

Drills

Taper Shank

General Purpose Styles 110, 110S

Features/Benefits:

- General-purpose geometry for drilling in a wide range of operating conditions and materials.
- Taper shank made to American National Standard (Morse) dimensions for use in corresponding Morse taper holders. Standard Morse dimensions listed on page 88.
- Alternate shanks (Style 110S) available in selected sizes.
- Manufactured from premium high-speed steel.
- 118° point.
- Black oxide finish standard from stock.

Application Information:

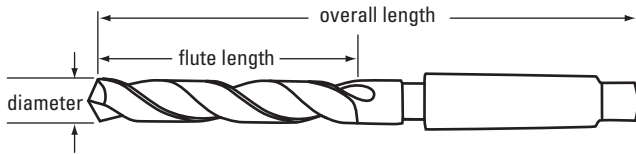
- carbon steel
- tool steel
- alloy steel
- cast iron

Surface Treatment Information:

- Black oxide surface finish increases wear resistance and adds lubricity, improving chip flow.



Style 110, 110S Black Oxide



INCH SIZES

Fract	Drill Diameter		Morse Taper Shank Number	Overall Length		Flute Length		Style 110, 110S Black Oxide
	Decimal	mm		Inch	mm	Inch	mm	
1/8	.1250	3.18	1	5.1250	130.18	1.8750	47.63	53108
5/32	.1562	3.97	1	5.3750	136.53	2.1250	53.98	53310
3/16	.1875	4.76	1	5.7500	146.05	2.5000	63.50	53112
13/64	.2031	5.16	1	6.0000	152.40	2.7500	69.85	53113
7/32	.2188	5.56	1	6.0000	152.40	2.7500	69.85	53114
15/64	.2344	5.95	1	6.1250	155.58	2.8750	73.03	53115
1/4-E	.2500	6.35	1	6.1250	155.58	2.8750	73.03	53116
17/64	.2656	6.75	1	6.2500	158.75	3.0000	76.20	53117
9/32	.2812	7.14	1	6.2500	158.75	3.0000	76.20	53118
19/64	.2969	7.54	1	6.3750	161.93	3.1250	79.38	53119
5/16	.3125	7.94	1	6.3750	161.93	3.1250	79.38	53120
21/64	.3281	8.33	1	6.5000	165.10	3.2500	82.55	53121
11/32	.3438	8.73	1	6.5000	165.10	3.2500	82.55	53122
23/64	.3594	9.13	1	6.7500	171.45	3.5000	88.90	53123
3/8	.3750	9.53	1	6.7500	171.45	3.5000	88.90	53124
3/8	.3750	9.53	2	7.3750	187.33	3.5000	88.90	53824
25/64	.3906	9.92	1	7.0000	177.80	3.6250	92.08	53125
13/32	.4062	10.32	1	7.0000	177.80	3.6250	92.08	53126
27/64	.4219	10.72	1	7.2500	184.15	3.8750	98.43	53127
7/16	.4375	11.11	1	7.2500	184.15	3.8750	98.43	53128
29/64	.4531	11.51	1	7.5000	190.50	4.1250	104.78	53129
15/32	.4688	11.91	1	7.5000	190.50	4.1250	104.78	53130
31/64	.4844	12.30	2	8.2500	209.55	4.3750	111.13	53131
1/2	.5000	12.70	2	8.2500	209.55	4.3750	111.13	53132

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General Purpose (continued)
Styles 110, 110S

INCH SIZES

Fract	Drill Diameter		Morse Taper Shank Number	Overall Length		Flute Length		Style 110, 110S Black Oxide
	Decimal	mm		Inch	mm	Inch	mm	
33/64	.5156	13.10	2	8.5000	215.90	4.6250	117.48	53133
17/32	.5312	13.49	2	8.5000	215.90	4.6250	117.48	53134
35/64	.5469	13.89	2	8.7500	222.25	4.8750	123.83	53135
9/16	.5625	14.29	2	8.7500	222.25	4.8750	123.83	53136
37/64	.5781	14.68	2	8.7500	222.25	4.8750	123.83	53137
19/32	.5938	15.08	2	8.7500	222.25	4.8750	123.83	53138
39/64	.6094	15.48	2	8.7500	222.25	4.8750	123.83	53139
5/8	.6250	15.88	2	8.7500	222.25	4.8750	123.83	53140
41/64	.6406	16.27	2	9.0000	228.60	5.1250	130.18	53141
21/32	.6562	16.67	2	9.0000	228.60	5.1250	130.18	53142
43/64	.6719	17.07	2	9.2500	234.95	5.3750	136.53	53143
11/16	.6875	17.46	2	9.2500	234.95	5.3750	136.53	53144
45/64	.7031	17.86	2	9.5000	241.30	5.6250	142.88	53145
23/32	.7188	18.26	2	9.5000	241.30	5.6250	142.88	53146
47/64	.7344	18.65	2	9.7500	247.65	5.8750	149.23	53147
3/4	.7500	19.05	2	9.7500	247.65	5.8750	149.23	53148
3/4	.7500	19.05	3	10.5000	266.70	5.8750	149.23	53848
49/64	.7656	19.45	2	9.8750	250.83	6.0000	152.40	53149
25/32	.7812	19.84	2	9.8750	250.83	6.0000	152.40	53150
51/64	.7969	20.24	3	10.7500	273.05	6.1250	155.58	53151
13/16	.8125	20.64	3	10.7500	273.05	6.1250	155.58	53152
53/64	.8281	21.03	3	10.7500	273.05	6.1250	155.58	53153
27/32	.8438	21.43	3	10.7500	273.05	6.1250	155.58	53154
55/64	.8594	21.83	3	10.7500	273.05	6.1250	155.58	53155
7/8	.8750	22.23	2	10.0000	254.00	6.1250	155.58	53556
7/8	.8750	22.23	3	10.7500	273.05	6.1250	155.58	53156
57/64	.8906	22.62	3	10.7500	273.05	6.1250	155.58	53157
29/32	.9062	23.02	3	10.7500	273.05	6.1250	155.58	53158
59/64	.9219	23.42	3	10.7500	273.05	6.1250	155.58	53159
15/16	.9375	23.81	3	10.7500	273.05	6.1250	155.58	53160
61/64	.9531	24.21	3	11.0000	279.40	6.3750	161.93	53161
31/32	.9688	24.61	3	11.0000	279.40	6.3750	161.93	53162
63/64	.9844	25.00	3	11.0000	279.40	6.3750	161.93	53163
1	1.0000	25.40	2	12.0000	304.80	6.3750	161.93	53559
1	1.0000	25.40	3	11.0000	279.40	6.3750	161.93	53164
1 1/64	1.0156	25.80	3	11.1250	282.58	6.5000	165.10	53165
1 1/32	1.0312	26.19	3	11.1250	282.58	6.5000	165.10	53166
1 1/16	1.0625	26.99	3	11.2500	285.75	6.6250	168.28	53168
1 7/64	1.1094	28.18	4	12.7500	323.85	7.1250	180.98	53171
1 1/8	1.1250	28.58	3	11.7500	298.45	7.1250	180.98	53572
1 1/8	1.1250	28.58	4	12.7500	323.85	7.1250	180.98	53172
1 3/16	1.1875	30.16	4	13.0000	330.20	7.3750	187.33	53176
1 1/4	1.2500	31.75	3	12.5000	317.50	7.8750	200.03	53580
1 1/4	1.2500	31.75	4	13.5000	342.90	7.8750	200.03	53180
1 5/16	1.3125	33.34	4	14.2500	361.95	8.6250	219.08	53184
1 11/32	1.3438	34.13	4	14.3750	365.13	8.7500	222.25	53186
1 3/8	1.3750	34.93	4	14.5000	368.30	8.8750	225.43	53188
1 7/16	1.4375	36.51	4	14.7500	374.65	9.1250	231.78	53192
1 15/32	1.4688	37.31	4	14.8750	377.83	9.2500	234.95	53194
1 1/2	1.5000	38.10	4	15.0000	381.00	9.3750	238.13	53196
1 9/16	1.5625	39.69	5	16.6250	422.28	9.6250	244.48	53200

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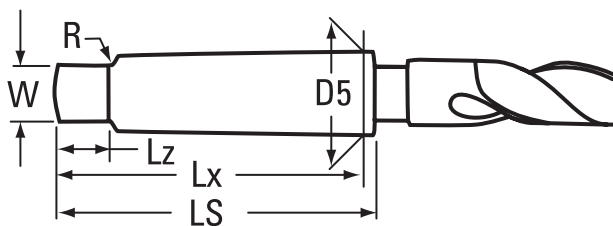
General Purpose (continued) Styles 110, 110S

INCH SIZES

Fract	Drill Diameter		Morse Taper Shank Number	Overall Length		Flute Length		Style 110, 110S Black Oxide
	Decimal	mm		Inch	mm	Inch	mm	
1 5/8	1.6250	41.28	5	17.0000	431.80	10.0000	254.00	53204
1 11/16	1.6875	42.86	5	17.1250	434.98	10.1250	257.18	53208
1 3/4	1.7500	44.45	4	16.2500	412.75	10.3750	263.53	53612
1 3/4	1.7500	44.45	5	17.1250	434.98	10.1250	257.18	53212
1 13/16	1.8125	46.04	5	17.1250	434.98	10.1250	257.18	53216
1 7/8	1.8750	47.63	5	17.3750	441.33	10.3750	263.53	53220
2	2.0000	50.80	4	16.6250	422.28	10.6250	269.88	53628
2	2.0000	50.80	5	17.3750	441.33	10.3750	263.53	53228
2 13/16	2.8125	71.44	5	21.1250	536.58	13.3750	339.73	53280
2 15/16	2.9375	74.61	5	21.7500	552.45	14.0000	355.60	53288

Morse Taper Shank Specifications

All measurements in inches



Morse Taper Shank Number	Taper per Foot	Taper per Inch	DS Maximum Shank Diameter	LS Length of Shank	Lx Length of Shank to Gage Line	Lz Length of Tang	W Thickness of Tang	R Radius
1	.5985	.0498	.475	2.56	2.44	.37	.20	.19
2	.5994	.0499	.700	3.12	2.94	.44	.25	.25
3	.6023	.0501	.938	3.87	3.69	.56	.31	.28
4	.6232	.0519	1.231	4.87	4.62	.62	.47	.31
5	.6315	.0526	1.748	6.12	5.87	.75	.62	.37
6	.6256	.0521	2.494	8.56	8.25	1.12	.75	.50

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