEW	.3020	N	7.671 mm	1.507	38.35 mm	(5x)	45.76 mm	1.40 mm	8 mm	100 mm	V238434-X	145.00
NEW	.3031		7.700 mm	.907	23.10 mm	(3x)	29.76 mm	1.40 mm	8 mm	75 mm	V193663-X	99.70
	.3031		7.700 mm	1.513	38.50 mm	(5x)	45.93 mm	1.40 mm	8 mm	100 mm	V623196-X	145.00
	.3031		7.700 mm	2.420	61.60 mm	(8x)	70.19 mm	1.40 mm	8 mm	125 mm	V597159-X	215.00
NEW	.3071		7.800 mm	.919	23.40 mm	(3x)	30.15 mm	1.42 mm	8 mm	75 mm	V426305-X	99.70
	.3071		7.800 mm	1.532	39.00 mm	(5x)	46.53 mm	1.42 mm	8 mm	100 mm	V516266-X	145.00
	.3071		7.800 mm	2.452	62.40 mm	(8x)	71.10 mm	1.42 mm	8 mm	125 mm	V980882-X	215.00
NEW	.3110		7.900 mm	.931	23.70 mm	(3x)	30.54 mm	1.44 mm	8 mm	75 mm	V714649-X	99.70
	.3110		7.900 mm	1.552	39.50 mm	(5x)	47.13 mm	1.44 mm	8 mm	100 mm	V880723-X	145.00
	.3110		7.900 mm	2.483	63.20 mm	(8x)	72.01 mm	1.44 mm	8 mm	125 mm	V592896-X	215.00
NEW	.3125 (5/16)		7.937 mm	.935	23.81 mm	(3x)	30.68 mm	1.44 mm	8 mm	75 mm	V524292-X	99.70
	.3125 (5/16)		7.937 mm	1.560	39.70 mm	(5x)	47.35 mm	1.44 mm	8 mm	100 mm	V227077-X	145.00
	.3125 (5/16)		7.937 mm	2.495	63.50 mm	(8x)	72.35 mm	1.44 mm	8 mm	125 mm	V284014-X	215.00

* 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 #	Price	
.3150		8.000 mm	.943	24.00 mm	(3x)	30.92 mm	1.46 mm	10 mm	75 mm	V448275-X	99.70	NEW
.3150		8.000 mm	1.572	40.00 mm	(5x)	47.72 mm	1.46 mm	10 mm	100 mm	V793102-X	145.00	
.3150		8.000 mm	2.515	64.00 mm	(8x)	72.92 mm	1.46 mm	10 mm	125 mm	V543490-X	215.00	
.3159	O	8.026 mm	.946	24.08 mm	(3x)	31.02 mm	1.46 mm	10 mm	75 mm	V714012-X	123.20	NEW
.3159	O	8.026 mm	1.577	40.15 mm	(5x)	47.88 mm	1.46 mm	10 mm	100 mm	V499875-X	176.00	NEW
.3189		8.100 mm	.954	24.30 mm	(3x)	31.31 mm	1.47 mm	10 mm	75 mm	V523682-X	123.20	NEW
.3189		8.100 mm	1.591	40.50 mm	(5x)	48.32 mm	1.47 mm	10 mm	100 mm	V794819-X	176.00	
.3189		8.100 mm	2.546	64.80 mm	(8x)	73.84 mm	1.47 mm	10 mm	125 mm	V558544-X	257.50	
.3228		8.200 mm	.966	24.60 mm	(3x)	31.70 mm	1.49 mm	10 mm	75 mm	V929879-X	123.20	NEW
.3228		8.200 mm	1.611	41.00 mm	(5x)	48.92 mm	1.49 mm	10 mm	100 mm	V224541-X	176.00	
.3228		8.200 mm	2.578	65.60 mm	(8x)	74.75 mm	1.49 mm	10 mm	125 mm	V791173-X	257.50	
.3229	P	8.204 mm	.967	24.61 mm	(3x)	31.71 mm	1.49 mm	10 mm	75 mm	V285546-X	123.20	NEW
.3229	P	8.204 mm	1.611	41.00 mm	(5x)	48.94 mm	1.49 mm	10 mm	100 mm	V596005-X	176.00	NEW
.3268		8.300 mm	.978	24.90 mm	(3x)	32.08 mm	1.51 mm	10 mm	75 mm	V398375-X	123.20	NEW
.3268		8.300 mm	1.630	41.50 mm	(5x)	49.51 mm	1.51 mm	10 mm	100 mm	V846287-X	176.00	
.3268		8.300 mm	2.609	66.40 mm	(8x)	75.66 mm	1.51 mm	10 mm	125 mm	V847161-X	257.50	
.3281 (21/64)		8.333 mm	.982	25.00 mm	(3x)	32.21 mm	1.52 mm	10 mm	75 mm	V929320-X	123.20	NEW
.3281 (21/64)		8.333 mm	1.636	41.65 mm	(5x)	49.71 mm	1.52 mm	10 mm	100 mm	V132654-X	176.00	
.3281 (21/64)		8.333 mm	2.619	66.65 mm	(8x)	75.96 mm	1.52 mm	10 mm	125 mm	V837883-X	257.50	
.3307		8.400 mm	.990	25.20 mm	(3x)	32.47 mm	1.53 mm	10 mm	75 mm	V744657-X	123.20	NEW
.3307		8.400 mm	1.650	42.00 mm	(5x)	50.11 mm	1.53 mm	10 mm	100 mm	V800950-X	176.00	
.3307		8.400 mm	2.640	67.20 mm	(8x)	76.57 mm	1.53 mm	10 mm	125 mm	V429782-X	257.50	
.3319	Q	8.432 mm	.994	25.30 mm	(3x)	32.59 mm	1.53 mm	10 mm	75 mm	V275821-X	123.20	NEW
.3319	Q	8.432 mm	1.656	42.15 mm	(5x)	50.30 mm	1.53 mm	10 mm	100 mm	V169793-X	176.00	NEW
.3346		8.500 mm	1.002	25.50 mm	(3x)	32.86 mm	1.55 mm	10 mm	75 mm	V360062-X	123.20	NEW
.3346		8.500 mm	1.670	42.50 mm	(5x)	50.71 mm	1.55 mm	10 mm	100 mm	V629626-X	176.00	
.3346		8.500 mm	2.672	68.00 mm	(8x)	77.48 mm	1.55 mm	10 mm	125 mm	V365117-X	257.50	
.3386		8.600 mm	1.013	25.80 mm	(3x)	33.24 mm	1.57 mm	10 mm	75 mm	V964537-X	123.20	NEW
.3386		8.600 mm	1.689	43.00 mm	(5x)	51.30 mm	1.57 mm	10 mm	100 mm	V934750-X	176.00	
.3386		8.600 mm	2.703	68.80 mm	(8x)	78.39 mm	1.57 mm	10 mm	125 mm	V672857-X	257.50	
.3389	R	8.610 mm	1.015	25.83 mm	(3x)	33.28 mm	1.57 mm	10 mm	75 mm	V977519-X	123.20	NEW
.3389	R	8.610 mm	1.691	43.05 mm	(5x)	51.36 mm	1.57 mm	10 mm	100 mm	V267236-X	176.00	NEW
.3425		8.700 mm	1.025	26.10 mm	(3x)	33.63 mm	1.58 mm	10 mm	75 mm	V821625-X	123.20	NEW
.3425		8.700 mm	1.709	43.50 mm	(5x)	51.90 mm	1.58 mm	10 mm	100 mm	V535214-X	176.00	
.3425		8.700 mm	2.735	69.60 mm	(8x)	79.30 mm	1.58 mm	10 mm	125 mm	V724736-X	257.50	

* 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 #	Price
NEW	.3438 (11/32)		8.732 mm	1.029	26.20 mm	(3x)	33.75 mm	1.59 mm	10 mm	75 mm	V708182-X	123.20
	.3438 (11/32)		8.732 mm	1.715	43.65 mm	(5x)	52.09 mm	1.59 mm	10 mm	100 mm	V188406-X	176.00
	.3438 (11/32)		8.732 mm	2.745	69.85 mm	(8x)	79.60 mm	1.59 mm	10 mm	125 mm	V365910-X	257.50
NEW	.3465		8.800 mm	1.037	26.40 mm	(3x)	34.02 mm	1.60 mm	10 mm	75 mm	V840409-X	123.20
	.3465		8.800 mm	1.729	44.00 mm	(5x)	52.50 mm	1.60 mm	10 mm	100 mm	V293144-X	176.00
	.3465		8.800 mm	2.766	70.40 mm	(8x)	80.22 mm	1.60 mm	10 mm	125 mm	V817884-X	257.50
NEW	.3479	S	8.839 mm	1.042	26.52 mm	(3x)	34.17 mm	1.61 mm	10 mm	75 mm	V643544-X	123.20
NEW	.3479	S	8.839 mm	1.737	44.20 mm	(5x)	52.73 mm	1.61 mm	10 mm	100 mm	V467117-X	176.00
NEW	.3504		8.900 mm	1.049	26.70 mm	(3x)	34.40 mm	1.62 mm	10 mm	75 mm	V025935-X	123.20
	.3504		8.900 mm	1.748	44.50 mm	(5x)	53.09 mm	1.62 mm	10 mm	100 mm	V818572-X	176.00
	.3504		8.900 mm	2.798	71.20 mm	(8x)	81.13 mm	1.62 mm	10 mm	150 mm	V648679-X	257.50
NEW	.3543		9.000 mm	1.061	27.00 mm	(3x)	34.79 mm	1.64 mm	10 mm	75 mm	V406083-X	123.20
	.3543		9.000 mm	1.768	45.00 mm	(5x)	53.69 mm	1.64 mm	10 mm	100 mm	V936127-X	176.00
	.3543		9.000 mm	2.829	72.00 mm	(8x)	82.04 mm	1.64 mm	10 mm	150 mm	V150387-X	257.50
NEW	.3579	T	9.093 mm	1.072	27.28 mm	(3x)	35.15 mm	1.65 mm	10 mm	75 mm	V737023-X	123.20
NEW	.3579	T	9.093 mm	1.786	45.45 mm	(5x)	54.24 mm	1.65 mm	10 mm	100 mm	V693435-X	176.00
NEW	.3583		9.100 mm	1.072	27.30 mm	(3x)	35.18 mm	1.66 mm	10 mm	75 mm	V452355-X	123.20
	.3583		9.100 mm	1.788	45.50 mm	(5x)	54.29 mm	1.66 mm	10 mm	100 mm	V347102-X	176.00
	.3583		9.100 mm	2.861	72.80 mm	(8x)	82.95 mm	1.66 mm	10 mm	150 mm	V201118-X	257.50
NEW	.3594 (23/64)		9.128 mm	1.076	27.38 mm	(3x)	35.28 mm	1.66 mm	10 mm	75 mm	V112137-X	123.20
	.3594 (23/64)		9.128 mm	1.794	45.65 mm	(5x)	54.45 mm	1.66 mm	10 mm	100 mm	V859797-X	176.00
	.3594 (23/64)		9.128 mm	2.868	73.00 mm	(8x)	83.21 mm	1.66 mm	10 mm	150 mm	V984555-X	257.50
NEW	.3622		9.200 mm	1.084	27.60 mm	(3x)	35.56 mm	1.67 mm	10 mm	75 mm	V171898-X	123.20
	.3622		9.200 mm	1.807	46.00 mm	(5x)	54.88 mm	1.67 mm	10 mm	100 mm	V317969-X	176.00
	.3622		9.200 mm	2.892	73.60 mm	(8x)	83.86 mm	1.67 mm	10 mm	150 mm	V217215-X	257.50
NEW	.3661		9.300 mm	1.096	27.90 mm	(3x)	35.95 mm	1.69 mm	10 mm	75 mm	V026241-X	123.20
	.3661		9.300 mm	1.827	46.50 mm	(5x)	55.48 mm	1.69 mm	10 mm	100 mm	V400752-X	176.00
	.3661		9.300 mm	2.923	74.40 mm	(8x)	84.77 mm	1.69 mm	10 mm	150 mm	V105289-X	257.50
NEW	.3679	U	9.347 mm	1.102	28.04 mm	(3x)	36.13 mm	1.70 mm	10 mm	75 mm	V703493-X	123.20
NEW	.3679	U	9.347 mm	1.837	46.75 mm	(5x)	55.76 mm	1.70 mm	10 mm	100 mm	V836040-X	176.00
NEW	.3701		9.400 mm	1.108	28.20 mm	(3x)	36.34 mm	1.71 mm	10 mm	75 mm	V875360-X	123.20
	.3701		9.400 mm	1.847	47.00 mm	(5x)	56.08 mm	1.71 mm	10 mm	100 mm	V220320-X	176.00
	.3701		9.400 mm	2.955	75.20 mm	(8x)	85.69 mm	1.71 mm	10 mm	150 mm	V421207-X	257.50
NEW	.3740		9.500 mm	1.120	28.50 mm	(3x)	36.72 mm	1.73 mm	10 mm	75 mm	V362088-X	123.20
	.3740		9.500 mm	1.866	47.50 mm	(5x)	56.67 mm	1.73 mm	10 mm	100 mm	V614370-X	176.00
	.3740		9.500 mm	2.986	76.00 mm	(8x)	86.60 mm	1.73 mm	10 mm	150 mm	V888115-X	257.50

* 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 #	Price			
.3750 (3/8)			9.525 mm			1.122	28.58 mm (3x)	36.82 mm	1.73 mm	10 mm	75 mm	V562756-X	123.20	NEW
.3750 (3/8)			9.525 mm			1.872	47.65 mm (5x)	56.82 mm	1.73 mm	10 mm	100 mm	V527488-X	176.00	
.3750 (3/8)			9.525 mm			2.994	76.20 mm (8x)	86.83 mm	1.73 mm	10 mm	150 mm	V571908-X	257.50	
.3770 V			9.575 mm			1.128	28.73 mm (3x)	37.01 mm	1.74 mm	10 mm	75 mm	V781131-X	123.20	NEW
.3770 V			9.575 mm			1.882	47.90 mm (5x)	57.12 mm	1.74 mm	10 mm	100 mm	V380969-X	176.00	NEW
.3780			9.600 mm			1.131	28.80 mm (3x)	37.11 mm	1.75 mm	10 mm	75 mm	V944108-X	123.20	NEW
.3780			9.600 mm			1.886	48.00 mm (5x)	57.27 mm	1.75 mm	10 mm	100 mm	V602463-X	189.00	
.3780			9.600 mm			3.018	76.80 mm (8x)	87.51 mm	1.75 mm	10 mm	150 mm	V778318-X	257.50	
.3819			9.700 mm			1.143	29.10 mm (3x)	37.50 mm	1.77 mm	10 mm	75 mm	V962653-X	123.20	NEW
.3819			9.700 mm			1.906	48.50 mm (5x)	57.87 mm	1.77 mm	10 mm	100 mm	V504675-X	189.00	
.3819			9.700 mm			3.049	77.60 mm (8x)	88.42 mm	1.77 mm	10 mm	150 mm	V739150-X	257.50	
.3858			9.800 mm			1.155	29.40 mm (3x)	37.88 mm	1.78 mm	10 mm	75 mm	V457838-X	138.80	NEW
.3858			9.800 mm			1.925	49.00 mm (5x)	58.46 mm	1.78 mm	10 mm	100 mm	V803165-X	189.00	
.3858			9.800 mm			3.081	78.40 mm (8x)	89.33 mm	1.78 mm	10 mm	150 mm	V526907-X	257.50	
.3859 W			9.804 mm			1.155	29.41 mm (3x)	37.90 mm	1.78 mm	10 mm	75 mm	V495210-X	138.80	NEW
.3859 W			9.804 mm			1.925	49.00 mm (5x)	58.49 mm	1.78 mm	10 mm	100 mm	V785975-X	189.00	NEW
.3898			9.900 mm			1.167	29.70 mm (3x)	38.27 mm	1.80 mm	10 mm	75 mm	V772972-X	138.80	NEW
.3898			9.900 mm			1.945	49.50 mm (5x)	59.06 mm	1.80 mm	10 mm	100 mm	V162974-X	189.00	
.3898			9.900 mm			3.112	79.20 mm (8x)	90.24 mm	1.80 mm	10 mm	150 mm	V265965-X	257.50	
.3906 (25/64)			9.921 mm			1.169	29.76 mm (3x)	38.35 mm	1.81 mm	10 mm	75 mm	V555209-X	138.80	NEW
.3906 (25/64)			9.921 mm			1.949	49.60 mm (5x)	59.18 mm	1.81 mm	10 mm	100 mm	V955537-X	189.00	
.3906 (25/64)			9.921 mm			3.118	79.35 mm (8x)	90.44 mm	1.81 mm	10 mm	150 mm	V598968-X	257.50	
.3937			10.000 mm			1.179	30.00 mm (3x)	38.66 mm	1.82 mm	12 mm	100 mm	V329143-X	138.80	NEW
.3937			10.000 mm			1.965	50.00 mm (5x)	59.66 mm	1.82 mm	12 mm	125 mm	V666168-X	189.00	
.3937			10.000 mm			3.144	80.00 mm (8x)	91.16 mm	1.82 mm	12 mm	150 mm	V703861-X	257.50	
.3969 X			10.083 mm			1.188	30.25 mm (3x)	38.98 mm	1.82 mm	12 mm	100 mm	V196241-X	167.20	NEW
.3969 X			10.083 mm			1.980	50.40 mm (5x)	60.15 mm	1.82 mm	12 mm	125 mm	V205577-X	243.50	NEW
.3976			10.100 mm			1.190	30.30 mm (3x)	39.04 mm	1.84 mm	12 mm	100 mm	V013421-X	167.20	NEW
.3976			10.100 mm			1.984	50.50 mm (5x)	60.25 mm	1.84 mm	12 mm	125 mm	V556342-X	243.50	
.3976			10.100 mm			3.175	80.80 mm (8x)	92.07 mm	1.84 mm	12 mm	150 mm	V268015-X	344.50	
.4016			10.200 mm			1.202	30.60 mm (3x)	39.43 mm	1.86 mm	12 mm	100 mm	V449574-X	167.20	NEW
.4016			10.200 mm			2.004	51.00 mm (5x)	60.85 mm	1.86 mm	12 mm	125 mm	V239429-X	243.50	
.4016			10.200 mm			3.206	81.60 mm (8x)	92.98 mm	1.86 mm	12 mm	150 mm	V358630-X	344.50	
.4039 Y			10.261 mm			1.209	30.78 mm (3x)	39.66 mm	1.87 mm	12 mm	100 mm	V470957-X	167.20	NEW
.4039 Y			10.261 mm			2.016	51.30 mm (5x)	61.21 mm	1.87 mm	12 mm	125 mm	V272231-X	243.50	NEW

* 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 #	Price
NEW	.4055		10.300 mm	1.214	30.90 mm	(3x)	39.82 mm	1.87 mm	12 mm	100 mm	V560875-X	167.20
	.4055		10.300 mm	2.023	51.50 mm	(5x)	61.45 mm	1.87 mm	12 mm	125 mm	V795138-X	243.50
	.4055		10.300 mm	3.238	82.40 mm	(8x)	93.89 mm	1.87 mm	12 mm	150 mm	V932200-X	344.50
NEW	.4062 (13/32)		10.317 mm	1.216	30.95 mm	(3x)	39.88 mm	1.88 mm	12 mm	100 mm	V187401-X	167.20
	.4062 (13/32)		10.317 mm	2.027	51.60 mm	(5x)	61.55 mm	1.88 mm	12 mm	125 mm	V193040-X	243.50
	.4062 (13/32)		10.317 mm	3.244	82.55 mm	(8x)	94.05 mm	1.88 mm	12 mm	150 mm	V880263-X	344.50
NEW	.4094		10.400 mm	1.226	31.20 mm	(3x)	40.20 mm	1.89 mm	12 mm	100 mm	V328386-X	167.20
	.4094		10.400 mm	2.043	52.00 mm	(5x)	62.04 mm	1.89 mm	12 mm	125 mm	V455264-X	243.50
	.4094		10.400 mm	3.269	83.20 mm	(8x)	94.80 mm	1.89 mm	12 mm	150 mm	V403117-X	344.50
NEW	.4129	Z	10.490 mm	1.236	31.47 mm	(3x)	40.55 mm	1.91 mm	12 mm	100 mm	V464183-X	167.20
NEW	.4129	Z	10.490 mm	2.061	52.45 mm	(5x)	62.58 mm	1.91 mm	12 mm	125 mm	V455635-X	243.50
NEW	.4134		10.500 mm	1.237	31.50 mm	(3x)	40.59 mm	1.91 mm	12 mm	100 mm	V660047-X	167.20
	.4134		10.500 mm	2.063	52.50 mm	(5x)	62.64 mm	1.91 mm	12 mm	125 mm	V720867-X	243.50
	.4134		10.500 mm	3.301	84.00 mm	(8x)	95.71 mm	1.91 mm	12 mm	150 mm	V789723-X	344.50
NEW	.4173		10.600 mm	1.249	31.80 mm	(3x)	40.98 mm	1.93 mm	12 mm	100 mm	V774128-X	167.20
	.4173		10.600 mm	2.082	53.00 mm	(5x)	63.24 mm	1.93 mm	12 mm	125 mm	V799193-X	243.50
	.4173		10.600 mm	3.332	84.80 mm	(8x)	96.63 mm	1.93 mm	12 mm	150 mm	V713139-X	344.50
NEW	.4213		10.700 mm	1.261	32.10 mm	(3x)	41.36 mm	1.95 mm	12 mm	100 mm	V280227-X	167.20
	.4213		10.700 mm	2.102	53.50 mm	(5x)	63.83 mm	1.95 mm	12 mm	125 mm	V146857-X	243.50
	.4213		10.700 mm	3.364	85.60 mm	(8x)	97.54 mm	1.95 mm	12 mm	150 mm	V786898-X	344.50
NEW	.4219 (27/64)		10.716 mm	1.263	32.15 mm	(3x)	41.42 mm	1.95 mm	12 mm	100 mm	V368628-X	167.20
	.4219 (27/64)		10.716 mm	2.106	53.60 mm	(5x)	63.93 mm	1.95 mm	12 mm	125 mm	V399606-X	243.50
	.4219 (27/64)		10.716 mm	3.369	85.75 mm	(8x)	97.68 mm	1.95 mm	12 mm	150 mm	V248975-X	344.50
NEW	.4252		10.800 mm	1.273	32.40 mm	(3x)	41.75 mm	1.97 mm	12 mm	100 mm	V839268-X	167.20
	.4252		10.800 mm	2.122	54.00 mm	(5x)	64.43 mm	1.97 mm	12 mm	125 mm	V422061-X	243.50
	.4252		10.800 mm	3.395	86.40 mm	(8x)	98.45 mm	1.97 mm	12 mm	150 mm	V195955-X	344.50
NEW	.4291		10.900 mm	1.285	32.70 mm	(3x)	42.14 mm	1.98 mm	12 mm	100 mm	V848164-X	167.20
	.4291		10.900 mm	2.141	54.50 mm	(5x)	65.03 mm	1.98 mm	12 mm	125 mm	V540329-X	243.50
	.4291		10.900 mm	3.426	87.20 mm	(8x)	99.36 mm	1.98 mm	12 mm	175 mm	V876962-X	344.50
NEW	.4331		11.000 mm	1.296	33.00 mm	(3x)	42.52 mm	2.00 mm	12 mm	100 mm	V290969-X	167.20
	.4331		11.000 mm	2.161	55.00 mm	(5x)	65.62 mm	2.00 mm	12 mm	125 mm	V343592-X	243.50
	.4331		11.000 mm	3.458	88.00 mm	(8x)	100.27 mm	2.00 mm	12 mm	175 mm	V899093-X	344.50
NEW	.4370		11.100 mm	1.308	33.30 mm	(3x)	42.91 mm	2.02 mm	12 mm	100 mm	V814990-X	167.20
	.4370		11.100 mm	2.181	55.50 mm	(5x)	66.22 mm	2.02 mm	12 mm	125 mm	V352322-X	243.50
	.4370		11.100 mm	3.489	88.80 mm	(8x)	101.18 mm	2.02 mm	12 mm	175 mm	V760218-X	344.50

* 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	metric	inch	metric	hole depth						
D ₁ (h8)*		L ₂			L ₃	L ₄	D ₂ (h6)*	L ₁	Tool #	Price
.4375 (7/16)	11.112 mm	1.310	33.34 mm	(3x)	42.95 mm	2.02 mm	12 mm	100 mm	V246600-X	167.20
.4375 (7/16)	11.112 mm	2.183	55.55 mm	(5x)	66.29 mm	2.02 mm	12 mm	125 mm	V845356-X	243.50
.4375 (7/16)	11.112 mm	3.493	88.90 mm	(8x)	101.29 mm	2.02 mm	12 mm	175 mm	V439028-X	344.50
.4409	11.200 mm	1.320	33.60 mm	(3x)	43.30 mm	2.04 mm	12 mm	100 mm	V087942-X	167.20
.4409	11.200 mm	2.200	56.00 mm	(5x)	66.82 mm	2.04 mm	12 mm	125 mm	V543395-X	243.50
.4409	11.200 mm	3.521	89.60 mm	(8x)	102.10 mm	2.04 mm	12 mm	175 mm	V275937-X	344.50
.4449	11.300 mm	1.332	33.90 mm	(3x)	43.68 mm	2.06 mm	12 mm	100 mm	V195640-X	167.20
.4449	11.300 mm	2.220	56.50 mm	(5x)	67.41 mm	2.06 mm	12 mm	125 mm	V274775-X	243.50
.4449	11.300 mm	3.552	90.40 mm	(8x)	103.01 mm	2.06 mm	12 mm	175 mm	V718898-X	344.50
.4488	11.400 mm	1.344	34.20 mm	(3x)	44.07 mm	2.07 mm	12 mm	100 mm	V678248-X	167.20
.4488	11.400 mm	2.240	57.00 mm	(5x)	68.01 mm	2.07 mm	12 mm	125 mm	V212694-X	243.50
.4488	11.400 mm	3.584	91.20 mm	(8x)	103.92 mm	2.07 mm	12 mm	175 mm	V700150-X	344.50
.4527	11.500 mm	1.355	34.50 mm	(3x)	44.45 mm	2.09 mm	12 mm	100 mm	V477127-X	167.20
.4527	11.500 mm	2.259	57.50 mm	(5x)	68.60 mm	2.09 mm	12 mm	125 mm	V711465-X	243.50
.4527	11.500 mm	3.615	92.00 mm	(8x)	104.83 mm	2.09 mm	12 mm	175 mm	V356032-X	344.50
.4531 (29/64)	11.508 mm	1.356	34.52 mm	(3x)	44.49 mm	2.09 mm	12 mm	100 mm	V275043-X	167.20
.4531 (29/64)	11.508 mm	2.261	57.55 mm	(5x)	68.65 mm	2.09 mm	12 mm	125 mm	V353391-X	243.50
.4531 (29/64)	11.508 mm	3.617	92.05 mm	(8x)	104.90 mm	2.09 mm	12 mm	175 mm	V409601-X	344.50
.4567	11.600 mm	1.367	34.80 mm	(3x)	44.84 mm	2.11 mm	12 mm	100 mm	V364920-X	167.20
.4567	11.600 mm	2.279	58.00 mm	(5x)	69.20 mm	2.11 mm	12 mm	125 mm	V646698-X	243.50
.4567	11.600 mm	3.647	92.80 mm	(8x)	105.74 mm	2.11 mm	12 mm	175 mm	V865206-X	344.50
.4606	11.700 mm	1.379	35.10 mm	(3x)	45.23 mm	2.13 mm	12 mm	100 mm	V958776-X	167.20
.4606	11.700 mm	2.299	58.50 mm	(5x)	69.80 mm	2.13 mm	12 mm	125 mm	V847917-X	243.50
.4606	11.700 mm	3.678	93.60 mm	(8x)	106.65 mm	2.13 mm	12 mm	175 mm	V559316-X	344.50
.4646	11.800 mm	1.391	35.40 mm	(3x)	45.61 mm	2.15 mm	12 mm	100 mm	V019498-X	167.20
.4646	11.800 mm	2.318	59.00 mm	(5x)	70.39 mm	2.15 mm	12 mm	125 mm	V925309-X	243.50
.4646	11.800 mm	3.709	94.40 mm	(8x)	107.56 mm	2.15 mm	12 mm	175 mm	V336564-X	344.50
.4685	11.900 mm	1.403	35.70 mm	(3x)	46.00 mm	2.17 mm	12 mm	100 mm	V042932-X	167.20
.4685	11.900 mm	2.338	59.50 mm	(5x)	70.99 mm	2.17 mm	12 mm	125 mm	V168544-X	243.50
.4685	11.900 mm	3.741	95.20 mm	(8x)	108.48 mm	2.17 mm	12 mm	175 mm	V985664-X	344.50
.4688 (15/32)	11.907 mm	1.403	35.72 mm	(3x)	46.03 mm	2.17 mm	12 mm	100 mm	V344361-X	167.20
.4688 (15/32)	11.907 mm	2.340	59.55 mm	(5x)	71.03 mm	2.17 mm	12 mm	125 mm	V798383-X	243.50
.4688 (15/32)	11.907 mm	3.743	95.25 mm	(8x)	108.54 mm	2.17 mm	12 mm	175 mm	V603519-X	344.50
.4724	12.000 mm	1.414	36.00 mm	(3x)	46.39 mm	2.18 mm	14 mm	100 mm	V798303-X	167.20
.4724	12.000 mm	2.358	60.00 mm	(5x)	71.59 mm	2.18 mm	14 mm	125 mm	V282193-X	243.50
.4724	12.000 mm	3.772	96.00 mm	(8x)	109.39 mm	2.18 mm	14 mm	175 mm	V588339-X	344.50

* 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						
	D1 (h8)*			L2			L3	L4	D2 (h6)*	L1	Tool #	Price
NEW	.4764		12.100 mm	1.426	36.30 mm	(3x)	46.77 mm	2.20 mm	14 mm	100 mm	V420975-X	233.20
	.4764		12.100 mm	2.377	60.50 mm	(5x)	72.18 mm	2.20 mm	14 mm	125 mm	V165416-X	321.00
	.4764		12.100 mm	3.804	96.80 mm	(8x)	110.30 mm	2.20 mm	14 mm	175 mm	V611187-X	353.00
NEW	.4803		12.200 mm	1.438	36.60 mm	(3x)	47.16 mm	2.22 mm	14 mm	100 mm	V273123-X	233.20
	.4803		12.200 mm	2.397	61.00 mm	(5x)	72.78 mm	2.22 mm	14 mm	125 mm	V499243-X	321.00
	.4803		12.200 mm	3.835	97.60 mm	(8x)	111.21 mm	2.22 mm	14 mm	175 mm	V556731-X	353.00
NEW	.4843		12.300 mm	1.450	36.90 mm	(3x)	47.55 mm	2.24 mm	14 mm	100 mm	V670943-X	233.20
	.4843		12.300 mm	2.416	61.50 mm	(5x)	73.38 mm	2.24 mm	14 mm	125 mm	V606643-X	321.00
	.4843		12.300 mm	3.867	98.40 mm	(8x)	112.12 mm	2.24 mm	14 mm	175 mm	V449949-X	353.00
NEW	.4882 (31/64)		12.400 mm	1.461	37.20 mm	(3x)	47.93 mm	2.26 mm	14 mm	100 mm	V650447-X	233.20
	.4882 (31/64)		12.400 mm	2.436	62.00 mm	(5x)	73.97 mm	2.26 mm	14 mm	125 mm	V619843-X	321.00
	.4882 (31/64)		12.400 mm	3.898	99.20 mm	(8x)	113.03 mm	2.26 mm	14 mm	175 mm	V558340-X	353.00
NEW	.4921		12.500 mm	1.473	37.50 mm	(3x)	48.32 mm	2.27 mm	14 mm	100 mm	V635580-X	233.20
	.4921		12.500 mm	2.456	62.50 mm	(5x)	74.57 mm	2.27 mm	14 mm	125 mm	V436056-X	321.00
	.4921		12.500 mm	3.930	100.00 mm	(8x)	113.95 mm	2.27 mm	14 mm	175 mm	V744710-X	353.00
NEW	.4961		12.600 mm	1.485	37.80 mm	(3x)	48.71 mm	2.29 mm	14 mm	100 mm	V111256-X	233.20
	.4961		12.600 mm	2.475	63.00 mm	(5x)	75.17 mm	2.29 mm	14 mm	125 mm	V509952-X	321.00
	.4961		12.600 mm	3.961	100.80 mm	(8x)	114.86 mm	2.29 mm	14 mm	175 mm	V520602-X	353.00
NEW	.5000 (1/2)		12.700 mm	1.497	38.10 mm	(3x)	49.09 mm	2.31 mm	14 mm	100 mm	V199293-X	233.20
	.5000 (1/2)		12.700 mm	2.495	63.50 mm	(5x)	75.76 mm	2.31 mm	14 mm	125 mm	V838117-X	321.00
	.5000 (1/2)		12.700 mm	3.992	101.60 mm	(8x)	115.77 mm	2.31 mm	14 mm	175 mm	V188335-X	353.00

* For h6 and h8 tolerances, see page 8.





High Performance Drills

For Steels – Pilot Drills

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-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 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



Optimal for Piloting
When Drilling 8xD
and Deeper



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 #	Price
		$D_1^{+0.005\text{mm}}_{+0.013\text{mm}}$			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	66.70
.0630		1.600 mm	.188	4.800 mm	(3x)	6.376 mm	.291 mm	3 mm	63 mm	V274283-X	66.70
.0635	#52	1.612 mm	.190	4.836 mm	(3x)	6.424 mm	.293 mm	3 mm	63 mm	V662146-X	66.70
.0669	#51	1.700 mm	.200	5.100 mm	(3x)	6.780 mm	.309 mm	3 mm	63 mm	V330705-X	66.70
.0700	#50	1.778 mm	.209	5.334 mm	(3x)	7.098 mm	.324 mm	3 mm	63 mm	V114888-X	66.70
.0708		1.800 mm	.212	5.400 mm	(3x)	7.187 mm	.328 mm	3 mm	63 mm	V657393-X	66.70
.0730	#49	1.854 mm	.218	5.562 mm	(3x)	7.404 mm	.337 mm	3 mm	63 mm	V684188-X	66.70
.0748		1.900 mm	.224	5.700 mm	(3x)	7.591 mm	.346 mm	3 mm	63 mm	V532377-X	66.70
.0760	#48	1.930 mm	.227	5.790 mm	(3x)	7.712 mm	.351 mm	3 mm	63 mm	V274788-X	66.70
.0781 (5/64)		1.984 mm	.233	5.953 mm	(3x)	7.932 mm	.361 mm	3 mm	63 mm	V309594-X	66.70
.0785	#47	1.993 mm	.234	5.979 mm	(3x)	7.968 mm	.363 mm	3 mm	63 mm	V582371-X	66.70
.0787		2.000 mm	.235	6.000 mm	(3x)	7.996 mm	.364 mm	3 mm	63 mm	V899736-X	66.70
.0810	#46	2.057 mm	.242	6.171 mm	(3x)	8.226 mm	.374 mm	3 mm	63 mm	V807118-X	66.70
.0820	#45	2.082 mm	.245	6.246 mm	(3x)	8.328 mm	.379 mm	3 mm	63 mm	V946607-X	66.70
.0826		2.100 mm	.247	6.300 mm	(3x)	8.400 mm	.382 mm	3 mm	63 mm	V189212-X	66.70
.0860	#44	2.184 mm	.257	6.552 mm	(3x)	8.740 mm	.397 mm	3 mm	63 mm	V739067-X	66.70

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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 #	Price
			D ₁ +0.005mm +0.013mm		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁		
NEW	.0864		2.200 mm	.259	6.600 mm	(3x)	8.805 mm	.400 mm	3 mm	63 mm	V002340-X	66.70
NEW	.0888	#43	2.260 mm	.266	6.780 mm	(3x)	9.048 mm	.411 mm	3 mm	63 mm	V567872-X	66.70
NEW	.0903		2.300 mm	.271	6.900 mm	(3x)	9.211 mm	.419 mm	3 mm	63 mm	V479092-X	66.70
NEW	.0932	#42	2.374 mm	.279	7.122 mm	(3x)	9.510 mm	.432 mm	3 mm	63 mm	V897002-X	66.70
NEW	.0935		2.381 mm	.280	7.143 mm	(3x)	9.537 mm	.433 mm	3 mm	63 mm	V774530-X	66.70
NEW	.0943		2.400 mm	.282	7.200 mm	(3x)	9.615 mm	.437 mm	3 mm	63 mm	V139643-X	66.70
NEW	.0958	#41	2.438 mm	.287	7.314 mm	(3x)	9.769 mm	.444 mm	3 mm	63 mm	V155788-X	66.70
NEW	.0978	#40	2.489 mm	.293	7.467 mm	(3x)	9.975 mm	.453 mm	3 mm	63 mm	V357710-X	66.70
NEW	.0982		2.500 mm	.294	7.500 mm	(3x)	10.020 mm	.455 mm	3 mm	63 mm	V579507-X	66.70
NEW	.0993	#39	2.527 mm	.297	7.581 mm	(3x)	10.129 mm	.460 mm	3 mm	63 mm	V835105-X	66.70
NEW	.1013	#38	2.578 mm	.303	7.734 mm	(3x)	10.335 mm	.469 mm	3 mm	63 mm	V916727-X	66.70
NEW	.1021		2.600 mm	.306	7.800 mm	(3x)	10.424 mm	.473 mm	3 mm	63 mm	V691916-X	66.70
NEW	.1037	#37	2.641 mm	.311	7.923 mm	(3x)	10.591 mm	.481 mm	3 mm	63 mm	V009903-X	66.70
NEW	.1061		2.700 mm	.318	8.100 mm	(3x)	10.829 mm	.491 mm	3 mm	63 mm	V023238-X	66.70
NEW	.1063	#36	2.705 mm	.318	8.115 mm	(3x)	10.849 mm	.492 mm	3 mm	63 mm	V158513-X	66.70
NEW	.1091		2.778 mm	.327	8.334 mm	(3x)	11.146 mm	.506 mm	3 mm	63 mm	V929099-X	66.70
NEW	.1098	#35	2.794 mm	.329	8.382 mm	(3x)	11.209 mm	.508 mm	3 mm	63 mm	V442348-X	66.70
NEW	.1100		2.800 mm	.330	8.400 mm	(3x)	11.235 mm	.510 mm	3 mm	63 mm	V582954-X	66.70
NEW	.1107	#34	2.819 mm	.332	8.457 mm	(3x)	11.311 mm	.513 mm	3 mm	63 mm	V074192-X	66.70
NEW	.1127	#33	2.870 mm	.338	8.610 mm	(3x)	11.517 mm	.522 mm	3 mm	63 mm	V748353-X	66.70
NEW	.1139		2.900 mm	.341	8.700 mm	(3x)	11.639 mm	.528 mm	3 mm	63 mm	V591287-X	66.70
NEW	.1157	#32	2.946 mm	.347	8.838 mm	(3x)	11.825 mm	.536 mm	3 mm	63 mm	V529240-X	66.70
NEW	.1179		3.000 mm	.353	9.000 mm	(3x)	12.044 mm	.546 mm	4 mm	63 mm	V907892-X	66.70
NEW	.1197	#31	3.048 mm	.359	9.144 mm	(3x)	12.239 mm	.555 mm	4 mm	63 mm	V452777-X	66.70
NEW	.1218		3.100 mm	.365	9.300 mm	(3x)	12.448 mm	.564 mm	4 mm	63 mm	V969225-X	66.70
NEW	.1247		3.175 mm	.374	9.525 mm	(3x)	12.753 mm	.578 mm	4 mm	63 mm	V319555-X	66.70
NEW	.1257		3.200 mm	.377	9.600 mm	(3x)	12.853 mm	.582 mm	4 mm	63 mm	V361331-X	66.70
NEW	.1282	#30	3.263 mm	.384	9.789 mm	(3x)	13.109 mm	.594 mm	4 mm	63 mm	V376836-X	66.70
NEW	.1296		3.300 mm	.389	9.900 mm	(3x)	13.259 mm	.601 mm	4 mm	63 mm	V902732-X	66.70
NEW	.1336		3.400 mm	.400	10.200 mm	(3x)	13.663 mm	.619 mm	4 mm	63 mm	V112694-X	66.70
NEW	.1357	#29	3.454 mm	.407	10.362 mm	(3x)	13.882 mm	.629 mm	4 mm	63 mm	V182835-X	66.70
NEW	.1375		3.500 mm	.412	10.500 mm	(3x)	14.068 mm	.637 mm	4 mm	63 mm	V285993-X	66.70
NEW	.1403		3.571 mm	.421	10.713 mm	(3x)	14.355 mm	.650 mm	4 mm	63 mm	V788782-X	66.70
NEW	.1414		3.600 mm	.424	10.800 mm	(3x)	14.472 mm	.655 mm	4 mm	63 mm	V218834-X	66.70
NEW	.1437	#27	3.657 mm	.431	10.971 mm	(3x)	14.704 mm	.666 mm	4 mm	63 mm	V142155-X	66.70

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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							
D1 ^{+0.005mm} ^{+0.013mm}			L2			L3	L4	D2 (h6)*	L1	Tool #	Price	
.1454		3.700 mm	.436	11.100 mm	(3x)	14.877 mm	.673 mm	4 mm	63 mm	V391753-X	66.70	NEW
.1467	#26	3.733 mm	.440	11.199 mm	(3x)	15.010 mm	.679 mm	4 mm	63 mm	V058287-X	66.70	NEW
.1492	#25	3.797 mm	.447	11.391 mm	(3x)	15.270 mm	.691 mm	4 mm	63 mm	V313559-X	66.70	NEW
.1493		3.800 mm	.448	11.400 mm	(3x)	15.283 mm	.692 mm	4 mm	63 mm	V324973-X	66.70	NEW
.1516	#24	3.860 mm	.455	11.580 mm	(3x)	15.524 mm	.702 mm	4 mm	63 mm	V771577-X	66.70	NEW
.1532		3.900 mm	.459	11.700 mm	(3x)	15.688 mm	.710 mm	4 mm	63 mm	V846637-X	66.70	NEW
.1537	#23	3.911 mm	.461	11.733 mm	(3x)	15.732 mm	.712 mm	4 mm	63 mm	V880550-X	66.70	NEW
.1559		3.968 mm	.467	11.904 mm	(3x)	15.962 mm	.722 mm	4 mm	63 mm	V455943-X	66.70	NEW
.1566	#22	3.987 mm	.470	11.961 mm	(3x)	16.040 mm	.726 mm	6 mm	63 mm	V691009-X	70.40	NEW
.1572		4.000 mm	.471	12.000 mm	(3x)	16.092 mm	.728 mm	6 mm	63 mm	V700864-X	70.40	NEW
.1586	#21	4.038 mm	.476	12.114 mm	(3x)	16.246 mm	.735 mm	6 mm	63 mm	V996354-X	70.40	NEW
.1606	#20	4.089 mm	.482	12.267 mm	(3x)	16.452 mm	.744 mm	6 mm	63 mm	V689086-X	70.40	NEW
.1611		4.100 mm	.483	12.300 mm	(3x)	16.496 mm	.746 mm	6 mm	63 mm	V865179-X	70.40	NEW
.1650		4.200 mm	.495	12.600 mm	(3x)	16.901 mm	.764 mm	6 mm	63 mm	V496966-X	70.40	NEW
.1656	#19	4.216 mm	.497	12.648 mm	(3x)	16.966 mm	.767 mm	6 mm	63 mm	V452652-X	70.40	NEW
.1689		4.300 mm	.506	12.900 mm	(3x)	17.307 mm	.783 mm	6 mm	63 mm	V291414-X	70.40	NEW
.1691	#18	4.305 mm	.507	12.915 mm	(3x)	17.326 mm	.783 mm	6 mm	63 mm	V402725-X	70.40	NEW
.1715		4.365 mm	.514	13.095 mm	(3x)	17.569 mm	.794 mm	6 mm	63 mm	V885519-X	70.40	NEW
.1726	#17	4.394 mm	.518	13.182 mm	(3x)	17.687 mm	.800 mm	6 mm	63 mm	V728512-X	70.40	NEW
.1729		4.400 mm	.518	13.200 mm	(3x)	17.712 mm	.801 mm	6 mm	63 mm	V862992-X	70.40	NEW
.1766	#16	4.495 mm	.529	13.485 mm	(3x)	18.096 mm	.818 mm	6 mm	63 mm	V068425-X	70.40	NEW
.1768		4.500 mm	.530	13.500 mm	(3x)	18.116 mm	.819 mm	6 mm	63 mm	V825652-X	70.40	NEW
.1796	#15	4.572 mm	.539	13.716 mm	(3x)	18.407 mm	.832 mm	6 mm	63 mm	V066989-X	70.40	NEW
.1807		4.600 mm	.542	13.800 mm	(3x)	18.520 mm	.837 mm	6 mm	63 mm	V441044-X	70.40	NEW
.1816	#14	4.622 mm	.544	13.866 mm	(3x)	18.609 mm	.841 mm	6 mm	63 mm	V885782-X	70.40	NEW
.1847		4.700 mm	.554	14.100 mm	(3x)	18.925 mm	.855 mm	6 mm	63 mm	V078298-X	70.40	NEW
.1871		4.763 mm	.561	14.289 mm	(3x)	19.181 mm	.867 mm	6 mm	63 mm	V719861-X	70.40	NEW
.1886		4.800 mm	.565	14.400 mm	(3x)	19.331 mm	.874 mm	6 mm	63 mm	V910857-X	70.40	NEW
.1906	#11	4.851 mm	.571	14.553 mm	(3x)	19.537 mm	.883 mm	6 mm	63 mm	V376601-X	70.40	NEW
.1925		4.900 mm	.577	14.700 mm	(3x)	19.736 mm	.892 mm	6 mm	63 mm	V561035-X	70.40	NEW
.1931	#10	4.914 mm	.579	14.742 mm	(3x)	19.791 mm	.894 mm	6 mm	63 mm	V738376-X	70.40	NEW
.1956	#9	4.978 mm	.586	14.934 mm	(3x)	20.051 mm	.906 mm	6 mm	63 mm	V162932-X	70.40	NEW
.1965		5.000 mm	.589	15.000 mm	(3x)	20.140 mm	.910 mm	6 mm	63 mm	V258642-X	70.40	NEW
.1986	#8	5.054 mm	.595	15.162 mm	(3x)	20.359 mm	.920 mm	6 mm	63 mm	V114790-X	70.40	NEW
.2004		5.100 mm	.601	15.300 mm	(3x)	20.544 mm	.928 mm	6 mm	63 mm	V774403-X	74.10	NEW

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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 #	Price
NEW	.2006	#7	5.105 mm	.601	15.315 mm	(3x)	20.565 mm	.929 mm	6 mm	63 mm	V350733-X	74.10
NEW	.2027		5.159 mm	.608	15.477 mm	(3x)	20.784 mm	.939 mm	6 mm	63 mm	V441612-X	74.10
NEW	.2036	#6	5.181 mm	.610	15.543 mm	(3x)	20.873 mm	.943 mm	6 mm	63 mm	V429312-X	74.10
NEW	.2043		5.200 mm	.613	15.600 mm	(3x)	20.949 mm	.946 mm	6 mm	63 mm	V456166-X	74.10
NEW	.2051	#5	5.219 mm	.615	15.657 mm	(3x)	21.027 mm	.950 mm	6 mm	63 mm	V442616-X	74.10
NEW	.2082		5.300 mm	.624	15.900 mm	(3x)	21.355 mm	.965 mm	6 mm	63 mm	V202331-X	74.10
NEW	.2086	#4	5.308 mm	.625	15.924 mm	(3x)	21.387 mm	.966 mm	6 mm	63 mm	V644269-X	74.10
NEW	.2122		5.400 mm	.636	16.200 mm	(3x)	21.760 mm	.983 mm	6 mm	63 mm	V066389-X	74.10
NEW	.2126	#3	5.410 mm	.637	16.230 mm	(3x)	21.801 mm	.985 mm	6 mm	63 mm	V269256-X	74.10
NEW	.2161		5.500 mm	.648	16.500 mm	(3x)	22.164 mm	1.001 mm	6 mm	63 mm	V243898-X	74.10
NEW	.2183		5.556 mm	.655	16.668 mm	(3x)	22.390 mm	1.011 mm	6 mm	63 mm	V194412-X	74.10
NEW	.2200		5.600 mm	.660	16.800 mm	(3x)	22.568 mm	1.019 mm	6 mm	63 mm	V659021-X	74.10
NEW	.2205	#2	5.613 mm	.661	16.839 mm	(3x)	22.620 mm	1.021 mm	6 mm	63 mm	V297376-X	74.10
NEW	.2240		5.700 mm	.672	17.100 mm	(3x)	22.973 mm	1.037 mm	6 mm	63 mm	V452575-X	74.10
NEW	.2275	#1	5.791 mm	.682	17.373 mm	(3x)	23.342 mm	1.054 mm	6 mm	63 mm	V900210-X	74.10
NEW	.2279		5.800 mm	.683	17.400 mm	(3x)	23.379 mm	1.056 mm	6 mm	63 mm	V367687-X	74.10
NEW	.2318		5.900 mm	.695	17.700 mm	(3x)	23.784 mm	1.074 mm	6 mm	63 mm	V249172-X	74.10
NEW	.2335	A	5.943 mm	.700	17.829 mm	(3x)	23.958 mm	1.082 mm	6 mm	63 mm	V556215-X	74.10
NEW	.2339		5.953 mm	.701	17.859 mm	(3x)	23.997 mm	1.083 mm	6 mm	63 mm	V532021-X	74.10
NEW	.2358		6.000 mm	.707	18.000 mm	(3x)	24.188 mm	1.092 mm	8 mm	75 mm	V324173-X	88.00
NEW	.2375	B	6.045 mm	.712	18.135 mm	(3x)	24.370 mm	1.100 mm	8 mm	75 mm	V793373-X	88.00
NEW	.2397		6.100 mm	.719	18.300 mm	(3x)	24.593 mm	1.110 mm	8 mm	75 mm	V328326-X	88.00
NEW	.2415	C	6.146 mm	.724	18.438 mm	(3x)	24.778 mm	1.118 mm	8 mm	75 mm	V015525-X	88.00
NEW	.2436		6.200 mm	.730	18.600 mm	(3x)	24.997 mm	1.128 mm	8 mm	75 mm	V901999-X	88.00
NEW	.2455	D	6.248 mm	.736	18.744 mm	(3x)	25.192 mm	1.137 mm	8 mm	75 mm	V148236-X	88.00
NEW	.2475		6.300 mm	.742	18.900 mm	(3x)	25.403 mm	1.147 mm	8 mm	75 mm	V343038-X	88.00
NEW	.2495		6.350 mm	.748	19.050 mm	(3x)	25.606 mm	1.156 mm	8 mm	75 mm	V645271-X	88.00
NEW	.2515		6.400 mm	.754	19.200 mm	(3x)	25.808 mm	1.165 mm	8 mm	75 mm	V492254-X	88.00
NEW	.2554		6.500 mm	.766	19.500 mm	(3x)	26.212 mm	1.183 mm	8 mm	75 mm	V806646-X	88.00
NEW	.2565	F	6.528 mm	.769	19.584 mm	(3x)	26.325 mm	1.188 mm	8 mm	75 mm	V884853-X	88.00
NEW	.2593		6.600 mm	.778	19.800 mm	(3x)	26.617 mm	1.201 mm	8 mm	75 mm	V114553-X	88.00
NEW	.2605	G	6.629 mm	.781	19.887 mm	(3x)	26.733 mm	1.206 mm	8 mm	75 mm	V915733-X	88.00
NEW	.2633		6.700 mm	.789	20.100 mm	(3x)	27.021 mm	1.219 mm	8 mm	75 mm	V195019-X	88.00
NEW	.2651		6.746 mm	.795	20.238 mm	(3x)	27.208 mm	1.228 mm	8 mm	75 mm	V885997-X	88.00
NEW	.2655	H	6.756 mm	.796	20.268 mm	(3x)	27.247 mm	1.229 mm	8 mm	75 mm	V840920-X	88.00

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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 #	Price
		D ₁ ^{+0.005mm} _{+0.013mm}		L ₂		L ₃	L ₄	D ₂ (h6)*	L ₁		
.2672		6.800 mm	.801	20.400 mm	(3x)	27.425 mm	1.237 mm	8 mm	75 mm	V966074-X	88.00
.2711		6.900 mm	.813	20.700 mm	(3x)	27.832 mm	1.256 mm	8 mm	75 mm	V192147-X	88.00
.2714	I	6.908 mm	.814	20.724 mm	(3x)	27.863 mm	1.257 mm	8 mm	75 mm	V787695-X	88.00
.2751		7.000 mm	.825	21.000 mm	(3x)	28.236 mm	1.274 mm	8 mm	75 mm	V063226-X	88.00
.2764	J	7.035 mm	.829	21.105 mm	(3x)	28.377 mm	1.280 mm	8 mm	75 mm	V397474-X	88.00
.2790		7.100 mm	.837	21.300 mm	(3x)	28.641 mm	1.292 mm	8 mm	75 mm	V850424-X	88.00
.2804	K	7.137 mm	.841	21.411 mm	(3x)	28.791 mm	1.299 mm	8 mm	75 mm	V690930-X	88.00
.2806		7.142 mm	.842	21.426 mm	(3x)	28.811 mm	1.300 mm	8 mm	75 mm	V789561-X	88.00
.2829		7.200 mm	.848	21.600 mm	(3x)	29.045 mm	1.310 mm	8 mm	75 mm	V604334-X	88.00
.2868		7.300 mm	.860	21.900 mm	(3x)	29.449 mm	1.328 mm	8 mm	75 mm	V609549-X	88.00
.2894	L	7.366 mm	.868	22.098 mm	(3x)	29.719 mm	1.341 mm	8 mm	75 mm	V120820-X	88.00
.2908		7.400 mm	.872	22.200 mm	(3x)	29.856 mm	1.347 mm	8 mm	75 mm	V610439-X	88.00
.2944	M	7.493 mm	.883	22.479 mm	(3x)	30.232 mm	1.364 mm	8 mm	75 mm	V436509-X	88.00
.2947		7.500 mm	.884	22.500 mm	(3x)	30.260 mm	1.365 mm	8 mm	75 mm	V660900-X	88.00
.2963		7.541 mm	.889	22.623 mm	(3x)	30.425 mm	1.372 mm	8 mm	75 mm	V221413-X	88.00
.2986		7.600 mm	.896	22.800 mm	(3x)	30.665 mm	1.383 mm	8 mm	75 mm	V856555-X	88.00
.3014	N	7.671 mm	.904	23.013 mm	(3x)	30.952 mm	1.396 mm	8 mm	75 mm	V987247-X	88.00
.3026		7.700 mm	.907	23.100 mm	(3x)	31.069 mm	1.401 mm	8 mm	75 mm	V132161-X	88.00
.3065		7.800 mm	.919	23.400 mm	(3x)	31.473 mm	1.419 mm	8 mm	75 mm	V447341-X	88.00
.3104		7.900 mm	.931	23.700 mm	(3x)	31.880 mm	1.438 mm	8 mm	75 mm	V163633-X	88.00
.3119		7.938 mm	.935	23.814 mm	(3x)	32.034 mm	1.445 mm	8 mm	75 mm	V571876-X	88.00
.3144		8.000 mm	.943	24.000 mm	(3x)	32.284 mm	1.456 mm	10 mm	75 mm	V674731-X	98.90
.3154	O	8.026 mm	.946	24.078 mm	(3x)	32.390 mm	1.461 mm	10 mm	75 mm	V301435-X	98.90
.3183		8.100 mm	.954	24.300 mm	(3x)	32.689 mm	1.474 mm	10 mm	75 mm	V973710-X	98.90
.3222		8.200 mm	.966	24.600 mm	(3x)	33.093 mm	1.492 mm	10 mm	75 mm	V639222-X	98.90
.3224	P	8.204 mm	.967	24.612 mm	(3x)	33.110 mm	1.493 mm	10 mm	75 mm	V201063-X	98.90
.3261		8.300 mm	.978	24.900 mm	(3x)	33.498 mm	1.510 mm	10 mm	75 mm	V813866-X	98.90
.3274		8.333 mm	.982	24.999 mm	(3x)	33.631 mm	1.516 mm	10 mm	75 mm	V263984-X	98.90
.3301		8.400 mm	.990	25.200 mm	(3x)	33.904 mm	1.529 mm	10 mm	75 mm	V981973-X	98.90
.3313	Q	8.432 mm	.994	25.296 mm	(3x)	34.032 mm	1.534 mm	10 mm	75 mm	V836619-X	98.90
.3340		8.500 mm	1.002	25.500 mm	(3x)	34.308 mm	1.547 mm	10 mm	75 mm	V797559-X	98.90
.3379		8.600 mm	1.013	25.800 mm	(3x)	34.713 mm	1.565 mm	10 mm	75 mm	V959435-X	98.90
.3383	R	8.610 mm	1.015	25.830 mm	(3x)	34.754 mm	1.567 mm	10 mm	75 mm	V121905-X	98.90
.3419		8.700 mm	1.025	26.100 mm	(3x)	35.117 mm	1.583 mm	10 mm	75 mm	V205213-X	98.90
.3431		8.732 mm	1.029	26.196 mm	(3x)	35.247 mm	1.589 mm	10 mm	75 mm	V734871-X	98.90

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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 #	Price
NEW	.3458		8.800 mm	1.037	26.400 mm	(3x)	35.522 mm	1.601 mm	10 mm	75 mm	V411577-X	98.90
NEW	.3473	S	8.839 mm	1.042	26.517 mm	(3x)	35.681 mm	1.609 mm	10 mm	75 mm	V415903-X	98.90
NEW	.3497		8.900 mm	1.049	26.700 mm	(3x)	35.928 mm	1.620 mm	10 mm	75 mm	V751074-X	98.90
NEW	.3537		9.000 mm	1.061	27.000 mm	(3x)	36.332 mm	1.638 mm	10 mm	75 mm	V573760-X	98.90
NEW	.3573	T	9.093 mm	1.072	27.279 mm	(3x)	36.709 mm	1.655 mm	10 mm	75 mm	V297828-X	98.90
NEW	.3576		9.100 mm	1.072	27.300 mm	(3x)	36.737 mm	1.656 mm	10 mm	75 mm	V054766-X	98.90
NEW	.3587		9.128 mm	1.076	27.384 mm	(3x)	36.850 mm	1.661 mm	10 mm	75 mm	V643474-X	98.90
NEW	.3615		9.200 mm	1.084	27.600 mm	(3x)	37.141 mm	1.674 mm	10 mm	75 mm	V458794-X	98.90
NEW	.3654		9.300 mm	1.096	27.900 mm	(3x)	37.546 mm	1.692 mm	10 mm	75 mm	V629261-X	98.90
NEW	.3673	U	9.347 mm	1.102	28.041 mm	(3x)	37.737 mm	1.701 mm	10 mm	75 mm	V668083-X	98.90
NEW	.3694		9.400 mm	1.108	28.200 mm	(3x)	37.952 mm	1.711 mm	10 mm	75 mm	V785118-X	98.90
NEW	.3733		9.500 mm	1.120	28.500 mm	(3x)	38.356 mm	1.729 mm	10 mm	75 mm	V525849-X	98.90
NEW	.3743		9.525 mm	1.122	28.575 mm	(3x)	38.457 mm	1.733 mm	10 mm	75 mm	V599656-X	98.90
NEW	.3762	V	9.575 mm	1.128	28.725 mm	(3x)	38.661 mm	1.743 mm	10 mm	75 mm	V164506-X	98.90
NEW	.3772		9.600 mm	1.131	28.800 mm	(3x)	38.761 mm	1.747 mm	10 mm	75 mm	V728829-X	98.90
NEW	.3812		9.700 mm	1.143	29.100 mm	(3x)	39.165 mm	1.765 mm	10 mm	75 mm	V336130-X	98.90
NEW	.3851		9.800 mm	1.155	29.400 mm	(3x)	39.570 mm	1.783 mm	10 mm	75 mm	V408197-X	98.90
NEW	.3852	W	9.804 mm	1.155	29.412 mm	(3x)	39.586 mm	1.784 mm	10 mm	75 mm	V514197-X	98.90
NEW	.3890		9.900 mm	1.167	29.700 mm	(3x)	39.976 mm	1.802 mm	10 mm	75 mm	V413649-X	98.90
NEW	.3898		9.921 mm	1.169	29.763 mm	(3x)	40.059 mm	1.805 mm	10 mm	75 mm	V897834-X	98.90
NEW	.3930		10.000 mm	1.179	30.000 mm	(3x)	40.381 mm	1.820 mm	12 mm	100 mm	V615223-X	133.40
NEW	.3962	X	10.083 mm	1.188	30.249 mm	(3x)	40.716 mm	1.835 mm	12 mm	100 mm	V158286-X	133.40
NEW	.3969		10.100 mm	1.190	30.300 mm	(3x)	40.785 mm	1.838 mm	12 mm	100 mm	V252667-X	133.40
NEW	.4008		10.200 mm	1.202	30.600 mm	(3x)	41.189 mm	1.856 mm	12 mm	100 mm	V567799-X	133.40
NEW	.4032	Y	10.261 mm	1.209	30.783 mm	(3x)	41.436 mm	1.867 mm	12 mm	100 mm	V761337-X	133.40
NEW	.4047		10.300 mm	1.214	30.900 mm	(3x)	41.594 mm	1.874 mm	12 mm	100 mm	V732573-X	133.40
NEW	.4054		10.317 mm	1.216	30.951 mm	(3x)	41.664 mm	1.878 mm	12 mm	100 mm	V420346-X	133.40
NEW	.4087		10.400 mm	1.226	31.200 mm	(3x)	42.000 mm	1.893 mm	12 mm	100 mm	V408072-X	133.40
NEW	.4122	Z	10.490 mm	1.236	31.470 mm	(3x)	42.364 mm	1.909 mm	12 mm	100 mm	V466110-X	133.40
NEW	.4126		10.500 mm	1.237	31.500 mm	(3x)	42.405 mm	1.911 mm	12 mm	100 mm	V299501-X	133.40
NEW	.4165		10.600 mm	1.249	31.800 mm	(3x)	42.809 mm	1.929 mm	12 mm	100 mm	V149208-X	133.40
NEW	.4205		10.700 mm	1.261	32.100 mm	(3x)	43.213 mm	1.947 mm	12 mm	100 mm	V521937-X	133.40
NEW	.4211		10.716 mm	1.263	32.148 mm	(3x)	43.278 mm	1.950 mm	12 mm	100 mm	V618225-X	133.40
NEW	.4244		10.800 mm	1.273	32.400 mm	(3x)	43.618 mm	1.965 mm	12 mm	100 mm	V924462-X	133.40
NEW	.4283		10.900 mm	1.285	32.700 mm	(3x)	44.024 mm	1.984 mm	12 mm	100 mm	V564526-X	133.40

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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 #	Price	
.4323		11.000 mm	1.296	33.000 mm	(3x)	44.429 mm	2.002 mm	12 mm	100 mm	V675423-X	133.40	NEW
.4362		11.100 mm	1.308	33.300 mm	(3x)	44.833 mm	2.020 mm	12 mm	100 mm	V888482-X	133.40	NEW
.4367		11.113 mm	1.310	33.339 mm	(3x)	44.885 mm	2.022 mm	12 mm	100 mm	V997356-X	133.40	NEW
.4401		11.200 mm	1.320	33.600 mm	(3x)	45.237 mm	2.038 mm	12 mm	100 mm	V379752-X	133.40	NEW
.4440		11.300 mm	1.332	33.900 mm	(3x)	45.642 mm	2.056 mm	12 mm	100 mm	V022309-X	133.40	NEW
.4480		11.400 mm	1.344	34.200 mm	(3x)	46.048 mm	2.075 mm	12 mm	100 mm	V674665-X	133.40	NEW
.4519		11.500 mm	1.355	34.500 mm	(3x)	46.453 mm	2.093 mm	12 mm	100 mm	V931811-X	133.40	NEW
.4522		11.508 mm	1.356	34.524 mm	(3x)	46.484 mm	2.094 mm	12 mm	100 mm	V841399-X	133.40	NEW
.4558		11.600 mm	1.367	34.800 mm	(3x)	46.857 mm	2.111 mm	12 mm	100 mm	V023983-X	133.40	NEW
.4598		11.700 mm	1.379	35.100 mm	(3x)	47.261 mm	2.129 mm	12 mm	100 mm	V105297-X	133.40	NEW
.4637		11.800 mm	1.391	35.400 mm	(3x)	47.666 mm	2.147 mm	12 mm	100 mm	V425545-X	133.40	NEW
.4676		11.900 mm	1.403	35.700 mm	(3x)	48.072 mm	2.166 mm	12 mm	100 mm	V023000-X	133.40	NEW
.4679		11.907 mm	1.403	35.721 mm	(3x)	48.100 mm	2.167 mm	12 mm	100 mm	V874686-X	133.40	NEW
.4716		12.000 mm	1.414	36.000 mm	(3x)	48.477 mm	2.184 mm	14 mm	100 mm	V287698-X	182.70	NEW
.4755		12.100 mm	1.426	36.300 mm	(3x)	48.881 mm	2.202 mm	14 mm	100 mm	V569271-X	182.70	NEW
.4794		12.200 mm	1.438	36.600 mm	(3x)	49.286 mm	2.220 mm	14 mm	100 mm	V688758-X	182.70	NEW
.4833		12.300 mm	1.450	36.900 mm	(3x)	49.690 mm	2.238 mm	14 mm	100 mm	V789930-X	182.70	NEW
.4873		12.400 mm	1.461	37.200 mm	(3x)	50.096 mm	2.257 mm	14 mm	100 mm	V928923-X	182.70	NEW
.4912		12.500 mm	1.473	37.500 mm	(3x)	50.501 mm	2.275 mm	14 mm	100 mm	V770794-X	182.70	NEW
.4951		12.600 mm	1.485	37.800 mm	(3x)	50.905 mm	2.293 mm	14 mm	100 mm	V372961-X	182.70	NEW
.4991		12.700 mm	1.497	38.100 mm	(3x)	51.310 mm	2.311 mm	14 mm	100 mm	V668058-X	182.70	NEW



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.





Combined Drill & Countersinks



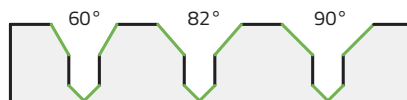
Excellent Choice for Predrilling Applications

- 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 $^{+1^{\circ}}_{-1^{\circ}}$		D1 $^{+.0015"}_{+.0005"}$	L2 $^{+.005"}_{-.000"}$	D2	L1	Tool #	Price	Tool #	Price
60°	000	.020	.020	1/8	1-1/2	V556663	30.60	V556663-X	37.40
	00	.025	.025	1/8	1-1/2	V185274	23.90	V185274-X	30.70
	0	1/32	1/32	1/8	1-1/2	V859307	23.90	V859307-X	30.70
	1	3/64	3/64	1/8	1-1/2	V302266	20.00	V302266-X	26.80
	2	5/64	5/64	3/16	2	V894928	30.60	V894928-X	38.30
	3	7/64	7/64	1/4	2	V866774	34.80	V866774-X	44.00
	4	1/8	1/8	5/16	2-1/2	V903674	47.60	V903674-X	59.40
	5	3/16	3/16	7/16	2-3/4	V797008	71.20	V797008-X	87.50
82°	00	.025	.025	1/8	1-1/2	V929455	25.60	V929455-X	32.40
	0	1/32	1/32	1/8	1-1/2	V909420	25.30	V909420-X	32.10
	1	3/64	3/64	1/8	1-1/2	V217225	21.20	V217225-X	28.00
	2	5/64	5/64	3/16	2	V237177	32.60	V237177-X	40.30
	3	7/64	7/64	1/4	2	V364987	37.10	V364987-X	46.30
	4	1/8	1/8	5/16	2-1/2	V905694	50.30	V905694-X	62.00
	5	3/16	3/16	7/16	2-3/4	V256631	75.60	V256631-X	91.80
90°	000	.020	.020	1/8	1-1/2	V358715	31.60	V358715-X	38.40
	00	.025	.025	1/8	1-1/2	V493350	24.70	V493350-X	31.50
	0	1/32	1/32	1/8	1-1/2	V914209	24.70	V914209-X	31.50
	1	3/64	3/64	1/8	1-1/2	V734917	20.80	V734917-X	27.60
	2	5/64	5/64	3/16	2	V813931	31.60	V813931-X	39.30
	3	7/64	7/64	1/4	2	V814543	35.90	V814543-X	45.10
	4	1/8	1/8	5/16	2-1/2	V690770	48.80	V690770-X	60.50
	5	3/16	3/16	7/16	2-3/4	V698131	73.30	V698131-X	89.50

Stocked in three included angles





High Performance Chamfer Cutters

Helically Fluted



Helical Flute
Geometry for
Superior Part Finish

Outstanding in High Performance Countersinking Applications

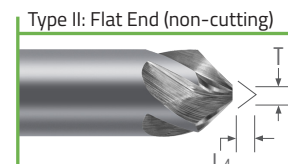
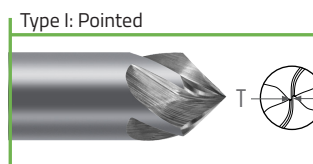
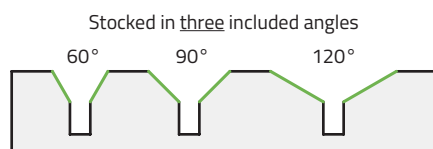
- Optimized for countersinking and chamfering operations while providing excellent performance in deburring applications
- Free cutting action design provides excellent surface finish and chip evacuation
- Engineered with a specialized helical flute design for superior performance
- Offered in Type I pointed and Type II flat end (non-cutting) styles
- Offered in 60°, 90°, and 120° included angles
- 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 $+0^{\circ}30'$ $-0^{\circ}30'$	D2 (h6)		T*		L2	L4 (Max.)	L1	Tool #	Price	Tool #	Price
60°	1/8	2	.010	I	.100		1-1/2	V303773	23.20	V303773-X	30.00
	1/8	3	.040	II	.074	.036	1-1/2	V672817	23.70	V672817-X	30.50
	1/8	5	.040	II	.074	.036	1-1/2	V295829	25.60	V295829-X	32.40
	3/16	2	.010	I	.154		2	V699490	32.00	V699490-X	39.60
	3/16	3	.050	II	.119	.045	2	V337326	32.00	V337326-X	39.60
	3/16	5	.050	II	.119	.045	2	V752883	34.10	V752883-X	41.80
	1/4	2	.010	I	.208		2-1/2	V127405	39.50	V127405-X	49.30
	1/4	3	.060	II	.164	.054	2-1/2	V209624	37.00	V209624-X	46.80
	1/4	4	.010	I	.208		2-1/2	V712592	41.70	V712592-X	51.50
	1/4	5	.060	II	.164	.054	2-1/2	V806101	40.40	V806101-X	50.20
	3/8	2	.010	I	.316		2-1/2	V313911	52.80	V313911-X	66.80
	3/8	3	.070	II	.264	.062	2-1/2	V124536	49.60	V124536-X	63.60
	3/8	4	.010	I	.316		2-1/2	V164693	52.80	V164693-X	66.80
	3/8	5	.070	II	.264	.062	2-1/2	V631112	49.60	V631112-X	63.60

*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.)

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Included Angle	Diameter	Flutes	Tip	Type	Length of Cut		Overall Length	Uncoated		Val-Max X Coated	
A $+0^{\circ}30'$ $-0^{\circ}30'$	D ₂ (h6)		T*		L ₂	L ₄ (Max.)	L ₁	Tool #	Price	Tool #	Price
60°	1/2	2	.010	I	.424		3	V419548	74.10	V419548-X	93.00
	1/2	3	.080	II	.364	.071	3	V660602	69.50	V660602-X	88.50
	1/2	4	.010	I	.424		3	V349044	74.10	V349044-X	93.00
	1/2	5	.080	II	.364	.071	3	V927193	69.50	V927193-X	88.50
90°	1/8	2	.010	I	.058		1-1/2	V429507	23.20	V429507-X	30.00
	1/8	3	.040	II	.043	.021	1-1/2	V200401	23.20	V200401-X	30.00
	1/8	4	.010	I	.058		1-1/2	V786295	25.60	V786295-X	32.40
	1/8	5	.040	II	.043	.021	1-1/2	V908769	25.60	V908769-X	32.40
	3/16	2	.010	I	.089		2	V531414	31.30	V531414-X	39.00
	3/16	3	.050	II	.069	.026	2	V811095	31.30	V811095-X	39.00
	3/16	4	.010	I	.089		2	V622369	33.40	V622369-X	41.00
	3/16	5	.050	II	.069	.026	2	V527430	33.40	V527430-X	41.00
	1/4	2	.010	I	.120		2-1/2	V919405	39.50	V919405-X	49.30
	1/4	3	.060	II	.095	.031	2-1/2	V280810	37.00	V280810-X	46.80
	1/4	4	.010	I	.120		2-1/2	V958539	41.70	V958539-X	51.50
	1/4	5	.060	II	.095	.031	2-1/2	V790762	39.20	V790762-X	49.00
	3/8	2	.010	I	.183		2-1/2	V311320	52.80	V311320-X	66.80
	3/8	3	.070	II	.153	.036	2-1/2	V345394	49.60	V345394-X	63.60
	3/8	4	.010	I	.183		2-1/2	V236486	52.80	V236486-X	66.80
	3/8	5	.070	II	.153	.036	2-1/2	V612425	49.60	V612425-X	63.60
	1/2	2	.010	I	.245		3	V666461	74.10	V666461-X	93.00
	1/2	3	.080	II	.210	.041	3	V966684	69.50	V966684-X	88.50
	1/2	4	.010	I	.245		3	V800918	74.10	V800918-X	93.00
	1/2	5	.080	II	.210	.041	3	V796283	69.50	V796283-X	88.50
120°	1/8	2	.010	I	.033		1-1/2	V712928	25.60	V712928-X	32.40
	3/16	2	.010	I	.051		2	V289865	32.00	V289865-X	39.60
	3/16	4	.010	I	.051		2	V100906	32.00	V100906-X	39.60
	1/4	2	.010	I	.069		2-1/2	V190535	39.50	V190535-X	49.30
	1/4	3	.060	II	.057	.018	2-1/2	V373551	38.00	V373551-X	47.80
	1/4	4	.010	I	.069		2-1/2	V724215	41.70	V724215-X	51.50
	1/4	5	.060	II	.057	.018	2-1/2	V199619	40.40	V199619-X	50.20
	3/8	2	.010	I	.105		2-1/2	V295545	53.90	V295545-X	67.80
	3/8	3	.070	II	.091	.021	2-1/2	V546651	49.60	V546651-X	63.60
	3/8	4	.010	I	.105		2-1/2	V647726	56.00	V647726-X	70.00
	3/8	5	.070	II	.091	.021	2-1/2	V590509	53.10	V590509-X	67.00
	1/2	2	.010	I	.141		3	V998108	74.10	V998108-X	93.00
	1/2	3	.080	II	.126	.024	3	V327236	71.50	V327236-X	90.50
	1/2	4	.010	I	.141		3	V147300	74.10	V147300-X	93.00
	1/2	5	.080	II	.126	.024	3	V628260	73.70	V628260-X	92.70

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



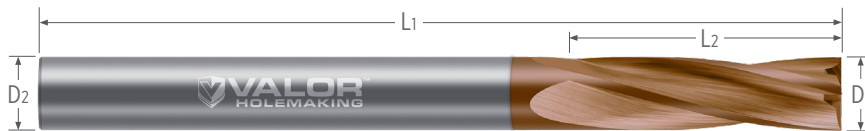
Counterbores

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

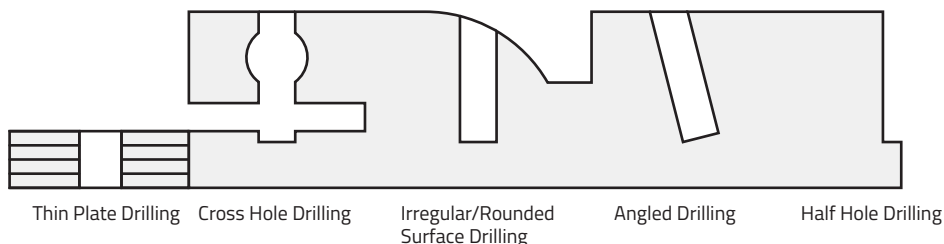


Cutter Diameter	Flute Length	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
D1 ^{+0.000*} -0.005	L2 ^{+0.030"} -0.000"	D2	L1	Tool #	Price	Tool #	Price
.0625 (1/16)	1/4	1/8	1-1/2	V695306	50.40	V695306-X	57.20
.0781 (5/64)	5/16	1/8	1-1/2	V778476	50.40	V778476-X	57.20
.0787 (2 mm)	5/16	1/8	1-1/2	V408316	50.40	V408316-X	57.20
.0937 (3/32)	3/8	1/8	1-1/2	V892625	50.40	V892625-X	57.20
.1094 (7/64)	3/8	1/8	1-1/2	V745187	50.40	V745187-X	57.20
.1181 (3 mm)	3/8	1/8	1-1/2	V939405	50.40	V939405-X	57.20
.1250 (1/8)	1/2	1/8	1-1/2	V527625	50.40	V527625-X	57.20
.1406 (9/64)	9/16	3/16	2	V783531	48.20	V783531-X	55.90
.1562 (5/32)	5/8	3/16	2	V321622	48.20	V321622-X	55.90
.1575 (4 mm)	5/8	3/16	2	V372376	48.20	V372376-X	55.90
.1719 (11/64)	5/8	3/16	2	V508715	48.20	V508715-X	55.90
.1875 (3/16)	3/4	3/16	2	V370840	48.20	V370840-X	55.90
.1968 (5 mm)	3/4	1/4	2-1/2	V699368	65.90	V699368-X	75.70

*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 ^{+.0000*} - .0005	L ₂ ^{+.030"} - .000"	D ₂	L ₁	Tool #	Price	Tool #	Price
.2031 (13/64)	3/4	1/4	2-1/2	V568926	65.90	V568926-X	75.70
.2187 (7/32)	3/4	1/4	2-1/2	V631036	65.90	V631036-X	75.70
.2344 (15/64)	7/8	1/4	2-1/2	V478565	65.90	V478565-X	75.70
.2362 (6 mm)	7/8	1/4	2-1/2	V105885	65.90	V105885-X	75.70
.2500 (1/4)	7/8	1/4	2-1/2	V472098	65.90	V472098-X	75.70
.2656 (17/64)	7/8	5/16	2-1/2	V418764	81.30	V418764-X	93.00
.2812 (9/32)	7/8	5/16	2-1/2	V865510	81.30	V865510-X	93.00
.2969 (19/64)	7/8	5/16	2-1/2	V700371	81.30	V700371-X	93.00
.3125 (5/16)	1	5/16	2-1/2	V487755	81.30	V487755-X	93.00
.3150 (8 mm)	1	3/8	2-1/2	V740046	97.10	V740046-X	111.10
.3281 (21/64)	1	3/8	2-1/2	V202645	97.10	V202645-X	111.10
.3437 (11/32)	1	3/8	2-1/2	V538304	97.10	V538304-X	111.10
.3594 (23/64)	1	3/8	2-1/2	V311756	97.10	V311756-X	111.10
.3750 (3/8)	1	3/8	2-1/2	V712621	97.10	V712621-X	111.10
.3937 (10 mm)	1	7/16	2-3/4	V802980	119.80	V802980-X	136.10
.4062 (13/32)	1	7/16	2-3/4	V217929	119.80	V217929-X	136.10
.4375 (7/16)	1	7/16	2-3/4	V151214	119.80	V151214-X	136.10
.4724 (12 mm)	1	1/2	3	V585315	157.60	V585315-X	176.50
.5000 (1/2)	1	1/2	3	V847030	157.60	V847030-X	176.50
.5625 (9/16)	1-1/2	5/8	3-1/2	V294033	223.80	V294033-X	247.40
.6250 (5/8)	1-1/2	5/8	3-1/2	V127143	250.70	V127143-X	274.30
.7500 (3/4)	1-1/2	3/4	4	V988795	363.40	V988795-X	391.40

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

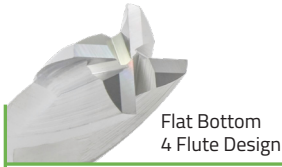
Tech Tip

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.



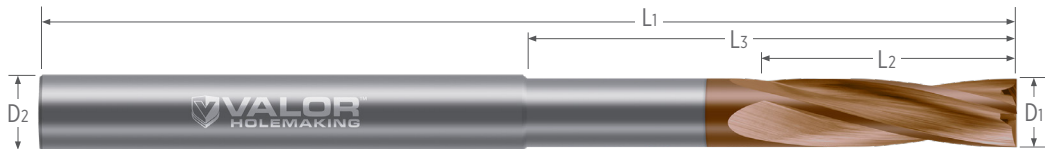
Counterbores

Flat Bottom – Long Reach



Unmatched Precision in Long Reach Counterboring Applications

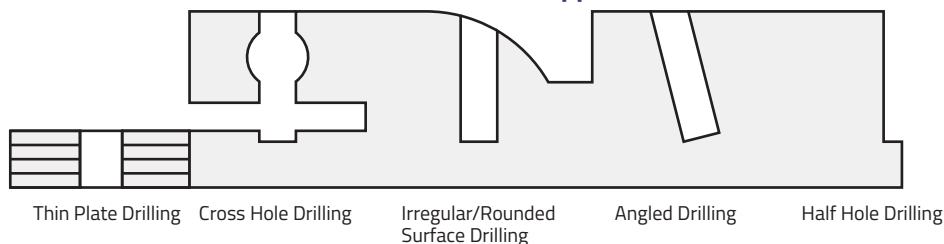
- Engineered with an undersized neck to avoid heeling
- Flat bottom design (no dish) allows for spot facing or counterboring on irregular surfaces commonly found on rounded or complex parts
- Provides excellent performance when flat bottom reaming or straightening misaligned holes
- Ground with full 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	
$D_1 \begin{smallmatrix} +.0000* \\ -.0005 \end{smallmatrix}$	$L_2 \begin{smallmatrix} +.030 \\ -.000 \end{smallmatrix}$	$L_3 \begin{smallmatrix} +.030 \\ -.000 \end{smallmatrix}$	D_2	L_1	Tool #	Price	Tool #	Price
.0625 (1/16)	1/4	1/2	1/8	2-1/2	V198627	60.20	V198627-X	67.40
.0937 (3/32)	3/8	3/4	1/8	2-1/2	V916746	60.20	V916746-X	67.40
.1181 (3 mm)	3/8	1	1/8	2-1/2	V951006	60.20	V951006-X	67.40
.1250 (1/8)	1/2	1	1/8	2-1/2	V970511	60.20	V970511-X	67.40
.1406 (9/64)	9/16	1-1/8	3/16	3	V416335	73.30	V416335-X	81.50
.1562 (5/32)	5/8	1-1/4	3/16	3	V663791	73.30	V663791-X	81.50
.1719 (11/64)	5/8	1-3/8	3/16	3	V809396	73.30	V809396-X	81.50
.1875 (3/16)	3/4	1-1/2	3/16	3	V595314	73.30	V595314-X	81.50
.2187 (7/32)	3/4	1-3/4	1/4	4	V912152	97.30	V912152-X	107.80
.2500 (1/4)	7/8	2	1/4	4	V655322	97.30	V655322-X	107.80
.3125 (5/16)	1	2-1/2	5/16	4	V184545	123.40	V184545-X	136.00
.3437 (11/32)	1	2-3/4	3/8	4	V484325	148.80	V484325-X	163.80
.3750 (3/8)	1	3	3/8	4	V559859	148.80	V559859-X	163.80
.4375 (7/16)	1	3	7/16	4	V317536	172.80	V317536-X	190.20
.5000 (1/2)	1	3	1/2	4	V593960	211.80	V593960-X	232.10

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

Flat Bottom Counterbore Applications





Thread Mills

Single Form – UN Threads



Tip of Included Angle
Ground to a Point

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 $D_1 \begin{smallmatrix} +.000'' \\ -.002'' \end{smallmatrix}$	Neck Diameter	Max Depth of Thread $L_3 \begin{smallmatrix} +.020'' \\ -.000'' \end{smallmatrix}$	Flutes	Shank Diameter D_2	Overall Length L_1	Uncoated		Val-Max X Coated	
							Tool #	Price	Tool #	Price
0	.044	.024	.125	2	1/8	1-1/2	V374670	90.40	V374670-X	97.20
0	.044	.024	.187	2	1/8	1-1/2	V857292	97.20	V857292-X	104.00
0	.044	.024	.250	2	1/8	1-1/2	V816292	101.70	V816292-X	108.50
1	.054	.032	.187	2	1/8	1-1/2	V797147	90.40	V797147-X	97.20
1	.054	.032	.250	2	1/8	1-1/2	V765023	97.20	V765023-X	104.00
1	.054	.032	.312	2	1/8	1-1/2	V311882	101.70	V311882-X	108.50
2	.064	.038	.156	2	1/8	1-1/2	V666896	85.10	V666896-X	91.90
2	.064	.038	.219	2	1/8	1-1/2	V849467	90.40	V849467-X	97.20
2	.064	.038	.312	2	1/8	1-1/2	V929367	97.20	V929367-X	104.00
3	.072	.040	.250	2	1/8	1-1/2	V286839	90.40	V286839-X	97.20
3	.072	.040	.375	2	1/8	1-1/2	V397197	97.20	V397197-X	104.00
4	.080	.040	.250	2	3/16	2	V952299	90.60	V952299-X	98.30
4	.080	.040	.375	2	3/16	2	V375540	97.60	V375540-X	105.30
4	.080	.040	.500	2	3/16	2	V071905	102.50	V071905-X	110.20
5	.093	.050	.187	4	3/16	2	V220015	85.10	V220015-X	92.80
5	.093	.050	.375	4	3/16	2	V354031	90.40	V354031-X	98.10
6	.098	.050	.250	4	3/16	2	V691318	85.30	V691318-X	93.00
6	.098	.050	.375	4	3/16	2	V834182	90.60	V834182-X	98.30
6	.098	.050	.500	4	3/16	2	V795068	97.60	V795068-X	105.30

continued on next page



Thread Mills

Single Form – UN Threads (cont.)

continued from previous page

	Thread Size	Cutter Diameter	Neck Diameter	Max Depth of Thread	Flutes	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
		D ₁ ^{+0.000"} - .002"		L ₃ ^{+0.020"} - .000"		D ₂	L ₁	Tool #	Price	Tool #	Price
NEW	8	.120	.070	.312	4	1/4	2-1/2	V392285	87.50	V392285-X	97.30
NEW	8	.120	.070	.500	4	1/4	2-1/2	V021297	93.40	V021297-X	103.20
NEW	8	.120	.070	.625	4	1/4	2-1/2	V684779	99.80	V684779-X	109.60
NEW	8	.120	.070	.750	4	1/4	2-1/2	V088642	107.60	V088642-X	117.40
NEW	10	.135	.070	.312	4	1/4	2-1/2	V126879	87.50	V126879-X	97.30
NEW	10	.135	.070	.500	4	1/4	2-1/2	V235973	93.40	V235973-X	103.20
NEW	10	.135	.070	.625	4	1/4	2-1/2	V215174	99.80	V215174-X	109.60
NEW	10	.135	.070	.875	4	1/4	2-1/2	V437426	107.60	V437426-X	117.40
NEW	12	.160	.095	.375	4	1/4	2-1/2	V849952	87.50	V849952-X	97.30
NEW	12	.160	.095	.625	4	1/4	2-1/2	V423474	93.40	V423474-X	103.20
NEW	1/4	.180	.115	.312	4	1/4	2-1/2	V174373	86.50	V174373-X	96.30
NEW	1/4	.180	.115	.500	4	1/4	2-1/2	V821186	87.50	V821186-X	97.30
NEW	1/4	.180	.115	.625	4	1/4	2-1/2	V123664	90.40	V123664-X	100.20
NEW	1/4	.180	.115	.750	4	1/4	2-1/2	V307054	93.40	V307054-X	103.20
NEW	1/4	.180	.115	.875	4	1/4	2-1/2	V343612	96.50	V343612-X	106.30
NEW	1/4	.180	.115	1.000	4	1/4	2-1/2	V820147	99.80	V820147-X	109.60
NEW	5/16	.240	.160	.500	4	1/4	2-1/2	V406719	87.50	V406719-X	97.30
NEW	5/16	.240	.160	.750	4	1/4	2-1/2	V665688	93.40	V665688-X	103.20
NEW	5/16	.240	.160	1.000	4	1/4	2-1/2	V987678	103.10	V987678-X	112.90
NEW	3/8	.300	.218	.750	4	3/8	2-1/2	V283772	114.00	V283772-X	128.00
NEW	3/8	.300	.218	1.000	4	3/8	2-1/2	V801924	119.70	V801924-X	133.70
NEW	3/8	.300	.218	1.250	4	3/8	2-1/2	V394175	125.40	V394175-X	139.40
NEW	7/16	.340	.230	.750	4	3/8	2-1/2	V487548	128.40	V487548-X	142.40
NEW	7/16	.340	.230	1.000	4	3/8	2-1/2	V912847	133.90	V912847-X	147.90
NEW	1/2	.388	.250	.750	4	1/2	3	V482228	128.40	V482228-X	147.30
NEW	1/2	.388	.250	1.250	4	1/2	3	V645876	134.40	V645876-X	153.30
NEW	1/2	.388	.250	1.750	4	1/2	4	V886275	143.40	V886275-X	163.70
NEW	5/8	.450	.300	1.000	6	1/2	3	V407017	134.20	V407017-X	153.10
NEW	5/8	.450	.300	1.375	6	1/2	3	V139989	140.50	V139989-X	159.40
NEW	3/4	.495	.325	1.000	6	1/2	3	V308628	134.20	V308628-X	153.10
NEW	3/4	.495	.325	1.375	6	1/2	3	V012906	140.50	V012906-X	159.40
NEW	3/4	.495	.325	1.750	6	1/2	4	V250610	148.00	V250610-X	168.30
NEW	3/4	.495	.325	2.250	6	1/2	4	V299955	154.40	V299955-X	174.70





Thread Mills

Single Form – Metric



Tip of Included Angle
Ground to a Point

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	Neck Diameter	Max Depth of Thread	Flutes	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
							Tool #	Price	Tool #	Price
M1.6	D1 ^{+0.00 mm} _{-0.05 mm}		L3 ^{+0.50 mm} _{-0.00 mm}		D2	L1	V071240	91.80	V071240-X	98.60
M1.6	1.16 mm	0.70 mm	2.10 mm	2	3 mm	38 mm	V128446	91.80	V128446-X	98.60
M1.6	1.16 mm	0.70 mm	3.50 mm	2	3 mm	38 mm	V177086	94.40	V177086-X	101.20
M1.6	1.16 mm	0.70 mm	5.60 mm	2	3 mm	38 mm	V202678	91.80	V202678-X	98.60
M2	1.50 mm	0.90 mm	2.70 mm	2	3 mm	38 mm	V806971	91.80	V806971-X	98.60
M2	1.50 mm	0.90 mm	4.50 mm	2	3 mm	38 mm	V813131	94.40	V813131-X	101.20
M2	1.50 mm	0.90 mm	7.00 mm	2	3 mm	38 mm	V924310	95.90	V924310-X	102.70
M2	1.50 mm	0.90 mm	9.00 mm	2	3 mm	38 mm	V162434	92.60	V162434-X	99.40
M2.5	1.90 mm	1.14 mm	3.50 mm	2	3 mm	38 mm	V772821	91.80	V772821-X	98.60
M2.5	1.90 mm	1.14 mm	5.80 mm	2	3 mm	38 mm	V957719	94.40	V957719-X	101.20
M2.5	1.90 mm	1.14 mm	9.00 mm	2	3 mm	38 mm	V060028	91.80	V060028-X	98.60
M3	2.30 mm	1.38 mm	4.00 mm	4	3 mm	38 mm	V191849	91.80	V191849-X	98.60
M3	2.30 mm	1.38 mm	6.80 mm	4	3 mm	38 mm	V545903	94.40	V545903-X	101.20
M3	2.30 mm	1.38 mm	11.00 mm	4	3 mm	38 mm	V855346	95.90	V855346-X	102.70
M3	2.30 mm	1.38 mm	14.00 mm	4	3 mm	38 mm	V113870	93.00	V113870-X	99.80
M4	3.00 mm	1.80 mm	5.50 mm	4	3 mm	38 mm	V351952	94.40	V351952-X	101.20
M4	3.00 mm	1.80 mm	9.00 mm	4	3 mm	38 mm	V532470	97.20	V532470-X	104.00
M4	3.00 mm	1.80 mm	14.00 mm	4	3 mm	50 mm	V848812	98.70	V848812-X	105.50
M4	3.00 mm	1.80 mm	18.00 mm	4	3 mm	38 mm	V007166	94.40	V007166-X	102.10
M5	4.00 mm	2.40 mm	7.00 mm	4	4 mm	50 mm	V291431	97.20	V291431-X	104.90
M5	4.00 mm	2.40 mm	12.00 mm	4	4 mm	50 mm	V672555	100.40	V672555-X	108.10
M5	4.00 mm	2.40 mm	19.00 mm	4	4 mm	50 mm				

continued on next page



Thread Mills

Single Form – Metric (cont.)

continued from previous page

	Thread Size	Cutter Diameter	Neck Diameter	Max Depth of Thread	Flutes	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
								Tool #	Price	Tool #	Price
NEW	M6	4.80 mm	2.88 mm	8.50 mm	4	6 mm	50 mm	V086653	93.00	V086653-X	102.20
NEW	M6	4.80 mm	2.88 mm	14.00 mm	4	6 mm	50 mm	V572542	94.40	V572542-X	103.60
NEW	M6	4.80 mm	2.88 mm	23.00 mm	4	6 mm	63 mm	V654417	101.70	V654417-X	111.50
NEW	M8	6.00 mm	3.60 mm	11.00 mm	4	6 mm	50 mm	V178933	94.40	V178933-X	103.60
NEW	M8	6.00 mm	3.60 mm	18.00 mm	4	6 mm	50 mm	V692670	100.40	V692670-X	109.60
NEW	M10	8.00 mm	4.80 mm	15.00 mm	4	8 mm	63 mm	V018779	122.30	V018779-X	136.30
NEW	M10	8.00 mm	4.80 mm	24.00 mm	4	8 mm	63 mm	V113509	128.90	V113509-X	142.90
NEW	M16	13.70 mm	8.22 mm	25.00 mm	6	14 mm	89 mm	V216820	144.30	V216820-X	167.90
NEW	M16	13.70 mm	8.22 mm	42.00 mm	6	14 mm	75 mm	V711447	159.00	V711447-X	181.00



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Every Valor Holemaking Tool

valorholemaking.com/resources/speeds-feeds





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 $D_1^{+.0005}_{-.0005}$	Length of Cut L_2	Flutes	Shank Diameter D_2	Overall Length L_1	Uncoated		Val-Max X Coated	
						Tool #	Price	Tool #	Price
2-56	.065	.125	3*	1/8	2	V776212	108.20	V776212-X	115.00
3-48	.075	.167	3*	1/8	2	V223050	114.30	V223050-X	121.10
4-40	.085	.175	3*	1/8	2	V825130	114.30	V825130-X	121.10
5-44	.095	.228	3	1/8	2	V333694	114.30	V333694-X	121.10
6-32	.100	.218	3	1/8	2	V729602	118.30	V729602-X	125.10
8-32	.115	.250	3	1/8	2	V619489	126.90	V619489-X	133.70
8-36	.115	.250	3	1/8	2	V338962	126.90	V338962-X	133.70
10-24	.120	.312	3	1/8	2	V196853	133.50	V196853-X	140.30
10-32	.120	.312	3	1/8	2	V370770	133.50	V370770-X	140.30
1/4-20	.180	.500	3	3/16	2-1/2	V740289	159.80	V740289-X	168.00
1/4-28	.180	.500	3	3/16	2-1/2	V605861	159.80	V605861-X	168.00
5/16-18	.235	.625	3	1/4	2-1/2	V728692	173.10	V728692-X	182.90
5/16-24	.235	.625	3	1/4	2-1/2	V794382	195.70	V794382-X	205.50
3/8-16	.285	.750	4	5/16	3	V397436	233.00	V397436-X	244.80
3/8-24	.285	.750	4	5/16	3	V891917	233.00	V891917-X	244.80
7/16-14	.305	.750	4	5/16	3	V801115	233.00	V801115-X	244.80
7/16-20	.335	.875	4	3/8	3-1/2	V198821	251.50	V198821-X	266.40
1/2-13	.350	.875	4	3/8	3-1/2	V274534	259.90	V274534-X	274.80
1/2-20	.370	1.000	6	3/8	3-1/2	V547751	272.90	V547751-X	287.80

*Straight flutes



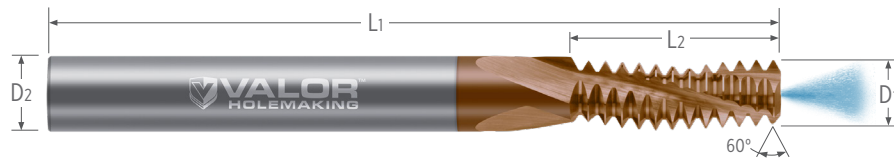
Single
Coolant-Through
Channel Design

Thread Mills

Multi-Form – UN Threads – Coolant-Through

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 $D_1^{+.000}_{-.002}$	Length of Cut L_2	Flutes	Shank Diameter D_2	Overall Length L_1	Uncoated		Val-Max X Coated	
						Tool #	Price	Tool #	Price
10-24	.145	.312	3	3/16	2-3/8	V396731	147.20	V396731-X	155.30
10-32	.150	.312	3	3/16	2-3/8	V889790	147.20	V889790-X	155.30
1/4-20	.180	.500	3	3/16	2-3/8	V656064	176.80	V656064-X	185.00
1/4-28	.180	.500	3	3/16	2-3/8	V989312	176.80	V989312-X	185.00
5/16-18	.235	.625	3	1/4	2-3/8	V843484	190.50	V843484-X	200.30
5/16-24	.235	.625	3	1/4	2-3/8	V722664	222.50	V722664-X	232.30
3/8-16	.285	.750	4	5/16	3	V720638	256.90	V720638-X	268.60
3/8-24	.285	.750	4	5/16	3	V756737	256.90	V756737-X	268.60
7/16-14	.305	.750	4	5/16	3	V217976	256.90	V217976-X	268.60
7/16-20	.335	.875	4	3/8	3	V454378	276.70	V454378-X	290.60
1/2-13	.350	.875	4	3/8	3	V492881	285.50	V492881-X	299.40

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.





Thread Mills

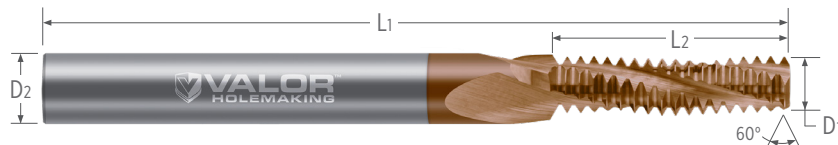
Multi-Form – UN Threads – Long Flute



Long Flute Design
for Deep Threading

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 $D_1^{+.0005}_{-.0005}$	Length of Cut L_2	Flutes	Shank Diameter D_2	Overall Length L_1	Uncoated		Val-Max X Coated	
						Tool #	Price	Tool #	Price
2-56	.069	.215	3	1/8	2	V862814	137.10	V862814-X	143.90
3-48	.079	.250	3	1/8	2	V175206	144.00	V175206-X	150.80
4-40	.089	.275	3	1/8	2	V764399	144.00	V764399-X	150.80
6-32	.110	.375	3	1/8	2	V139322	144.00	V139322-X	150.80
8-32	.131	.407	3	3/16	2-1/2	V911231	153.30	V911231-X	161.50
8-36	.131	.417	3	3/16	2-1/2	V109682	161.20	V109682-X	169.30
10-24	.145	.500	3	3/16	2-1/2	V547075	189.20	V547075-X	197.30
10-32	.150	.500	3	3/16	2-1/2	V571131	189.20	V571131-X	197.30
1/4-20	.195	.750	3	1/4	2-1/2	V904085	192.30	V904085-X	202.10
1/4-28	.195	.750	3	1/4	2-1/2	V377926	192.30	V377926-X	202.10
5/16-18	.245	.944	3	5/16	3	V455088	249.80	V455088-X	261.60
5/16-24	.245	.958	3	5/16	3	V184026	256.40	V184026-X	268.10
3/8-16	.300	1.125	4	3/8	3-1/2	V868122	297.90	V868122-X	312.80
3/8-24	.300	1.125	4	3/8	3-1/2	V558722	306.60	V558722-X	321.60
7/16-20	.350	1.300	4	3/8	3-1/2	V108189	306.60	V108189-X	321.60
1/2-13	.400	1.308	4	1/2	3-1/2	V518107	311.00	V518107-X	331.30



Access Simulation Files in .STEP Format
for Every Valor Holesmaking Tool

valorholesmaking.com/resources/simulation-files



Common Thread
Sizes Available

Thread Mills

Multi-Form – Metric Threads

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 $D_1 \begin{smallmatrix} +.0005 \\ -.0005 \end{smallmatrix}$	Length of Cut L_2	Flutes	Shank Diameter D_2	Overall Length L_1	Uncoated		Val-Max X Coated	
						Tool #	Price	Tool #	Price
M3-0.50	.085	.178	3	1/8	2	V705769	131.80	V705769-X	138.60
M4-0.70	.115	.276	3	1/8	2	V221421	131.80	V221421-X	138.60
M4.5-0.75	.120	.250	3	1/8	2	V751646	131.80	V751646-X	138.60
M5-0.80	.120	.312	3	1/8	2	V520089	131.80	V520089-X	138.60
M6-1.00	.170	.500	3	3/16	2-1/2	V411343	160.00	V411343-X	168.20
M8-1.25	.235	.625	3	1/4	2-1/2	V689550	172.00	V689550-X	181.80
M10-1.50	.300	.750	4	5/16	3	V473531	232.00	V473531-X	243.80
M12-1.75	.360	.875	4	3/8	3-1/2	V550418	258.20	V550418-X	273.10
M14-1.50	.370	.875	4	3/8	3-1/2	V956048	258.20	V956048-X	273.10

Tech Tip

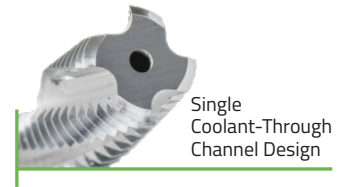
Provide an immediate boost in your threading jobs with a multi-form thread mill, as they are optimized to produce a **full thread in a single helical interpolation**. Additionally, they allow a machinist to quickly turn around production-style jobs.





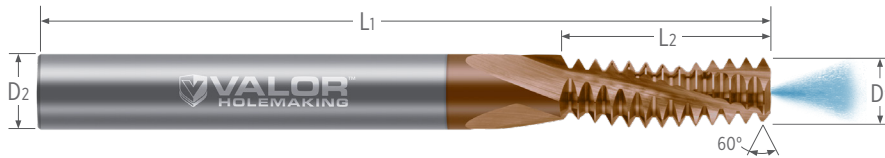
Thread Mills

Multi-Form – Metric Threads – 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	Length of Cut	Flutes	Shank Diameter	Overall Length	Uncoated		Val-Max X Coated	
						Tool #	Price	Tool #	Price
M3-0.50	$D1^{+.000}_{-.002}$	L2	3	D2	L1	V757297	151.60	V757297-X	158.40
M4-0.70	.085	.1780	3	1/8	2	V954960	151.60	V954960-X	158.40
M5-0.80	.115	.2760	3	1/8	2	V490771	151.60	V490771-X	158.40
M6-1.00	.120	.3125	3	1/8	2	V875636	184.20	V875636-X	192.30
M8-1.25	.170	.5000	3	3/16	2-1/2	V388421	197.90	V388421-X	207.70
	.235	.6250	3	1/4	2-1/2				



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Thread Mills

Multi-Form – Metric Threads – Long Flute

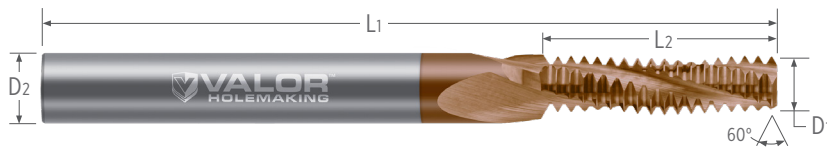


Long Flute Design
for Deep Threading

- 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

Excellent in Deep Threading Metric Applications

- 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 $D_1^{+.0005}_{-.0005}$	Length of Cut L_2	Flutes	Shank Diameter D_2	Overall Length L_1	Uncoated		Val-Max X Coated	
						Tool #	Price	Tool #	Price
M3-0.50	.090	.276	3	1/8	2	V837004	169.60	V837004-X	176.40
M4-0.70	.124	.441	3	3/16	2-1/2	V503448	173.80	V503448-X	182.00
M5-0.80	.155	.504	3	3/16	2-1/2	V256903	173.80	V256903-X	182.00
M6-1.00	.186	.748	3	1/4	2-1/2	V790009	201.30	V790009-X	211.10
M8-1.25	.245	.984	3	5/16	2-1/2	V659859	258.90	V659859-X	270.60
M10-1.50	.311	1.122	4	3/8	3-1/2	V975146	325.00	V975146-X	339.90

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.





Thread Mills

Multi-Form – NPT Threads



Available in 3 and 4 Helical Flutes

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	
						Tool #	Price	Tool #	Price
1/16, 1/8-27	$D_1^{+.0005}_{-.0005}$	L ₂	3	D ₂	L ₁	V614054	163.50	V614054-X	173.30
1/4, 3/8-18	.245	.437	4	1/4	2-1/2	V897256	224.10	V897256-X	235.90
1/4, 3/8-18	.305	.625	4	5/16	3	V224635	238.40	V224635-X	253.40
1/2, 3/4-14	.363	.680	4	3/8	3-1/2	V641508	261.50	V641508-X	281.80
1, 2-11.5	.495	.875	4	1/2	3-1/2	V175728	369.80	V175728-X	393.40
	.620	1.125	4	5/8	4				



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Geometry designed
for NPTF Threading

Thread Mills

Multi-Form – NPTF Threads

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

- 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 $D_1^{+.0005}_{-.0005}$	Length of Cut L_2	Flutes	Shank Diameter D_2	Overall Length L_1	Uncoated		Val-Max X Coated	
						Tool #	Price	Tool #	Price
1/16, 1/8-27	.245	.437	3	1/4	2-1/2	V284224	191.00	V284224-X	200.80
1/4, 3/8-18	.305	.625	4	5/16	3	V169267	228.10	V169267-X	239.90
1/2, 3/4-14	.495	.875	4	1/2	3-1/2	V683311	296.10	V683311-X	316.40
1, 2-11.5	.620	1.125	4	5/8	4	V633813	440.70	V633813-X	464.30

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.

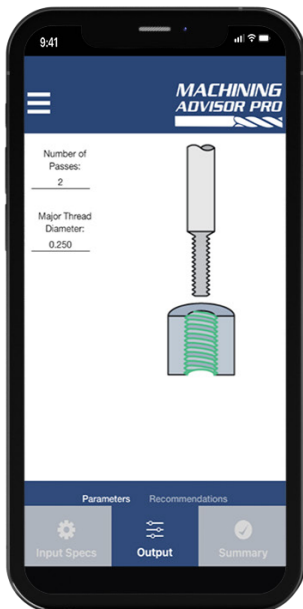


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Technical Information

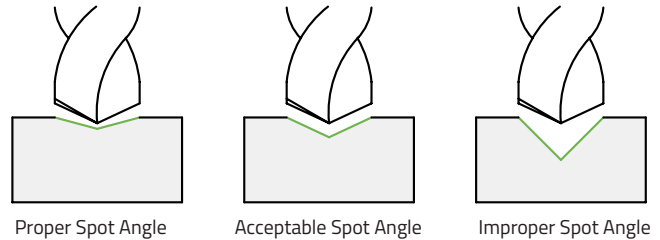
Properly Select a Valor Holesmaking High Performance Spotting Drill

Drilling an ultra-precise hole is often tough, but it doesn't have to be. A Valor Holesmaking 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 Holesmaking High Performance Spotting Drills are offered with **90°**, **135°**, and **140°** point angles.

Drill Diameter

Valor Holesmaking 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 Holesmaking 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 Holesmaking 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 Holesmaking 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



Technical Information

Tap & Drill Sizes and Equations

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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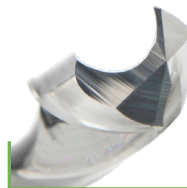
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