

Jobber Length • Screw Machine Length • Taper Length

Operating Parameters – General Application Cobalt and HSS Drills

Material	Hardness	Speeds (SFM) Drill Finish				Feed Rate (IPR)			
		Bright or Steam Oxide	Straw	TiN	TiCN TiAlN	1/8" 3.17mm	1/4" 6.35mm	3/8" 9.52mm	1/2" 12.70mm
Ferrous									
low carbon steel	85-125 Bhn	90	125	135	-	.0040	.0065	.0080	.0100
medium carbon steel	125-175 Bhn	90	125	135	-	.0040	.0065	.0080	.0100
high carbon steel	175-225 Bhn	90	125	135	-	.0030	.0050	.0065	.0080
alloyed steel	200-300 Bhn	60	80	90	-	.0025	.0040	.0050	.0065
heat-treatable steel and forgings	370-420 Bhn	40	50	60	70	.0025	.0040	.0050	.0065
tool steels	< 24 HRc	60	80	90	110	.0030	.0050	.0065	.0080
	> 24-30 HRc	30	40	45	55	.0025	.0040	.0050	.0065
high-speed steels	14-30 HRc	35	50	55	60	.0025	.0040	.0050	.0065
gray cast iron	240 Bhn	115	160	175	-	.0050	.0080	.0100	.0125
	<300 Bhn	90	125	135	-	.0050	.0080	.0100	.0125
malleable cast iron	<300 Bhn	70	95	105	-	.0050	.0080	.0100	.0125
chilled cast iron	<350 Bhn	25	35	40	-	.0025	.0040	.0050	.0065
stainless steel									
300 series (Austenitic)	120-200 Bhn	60	80	90	100	.0025	.0040	.0050	.0065
400 series (Martensitic)	200-300 Bhn	40	50	60	80	.0025	.0040	.0050	.0065
sulphurized	> 25 HRc	45	65	70	80	.0025	.0040	.0050	.0065
spring steel	400 Bhn	25	35	40	45	.0020	.0030	.0040	.0050
Nonferrous									
aluminum and aluminum alloys	40-100 Bhn	180	-	-	-	.0050	.0080	.0100	.0125
cast aluminum									
< 10% Si	200 Bhn	200	275	-	-	.0050	.0080	.0100	.0125
> 10% Si	200 Bhn	180	225	-	250	.0040	.0065	.0080	.0100
brass, long chipping	190-210 Bhn	150	-	-	-	.0040	.0065	.0080	.0100
bronze, long chipping	150-200 Bhn	90	115	-	130	.0030	.0050	.0065	.0080
copper, low alloy	65-100 Bhn	120	145	-	-	.0040	.0065	.0080	.0100
plastics, duraplastics	N/A	55	75	80	-	.0030	.0050	.0065	.0080

The speeds and feeds listed here are conservative recommendations for initial setup. In actual use, depending on the machine environment and workpiece material, significantly higher speeds and feeds may be achievable. Use these

speeds and feeds as a starting point. Cutting conditions can be gradually adjusted until the optimum settings for the application are found. Questions? Contact Technical Support at 800.892.4281.

Drill Definitions

- RPM = revolutions per minute
- SFM = surface feet per minute
- FR = feed rate in inches per minute
- IPR = inches per revolution

Drill Formulas

- $RPM = 3.82 \times SFM / \text{drill diameter}$
- $SFM = .262 \times RPM \times \text{drill diameter}$
- $FR = RPM \times IPR$



General Application Drills

Screw Machine Length

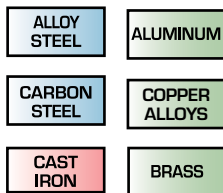
Style 2120 • General Purpose Screw Machine Length

DRILLING

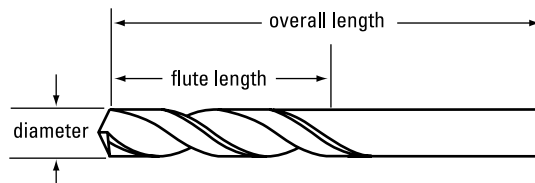
FEATURES



APPLICATIONS



Style 2120 Bright



Operating parameters on page 23.

HOLE FINISHING

THREADING

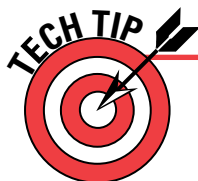
MILLING

OTHER TOOLS

Diameter Fract	Decimal Wi/Lt	Metric Equiv.	Flute Length in	mm	Overall Length in	mm	Order Number
60	.0400	1.02	.500	12.70	1.375	34.93	C04356
59	.0410	1.04	.500	12.70	1.375	34.93	C04357
58	.0420	1.07	.500	12.70	1.375	34.93	C04359
57	.0430	1.09	.500	12.70	1.375	34.93	C04360
56	.0465	1.18	.500	12.70	1.375	34.93	C04363
3/64	.0469	1.19	.500	12.70	1.375	34.93	C04364
55	.0520	1.32	.625	15.88	1.625	41.28	C04368
54	.0550	1.40	.625	15.88	1.625	41.28	C04370
53	.0595	1.51	.625	15.88	1.625	41.28	C04374
1/16	.0625	1.59	.625	15.88	1.625	41.28	C04376
52	.0635	1.61	.688	17.46	1.688	42.86	C04378
51	.0670	1.70	.688	17.46	1.688	42.86	C04381
50	.0700	1.78	.688	17.46	1.688	42.86	C04383
49	.0730	1.85	.688	17.46	1.688	42.86	C04386
48	.0760	1.93	.688	17.46	1.688	42.86	C04388
5/64	.0781	1.98	.688	17.46	1.688	42.86	C04390
47	.0785	1.99	.750	19.05	1.750	44.45	C04391
46	.0810	2.06	.750	19.05	1.750	44.45	C04394
45	.0820	2.08	.750	19.05	1.750	44.45	C04395
44	.0860	2.18	.750	19.05	1.750	44.45	C04398
43	.0890	2.26	.750	19.05	1.750	44.45	C04401
42	.0935	2.38	.750	19.05	1.750	44.45	C04404
3/32	.0938	2.38	.750	19.05	1.750	44.45	C04405
41	.0960	2.44	.813	20.64	1.813	46.04	C04407
40	.0980	2.49	.813	20.64	1.813	46.04	C04409
39	.0995	2.53	.813	20.64	1.813	46.04	C04411
38	.1015	2.58	.813	20.64	1.813	46.04	C04412
37	.1040	2.64	.813	20.64	1.813	46.04	C04414
36	.1065	2.71	.813	20.64	1.813	46.04	C04416
7/64	.1094	2.78	.813	20.64	1.813	46.04	C04418
35	.1100	2.79	.875	22.23	1.875	47.63	C04419
34	.1110	2.82	.875	22.23	1.875	47.63	C04421
33	.1130	2.87	.875	22.23	1.875	47.63	C04422
32	.1160	2.95	.875	22.23	1.875	47.63	C04424

Diameter Fract	Decimal Wi/Lt	Metric Equiv.	Flute Length in	mm	Overall Length in	mm	Order Number
31	.1200	3.05	.875	22.23	1.875	47.63	C04426
1/8	.1250	3.18	.875	22.23	1.875	47.63	C04428
30	.1285	3.26	.938	23.81	1.938	49.21	C04431
29	.1360	3.45	.938	23.81	1.938	49.21	C04434
28	.1405	3.57	.938	23.81	1.938	49.21	C04436
9/64	.1406	3.57	.938	23.81	1.938	49.21	C04437
27	.1440	3.66	1.000	25.40	2.063	52.39	C04439
26	.1470	3.73	1.000	25.40	2.063	52.39	C04441
25	.1495	3.80	1.000	25.40	2.063	52.39	C04443
24	.1520	3.86	1.000	25.40	2.063	52.39	C04445
23	.1540	3.91	1.000	25.40	2.063	52.39	C04447
5/32	.1562	3.97	1.000	25.40	2.063	52.39	C04448
22	.1570	3.99	1.063	26.99	2.125	53.98	C04449
21	.1590	4.04	1.063	26.99	2.125	53.98	C04451
20	.1610	4.09	1.063	26.99	2.125	53.98	C04452
19	.1660	4.22	1.063	26.99	2.125	53.98	C04455
18	.1695	4.31	1.063	26.99	2.125	53.98	C04458
11/64	.1719	4.37	1.063	26.99	2.125	53.98	C04459
17	.1730	4.39	1.125	28.58	2.188	55.56	C04460
16	.1770	4.50	1.125	28.58	2.188	55.56	C04462
15	.1800	4.57	1.125	28.58	2.188	55.56	C04464
14	.1820	4.62	1.125	28.58	2.188	55.56	C04466
13	.1850	4.70	1.125	28.58	2.188	55.56	C04467
3/16	.1875	4.76	1.125	28.58	2.188	55.56	C04470
12	.1890	4.80	1.188	30.16	2.250	57.15	C04471
11	.1910	4.85	1.188	30.16	2.250	57.15	C04473
10	.1935	4.92	1.188	30.16	2.250	57.15	C04475
9	.1960	4.98	1.188	30.16	2.250	57.15	C04476
8	.1990	5.06	1.188	30.16	2.250	57.15	C04478
7	.2010	5.11	1.188	30.16	2.250	57.15	C04480
13/64	.2031	5.16	1.188	30.16	2.250	57.15	C04481
6	.2040	5.18	1.250	31.75	2.375	60.33	C04482
5	.2055	5.22	1.250	31.75	2.375	60.33	C04484
4	.2090	5.31	1.250	31.75	2.375	60.33	C04487

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Advantages of Short Flute Length Drills

- Offers enhanced rigidity
- Maintains better drill accuracy



Style 2120 • General Purpose Screw Machine Length (continued)

Diameter Fract Wire	Decimal Equiv.	Metric Equiv.	Flute Length in mm	Overall Length in mm	Order Number	
7/32	3	.2130	5.41	1.250 31.75	2.375 60.33	C04489
		.2188	5.56	1.250 31.75	2.375 60.33	C04491
15/64	2	.2210	5.61	1.313 33.34	2.438 61.91	C04493
	1	.2280	5.79	1.313 33.34	2.438 61.91	C04496
15/64	A	.2340	5.94	1.313 33.34	2.438 61.91	C04499
		.2344	5.95	1.313 33.34	2.438 61.91	C04500
1/4	B	.2380	6.05	1.375 34.93	2.500 63.50	C04502
	C	.2420	6.15	1.375 34.93	2.500 63.50	C04504
1/4	D	.2460	6.25	1.375 34.93	2.500 63.50	C04506
	E	.2500	6.35	1.375 34.93	2.500 63.50	C04509
17/64	F	.2570	6.53	1.438 36.51	2.625 66.68	C04513
	G	.2610	6.63	1.438 36.51	2.625 66.68	C04515
17/64		.2656	6.75	1.438 36.51	2.625 66.68	C04517
	H	.2660	6.76	1.500 38.10	2.688 68.26	C04519
9/32	I	.2720	6.91	1.500 38.10	2.688 68.26	C04522
	J	.2770	7.04	1.500 38.10	2.688 68.26	C04524
9/32	K	.2810	7.14	1.500 38.10	2.688 68.26	C04526
		.2812	7.14	1.500 38.10	2.688 68.26	C04531
19/64	L	.2900	7.37	1.563 39.69	2.750 69.85	C04530
	M	.2950	7.49	1.563 39.69	2.750 69.85	C04533
19/64		.2969	7.54	1.563 39.69	2.750 69.85	C04535
	N	.3020	7.67	1.625 41.28	2.813 71.44	C04537
5/16		.3125	7.94	1.625 41.28	2.813 71.44	C04542
	O	.3160	8.03	1.688 42.86	2.938 74.61	C04544
21/64	P	.3230	8.20	1.688 42.86	2.938 74.61	C04547
		.3281	8.33	1.688 42.86	2.938 74.61	C04550
11/32	Q	.3320	8.43	1.688 42.86	3.000 76.20	C04552
	R	.3390	8.61	1.688 42.86	3.000 76.20	C04555
11/32		.3438	8.73	1.688 42.86	3.000 76.20	C04557
	S	.3480	8.84	1.750 44.45	3.063 77.79	C04560
23/64	T	.3580	9.09	1.750 44.45	3.063 77.79	C04563
		.3594	9.13	1.750 44.45	3.063 77.79	C04565
3/8	U	.3680	9.35	1.813 46.04	3.125 79.38	C04569
		.3750	9.53	1.813 46.04	3.125 79.38	C04572
25/64	V	.3770	9.58	1.875 47.63	3.250 82.55	C04573
	W	.3860	9.80	1.875 47.63	3.250 82.55	C04578
13/32	X	.3906	9.92	1.875 47.63	3.250 82.55	C04580
		.3970	10.08	1.938 49.21	3.313 84.14	C04582
13/32	Y	.4040	10.26	1.938 49.21	3.313 84.14	C04584
		.4062	10.32	1.938 49.21	3.313 84.14	C04585
27/64	Z	.4130	10.49	2.000 50.80	3.375 85.73	C04586
		.4219	10.72	2.000 50.80	3.375 85.73	C04588
7/16		.4375	11.11	2.063 52.39	3.438 87.31	C04591
29/64		.4531	11.51	2.125 53.98	3.563 90.49	C04594
15/32		.4688	11.91	2.125 53.98	3.625 92.08	C04596
31/64		.4844	12.30	2.188 55.56	3.688 93.66	C04599

Diameter Fract Wire	Decimal Equiv.	Metric Equiv.	Flute Length in mm	Overall Length in mm	Order Number
1/2	.5000	12.70	2.250 57.15	3.750 95.25	C04601
33/64	.5156	13.10	2.375 60.33	3.875 98.43	C04604
17/32	.5312	13.49	2.375 60.33	3.875 98.43	C04606
35/64	.5469	13.89	2.500 63.50	4.000 101.60	C04609
9/16	.5625	14.29	2.500 63.50	4.000 101.60	C04612
37/64	.5781	14.68	2.625 66.68	4.125 104.78	C04614
19/32	.5938	15.08	2.625 66.68	4.125 104.78	C04617
39/64	.6094	15.48	2.750 69.85	4.250 107.95	C04619
5/8	.6250	15.88	2.750 69.85	4.250 107.95	C04622
41/64	.6406	16.27	2.875 73.03	4.500 114.30	C04625
21/32	.6562	16.67	2.875 73.03	4.500 114.30	C04627
43/64	.6719	17.07	2.875 73.03	4.625 117.48	C04630
11/16	.6875	17.46	2.875 73.03	4.625 117.48	C04632
45/64	.7031	17.86	3.000 76.20	4.750 120.65	C04634
23/32	.7188	18.26	3.000 76.20	4.750 120.65	C04636
47/64	.7344	18.65	3.125 79.38	5.000 127.00	C04638
3/4	.7500	19.05	3.125 79.38	5.000 127.00	C04640
49/64	.7656	19.45	3.250 82.55	5.125 130.18	C04641
25/32	.7812	19.84	3.250 82.55	5.125 130.18	C04643
51/64	.7969	20.24	3.375 85.73	5.250 133.35	C04645
13/16	.8125	20.64	3.375 85.73	5.250 133.35	C04647
53/64	.8281	21.03	3.500 88.90	5.375 136.53	C04649
27/32	.8438	21.43	3.500 88.90	5.375 136.53	C04650
55/64	.8594	21.83	3.500 88.90	5.500 139.70	C04652
7/8	.8750	22.23	3.500 88.90	5.500 139.70	C04654
57/64	.8906	22.62	3.625 92.08	5.625 142.88	C04656
29/32	.9062	23.02	3.625 92.08	5.625 142.88	C04658
59/64	.9219	23.42	3.750 95.25	5.750 146.05	C04659
15/16	.9375	23.81	3.750 95.25	5.750 146.05	C04661
61/64	.9531	24.21	3.875 98.43	5.875 149.23	C04663
31/32	.9688	24.61	3.875 98.43	5.875 149.23	C04665
63/64	.9844	25.00	4.000 101.60	6.000 152.40	C04667
1	1.0000	25.40	4.000 101.60	6.000 152.40	C04668
1-1/16*	1.0625	26.99	4.000 101.60	6.250 158.75	C04675
1-1/8*	1.1250	28.58	4.000 101.60	6.375 161.93	C04683
1-3/16*	1.1875	30.16	4.250 107.95	6.625 168.28	C04690
1-1/4*	1.2500	31.75	4.375 111.13	6.750 171.45	C04697

* 1-1/16" through 1-1/4" drills have 1" shank.

Sets

No. of Pieces	Drill Style	Finish	Size Range	Set Order Number
29	2120	bright	1/16" through 1/2" x 1/64"	C00980
26	2120	bright	letter A through Z	C01332