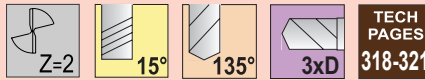


**TOLERANCES**

<i>d</i>	+.0000" - .0005" (+.0000 - .0127mm)	
<i>l1</i>	≤ 1/8"	+.125" - .062" (+3.175 - 1.588mm)
	> 1/8"	+.125" - .125" (+3.175 - 3.175mm)
<i>l2</i>	≤ 1/8"	+.125" - .062" (+3.175 - 1.588mm)
	> 1/8"	+.125" - .125" (+3.175 - 3.175mm)

**Series 1510**

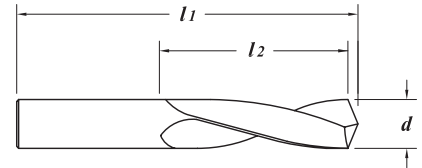
.0625" - .1575"  
(1.588mm - 4.000mm)



Recommended for titanium, inconel, hastelloy, waspaly, and stainless steel

**Slow Helix**

- Solid submicron grain carbide drill
- Heavy web for extra rigidity and added strength
- Thinned point
- Live tooling recommended on lathe processes
- Hardlube Coating - page 64



EDP#	<i>d</i> † Diameter		<i>l1</i> Overall Length	<i>l2</i> Flute Length	1-11	12-24	25-49	50-100	
	Decimal	Metric							
19070	.0625	1/16"	1.588	1-3/4"	5/8"	7.81	7.47	7.13	6.79
19075	.0635	#52	1.613	1-3/4"	11/16"	7.94	7.59	7.25	6.90
19080	.0670	#51	1.702	1-3/4"	11/16"	8.05	7.70	7.35	7.00
19085	.0700	#50	1.778	1-3/4"	11/16"	8.26	7.90	7.54	7.18
19090	.0730	#49	1.854	1-3/4"	11/16"	8.44	8.07	7.71	7.34
19095	.0760	#48	1.930	1-3/4"	11/16"	8.73	8.35	7.97	7.59
19100	.0781	5/64"	1.984	1-3/4"	11/16"	9.05	8.66	8.26	7.87
19105	.0785	#47	1.994	1-3/4"	3/4"	9.35	8.94	8.54	8.13
19115	.0787		2.000	45	19	9.51	9.10	8.68	8.27
19120	.0810	#46	2.057	1-3/4"	3/4"	9.65	9.23	8.81	8.39
19125	.0820	#45	2.083	1-3/4"	3/4"	9.94	9.50	9.07	8.64
19130	.0860	#44	2.184	1-3/4"	3/4"	10.27	9.82	9.38	8.93
19135	.0890	#43	2.261	1-3/4"	3/4"	10.57	10.11	9.65	9.19
19140	.0935	#42	2.375	1-3/4"	3/4"	10.72	10.25	9.79	9.32
19145	.0938	3/32"	2.383	1-3/4"	3/4"	10.97	10.49	10.02	9.54
19150	.0960	#41	2.438	1-13/16"	13/16"	11.05	10.57	10.09	9.61
19155	.0980	#40	2.489	1-13/16"	13/16"	11.20	10.71	10.23	9.74
19160	.0984		2.500	46	21	11.28	10.79	10.30	9.81
19165	.0995	#39	2.527	1-13/16"	13/16"	11.33	10.84	10.34	9.85
19170	.1015	#38	2.578	1-13/16"	13/16"	11.43	10.93	10.44	9.94
19175	.1040	#37	2.642	1-13/16"	13/16"	11.53	11.03	10.53	10.03
19180	.1065	#36	2.705	1-13/16"	13/16"	11.62	11.11	10.61	10.10
19185	.1094	7/64"	2.779	1-13/16"	13/16"	11.66	11.15	10.65	10.14
19190	.1100	#35	2.794	1-7/8"	7/8"	11.74	11.23	10.72	10.21
19195	.1110	#34	2.819	1-7/8"	7/8"	11.88	11.36	10.85	10.33
19200	.1130	#33	2.870	1-7/8"	7/8"	11.97	11.45	10.93	10.41
19205	.1160	#32	2.946	1-7/8"	7/8"	12.05	11.53	11.00	10.48
19210	.1181		3.000	48	22	12.17	11.64	11.11	10.58
19215	.1200	#31	3.048	1-7/8"	7/8"	12.29	11.76	11.22	10.69
19220	.1250	1/8"	3.175	1-7/8"	7/8"	12.42	11.88	11.34	10.80
19225	.1285	#30	3.264	1-15/16"	15/16"	12.75	12.20	11.64	11.09
19230	.1360	#29	3.454	1-15/16"	15/16"	13.09	12.52	11.95	11.38
19235	.1378		3.500	49	24	13.50	12.91	12.33	11.74
19240	.1405	#28	3.569	1-15/16"	15/16"	13.67	13.08	12.48	11.89
19245	.1406	9/64"	3.571	1-15/16"	15/16"	13.82	13.22	12.62	12.02
19250	.1440	#27	3.658	2-1/16"	1"	15.04	14.39	13.73	13.08
19255	.1470	#26	3.734	2-1/16"	1"	15.20	14.54	13.88	13.22
19260	.1495	#25	3.797	2-1/16"	1"	15.39	14.72	14.05	13.38
19265	.1520	#24	3.861	2-1/16"	1"	15.42	14.75	14.08	13.41
19270	.1540	#23	3.912	2-1/16"	1"	15.53	14.85	14.18	13.50
19275	.1562	5/32"	3.967	2-1/16"	1"	15.62	14.94	14.26	13.58
19280	.1570	#22	3.988	2-1/8"	1-1/16"	16.58	15.86	15.14	14.42
19285	.1575		4.000	54	27	16.81	16.08	15.35	14.62

continued →

## Series 1510 (continued)

.1590" - .3346"  
(4.039mm - 8.500mm)

EDP#	$d^{\dagger}$ Diameter		$l_1$ Overall Length	$l_2$ Flute Length	1-11	12-24	25-49	50-100	
	Decimal	Metric							
19290	.1590	#21	4.039	2-1/8"	1-1/16"	17.02	16.28	15.54	14.80
19295	.1610	#20	4.089	2-1/8"	1-1/16"	17.15	16.40	15.66	14.91
19300	.1660	#19	4.216	2-1/8"	1-1/16"	17.85	17.07	16.30	15.52
19305	.1695	#18	4.305	2-1/8"	1-1/16"	18.06	17.27	16.49	15.70
19310	.1719	11/64"	4.366	2-1/8"	1-1/16"	18.41	17.61	16.81	16.01
19315	.1730	#17	4.394	2-3/16"	1-1/8"	18.68	17.86	17.05	16.24
19320	.1770	#16	4.496	2-3/16"	1-1/8"	18.88	18.06	17.24	16.42
19325	.1772		4.500	56	29	19.00	18.17	17.35	16.52
19330	.1800	#15	4.572	2-3/16"	1-1/8"	19.08	18.25	17.42	16.59
19335	.1820	#14	4.623	2-3/16"	1-1/8"	19.50	18.66	17.81	16.96
19340	.1850	#13	4.700	2-3/16"	1-1/8"	19.65	18.80	17.94	17.09
19345	.1875	3/16"	4.763	2-3/16"	1-1/8"	19.73	18.88	18.02	17.16
19350	.1890	#12	4.801	2-1/4"	1-3/16"	20.38	19.49	18.61	17.72
19355	.1910	#11	4.851	2-1/4"	1-3/16"	20.62	19.72	18.83	17.93
19360	.1935	#10	4.915	2-1/4"	1-3/16"	21.56	20.63	19.69	18.75
19365	.1960	#9	4.978	2-1/4"	1-3/16"	22.13	21.16	20.20	19.24
19370	.1969		5.000	57	30	22.24	21.27	20.31	19.34
19375	.1990	#8	5.055	2-1/4"	1-3/16"	22.41	21.44	20.46	19.49
19380	.2010	#7	5.105	2-1/4"	1-3/16"	23.07	22.07	21.06	20.06
19385	.2031	13/64"	5.159	2-1/4"	1-3/16"	23.24	22.23	21.22	20.21
19390	.2040	#6	5.182	2-3/8"	1-1/4"	23.70	22.67	21.64	20.61
19395	.2055	#5	5.220	2-3/8"	1-1/4"	24.18	23.13	22.08	21.03
19400	.2090	#4	5.309	2-3/8"	1-1/4"	24.63	23.56	22.49	21.42
19405	.2130	#3	5.410	2-3/8"	1-1/4"	25.07	23.98	22.89	21.80
19410	.2165		5.500	60	32	25.24	24.15	23.05	21.95
19415	.2188	7/32"	5.558	2-3/8"	1-1/4"	25.44	24.33	23.23	22.12
19420	.2210	#2	5.613	2-7/16"	1-5/16"	26.04	24.90	23.77	22.64
19425	.2280	#1	5.791	2-7/16"	1-5/16"	26.22	25.08	23.94	22.80
19430	.2340	A	5.944	2-7/16"	1-5/16"	26.28	25.14	23.99	22.85
19435	.2344	15/64"	5.954	2-7/16"	1-5/16"	26.32	25.18	24.03	22.89
19440	.2362		6.000	64	35	26.39	25.25	24.10	22.95
19445	.2380	B	6.045	2-1/2"	1-3/8"	26.52	25.37	24.21	23.06
19450	.2420	C	6.147	2-1/2"	1-3/8"	26.69	25.53	24.37	23.21
19455	.2460	D	6.248	2-1/2"	1-3/8"	26.92	25.75	24.58	23.41
19460	.2500	1/4" / E	6.350	2-1/2"	1-3/8"	27.08	25.91	24.73	23.55
19465	.2559		6.500	67	37	27.74	26.53	25.33	24.12
19470	.2570	F	6.528	2-5/8"	1-7/16"	28.32	27.09	25.86	24.63
19475	.2610	G	6.629	2-5/8"	1-7/16"	28.90	27.64	26.39	25.13
19480	.2656	17/64"	6.746	2-5/8"	1-7/16"	29.49	28.20	26.92	25.64
19485	.2660	H	6.756	2-11/16"	1-1/2"	30.33	29.01	27.69	26.37
19490	.2720	I	6.909	2-11/16"	1-1/2"	30.68	29.35	28.01	26.68
19495	.2756		7.000	68	38	30.92	29.58	28.23	26.89
19500	.2770	J	7.036	2-11/16"	1-1/2"	31.20	29.84	28.49	27.13
19505	.2810	K	7.137	2-11/16"	1-1/2"	31.48	30.11	28.74	27.37
19510	.2812	9/32"	7.142	2-11/16"	1-1/2"	31.65	30.27	28.90	27.52
19515	.2900	L	7.366	2-3/4"	1-9/16"	32.82	31.39	29.97	28.54
19520	.2950	M	7.493	2-3/4"	1-9/16"	35.12	33.59	32.07	30.54
19525	.2953		7.500	70	40	35.12	33.59	32.07	30.54
19530	.2969	19/64"	7.541	2-3/4"	1-9/16"	35.32	33.78	32.25	30.71
19535	.3020	N	7.671	2-15/16"	1-5/8"	37.19	35.57	33.96	32.34
19540	.3125	5/16"	7.938	2-15/16"	1-5/8"	37.34	35.72	34.09	32.47
19545	.3150		8.000	75	43	40.07	38.32	36.58	34.84
19550	.3160	O	8.026	2-15/16"	1-11/16"	40.07	38.32	36.58	34.84
19555	.3230	P	8.204	2-15/16"	1-11/16"	40.41	38.65	36.90	35.14
19560	.3281	21/64"	8.334	2-15/16"	1-11/16"	40.65	38.89	37.12	35.35
19565	.3320	Q	8.433	3"	1-11/16"	41.60	39.79	37.98	36.17
19570	.3346		8.500	76	43	41.99	40.16	38.34	36.51

EDP#	$d^+$ Diameter		$l_1$ Overall Length	$l_2$ Flute Length	1-11	12-24	25-49	50-100	
	Decimal	Metric							
19575	.3390	R	8.611	3"	1-11/16"	43.30	41.42	39.53	37.65
19580	.3438	11/32"	8.733	3"	1-11/16"	45.06	43.10	41.14	39.18
19585	.3480	S	8.839	3-1/16"	1-3/4"	45.68	43.69	41.71	39.72
19590	.3543		9.000	78	44	45.95	43.96	41.96	39.96
19595	.3580	T	9.093	3-1/16"	1-3/4"	46.13	44.12	42.12	40.11
19600	.3594	23/64"	9.129	3-1/16"	1-3/4"	46.44	44.42	42.40	40.38
19605	.3680	U	9.347	3-1/8"	1-13/16"	50.86	48.65	46.44	44.23
19615	.3750	3/8"	9.525	3-1/8"	1-13/16"	51.74	49.49	47.24	44.99
19620	.3770	V	9.576	3-1/4"	1-7/8"	52.74	50.45	48.15	45.86
19625	.3860	W	9.804	3-1/4"	1-7/8"	53.84	51.50	49.16	46.82
19630	.3906	25/64"	9.921	3-1/4"	1-7/8"	54.67	52.29	49.92	47.54
19635	.3937		10.000	84	49	56.61	54.15	51.69	49.23
19640	.3970	X	10.084	3-5/16"	1-15/16"	58.27	55.74	53.20	50.67
19645	.4040	Y	10.262	3-5/16"	1-15/16"	58.73	56.18	53.62	51.07
19650	.4062	13/32"	10.317	3-5/16"	1-15/16"	60.87	58.22	55.58	52.93
19655	.4130	Z	10.490	3-3/8"	2"	61.53	58.85	56.18	53.50
19660	.4134		10.500	86	51	61.53	58.85	56.18	53.50
19665	.4219	27/64"	10.716	3-3/8"	2"	62.20	59.50	56.79	54.09
19670	.4331		11.000	87	52	67.56	64.63	61.69	58.75
19675	.4375	7/16"	11.113	3-7/16"	2-1/16"	67.56	64.63	61.69	58.75
19685	.4531	29/64"	11.509	3-9/16"	2-1/8"	73.27	70.08	66.90	63.71
19690	.4688	15/32"	11.908	3-5/8"	2-1/8"	77.50	74.13	70.76	67.39
19695	.4724		12.000	94	56	77.77	74.39	71.01	67.63
19700	.4844	31/64"	12.304	3-11/16"	2-3/16"	78.38	74.98	71.57	68.16
19705	.4921		12.500	95	56	79.26	75.81	72.37	68.92
19710	.5000	1/2"	12.700	3-3/4"	2-1/4"	79.83	76.36	72.89	69.42
19720	.5156	33/64"	13.096	4-1/4"	2-3/8"	107.28	102.62	97.95	93.29
19725	.5312	17/32"	13.492	4-1/4"	2-3/8"	110.07	105.28	100.50	95.71
19730	.5315		13.500	107	60	112.91	108.00	103.09	98.18
19735	.5469	35/64"	13.891	4-1/4"	2-3/8"	115.69	110.66	105.63	100.60
19740	.5512		14.000	107	60	118.51	113.36	108.20	103.05
19745	.5625	9/16"	14.287	4-1/2"	2-1/2"	129.23	123.61	117.99	112.37
19755	.5781	37/64"	14.683	4-1/2"	2-1/2"	134.62	128.77	122.91	117.06
19760	.5906		15.000	115	65	137.36	131.38	125.41	119.44
19765	.5938	19/32"	15.082	4-1/2"	2-1/2"	138.15	132.14	126.14	120.13
19770	.6094	39/64"	15.478	4-1/2"	2-1/2"	138.92	132.88	126.84	120.80
19780	.6250	5/8"	15.875	4-1/2"	2-1/2"	140.48	134.38	128.27	122.16
19785	.6299		16.000	115	65	144.22	137.95	131.68	125.41