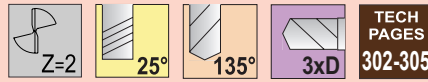


**TOLERANCES**

<i>d</i>	+.0000" -.0005" (+.0000 -.0127mm)	
<i>l<sub>1</sub></i>	≤ 1/8"	+ .125" -.062" (+3.175 -1.588mm)
	> 1/8"	+ .125" -.125" (+3.175 -3.175mm)
<i>l<sub>2</sub></i>	≤ 1/8"	+ .125" -.062" (+3.175 -1.588mm)
	> 1/8"	+ .125" -.125" (+3.175 -3.175mm)

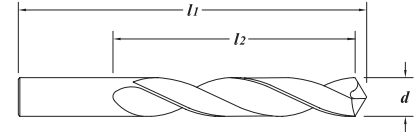
**Series 1520**

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



General purpose for all material groups

- Solid submicron grain carbide drill
- No spotting required in most applications
- 4-facet self-centering point
- Live tooling recommended on lathe processes
- Hardlube Coating - page 68



DRILLS

EDP#	<i>d</i> † Diameter		<i>l<sub>1</sub></i> Overall Length	<i>l<sub>2</sub></i> Flute Length	1-11	12-24	25-49	50-100	
	Decimal	Metric							
77165	.0625	1/16"	1.588	1-3/4"	5/8"	7.13	6.82	6.51	6.20
77170	.0635	#52	1.613	1-3/4"	11/16"	7.23	6.92	6.60	6.29
77175	.0670	#51	1.702	1-3/4"	11/16"	7.34	7.02	6.70	6.38
77180	.0700	#50	1.778	1-3/4"	11/16"	7.52	7.19	6.87	6.54
77185	.0730	#49	1.854	1-3/4"	11/16"	7.72	7.38	7.05	6.71
77190	.0760	#48	1.930	1-3/4"	11/16"	7.97	7.62	7.28	6.93
77195	.0781	5/64"	1.984	1-3/4"	11/16"	8.27	7.91	7.55	7.19
77200	.0785	#47	1.994	1-3/4"	3/4"	8.54	8.17	7.80	7.43
77205	.0787		2.000	45	19	8.68	8.31	7.93	7.55
77210	.0810	#46	2.057	1-3/4"	3/4"	8.82	8.44	8.05	7.67
77215	.0820	#45	2.083	1-3/4"	3/4"	9.09	8.69	8.30	7.90
77220	.0860	#44	2.184	1-3/4"	3/4"	9.38	8.98	8.57	8.16
77225	.0890	#43	2.261	1-3/4"	3/4"	9.65	9.23	8.81	8.39
77230	.0935	#42	2.375	1-3/4"	3/4"	9.79	9.36	8.94	8.51
77235	.0938	3/32"	2.383	1-3/4"	3/4"	10.01	9.57	9.14	8.70
77240	.0960	#41	2.438	1-13/16"	13/16"	10.10	9.66	9.22	8.78
77245	.0980	#40	2.489	1-13/16"	13/16"	10.25	9.80	9.36	8.91
77250	.0984		2.500	46	21	10.30	9.86	9.41	8.96
77255	.0995	#39	2.527	1-13/16"	13/16"	10.35	9.90	9.45	9.00
77260	.1015	#38	2.578	1-13/16"	13/16"	10.44	9.99	9.53	9.08
77265	.1040	#37	2.642	1-13/16"	13/16"	10.52	10.07	9.61	9.15
77270	.1065	#36	2.705	1-13/16"	13/16"	10.59	10.13	9.67	9.21
77275	.1094	7/64"	2.779	1-13/16"	13/16"	10.66	10.20	9.73	9.27
77280	.1100	#35	2.794	1-7/8"	7/8"	10.73	10.26	9.80	9.33
77285	.1110	#34	2.819	1-7/8"	7/8"	10.86	10.38	9.91	9.44
77290	.1130	#33	2.870	1-7/8"	7/8"	10.93	10.45	9.98	9.50
77295	.1160	#32	2.946	1-7/8"	7/8"	11.01	10.53	10.05	9.57
77300	.1181		3.000	48	22	11.13	10.65	10.16	9.68
77305	.1200	#31	3.048	1-7/8"	7/8"	11.20	10.71	10.23	9.74
77310	.1250	1/8"	3.175	1-7/8"	7/8"	11.33	10.84	10.34	9.85
77315	.1285	#30	3.264	1-15/16"	15/16"	11.64	11.13	10.63	10.12
77320	.1360	#29	3.454	1-15/16"	15/16"	11.94	11.42	10.90	10.38
77325	.1378		3.500	49	24	12.33	11.79	11.26	10.72
77330	.1405	#28	3.569	1-15/16"	15/16"	12.50	11.96	11.41	10.87
77335	.1406	9/64"	3.571	1-15/16"	15/16"	12.62	12.07	11.52	10.97
77340	.1440	#27	3.658	2-1/16"	1"	13.73	13.13	12.54	11.94
77345	.1470	#26	3.734	2-1/16"	1"	13.87	13.27	12.66	12.06
77350	.1495	#25	3.797	2-1/16"	1"	14.05	13.44	12.83	12.22
77355	.1520	#24	3.861	2-1/16"	1"	14.08	13.46	12.85	12.24
77360	.1540	#23	3.912	2-1/16"	1"	14.18	13.56	12.95	12.33
77365	.1562	5/32"	3.967	2-1/16"	1"	14.27	13.65	13.03	12.41
77370	.1570	#22	3.988	2-1/8"	1-1/16"	15.17	14.51	13.85	13.19
77375	.1575		4.000	54	27	15.36	14.70	14.03	13.36

continued →

# Series 1520 (continued)

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

DRILLS

EDP#	$d^{\dagger}$ Diameter		$l_1$ Overall Length	$l_2$ Flute Length	1-11	12-24	25-49	50-100	
	Decimal	Metric							
77380	.1590	#21	4.039	2-1/8"	1-1/16"	15.54	14.86	14.19	13.51
77385	.1610	#20	4.089	2-1/8"	1-1/16"	15.65	14.97	14.29	13.61
77390	.1660	#19	4.216	2-1/8"	1-1/16"	16.28	15.58	14.87	14.16
77395	.1695	#18	4.305	2-1/8"	1-1/16"	16.49	15.77	15.06	14.34
77400	.1719	11/64"	4.366	2-1/8"	1-1/16"	16.84	16.10	15.37	14.64
77405	.1730	#17	4.394	2-3/16"	1-1/8"	17.07	16.32	15.58	14.84
77410	.1770	#16	4.496	2-3/16"	1-1/8"	17.25	16.50	15.75	15.00
77415	.1772		4.500	56	29	17.34	16.59	15.83	15.08
77420	.1800	#15	4.572	2-3/16"	1-1/8"	17.41	16.65	15.90	15.14
77425	.1820	#14	4.623	2-3/16"	1-1/8"	17.81	17.04	16.26	15.49
77430	.1850	#13	4.700	2-3/16"	1-1/8"	17.95	17.17	16.39	15.61
77435	.1875	3/16"	4.763	2-3/16"	1-1/8"	18.03	17.25	16.46	15.68
77440	.1890	#12	4.801	2-1/4"	1-3/16"	18.62	17.81	17.00	16.19
77445	.1910	#11	4.851	2-1/4"	1-3/16"	18.83	18.01	17.19	16.37
77450	.1935	#10	4.915	2-1/4"	1-3/16"	19.72	18.87	18.01	17.15
77455	.1960	#9	4.978	2-1/4"	1-3/16"	20.22	19.34	18.46	17.58
77460	.1969		5.000	57	30	20.33	19.45	18.56	17.68
77465	.1990	#8	5.055	2-1/4"	1-3/16"	20.47	19.58	18.69	17.80
77470	.2010	#7	5.105	2-1/4"	1-3/16"	21.07	20.15	19.24	18.32
77475	.2031	13/64"	5.159	2-1/4"	1-3/16"	21.23	20.31	19.38	18.46
77480	.2040	#6	5.182	2-3/8"	1-1/4"	21.67	20.72	19.78	18.84
77485	.2055	#5	5.220	2-3/8"	1-1/4"	22.11	21.15	20.19	19.23
77490	.2090	#4	5.309	2-3/8"	1-1/4"	22.49	21.52	20.54	19.56
77495	.2130	#3	5.410	2-3/8"	1-1/4"	22.89	21.89	20.90	19.90
77500	.2165		5.500	60	32	23.07	22.07	21.06	20.06
77505	.2188	7/32"	5.558	2-3/8"	1-1/4"	23.23	22.22	21.21	20.20
77510	.2210	#2	5.613	2-7/16"	1-5/16"	23.81	22.77	21.74	20.70
77515	.2280	#1	5.791	2-7/16"	1-5/16"	23.94	22.90	21.86	20.82
77520	.2340	A	5.944	2-7/16"	1-5/16"	23.99	22.95	21.90	20.86
77525	.2344	15/64"	5.954	2-7/16"	1-5/16"	24.06	23.01	21.97	20.92
77530	.2362		6.000	64	35	24.14	23.09	22.04	20.99
77535	.2380	B	6.045	2-1/2"	1-3/8"	24.22	23.17	22.11	21.06
77540	.2420	C	6.147	2-1/2"	1-3/8"	24.40	23.34	22.28	21.22
77545	.2460	D	6.248	2-1/2"	1-3/8"	24.59	23.52	22.45	21.38
77550	.2500	1/4" / E	6.350	2-1/2"	1-3/8"	24.76	23.68	22.61	21.53
77555	.2559		6.500	67	37	25.35	24.24	23.14	22.04
77560	.2570	F	6.528	2-5/8"	1-7/16"	25.89	24.76	23.64	22.51
77565	.2610	G	6.629	2-5/8"	1-7/16"	26.38	25.23	24.09	22.94
77570	.2656	17/64"	6.746	2-5/8"	1-7/16"	26.94	25.77	24.60	23.43
77575	.2660	H	6.756	2-11/16"	1-1/2"	27.70	26.50	25.29	24.09
77580	.2720	I	6.909	2-11/16"	1-1/2"	28.03	26.81	25.59	24.37
77585	.2756		7.000	68	38	28.24	27.02	25.79	24.56
77590	.2770	J	7.036	2-11/16"	1-1/2"	28.52	27.28	26.04	24.80
77595	.2810	K	7.137	2-11/16"	1-1/2"	28.77	27.52	26.27	25.02
77600	.2812	9/32"	7.142	2-11/16"	1-1/2"	28.91	27.65	26.40	25.14
77605	.2900	L	7.366	2-3/4"	1-9/16"	29.98	28.68	27.37	26.07
77610	.2950	M	7.493	2-3/4"	1-9/16"	32.09	30.69	29.30	27.90
77615	.2953		7.500	70	40	32.09	30.69	29.30	27.90
77620	.2969	19/64"	7.541	2-3/4"	1-9/16"	32.25	30.84	29.44	28.04
77625	.3020	N	7.671	2-15/16"	1-5/8"	33.98	32.51	31.03	29.55
77630	.3125	5/16"	7.938	2-15/16"	1-5/8"	34.10	32.62	31.13	29.65
77635	.3150		8.000	75	43	36.57	34.98	33.39	31.80
77640	.3160	O	8.026	2-15/16"	1-11/16"	36.57	34.98	33.39	31.80
77645	.3230	P	8.204	2-15/16"	1-11/16"	36.90	35.30	33.69	32.09
77650	.3281	21/64"	8.334	2-15/16"	1-11/16"	37.13	35.52	33.90	32.29
77655	.3320	Q	8.433	3"	1-11/16"	37.98	36.33	34.68	33.03
77660	.3346		8.500	76	43	38.34	36.67	35.01	33.34

EDP#	$d^+$ Diameter		$l_1$ Overall Length	$l_2$ Flute Length	1-11	12-24	25-49	50-100	
	Decimal	Metric							
77665	.3390	R	8.611	3"	1-11/16"	39.56	37.84	36.12	34.40
77670	.3438	11/32"	8.733	3"	1-11/16"	41.18	39.39	37.60	35.81
77675	.3480	S	8.839	3-1/16"	1-3/4"	41.73	39.92	38.10	36.29
77680	.3543		9.000	78	44	41.98	40.15	38.33	36.50
77685	.3580	T	9.093	3-1/16"	1-3/4"	42.15	40.32	38.48	36.65
77690	.3594	23/64"	9.129	3-1/16"	1-3/4"	42.44	40.59	38.75	36.90
77695	.3680	U	9.347	3-1/8"	1-13/16"	46.47	44.45	42.43	40.41
77700	.3740		9.500	79	46	46.91	44.87	42.83	40.79
77705	.3750	3/8"	9.525	3-1/8"	1-13/16"	47.28	45.22	43.17	41.11
77710	.3770	V	9.576	3-1/4"	1-7/8"	48.16	46.07	43.97	41.88
77715	.3860	W	9.804	3-1/4"	1-7/8"	49.19	47.05	44.91	42.77
77720	.3906	25/64"	9.921	3-1/4"	1-7/8"	49.92	47.75	45.58	43.41
77725	.3937		10.000	84	49	51.72	49.47	47.22	44.97
77730	.3970	X	10.084	3-5/16"	1-15/16"	53.22	50.91	48.59	46.28
77740	.4062	13/32"	10.317	3-5/16"	1-15/16"	55.60	53.19	50.77	48.35
77745	.4130	Z	10.490	3-3/8"	2"	56.21	53.77	51.32	48.88
77750	.4134		10.500	86	51	56.21	53.77	51.32	48.88
77755	.4219	27/64"	10.716	3-3/8"	2"	56.81	54.34	51.87	49.40
77760	.4331		11.000	87	52	61.69	59.00	56.32	53.64
77765	.4375	7/16"	11.113	3-7/16"	2-1/16"	61.69	59.00	56.32	53.64
77770	.4528		11.500	91	54	66.93	64.02	61.11	58.20
77775	.4531	29/64"	11.509	3-9/16"	2-1/8"	66.93	64.02	61.11	58.20
77780	.4688	15/32"	11.908	3-5/8"	2-1/8"	70.79	67.72	64.64	61.56
77785	.4724		12.000	94	56	71.06	67.97	64.88	61.79
77790	.4844	31/64"	12.304	3-11/16"	2-3/16"	71.59	68.48	65.36	62.25
77795	.4921		12.500	95	56	72.42	69.27	66.12	62.97
77800	.5000	1/2"	12.700	3-3/4"	2-1/4"	72.93	69.76	66.59	63.42

*Drill and Reamer Manufacturing*