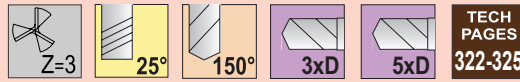


TOLERANCES

<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)



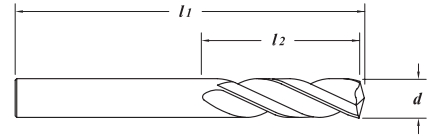
Series 1120H, 1100H

.1094" - .1575"
(2.779mm - 4.000mm)

Recommended for cast iron, tungsten, and materials with high silicon content

Hardlube Coating

- Solid submicron grain carbide drill
 - Self-centering drill point
 - Near reamer finishes
 - Can be used as a core drill
 - Excellent heat resistance and lubricity
 - Stub length reduces deflection and vibration
 - Tighter tolerance holes
 - Improved roundness and straightness
 - Live tooling recommended on lathe processes
- Series 1100 Uncoated - page 88



GENERAL PURPOSE DRILLS

3xD (1120H) EDP#	5xD (1100H) 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							
78276		.1094	7/64"	2.779	1-13/16"	13/16"	15.38	14.71	14.04	13.37
	90276	.1094	7/64"	2.779	2-1/4"	1-1/4"	15.88	15.19	14.50	13.81
78281		.1100	#35	2.794	1-7/8"	7/8"	15.51	14.84	14.16	13.49
	90281	.1100	#35	2.794	2-1/4"	1-1/4"	16.05	15.36	14.66	13.96
78286		.1110	#34	2.819	1-7/8"	7/8"	15.67	14.99	14.31	13.63
78291		.1130	#33	2.870	1-7/8"	7/8"	15.90	15.21	14.52	13.83
	90291	.1130	#33	2.870	2-1/4"	1-1/4"	16.47	15.75	15.04	14.32
78296		.1160	#32	2.946	1-7/8"	7/8"	16.11	15.41	14.71	14.01
	90296	.1160	#32	2.946	2-1/4"	1-1/4"	16.63	15.91	15.18	14.46
78301		.1181		3.000	48	22	16.24	15.53	14.83	14.12
	90301	.1181		3.000	57	32	16.77	16.04	15.31	14.58
78306		.1200	#31	3.048	1-7/8"	7/8"	16.35	15.64	14.93	14.22
	90306	.1200	#31	3.048	2-1/4"	1-1/4"	16.87	16.14	15.40	14.67
78311		.1250	1/8"	3.175	1-7/8"	7/8"	16.54	15.82	15.10	14.38
	90311	.1250	1/8"	3.175	2-1/4"	1-1/4"	17.04	16.30	15.56	14.82
78316		.1285	#30	3.264	1-15/16"	15/16"	16.91	16.17	15.44	14.70
	90316	.1285	#30	3.264	2-1/4"	1-1/4"	17.41	16.65	15.90	15.14
78321		.1360	#29	3.454	1-15/16"	15/16"	17.30	16.54	15.79	15.04
	90321	.1360	#29	3.454	2-1/2"	1-3/8"	17.92	17.14	16.36	15.58
78326		.1378		3.500	49	24	17.80	17.03	16.25	15.48
	90326	.1378		3.500	63	35	18.41	17.61	16.81	16.01
78331		.1405	#28	3.569	1-15/16"	15/16"	17.99	17.20	16.42	15.64
	90331	.1405	#28	3.569	2-1/2"	1-3/8"	18.61	17.80	16.99	16.18
78336		.1406	9/64"	3.571	1-15/16"	15/16"	18.17	17.38	16.59	15.80
	90336	.1406	9/64"	3.571	2-1/2"	1-3/8"	18.78	17.96	17.15	16.33
78341		.1440	#27	3.658	2-1/16"	1"	19.44	18.59	17.75	16.90
	90341	.1440	#27	3.658	2-1/2"	1-3/8"	19.45	18.60	17.76	16.91
78346		.1470	#26	3.734	2-1/16"	1"	19.65	18.80	17.94	17.09
	90346	.1470	#26	3.734	2-1/2"	1-3/8"	19.67	18.81	17.96	17.10
78351		.1495	#25	3.797	2-1/16"	1"	19.83	18.96	18.10	17.24
	90351	.1495	#25	3.797	2-1/2"	1-3/8"	19.84	18.98	18.11	17.25
78356		.1520	#24	3.861	2-1/16"	1"	19.86	19.00	18.13	17.27
	90356	.1520	#24	3.861	2-1/2"	1-3/8"	19.86	19.00	18.13	17.27
78361		.1540	#23	3.912	2-1/16"	1"	20.02	19.15	18.28	17.41
	90361	.1540	#23	3.912	2-1/2"	1-3/8"	20.03	19.16	18.29	17.42
78366		.1562	5/32"	3.967	2-1/16"	1"	20.11	19.24	18.36	17.49
	90366	.1562	5/32"	3.967	2-1/2"	1-3/8"	20.11	19.24	18.36	17.49
78371		.1570	#22	3.988	2-1/8"	1-1/16"	21.26	20.34	19.41	18.49
	90371	.1570	#22	3.988	2-1/2"	1-3/8"	21.26	20.34	19.41	18.49
78376		.1575		4.000	54	27	21.26	20.34	19.41	18.49
	90376	.1575		4.000	63	35	21.26	20.34	19.41	18.49

continued →

Series 1120H, 1100H (continued)

.1590" - .2362"
(4.039mm - 6.000mm)

3xD (1120H) EDP#	5xD (1100H) EDP#	d^{\dagger} Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100	
		Decimal	Metric							
78381		.1590	#21	4.039	2-1/8"	1-1/16"	21.69	20.75	19.80	18.86
	90381	.1590	#21	4.039	2-1/2"	1-3/8"	21.74	20.79	19.85	18.90
78386		.1610	#20	4.089	2-1/8"	1-1/16"	21.69	20.75	19.80	18.86
	90386	.1610	#20	4.089	2-1/2"	1-3/8"	21.74	20.79	19.85	18.90
78391		.1660	#19	4.216	2-1/8"	1-1/16"	21.85	20.90	19.95	19.00
	90391	.1660	#19	4.216	2-3/4"	1-5/8"	21.86	20.91	19.96	19.01
78396		.1695	#18	4.305	2-1/8"	1-1/16"	21.99	21.03	20.08	19.12
	90396	.1695	#18	4.305	2-3/4"	1-5/8"	22.00	21.04	20.09	19.13
78401		.1719	11/64"	4.366	2-1/8"	1-1/16"	22.11	21.15	20.19	19.23
	90401	.1719	11/64"	4.366	2-3/4"	1-5/8"	22.11	21.15	20.19	19.23
78406		.1730	#17	4.394	2-3/16"	1-1/8"	23.02	22.02	21.02	20.02
	90406	.1730	#17	4.394	2-3/4"	1-5/8"	23.02	22.02	21.02	20.02
78411		.1770	#16	4.496	2-3/16"	1-1/8"	23.26	22.25	21.24	20.23
	90411	.1770	#16	4.496	2-3/4"	1-5/8"	23.28	22.26	21.25	20.24
78416		.1772		4.500	56	29	23.36	22.34	21.33	20.31
	90416	.1772		4.500	70	41	23.37	22.35	21.34	20.32
78421		.1800	#15	4.572	2-3/16"	1-1/8"	23.45	22.43	21.41	20.39
	90421	.1800	#15	4.572	2-3/4"	1-5/8"	23.49	22.47	21.45	20.43
78426		.1820	#14	4.623	2-3/16"	1-1/8"	23.94	22.90	21.86	20.82
	90426	.1820	#14	4.623	2-3/4"	1-5/8"	23.95	22.91	21.87	20.83
78431		.1850	#13	4.700	2-3/16"	1-1/8"	24.06	23.01	21.97	20.92
	90431	.1850	#13	4.700	2-3/4"	1-5/8"	24.06	23.01	21.97	20.92
78436		.1875	3/16"	4.763	2-3/16"	1-1/8"	24.06	23.01	21.97	20.92
	90436	.1875	3/16"	4.763	2-3/4"	1-5/8"	24.06	23.01	21.97	20.92
78441		.1890	#12	4.801	2-1/4"	1-3/16"	25.77	24.65	23.53	22.41
	90441	.1890	#12	4.801	2-3/4"	1-5/8"	25.75	24.63	23.51	22.39
78446		.1910	#11	4.851	2-1/4"	1-3/16"	26.00	24.87	23.74	22.61
	90446	.1910	#11	4.851	2-3/4"	1-5/8"	25.98	24.85	23.72	22.59
78451		.1935	#10	4.915	2-1/4"	1-3/16"	27.05	25.87	24.70	23.52
	90451	.1935	#10	4.915	2-3/4"	1-5/8"	27.05	25.87	24.70	23.52
78456		.1960	#9	4.978	2-1/4"	1-3/16"	27.62	26.42	25.22	24.02
	90456	.1960	#9	4.978	3"	1-3/4"	27.62	26.42	25.22	24.02
78461		.1969		5.000	57	30	27.77	26.57	25.36	24.15
	90461	.1969		5.000	76	44	27.76	26.55	25.35	24.14
78466		.1990	#8	5.055	2-1/4"	1-3/16"	27.93	26.72	25.50	24.29
	90466	.1990	#8	5.055	3"	1-3/4"	27.92	26.71	25.49	24.28
78471		.2010	#7	5.105	2-1/4"	1-3/16"	28.67	27.42	26.18	24.93
	90471	.2010	#7	5.105	3"	1-3/4"	28.67	27.42	26.18	24.93
78476		.2031	13/64"	5.159	2-1/4"	1-3/16"	29.62	28.34	27.05	25.76
	90476	.2031	13/64"	5.159	3"	1-3/4"	29.61	28.33	27.04	25.75
	90481	.2040	#6	5.182	3"	1-3/4"	29.79	28.49	27.20	25.90
78486		.2055	#5	5.220	2-3/8"	1-1/4"	29.91	28.61	27.31	26.01
	90486	.2055	#5	5.220	3"	1-3/4"	29.90	28.60	27.30	26.00
78491		.2090	#4	5.309	2-3/8"	1-1/4"	30.36	29.04	27.72	26.40
	90491	.2090	#4	5.309	3"	1-3/4"	30.36	29.04	27.72	26.40
78496		.2130	#3	5.410	2-3/8"	1-1/4"	30.82	29.48	28.14	26.80
	90496	.2130	#3	5.410	3"	1-3/4"	30.82	29.48	28.14	26.80
78501		.2165		5.500	60	32	31.03	29.68	28.33	26.98
	90501	.2165		5.500	76	44	31.03	29.68	28.33	26.98
78506		.2188	7/32"	5.558	2-3/8"	1-1/4"	31.22	29.87	28.51	27.15
	90506	.2188	7/32"	5.558	3"	1-3/4"	31.22	29.87	28.51	27.15
78511		.2210	#2	5.613	2-7/16"	1-5/16"	31.92	30.54	29.15	27.76
	90511	.2210	#2	5.613	3"	1-3/4"	31.90	30.51	29.13	27.74
78516		.2280	#1	5.791	2-7/16"	1-5/16"	32.05	30.66	29.26	27.87
	90516	.2280	#1	5.791	3"	1-3/4"	32.05	30.66	29.26	27.87
78521		.2340	A	5.944	2-7/16"	1-5/16"	32.22	30.82	29.42	28.02
	90521	.2340	A	5.944	3-1/4"	2"	32.50	31.09	29.67	28.26
78526		.2344	15/64"	5.954	2-7/16"	1-5/16"	32.35	30.94	29.54	28.13
	90526	.2344	15/64"	5.954	3-1/4"	2"	32.60	31.19	29.77	28.35
78531		.2362		6.000	64	35	32.43	31.02	29.61	28.20
	90531	.2362		6.000	82	50	32.69	31.27	29.85	28.43

3xD (1120H) EDP#	5xD (1100H) EDP#	d^{\dagger} Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100	
		Decimal	Metric							
78536		.2380	B	6.045	2-1/2"	1-3/8"	32.56	31.14	29.73	28.31
	90536	.2380	B	6.045	3-1/4"	2"	32.82	31.39	29.97	28.54
78541		.2420	C	6.147	2-1/2"	1-3/8"	32.76	31.34	29.91	28.49
	90541	.2420	C	6.147	3-1/4"	2"	33.01	31.57	30.14	28.70
78546		.2460	D	6.248	2-1/2"	1-3/8"	32.95	31.52	30.08	28.65
	90546	.2460	D	6.248	3-1/4"	2"	33.24	31.79	30.35	28.90
78551		.2500	1/4" / E	6.350	2-1/2"	1-3/8"	33.15	31.71	30.27	28.83
	90551	.2500	1/4" / E	6.350	3-1/4"	2"	33.43	31.98	30.52	29.07
78556		.2559		6.500	67	37	36.71	35.11	33.52	31.92
	90556	.2559		6.500	82	50	37.28	35.66	34.04	32.42
78561		.2570	F	6.528	2-5/8"	1-7/16"	37.33	35.71	34.08	32.46
	90561	.2570	F	6.528	3-1/4"	2"	37.90	36.26	34.61	32.96
78566		.2610	G	6.629	2-5/8"	1-7/16"	37.80	36.16	34.51	32.87
	90566	.2610	G	6.629	3-1/2"	2-1/8"	39.53	37.81	36.09	34.37
78571		.2656	17/64"	6.746	2-5/8"	1-7/16"	38.41	36.74	35.07	33.40
	90571	.2656	17/64"	6.746	3-1/2"	2-1/8"	40.17	38.42	36.68	34.93
78576		.2660	H	6.756	2-11/16"	1-1/2"	39.36	37.65	35.94	34.23
	90576	.2660	H	6.756	3-1/2"	2-1/8"	41.14	39.35	37.56	35.77
78581		.2720	I	6.909	2-11/16"	1-1/2"	39.74	38.02	36.29	34.56
	90581	.2720	I	6.909	3-1/2"	2-1/8"	41.57	39.77	37.96	36.15
78586		.2756		7.000	68	38	39.97	38.24	36.50	34.76
	90586	.2756		7.000	88	54	41.80	39.99	38.17	36.35
78591		.2770	J	7.036	2-11/16"	1-1/2"	40.27	38.52	36.77	35.02
	90591	.2770	J	7.036	3-1/2"	2-1/8"	42.14	40.30	38.47	36.64
78596		.2810	K	7.137	2-11/16"	1-1/2"	40.61	38.84	37.08	35.31
	90596	.2810	K	7.137	3-1/2"	2-1/8"	42.45	40.60	38.76	36.91
78601		.2812	9/32"	7.142	2-11/16"	1-1/2"	41.79	39.97	38.16	36.34
	90601	.2812	9/32"	7.142	3-1/2"	2-1/8"	43.71	41.81	39.91	38.01
78606		.2900	L	7.366	2-3/4"	1-9/16"	43.11	41.24	39.36	37.49
	90606	.2900	L	7.366	3-1/2"	2-1/8"	45.09	43.13	41.17	39.21
78611		.2950	M	7.493	2-3/4"	1-9/16"	44.18	42.26	40.34	38.42
	90611	.2950	M	7.493	3-3/4"	2-3/8"	47.44	45.38	43.31	41.25
78616		.2953		7.500	70	40	44.18	42.26	40.34	38.42
	90616	.2953		7.500	95	60	47.44	45.38	43.31	41.25
78621		.2969	19/64"	7.541	2-3/4"	1-9/16"	44.18	42.26	40.34	38.42
	90621	.2969	19/64"	7.541	3-3/4"	2-3/8"	47.44	45.38	43.31	41.25
78626		.3020	N	7.671	2-15/16"	1-5/8"	45.68	43.69	41.71	39.72
	90626	.3020	N	7.671	3-3/4"	2-3/8"	47.75	45.67	43.60	41.52
78631		.3125	5/16"	7.938	2-15/16"	1-5/8"	45.84	43.85	41.85	39.86
	90631	.3125	5/16"	7.938	3-3/4"	2-3/8"	47.78	45.71	43.63	41.55
78636		.3150		8.000	75	43	48.70	46.59	44.47	42.35
	90636	.3150		8.000	95	60	50.77	48.57	46.36	44.15
78641		.3160	O	8.026	2-15/16"	1-11/16"	48.70	46.59	44.47	42.35
	90641	.3160	O	8.026	3-3/4"	2-3/8"	50.77	48.57	46.36	44.15
78646		.3230	P	8.204	2-15/16"	1-11/16"	48.70	46.59	44.47	42.35
	90646	.3230	P	8.204	3-3/4"	2-3/8"	50.77	48.57	46.36	44.15
78651		.3281	21/64"	8.334	2-15/16"	1-11/16"	50.54	48.35	46.15	43.95
	90651	.3281	21/64"	8.334	4"	2-1/2"	52.82	50.52	48.23	45.93
78656		.3320	Q	8.433	3"	1-11/16"	51.57	49.32	47.08	44.84
	90656	.3320	Q	8.433	4"	2-1/2"	53.90	51.56	49.21	46.87
78661		.3346		8.500	76	43	51.99	49.73	47.47	45.21
	90661	.3346		8.500	101	63	54.31	51.95	49.59	47.23
78666		.3390	R	8.611	3"	1-11/16"	53.41	51.08	48.76	46.44
	90666	.3390	R	8.611	4"	2-1/2"	55.81	53.38	50.96	48.53
78671		.3438	11/32"	8.733	3"	1-11/16"	55.34	52.93	50.53	48.12
	90671	.3438	11/32"	8.733	4"	2-1/2"	57.80	55.29	52.77	50.26
78676		.3480	S	8.839	3-1/16"	1-3/4"	62.63	59.91	57.18	54.46
	90676	.3480	S	8.839	4"	2-1/2"	61.35	58.69	56.02	53.35
78681		.3543		9.000	78	44	62.99	60.25	57.51	54.77
	90681	.3543		9.000	101	63	61.71	59.03	56.34	53.66

continued →

Series 1120H, 1100H (continued)

.3580" - .5000"
(9.093mm - 12.700mm)

3xD (1120H) EDP#	5xD (1100H) EDP#	d^{\dagger} Diameter		l_1 Overall Length	l_2 Flute Length	1-11	12-24	25-49	50-100	
		Decimal	Metric							
78686		.3580	T	9.093	3-1/16"	1-3/4"	63.14	60.39	57.65	54.90
78691		.3594	23/64"	9.129	3-1/16"	1-3/4"	63.57	60.81	58.04	55.28
	90691	.3594	23/64"	9.129	4-1/4"	2-3/4"	64.27	61.48	58.68	55.89
78696		.3680	U	9.347	3-1/8"	1-13/16"	67.22	64.30	61.37	58.45
	90696	.3680	U	9.347	4-1/4"	2-3/4"	67.94	64.99	62.03	59.08
78701		.3740		9.500	79	46	68.20	65.23	62.27	59.30
	90701	.3740		9.500	107	70	68.93	65.93	62.94	59.94
78706		.3750	3/8"	9.525	3-1/8"	1-13/16"	68.20	65.23	62.27	59.30
	90706	.3750	3/8"	9.525	4-1/4"	2-3/4"	68.93	65.93	62.94	59.94
78711		.3770	V	9.576	3-1/4"	1-7/8"	68.86	65.87	62.87	59.88
	90711	.3770	V	9.576	4-1/4"	2-3/4"	71.71	68.60	65.48	62.36
78716		.3860	W	9.804	3-1/4"	1-7/8"	72.73	69.56	66.40	63.24
	90716	.3860	W	9.804	4-1/2"	2-7/8"	75.64	72.35	69.06	65.77
78721		.3906	25/64"	9.921	3-1/4"	1-7/8"	73.62	70.42	67.22	64.02
	90721	.3906	25/64"	9.921	4-1/2"	2-7/8"	76.58	73.25	69.92	66.59
78726		.3937		10.000	84	49	75.92	72.62	69.32	66.02
	90726	.3937		10.000	114	73	78.95	75.52	72.08	68.65
78736		.4040	Y	10.262	3-5/16"	1-15/16"	78.42	75.01	71.60	68.19
	90736	.4040	Y	10.262	4-1/2"	2-7/8"	81.54	77.99	74.45	70.90
78741		.4062	13/32"	10.317	3-5/16"	1-15/16"	80.90	77.39	73.87	70.35
	90741	.4062	13/32"	10.317	4-1/2"	2-7/8"	84.09	80.43	76.78	73.12
78746		.4130	Z	10.490	3-3/8"	2"	81.63	78.08	74.53	70.98
	90746	.4130	Z	10.490	4-1/2"	2-7/8"	84.84	81.15	77.46	73.77
78751		.4134		10.500	86	51	81.63	78.08	74.53	70.98
	90751	.4134		10.500	114	73	84.84	81.15	77.46	73.77
78756		.4219	27/64"	10.716	3-3/8"	2"	82.47	78.88	75.30	71.71
	90756	.4219	27/64"	10.716	4-1/2"	2-7/8"	85.69	81.96	78.24	74.51
78761		.4331		11.000	87	52	87.87	84.05	80.23	76.41
	90761	.4331		11.000	114	73	92.08	88.08	84.07	80.07
78766		.4375	7/16"	11.113	3-7/16"	2-1/16"	87.87	84.05	80.23	76.41
	90766	.4375	7/16"	11.113	4-1/2"	2-7/8"	92.08	88.08	84.07	80.07
	90771	.4528		11.500	120	76	98.99	94.69	90.38	86.08
78776		.4531	29/64"	11.509	3-9/16"	2-1/8"	94.48	90.38	86.27	82.16
	90776	.4531	29/64"	11.509	4-3/4"	3"	98.99	94.69	90.38	86.08
78781		.4688	15/32"	11.908	3-5/8"	2-1/8"	99.38	95.06	90.74	86.42
	90781	.4688	15/32"	11.908	4-3/4"	3"	104.09	99.56	95.04	90.51
78786		.4724		12.000	94	56	99.66	95.33	90.99	86.66
	90786	.4724		12.000	120	76	104.37	99.84	95.30	90.76
78791		.4844	31/64"	12.304	3-11/16"	2-3/16"	99.96	95.61	91.27	86.92
	90791	.4844	31/64"	12.304	4-3/4"	3"	104.37	99.84	95.30	90.76
78796		.4921		12.500	95	56	101.50	97.09	92.67	88.26
	90796	.4921		12.500	120	76	106.87	102.22	97.58	92.93
78801		.5000	1/2"	12.700	3-3/4"	2-1/4"	102.03	97.59	93.16	88.72
	90801	.5000	1/2"	12.700	4-3/4"	3"	106.87	102.22	97.58	92.93