



CLE-LINE®



DRILLS, TAPS, DIES, MASONRY, SAWS, BURS, SETS



a product of

Table of Contents

Cle-Line Products

Drills Page 5



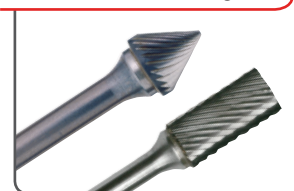
Taps & Dies . . Page 57



Saws Page 78



Carbide Burs . . Page 94



Index Page 102

Easy Product Look-Up

Products are listed by individual part number

Index by Style Number

Style Number	Page Number
0401	60
0401M	60
0402	60
0402M	60
0403	60
0403M	60
0404	60
0404M	60
0411	61
0411M	61
0450	63
0462	62
0463	62
0464	62
055	73,77
0550	70,71
0551	70,71
0552	70,71
0553	70,71
0554	70,71
0610	66
0620	67
0650	64,65,76
0650M	65,76
0660	64
0710	66
0710M	67
1600	7-9,13,54,55
1601	7,8,9
1602	15-18
1603	23-25,54,55
1604	15-18,54,55
1605	17,18,55
1606	10-12
1607	15-18,54,55
1620	29,55
1621	30,31
1630	34,35
1631	34,35
1680	40-42,55
1681	40-42,55
1682	37-39
1683	49
1686	62

Style Number	Page Number
1687	62
1688	62
1690	59
1690M	59
1691	59
1691M	59
1692	59
1692M	59
1693	59
1693M	59
1694	61
1694M	61
1696	59
1696M	59
1697	59
1697M	59
1698	59
1698M	59
1699	59
1699M	59
1700	62
1801	15-18,54,55
1802	23-25,54,55
1803	34,35
1805	34,35
1806	36
1807	36
1808	9
1809	15,17
1812	25
1813	40-42,56
1815	49
1816	49
1817	48
1818	56
1821	47
1822	56
1823	51
1824	52
1829	53,56
1843	50
1844	52
1845	95
1846	95,96

Style Number	Page Number
1847	96
1848	97
1849	97,98
1850	98
1851	99
1852	99
1853	100
1854	100
1855	101
1856	101
1857	101
1858	101
1860	13,69,77
1864	53,56
1867	56
1872	19-22,54,55
1872TN	19-22,54,55
1873	20,22,54,55
1874	48,56
1874TN	48
1875L	27
1875R	27,28,55
1876	27,28,55
1877	40-42,56
1877M	42
1878	15-18,54
1879	15,17,18,55
1880	28
1884	83
1887	79,81
1888	45
1889	44,46,56
1891	26
1892	40-42,56
1894	37-39
1896	30-33,55
1898	7-13,54,55
1898L	14
1898T	7-13,54,55
1899	7-13,54,55
1900	9,13,54
2184	50
2185	51
2185F	51

Style Number	Page Number
2195	51
222	67
223	72
224	67
225	72
226	72
240	74
242	74
243	74
244	75
245	75
26S	68,76
42NC	65,76
42NF	65,76
448	69,76
449	69,76
44NC	65,76
451	56,69,77
45NCNF	65,76
492	64
49Metric	65
517	68,76
518	68,76
525	68,76
526	68,76
528	68,76
532	68,76
533	68,76
815	68,76
CHK	82
HB-BM	87
NC/NF	65,76
P1000	87
RSB-BM	85,86
RSB-D	84
RSB-P	84
T1000	88
T2000	88
T3000	88
T4000	88
T5000	89
T6000	89
T7000	89

Metalcutting Safety

(read this before using CLE-LINE® products)

Modern metalcutting operations involve high energy, high spindle or cutter speeds, and high temperatures and cutting forces. Hot, flying chips may be projected from the workpiece during metal-cutting. Although advanced cutting tool materials are designed and manufactured to withstand the high cutting forces and temperatures that normally occur in these operations, they are susceptible to fragmenting in service, particularly if they are subjected to over-stress, severe impact or otherwise abused. Therefore, precautions should be taken to adequately protect workers, observers and equipment against hot, flying chips, fragmented cutting tools, broken work pieces or other similar projectiles. Machines should be fully guarded and personal protective equipment should be used at all times. When grinding advanced cutting tool materials, a suitable means for collection and disposal of dust, mist or sludge should be provided. Over-exposure to dust or mist containing metallic particles can be hazardous to one's health particularly if exposure continues over an extended period of time and may cause eye, skin and mucous membrane irritation and temporary or permanent respiratory disease. Certain existing pulmonary and skin conditions may be aggravated by exposure to dust or mist. Adequate ventilation, respiratory protection and eye protection should be provided when grinding and workers should avoid breathing of and prolonged skin contact with dust or mist.

General Industry Safety and Health Regulations, Part 1910, U.S. Department of Labor, published in Title 29 of the Code of Federal Regulations should be consulted. Obtain from CLE-LINE® and read the applicable Material Safety Data Sheet before grinding.

Cutting tools are only one part of the worker-machine-tool system. Many variables exist in machining operations, including the metal removal rate; the workpiece size, shape, strength and rigidity; the chucking and fixturing; the load carrying capability of centers; the cutter and spindle speed and torque limitations; the holder and boring bar overhang; the available power; and the condition of the tooling and the machine. A safe metalcutting operation must take all of these variables, and others, into consideration.

CLE-LINE® has no control over the end use of its products or the environment into which those products are placed. CLE-LINE® urges that its customers adhere to the recommended standards of use of their metalcutting operations. The information included throughout this catalog under the heading "Technical Data" and other recommendations on machining practices referred to herein are only advisory in nature and do not constitute representations or warranties and are not necessarily appropriate for any particular work environment or application.

High Performance

General Purpose

Maintenance

Provided by

one manufacturer

Call for information





CLE-LINE® is part of Greenfield Industries family of quality cutting tools.

Other Greenfield cutting tools:

Cle-Line® is a familiar name to users of quality cutting tools. **Cle-Line®** cutting tools have been manufactured for decades specifically for the construction, maintenance, repair, operating, and industrial markets.

This **Cle-Line®** catalog gives you all the tools you need to keep industry working. A wide selection of high-quality drills, hole saws, taps, dies, and burs have been brought together to give you one complete resource for purchasing cutting tools. You can shop this catalog with confidence knowing the high standards of quality and service that come from Cle-Line®.

Cle-Line® tools are sold exclusively through a network of industrial distributors. When you contact your distributor, request Cle-Line® for your everyday applications.



#CTDCAT



#CTDHTPSPEC



#GTCAT



#CLCAT



High Performance
 General Purpose
 Maintenance and Repair



GREENFIELD INDUSTRIES

Style Number	Description	Page Number
General Application		
Jobber Drill - Maintenance - 118° point		
1600	black oxide	7-9, 13
1601	bright	7-9
1899	black oxide	7-13
1898	bright	7-13
1898T	TiN	7-13
1900	3/8" reduced shank, black oxide	9, 13
1808	3/8" reduced shank, bright	9
1860	Sets - Drill and Tap	13
1898L	left hand, bright	14
Jobber Drill - Heavy Duty - 135° split point		
1602	black oxide	15-18
1604	black & gold	15-18
1607	black & gold w/ flats	15-18
1801	black oxide	15-18
1878	black & gold	15-18
1605	3/8" reduced shank, black & gold	17-18
1809	3/8" reduced shank, black oxide	17
1879	3/8" reduced shank, black & gold	17-18
Jobber Drill - Heavy Duty, Parabolic Flute - 135° split point		
1872	black & gold	19-22
1872TN	TiN	19-22
1873	3/8" reduced shank, black & gold	20,22
Jobber Drill - Heavy Duty, Cobalt - 135° split point		
1603	straw oxide	23-25
1802	straw oxide	23-25
1812	3/8" reduced shank, straw oxide	25
1891	metric, straw oxide	26
Mechanics Length Drills - 135° split point		
1875	black & gold	27-28
1875L	left hand, black & gold	27
1876	3/8" reduced shank, black & gold	28
1880	left hand, cobalt, straw oxide	28
1620	heavy duty, black & gold	29
Screw Machine Length Drills - 135° split point		
1621	heavy duty, black oxide	30-31
1896	heavy duty, black oxide	30-33
Extra Length Drills - Black oxide		
1630	6" aircraft, 135° split point	34-35
1631	12" aircraft, 135° split point	34-35
1803	6" aircraft, 135° split point	34-35
1805	12" aircraft, 135° split point	34-35
1806	12" heavy duty, 118° notched point	36
1807	18" extra length, 118° notched point	36
Taper Shank Drills - General Purpose- 118° point		
1682	black oxide	37-39
1894	tanged, black oxide	37-39

Style Number	Description	Page Number
Silver & Deming - Reduced Shank Drills - 118° point		
1680	round shank, black oxide	40-42
1681	flattened shank, black oxide	40-42
1813	round shank, black oxide	40-42
1892	flattened shank, black oxide	40-42
1877	flattened shank, black & gold	40-42
Masonry - Carbide-Tipped		
1818	straight shank	43
1889	straight shank	44
1841	Tapcon® straight shank	45
1888	extended length, straight shank	45
1821	SDS® - plus cutting premium, square flute	46
1822	glass & tile	46
1833	drill rebar - SDS® - plus cutting premium, square flute	47
1837	multi-purpose	47
Other Drills and Accessories		
1874	step drills, bright	48
1874TN	step drills, TiN	48
1817	quick change chucks	48
1683	double end drill	49
1815	double end drill	49
1816	1/4" hex shank drill	49
1843	rotary chuck drives	50
2184	rivet-hole drills	50
2195	welding point drills	51
2185	welding point drills	51
2185F	welding point drills	51
1823	power wood bits	51
1824	combined drill and countersink	52
1844	die drills	52
1829	screw extractors	53
1864	screw extractor sets	53
Drill Sets - Also listed on individual products page		
All available sets		55-56



Section	Page Number
Technical Information	
Drill tolerances	18
Recommended speeds & coolants for ferrous materials	22
Recommended speeds & coolants for non-ferrous materials	33
Drill feeds	35

Icon Glossary

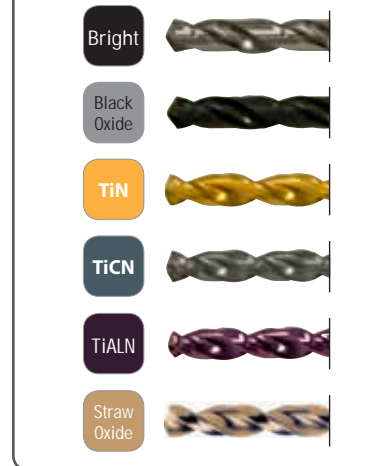
Reference Information

Material

✓ = BEST Performance * Also Suitable

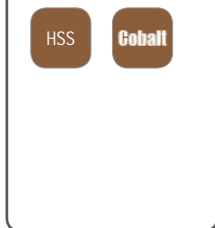
Icon	Material	Hardness	Surface Treatment Suggestion		
			TiN	TiCN	TiAlN
M	Austenitic Stainless Steel	< 35 HRc		*	✓
	Martensitic Stainless Steel	< 35 HRc		*	✓
	Martensitic Stainless Steel	>= 35 HRc		*	✓
	PH Stainless Steel	< 35 HRc		*	✓
	PH Stainless Steel	<= 35 HRc		*	✓
S	Ni, Co, Fe Based Super Alloys				✓
	Titanium				✓
P	Alloy Steel	16-23 HRc	*	*	✓
	Alloy Steel	23-38 HRc	*	*	✓
	Alloy Steel	> 38 HRc	*	*	✓
	Carbon Steel	16-23 HRc	*	*	✓
	Carbon Steel	23-38 HRc	*	*	✓
	Carbon Steel	> 38 HRc	*	*	✓
	Low Carbon Steel	13-23 HRc	*	*	✓
	Low Carbon Steel	23-38 HRc	*	*	✓
	Low Carbon Steel	> 38 HRc	*	*	✓
K	Gray Cast Iron	18-22 HRc		*	✓
	Nodular Cast Iron	22-32 HRc	*	✓	
N	Aluminum	< 10% Si	*	✓	
	Aluminum	> 10% Si	*	✓	
H	Hardened Steel	>45 HRc		*	✓

Surface Treatment

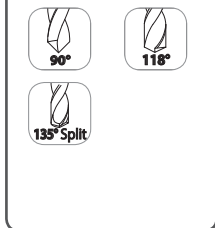


Additional treatments available upon request.

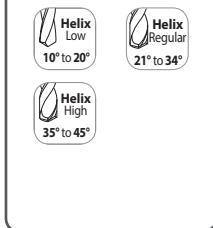
Base Material



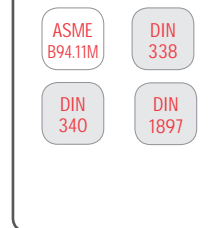
Point Angle



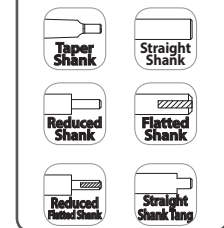
Helix Angle



Standard



Shank

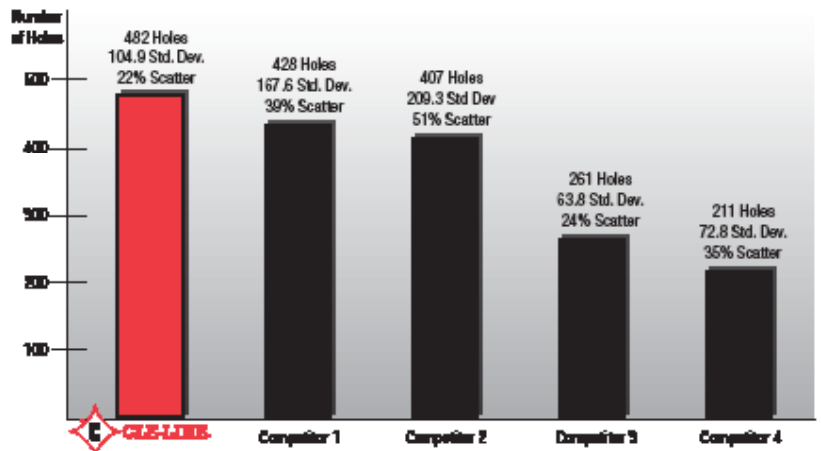


Product Test:

General Purpose Jobber Drill

118° Point, Black Oxide Surface Treatment

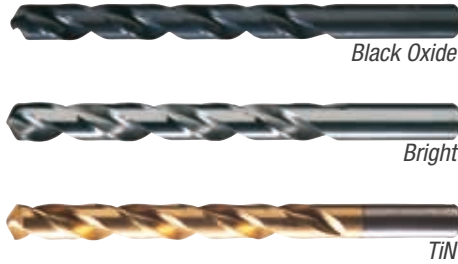
Machine Toyoda FHN 40II - horizontal
 SFM (RPM). 55SFM (840 RPM)
 IPR (IPM) 0.005 IPR (4.20 IPM)
 Material. 4340 alloy steel 32.8 HRc
 Hole Dimension. 0.500" through hole
 Coolant Castrol Syntilo 9954 @10:1



P **K** **N**

ASME B94.11M DIN 340 HSS Bright TIN Black Oxide 118° Helix Regular 21° to 34° Straight Shank

Note
For general purpose drilling and maintenance applications.
For Reduced Shank see Style #1900 or 1808.



Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number				
					1600 Black Oxide	1601 Bright	1899 Black Oxide	1898 Bright	1898T TiN
1/32	.0312	0.79	1-3/8	1/2	—	—	C22643	—	—
60	.0400	1.02	1-5/8	11/16	—	—	C22645	C23024	C19159
59	.0410	1.04	1-5/8	11/16	—	—	C22646	C23025	C19158
58	.0420	1.07	1-5/8	11/16	—	—	C22647	C23026	C19157
57	.0430	1.09	1-3/4	3/4	—	—	C22648	C23027	C19156
56	.0465	1.18	1-3/4	3/4	—	—	C22649	C23028	C19155
3/64	.0469	1.20	1-3/4	3/4	—	—	C22644	—	—
55	.0520	1.32	1-7/8	7/8	—	—	C22650	C23029	C19154
54	.0550	1.40	1-7/8	7/8	—	—	C22651	C23030	C19153
53	.0595	1.51	1-7/8	7/8	—	—	C22652	C23031	C19152
1/16	.0625	1.59	1-7/8	7/8	C68000	C68114	C22653	C22995	C19160
52	.0635	1.61	1-7/8	7/8	—	—	C22654	C23032	C19151
51	.0670	1.70	2	1	—	—	C22655	C23033	C19150
50	.0700	1.78	2	1	—	—	C22656	C23034	C19149
49	.0730	1.85	2	1	—	—	C22657	C23035	C19148
48	.0760	1.93	2	1	—	—	C22658	C23036	C19147
5/64	.0781	1.98	2	1	C68001	C68115	C22659	C22996	C19161
47	.0785	1.99	2	1	—	—	C22660	C23037	C19146
46	.0810	2.06	2-1/8	1-1/8	—	—	C22661	C23038	C19145
45	.0820	2.08	2-1/8	1-1/8	—	—	C22662	C23039	C19144
44	.0860	2.18	2-1/8	1-1/8	—	—	C22663	C23040	C19143
43	.0890	2.26	2-1/4	1-1/4	—	—	C22664	C23041	C19142
42	.0935	2.37	2-1/4	1-1/4	—	—	C22665	C23042	C19141
3/32	.0938	2.38	2-1/4	1-1/4	C68002	C68116	C22666	C22997	C19162
41	.0960	2.44	2-3/8	1-3/8	—	—	C22667	C23043	C19140
40	.0980	2.49	2-3/8	1-3/8	—	—	C22668	C23044	C19139
39	.0995	2.53	2-3/8	1-3/8	—	—	C22669	C23045	C19138
38	.1015	2.58	2-1/2	1-7/16	—	—	C22670	C23046	C19137
37	.1040	2.64	2-1/2	1-7/16	—	—	C22671	C23047	C19136
36	.1065	2.71	2-1/2	1-7/16	—	—	C22672	C23048	C19135
7/64	.1094	2.78	2-5/8	1-1/2	C68003	C68117	C22673	C22998	C19163
35	.1100	2.79	2-5/8	1-1/2	—	—	C22674	C23049	C19134
34	.1110	2.82	2-5/8	1-1/2	—	—	C22675	C23050	C19133
33	.1130	2.87	2-5/8	1-1/2	—	—	C22676	C23051	C19132
32	.1160	2.95	2-3/4	1-5/8	—	—	C22677	C23052	C19131
31	.1200	3.05	2-3/4	1-5/8	—	—	C22678	C23053	C19130

continued on next page

Styles: 1600, 1601, 1899, 1898, 1898T (continued)

Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number				
					1600 Black Oxide	1601 Bright	1899 Black Oxide	1898 Bright	1898T TiN
1/8	.1250	3.18	2-3/4	1-5/8	C68004	C68118	C22679	C22999	C19164
30	.1285	3.26	2-3/4	1-5/8	—	—	C22680	C23054	C19129
29	.1360	3.45	2-7/8	1-3/4	—	—	C22681	C23055	C19128
28	.1405	3.57	2-7/8	1-3/4	—	—	C22682	C23056	C19127
9/64	.1406	3.57	2-7/8	1-3/4	C68005	C68119	C22683	C23000	C19165
27	.1440	3.66	3	1-7/8	—	—	C22684	C23057	C19126
26	.1470	3.73	3	1-7/8	—	—	C22685	C23058	C19125
25	.1495	3.80	3	1-7/8	—	—	C22686	C23059	C19124
24	.1520	3.86	3-1/8	2	—	—	C22687	C23060	C19123
23	.1540	3.91	3-1/8	2	—	—	C22688	C23061	C19122
5/32	.1562	3.97	3-1/8	2	C68006	C68120	C22689	C23001	C19166
22	.1570	3.99	3-1/8	2	—	—	C22690	C23062	C19121
21	.1590	4.04	3-1/4	2-1/8	—	—	C22691	C23063	C19120
20	.1610	4.09	3-1/4	2-1/8	—	—	C22692	C23064	C19119
19	.1660	4.22	3-1/4	2-1/8	—	—	C22693	C23065	C19118
18	.1695	4.31	3-1/4	2-1/8	—	—	C22694	C23066	C19117
11/64	.1719	4.37	3-1/4	2-1/8	C68007	C68121	C22695	C23002	C19167
17	.1730	4.39	3-3/8	2-3/16	—	—	C22696	C23067	C19116
16	.1770	4.50	3-3/8	2-3/16	—	—	C22697	C23068	C19115
15	.1800	4.57	3-3/8	2-3/16	—	—	C22698	C23069	C19114
14	.1820	4.62	3-3/8	2-3/16	—	—	C22699	C23070	C19113
13	.1850	4.70	3-1/2	2-5/16	—	—	C22700	C23071	C19112
3/16	.1875	4.76	3-1/2	2-5/16	C68008	C68122	C22701	C23003	C19168
12	.1890	4.80	3-1/2	2-5/16	—	—	C22702	C23072	C19111
11	.1910	4.85	3-1/2	2-5/16	—	—	C22703	C23073	C19110
10	.1935	4.91	3-5/8	2-7/16	—	—	C22704	C23074	C19109
9	.1960	4.98	3-5/8	2-7/16	—	—	C22705	C23075	C19108
8	.1990	5.05	3-5/8	2-7/16	—	—	C22706	C23076	C19107
7	.2010	5.11	3-5/8	2-7/16	—	—	C22707	C23077	C19106
13/64	.2031	5.16	3-5/8	2-7/16	C68009	C68123	C22708	C23004	C19169
6	.2040	5.18	3-3/4	2-1/2	—	—	C22709	C23078	C19105
5	.2055	5.22	3-3/4	2-1/2	—	—	C22710	C23079	C19104
4	.2090	5.31	3-3/4	2-1/2	—	—	C22711	C23080	C19103
3	.2130	5.41	3-3/4	2-1/2	—	—	C22712	C23081	C19102
7/32	.2188	5.56	3-3/4	2-1/2	C68010	C68124	C22713	C23005	C19170
2	.2210	5.61	3-7/8	2-5/8	—	—	C22714	C23082	C19101
1	.2280	5.79	3-7/8	2-5/8	—	—	C22715	C23083	C19100
A	.2340	5.94	3-7/8	2-5/8	—	—	C22716	C22970	—
15/64	.2344	5.95	3-7/8	2-5/8	C68011	C68125	C22717	C23006	C19171
B	.2380	6.05	4	2-3/4	—	—	C22718	C22971	—
C	.2420	6.15	4	2-3/4	—	—	C22719	C22972	—
D	.2460	6.25	4	2-3/4	—	—	C22720	C22973	C19193
1/4, E	.2500	6.35	4	2-3/4	C68012	C68126	C22721	C23007	C19172
F	.2570	6.53	4-1/8	2-7/8	—	—	C22722	C22974	C19194
G	.2610	6.63	4-1/8	2-7/8	—	—	C22723	C22975	C19195
17/64	.2656	6.75	4-1/8	2-7/8	C68013	C68127	C22724	C23008	C19173
H	.2660	6.76	4-1/8	2-7/8	—	—	C22725	C22976	C19196
I	.2720	6.91	4-1/8	2-7/8	—	—	C22726	C22977	C19197

continued on next page

Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number				
					1600 Black Oxide	1601 Bright	1899 Black Oxide	1898 Bright	1898T TiN
J	.2770	7.04	4-1/8	2-7/8	—	—	C22727	C22978	C19198
K	.2810	7.14	4-1/4	2-15/16	—	—	C22728	C22979	—
9/32	.2812	7.14	4-1/4	2-15/16	C68014	C68128	C22729	C23009	C19174
L	.2900	7.37	4-1/4	2-15/16	—	—	C22730	C22980	C19199
M	.2950	7.49	4-3/8	3-1/16	—	—	C22731	C22981	—
19/64	.2969	7.54	4-3/8	3-1/16	C68015	C68129	C22732	C23010	C19175
N	.3020	7.67	4-3/8	3-1/16	—	—	C22733	C22982	C19200
5/16	.3125	7.94	4-1/2	3-3/16	C68016	C68130	C22734	C23011	C19176
O	.3160	8.03	4-1/2	3-3/16	—	—	C22735	C22983	C19201
P	.3230	8.20	4-5/8	3-5/16	—	—	C22736	C22984	—
21/64	.3281	8.33	4-5/8	3-5/16	C68017	C68131	C22737	C23012	C19177
Q	.3320	8.43	4-3/4	3-7/16	—	—	C22738	C22985	C19202
R	.3390	8.61	4-3/4	3-7/16	—	—	C22739	C22986	C19203
11/32	.3438	8.73	4-3/4	3-7/16	C68018	C68132	C22740	C23013	C19178
S	.3480	8.84	4-7/8	3-1/2	—	—	C22741	C22987	—
T	.3580	9.09	4-7/8	3-1/2	—	—	C22742	C22988	C19204
23/64	.3594	9.13	4-7/8	3-1/2	C68019	C68133	C22743	C23014	C19179
U	.3680	9.35	5	3-5/8	—	—	C22744	C22989	C19205
3/8	.3750	9.53	5	3-5/8	C68020	C68134	C22745	C23015	C19180
V	.3770	9.58	5	3-5/8	—	—	C22746	C22990	—
W	.3860	9.80	5-1/8	3-3/4	—	—	C22747	C22991	C19206
25/64	.3906	9.92	5-1/8	3-3/4	C68021	C68135	C22505	C23016	C19181
X	.3970	10.08	5-1/8	3-3/4	—	—	C22748	C22992	—
Y	.4040	10.26	5-1/4	3-7/8	—	—	C22749	C22993	—
13/32	.4062	10.32	5-1/4	3-7/8	C68022	C68136	C22506	C23017	C19182
Z	.4130	10.49	5-1/4	3-7/8	—	—	C22750	C22994	—
27/64	.4219	10.72	5-3/8	3-15/16	C68023	C68137	C22507	C23018	C19183
7/16	.4375	11.11	5-1/2	4-1/16	C68024	C68138	C22751	C23019	C19184
29/64	.4531	11.51	5-5/8	4-3/16	C68025	C68139	C22508	C23020	C19185
15/32	.4688	11.91	5-3/4	4-5/16	C68026	C68140	C22753	C23021	C19186
31/64	.4844	12.30	5-7/8	4-3/8	C68027	C68141	C22755	C23022	C19187
1/2	.5000	12.70	6	4-1/2	C68028	C68142	C22757	C23023	C19188

Styles: **1900, 1808**

3/8" Reduced Shank



drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number	
					1900 Black Oxide	1808 Bright
25/64	.3906	9.92	5-1/8	3-3/4	C69369	C20621
13/32	.4062	10.32	5-1/4	3-7/8	C69370	C20622
27/64	.4219	10.72	5-3/8	3-15/16	C69371	C20623
7/16	.4375	11.11	5-1/2	4-1/16	C69372	C20624
29/64	.4531	11.51	5-5/8	4-3/16	C69373	C20625
15/32	.4688	11.91	5-3/4	4-5/16	C69374	C20626
31/64	.4844	12.30	5-7/8	4-3/8	C69375	C20627
1/2	.5000	12.70	6	4-1/2	C69376	C20628

General Application Drills



Jobber
Maintenance

Styles: **1606, 1899, 1898, 1898T** (continued)



Metric Sizes

drill diameter	decimal equiv.	overall length	flute length	order number			
				1606 Black Oxide	1899 Black Oxide	1898 Bright	1898T TiN
0.35	.0138	19	4	—	C22780	—	—
0.4	.0157	20	5	—	C22781	C01802	—
0.45	.0177	20	5	—	C22782	C01807	—
0.5	.0197	22	6	—	C22783	C01810	—
0.55	.0217	24	7	—	C22784	—	—
0.6	.0236	24	7	—	C22785	C01815	—
0.65	.0256	26	8	—	C22786	—	—
0.7	.0276	28	9	—	C22787	C01820	—
0.75	.0295	28	9	—	C22788	—	—
0.8	.0315	30	10	—	C22789	C01826	—
0.85	.0335	30	10	—	C22790	C01829	—
0.9	.0354	32	11	—	C22791	C01831	—
0.95	.0374	32	11	—	C22792	C01834	—
1.0	.0394	34	12	C68606	C22793	C62793	C24325
1.05	.0413	34	12	—	C22794	C62794	—
1.1	.0433	36	14	—	C22795	C62795	—
1.15	.0453	36	14	—	C22796	C62796	—
1.2	.0472	38	16	—	C22797	C62797	C24326
1.25	.0492	38	16	—	C22798	C62798	—
1.3	.0512	38	16	—	C22799	C62799	—
1.35	.0531	40	18	—	C22800	C62800	—
1.4	.0551	40	18	—	C22801	C62801	—
1.45	.0571	40	18	—	C22802	C62802	—
1.5	.0591	40	18	C68607	C22803	C62803	C24327
1.55	.0610	43	20	—	C22804	C62804	—
1.6	.0630	43	20	—	C22805	C62805	C24306
1.65	.0665	43	20	—	C22806	C62806	—
1.7	.0669	43	20	—	C22807	C62807	—
1.75	.0689	46	22	—	C22808	C62808	—
1.8	.0709	46	22	—	C22809	C62809	—
1.85	.0728	46	22	—	C22810	C62810	—
1.9	.0748	46	22	—	C22811	C62811	—
1.95	.0768	49	24	—	C22812	C62812	—
2	.0787	49	24	C68608	C22813	C62813	C24328
2.05	.0807	49	24	—	C22814	C62814	—
2.1	.0827	49	24	—	C22815	C62815	—
2.15	.0846	53	27	—	C22816	C62816	—
2.2	.0866	53	27	—	C22817	C62817	—
2.25	.0886	53	27	—	C22818	C62818	—
2.3	.0906	53	27	—	C22819	C62819	C24329
2.35	.0925	53	27	—	C22820	C62820	—
2.4	.0945	57	30	—	C22821	C62821	C24330
2.45	.0965	57	30	—	C22822	C62822	—
2.5	.0984	57	30	C68609	C22823	C62823	C24331
2.6	.1024	57	30	—	C22824	C62824	—
2.7	.1063	61	33	—	C22825	C62825	C24332
2.75	.1082	61	33	—	C01112	—	—
2.8	.1102	61	33	—	C22826	C62826	C24333
2.9	.1142	61	33	—	C22827	C62827	C24334
3	.1181	61	33	C68610	C22828	C62828	C24335
3.1	.1220	65	36	—	C22829	C62829	C24336
3.2	.1260	65	36	—	C22830	C62830	C24337
3.25	.1280	65	36	—	C01125	C01912	—
3.3	.1299	65	36	—	C22831	C62831	C24338
3.4	.1339	70	39	—	C22832	C62832	—
3.5	.1378	70	39	C68611	C22833	C62833	C24339
3.6	.1417	70	39	—	C22834	C62834	C24340

continued on next page



Metric Sizes

drill diameter	decimal equiv.	overall length	flute length	order number			
				1606 Black Oxide	1899 Black Oxide	1898 Bright	1898T TiN
3.7	.1457	70	39	—	C22835	C62835	C24341
3.75	.1476	70	39	—	C01137	C01924	—
3.8	.1496	75	43	—	C22836	C62836	C24342
3.9	.1535	75	43	—	C22837	C62837	—
4	.1575	75	43	C68612	C22838	C62838	C24343
4.1	.1614	75	43	—	C22839	C62839	C24344
4.2	.1654	75	43	—	C22840	C62840	C24345
4.25	.1673	75	43	—	C01338	C01938	—
4.3	.1693	80	47	—	C22841	C62841	—
4.4	.1732	80	47	—	C22842	C62842	—
4.5	.1772	80	47	C68613	C22843	C62843	C24346
4.6	.1811	80	47	—	C22844	C62844	C24347
4.7	.1850	80	47	—	C22845	C62845	—
4.75	.1870	80	47	—	C01164	—	—
4.8	.1890	86	52	—	C22846	C62846	C24348
4.9	.1929	86	52	—	C22847	C62847	C24349
5	.1969	86	52	C68614	C22848	C62848	C24350
5.1	.2008	86	52	—	C22849	C62849	C24351
5.2	.2047	86	52	—	C22850	C62850	C24352
5.25	.2066	86	52	—	C01180	—	—
5.3	.2087	86	52	—	C22851	C62851	—
5.4	.2126	93	57	—	C22852	C62852	—
5.5	.2165	93	57	C68615	C22853	C62853	C24353
5.6	.2205	93	57	—	C22854	C62854	—
5.7	.2244	93	57	—	C22855	C62855	—
5.75	.2263	93	57	—	C01190	—	—
5.8	.2283	93	57	—	C22856	C62856	—
5.9	.2323	93	57	—	C22857	C62857	C24354
6	.2362	93	57	C68616	C22858	C62858	C24355
6.1	.2402	101	63	—	C22859	C62859	—
6.2	.2441	101	63	—	C22860	C62860	—
6.25	.2460	101	63	—	C01202	—	—
6.3	.2480	101	63	—	C22861	C62861	—
6.4	.2520	101	63	—	C22862	C62862	C24356
6.5	.2559	101	63	C68617	C22863	C62863	C24357
6.6	.2598	101	63	—	C22864	C62864	C24358
6.7	.2638	101	63	—	C22865	C62865	C24359
6.75	.2657	109	69	—	C01213	—	—
6.8	.2677	109	69	—	C22866	C62866	C24360
6.9	.2717	109	69	—	C22867	C62867	C24361
7	.2756	109	69	C68618	C22868	C62868	C24362
7.1	.2795	109	69	—	C22869	C62869	—
7.2	.2835	109	69	—	C22870	C62870	C24363
7.25	.2854	109	69	—	C01223	—	—
7.3	.2874	109	69	—	C22871	C62871	C24317
7.4	.2913	109	69	—	C22872	C62872	—
7.5	.2953	109	69	C68619	C22873	C62873	C24364
7.6	.2992	117	75	—	C22874	C62874	—
7.7	.3031	117	75	—	C22875	C62875	—
7.75	.3051	117	75	—	C01234	—	—
7.8	.3071	117	75	—	C22876	C62876	—
7.9	.3110	117	75	—	C22877	C62877	—
8	.3150	117	75	C68620	C22878	C62878	C24365
8.1	.3189	117	75	—	C22879	C62879	—
8.2	.3228	117	75	—	C22880	C62880	—
8.25	.3248	117	75	—	C01243	—	—
8.3	.3268	117	75	—	C22881	C62881	C24366
8.4	.3307	117	75	—	C22882	C62882	—

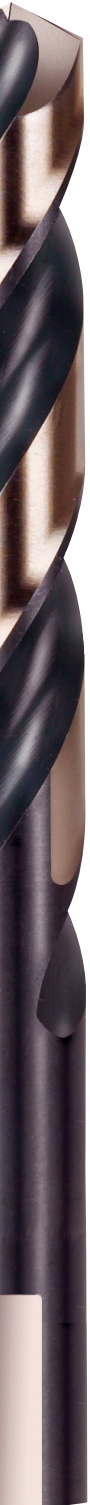
continued on next page

Styles: 1606, 1899, 1898, 1898T (continued)

Metric Sizes

drill diameter	decimal equiv.	overall length	flute length	order number			
				1606 Black Oxide	1899 Black Oxide	1898 Bright	1898T TiN
8.5	.3346	117	75	C68621	C22883	C62883	C24367
8.6	.3386	125	81	—	C22884	C62884	—
8.7	.3425	125	81	—	C22885	C62885	—
8.75	.3444	125	81	—	C01253	—	—
8.8	.3465	125	81	—	C22886	C62886	—
8.9	.3504	125	81	—	C22887	C62887	—
9	.3543	125	81	C68622	C22888	C62888	C24368
9.1	.3583	125	81	—	C22889	C62889	—
9.2	.3622	125	81	—	C22890	C62890	—
9.25	.3641	125	81	—	C01262	—	—
9.3	.3661	125	81	—	C22891	C62891	—
9.4	.3701	125	81	—	C22892	C62892	—
9.5	.3740	125	81	C68623	C22893	C62893	C24369
9.6	.3780	133	87	—	C22894	C62894	—
9.7	.3819	133	87	—	C22895	C62895	—
9.8	.3858	133	87	—	C22896	C62896	—
9.9	.3898	133	87	—	C22897	C62897	—
10	.3937	133	87	C68624	C22898	C62898	C24370
10.1	.3976	133	87	—	C22941	—	—
10.2	.4016	133	87	—	C22899	C62899	C24371
10.25	.4035	133	87	—	C22942	—	—
10.4	.4094	133	87	—	C22944	—	—
10.5	.4134	133	87	C68625	C22900	C62900	C24372
10.7	.4212	142	94	—	C22947	C02070	—
10.8	.4252	142	94	—	C22901	C62901	C24373
11	.4331	142	94	C68626	C22902	C62902	C24374
11.1	.4370	142	94	—	C22951	C02073	—
11.2	.4409	142	94	—	C22903	C62903	—
11.4	.4488	142	94	—	C22954	—	—
11.5	.4528	142	94	C68627	C22904	C62904	C24375
11.8	.4646	142	94	—	C22905	C62905	C24376
12	.4724	151	101	C68628	C22906	C62906	C24377
12.2	.4803	151	101	—	C22907	C62907	—
12.5	.4921	151	101	C68629	C22908	C62908	C24378
12.8	.5039	151	101	—	C22909	C62909	—
13	.5118	151	101	C68630	C22910	C62910	C24379
13.2	.5197	161	101	—	C22911	C62911	—
13.5	.5315	160	108	—	C22912	C62912	—
13.8	.5433	160	108	—	C22913	C62913	—
14	.5512	160	108	—	C22914	C62914	—
14.25	.5610	169	114	—	C22915	C62915	—
14.5	.5709	169	114	—	C22916	C62916	—
14.75	.5807	169	114	—	C22917	C62917	—
15	.5906	169	114	—	C22918	C62918	—
15.25	.6004	178	120	—	C22919	—	—
15.5	.6102	178	120	—	C22920	C62920	—
15.75	.6201	178	120	—	C22921	C62921	—
16	.6299	178	120	—	C22922	C62922	—
16.25	.6398	184	125	—	C22923	C62923	—
16.5	.6496	184	125	—	C22924	C62924	—
16.75	.6594	184	125	—	C22925	—	—
17	.6693	184	125	—	C22926	C62926	—
17.25	.6791	191	130	—	C22927	—	—
17.5	.6890	191	130	—	C22928	C62928	—
18	.7086	191	130	—	C22929	C62929	—
18.5	.7283	198	135	—	C22930	—	—
19	.7480	198	135	—	C22931	C62931	—
19.5	.7677	205	140	—	C22932	—	—
20	.7874	205	140	—	C22933	—	—

DRILLS



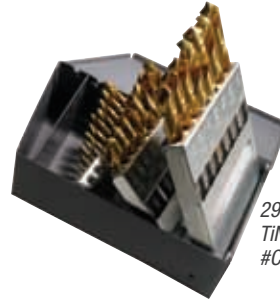
SET

Styles: **1600, 1899, 1900, 1898, 1898T**

Jobber
Maintenance



13-Piece Set
Black Oxide
#C21105



29-Piece Set
TiN
#C19211

drill sizes	no. of pieces	order number				
		1600 Black Oxide	1899 Black Oxide	1900 BO - 3/8" shank	1898 Bright	1898T TiN
6, 29, 25, 21, 7, F, 5/16, U, 27/64 Taps: 6-32, 8-32, 10-24, 10-32, 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13	18	-	-	-	C21190	-
1/16" - 3/8" x 1/32"	11	-	C21101	-	C21100	-
1/16" - 1/4" x 1/64"	13	C69034	C21105	-	C21104	-
1/16" - 1/2" x 1/32"	15	C69035 (plastic)	C21109	C21156	C21108	C19210
1/16" - 3/8" x 1/64"	21	C69036	C21114	-	C21113	-
1/16" - 1/2" x 1/64"	29	C69037 (plastic)	C21118	C21159	C21117	C19211
A - Z	26	-	C21158	-	-	-
#1 - #60	60	-	C21123	-	C21122	-
1/16" - 1/2" x 1/64", A to Z, #1 - #60	115	-	C21127	-	C21126	-
1mm - 6mm x 0.5mm	11	-	C21130	-	-	-
1mm - 10mm x 0.5mm	19	-	-	-	-	C24380
1mm - 13mm x 0.5mm	25	C69038 (plastic)	C21131	-	C18127	-

SET

Styles: **1860**

Plastic Tube Case

Jobber
Drill and Tap Sets



NEW

jobber drill sizes	plug tap spiral point	no. of pieces	order number
			1860 bright
36	6-32	2	C22305
29	8-32	2	C22304
25	10-24	2	C22307
21	10-32	2	C22306
7	1/4-20	2	C22308
F	5/16-18	2	C22300
5/16"	3/8-16	2	C22303
U	7/16-14	2	C22302
27/64"	1/2-13	2	C22301



Note
For general purpose drilling
and maintenance applications.



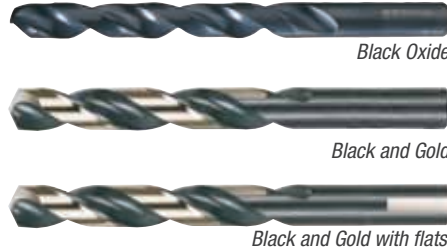
order number

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	1898L Bright
3/64	.0469	1.19	1-3/4	3/4	C18400
1/16	.0625	1.59	1-7/8	7/8	C18401
5/64	.0781	1.98	2	1	C18402
3/32	.0938	2.38	2-1/4	1-1/4	C18403
7/64	.1094	2.78	2-5/8	1-1/2	C18404
1/8	.1250	3.18	2-3/4	1-5/8	C18405
9/64	.1406	3.57	2-7/8	1-3/4	C18406
5/32	.1562	3.97	3-1/8	2	C18407
11/64	.1719	4.37	3-1/4	2-1/8	C18408
3/16	.1875	4.76	3-1/2	2-5/16	C18409
13/64	.2031	5.16	3-5/8	2-7/16	C18410
7/32	.2188	5.56	3-3/4	2-1/2	C18411
15/64	.2344	5.95	3-7/8	2-5/8	C18412
1/4	.2500	6.35	4	2-3/4	C18413
17/64	.2656	6.75	4-1/8	2-7/8	C18414
9/32	.2812	7.14	4-1/4	2-15/16	C18415
19/64	.2969	7.54	4-3/8	3-1/16	C18416
5/16	.3125	7.94	4-1/2	3-3/16	C18417
21/64	.3281	8.33	4-5/8	3-5/16	C18418
11/32	.3438	8.73	4-3/4	3-7/16	C18419
23/64	.3594	9.13	4-7/8	3-1/2	C18420
3/8	.3750	9.53	5	3-5/8	C18421
25/64	.3906	9.92	5-1/8	3-3/4	C18422
13/32	.4062	10.32	5-1/4	3-7/8	C18423
27/64	.4219	10.72	5-3/8	3-15/16	C18424
7/16	.4375	11.11	5-1/2	4-1/16	C18425
29/64	.4531	11.51	5-5/8	4-3/16	C18426
15/32	.4688	11.95	5-3/4	4-5/16	C18427
31/64	.4844	12.30	5-7/8	4-3/8	C18428
1/2	.5000	12.70	6	4-1/2	C18429

P **K**

ASME B94.11M HSS Black Oxide **Black Gold** Nitride 135° Split Straight Shank Flatted Shank

Note
Three flats on sizes above 1 1/64" for tighter chucking.
For Reduced Shank see Style #1605, 1809, 1879.



drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number				
					1602 Black Oxide	1604 Black and Gold	1607 Black&Gold w/flats	1801 Black Oxide	1878 Black&Gold w/flats
60*	.0400	1.02	1-5/8	11/16	C68342	—	—	C23154	C18113
59*	.0410	1.04	1-5/8	11/16	C68341	—	—	C23155	C18112
58*	.0420	1.07	1-5/8	11/16	C68340	—	—	C23156	C18111
57*	.0430	1.09	1-3/4	3/4	C68339	—	—	C23157	C18110
56*	.0465	1.18	1-3/4	3/4	C68338	—	—	C23158	C18109
3/64*	.0469	1.19	1-3/4	3/4	—	—	—	C23214	—
55*	.0520	1.32	1-7/8	7/8	C68337	—	—	C23159	C18108
54*	.0550	1.40	1-7/8	7/8	C68336	—	—	C23160	C18107
53*	.0595	1.51	1-7/8	7/8	C68335	—	—	C23161	C18106
1/16	.0625	1.59	1-7/8	7/8	C68229	C69042	C69339	C23125	C18000
52	.0635	1.61	1-7/8	7/8	C68334	—	—	C23162	C18105
51	.0670	1.70	2	1	C68333	—	—	C23163	C18104
50	.0700	1.78	2	1	C68332	—	—	C23164	C18103
49	.0730	1.85	2	1	C68331	—	—	C23165	C18102
48	.0760	1.93	2	1	C68330	—	—	C23166	C18101
5/64	.0781	1.98	2	1	C68230	C69043	C69340	C23126	C18001
47	.0785	1.99	2	1	C68329	—	—	C23167	C18100
46	.0810	2.06	2-1/8	1-1/8	C68328	—	—	C23168	C18099
45	.0820	2.08	2-1/8	1-1/8	C68327	—	—	C23169	C18098
44	.0860	2.18	2-1/8	1-1/8	C68326	—	—	C23170	C18097
43	.0890	2.26	2-1/4	1-1/4	C68325	—	—	C23171	C18096
42	.0935	2.37	2-1/4	1-1/4	C68324	—	—	C23172	C18095
3/32	.0938	2.38	2-1/4	1-1/4	C68231	C69044	C69341	C23127	C18002
41	.0960	2.44	2-3/8	1-3/8	C68323	—	—	C23173	C18094
40	.0980	2.49	2-3/8	1-3/8	C68322	—	—	C23174	C18093
39	.0995	2.53	2-3/8	1-3/8	C68321	—	—	C23175	C18092
38	.1015	2.58	2-1/2	1-7/16	C68320	—	—	C23176	C18091
37	.1040	2.64	2-1/2	1-7/16	C68319	—	—	C23177	C18090
36	.1065	2.71	2-1/2	1-7/16	C68318	—	—	C23178	C18089
7/64	.1094	2.78	2-5/8	1-1/2	C68232	C69045	C69342	C23128	C18003
35	.1100	2.79	2-5/8	1-1/2	C68317	—	—	C23179	C18088
34	.1110	2.82	2-5/8	1-1/2	C68316	—	—	C23180	C18087
33	.1130	2.87	2-5/8	1-1/2	C68315	—	—	C23181	C18086
32	.1160	2.95	2-3/4	1-5/8	C68314	—	—	C23182	C18085
31	.1200	3.05	2-3/4	1-5/8	C68313	—	—	C23183	C18084
1/8	.1250	3.18	2-3/4	1-5/8	C68233	C69046	C69343	C23129	C18004
30	.1285	3.26	2-3/4	1-5/8	C68312	—	—	C23184	C18083
29	.1360	3.45	2-7/8	1-3/4	C68311	—	—	C23185	C18082

*Not split point under 1/16".

continued on next page

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

Styles: 1602, 1604, 1607, 1801, 1878 (continued)

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number				
					1602 Black Oxide	1604 Black and Gold	1607 Black&Gold w/flats	1801 Black Oxide	1878 Black and Gold
28	.1405	3.57	2-7/8	1-3/4	C68310	—	—	C23186	C18081
9/64	.1406	3.57	2-7/8	1-3/4	C68234	C69047	C69344	C23130	C18005
27	.1440	3.66	3	1-7/8	C68309	—	—	C23187	C18080
26	.1470	3.73	3	1-7/8	C68308	—	—	C23188	C18079
25	.1495	3.80	3	1-7/8	C68307	—	—	C23189	C18078
24	.1520	3.86	3-1/8	2	C68306	—	—	C23190	C18077
23	.1540	3.91	3-1/8	2	C68305	—	—	C23191	C18076
5/32	.1562	3.97	3-1/8	2	C68235	C69048	C69345	C23131	C18006
22	.1570	3.99	3-1/8	2	C68304	—	—	C23192	C18075
21	.1590	4.04	3-1/4	2-1/8	C68303	—	—	C23193	C18074
20	.1610	4.09	3-1/4	2-1/8	C68302	—	—	C23194	C18073
19	.1660	4.22	3-1/4	2-1/8	C68301	—	—	C23195	C18072
18	.1695	4.31	3-1/4	2-1/8	C68300	—	—	C23196	C18071
11/64	.1719	4.37	3-1/4	2-1/8	C68236	C69049	C69346	C23132	C18007
17	.1730	4.39	3-3/8	2-3/16	C68299	—	—	C23197	C18070
16	.1770	4.50	3-3/8	2-3/16	C68298	—	—	C23198	C18069
15	.1800	4.57	3-3/8	2-3/16	C68297	—	—	C23199	C18068
14	.1820	4.62	3-3/8	2-3/16	C68296	—	—	C23200	C18067
13	.1850	4.70	3-1/2	2-5/16	C68295	—	—	C23201	C18066
3/16	.1875	4.76	3-1/2	2-5/16	C68237	C69050	C69347	C23133	C18008
12	.1890	4.80	3-1/2	2-5/16	C68294	—	—	C23202	C18065
11	.1910	4.85	3-1/2	2-5/16	C68293	—	—	C23203	C18064
10	.1935	4.91	3-5/8	2-7/16	C68292	—	—	C23204	C18063
9	.1960	4.98	3-5/8	2-7/16	C68291	—	—	C23205	C18062
8	.1990	5.05	3-5/8	2-7/16	C68290	—	—	C23206	C18061
7	.2010	5.11	3-5/8	2-7/16	C68289	—	—	C23207	C18060
13/64	.2031	5.16	3-5/8	2-7/16	C68238	C69051	C69348	C23134	C18009
6	.2040	5.18	3-3/4	2-1/2	C68288	—	—	C23208	C18059
5	.2055	5.22	3-3/4	2-1/2	C68287	—	—	C23209	C18058
4	.2090	5.31	3-3/4	2-1/2	C68286	—	—	C23210	C18057
3	.2130	5.41	3-3/4	2-1/2	C68285	—	—	C23211	C18056
7/32	.2188	5.56	3-3/4	2-1/2	C68239	C69052	C69349	C23135	C18010
2	.2210	5.61	3-7/8	2-5/8	C68284	—	—	C23212	C18055
1	.2280	5.79	3-7/8	2-5/8	C68283	—	—	C23213	C18054
A	.2340	5.94	3-7/8	2-5/8	C68258	—	—	C23100	C18029
15/64	.2344	5.95	3-7/8	2-5/8	C68240	C69053	C69350	C23136	C18011
B	.2380	6.05	4	2-3/4	C68259	—	—	C23101	C18030
C	.2420	6.15	4	2-3/4	C68260	—	—	C23102	C18031
D	.2460	6.25	4	2-3/4	C68261	—	—	C23103	C18032
1/4, E	.2500	6.35	4	2-3/4	C68241	C69054	C69351	C23137	C18012
F	.2570	6.53	4-1/8	2-7/8	C68262	—	—	C23104	C18033
G	.2610	6.63	4-1/8	2-7/8	C68263	—	—	C23105	C18034
17/64	.2656	6.75	4-1/8	2-7/8	C68242	C69055	C69352	C23138	C18013
H	.2660	6.76	4-1/8	2-7/8	C68264	—	—	C23106	C18035
I	.2720	6.91	4-1/8	2-7/8	C68265	—	—	C23107	C18036
J	.2770	7.04	4-1/8	2-7/8	C68266	—	—	C23108	C18037
K	.2810	7.14	4-1/4	2-15/16	C68267	—	—	C23109	C18038
9/32	.2812	7.14	4-1/4	2-15/16	C68243	C69056	C69353	C23139	C18014
L	.2900	7.37	4-1/4	2-15/16	C68268	—	—	C23110	C18039
M	.2950	7.49	4-3/8	3-1/16	C68269	—	—	C23111	C18040
19/64	.2969	7.54	4-3/8	3-1/16	C68244	C69057	C69354	C23140	C18015
N	.3020	7.67	4-3/8	3-1/16	C68270	—	—	C23112	C18041
5/16	.3125	7.94	4-1/2	3-3/16	C68245	C69058	C69355	C23141	C18016
O	.3160	8.03	4-1/2	3-3/16	C68271	—	—	C23113	C18042

continued on next page

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number				
					1602 Black Oxide	1604 Black and Gold	1607 Black&Gold w/flats	1801 Black Oxide	1878 Black and Gold
P	.3230	8.20	4-5/8	3-5/16	C68272	—	—	C23114	C18043
21/64	.3281	8.33	4-5/8	3-5/16	C68246	C69059	C69356	C23142	C18017
Q	.3320	8.43	4-3/4	3-7/16	C68273	—	—	C23115	C18044
R	.3390	8.61	4-3/4	3-7/16	C68274	—	—	C23116	C18045
11/32	.3438	8.73	4-3/4	3-7/16	C68247	C69060	C69357	C23143	C18018
S	.3480	8.84	4-7/8	3-1/2	C68275	—	—	C23117	C18046
T	.3580	9.09	4-7/8	3-1/2	C68276	—	—	C23118	C18047
23/64	.3594	9.13	4-7/8	3-1/2	C68248	C69061	C69358	C23144	C18019
U	.3680	9.35	5	3-5/8	C68277	—	—	C23119	C18048
3/8	.3750	9.53	5	3-5/8	C68249	C69062	C69359	C23145	C18020
V	.3770	9.58	5	3-5/8	C68278	—	—	C23120	C18049
W	.3860	9.80	5-1/8	3-3/4	C68279	—	—	C23121	C18050
25/64	.3906	9.92	5-1/8	3-3/4	C68250	C69063	C69360	C23146	C18021
X	.3970	10.08	5-1/8	3-3/4	C68280	—	—	C23122	C18051
Y	.4040	10.26	5-1/4	3-7/8	C68281	—	—	C23123	C18052
13/32	.4062	10.32	5-1/4	3-7/8	C68251	C69064	C69361	C23147	C18022
Z	.4130	10.49	5-1/4	3-7/8	C68282	—	—	C23124	C18053
27/64	.4219	10.72	5-3/8	3-15/16	C68252	C69065	C69362	C23148	C18023
7/16	.4375	11.11	5-1/2	4-1/16	C68253	C69066	C69363	C23149	C18024
29/64	.4531	11.51	5-5/8	4-3/16	C68254	C69067	C69364	C23150	C18025
15/32	.4688	11.91	5-3/4	4-5/16	C68255	C69068	C69365	C23151	C18026
31/64	.4844	12.30	5-7/8	4-3/8	C68256	C69069	C69366	C23152	C18027
1/2	.5000	12.70	6	4-1/2	C68257	C69070	C69367	C23153	C18028

Styles: **1605, 1809, 1879**

Heavy Duty
3/8" Reduced Shank



drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number		
					1605 Black and Gold w/flats	1809 Black Oxide	1879 Black and Gold w/flats
25/64	.3906	9.92	5-1/8	3-3/4	C69071	C20631	C18114
13/32	.4062	10.32	5-1/4	3-7/8	C69072	C20632	C18115
27/64	.4219	10.72	5-3/8	3-15/16	C69073	C20633	C18116
7/16	.4375	11.11	5-1/2	4-1/16	C69074	C20634	C18117
29/64	.4531	11.51	5-5/8	4-3/16	C69075	C20635	C18118
15/32	.4688	11.91	5-3/4	4-5/16	C69076	C20636	C18119
31/64	.4844	12.30	5-7/8	4-3/8	C69077	C20637	C18120
1/2	.5000	12.70	6	4-1/2	C69078	C20638	C18121
17/32	.5312	13.49	6-5/8	4-13/16	—	C20659	—
9/16	.5625	14.29	6-5/8	4-13/16	—	C20660	—
5/8	.6094	15.48	7-1/8	5-3/16	—	C20661	—
11/16	.6875	17.46	7-5/8	5-5/8	—	C20662	—

SET

Styles: 1602, 1604, 1605, 1607, 1801, 1878, 1879

Metal Case (unless noted otherwise)

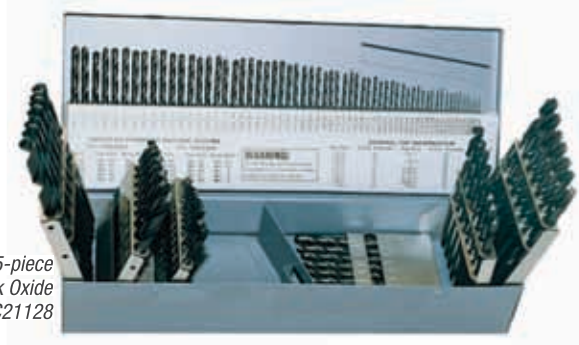
NEW

DRILLS

29-piece
Bit Barrel Set
#C18128



115-piece
Black Oxide
#C21128



drill sizes	no. of pieces	order number						
		1602 Black Oxide	1604 Black & Gold	1605 3/8" shank Black & Gold	1607 with flats Black & Gold	1801 Black Oxide	1878 Black & Gold	1879 3/8" shank Black & Gold
6, 29, 25, 21, 7, F, 5/16, U, 27/64, Taps: 6-32, 8-32, 10-24, 10-32, 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13	18	—	—	—	—	—	**C21191	—
		—	—	—	—	—	**C21192	—
1/16"– 1/4" x 1/64"	13	C69381	C69030	—	C68343	C21157	C18123	—
1/16"– 1/2" x 1/32"	15	*C69382	*C69031	—	*C68461	*C21110	*C18124	—
1/16"– 3/8" x 1/64"	21	—	—	—	—	C21115	—	—
1/16"– 1/2" x 1/64"	29	*C69383	*C69032	*C69033	*C69368	*C21119	*C18125	*C18122
Bit Barrel™								
1/16"– 1/2" x 1/64"	29	—	—	—	*C69385	—	*C18128	—
#1 – #60	60	—	—	—	—	C21124	—	—
1/16"– 1/2" x 1/64", A to Z, #1 – #60	115	—	—	—	—	C21128	—	—

*Plastic Case

**C21191 - Hand taps **C21192 - Split point taps

Tech Tip

Drill Tolerances (inches)

Diameter Tolerances

Diameter Range	Plus (+)	Minus (-)
through 1/8	.0000	.0005
over 1/8 through 1/4	.0000	.0007
over 1/4 through 1/2	.0000	.0010
over 1/2 through 1	.0000	.0012
over 1 through 2	.0000	.0015
over 2 through 3-1/2	.0000	.0020

Lip Height Tolerances

Diameter Range	Total Indicator Variation
1/16 through 1/8	.0020
over 1/8 through 1/4	.0030
over 1/4 through 1/2	.0040
over 1/2 through 1	.0050
over 1 through 3-1/2	.0060

Point Angle Tolerances

Diameter Range	Included Angle	Tolerance
1/16 through 1/2	118° / 135°	± 5°
over 1/2 through 1-1/2	118°	± 3°
over 1-1/2 through 3-1/2	118°	± 2°

Overall Length and Flute Length Tolerances

Diameter Range	Plus (+)	Minus (-)
#80 through 1/8	.1250	.0625
over 1/8 through 1/2	.1250	.1250
over 1/2 through 1	.2500	.1250
over 1 through 2	.2500	.2500
over 2 through 3-1/2	.3750	.3750

P K N

ASME B94.11M DIN 338 HSS **Black Gold** **TIN** Helix High 35° to 45° 135° Split Straight Shank

Note
 For a wide range of material applications.
 Exceptional for deeper drilling.
 Faster penetration rates than conventional HSS heavy duty jobber drills.
 Aerospace-style 135° split point reduces drill "walking".
 For Reduced Shank see Style #1873.
Metric sizes shown after inch.



Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number	
					1872 Black & Gold	1872TN TiN
1/16	.0625	1.59	1-7/8	7/8	C18430	C18630
5/64	.0781	1.98	2	1	C18431	C18631
3/32	.0938	2.38	2-1/4	1-1/4	C18432	C18632
41	.0960	2.44	2-3/8	1-3/8	C18541	—
40	.0980	2.49	2-3/8	1-3/8	C18540	—
39	.0995	2.53	2-3/8	1-3/8	C18539	—
38	.1015	2.58	2-1/2	1-7/16	C18538	—
37	.1040	2.64	2-1/2	1-7/16	C18537	—
36	.1065	2.71	2-1/2	1-7/16	C18536	—
7/64	.1094	2.78	2-5/8	1-1/2	C18433	C18633
35	.1100	2.79	2-5/8	1-1/2	C18535	—
34	.1110	2.82	2-5/8	1-1/2	C18534	—
33	.1130	2.87	2-5/8	1-1/2	C18533	—
32	.1160	2.95	2-3/4	1-5/8	C18532	—
31	.1200	3.05	2-3/4	1-5/8	C18531	—
1/8	.1250	3.18	2-3/4	1-5/8	C18434	C18634
30	.1285	3.26	2-3/4	1-5/8	C18530	—
29	.1360	3.45	2-7/8	1-3/4	C18529	—
28	.1405	3.57	2-7/8	1-3/4	C18528	—
9/64	.1406	3.57	2-7/8	1-3/4	C18435	C18635
27	.1440	3.66	3	1-7/8	C18527	—
26	.1470	3.73	3	1-7/8	C18526	—
25	.1495	3.80	3	1-7/8	C18525	—
24	.1520	3.86	3-1/8	2	C18524	—
23	.1540	3.91	3-1/8	2	C18523	—
5/32	.1562	3.97	3-1/8	2	C18436	C18636
22	.1570	3.99	3-1/8	2	C18522	—
21	.1590	4.04	3-1/4	2-1/8	C18521	—
20	.1610	4.09	3-1/4	2-1/8	C18520	—
19	.1660	4.22	3-1/4	2-1/8	C18519	—
18	.1695	4.31	3-1/4	2-1/8	C18518	—
11/64	.1719	4.37	3-1/4	2-1/8	C18437	C18637
17	.1730	4.39	3-3/8	2-3/16	C18517	—
16	.1770	4.50	3-3/8	2-3/16	C18516	—
15	.1800	4.57	3-3/8	2-3/16	C18515	—
14	.1820	4.62	3-3/8	2-3/16	C18514	—
13	.1850	4.70	3-1/2	2-5/16	C18513	—
3/16	.1875	4.76	3-1/2	2-5/16	C18438	C18638

continued on next page

Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number	
					1872 Black & Gold	1872TN TiN
12	.1890	4.80	3-1/2	2-5/16	C18512	—
11	.1910	4.85	3-1/2	2-5/16	C18511	—
10	.1935	4.92	3-5/8	2-7/16	C18510	—
9	.1960	4.98	3-5/8	2-7/16	C18509	—
8	.1990	5.06	3-5/8	2-7/16	C18508	—
7	.2010	5.11	3-5/8	2-7/16	C18507	—
13/64	.2031	5.16	3-5/8	2-7/16	C18439	C18639
6	.2040	5.18	3-3/4	2-1/2	C18506	—
5	.2055	5.22	3-3/4	2-1/2	C18505	—
4	.2090	5.31	3-3/4	2-1/2	C18504	—
3	.2130	5.41	3-3/4	2-1/2	C18503	—
7/32	.2188	5.56	3-3/4	2-1/2	C18440	C18640
2	.2210	5.61	3-7/8	2-5/8	C18502	—
1	.2280	5.79	3-7/8	2-5/8	C18501	—
15/64	.2344	5.95	3-7/8	2-5/8	C18441	C18641
1/4	.2500	6.35	4	2-3/4	C18442	C18642
F	.2570	6.53	4-1/8	2-7/8	C18474	—
17/64	.2656	6.75	4-1/8	2-7/8	C18443	C18643
9/32	.2812	7.14	4-1/4	2-15/16	C18444	C18644
19/64	.2969	7.54	4-3/8	3-1/16	C18445	C18645
5/16	.3125	7.94	4-1/2	3-3/16	C18446	C18646
21/64	.3281	8.33	4-5/8	3-5/16	C18447	C18647
Q	.3320	8.43	4-3/4	3-7/16	C18485	—
11/32	.3438	8.73	4-3/4	3-7/16	C18459	C18648
23/64	.3594	9.13	4-7/8	3-1/2	C18449	C18649
3/8	.3750	9.53	5	3-5/8	C18450	C18650
25/64	.3906	9.92	5-1/8	3-3/4	C18451	C18651
13/32	.4062	10.32	5-1/4	3-7/8	C18452	C18652
27/64	.4219	10.72	5-3/8	3-15/16	C18453	C18653
7/16	.4375	11.11	5-1/2	4-1/16	C18454	C18654
29/64	.4531	11.51	5-5/8	4-3/16	C18455	C18655
15/32	.4688	11.91	5-3/4	4-5/16	C18456	C18656
31/64	.4844	12.30	5-7/8	4-3/8	C18457	C18657
1/2	.5000	12.70	6	4-1/2	C18458	C18658

3/8" Reduced Shank

Style: **1873**

Note

Faster penetration rates than conventional HSS heavy duty jobber drills.



drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number
					1873 Black & Gold
25/64	.3906	9.92	5-1/8	3-3/4	C18710
13/32	.4062	10.32	5-1/4	3-7/8	C18711
27/64	.4219	10.72	5-3/8	3-15/16	C18712
7/16	.4375	11.11	5-1/2	4-1/16	C18713
29/64	.4531	11.51	5-5/8	4-3/16	C18714
15/32	.4688	11.91	5-3/4	4-5/16	C18715
31/64	.4844	12.30	5-7/8	4-3/8	C18716
1/2	.5000	12.70	6	4-1/2	C18717

P **K** **N**

DIN 338 HSS Black Gold TIN Helix High 35° to 45° 138° Split Straight Shank

Note
Sets shown on next page.

Metric Sizes

drill diameter	decimal equiv.	overall length	flute length	order number	
				1872 Black & Gold	1872TN TIN
1.0*	.0394	34	12	C18570	C18670
1.5*	.0591	40	18	C18573	C18671
1.6	.0630	43	20	C18574	—
1.65	.0650	43	20	C18575	—
1.75	.0689	46	22	C18576	—
1.8	.0709	46	22	C18577	—
2.0	.0787	49	24	C18578	C18672
2.05	.0807	49	24	C18579	—
2.3	.0906	53	27	C18580	—
2.5	.0984	57	30	C18581	C18673
2.6	.1024	57	30	C18582	—
2.9	.1142	61	33	C18583	—
3.0	.1181	61	33	C18584	C18674
3.2	.1260	65	36	C18585	—
3.3	.1299	65	36	C18586	C18675
3.5	.1378	70	39	C18587	C18676
3.7	.1457	70	39	C18588	—
4.0	.1575	75	43	C18589	C18677
4.1	.1614	75	43	C18590	—
4.2	.1654	75	43	C18591	C18678
4.3	.1693	80	47	C18722	—
4.5	.1772	80	47	C18592	C18679
4.8	.1890	86	52	C18723	—
5.0	.1969	86	52	C18593	C18680
5.1	.2008	86	52	C18724	—
5.2	.2047	86	52	C18725	—
5.5	.2165	93	57	C18594	C18681
5.7	.2244	93	57	C18726	—
6.0	.2362	93	57	C18595	C18682
6.5	.2559	101	63	C18596	C18683
6.7	.2638	101	63	C18597	—
6.8	.2677	109	69	C18598	C18684
7.0	.2756	109	69	C18599	C18685
7.4	.2913	109	69	C18600	—
7.5	.2953	109	69	C18601	C18686
7.8	.3071	117	75	C18602	—
8.0	.3150	117	75	C18603	C18687
8.5	.3346	117	75	C18604	C18688
8.7	.3425	125	81	C18605	—
9.0	.3543	125	81	C18606	C18689
9.4	.3701	125	81	C18607	—
9.5	.3740	125	81	C18608	C18690
10.0	.3937	133	87	C18609	C18697
10.2	.4016	133	87	C18610	—
10.5	.4134	133	87	C18611	C18691
10.8	.4252	142	94	C18612	—
11.0	.4331	142	94	C18613	C18692
11.2	.4409	142	94	C18614	—
11.5	.4528	142	94	C18615	C18693
12.0	.4724	151	101	C18616	C18694
12.5	.4921	151	101	C18617	C18695
13.0	.5118	151	101	C18618	C18696

*Not split point.

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

SET

Styles: 1872, 1872TN, 1873 (continued)

DRILLS

drill sizes	no. of pieces	order number		
		1872 Black & Gold	1872TN TiN	1873 3/8" Shanks
1/16" – 1/4" x 1/64"	13	C18619	C18700	–
1/16" – 1/2" x 1/32"	15	C18620	C18701	C18719
1/16" – 3/8" x 1/64"	21	C18621	C18702	–
1/16" – 1/2" x 1/64"	29	C18622	C18703	C18718
1mm – 6mm x 0.5mm	11	C18626	C18704	–
1mm – 13mm x 1mm	25	C18628	C18706	–



Tech Tip

Recommended Drill Speeds and Coolants – Ferrous Materials

(see page 33 for Recommendations for Non-ferrous Materials)

		Brinell	Surface Feet per Minute	Coolant
Low Carbon Steel	85-125	80-95	Soluble Oil	
Medium Carbon Steel		125-175	70-85	Soluble Oil
High Carbon Steel	175-225	45-65	Soluble Oil	
Steels Alloyed		Under 200	60-90	Soluble Oil
		200-300	40-70	Soluble Oil
		Over 300	20-30	Soluble Oil
Steel Drop Forgings		330-370	30-40	Cutting Oil
Heat Treated		370-420	20-30	Cutting Oil
		Over 420	10-20	Cutting Oil
Grey Cast Iron	Soft	125	140-150	Dry
	Medium	120-200	50-80	Soluble Oil
	Hard	Up to 350	25-40	Soluble Oil
Titanium Alloys	Ti-75A	300-440	50-60	Cutting Oil
	Ti-150A, RS-120	300-440	40-50	Cutting Oil
	Ti-140A, RC 130B	300-440	30-40	Cutting Oil
	Ti-6AL -4V	300-440	20-30	Cutting Oil
Stainless Steel	300 Series	120-200	20-40	Cutting Oil
	400 Series	200-300	40-70	Cutting Oil
	Martensitic 416, 420, F416 Plus K, 400F, 416SE, 440F	135-185	40-50	Cutting Oil
	Precipitation Hardening	325-375	30	Cutting Oil
	Cast Stainless Steel	400-450	20	Cutting Oil
Heat Resisting Steels		175-225	10-25	Cutting Oil
Nimonic Alloys		200-300	10-20	Cutting Oil
Manganese	12-14% min	125-220	10-12	Cutting Oil
Spring Steels		402	15-30	Soluble Oil
Armor Plate		200-250	40	Soluble Oil
		250-300	35	Soluble Oil
		300-350	30	Cutting Oil

S P K N H

ASME B94.11M Cobalt Straw Oxide 138° Split Helix Regular 21° to 34° Straight Shank

Note

Designed to drill tough, high-tensile materials and work-hardening materials like high-strength alloy steels, stainless steel, titanium, manganese steel, armor plate, and inconel.

For Reduced Shank see Style #1812.

Metric sizes shown after inch.



Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number	
					1603 Straw Oxide	1802 Straw Oxide
60*	.0400	1.02	1-5/8	11/16	C68460	C23374
59*	.0410	1.04	1-5/8	11/16	C68459	C23375
58*	.0420	1.07	1-5/8	11/16	C68458	C23376
57*	.0430	1.09	1-3/4	3/4	C68457	C23377
56*	.0465	1.18	1-3/4	3/4	C68456	C23378
55*	.0520	1.32	1-7/8	7/8	C68455	C23379
54*	.0550	1.40	1-7/8	7/8	C68454	C23380
53*	.0595	1.51	1-7/8	7/8	C68453	C23381
1/16	.0625	1.59	1-7/8	7/8	C68344	C23345
52	.0635	1.61	1-7/8	7/8	C68452	C23382
51	.0670	1.70	2	1	C68451	C23383
50	.0700	1.78	2	1	C68450	C23384
49	.0730	1.85	2	1	C68449	C23385
48	.0760	1.93	2	1	C68448	C23386
5/64	.0781	1.98	2	1	C68345	C23346
47	.0785	1.99	2	1	C68447	C23387
46	.0810	2.06	2-1/8	1-1/8	C68446	C23388
45	.0820	2.08	2-1/8	1-1/8	C68445	C23389
44	.0860	2.18	2-1/8	1-1/8	C68444	C23390
43	.0890	2.26	2-1/4	1-1/4	C68443	C23391
42	.0935	2.37	2-1/4	1-1/4	C68442	C23392
3/32	.0938	2.38	2-1/4	1-1/4	C68346	C23347
41	.0960	2.44	2-3/8	1-3/8	C68441	C23393
40	.0980	2.49	2-3/8	1-3/8	C68440	C23394
39	.0995	2.53	2-3/8	1-3/8	C68439	C23395
38	.1015	2.58	2-1/2	1-7/16	C68438	C23396
37	.1040	2.64	2-1/2	1-7/16	C68437	C23397
36	.1065	2.71	2-1/2	1-7/16	C68436	C23398
7/64	.1094	2.78	2-5/8	1-1/2	C68347	C23348
35	.1100	2.79	2-5/8	1-1/2	C68435	C23399
34	.1110	2.82	2-5/8	1-1/2	C68434	C23400
33	.1130	2.87	2-5/8	1-1/2	C68433	C23401
32	.1160	2.95	2-3/4	1-5/8	C68432	C23402
31	.1200	3.05	2-3/4	1-5/8	C68431	C23403
1/8	.1250	3.18	2-3/4	1-5/8	C68351	C23349
30	.1285	3.26	2-3/4	1-5/8	C68430	C23404
29	.1360	3.45	2-7/8	1-3/4	C68429	C23405
28	.1405	3.57	2-7/8	1-3/4	C68428	C23406
9/64	.1406	3.57	2-7/8	1-3/4	C68352	C23350
27	.1440	3.66	3	1-7/8	C68427	C23407
26	.1470	3.73	3	1-7/8	C68426	C23408
25	.1495	3.80	3	1-7/8	C68425	C23409

*Not split point.

continued on next page

Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number	
					1603 Straw Oxide	1802 Straw Oxide
24	.1520	3.86	3-1/8	2	C68424	C23410
23	.1540	3.91	3-1/8	2	C68423	C23411
5/32	.1562	3.97	3-1/8	2	C68353	C23351
22	.1570	3.99	3-1/8	2	C68422	C23412
21	.1590	4.04	3-1/4	2-1/8	C68421	C23413
20	.1610	4.09	3-1/4	2-1/8	C68420	C23414
19	.1660	4.22	3-1/4	2-1/8	C68419	C23415
18	.1695	4.31	3-1/4	2-1/8	C68418	C23416
11/64	.1719	4.37	3-1/4	2-1/8	C68354	C23352
17	.1730	4.39	3-3/8	2-3/16	C68417	C23417
16	.1770	4.50	3-3/8	2-3/16	C68416	C23418
15	.1800	4.57	3-3/8	2-3/16	C68415	C23419
14	.1820	4.62	3-3/8	2-3/16	C68414	C23420
13	.1850	4.70	3-1/2	2-5/16	C68413	C23421
3/16	.1875	4.76	3-1/2	2-5/16	C68355	C23353
12	.1890	4.80	3-1/2	2-5/16	C68412	C23422
11	.1910	4.85	3-1/2	2-5/16	C68411	C23423
10	.1935	4.91	3-5/8	2-7/16	C68410	C23424
9	.1960	4.98	3-5/8	2-7/16	C68409	C23425
8	.1990	5.05	3-5/8	2-7/16	C68408	C23426
7	.2010	5.11	3-5/8	2-7/16	C68407	C23427
13/64	.2031	5.16	3-5/8	2-7/16	C68356	C23354
6	.2040	5.18	3-3/4	2-1/2	C68406	C23428
5	.2055	5.22	3-3/4	2-1/2	C68405	C23429
4	.2090	5.31	3-3/4	2-1/2	C68404	C23430
3	.2130	5.41	3-3/4	2-1/2	C68403	C23431
7/32	.2188	5.56	3-3/4	2-1/2	C68357	C23355
2	.2210	5.61	3-7/8	2-5/8	C68402	C23432
1	.2280	5.79	3-7/8	2-5/8	C68401	C23433
A	.2340	5.94	3-7/8	2-5/8	C68376	C23320
15/64	.2344	5.95	3-7/8	2-5/8	C68358	C23356
B	.2380	6.05	4	2-3/4	C68377	C23321
C	.2420	6.15	4	2-3/4	C68378	C23322
D	.2460	6.25	4	2-3/4	C68379	C23323
1/4, E	.2500	6.35	4	2-3/4	C68359	C23357
F	.2570	6.53	4-1/8	2-7/8	C68380	C23324
G	.2610	6.63	4-1/8	2-7/8	C68381	C23325
17/64	.2656	6.75	4-1/8	2-7/8	C68360	C23358
H	.2660	6.76	4-1/8	2-7/8	C68382	C23326
I	.2720	6.91	4-1/8	2-7/8	C68383	C23327
J	.2770	7.04	4-1/8	2-7/8	C68384	C23328
K	.2810	7.14	4-1/4	2-15/16	C68385	C23329
9/32	.2812	7.14	4-1/4	2-15/16	C68361	C23359
L	.2900	7.37	4-1/4	2-15/16	C68386	C23330
M	.2950	7.49	4-3/8	3-1/16	C68387	-
19/64	.2969	7.54	4-3/8	3-1/16	C68362	C23360
N	.3020	7.67	4-3/8	3-1/16	C68388	-
5/16	.3125	7.94	4-1/2	3-3/16	C68363	C23361
O	.3160	8.03	4-1/2	3-3/16	C68389	-
P	.3230	8.20	4-5/8	3-5/16	C68390	-
21/64	.3281	8.33	4-5/8	3-5/16	C68364	C23362
Q	.3320	8.43	4-3/4	3-7/16	C68391	C23335
R	.3390	8.61	4-3/4	3-7/16	C68392	C23336
11/32	.3438	8.73	4-3/4	3-7/16	C68365	C23363

continued on next page

DRILLS



Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number	
					1603 Straw Oxide	1802 Straw Oxide
S	.3480	8.84	4-7/8	3-1/2	C68393	-
T	.3580	9.09	4-7/8	3-1/2	C68394	-
23/64	.3594	9.13	4-7/8	3-1/2	C68366	C23364
U	.3680	9.35	5	3-5/8	C68395	C23339
3/8	.3750	9.53	5	3-5/8	C68367	C23365
V	.3770	9.58	5	3-5/8	C68396	C23340
W	.3860	9.80	5-1/8	3-3/4	C68397	C23341
25/64	.3906	9.92	5-1/8	3-3/4	C68368	C23366
X	.3970	10.08	5-1/8	3-3/4	C68398	-
Y	.4040	10.26	5-1/4	3-3/4	C68399	-
13/32	.4062	10.32	5-1/4	3-7/8	C68369	C23367
Z	.4130	10.49	5-1/4	3-7/8	C68400	-
27/64	.4219	10.72	5-3/8	3-15/16	C68370	C23368
7/16	.4375	11.11	5-1/2	4-1/16	C68371	C23369
29/64	.4531	11.51	5-5/8	4-3/16	C68372	C23370
15/32	.4688	11.91	5-3/4	4-5/16	C68373	C23371
31/64	.4844	12.30	5-7/8	4-3/8	C68374	C23372
1/2	.5000	12.70	6	4-1/2	C68375	C23373

Style: 1812

3/8" Reduced Shank

Note

Designed to drill tough, high-tensile materials and work-hardening materials like high-strength alloy steels, stainless steel, titanium, manganese steel, armor plate, and inconel.



drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number
					1812 Straw Oxide
25/64	.3906	9.92	5-1/8	3-3/4	C20651
13/32	.4063	10.32	5-1/4	3-7/8	C20652
27/64	.4219	10.72	5-3/8	3-15/16	C20653
7/16	.4375	11.11	5-1/2	4-1/16	C20654
29/64	.4531	11.51	5-5/8	4-3/16	C20655
15/32	.4688	11.91	5-3/4	4-5/16	C20656
31/64	.4844	12.30	5-7/8	4-3/8	C20657
1/2	.5000	12.70	6	4-1/2	C20658

SET

Styles: 1603, 1802

**Jobber
Cobalt Heavy Duty**

Metal Case



15-Piece Set
Straw Oxide
#C21112

drill size	no. of pieces	order number	
		1603 Straw Oxide	1802 Straw Oxide
1/16" - 1/4" x 1/64"	13	C69377	C21107
1/16" - 1/2" x 1/32"	15	C69378	C21112
1/16" - 1/2" x 1/64"	29	C69379	C21121
#1 - #60	60	C69380	C21125
1/16" - 1/2" x 1/64", A to Z, #1 - #60	115	-	C21129

Jobber
Cobalt Heavy Duty

Style: **1891** (continued)



Metric Sizes

drill diameter	decimal equiv.	overall length	flute length	order number
				1891 Straw Oxide
1.0*	.0394	34	12	C18900
1.2*	.0472	38	16	C18902
1.5*	.0591	40	18	C18905
1.6	.0630	43	20	C18906
2.0	.0787	49	24	C18910
2.4	.0945	57	30	C18914
2.5	.0984	57	30	C18915
2.8	.1102	61	33	C18918
3.0	.1181	61	33	C18920
3.1	.1220	65	36	C18921
3.2	.1260	65	36	C18922
3.3	.1299	65	36	C18923
3.5	.1378	70	39	C18925
3.6	.1417	70	39	C18926
3.7	.1457	70	39	C18927
3.9	.1535	75	43	C18929
4.0	.1575	75	43	C18930
4.1	.1614	75	43	C18931
4.2	.1654	75	43	C18932
4.5	.1772	80	47	C18935
4.6	.1811	80	47	C18936
4.8	.1890	86	52	C18938
4.9	.1929	86	52	C18939
5.0	.1969	86	52	C18940
5.1	.2008	86	52	C18941
5.2	.2047	86	52	C18942
5.5	.2165	93	57	C18945
6.0	.2362	93	57	C18950
6.5	.2559	101	63	C18955
6.8	.2677	109	69	C18958
7.0	.2756	109	69	C18960
7.5	.2953	109	69	C18965
8.0	.3150	117	75	C18970
8.5	.3346	117	75	C18975
9.0	.3543	125	81	C18980
9.5	.3740	125	81	C18985
10.0	.3937	133	87	C18990
10.2	.4016	133	87	C18991
10.5	.4134	133	87	C18992
11.0	.4331	142	94	C18993
11.5	.4528	142	94	C18995
12.0	.4724	151	101	C18996
12.5	.4921	151	101	C18998
13.0	.5118	151	101	C18999

Note

Designed to drill tough, high-tensile materials and work-hardening materials like high-strength alloy steels, stainless steel, titanium, manganese steel, armor plate, and inconel.

*Not split point.

General Application Drills

Styles: **1875R, 1875L**

Mechanics Length
Heavy Duty

P K

Note

Three flats on sizes above 1 1/64" for tighter chucking.
For Reduced Shank see Style #1876.



Right-Hand Spiral Black and Gold



Left-Hand Spiral Black and Gold

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number	
					1875R Black & Gold	1875L Black & Gold
1/16*	.0625	1.59	1-7/8	7/8	C23830	C23701
5/64*	.0781	1.98	2	1	C23831	—
3/32*	.0938	2.38	2-1/4	1-1/4	C23832	—
7/64*	.1094	2.78	2-3/8	1-5/16	C23833	—
1/8*	.1250	3.18	2-1/2	1-7/16	C23834	C23702
9/64*	.1406	3.57	2-5/8	1-9/16	C23835	—
5/32*	.1562	3.97	2-3/4	1-11/16	C23836	—
11/64*	.1719	4.37	2-7/8	1-13/16	C23837	—
3/16	.1875	4.76	3	1-7/8	C23838	C23703
13/64	.2031	5.16	3-1/8	1-15/16	C23839	—
7/32	.2188	5.56	3-1/4	2	C23840	—
15/64	.2344	5.95	3-3/8	2-1/16	C23841	—
1/4	.2500	6.35	3-1/2	2	C23842	C23704
17/64	.2656	6.75	3-5/8	2-1/8	C23843	—
9/32	.2812	7.14	3-3/4	2-1/4	C23844	—
19/64	.2969	7.54	3-7/8	2-3/8	C23845	—
5/16	.3125	7.94	4	2-1/2	C23846	C23706
21/64	.3281	8.33	4-1/16	2-9/16	C23847	—
11/32	.3438	8.73	4-1/8	2-5/8	C23848	—
23/64	.3594	9.13	4-3/16	2-11/16	C23849	—
3/8	.3750	9.53	4-1/4	2-11/16	C23850	C23707
25/64**	.3906	9.92	4-5/16	2-3/4	C23851	—
13/32**	.4062	10.32	4-3/8	2-13/16	C23852	—
27/64	.4219	10.72	4-7/16	2-7/8	C23853	—
7/16	.4375	11.11	4-1/2	2-15/16	C23854	C23708
29/64	.4531	11.51	4-5/8	3	C23855	—
15/32	.4688	11.91	4-3/4	3-1/8	C23856	—
31/64	.4844	12.30	4-7/8	3-1/4	C23857	—
1/2	.5000	12.70	5	3-3/8	C23859	C23709

*No flats on shank.

**Style #1875 sizes 25/64" and 13/32" drills with flats will fit in 3/8" shank drill chucks without having reduced shanks.

Style: **1876**

3/8" Reduced Shank



drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number
					1876 Black & Gold
27/64	.4219	10.72	4-7/16	2-7/8	C23860
7/16	.4375	11.11	4-1/2	2-15/16	C23861
29/64	.4531	11.51	4-5/8	3	C23862
15/32	.4688	11.91	4-3/4	3-1/8	C23863
31/64	.4844	12.30	4-7/8	3-1/4	C23864
1/2	.5000	12.70	5	3-3/8	C23865

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

Mechanics Length
Heavy Duty

General Application Drills



SET

Styles: 1875R, 1876

Metal unless noted below

NEW

drill sizes	no. of pieces	order number			
		1875R Black & Gold	Bit Barrel™ 1875R Black & Gold	Plastic Tube 1875R Black & Gold	3/8" Shank 1876 Black & Gold
1/16" - 1/4" x 1/64"	13	C18126	-	-	-
1/16" - 3/8" x 1/64"	21	C21161	-	-	-
1/16" - 1/2" x 1/64"	29	C21162	C21165	-	C21163*
1/16" - 1/2" x 1/32"	15	C21160	-	-	-
1/16" - 1/4" x 1/16"	4	-	-	C22310	-
1/16" - 3/8" x 1/16"	6	-	-	C22309	-

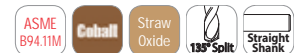


29-Piece
Bit Barrel Set
#C21165

*Includes Style #1875 in sizes 25/64" and 13/32" which will fit in 3/8" shank drill chucks without having reduced shanks.

Mechanics Length
Left Hand Cobalt

Style: 1880



Note
Superior rigidity in portable drilling.



drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number
					1880 Straw Oxide
5/64	.0781	1.98	2	1	C30505
7/64	.1094	2.78	2-3/16	1	C30507
1/8	.1250	3.18	2-1/4	1-1/16	C30508
5/32	.1562	3.97	2-9/16	1-1/4	C30510
3/16	.1875	4.76	2-7/8	1-1/2	C30512
7/32	.2188	5.56	3-1/8	1-5/8	C30514
1/4	.2500	6.35	3-5/16	1-3/4	C30516
9/32	.2812	7.14	3-9/16	2	C30518
19/64	.2969	7.54	3-5/8	2-1/16	C30519
5/16	.3125	7.94	3-3/4	2-1/8	C30520
11/32	.3438	8.73	3-15/16	2-1/4	C30522
3/8	.3750	9.53	4-1/8	2-3/8	C30524
13/32	.4063	10.32	4-3/8	2-1/2	C30526
7/16	.4375	11.11	4-9/16	2-5/8	C30528
15/32	.4688	11.91	4-3/4	2-3/4	C30530
1/2	.5000	12.70	5	2-7/8	C30532



P **K**

ASME B94.11M HSS Black Gold 135° Split Fluted Shank

Note

For superior rigidity in general purpose drilling and maintenance applications.

Three flats on sizes larger than 1 1/64" for tighter chucking.



drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number 1620 Black & Gold
1/16*	.0625	1.59	1-7/8	7/8	C68462
5/64*	.0781	1.98	2	1	C68463
3/32*	.0938	2.38	2-1/4	1-1/4	C68464
7/64*	.1094	2.78	2-3/8	1-5/16	C68465
1/8*	.1250	3.18	2-1/2	1-7/16	C68466
9/64*	.1406	3.57	2-5/8	1-9/16	C68467
5/32*	.1562	3.97	2-3/4	1-11/16	C68468
11/64*	.1719	4.37	2-7/8	1-13/16	C68469
3/16	.1875	4.76	3	1-7/8	C68470
13/64	.2031	5.16	3-1/8	1-15/16	C68471
7/32	.2188	5.56	3-1/4	2	C68472
15/64	.2344	5.95	3-3/8	2-1/16	C68473
1/4	.2500	6.35	3-1/2	2	C68474
17/64	.2656	6.75	3-5/8	2-1/8	C68475
9/32	.2812	7.14	3-3/4	2-1/4	C68476
19/64	.2969	7.54	3-7/8	2-3/8	C68477
5/16	.3125	7.94	4	2-1/2	C68478
21/64	.3281	8.33	4-1/16	2-9/16	C68479
11/32	.3438	8.73	4-1/8	2-5/8	C68480
23/64	.3594	9.13	4-3/16	2-11/16	C68481
3/8	.3750	9.53	4-1/4	2-11/16	C68482
25/64	.3906	9.92	4-5/16	2-3/4	C68483
13/32	.4062	10.32	4-3/8	2-13/16	C68484
27/64	.4219	10.72	4-7/16	2-7/8	C68485
7/16	.4375	11.11	4-1/2	2-15/16	C68486
29/64	.4531	11.51	4-5/8	3	C68487
15/32	.4688	11.91	4-3/4	3-1/8	C68488
31/64	.4844	12.30	4-7/8	3-1/4	C68489
1/2	.5000	12.70	5	3-3/8	C68490

*No flats on Shank

SET

Style: 1620

Mechanics Length
Heavy Duty

See case style below

NEW



29-Piece
Bit Barrel Set
#C69384

drill sizes	no. of pieces	case	order number 1620 Black & Gold	order number 1620 Black & Gold
1/16" - 1/4" x 1/64"	13	metal	C69029	-
1/16" - 1/2" x 1/64"	29	plastic	C69041	C69384

**Screw Machine Length
Heavy Duty**

General Application Drills



Styles: 1621, 1896

P K

ASME B94.11M DIN 340 HSS Black Oxide 135° Split Straight Shank

Note

Superior rigidity in hand or machine drilling.

Metric sizes shown after inch.



Black Oxide

Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number	
					1621 Black Oxide	1896 Black Oxide
60*	.0400	1.02	1-3/8	1/2	—	C23500
59*	.0410	1.04	1-3/8	1/2	—	C23501
58*	.0420	1.07	1-3/8	1/2	—	C23502
57*	.0430	1.09	1-3/8	1/2	—	C23503
56*	.0465	1.18	1-3/8	1/2	—	C23504
55*	.0520	1.32	1-5/8	5/8	—	C23505
54*	.0550	1.40	1-5/8	5/8	—	C23506
53*	.0595	1.51	1-5/8	5/8	—	C23507
1/16	.0625	1.59	1-5/8	5/8	C68491	C23460
52	.0635	1.61	1-11/16	11/16	—	C23508
51	.0670	1.70	1-11/16	11/16	—	C23509
50	.0700	1.78	1-11/16	11/16	—	C23510
49	.0730	1.85	1-11/16	11/16	—	C23511
48	.0760	1.93	1-11/16	11/16	—	C23512
5/64	.0781	1.98	1-11/16	11/16	C68492	C23461
47	.0785	1.99	1-3/4	3/4	—	C23513
46	.0810	2.06	1-3/4	3/4	—	C23514
45	.0820	2.08	1-3/4	3/4	—	C23515
44	.0860	2.18	1-3/4	3/4	—	C23516
43	.0890	2.26	1-3/4	3/4	—	C23517
42	.0935	2.37	1-3/4	3/4	—	C23518
3/32	.0938	2.38	1-3/4	3/4	C68493	C23462
41	.0960	2.44	1-13/16	13/16	—	C23519
40	.0980	2.49	1-13/16	13/16	—	C23520
39	.0995	2.53	1-13/16	13/16	—	C23521
38	.1015	2.58	1-13/16	13/16	—	C23522
37	.1040	2.64	1-13/16	13/16	—	C23523
36	.1065	2.71	1-13/16	13/16	—	C23524
7/64	.1094	2.78	1-13/16	13/16	C68494	C23463
35	.1100	2.79	1-7/8	7/8	—	C23525
34	.1110	2.82	1-7/8	7/8	—	C23526
33	.1130	2.87	1-7/8	7/8	—	C23527
32	.1160	2.95	1-7/8	7/8	—	C23528
31	.1200	3.05	1-7/8	7/8	—	C23529
1/8	.1250	3.18	1-7/8	7/8	C68495	C23464
30	.1285	3.26	1-15/16	15/16	—	C23530
29	.1360	3.45	1-15/16	15/16	—	C23531
28	.1405	3.57	1-15/16	15/16	—	C23532

*Not split point.

continued on next page



Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number	
					1621 Black Oxide	1896 Black Oxide
9/64	.1406	3.57	1-15/16	15/16	C68496	C23465
27	.1440	3.66	2-1/16	1	—	C23533
26	.1470	3.73	2-1/16	1	—	C23534
25	.1495	3.80	2-1/16	1	—	C23535
24	.1520	3.86	2-1/16	1	—	C23536
23	.1540	3.91	2-1/16	1	—	C23537
5/32	.1562	3.97	2-1/16	1	C68497	C23466
22	.1570	3.99	2-1/8	1-1/16	—	C23538
21	.1590	4.04	2-1/8	1-1/16	—	C23539
20	.1610	4.09	2-1/8	1-1/16	—	C23540
19	.1660	4.22	2-1/8	1-1/16	—	C23541
18	.1695	4.31	2-1/8	1-1/16	—	C23542
11/64	.1719	4.37	2-1/8	1-1/16	C68498	C23467
17	.1730	4.39	2-3/16	1-1/8	—	C23543
16	.1770	4.50	2-3/16	1-1/8	—	C23544
15	.1800	4.57	2-3/16	1-1/8	—	C23545
14	.1820	4.62	2-3/16	1-1/8	—	C23546
13	.1850	4.70	2-3/16	1-1/8	—	C23547
3/16	.1875	4.76	2-3/16	1-1/8	C68499	C23468
12	.1890	4.80	2-1/4	1-3/16	—	C23548
11	.1910	4.85	2-1/4	1-3/16	—	C23549
10	.1935	4.91	2-1/4	1-3/16	—	C23550
9	.1960	4.98	2-1/4	1-3/16	—	C23551
8	.1990	5.05	2-1/4	1-3/16	—	C23552
7	.2010	5.11	2-1/4	1-3/16	—	C23553
13/64	.2031	5.16	2-1/4	1-3/16	C68500	C23469
6	.2040	5.18	2-3/8	1-1/4	—	C23554
5	.2055	5.22	2-3/8	1-1/4	—	C23555
4	.2090	5.31	2-3/8	1-1/4	—	C23556
3	.2130	5.41	2-3/8	1-1/4	—	C23557
7/32	.2188	5.56	2-3/8	1-1/4	C68501	C23470
2	.2210	5.61	2-7/16	1-5/16	—	C23558
1	.2280	5.79	2-7/16	1-5/16	—	C23559
15/64	.2344	5.95	2-7/16	1-5/16	C68502	C23471
1/4	.2500	6.35	2-1/2	1-3/8	C68503	C23472
17/64	.2656	6.75	2-5/8	1-7/16	C68504	C23473
9/32	.2812	7.14	2-11/16	1-1/2	C68505	C23474
19/64	.2969	7.54	2-3/4	1-9/16	C68506	C23475
5/16	.3125	7.94	2-13/16	1-5/8	C68507	C23476
21/64	.3281	8.33	2-15/16	1-11/16	C68508	C23477
11/32	.3438	8.73	3	1-11/16	C68509	C23478
23/64	.3594	9.13	3-1/16	1-3/4	C68510	C23479
3/8	.3750	9.53	3-1/8	1-13/16	C68511	C23480
25/64	.3906	9.92	3-1/4	1-7/8	C68512	C23481
13/32	.4062	10.32	3-5/16	1-15/16	C68513	C23482
27/64	.4219	10.72	3-3/8	2	C68514	C23483
7/16	.4375	11.11	3-7/16	2-1/16	C68515	C23484
29/64	.4531	11.51	3-9/16	2-1/8	C68516	C23485
15/32	.4688	11.91	3-5/8	2-1/8	C68517	C23486
31/64	.4844	12.30	3-11/16	2-3/16	C68518	C23487
1/2	.5000	12.70	3-3/4	2-1/4	C68519	C23488

continued on next page

P K

ASME B94.11M DIN 340 HSS Black Oxide 135° Split Straight Shank

Metric Sizes

drill diameter	decimal equiv.	overall length	flute length	order number 1896 Black Oxide
1.0*	.0394	26	6	C23885
1.25*	.0492	30	8	C23886
1.5*	.0591	32	9	C23887
1.8	.0709	36	11	C24018
2.0	.0787	38	12	C23888
2.2	.0866	40	13	C23889
2.3	.0906	40	13	C23890
2.4	.0945	43	14	C23891
2.5	.0984	43	14	C23892
2.6	.1024	43	14	C23893
2.8	.1102	46	16	C23894
3.0	.1181	46	16	C23895
3.1	.1220	49	18	C23896
3.2	.1260	49	18	C23898
3.3	.1299	49	18	C23899
3.4	.1339	52	20	C23900
3.5	.1378	52	20	C23901
3.6	.1417	52	20	C24036
3.7	.1457	52	20	C23902
3.8	.1496	55	22	C23903
4.0	.1575	55	22	C23904
4.1	.1614	55	22	C23905
4.2	.1654	55	22	C23906
4.3	.1693	58	24	C23907
4.5	.1772	58	24	C23908
4.6	.1811	58	24	C23909
4.7	.1850	58	24	C23910
4.8	.1890	62	26	C23911
4.9	.1929	62	26	C23912
5.0	.1969	62	26	C23913
5.1	.2008	62	26	C23914
5.2	.2047	62	26	C23915
5.3	.2087	62	26	C23916
5.5	.2165	66	28	C23917
5.6	.2205	66	28	C23918
5.7	.2244	66	28	C23919
5.8	.2283	66	28	C24058
6.0	.2362	66	28	C23920
6.1	.2402	70	31	C23921
6.3	.2480	70	31	C23922
6.5	.2559	70	31	C23923
6.6	.2598	70	31	C23924
6.8	.2677	74	34	C23925
6.9	.2717	74	34	C23926
7.0	.2756	74	34	C23927
7.2	.2835	74	34	C23928
7.3	.2874	74	34	C23929
7.5	.2953	74	34	C23930
8.0	.3150	79	37	C23931
8.5	.3346	79	37	C23932

*Not split point.

continued on next page

DRILLS



Style: **1896** (continued)

Metric Sizes

drill diameter	decimal equiv.	overall length	flute length	order number
				1896 Black Oxide
9.0	.3543	84	40	C23933
9.5	.3740	84	40	C23934
10.0	.3937	89	43	C23935
10.2	.4016	89	43	C23936
10.5	.4134	89	43	C23937
11.0	.4331	95	47	C23938
11.5	.4528	95	47	C23939
12.0	.4724	102	51	C23940
12.2	.4803	102	51	C23941
12.5	.4921	102	51	C23942
13.0	.5118	102	51	C23943
13.5	.5315	107	54	C23964
14.0	.5512	107	54	C23965
14.5	.5709	111	56	C23966
15.0	.5906	111	56	C23967
16.0	.6299	115	58	C23969
17.0	.6693	119	60	C23971

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

SET

Style: **1896**

Screw Machine Length
Heavy Duty



60-Piece Set
Black Oxide
#C21947

drill sizes	no. of pieces	order number
		1896 Black Oxide
1/16" - 1/2" x 1/64"	29	C21133
#1 - #60	60	C21947

Tech Tip



Recommended Drill Speeds and Coolants – Non-ferrous Materials

(see page 22 for Recommendations for Ferrous Materials)

		Brinell	Surface Feet per Minute	Coolant
Aluminum	Pure	140-350	130-200	Soluble Oil
	Aluminum Alloys	140-330	150-300	Soluble Oil
	Leaded	40-100	200-325	Soluble Oil
	Silicon Alloy Die Cast	40-100	25-50	Soluble Oil
Brass		190-210	200-250	Cutting or Soluble Oil
Bronze		150-200	200-250	Soluble Oil
Copper, Nickel & Copper Tin Alloy		65-100	140-200	Cutting or Soluble Oil
Copper Aluminum Alloys		30-100	120-200	Cutting or Soluble Oil
Magnesium Alloys	Wrought	50-90	140-330	Cutting or Soluble Oil
	Cast	50-90	140-365	Cutting or Soluble Oil
Nickel Alloys- Wrought and Cast		80-170	70	Cutting or Soluble Oil
	Monel	115-240	55	Cutting or Soluble Oil
Beryllium Nickel		200-250	12	Soluble Oil
Zinc Alloy		112-126	200-250	Soluble Oil

Extended Length
Aircraft Extension 6" and 12"

General Application Drills



Styles: 1630, 1631, 1803, 1805



P

Note
Superior rigidity in hand or machine drilling.



6" OAL Black Oxide



12" OAL Black Oxide

order number

drill diameter	decimal equiv.	metric equiv.	flute length	1630		1631		1803		1805	
				6" Overall	12" Overall	6" Overall	12" Overall	6" Overall	12" Overall	6" Overall	12" Overall
				Black Oxide				Black Oxide			
1/16	.0625	1.59	7/8	C68867	C68936	C23621	C23721				
5/64	.0781	1.98	1	C68868	C68937	C23622	C23722				
3/32	.0938	2.38	1-1/4	C68869	C68938	C23623	C23723				
40	.0980	2.49	1-3/8	C68935	C69004	C23700	C23800				
39	.0995	2.53	1-3/8	C68934	C69003	C23699	C23799				
38	.1015	2.58	1-7/16	C68933	C69002	C23698	—				
37	.1040	2.64	1-7/16	C68932	C69001	C23697	—				
36	.1065	2.71	1-7/16	C68931	C69000	C23696	—				
7/64	.1094	2.78	1-1/2	C68870	C68939	C23624	C23724				
35	.1100	2.79	1-1/2	C68930	C68999	C23695	—				
34	.1110	2.82	1-1/2	C68929	C68998	C23694	—				
33	.1130	2.87	1-1/2	C68928	C68997	C23693	—				
32	.1160	2.95	1-5/8	C68927	C68996	C23692	—				
31	.1200	3.05	1-5/8	C68926	C68995	C23691	C23791				
1/8	.1250	3.18	1-5/8	C68871	C68940	C23625	C23725				
30	.1285	3.26	1-5/8	C68925	C68994	C23690	C23790				
29	.1360	3.45	1-3/4	C68924	C68993	C23689	C23789				
28	.1405	3.57	1-3/4	C68923	C68992	C23688	—				
9/64	.1406	3.57	1-3/4	C68872	C68941	C23626	C23726				
27	.1440	3.66	1-7/8	C68922	C68991	C23687	—				
26	.1470	3.73	1-7/8	C68921	C68990	C23686	—				
25	.1495	3.80	1-7/8	C68920	C68989	C23685	C23785				
24	.1520	3.86	2	C68919	C68988	C23684	—				
23	.1540	3.91	2	C68918	C68987	C23683	—				
5/32	.1562	3.97	2	C68873	C68942	C23627	C23727				
22	.1570	3.99	2	C68917	C68986	C23682	—				
21	.1590	4.04	2-1/8	C68916	C68985	C23681	C23781				
20	.1610	4.09	2-1/8	C68915	C68984	C23680	C23780				
19	.1660	4.22	2-1/8	C68914	C68983	C23679	C23779				
18	.1695	4.31	2-1/8	C68913	C68982	C23678	—				
11/64	.1719	4.37	2-1/8	C68874	C68943	C23628	C23728				
17	.1730	4.39	2-3/16	C68912	C68981	C23677	—				
16	.1770	4.50	2-3/16	C68911	C68980	C23676	C23776				
15	.1800	4.57	2-3/16	C68910	C68979	C23675	—				
14	.1820	4.62	2-3-16	C68909	C68978	C23674	—				
13	.1850	4.70	2-5/16	C68908	C68977	C23673	C23773				

continued on next page



DRILLS

drill diameter	decimal equiv.	metric equiv.	flute length	order number			
				1630		1803	
				6" Overall	12" Overall	6" Overall	12" Overall
				Black Oxide		Black Oxide	
3/16	.1875	4.76	2-5/16	C68875	C68944	C23629	C23729
12	.1890	4.80	2-5/16	C68907	C68976	C23672	C23772
11	.1910	4.85	2-5/6	C68906	C68975	C23671	C23771
10	.1935	4.91	2-7/16	C68905	C68974	C23670	C23770
9	.1960	4.98	2-7/16	C68904	C68973	C23669	C23769
8	.1990	5.05	2-7/16	C68903	C68972	C23668	C23768
7	.2010	5.11	2-7/16	C68902	C68971	C23667	C23767
13/64	.2031	5.16	2-7/16	C68876	C68945	C23630	C23730
6	.2040	5.18	2-1/2	C68901	C68970	C23666	C23766
5	.2055	5.22	2-1/2	C68900	C68969	C23665	C23765
4	.2090	5.31	2-1/2	C68899	C68968	C23664	C23764
3	.2130	5.41	2-1/2	C68898	C68967	C23663	C23763
7/32	.2188	5.56	2-1/2	C68877	C68946	C23631	C23731
2	.2210	5.61	2-5/8	C68897	C68966	C23662	C23762
1	.2280	5.79	2-5/8	C68896	C68965	C23661	C23761
15/64	.2344	5.95	2-5/8	C68878	C68947	C23632	C23732
1/4, E	.2500	6.35	2-3/4	C68879	C68948	C23633	C23733
17/64	.2656	6.75	2-5/8	C68880	C68949	C23634	C23734
9/32	.2812	7.14	3-1/16	C68881	C68950	C23635	C23735
19/64	.2969	7.54	3-1/16	C68882	C68951	C23636	C23736
5/16	.3125	7.94	3-3/16	C68883	C68952	C23637	C23737
21/64	.3281	8.33	3-7/16	C68884	C68953	C23638	C23738
11/32	.3438	8.73	3-7/16	C68885	C68954	C23639	C23739
23/64	.3594	9.13	3-1/2	C68886	C68955	C23640	C23740
3/8	.3750	9.53	3-5/8	C68887	C68956	C23641	C23741
25/64	.3906	9.92	3-3/4	C68888	C68957	C23642	C23742
13/32	.4062	10.32	3-3/4	C68889	C68958	C23643	C23743
27/64	.4219	10.72	3-15/16	C68890	C68959	C23644	C23744
7/16	.4375	11.11	4-1/16	C68891	C68960	C23645	C23745
29/64	.4531	11.51	4-3/16	C68892	C68961	—	C23746
15/32	.4688	11.91	4-5/6	C68893	C68962	—	—
31/64	.4844	12.30	4-3/8	C68894	C68963	—	—
1/2	.5000	12.70	4-1/2	C68895	C68964	C23649	C23749



Tech Tip

Drill Feeds

Diameter Range (in)	Normal Feeds (IPR)	Heavy Feeds (IPR)
1/16 thru 1/8	.001-.002	.002-.004
over 1/8 thru 1/4	.002-.004	.004-.008
over 1/4 thru 1/2	.004-.008	.008-.016
over 1/2 thru 1	.008-.016	.016-.024
over 1	.016-.024	.024-.032

Extra Length
Extended 9", 12", 14" and 18"

General Application Drills



Styles: 1806, 1807

P K



12" OAL Black Oxide



18" OAL Black Oxide

order number

drill diameter	decimal equiv.	metric equiv.	order number	
			1806 9" Flute Length 12" Overall Length Black Oxide	1807 14" Flute Length 18" Overall Length Black Oxide
1/8	.1250	3.18	C20436	—
5/32	.1562	3.97	C20438	—
3/16	.1875	4.76	C20440	—
7/32	.2188	5.56	C20442	—
1/4	.2500	6.35	C20444	C20481
9/32	.2812	7.14	C20446	C20483
5/16	.3125	7.94	C20448	C20485
11/32	.3438	8.73	C20450	C20487
3/8	.3750	9.53	C20452	C20489
13/32	.4062	10.32	C20454	C20491
7/16	.4375	11.11	C20456	C20493
15/32	.4688	11.91	C20458	C20495
1/2	.5000	12.70	C20460	C20497
17/32	.5313	13.50	C20462	—
9/16	.5625	14.29	C20464	—
19/32	.5938	15.08	C20466	—
5/8	.6250	15.88	C20468	—
21/32	.6563	16.67	C20470	—
11/16	.6875	17.46	C20472	—





Black Oxide

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	morse taper number	order number	
						1682 Black Oxide	1894 Black Oxide
1/8	.1250	3.18	5-1/8	1-7/8	1	—	C20049
9/64	.1406	3.57	5-1/8	1-7/8	1	—	C20050
5/32	.1562	3.97	5-3/8	2-1/8	1	—	C20051
11/64	.1719	4.37	5-3/4	2-1/2	1	—	C20052
3/16	.1875	4.76	5-3/4	2-1/2	1	—	C20053
13/64	.2031	5.16	6	2-3/4	1	—	C20054
7/32	.2188	5.56	6	2-3/4	1	—	C20055
15/64	.2344	5.95	6-1/8	2-7/8	1	—	C20056
1/4	.2500	6.35	6-1/8	2-7/8	1	—	C20057
17/64	.2656	6.75	6-1/4	3	1	—	C20058
9/32	.2812	7.14	6-1/4	3	1	—	C20059
19/64	.2969	7.54	6-3/8	3-1/8	1	—	C20060
5/16	.3125	7.94	6-3/8	3-1/8	1	C68779	C20061
21/64	.3281	8.33	6-1/2	3-1/4	1	C68780	C20062
11/32	.3438	8.73	6-1/2	3-1/4	1	C68781	C20063
23/64	.3594	9.13	6-3/4	3-1/2	1	C68782	C20064
3/8	.3750	9.53	6-3/4	3-1/2	1	C68794	C20524
3/8	.3750	9.53	7-3/8	3-1/2	2	C68738	C20020
25/64	.3906	9.92	7	3-5/8	1	C68795	C20525
25/64	.3906	9.92	7	3-5/8	2	C68739	—
13/32	.4062	10.32	7	3-5/8	1	C68796	C20526
13/32	.4063	10.32	7-1/2	3-5/8	2	C68740	C20022
27/64	.4219	10.72	7-1/4	3-7/8	1	C68797	C20527
27/64	.4219	10.72	7-3/4	3-7/8	2	C68741	—
7/16	.4375	11.11	7-1/4	3-7/8	1	C68798	C20528
7/16	.4375	11.11	7-3/4	3-7/8	2	C68742	C20024
29/64	.4531	11.51	7-1/2	4-1/8	1	C68799	C20529
29/64	.4531	11.51	8	4-1/8	2	C68743	—
15/32	.4688	11.91	7-1/2	4-1/8	1	C68800	C20530
31/64	.4844	12.30	8-1/4	4-3/8	2	C68801	—
1/2	.5000	12.70	7-3/4	4-3/8	1	C68744	C20026
1/2	.5000	12.70	8-1/4	4-3/8	2	C68802	—
33/64	.5156	13.10	8-1/2	4-5/8	2	C68803	—
17/32	.5312	13.49	8	4-5/8	1	C68745	—
17/32	.5312	13.49	8-1/2	4-5/8	2	C68804	—
35/64	.5469	13.89	8-3/4	4-7/8	2	C68805	C20535
9/16	.5625	14.29	8-3/4	4-7/8	2	C68806	—
37/64	.5781	14.68	8-3/4	4-7/8	2	C68807	—
19/32	.5938	15.08	8-3/4	4-7/8	2	C68808	—
39/64	.6094	15.48	8-3/4	4-7/8	2	C68809	—
5/8	.6250	15.88	8-3/4	4-7/8	2	C68810	C20540

continued on next page

Taper Shank
General Purpose

General Application Drills



Styles: **1682, 1894** (continued)

DRILLS

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	morse taper number	order number	
						1682 Black Oxide	1894 Black Oxide
41/64	.6406	16.27	9	5-1/8	2	C68811	—
21/32	.6562	16.67	9	5-1/8	2	C68812	—
21/32	.6562	16.67	9-3/4	5-1/8	3	C68746	—
43/64	.6719	17.07	9-1/4	5-3/8	2	C68813	C20543
11/16	.6875	17.46	9-1/4	5-3/8	2	C68814	—
11/16	.6875	17.46	10	5-3/8	3	C68747	C20029
45/64	.7031	17.86	9-1/2	5-5/8	2	C68815	C20545
23/32	.7188	18.26	9-1/2	5-5/8	2	C68816	—
47/64	.7344	18.65	9-3/4	5-7/8	2	C68817	—
3/4	.7500	19.05	9-3/4	5-7/8	2	C68818	—
3/4	.7500	19.05	10-1/2	5-7/8	3	C68748	C20030
49/64	.7656	19.45	9-7/8	6	2	C68819	C20549
49/64	.7656	19.45	10-5/8	6	3	C68749	—
25/32	.7812	19.84	9-7/8	6	2	C68820	C20550
25/32	.7812	19.84	10-5/8	6	3	C68750	—
51/64	.7969	20.24	10-3/4	6-1/8	3	C68821	C20551
13/16	.8125	20.64	10	6-1/8	2	C68751	—
13/16	.8125	20.64	10-3/4	6-1/8	3	C68822	C20552
53/64	.8281	21.03	10-3/4	6-1/8	3	C68823	C20553
27/32	.8438	21.43	10	6-1/8	2	C68752	—
27/32	.8438	21.43	10-3/4	6-1/8	3	C68824	C20554
55/64	.8594	21.83	10-3/4	6-1/8	3	C68825	C20555
7/8	.8750	22.23	10	6-1/8	2	C68753	C20035
7/8	.8750	22.23	10-3/4	6-1/8	3	C68826	C20556
57/64	.8906	22.62	10-3/4	6-1/8	3	C68827	C20557
29/32	.9062	23.02	10-3/4	6-1/8	3	C68828	C20558
59/64	.9219	23.42	10-3/4	6-1/8	3	C68829	C20559
15/16	.9375	23.81	10-3/4	6-1/8	3	C68830	C20560
61/64	.9531	24.21	11	6-3/8	3	C68831	C20561
31/32	.9688	24.61	11	6-3/8	3	C68832	C20562
63/64	.9844	25.00	11	6-3/8	3	C68833	C20563
1	1.0000	25.40	11	6-3/8	3	C68834	C20564
1	1.0000	25.40	12	6-3/8	4	C68754	—
1-1/64	1.0156	25.80	11-1/8	6-1/2	3	C68835	C20565
1-1/32	1.0312	26.19	11-1/8	6-1/2	3	C68836	C20566
1-3/64	1.0469	26.59	11-1/4	6-5/8	3	C68837	C20567
1-1/16	1.0625	26.99	11-1/4	6-5/8	3	C68838	C20568
1-1/16	1.0625	26.99	12-1/4	6-5/8	4	C68755	—
1-5/64	1.0781	27.38	12-1/2	6-7/8	4	C68839	C20569
1-3/32	1.0938	27.78	11-1/2	6-7/8	3	C68756	—
1-3/32	1.0938	27.78	12-1/2	6-7/8	4	C68840	C20570
1-7/64	1.1094	28.18	11-3/4	7-1/8	3	C68757	—
1-7/64	1.1094	28.18	12-3/4	7-1/8	4	C68841	C20571
1-1/8	1.1250	28.58	11-3/4	7-1/8	3	C68758	C20040
1-1/8	1.1250	28.58	12-3/4	7-1/8	4	C68842	C20572
1-9/64	1.1406	28.97	12-7/8	7-1/4	4	C68843	C20573
1-5/32	1.1562	29.37	11-7/8	7-1/4	3	C68759	—
1-5/32	1.1562	29.37	12-7/8	7-1/4	4	C68844	C20574
1-11/64	1.1719	29.77	13	7-3/8	4	C68845	C20575
1-3/16	1.1875	30.16	12	7-3/8	3	C68760	—
1-3/16	1.1875	30.16	13	7-3/8	4	C68846	C20576

continued on next page



drill diameter	decimal equiv.	metric equiv.	overall length	flute length	morse taper number	order number	
						1682 Black Oxide	1894 Black Oxide
1-13/64	1.2031	30.56	13-1/8	7-1/2	4	C68847	C20577
1-7/32	1.2188	30.96	13-1/8	7-1/2	4	C68848	C20578
1-15/64	1.2344	31.35	13-1/2	7-7/8	4	C68849	C20579
1-1/4	1.2500	31.75	12-1/2	7-7/8	3	C68761	C20043
1-1/4	1.2500	31.75	13-1/2	7-7/8	4	C68850	C20580
1-17/64	1.2656	32.15	14-1/8	8-1/2	4	C68851	C20581
1-9/32	1.2812	32.54	14-1/8	8-1/2	4	C68852	C20582
1-19/64	1.2969	32.94	14-1/4	8-5/8	4	C68853	C20583
1-5/16	1.3125	33.34	14-1/4	8-5/8	4	C68854	C20584
1-21/64	1.3281	33.73	14-3/8	8-3/4	4	C68855	C20585
1-11/32	1.3438	34.13	14-3/8	8-3/4	4	C68856	C20586
1-23/64	1.3594	34.53	14-1/2	8-7/8	4	C68857	C20587
1-3/8	1.3750	34.93	14-1/2	8-7/8	4	C68858	C20588
1-25/64	1.3906	35.32	14-5/8	9	4	C68859	C20589
1-13/32	1.4062	35.72	14-5/8	9	4	C68860	C20590
1-27/64	1.4219	36.12	14-3/4	9-1/8	4	C68861	C20591
1-7/16	1.4375	36.51	14-3/4	9-1/8	4	C68862	C20592
1-29/64	1.4531	36.91	14-7/8	9-1/4	4	C68863	—
1-15/32	1.4688	37.31	14-7/8	9-1/4	4	C68864	—
1-31/64	1.4844	37.70	15	9-3/8	4	C68865	—
1-1/2	1.5000	38.10	15	9-3/8	4	C68866	C20596
1-17/32	1.5312	38.89	15	9-3/8	4	C68762	—
1-17/32	1.5312	38.89	16-3/8	9-3/8	5	C68783	—
1-9/16	1.5625	39.69	16-5/8	9-5/8	5	C68784	C20068
1-19/32	1.5938	40.48	16-7/8	9-7/8	5	C68785	—
1-5/8	1.6250	41.28	15-5/8	10	4	C68763	C20045
1-5/8	1.6250	41.28	17	10	5	C68786	C20072
1-21/32	1.6562	42.07	17-1/8	10-1/8	5	C68787	—
1-11/16	1.6875	42.86	17-1/8	10-1/8	5	C68788	—
1-23/32	1.7188	43.66	17-1/8	10-1/8	5	C68764	—
1-3/4	1.7500	44.45	16-1/4	10-3/8	4	C68765	—
1-3/4	1.7500	44.45	17-1/8	10-3/8	5	C68789	—
1-13/16	1.8125	46.04	17-1/8	10-1/8	5	C68790	—
1-7/8	1.8750	47.63	17-3/8	10-3/8	5	C68791	—
1-15/16	1.9375	49.21	17-3/8	10-3/8	5	C68792	—
2	2.0000	50.80	16-5/8	10-5/8	4	C68766	—
2	2.0000	50.80	17-3/8	10-3/8	5	C68793	—

DRILLS

TAPS & DIES

SAWS

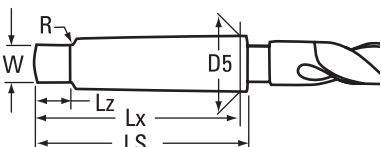
CARBIDE BURS

INDEX



Tech Tip

Morse Taper Shank Specifications



morse taper shank no.	taper per foot	taper per inch	D5 max shank diameter	LS length of shank	Lx shank length 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	1.749	6.12	5.87	.75	.62	.37
6	.6256	.0521	2.494	8.56	8.25	1.12	.75	.50

**Reduced Shank
Silver & Deming**

General Application Drills



Styles: 1680, 1681, 1813, 1892, 1877

P K



Note

*Metric sizes made to order
(minimum order quantities apply).
1/2" reduced shank.
Metric sizes shown after inch.



Style #1680 / 1813 black oxide with round shank



Style #1877 black & gold split point with flatted shank



Style #1681 / 1892 black oxide with flatted shank

Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number				
					1680 Round Shank Black Oxide	1681 (3)Flatted Shank Black Oxide	1813 Round Shank Black Oxide	1892 (3)Flatted Shank Black Oxide	1877 (3)Flatted Shank Black & Gold
1/2	.5000	12.70	6	3-1/8	C68631	C68674	C20732	C20670	—
33/64	.5156	13.10	6	3-1/8	C68632	C68675	C20733	C20671	C17031
17/32	.5312	13.49	6	3-1/8	C68633	C68676	C20734	C20672	C17032
35/64	.5469	13.89	6	3-1/8	C68634	C68677	C20735	C20673	C17033
9/16	.5625	14.29	6	3-1/8	C68635	C68678	C20736	C20674	C17034
37/64	.5781	14.68	6	3-1/8	C68636	C68679	C20737	C20675	C17035
19/32	.5938	15.08	6	3-1/8	C68637	C68680	C20738	C20676	C17036
39/64	.6094	15.48	6	3-1/8	C68638	C68681	C20739	C20677	C17037
5/8	.6250	15.88	6	3-1/8	C68639	C68682	C20740	C20678	C17038
41/64	.6406	16.27	6	3-1/8	C68640	C68683	C20741	C20679	C17039
21/32	.6562	16.67	6	3-1/8	C68641	C68684	C20742	C20680	C17040
43/64	.6719	17.07	6	3-1/8	C68642	C68685	C20743	C20681	C17041
11/16	.6875	17.46	6	3-1/8	C68643	C68686	C20744	C20682	C17042
45/64	.7031	17.86	6	3-1/8	C68644	C68687	C20745	C20683	C17043
23/32	.7188	18.26	6	3-1/8	C68645	C68688	C20746	C20684	C17044
47/64	.7344	18.65	6	3-1/8	C68646	C68689	C20747	C20685	C17045
3/4	.7500	19.05	6	3-1/8	C68647	C68690	C20748	C20686	C17046
49/64	.7656	19.45	6	3-1/8	C68648	C68691	C20749	C20687	C17047
25/32	.7812	19.84	6	3-1/8	C68649	C68692	C20750	C20688	C17048
51/64	.7969	20.24	6	3-1/8	C68650	C68693	C20669	—	C17049
13/16	.8125	20.64	6	3-1/8	C68651	C68694	C20751	C20689	C17050
53/64	.8281	21.03	6	3-1/8	C68652	C68695	C20724	—	C17051
27/32	.8438	21.43	6	3-1/8	C68653	C68696	C20752	C20690	C17052
55/64	.8594	21.83	6	3-1/8	C68654	C68697	C20725	—	C17053
7/8	.8750	22.23	6	3-1/8	C68655	C68698	C20753	C20691	C17054
57/64	.8906	22.62	6	3-1/8	C68656	C68699	C20726	—	C17055
29/32	.9062	23.02	6	3-1/8	C68657	C68700	C20754	C20692	C17056
59/64	.9219	23.42	6	3-1/8	C68658	C68701	C20727	—	C17057
15/16	.9375	23.81	6	3-1/8	C68659	C68702	C20755	C20693	C17058
61/64	.9531	24.21	6	3-1/8	C68660	C68703	C20728	—	C17059

continued on next page



Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number				
					1680 Round Shank Black Oxide	1681 (3)Flatted Shank Black Oxide	1813 Round Shank Black Oxide	1892 (3)Flatted Shank Black Oxide	1877 (3)Flatted Shank Black & Gold
31/32	.9688	24.61	6	3-1/8	C68661	C68704	C20756	C20694	C17060
63/64	.9844	25.00	6	3-1/8	C68662	C68705	C20729	—	C17061
1	1.0000	25.40	6	3-1/8	C68663	C68706	C20757	C20695	C17062
1-1/64	1.0156	25.80	6	3-1/8	—	C68707	—	—	—
1-1/32	1.0312	26.19	6	3-1/8	C68664	C68708	C20730	—	—
1-3/64	1.0469	26.59	6	3-1/8	—	C68709	—	—	—
1-1/16	1.0625	26.99	6	3-1/8	C68665	C68710	C20758	C20696	C17066
1-5/64	1.0781	27.38	6	3-1/8	—	C68711	—	—	—
1-3/32	1.0938	27.78	6	3-1/8	—	C68712	—	—	—
1-7/64	1.1094	28.18	6	3-1/8	—	C68713	—	—	—
1-1/8	1.1250	28.58	6	3-1/8	C68666	C68714	C20759	C20697	C17070
1-9/64	1.1406	28.97	6	3-1/8	—	C68715	—	—	—
1-5/32	1.1562	29.37	6	3-1/8	C68667	C68716	C20731	—	—
1-11/64	1.1719	29.77	6	3-1/8	—	C68717	—	—	—
1-3/16	1.1875	30.16	6	3-1/8	C68668	C68718	C20760	C20698	C17074
1-13/64	1.2031	30.56	6	3-1/8	—	C68719	—	—	—
1-7/32	1.2188	30.96	6	3-1/8	—	C68720	—	—	—
1-15/64	1.2344	31.35	6	3-1/8	—	C68721	—	—	—
1-1/4	1.2500	31.75	6	3-1/8	C68669	C68722	C20761	C20699	C17078
1-17/64	1.2656	32.15	6	3-1/8	—	C68723	—	—	—
1-9/32	1.2812	32.54	6	3-1/8	—	C68724	—	—	—
1-19/64	1.2969	32.94	6	3-1/8	—	C68725	—	—	—
1-5/16	1.3125	33.34	6	3-1/8	C68670	C68726	C20762	—	C17082
1-21/64	1.3281	33.73	6	3-1/8	—	C68727	—	—	—
1-11/32	1.3438	34.13	6	3-1/8	—	C68728	—	—	—
1-23/64	1.3594	34.53	6	3-1/8	—	C68729	—	—	—
1-3/8	1.3750	34.93	6	3-1/8	C68671	C68730	C20763	—	C17086
1-25/64	1.3906	35.32	6	3-1/8	—	C68731	—	—	—
1-13/32	1.4062	35.72	6	3-1/8	—	C68732	—	—	—
1-27/64	1.4219	36.12	6	3-1/8	—	C68733	—	—	—
1-7/16	1.4375	36.51	6	3-1/8	C68672	C68734	C20764	—	C17090
1-29/64	1.4531	36.91	6	3-1/8	—	C68735	—	—	—
1-31/64	1.4844	37.70	6	3-1/8	—	C68736	—	—	—
1-1/2	1.5000	38.10	6	3-1/8	C68673	C68737	C20765	—	C17094

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

**Reduced Shank
Silver & Deming**

Styles: 1813, 1877M (continued)

P K



Note

*Metric sizes made to order
(minimum order quantities apply).
1/2" reduced shank.

Metric Sizes*

drill diameter	decimal equiv.	overall length	flute length	order number	
				1813 Round Shank Black Oxide	1877M (3) Flatted Shank Black Oxide
13.0	.5118	152	79	C21070	C21170
13.5	.5315	152	79	C21071	C21171
14.0	.5512	152	79	C21072	C21172
14.5	.5709	152	79	C21073	C21173
15.0	.5906	152	79	C21074	C21174
15.5	.6102	152	79	C21075	C21175
16.0	.6299	152	79	C21076	C21176
16.5	.6496	152	79	C21077	C21177
17.0	.6693	152	79	C21078	C21178
17.5	.6890	152	79	C21079	C21179
18.0	.7087	152	79	C21080	C21180
18.5	.7283	152	79	C21081	C21181
19.0	.7480	152	79	C21082	C21182
19.5	.7677	152	79	C21083	C21183
20.0	.7874	152	79	C21084	C21184
21.0	.8268	152	79	C21085	C21185
22.0	.8661	152	79	C21086	C21186
23.0	.9055	152	79	C21087	C21187
24.0	.9449	152	79	C21088	C21188
25.0	.9843	152	79	C21089	C21189

**Reduced Shank
Silver & Deming**

SET

Styles: 1680, 1681, 1813, 1892, 1877

Metal Case

sizes	no. of pieces	order number				
		1680 Round Shank	1681 (3) Flatted Shank	1813 Round Shank	1892 (3) Flatted Shank	1877 (3) Flatted Shank
9/16" – 1" x 1/16"	8	C69039	C69040	C21135	C22761	C21164
1/2" – 1" x 1/64"	33	—	—	C21134	—	—

33-Piece Set
Round Shank
#C21134



8-Piece Set
Flatted Shank
#C21164



DRILLS

Style: **1818**

Updated

Note

- Carbide tip.
- Sandblasted finish.
- Straight shank.
- Saves more than 20% battery life on cordless drills.

Parts may vary slightly.
This style was updated;
previous style will be shipped
until inventory is depleted.



cutting diameter			shank diameter	length of cut	overall length	order number
fractional	decimal	metric				
1/8	.1250	3.18	3/32"	1-9/16	3	C20930
3/16	.1875	4.76	5/32"	2-3/8	4	C20932
3/16	.1875	4.76	5/32"	4-5/16	6	C20910
1/4	.2500	6.35	7/32"	2-3/8	4	C20934
1/4	.2500	6.35	7/32"	4-5/16	6	C20935
1/4	.2500	6.35	3/16"	10-7/16	12	C20911
5/16	.3125	7.94	15/64"	2-3/8	4	C20937
5/16	.3125	7.94	15/64"	4-5/16	6	C20938
5/16	.3125	7.94	15/64"	10-7/16	12	C20912
3/8	.3750	9.53	5/16"	2-3/8	4	C20939
3/8	.3750	9.53	5/16"	4-5/16	6	C20940
3/8	.3750	9.53	5/16"	10-7/16	12	C20913
1/2	.5000	12.70	3/8"	4-5/16	6	C20944
1/2	.5000	12.70	3/8"	10-7/16	12	C20914
5/8	.6250	15.88	1/2"	4-5/16	6	C20946
5/8	.6250	15.88	1/2"	10-7/16	12	C20925
3/4	.7500	19.05	1/2"	4-3/4	6-1/4	C20948
3/4	.7500	19.05	1/2"	10-7/16	12	C20926
7/8	.8750	22.23	1/2"	10-7/16	12	C20927
1	1.0000	25.40	1/2"	4-3/4	6-1/4	C20950
1	1.0000	25.40	1/2"	10-7/16	12	C20928

SET

Style: **1818**

Plastic Case

**Masonry
Carbide Tipped**

Updated

Parts may vary slightly.
This style was updated;
previous style will be shipped
until inventory is depleted.

drill sizes	no. of pieces	order number
1/8, 5/32, 3/16, 1/4, 5/16	5	C20929

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

**Masonry
Carbide Tipped**

Style: **1889**

Note

Carbide tip.

Fast spiral for quick chip ejection.

Sandblasted finish.

Straight shank.

Unique head design provides fast drilling.

Updated

Parts may vary slightly.
This style was updated;
previous style will be shipped
until inventory is depleted.



cutting diameter			shank diameter	length of cut	overall length	order number
fractional	decimal	metric				
1/8	.1250	3.18	3/32"	1-9/16"	3	C23286
3/16	.1875	4.76	5/32"	2-3/4	4	C23270
1/4	.2500	6.35	7/32"	2-3/8	4	C23287
1/4	.2500	6.35	7/32"	4-5/16	6	C23271
1/4	.2500	6.35	7/32"	10-7/16"	12	C23272
5/16	.3125	7.94	15/64"	2-3/8	4	C23288
5/16	.3125	7.94	15/64"	4-5/16	6	C23273
5/16	.3125	7.94	15/64"	10-7/16"	12	C23274
3/8	.3750	9.53	5/16"	2-3/8	4	C23289
3/8	.3750	9.53	5/16"	4-5/16	6	C23275
3/8	.3750	9.53	5/16"	10-7/16"	12	C23276
1/2	.5000	12.70	3/8"	2-3/8	4	C23278
1/2	.5000	12.70	3/8"	4-5/16	6	C23280
1/2	.5000	12.70	3/8"	10-7/16"	12	C23281
5/8	.6250	15.88	1/2"	4-5/16	6	C23282
3/4	.7500	19.05	1/2"	4-3/4	6	C23283

**Masonry
Carbide Tipped**

SET

Style: **1889**

Plastic Case

drill sizes	no. of pieces	overall length	order number
			1889 Bright
1/4", 5/16", 3/8", 1/2"	4	4	C23290

Updated

Parts may vary slightly.
This style was updated;
previous style will be shipped
until inventory is depleted.

Other Drills / Accessories

Style: **1841** Tapcon

Masonry
Carbide Tipped

Updated

Note

Carbide tip.
Sandblasted finish.
Straight shank.
Saves more than 20% battery life on cordless drills.

Parts may vary slightly.
This style was updated;
previous style will be shipped until inventory is depleted.



cutting diameter			shank diameter	length of cut	overall length	order number
fractional	decimal	metric				
5/32	.1562	3.97	5/32"	3-3/32"	4-1/2	1841 C19010
5/32	.1562	3.97	5/32"	3-15/16"	5-1/2	C19012
3/16	.1875	4.76	5/32"	2-29/32"	4-1/2	C19011
3/16	.1875	4.76	5/32"	3-15/16"	5-1/2	C19013

DRILLS

TAPS & DIES

Style: **1888**

Masonry
Extended Length

Note

Only available until inventory is depleted.



drill diameter	minimum actual diameter	metric equiv.	shank diameter	order number	
				9-3/4" usable length 12" OAL	15-3/4" usable length 18" OAL
1/4	.260	6.60	1/4	C20970	C20960
5/16	.328	8.33	1/4	C20971	C20961
3/8	.390	9.91	1/4	C20972	C20962
1/2	.525	13.34	3/8	C20973	C20963
5/8	.650	16.51	1/2	C20974	C20964
3/4	.775	19.69	1/2	C20975	C20965
7/8	.905	22.99	1/2	C20976	—
1	1.030	26.16	1/2	C20977	C20966

SAWS

CARBIDE BURS

INDEX

Masonry
SDS® Carbide Tipped

Style: **1821** SDS® - plus 2 Cutting Premium

Updated

Parts may vary slightly.
This style was updated;
previous style will be shipped
until inventory is depleted.

Note
Carbide, concrete breaking, tip.
Self-centering point.
160° tip angle.
Compatible SDS-Plus shank.
Square flute.
Self-centering tip provides accuracy
and continuous precision.
Chiseling effect designed to break
through concrete.



cutting diameter			shank diameter	length of cut	overall length	order number
fractional	decimal	metric				
3/16	.1875	4.76	SDS + shank 3/8"	2	4	C21032
3/16	.1875	4.76	SDS + shank 3/8"	4	6	C20712
3/16	.1875	4.76	SDS + shank 3/8"	6	8	C21033
3/16	.1875	4.76	SDS + shank 3/8"	10	12	C21020
1/4	.2500	6.35	SDS + shank 3/8"	2	4	C21034
1/4	.2500	6.35	SDS + shank 3/8"	4	6	C20713
1/4	.2500	6.35	SDS + shank 3/8"	6	8	C21035
1/4	.2500	6.35	SDS + shank 3/8"	10	12	C21021
5/16	.3125	7.94	SDS + shank 3/8"	4	6	C21036
5/16	.3125	7.94	SDS + shank 3/8"	10	12	C21022
3/8	.3750	9.53	SDS + shank 3/8"	4	6	C20714
3/8	.3750	9.53	SDS + shank 3/8"	6	8	C21039
3/8	.3750	9.53	SDS + shank 3/8"	10	12	C21040
3/8	.3750	9.53	SDS + shank 3/8"	16	18	C21023
1/2	.5000	12.70	SDS + shank 3/8"	4	6	C20715
1/2	.5000	12.70	SDS + shank 3/8"	6	8	C21042
1/2	.5000	12.70	SDS + shank 3/8"	10	12	C21043
1/2	.5000	12.70	SDS + shank 3/8"	16	18	C21024
5/8	.6250	15.88	SDS + shank 3/8"	6	8	C21025
5/8	.6250	15.88	SDS + shank 3/8"	8	10	C20716
5/8	.6250	15.88	SDS + shank 3/8"	10	12	C21046
5/8	.6250	15.88	SDS + shank 3/8"	16	18	C21026
3/4	.7500	19.05	SDS + shank 3/8"	6	8	C20717
3/4	.7500	19.05	SDS + shank 3/8"	10	12	C21048
3/4	.6250	15.88	SDS + shank 3/8"	16	18	C21027
7/8	.8750	22.23	SDS + shank 3/8"	8	10	C21028
1	1.0000	25.40	SDS + shank 3/8"	10	12	C21029
1	1.0000	25.40	SDS + shank 3/8"	16	18	C21030

Masonry
Glass & Tile

Style: **1822**

Plastic Case

Updated

Parts may vary slightly.
This style was updated;
previous style will be shipped
until inventory is depleted.

Note
New harder carbide grade.
4-sided 'diamond-style' design with
aggressive cutting edges.
Copper paste brazing.
Fast spiral with tightened pitch.
Improved drill length.
Aggressive tip improves accuracy
and continuous precision.
Drills through tiles up to Class 3.
Better resistance to high
temperature when drilling.
Ideal for deep materials.



cutting diameter			overall length	order number
fractional	decimal	metric		
1/8	.1250	3.18	3"	C20718
3/16	.1875	4.76	3"	C20719
1/4	.2500	6.35	4"	C20720
5/16	.3125	7.94	4"	C20721
3/8	.3750	9.53	4"	C20722
1/2	.5000	12.70	4"	C20723



Style: 1833 - SDS® - plus 3 Cutting Premium

Masonry
SDS® - Drill ReBar

NEW

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

Note

- Carbide tip.
- Self-centering point.
- 135° tip angle.
- Three cutting edges.
- Square flute.
- Three cutting edge tip for consistent drilling.
- Self-centering tip provides accuracy and precision.
- Square flute design accelerates dust extraction and improves the drill bit life.



cutting diameter			shank diameter	length of cut	overall length	order number
fractional	decimal	metric				
3/16	.1875	4.76	SDS + shank 3/8"	2	4	C22100
3/16	.1875	4.76	SDS + shank 3/8"	4	6	C22101
1/4	.2500	6.35	SDS + shank 3/8"	2	4	C22102
1/4	.2500	6.35	SDS + shank 3/8"	4	6	C22103
1/4	.2500	6.35	SDS + shank 3/8"	10	12	C22104
5/16	.3125	7.94	SDS + shank 3/8"	4	6	C22105
5/16	.3125	7.94	SDS + shank 3/8"	10	12	C22106
3/8	.3750	9.53	SDS + shank 3/8"	4	6	C22107
3/8	.3750	9.53	SDS + shank 3/8"	10	12	C22108
1/2	.5000	12.70	SDS + shank 3/8"	4	6	C22109
1/2	.5000	12.70	SDS + shank 3/8"	10	12	C22110
9/16	.5625	14.29	SDS + shank 3/8"	4	6	C22111
9/16	.5625	14.29	SDS + shank 3/8"	10	12	C22112

SET

Style: 1833 - SDS-plus 3 Cutting Premium

Masonry
Drill ReBar

Plastic Case

NEW

drill sizes	no. of pieces	order number
3/16", 1/4", 5/16", 3/8", 1/2" x 6	5	C22113

Style: 1837

Masonry
Multi-Purpose

NEW

Note

- Carbide tip.
- L shaped flute.
- Universal use.



cutting diameter			shank diameter	length of cut	overall length	order number
fractional	decimal	metric				
1/8	.1250	3.18	7/64"	1-5/16	2-3/4	C22200
5/32	.1562	3.97	5/32"	1-9/16	3	C22201
3/16	.1875	4.76	3/16"	1-7/8	3-5/16	C22202
1/4	.2500	6.35	7/32"	2-5/16	3-15/16	C22203
5/16	.3125	7.94	19/64"	3-1/8	4-3/4	C22204
3/8	.3750	9.53	23/64"	3-1/8	4-3/4	C22205
1/2	.5000	12.70	31/64"	4-5/16	5-7/8	C22206
5/8	.6250	15.88	1/2"	4-5/16	5-7/8	C22207

SET

Style: 1837 - Multi-purpose

Masonry
Multi-Purpose

Plastic Case

NEW

drill sizes	no. of pieces	order number
1/8", 5/32", 3/16", 1/4", 5/16"	5	C22208

Specialty Step Drills

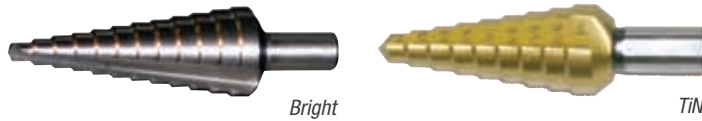
Other Drills / Accessories



Styles: **1874**, **1874TN**

Note

Standard off-the-shelf delivery from stock.



Inch Sizes

step description	hole sizes	decimal equiv.	shank diameter	overall length	order number	
					1874 Bright	1874TN TiN
3/16-1/2 x 1/16	3/16-1/2	.1875 - .5000	1/4	3-1/8	C20285	C20295
3/16-7/8 x 1/16	3/16-7/8	.1875 - .8750	3/8	3-1/4	C20288	C20298
1/8-1/2 x 1/32	1/8-1/2	.1250 - .5000	1/4	3-1/8	C20286	C20296
1/4-3/4 x 1/16	1/4-3/4	.2500 - .7500	3/8	2-3/4	C20287	C20297
7/8 - 1-3/8	7/8 - 1-3/8	.8750 - 1.3750	3/8	3-1/4	C20290	—
7/8 - 1-1/8	7/8 - 1-1/8	.8750 - 1.1250	3/8	3-7/64	C20293	—

Metric Sizes

step description	hole sizes	decimal equiv.	shank diameter	overall length	order number	
					1874 Bright	1874TN TiN
4.0 - 12.0 x 1.0	4.0 - 12.0	.1575 - .4724	6	65	C20305	C20315
4.0 - 20.0 x 2.0	4.0 - 20.0	.1575 - .7874	6	67	C20306	—
6.0 - 30.0 x 2.0	6.0 - 30.0	.2362 - 1.181	6	98	C20307	—

Specialty Step Drills

SET

Styles: **1874**, **1874TN**

Metal Case

drilling diameter range	no. of pieces	order number	
		1874 Bright	1874TN TiN
3/16 - 3/4	3	C20325	C20326

3-Piece Set
TiN
#20326



Specialty Quick Change Chucks

Style: **1817**

Note

For use with 1/4" hex shank drills or for 1/4" and 3/8" shank drills.

Installs in 3/8" or larger chucks.

Converts standard power tool chucks to quick-change operation.

No chuck keys needed.

Black Oxide



#C20920 Quick Change Chuck insert



#C20958 6" Quick-Drive Quick Change Chuck



#Item C20957 12" Quick-Drive Quick Change Chuck

description	order number
Quick-change chuck insert converts standard chucks to quick-change operation	1817 C20920
Quick-change chuck for 1/4" hex shank drills	C20955
Dual-drive quick change chuck for 1/4" and 3/8" hex shank tools	C20956
Extra length (6" OAL) quick-drive quick change chuck for 1/4" hex shank tools	C20958
Extra length (12" OAL) quick-drive quick change chuck for 1/4" hex shank tools	C20957

P



Note

Made specifically for sheet metal and other thin materials having a thickness similar to the drill diameter.



Inch Sizes

drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number	
					1683 Black Oxide	1815 Black Oxide
1/8	.1250	3.18	1.929	.433	C69021	C20500
#30	.1285	3.26	1.875	.500	C69028	C23811
9/64	.1406	3.57	2.047	.551	C69022	C17618
5/32	.1562	3.97	2.165	.551	C69023	C17619
#20	.1610	4.09	2.063	.625	C69027	C23810
3/16	.1875	4.76	2.441	.669	C69024	C20501
#11	.1910	4.85	2.344	.688	C69026	C23809
1/4	.2500	6.35	2.756	.787	C69025	C20503

Metric Sizes

drill diameter	decimal equiv.	overall length	flute length	order number
				1683 Black Oxide
2.0	.0787	38	9	C69005
2.1	.0826	38	9	C69006
2.5	.0984	43	10	C69007
3.0	.1181	46	11	C69008
3.2	.1259	49	12	C69009
3.26	.1285	49	12	C69010
3.3	.1299	49	12	C69012
3.5	.1377	52	14	C69013
4.0	.1574	55	14	C69014
4.1	.1614	55	14	C69015
4.2	.1653	55	14	C69016
4.9	.1929	62	17.5	C69017
5.0	.1968	62	17.5	C69018
5.1	.2007	62	17.5	C69019
5.2	.2047	62	17.5	C69020

P



Note

Use in quick change chucks, Style #1817, shown on previous page for fast size changes.



drill diameter	decimal equiv.	metric equiv.	order number
			1816 Bright
1/16	.0625	1.59	C20510
5/64	.0781	1.98	C20511
3/32	.0938	2.38	C20512
7/64	.1094	2.78	C20513
1/8	.1250	3.18	C20514
9/64	.1406	3.57	C20516
5/32	.1562	3.97	C20517
3/16	.1875	4.76	C20518
7/32	.2188	5.56	C20908
1/4	.2500	6.35	C20909

Style: **1843**



DRILLS

description	order number
	1843 Bright
Spline Drive	C19019
SDS Max Drive	C19020

Use CLE-LINE rotary chuck drivers on these models:

	# C19019 Spline Drive	# C19020 SDS Max Drive
AEG®	PH350, PH240, PH38, PHD26, PHD38	—
B & D®	5041, 5045, 5059, 5093, 5095, 5096, 5098	5097K, 5099K
Bosch®	11202, 11203, 11205, 11209, 11214, 11216, 11219, 11220, 11232	11214, 11216, 11223, 11227, 11230, 11231, 11309, 11311
Dewalt®	DW539, DW533	545
Hilti®	—	TEF52, TEY54, TEY55, TEF60, TEF72, TEY74, TEY75, TE76, TEF92, TEY94
Hitachi®	DH25, DH38YE, DH50SB	—
Kango®	950S, 637S, 501S, 430S, 728S, 750S, 978S	—
Makita®	HR3851, HR5000	—
Metabo®	RH-32, RH-33, RH-66, 1129, 1130, 6030	—
Milwaukee®	5311, 5312, 5316, 5317, 5334 5341, 5343, 5344, 5345-21, 5347, 5348, 5352, 5353	5308, 5313, 5346-21

Specialty
Rivot Hole Drills

Style: **2184**

P



Note

Designed to drill rivet holes and other applications in thin sheet metal.
Ideal for hand drilling.



drill diameter	decimal equiv.	metric equiv.	overall length	flute length	order number
					2184 Black Oxide
3/32	.0938	2.38	1-3/4	7/16	C20259
1/8	.1250	3.17	1-7/8	1/2	C20257
5/32	.1562	3.97	2-1/16	9/16	C20260
3/16	.1875	4.76	2-3/16	9/16	C20258
1/4	.2500	6.35	2-1/2	3/4	C20256

Styles: **2195, 2185, 2185F**

Specialty
Welding Point Drills

P

Note

Designed to drill rivet holes and other applications in thin sheet metal. Ideal for hand drilling.



Metric Sizes

drill diameter	decimal equiv.	overall length	flute length	order number		
				2195 Black Oxide	2185 Cobalt - Straw	2185F Cobalt - Straw w/flats
6.0	.2362	66	28	C20988	C20478	C20878
6.5	.2559	70	31	—	—	C20877
8.0	.3150	79	37	C20989	C20479	C20879
10.0	.3937	89	43	C20990	C20480	C20880

Style: **1823**

Specialty
Power Wood Bit

Note

Unique Turbo Twist™ clears holes of chips. 3 flats on shank. Easy to re-sharpen.



drill diameter	decimal equiv.	metric equiv.	overall length	order number
				1823 Black Oxide
1/4	.2500	6.35	6	C17100
5/16	.3125	7.94	6	C17101
3/8	.3750	9.53	6	C17102
7/16	.4375	11.11	6	C17103
1/2	.5000	12.70	6	C17104
9/16	.5625	14.29	6	C17105
5/8	.6250	15.88	6	C17106
11/16	.6875	17.46	6	C17107
3/4	.7500	19.05	6	C17108
13/16	.8125	20.64	6	C17109
7/8	.8750	22.23	6	C17110
15/16	.9375	23.81	6	C17111
1	1.0000	25.40	6	C17112
1-1/8	1.1250	28.58	6	C17113
1-1/4	1.2500	31.75	6	C17114
1-3/8	1.3750	34.93	6	C17115
1-1/2	1.5000	38.10	6	C17116

Specialty

Combined Drill and Countersink

Style: **1824**

HSS Bright

Note

Produces a 60° included angle center, used for most applications.



size	drill diameter	decimal equiv.	metric equiv.	body diameter	overall length	order number
						1824 Bright
0	1/32	.0312	0.79	1/8	1-1/8	C20891
1	3/64	.0469	1.19	1/8	1-1/4	C20892
2	5/64	.0781	1.98	3/16	1-7/8	C20893
3	7/64	.1094	2.78	1/4	2	C20894
4	1/8	.1250	3.18	5/16	2-1/8	C20895
5	3/16	.1875	4.76	7/16	2-3/4	C20896
6	7/32	.2188	5.56	1/2	3	C20897
7	1/4	.2500	6.35	5/8	3-1/4	C20898
8	5/16	.2344	5.95	3/4	3-1/2	C20899

Specialty

Die Drill

Style: **1844**ASME B94.11M
Reduced Shank**Note**

Long carbide tip to prevent chipping, to improve cutting, and for better cooling.

Brazed tip for strength, performance and durability.

Special fluting for rapid chip evacuations and heat dissipation.

Specially tempered bodies for strength and longer tool life.

Designed for hardened steel.

Run at 75-100 SFM.



drill diameter	decimal equiv.	metric equiv.	shank diameter	overall length	order number	
					1844 Right-Hand	Left-Hand
3/16	.1875	4.76	3/16	3	C19000	C19005
1/4	.2500	6.35	1/4	4	C19001	C19006
1/4	.2500	6.35	1/4	6	C19002	C19007
5/16	.3125	7.94	1/4	4	C19003	C19008
3/8	.3750	9.53	3/8	4	C19004	C19009

Style: 1829



P **K** **N**

Note

Removes broken cap screws, set screws, studs, bolts, pipe fittings and other threaded parts without damaging the threads in the hole.



extractor size	small end diameter	large end diameter	length of taper	overall length	order number		extractor size	small end diameter	large end diameter	length of taper	overall length	order number	
					1829	Bright						1829	Bright
1	.0625	.1562	3/4	2	C17170		5	.2500	.4375	1-1/2	3-3/8	C17174	
2	.0860	.1800	3/4	2-3/8	C17171		6	.3750	.5938	1-3/4	3-3/4	C17176	
3	.1250	.2500	1	2-3/4	C17172		7	.5000	.7812	2-1/4	4-1/8	C17178	
4	.1875	.3125	1	3	C17173		8	.7500	1.0312	2-1/4	4-3/8	C17180	

SET

Style: 1829

Specialty
Screw Extractors

P **K** **H**

Fold-up Pouch



size range	no. of pieces	order number
#1 - #5	5	C21149

SET

Style: 1864

Specialty
Drill & Screw Extractors

P **K** **H**

Plastic Tube



NEW

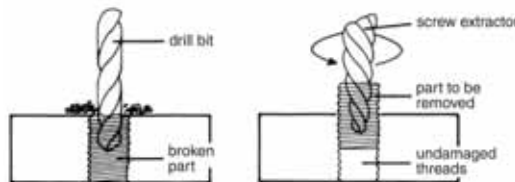
jobber drill	screw extractor	no. of pcs.	order number	jobber drill	screw extractor	no. of pcs.	order number
5/64"	#1	2	C22311	1/4", E	#4	2	C22314
7/64"	#2	2	C22312	17/64"	#5	2	C22315
5/32"	#3	2	C22313	13/32"	#6	2	C22316

Tech Tip

How to use screw extractors

Screw extractors are used to remove broken screws, bolts, or other threaded parts. To remove a broken screw, follow this procedure.

- Drill a hole into the broken screw using the recommended drill size from the table at right.
- Insert the proper screw extractor into the hole and start a counter-clockwise (left-hand) rotation using a tap wrench on the square on the shank.
- The extractor will grip the wall of the hole in the screw and back the screw out without damaging the threads.
- A penetrating oil can be helpful in removing rusty or corroded parts.



extractor size	use on this size		
	screw or bolt	pipe drill size	use
1	#8 to 1/4	—	5/64
2	#12 to 5/16	—	7/64
3	5/16 to 7/16	—	5/32
4	7/16 to 9/16	1/8	1/4
5	9/16 to 3/4	1/8	17/64
6	3/4 to 1	3/8	13/32
7	1 to 1-3/8	—	17/32
8	1-3/8 to 1-3/4	3/4	13/16

See product specific page for additional information

size range	no. of pcs.	drill description	case type	style	order number
Jobber Length - Drills & Tap Set					
36 / 6-32	2	Bright, Drill: #36 Tap: 6-32 spiral point	plastic tube	1860	C22305
29 / 8-32	2	Bright, Drill: #29 Tap: 8-32 spiral point	plastic tube	1860	C22304
25 / 10-24	2	Bright, Drill: #25 Tap: 10-24 spiral point	plastic tube	1860	C22307
21 / 10-32	2	Bright, Drill: #21 Tap: 10-32 spiral point	plastic tube	1860	C22306
7 / 1/4-20	2	Bright, Drill: #7 Tap: 1/4-20 spiral point	plastic tube	1860	C22308
F / 5/16-18	2	Bright, Drill: F Tap: 5/16-18 spiral point	plastic tube	1860	C22300
5/16" / 3/8-16	2	Bright, Drill: 5/16" Tap: 3/8-16 spiral point	plastic tube	1860	C22303
U / 7/16-14	2	Bright, Drill: U Tap: 7/16-14 spiral point	plastic tube	1860	C22302
27/64" / 1/2-13	2	Bright, Drill: 27/64" Tap: 1/2-13 spiral point	plastic tube	1860	C22301
6, 29, 25, 21, 7, F, 5/16, U, 27/64, Taps: 6-32, 8-32, 10-24, 10-32, 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13	18	Bright, drill & hand tap set	metal	1898	C21190
		Black & gold HD drill, Bright hand tap set	metal	1878	C21191
		Black & gold HD drill, black oxide split pt. tap	metal	1878	C21192
Jobber Length - Drills Set					
1/16" - 3/8" x 1/32"	11	Bright, general purpose, 118° point	metal	1898	C21100
		Black, general purpose, 118° point	metal	1899	C21101
1/16" - 1/4" x 1/64"	13	Bright, general purpose, 118° point	metal	1600	C69034
		Bright, general purpose, 118° point	metal	1898	C21104
		Black, general purpose, 118° point	metal	1899	C21105
		Heavy duty, 135° split point	metal	1801	C21157
		Black & gold, heavy duty 135° split point	metal	1604	C69030
		Black & gold, heavy duty 135° split point	metal	1878	C18123
		Heavy duty parabolic, 135° split point	metal	1872	C18619
		TiN heavy duty parabolic, 135° split point	metal	1872TN	C18700
		Cobalt heavy duty, 135° split point	metal	1603	C69377
		Cobalt heavy duty, 135° split point	metal	1802	C21107
		Black & gold heavy duty, flats on shank	metal	1607	C68343
1/16" - 1/2" x 1/32"	15	Bright, general purpose, 118° point	metal	1898	C21108
		Black, general purpose, 118° point	plastic	1600	C69035
		Black, general purpose, 118° point	metal	1899	C21109
		Black, general purpose, 3/8" shank, 118° pt	metal	1900	C21156
		TiN general purpose, 118° point	metal	1898T	C19210
		Heavy duty, 135° split point	metal	1801	C21110
		Black & gold, heavy duty	metal	1878	C18124
		Black & gold, heavy duty, 135° split point	plastic	1604	C69031
		Heavy duty parabolic, 135° split point	metal	1872	C18620
		TiN heavy duty parabolic, 135° split point	metal	1872TN	C18701
		Heavy duty parabolic 3/8" shank	metal	1873	C18719
		Cobalt heavy duty, 135° split point	metal	1603	C69378
		Cobalt heavy duty, 135° split point	metal	1802	C21112
		Black & gold heavy duty, flats on shank	plastic	1607	C68461
1/16" - 3/8" x 1/64"	21	Bright, general purpose, 118° point	metal	1898	C21113
		Black, general purpose, 118° point	metal	1600	C69036
		Black, general purpose, 118° point	metal	1899	C21114
		Heavy duty, 135° split point	metal	1801	C21115
		Heavy duty parabolic, 135° split point	metal	1872	C18621
		TiN heavy duty parabolic, 135° split point	metal	1872TN	C18702
1/16" - 1/2" x 1/64"	29	Bright, general purpose, 118° point	metal	1898	C21117
		Black, general purpose, 118° point	plastic	1600	C69037
		Black, general purpose, 118° point	metal	1899	C21118
		Black, general purpose, 3/8" shank, 118°	metal	1900	C21159
		TiN, general purpose, 118° point	metal	1898T	C19211
		Black & Gold, heavy Duty	metal	1878	C18125
		Black & gold, heavy duty	*Bit Barrel™	1878	C18128



2 Piece Set
Bright, Drill & Tap
#C22304



13 Piece Set
Bright
#C21104



15 Piece Set
Black & Gold
#C18124



29 Piece Set
Bright
#C21117

continued on next page

SET

Cost Saving Drill Sets (continued)

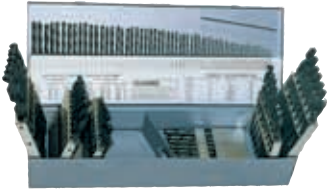
See product specific page for additional information

size range	no. of pcs.	drill description	case type	style	order number
Jobber Length - Drills Set (Continued)					
		Black & Gold, Heavy Duty, 3/8" shank	metal	1879	C18122
		Black & gold heavy duty, 135° split point	plastic	1604	C69032
		Black & gold HD, 3/8" shank, 135° split pt	plastic	1605	C69033
		Black & gold HD, flats on shank, 135° split pt	plastic	1607	C69368
		Heavy Duty, 135° split	metal	1801	C21119
		Heavy duty parabolic, 135° split point	metal	1872	C18622
		TiN heavy duty parabolic, 135° split point	metal	1872TN	C18703
		Heavy duty parabolic 3/8" shank	metal	1873	C18718
		Cobalt heavy duty, 135° split point	metal	1603	C69379
		Cobalt heavy duty, 135° split	metal	1802	C21121
A - Z	26	Black, general purpose, 118° point	metal	1899	C21158
#1 - #60	60	Bright, general purpose, 118° point	metal	1898	C21122
		Black, general purpose, 118° point	metal	1899	C21123
		Heavy duty, 135° split point	metal	1801	C21124
		Cobalt heavy duty, 135° split point	metal	1603	C69380
		Cobalt heavy duty, 135° split point	metal	1802	C21125
1/16"-1/2" x 1/64", #1- #60, A - Z	115	Bright, general purpose, 118° point	metal	1898	C21126
		Black, general purpose, 118° point	metal	1899	C21127
		Heavy duty, 135° split point	metal	1801	C21128
		Cobalt, 135° split point	metal	1802	C21129
1mm-6mm x 0.5mm	11	Black, 118° point	metal	1899	C21130
		Heavy duty parabolic, 135° split point	metal	1872	C18626
		TiN heavy duty parabolic, 135° split point	metal	1872TN	C18704
1mm-10mm x 0.5mm	19	TiN, general purpose, 118° point	metal	1898T	C24380
1mm-13mm x 0.5mm	25	Black, general purpose, 118° point	plastic	1600	C69038
		Bright, general purpose, 118° point	metal	1898	C18127
		Black, general purpose, 118° point	metal	1899	C21131
		TiN, general purpose, 118° point	metal	1898T	C24381
		Heavy duty parabolic, 135° split point	metal	1872	C18628
		TiN heavy duty parabolic, 135° split point	metal	1872TN	C18706
Mechanics Length					
1/16" - 1/4" x 1/64"	13	Black & gold, gen purpose, 135° sp point	metal	1620	C69029
		Black & gold, heavy duty, 135° split point	metal	1875R	C18126
1/16" - 3/8" x 1/64"	21	Black & gold, heavy duty, 135° split point	metal	1875R	C21161
1/16" - 1/2" x 1/64"	29	Black & gold, gen purpose, 135° sp point	metal	1620	C69041
		Black & gold, gen purpose, 135° sp point	*Bit Barrel™	1620	C69384
		Black & gold, heavy duty, 135° split point	metal	1875R	C21162
		Black & gold, heavy duty	*Bit Barrel™	1875R	C21165
		Black & gold, 3/8" shank, 135° split point	metal	1876	C21163
1/16" - 1/2" x 1/32"	15	Black & gold, heavy duty, 135° split point	metal	1875R	C21160
1/16" - 1/4" x 1/16"	4	Black & gold, heavy duty, 135° split point	plastic tube	1875R	C22310
1/16" - 3/8" x 1/16"	6	Black & gold, heavy duty, 135° split point	plastic tube	1875R	C22309
Screw Machine Length					
1/16" - 1/2" x 1/64"	29	Black heavy duty, 135° split point	metal	1896	C21133
#1 - #60	60	Black heavy duty, 135° split point	metal	1896	C21947
Reduced Shank					
9/16" - 1" x 1/16"	8	1/2" reduced round shank, black	metal	1680	C69039
		1/2" reduced shank with flats, black	metal	1681	C69040

continued on next page



60 Piece Set
Cobalt Heavy Duty
#C21125



115-Piece Set
Black Oxide #C21127



25-Piece Set
Black Oxide
#C69038



29-Piece Set
Black & Gold
#C21165



60-Piece Set
Black Oxide
#C21947

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

See product specific page for additional information

size range	no. of pcs.	drill description	case type	style	order number
Silver & Deming					
9/16" - 1" x 1/16"	8	1/2" reduced round shank, black	metal	1813	C21135
		1/2" reduced shank with flats, black	metal	1892	C22761
		1/2" reduced shank with flats, black & gold	metal	1877	C21164
	33	1/2" reduced round shank, black	metal	1813	C21134
Step Drills					
3/16 - 3/4"	3	Bright, 118° split point	metal	1874	C20325
		TiN, 118° split point	metal	1874TN	C20326
Carbide-Tipped Masonry					
1/4, 5/16, 3/8, 1/2	4	TCT carbide-tipped	metal	1818	C17003
		TCT carbide-tipped	metal	1889	C23290
Glass & Tile Drill Bit Set					
1/8 - 1/2 x 1/8	4	Spear point glass & tile drill bit	metal	1822	C21148
Screw Extractor Set in Fold-up Pouch					
#1 - #5	5	Screw extractors	fold-up	1829	C21149
Screw Extractor & Drill Set					
Extractor #1	2	5/64" drill - black and gold	plastic tube	1864	C22311
Extractor #2	2	7/64" drill - black and gold	plastic tube	1864	C22312
Extractor #3	2	5/32" drill - black and gold	plastic tube	1864	C22313
Extractor #4	2	1/4"(E) drill - black and gold	plastic tube	1864	C22314
Extractor #5	2	17/64" drill - black and gold	plastic tube	1864	C22315
Extractor #6	2	13/32" drill - black and gold	plastic tube	1864	C22316
Drill Dispensers					
1/16" - 1/2"			metal	1867	C23992
Letter A - Z			metal	1867	C23993
#1 - #60			metal	1867	C23994
Tap, Die and Drill - For additional sets with taps and drills - see Jobber Drills - Drill & Tap Set					
451	5 sizes	M6 x 1.0, M7 x 1.0, M8 x 1.25, M10 x 1.5, M12 x 1.75, 5.0mm, 6.0mm, 6.7mm, 8.5mm, 10.2mm	metal		C00451



33 piece Set
Silver & Deming
#C21134



Drill Dispenser
#C23992



5-Size Set
Tap, Die and Drill
#C00451

DRILLS

Style Number	Description	Page Number
Hand Taps - Straight Flute		
1690, 1690M	taper chamfer, HSS	59
1691, 1691M	plug chamfer, HSS	59
1692, 1692M	bottoming chamfer, HSS	59
1693, 1693M	set - HSS	59
1696, 1696M	taper chamfer, carbon	59
1697, 1697M	plug chamfer, carbon	59
1698, 1698M	bottoming chamfer, carbon	59
1699, 1699M	set - carbon	59
0401, 0401M	taper chamfer	60
0402, 0402M	plug chamfer	60
0403, 0403M	bottoming chamfer	60
0404, 0404M	set	60
Spiral Point Taps		
1694, 1694M	straight flute	61
0411, 0411M	plug chamfer	61
Pipe Taps		
1686	taper pipe, regular threads, HSS	62
1700	taper pipe, regular threads, carbon	62
0462	taper pipe, regular threads, HSS	62
1688	taper pipe, interrupted threads, HSS	62
0464	taper pipe, interrupted threads, HSS	62
1687	straight pipe, bright	62
0463	straight pipe, bright	62
Combination Tap and Drill 75		
0450	bright	63
Dies - Hexagon		
0650	re-threading, carbon steel	64-65
492	re-threading, HSS	64
0660	taper pipe, carbon steel	64
0650M	metric, re-threading, carbon steel	65

Style Number	Description	Page Number
Round Adjustable Dies		
0610	carbon steel	66
0710	HSS	66
0620	taper pipe, carbon steel	67
0710M	taper pipe, HSS	67
222	die stocks	67
224	die stocks	67
Sets	round adjustable tap & die sets	68-69
Quick-Set® Two-Piece Die Systems		
0554	Die assemblies	70-71
0550	Die only	70-71
0551	Cap	70-71
0552	Guide	70-71
0553	Collet (combined cap & guide)	70-71
223	quick two-piece die system	72
225	jr. quick die stock	72
226	spanner wrench	72
055	quick die sets	73
Tap Wrenches		
240	standard straight	74
242	plain T-handle	74
243	slip T-handle	74
244	ratchet and slip T-handle	75
245	long shank T-handle	75
Sets		
Sets	taps, dies, Tap-die and drill	76-77
Technical Information		
	Tap and Drill Recommendations	58
	USCTI Table 325, thread limits	63



DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

Reference

Icon Glossary

Material

- M** Steel
- S** Super Alloys
- P** Alloy/Steel
- K** Cast Iron
- N** Aluminum
- H** Hardened Steel

See Drilling Table of Contents for more detailed information

Surface Treatment

- Bright**
- Black Oxide**
- TiN**

Additional treatments available upon request.

Base Material

- HSS**
- Carbon Steel**

Chamfers

- Taper 7-10**
- Plug 3-5**
- Pipe 3-1/2**
- Bottoming 1-1/2-2**

Standard

- ASME B94.9**

Thread Form

- 302**
- 302A**

Inch and Metric Sizes

Machine Screw and Fractional Sizes

nominal tap size	drill size	decimal equiv.
0-80	3/64	.0469
1-64	53	.0595
1-72	53	.0595
2-56	50	.0700
2-64	50	.0700
3-48	47	.0785
3-56	46	.0810
4-40	43	.0890
4-48	42	.0935
5-40	38	.1015
5-44	37	.1040
6-32	36	.1065
6-40	33	.1130
8-32	29	.1360
8-36	29	.1360
10-24	26	.1470
10-32	21	.1590
12-24	16	.1770
12-28	15	.1800
1/4-20	7	.2010
1/4-28	3	.2130
5/16-18	F	.2570
5/16-24	I	.2720
3/8-16	5/16	.3125
3/8-24	Q	.3320
7/16-14	U	.3680
7/16-20	25/64	.3906
1/2-13	27/64	.4219
1/2-20	29/64	.4531
9/16-12	31/64	.4844
9/16-18	33/64	.5156
5/8-11	17/32	.5312
5/8-18	37/64	.5781
3/4-10	21/32	.6562
3/4-16	11/16	.6875
7/8-9	49/64	.7656
7/8-14	13/16	.8125
1-8	7/8	.8750
1-12	59/64	.9219

Metric Sizes

nominal tap size	drill size	decimal equiv.
M1.6 x 0.35	1.25	.0492
M1.8 x 0.35	1.45	.0571
M2 x 0.4	1.6	.0630
M2.2 x 0.45	1.75	.0689
M2.5 x 0.45	2.05	.0807
M3 x 0.5	2.5	.0984
M3.5 x 0.6	2.9	.1142
M4 x 0.7	3.3	.1299
M4.5 x 0.75	3.7	.1457
M5 x 0.8	4.2	.1654
M6 x 1.0	5.0	.1969
M7 x 1.0	6.0	.2362
M8 x 1.25	6.7	.2638
M8 x 1.0	7.0	.2756
M10 x 1.5	8.5	.3346
M10 x 1.25	8.7	.3425
M12 x 1.75	10.2	.4016
M12 x 1.25	10.8	.4252
M14 x 2.0	12.0	.4724
M16 x 2.0	14.0	.5512
M16 x 1.5	14.5	.5709
M18 x 2.5	15.5	.6102
M18 x 1.5	16.5	.6496
M20 x 2.5	17.5	.6890
M20 x 1.5	18.5	.7283
M22 x 2.5	19.5	.7677
M22 x 1.5	20.5	.8071
M24 x 3.0	21.0	.8268
M24 x 2.0	22.0	.8661
M27 x 3.0	24.0	.9449
M27 x 2.0	25.0	.9843
M30 x 3.5	26.5	1.0433
M30 x 2.0	28.0	1.1024
M33 x 3.5	29.5	1.1614
M33 x 2.0	31.0	1.2205
M36 x 4.0	32.0	1.2598
M36 x 3.0	33.0	1.2992

Pipe Sizes

nominal tap size	NPT, NPTF		NPSM	NPSC	NPSF
	w/o reamer	w/reamer			
1/16-27	C (.242)	A (.234)	—	1/4	D (.246)
1/8-27	Q (.332)	21/64	T (.358)	11/32	R (.339)
1/4-18	7/16	27/64	15/32	7/16	7/16
3/8-18	9/16	9/16	(.603 special)	37/64	37/64
1/2-14	45/64	11/16	19mm	23/32	45/64
3/4-14	29/32	57/64	61/64	59/64	59/64
1-11 1/2	1-9/64	1-1/8	1-13/64	1-5/32	1-5/32
1-1/4—11-1/2	1-31/64	1-15/32	1-35/64	1-1/2	—
1-1/2—11-1/2	1-23/32	1-45/64	1-25/32	1-3/4	—
2—11-1/2	2-3/16	2-11/64	2-1/4	2-7/32	—

Note

General use:

- Taper chamfer: hand operations
- Plug chamfer: general purpose applications
- Bottoming chamfer: thread close to an obstruction or blind hole.

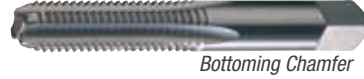
Styles: #1693, 1693M, 1699 and 1699M Set - 1 each of taper, plug, bottoming tap.



Taper Chamfer



Plug Chamfer



Bottoming Chamfer



							order number							
size	tap TPI	series	decimal equiv.	no. of flutes	overall length	thread length	1690 taper HSS	1691 plug HSS	1692 bottoming HSS	1693 set 1 ea. HSS	1696 taper Carbon	1697 plug Carbon	1698 bottoming Carbon	1699 set 1 ea. Carbon
4	40	UNC	.1120	3	1-7/8	9/16	C69079	C69080	C69081	C69082	—	—	—	—
5	40	UNC	.1250	3	1-15/16	5/8	C69083	C69084	C69085	C69086	—	—	—	—
6	32	UNC	.1380	3	2	11/16	C69087	C69088	C69089	C69090	—	—	—	—
8	32	UNC	.1640	4	2-1/8	3/4	C69091	C69092	C69093	C69094	—	—	—	—
10	24	UNC	.1900	4	2-3/8	7/8	C69095	C69096	C69097	C69098	—	—	—	—
10	32	UNF	.1900	4	2-3/8	7/8	C69099	C69100	C69101	C69102	—	—	—	—
12	24	UNC	.2160	4	2-3/8	15/16	C69103	C69104	C69105	C69106	—	—	—	—
1/4	20	UNC	.2500	4	2-1/2	1	C69107	C69108	C69109	C69110	C69409	C69410	C69411	C69412
1/4	28	UNF	.2500	4	2-1/2	1	C69111	C69112	C69113	C69114	C69413	C69414	C69415	C69416
5/16	18	UNC	.3125	4	2-23/32	1-1/8	C69115	C69116	C69117	C69118	C69417	C69418	C69419	C69420
5/16	24	UNF	.3125	4	2-23/32	1-1/8	C69119	C69120	C69121	C69122	C69421	C69422	C69423	C69424
3/8	16	UNC	.3750	4	2-15/16	1-1/4	C69123	C69124	C69125	C69126	C69425	C69426	C69427	C69428
3/8	24	UNF	.3750	4	2-15/16	1-1/4	C69127	C69128	C69129	C69130	C69429	C69430	C69431	C69432
7/16	14	UNC	.4375	4	3-5/32	1-7/16	C69131	C69132	C69133	C69134	C69433	C69434	C69435	C69436
7/16	20	UNF	.4375	4	3-5/32	1-7/16	C69135	C69136	C69137	C69138	C69437	C69438	C69439	C69440
1/2	13	UNC	.5000	4	3-3/8	1-21/32	C69139	C69140	C69141	C69142	C69441	C69442	C69443	C69444
1/2	20	UNF	.5000	4	3-3/8	1-21/32	C69143	C69144	C69145	C69146	C69445	C69446	C69447	C69448
9/16	12	UNC	.5625	4	3-19/32	1-21/32	C69147	C69148	C69149	C69150	C69449	C69450	C69451	C69452
9/16	18	UNF	.5625	4	3-19/32	1-21/32	C69151	C69152	C69153	C69154	C69453	C69454	C69455	C69456
5/8	11	UNC	.6250	4	3-13/16	1-13/16	C69155	C69156	C69157	C69158	C69457	C69458	C69459	C69460
5/8	18	UNF	.6250	4	3-13/16	1-13/16	C69159	C69160	C69161	C69162	C69461	C69462	C69463	C69464
3/4	10	UNC	.7500	4	4-1/4	2	C69163	C69164	C69165	C69166	C69465	C69466	C69467	C69468
3/4	16	UNF	.7500	4	4-1/4	2	C69167	C69168	C69169	C69170	C69469	C69470	C69471	C69472
7/8	9	UNC	.8750	4	4-11/16	2-7/32	C69171	C69172	C69173	C69174	—	—	—	—
7/8	14	UNF	.8750	4	4-11/16	2-7/32	C69175	C69176	C69177	C69178	C69473	C69474	C69475	C69476
1	8	UNC	1.0000	4	5-1/8	2-1/2	C69179	C69180	C69181	C69182	C69477	C69478	C69479	C69480
1	12	UNF	1.0000	4	5-1/8	2-1/2	C69183	C69184	C69185	C69186	C69481	C69482	C69483	C69484
1	14	UNS	1.0000	4	5-1/8	2-1/2	C69187	C69188	C69189	C69190	—	—	—	—

						order number							
tap size & TPI	decimal equiv.	no. of flutes	overall length	thread length		1690M taper HSS	1691M plug HSS	1692M bottoming HSS	1693M set 1 ea. HSS	1696M taper Carbon	1697M plug Carbon	1698M bottoming Carbon	1699M set 1 ea. Carbon
M3 x 0.5	.1181	3	1-15/16	5/8		C69267	C69268	C69269	C69270	C69513	C69514	C69515	C69516
M4 x 0.7	.1575	4	2-1/8	3/4		C69271	C69272	C69273	C69274	C69517	C69518	C69519	C69520
M5 x 0.8	.1969	4	2-3/8	7/8		C69275	C69276	C69277	C69278	C69521	C69522	C69523	C69524
M6 x 1	.2362	4	2-1/2	1		C69279	C69280	C69281	C69282	C69526	C69527	C69528	C69529
M7 x 1	.2756	4	2-23/32	1-1/8		C69283	C69284	C69285	C69286	—	—	—	—
M8 x 1.25	.3150	4	2-23/32	1-1/8		C69287	C69288	C69289	C69290	C69531	C69532	C69533	C69534
M10 x 1.5	.3937	4	2-15/16	1-1/4		C69291	C69292	C69293	C69294	C69535	C69536	C69537	C69538
M12 x 1.75	.4724	4	3-3/8	1-21/32		C69295	C69296	C69297	C69298	C69539	C69540	C69541	C69542
M14 x 2	.5512	4	3-37/64	1-23/32		C69299	C69300	C69301	C69302	C69543	C69544	C69545	C69546
M16 x 2	.6299	4	3-51/64	1-13/16		C69303	C69304	C69305	C69306	C69547	C69548	C69549	C69550
M18 x 2.5	.7087	4	4-1/64	1-13/16		C69307	C69308	C69309	C69310	—	—	—	—
M20 x 2.5	.7874	4	4-15/32	2		C69311	C69312	C69313	C69314	C69551	C69552	C69553	C69554

Styles: **0401, 0402, 0403, 0404**

Note

General use:

- Taper chamfer: hand operations
- Plug chamfer: general purpose applications
- Bottoming chamfer: to thread close to an obstruction or blind hole.

Styles: #0404 and 0404M Set -
1 each of taper, plug, bottoming tap.

Style 0401, 0402, and 0403 are provided with H-limits.



TAPS & DIES

order number

size	tap TPI	series	decimal equiv.	no. of flutes	H limit	overall length	thread length	0401 Taper	0402 Plug	0403 Bottoming	0404 Set of 1 each
0	40	UNF	.0600	2	H1	1-5/8	5/16	C00761	C00766	C00770	—
1	64	UNC	.0730	2	H1	1-11/16	3/8	C00762	C00767	C00771	—
1	72	UNF	.0730	2	H1	1-11/16	3/8	C00763	C00700	C00772	—
2	56	UNC	.0860	3	H1	1-3/4	7/16	C00764	C00768	C00701	C00323
2	64	UNF	.0860	3	H2	1-3/4	7/16	C00765	C00769	C00773	—
3	48	UNC	.0990	3	H2	1-13/16	1/2	C00702	C00703	C00704	C00325
3	56	UNF	.0990	3	H2	1-13/16	1/2	C00705	C00706	C00707	C00326
4	40	UNC	.1120	3	H2	1-7/8	9/16	C62001	C62002	C62003	C62004
4	48	UNF	.1120	3	H2	1-7/8	9/16	C00708	C00709	C00710	C00327
5	40	UNC	.1250	2	H2	1-15/16	5/8	—	C00711	C00712	—
5	40	UNC	.1250	3	H2	1-15/16	5/8	C62005	C62006	C62007	C62008
5	44	UNF	.1380	3	H2	1-15/16	5/8	C00713	C00714	C00715	C00328
6	32	UNC	.1380	3	H2	2	11/16	C00716	C00717	C00718	C00329
6	32	UNC	.1380	3	H3	2	11/16	C62009	C62010	C62011	C62012
6	40	UNF	.1380	3	H2	2	11/16	C00719	C00720	C00721	C00330
8	32	UNC	.1640	4	H2	2-1/8	3/4	C00722	C00723	C00724	C00331
8	32	UNC	.1640	4	H3	2-1/8	3/4	C62013	C62014	C62015	C62016
8	36	UNF	.1640	4	H2	2-1/8	3/4	C00725	C00726	C00727	C00332
10	24	UNC	.1900	4	H2	2-3/8	7/8	C00728	C00729	C00730	C00333
10	24	UNC	.1900	4	H3	2-3/8	7/8	C62017	C62018	C62019	C62020
10	32	UNF	.1900	4	H2	2-3/8	7/8	C00731	C00732	C00733	C00334
10	32	UNF	.1900	4	H3	2-3/8	7/8	C62021	C62022	C62023	C62024
12	24	UNC	.2160	4	H3	2-3/8	15/16	C62025	C62026	C62027	C62028
12	22	UNF	.2160	4	H3	2-3/8	15/16	C00734	C00735	C00736	C00335
1/4	20	UNC	.2500	4	H3	2-1/2	1	C62029	C62030	C62031	C62032
1/4	20	UNC	.2500	4	H5	2-1/2	1	—	C00737	C00738	—
1/4	28	UNC	.2500	4	H2	2-1/2	1	—	C00739	C00740	—
1/4	28	UNF	.2500	4	H3	2-1/2	1	C62033	C62034	C62035	C62036
5/16	18	UNC	.3125	4	H3	2-23/32	1-1/8	C62037	C62038	C62039	C62040
5/16	18	UNC	.3125	4	H5	2-23/32	1-1/8	—	C00741	C00742	—
5/16	24	UNF	.3125	4	H3	2-23/32	1-1/8	C62041	C62042	C62043	C62044
3/8	16	UNC	.3750	4	H3	2-15/16	1-1/4	C62045	C62046	C62047	C62048
3/8	16	UNC	.3750	4	H5	2-15/16	1-1/4	—	C00743	C00744	—
3/8	24	UNF	.3750	4	H3	2-15/16	1-1/4	C62049	C62050	C62051	C62052
7/16	14	UNC	.4375	4	H3	3-5/32	1-7/16	C62053	C62054	C62055	C62056
7/16	14	UNC	.4375	4	H5	3-5/32	1-7/16	—	C00745	C00746	—
7/16	20	UNF	.4375	4	H3	3-5/32	1-7/16	C62057	C62058	C62059	C62060
7/16	20	UNF	.4375	4	H5	3-5/32	1-7/16	—	C00747	C00748	—
1/2	13	UNC	.5000	4	H3	3-3/8	1-21/32	C62061	C62062	C62063	C62064
1/2	13	UNC	.5000	4	H5	3-3/8	1-21/32	—	C00749	C00750	—

Styles: **0401, 0402, 0403, 0404** (continued)

size	tap TPI	series	decimal equiv.	no. of flutes	H limit	overall length	thread length	order number			
								0401 Taper	0402 Plug	0403 Bottoming	0404 Set of 1 each
1/2	20	UNF	.5000	4	H3	3-3/8	1-21/32	C62065	C62066	C62067	C62068
1/2	20	UNF	.5000	4	H5	3-3/8	1-21/32	—	C00751	—	—
9/16	12	UNC	.5625	4	H3	3-19/32	1-21/32	C62069	C62070	C62071	C62072
9/16	18	UNF	.5625	4	H3	3-19/32	1-21/32	C62073	C62074	C62075	C62076
5/8	11	UNC	.6250	4	H3	3-13/16	1-13/16	C62077	C62078	C62079	C62080
5/8	11	UNC	.6250	4	H5	3-13/16	1-13/16	—	C00752	C00753	—
5/8	18	UNF	.6250	4	H3	3-13/16	1-13/16	C62081	C62082	C62083	C62084
11/16	11	UNS	.6875	4	H3	4-1/32	1-13/16	C00754	C00756	C00757	C00336
11/16	16	UNS	.6875	4	H3	4-1/32	1-13/16	C00758	C00759	C00760	C00337
3/4	10	UNC	.7500	4	H3	4-1/4	2	C62085	C62086	C62087	C62088
3/4	16	UNF	.7500	4	H3	4-1/4	2	C62089	C62090	C62091	C62092
7/8	9	UNC	.8750	4	H4	4-11/16	2-7/32	C62093	C62094	C62095	C62096
7/8	14	UNF	.8750	4	H4	4-11/16	2-7/32	C62097	C62098	C62099	C62100
1	8	UNC	1.0000	4	H4	5-1/8	2-1/2	C62101	C62102	C62103	C62104
1	12	UNF	1.0000	4	H4	5-1/8	2-1/2	C62105	C62106	C62107	C62108
1	14	UNS	1.0000	4	H4	5-1/8	2-1/2	C62109	C62110	C62111	C62112

DRILLS

TAPS & DIES

Hand Taps
Metric

Styles: **0401M, 0402M, 0403M, 0404M**

Note

Style 0401M, 0402M, and 0403M are provided with D-limits.

tap size and TPI	decimal equiv.	no. of flutes	D limit	overall length	thread length	order number			
						0401M Taper	0402M Plug	0403M Bottoming	0404M Set of 1 each
M3 x 0.5	.1181	3	D3	1-15/16	5/8	C63201	C63202	C63203	C63204
M4 x 0.7	.1575	4	D4	2-1/8	3/4	C63209	C63210	C63211	C63212
M5 x 0.8	.1969	4	D4	2-3/8	7/8	C63217	C63218	C63219	C63220
M6 x 1	.2362	4	D5	2-1/2	1	C63221	C63222	C63223	C63224
M7 x 1	.2756	4	D5	2-23/32	1-1/8	C63225	C63226	C63227	C63228
M8 x 1.25	.3150	4	D5	2-23/32	1-1/8	C63229	C63230	C63231	C63232
M10 x 1.5	.3937	4	D6	2-15/16	1-1/4	C63233	C63234	C63235	C63236
M12 x 1.75	.4724	4	D6	3-3/8	1-21/32	C63237	C63238	C63239	C63240
M14 x 2	.5512	4	D7	3-37/64	1-23/32	C63241	C63242	C63243	C63244
M16 x 2	.6299	4	D7	3-51/64	1-13/16	C63245	C63246	C63247	C63248
M18 x 2.5	.7087	4	D7	4-1/64	1-13/16	C63249	C63250	C63251	C63252
M20 x 2.5	.7874	4	D7	4-15/32	2	C63253	C63254	C63255	C63256

SAWS

CARBIDE BURRS

INDEX

Spiral Point Taps

General Purpose Taps / Dies



Styles: **1694, 0411**

Note

General use:

- Spiral point: pushes chips forward for through hole applications.
- Plug chamfer for general purpose applications.

Style 0411 provided with H-limits.

Style 1694 are maintenance taps.



Plug Chamfer style 1694



Plug Chamfer style 0411

order number


size	tap TPI	series	decimal equiv.	no. of flutes	overall length	thread length	order number	
							1694 Plug	0411 H-limit Plug
0	80	UNF	.0600	2	1-11/16	3/8	—	H2 C00775
1	64	UNC	.0730	2	1-11/16	3/8	—	H2 C00776
1	72	UNF	.0730	2	1-11/16	3/8	—	H2 C00777
2	56	UNC	.0860	2	1-3/4	7/16	—	H2 C00778
2	64	UNF	.0860	2	1-3/4	7/16	—	H2 C00779
3	48	UNC	.0990	2	1-13/16	1/2	—	H2 C00780
3	56	UNF	.0990	2	1-13/16	1/2	—	H2 C00781
4	40	UNC	.1120	2	1-7/8	9/16	C69191	H2 C62151
4	48	UNF	.1120	2	1-7/8	9/16	—	H2 C00782
5	40	UNC	.1250	2	1-15/16	5/8	C69192	H2 C62152
6	32	UNC	.1380	2	2	11/16	—	H2 C00783
6	32	UNC	.1380	2	2	11/16	C69193	H3 C62153
6	40	UNF	.1380	2	2	11/16	—	H2 C00784
8	32	UNC	.1640	2	2-1/8	3/4	—	H2 C00785
8	32	UNC	.1640	2	2-1/8	3/4	C69194	H3 C62154
8	36	UNF	.1640	2	2-1/8	3/4	—	H2 C00786
10	24	UNC	.1900	2	2-3/8	7/8	—	H2 C00787
10	24	UNC	.1900	2	2-3/8	7/8	C69195	H3 C62155
10	32	UNC	.1900	2	2-3/8	7/8	—	H2 C00788
10	32	UNF	.1900	2	2-3/8	7/8	C69196	H3 C62156
12	24	UNC	.2160	2	2-3/8	15/16	C69197	H3 C62157
12	28	UNF	.2160	2	2-3/8	15/16	—	H3 C00789
1/4	20	UNC	.2500	2	2-1/2	1	C69198	H3 C62158
1/4	20	UNC	.2500	3	2-1/2	1	—	H3 C00790
1/4	20	UNC	.2500	3	2-1/2	1	—	H5 C00791
1/4	28	UNF	.2500	2	2-1/2	1	C69199	H3 C62159
5/16	18	UNC	.3125	2	2-23/32	1-1/8	C69200	H3 C62160
5/16	18	UNC	.3125	3	2-23/32	1-1/8	—	H3 C00793
5/16	18	UNC	.3125	3	2-23/32	1-1/8	—	H5 C00794
5/16	24	UNF	.3125	2	2-23/32	1-1/8	C69201	H3 C62161
3/8	16	UNC	.3750	3	2-15/16	1-1/4	C69202	H3 C62162
3/8	16	UNC	.3750	3	2-15/16	1-1/4	—	H5 C00795
3/8	24	UNF	.3750	3	2-15/16	1-1/4	C69203	H3 C62163
7/16	14	UNC	.4375	3	3-5/32	1-7/16	—	H3 C00796
7/16	14	UNC	.4375	3	3-5/32	1-7/16	—	H5 C00797
7/16	20	UNF	.4375	3	3-5/32	1-7/16	—	H3 C00798
7/16	20	UNF	.4375	3	3-5/32	1-7/16	—	H5 C00799
1/2	13	UNC	.5000	3	3-3/8	1-21/32	C69204	H5 C62164
1/2	13	UNC	.5000	3	3-3/8	1-21/32	—	H5 C00800
1/2	20	UNF	.5000	3	3-3/8	1-21/32	—	H5 C00801
5/8	11	UNC	.6250	3	3-13/16	1-13/16	—	H3 C00802
5/8	11	UNC	.6250	3	3-13/16	1-13/16	—	H5 C00803
5/8	18	UNF	.6250	3	3-13/16	1-13/16	—	H3 C00804
3/4	10	UNC	.7500	3	4-1/4	2	—	H3 C00805
3/4	10	UNC	.7500	3	4-1/4	2	—	H5 C00806
3/4	16	UNF	.7500	3	4-1/4	2	—	H3 C00807



TAPS & DIES



Note
Style 0411M is provided with D-limits.
Style 1694M are maintenance taps.

tap size and TPI	decimal equiv.	no. of flutes	overall length	thread length	order number		
					 1694M Plug	0411M D-limit	Plug
M2 x 0.4	.0787	2	1-3/4	7/16	C69205	D3	C62172
M3 x 0.5	.1181	2	1-15/16	5/8	C69206	D3	C62175
M4 x 0.7	.1575	2	2-1/8	3/4	C69207	D4	C62177
M5 x 0.8	.1969	2	2-3/8	7/8	C69208	D4	C62179
M6 x 1	.2362	2	2-1/2	1	C69209	D5	C62180
M8 x 1.25	.3150	2	2-23/32	1-1/8	C69210	D5	C62183
M10 x 1.5	.3937	3	2-15/16	1-1/4	C69211	D6	C62185
M12 x 1.75	.4724	3	3-3/8	1-21/32	C69212	D6	C62187
M16 x 2	.6299	3	3-51/64	1-13/16	C69213	D7	C62191

Pipe Tap Taper

General Purpose Taps / Dies



Styles: **1686, 1700, 0462, 1688, 0464**

Note

3-1/2 thread chamfer.

- Style #0462: regular NPT thread design
- Style #0464: interrupted thread for better lubrication and chip clearance.



Regular NPT Thread



Interrupted NPT Thread

tap size	tap TPI	tap series	decimal equiv.	shank diameter	overall length	thread length	flutes	order number regular threads			order number interrupted thread		
								1686 HSS	1700 carbon	0462 HSS	1688 HSS	0464 HSS	
1/8	27	NPT	.1250	.3125	2-1/8	3/4	4	C69315	C69507	C64213	5	C69325	C64223
1/8*	27	NPT	.1250	.4375	2-1/8	3/4	4	C69316	—	C64214	5	C69326	C64224
1/4	18	NPT	.2500	.5626	2-7/16	1-1/16	4	C69317	C69508	C64215	5	C69327	C64225
3/8	18	NPT	.3750	.7000	2-9/16	1-1/16	4	C69318	C69509	C64216	5	C69328	C64226
1/2	14	NPT	.5000	.6875	3-1/8	1-3/8	4	C69319	C69510	C64217	5	C69329	C64227
3/4	14	NPT	.7500	.9063	3-1/4	1-3/8	5	C69320	C69511	C64218	5	C69330	C64228
1	11-1/2	NPT	1.0000	1.1250	3-3/4	1-3/8	5	C69321	C69512	C64219	5	C69331	C64229
1-1/4	11-1/2	NPT	1.2500	1.3125	4	1-3/4	5	C69322	—	C64220	5	C69332	C64230
1-1/2	11-1/2	NPT	1.5000	1.5000	4-1/4	1-3/4	7	C69323	—	C64221	—	—	—
2	11-1/2	NPT	2.0000	1.8750	4-1/2	1-3/4	7	C69324	—	C64222	—	—	—

*large shank

Pipe Tap Straight Pipe Taps

Styles: **1687, 0463**

Note

3-1/2 thread chamfer.

NPS thread design
- suitable for NPSC or NPSM.



NPS Thread

tap size	tap TPI	tap series	decimal equiv.	no. of flutes	shank diameter	overall length	thread length	order number	
								1687 Bright	0463 Bright
1/8	27	NPSC	.1250	4	.4375	2-1/8	3/4	C69333	C64231
1/4	18	NPSC	.2500	4	.5626	2-7/16	1-1/16	C69334	C64232
3/8	18	NPSC	.3750	4	.7000	2-9/16	1-1/16	C69335	C64233
1/2	14	NPSC	.5000	4	.6875	3-1/8	1-3/8	C69336	C64234
3/4	14	NPSC	.7500	5	.9063	3-1/4	1-3/8	C69337	C64235
1	11-1/2	NPSC	1.0000	5	1.1250	3-3/4	1-3/8	C69338	C64236





Note
Drill and tap in one operation
without changing tools.
Two flutes run length of the tool.



Tap/Drill

tap size	tap TPI	thread series	decimal equiv.	no. of flutes	overall length	thread length	drill length	drill size	order number
6	32	UNF	.1380	2	2	7/16	5/16	.1095	0450 Bright C64937
8	32	UNC	.1640	2	2-1/8	1/2	3/8	.1360	C64960
10	32	UNF	.1900	2	2-3/8	5/8	13/32	.1610	C64961
1/4	20	UNC	.2500	2	2-1/2	25/32	17/32	.2010	C64949
5/16	18	UNC	.3125	2	3	15/16	11/16	.2570	C64952
3/8	16	UNC	.3750	2	3-1/2	1-1/16	13/16	.3125	C64955

USCTI Table 325 – Thread Limits

nominal size and TPI	major diameter			pitch diameter			nominal size and TPI	major diameter			pitch diameter		
	basic	min	max	basic	min	max		basic	min	max	basic	min	max
1/16 64 NS	.0625	.0635	.0650	.0524	.0526	.0536	7/8 9 NC	.8750	.8820	.8860	.8028	.8038	.8068
1/8 40 NS	.1250	.1266	.1286	.1088	.1090	.1105	7/8 14 NF	.8750	.8799	.8839	.8286	.8296	.8321
5/32 32 NS	.1563	.1585	.1605	.1360	.1365	.1380	7/8 18 NS	.8750	.8790	.8830	.8389	.8399	.8424
8/16 24 NS	.1875	.1903	.1923	.1604	.1609	.1624	1 8 NC	1.0000	1.0078	1.0118	.9188	.9198	.9228
3/16 32 NS	.1875	.1897	.1917	.1672	.1677	.1692	1 12 NF	1.0000	1.0055	1.0095	.9459	.9469	.9494
1/4 20 NC	.2500	.2532	.2557	.2175	.2180	.2200	1 14 NS	1.0000	1.0049	1.0089	.9536	.9546	.9571
1/4 28 NF	.2500	.2524	.2549	.2268	.2273	.2288	1-1/8 7 NC	1.1250	1.1337	1.1382	1.0322	1.0332	1.0367
5/16 18 NC	.3125	.3160	.3185	.2764	.2769	.2789	1-1/8 12 NF	1.1250	1.1305	1.1350	1.0709	1.0719	1.0749
5/16 24 NF	.3125	.3153	.3178	.2854	.2859	.2874	1-1/4 7 NC	1.2500	1.2587	1.2632	1.1572	1.1582	1.1617
3/8 16 NC	.3750	.3789	.3814	.3344	.3349	.3369	1-1/4 12 NC	1.2500	1.2555	1.2600	1.1959	1.1969	1.1999
3/8 24 NF	.3750	.3778	.3803	.3479	.3484	.3499	1-3/8 6 NC	1.3750	1.3850	1.3895	1.2667	1.2677	1.2712
7/16 14 NC	.4375	.4419	.4449	.3911	.3916	.3941	1-3/8 12 NF	1.3750	1.3805	1.3850	1.3209	1.3219	1.3249
7/16 20 NF	.4375	.4407	.4437	.4050	.4055	.4075	1-1/2 6 NC	1.5000	1.5100	1.5145	1.3917	1.3927	1.3962
1/2 13 NC	.5000	.5047	.5077	.4500	.4505	.4530	1-1/2 12 NF	1.5000	1.5055	1.5100	1.4459	1.4469	1.4499
1/2 20 NF	.5000	.5032	.5062	.4675	.4680	.4700	1-5/8 6 NS	1.6250	1.6355	1.6410	1.5167	1.5182	1.5222
9/16 12 NC	.5625	.5675	.5705	.5084	.5089	.5114	1-3/4 5 NC	1.7500	1.7602	1.7657	1.6201	1.6216	1.6256
9/16 18 NF	.5625	.5660	.5690	.5264	.5269	.5289	1-7/8 5 NS	1.8750	1.8852	1.8907	1.7451	1.7466	1.7506
5/8 11 NC	.6250	.6304	.6334	.5660	.5665	.5690	2 4-1/2 NC	2.0000	2.0111	2.0166	1.8557	1.8572	1.8612
5/8 18 NF	.6250	.6285	.6315	.5889	.5894	.5914	2-1/4 4-1/2 NC	2.2500	2.2611	2.2671	2.1057	2.1072	2.1117
3/4 10 NC	.7500	.7559	.7599	.6850	.6855	.6885	2-1/2 4 NC	2.5000	2.5128	2.5188	2.3376	2.3396	2.3441
3/4 16 NF	.7500	.7539	.7579	.7094	.7099	.7124							

Die - Hexagon Re-Threading

General Purpose Taps / Dies



Styles: **0650, 492**

Note

Used in repair work for dressing over bruised and rusty threads.

Can be used only in free machining materials.

Metric sizes shown after inch.



order number

die diameter TPI and series			decimal equiv.	length across flats	thickness	0650 Carbon Steel	492 High-Speed Steel
1/4	20	UNC	.2500	19/32	1/4	C65601	C77600
1/4	28	UNF	.2500	19/32	1/4	C65602	C77602
5/16	18	UNC	.3125	11/16	5/16	C65603	C77604
5/16	24	UNF	.3125	11/16	5/16	C65605	C77606
3/8	16	UNC	.3750	25/32	3/8	C65606	C77608
3/8	24	UNF	.3750	25/32	3/8	C65607	C77610
7/16	14	UNC	.4375	7/8	7/16	C65608	C77612
7/16	20	UNF	.4375	7/8	7/16	C65609	C77614
1/2	13	UNC	.5000	1-1/16	1/2	C65610	C77616
1/2	20	UNF	.5000	1-1/16	1/2	C65611	C77618
9/16	12	UNC	.5625	1-1/16	1/2	C65612	C77620
9/16	18	UNF	.5625	1-1/16	1/2	C65613	C77622
5/8	11	UNC	.6250	1-1/4	5/8	C65614	C77624
5/8	18	UNF	.6250	1-1/4	5/8	C65615	C77626
11/16	11	NS	.6875	1-7/16	3/4	C65616	—
11/16	16	NS	.6875	1-7/16	3/4	C65617	—
3/4	10	UNC	.7500	1-7/16	3/4	C65618	C77628
3/4	16	UNF	.7500	1-7/16	3/4	C65619	C77630
7/8	9	UNC	.8750	1-5/8	7/8	C65620	C77632
7/8	14	UNF	.8750	1-5/8	7/8	C65621	C77634
1	8	UNC	1.0000	1-13/16	1	C65622	C77636
1	12	UNF	1.0000	1-13/16	1	C65623	C77638
1	14	NS	1.0000	1-13/16	1	C65624	C77640
1-1/8	7	UNC	1.1250	2	1	C65625	C77642
1-1/8	12	UNF	1.1250	2	1	C65627	C77644
1-1/4	7	UNC	1.2500	2-3/16	1	C65628	C77646
1-1/4	12	UNF	1.2500	2-3/16	1	C65629	—
1-3/8	6	UNC	1.4100	2-3/8	1	C65630	C77648
1-3/8	12	UNF	1.4100	2-3/8	1	C65631	—
1-1/2	6	UNC	1.5000	2-9/16	1	C65632	C77650
1-1/2	12	UNF	1.5000	2-9/16	1	C65633	—

Die - Hexagon Taper Pipe - Carbon Steel

Style: **0660**

die diameter TPI and series			decimal equiv.	length across flats	thickness	order number 0660 Carbon Steel
1/8	27	NPT	.1250	1-1/16	3/8	C65571
1/4	18	NPT	.2500	1-1/4	5/8	C65572
3/8	18	NPT	.3750	1-7/16	5/8	C65573
1/2	14	NPT	.5000	1-5/8	3/4	C65574
3/4	14	NPT	.7500	2	13/16	C65575
1	11-1/2	NPT	1.0000	2-3/8	1	C65576

Styles: **0650M**

Die - Hexagon
Metric Re-Threading

die diameter TPI and series	decimal equiv.	length across flats	thickness	order number 0650M Carbon Steel
M5 x 0.8	.1969	19/32	1/4	C65580
M6 x 1	.2362	19/32	1/4	C65581
M8 x 1.25	.3150	11/16	5/16	C65582
M10 x 1.5	.3937	7/8	7/16	C65583
M12 x 1.75	.4724	1-1/16	1/2	C65584
M14 x 2	.5512	1-1/16	1/2	C65585
M16 x 2	.6299	1-1/4	5/8	C65586
M20 x 2.5	.7874	1-5/8	7/8	C65587

DRILLS

SET

Styles: **0650, 0650M**

Die - Hexagon
Re-Threading Sets

Plastic Case



TAPS & DIES

SAWS

CARBIDE BURS

INDEX

Note

NC or NF sets

1 each of die sizes listed

Inch Sizes

set number	number of sizes	die sizes		order number
42NC	8	1/4-20 NC	1/2-13 NC	C67275
		5/16-18 NC	9/16-12 NC	
		3/8-16 NC	5/8-11 NC	
		7/16-14 NC	3/4-10 NC	
42NF	8	1/4-28 NF	1/2-20 NF	C67276
		5/16-24 NF	9/16-18 NF	
		3/8-24 NF	5/8-11 NF	
		7/16-20 NF	3/4-16 NF	
44NC	10	1/4-20 NC	9/16-12 NC	C67278
		5/16-18 NC	5/8-11 NC	
		3/8-16 NC	3/4-10 NC	
		7/16-14 NC	7/8-9 NC	
		1/2-13 NC	1-8 NC	
		1-8 NC	1-14 NF	
45NCNF	20	1/4-20 NC	1/4-28 NF	C67282
		5/16-18 NC	5/16-24 NF	
		3/8-16 NC	3/8-24 NF	
		7/16-14 NC	7/16-20 NF	
		1/2-13 NC	1/2-20 NF	
		9/16-12 NC	9/16-18 NF	
		5/8-11 NC	5/8-18 NF	
		3/4-10 NC	3/4-16 NF	
		7/8-9 NC	7/8-14 NF	
		1-8 NC	1-14 NF	
NC/NF	10	1/4-20NC	1/4-28NF	C67284
		5/16-18NC	5/16-24NF	
		3/8-16NC	3/8-24NF	
		7/16-14NC	7/16-20NF	
		1/2-13NC	1/2-20NF	

Metric Sizes

set number	number of sizes	die sizes	order number
49Metric	7	M6 x 1 M8 x 1.25 M10 x 1.5 M12 x 1.75 M14 x 2 M16 x 2 M20 x 2.5	C67283



8-Piece Die Set #C67275



20-Piece Die Set #C67282

Die - Adjustable Round

General Purpose Taps / Dies



Styles: **0610, 0710**

Note

- Short chamfer on both sides of die to extend tool life.
- Adjustable for wear and size.
- Cut external threads when held in a die stock.
- Produce UN thread form.
- Can be used for close to shoulder work.



TAPS & DIES



							order number									order number	
die diameter			decimal equiv.	outside dia.	thick-ness	0610 Carbon Steel	0710 HSS	die diameter			decimal equiv.	outside dia.	thick-ness	0610 Carbon Steel	0710 HSS		
TPI	and thread							TPI	and series								
0	80	UNF	.0600	13/16	1/4	C65022	—	7/16	14	UNC	.4375	1	3/8	C65171	C65828		
1	64	UNC	.0730	13/16	1/4	C65026	—	7/16	14	UNC	.4375	1-1/2	1/2	C65220	C65865		
1	72	UNF	.0730	13/16	1/4	C65027	—	7/16	14	UNC	.4375	2	5/8	C65292	—		
2	56	UNC	.0860	13/16	1/4	C65036	—	7/16	20	UNF	.4375	1	3/8	C65172	C65829		
2	64	UNF	.0860	13/16	1/4	C65037	—	7/16	20	UNF	.4375	1-1/2	1/2	C65221	C65866		
3	48	UNC	.0990	13/16	1/4	C65045	—	7/16	20	UNF	.4375	2	5/8	C65293	—		
3	56	UNF	.0990	13/16	1/4	C65046	—	1/2	13	UNC	.5000	1	3/8	C65470	—		
4	40	UNC	.1120	13/16	1/4	C65048	—	1/2	13	UNC	.5000	1-1/2	1/2	C65232	C65875		
4	48	UNF	.1120	13/16	1/4	C65049	—	1/2	13	UNC	.5000	2	5/8	C65303	—		
5	40	UNC	.1250	13/16	1/4	C65057	C65729	1/2	20	UNF	.5000	1	3/8	C65471	—		
5	44	UNF	.1250	13/16	1/4	C65058	C65730	1/2	20	UNF	.5000	1-1/2	1/2	C65233	C65876		
6	32	UNC	.1380	13/16	1/4	C65061	C65733	1/2	20	UNF	.5000	2	5/8	C65304	—		
6	32	UNC	.1380	1	3/8	C65114	C65785	9/16	12	UNC	.5625	1-1/2	1/2	C65239	C65881		
6	40	UNF	.1380	13/16	1/4	C65062	C65734	9/16	12	UNC	.5625	2	5/8	C65311	—		
8	32	UNC	.1640	13/16	1/4	C65069	C65739	9/16	18	UNF	.5625	1-1/2	1/2	C65240	C65882		
8	32	UNC	.1640	1	3/8	C65119	C65789	9/16	18	UNF	.5625	2	5/8	C65312	—		
8	36	UNF	.1640	13/16	1/4	C65070	C65740	5/8	11	UNC	.6250	1-1/2	1/2	C65243	C65884		
10	24	UNC	.1900	13/16	1/4	C65075	C65743	5/8	11	UNC	.6250	2	5/8	C65315	C65946		
10	24	UNC	.1900	1	3/8	C65124	C65792	5/8	11	UNC	.6250	2-1/2	3/4	C65374	—		
10	32	UNF	.1900	13/16	1/4	C65076	C65744	5/8	18	UNF	.6250	1-1/2	1/2	C65244	C65885		
10	32	UNF	.1900	1	3/8	C65125	C65793	5/8	18	UNF	.6250	2	5/8	C65316	C65947		
12	24	UNC	.2160	13/16	1/4	C65083	C65751	3/4	10	UNC	.7500	1-1/2	1/2	C65250	—		
12	24	UNC	.2160	1	3/8	C65132	C65798	3/4	10	UNC	.7500	2	5/8	C65328	C65957		
12	28	UNF	.2160	13/16	1/4	C65084	C65752	3/4	10	UNC	.7500	2-1/2	3/4	C65384	—		
1/4	20	UNC	.2500	13/16	1/4	C65093	C65760	3/4	16	UNF	.7500	1-1/2	1/2	C65251	—		
1/4	20	UNC	.2500	1	3/8	C65140	C65804	3/4	16	UNF	.7500	2	5/8	C65329	C65958		
1/4	20	UNC	.2500	1-1/2	1/2	C65192	C65839	3/4	16	UNF	.7500	2-1/2	3/4	C65385	—		
1/4	20	UNC	.2500	2	5/8	C65264	—	7/8	9	UNC	.8750	2	5/8	C65339	C65966		
1/4	28	UNF	.2500	13/16	1/4	—	C65761	7/8	9	UNC	.8750	2-1/2	3/4	C65395	—		
1/4	28	UNF	.2500	1	3/8	C65142	C65805	7/8	14	UNF	.8750	2	5/8	C65340	C65967		
1/4	28	UNF	.2500	1-1/2	1/2	C65193	C65840	7/8	14	UNF	.8750	2-1/2	3/4	C65396	—		
1/4	28	UNF	.2500	2	5/8	C65265	—	1	8	UNC	1.0000	2	5/8	C65349	—		
5/16	18	UNC	.3125	13/16	1/4	—	C65766	1	8	UNC	1.0000	2-1/2	3/4	C65405	—		
5/16	18	UNC	.3125	1	3/8	C65147	C65808	1	8	UNC	1.0000	3	1	C65416	—		
5/16	18	UNC	.3125	1-1/2	1/2	C65197	C65844	1	12	UNF	1.0000	2	5/8	C65350	—		
5/16	18	UNC	.3125	2	5/8	C65269	—	1	12	UNF	1.0000	2-1/2	3/4	C65406	—		
5/16	24	UNF	.3125	13/16	1/4	—	C65767	1	12	UNF	1.0000	3	1	C65417	—		
5/16	24	UNF	.3125	1	3/8	C65148	C65809	1	14	UNF	1.0000	2	5/8	C65407	—		
5/16	24	UNF	.3125	1-1/2	1/2	C65198	C65845	1-1/8	7	UNC	1.1250	3	1	C65426	—		
5/16	24	UNF	.3125	2	5/8	C65270	—	1-1/8	12	UNC	1.1250	3	1	C65427	—		
3/8	16	UNC	.3750	1	3/8	C65159	C65816	1-1/4	7	UNC	1.2500	3	1	C65433	—		
3/8	16	UNC	.3750	1-1/2	1/2	C65208	C65855	1-1/4	12	UNF	1.2500	3	1	C65434	—		
3/8	16	UNC	.3750	2	5/8	C65280	—	1-3/8	6	UNC	1.3750	3	1	C65441	—		
3/8	24	UNF	.3750	1	3/8	C65160	C65817	1-3/8	12	UNF	1.3750	3	1	C65442	—		
3/8	24	UNF	.3750	1-1/2	1/2	C65209	C65856	1-1/2	6	UNC	1.5000	3	1	C65449	—		
3/8	24	UNF	.3750	2	5/8	C65281	—	1-1/2	12	UNF	1.5000	3	1	C65450	—		

continued on next page



Styles: **0620, 0710M**

Taper pipe sizes – Carbon Steel

die diameter TPI and series	decimal equiv.	outside dia.	thick- ness	order number 0620 Carbon Steel
1/8 27 NPT	.1250	1	3/8	C65491
1/8 27 NPT	.1250	1-1/2	1/2	C65492
1/4 18 NPT	.2500	1-1/2	1/2	C65493
1/4 18 NPT	.2500	2	5/8	C65495
3/8 18 NPT	.3750	1-1/2	1/2	C65494
3/8 18 NPT	.3750	2	5/8	C65496
1/2 14 NPT	.5000	2	5/8	C65497

Metric Sizes - High-Speed Steel

die diameter and TPI	decimal equiv.	outside dia.	thick- ness	order number 0710M HSS
M2.5 x 0.45	.0984	13/16	1/4	C65721
M3 x 0.5	.1181	13/16	1/4	C65724
M3.5 x 0.6	.1378	13/16	1/4	C65732
M4 x 0.7	.1575	13/16	1/4	C65737
M4.5 x 0.75	.1772	13/16	1/4	C65742
M5 x 0.8	.1969	13/16	1/4	C65747
M6 x 1	.2362	13/16	1/4	C65757
M6 x 1	.2362	1	3/8	C65801
M7 x 1	.2756	1	3/8	C65807
M8 x 1.25	.3150	1	3/8	C65813
M10 x 1.5	.3937	1	3/8	C65824
M12 x 1.75	.4724	1	3/8	C65833
M14 x 2	.5512	1-1/2	1/2	C65880
M16 x 2	.6300	1-1/2	1/2	C65889
M18 x 2.5	.7087	1-1/2	1/2	C65896
M20 x 2.5	.7874	1-1/2	1/2	C65901

Styles: **222, 224**

Die Stock
Round Adjustable

Note

Style #222: holds round adjustable dies with three adjusting screws.

Style #224: stocks have built-in workpiece guide and lock in place with two set screws.



Style #222 Die Stock



Style #224 Die Stock

product number	die O.D.	overall length	order number 222
2	13/16	6-1/4	C67223
3	1	9	C67224
5	1-1/2	13-7/8	C67226
6	2	23	C67227
7	2-1/2	29	C67228
8	3	40	C67229

product number	die O.D.	overall length	order number 224
13	13/16	6-1/4	C67235
14	1	13	C67236
15	1-1/2	18	C67237
16	2	26	C67238

Tap & Die Sets

Round - Adjustable

General Purpose Taps / Dies



SET

Descriptions below

Note

Each includes:
 Combination UNC/UNF sizes.
 1 each of tap and die sizes listed.
 Tap wrench and die stock included.
 Metal case.

HSS Maintenance Hand Taps and
 Carbon Steel Round Adjustable Die.



8 Size Set
 #C67271

Inch and Metric Sizes

set number	number of sizes	tap and die sizes		order number	set number	number of sizes	tap and die sizes		order number
26S	8	2-56 UNC	8-32 UNC	C67271	815	20	1/4-20 UNC	1/4-28 UNF	C67293
		3-48 UNC	10-24 UNC				5/16-18 UNC	5/16-24 UNF	
		4-40 UNC	10-32 UNF				3/8-16 UNC	3/8-24 UNF	
		6-32 UNC	12-24 UNC				7/16-14 UNC	7/16-20 UNF	
517	7	4-40 UNC	10-24 UNC	C00517	533	28 Taps 15 Dies	1/2-13 UNC	1/2-20 UNF	C00533
		6-32 UNC	10-32 UNF				9/16-12 UNC	9/16-18 UNF	
		8-32 UNC	12-24 UNC				5/8-11 UNC	5/8-18 UNF	
			1/4-20 UNC				3/4-10 UNC	3/4-16 UNF	
518	5	1/4-20 UNC	3/8-16 UNC	C00518			7/8-9 UNC	7/8-14 UNF	
		5/16-18 UNC	7/16-14 UNC		1-8 UNC	1-12 UNF			
525	8	0-80 UNF	4-40 UNC	C00525			4-40 UNC	1/4-20 UNC	C00533
		1-72 UNF	6-32 UNC		6-32 UNC	1/4-28 UNF			
		2-56 UNC	8-32 UNC		8-32 UNC	5/16-18 UNC			
		3-48 UNC	10-24 UNC		10-24 UNC	5/16-24 UNF			
526	10	4-40 UNC	4-48 UNF	C00526			10-32 UNF	3/8-16 UNC	C00533
		6-32 UNC	6-40 UNF		12-24 UNC	3/8-24 UNF			
		8-32 UNC	8-36 UNF		7/16-14 UNC	7/16-20 UNF			
		10-24 UNC	10-32 UNF		1/2-13 UNC	1/2-20 UNF			
		12-24 UNC	12-28 UNF		9/16-12 UNC	9/16-18 UNF			
528	11	1/4-20 UNC	1/4-28 UNF	C00528				5/8-18 UNC	C00533
		5/16-18 UNC	5/16-24 UNF			3/4-16 UNC			
		3/8-16 UNC	3/8-24 UNF			7/8-14 UNC			
		7/16-14 UNC	7/16-20 UNF			1-14 UNS			
		1/2-13 UNC	1/2-20 UNF						
532	21		1/8-27 (short shank)	C00532			pipe sizes	1/8-27 (long shank)	C00533
		1/4-20 UNC	1/4-28 UNF			1/4-18			
		5/16-18 UNC	5/16-24 UNF			3/8-18			
		3/8-16 UNC	3/8-24 UNF			1/2-14			
		7/16-14 UNC	7/16-20 UNF			M14 x 1.5			
		1/2-13 UNC	1/2-20 UNF			metric sizes	M18 x 1.5		
		9/16-12 UNC	9/16-18 UNF						
		5/8-11 UNC	5/8-18 UNF						
		3/4-10 UNC	3/4-16 UNF						
		7/8-9 UNC	7/8-14 UNF						
		1-8 UNC	1-14 UNS						
		pipe size	1/8-27 (long shank)						

TAPS & DIES



Descriptions below

HSS

Note

Tap & Die Sets with Maintenance Hand Taps and HSS Round Adjustable Dies (metric sizes).



5 Size Set
#C00449

set number	number of sizes	tap and die sizes		order number
448	7	M2.5 x 0.45	M4 x 0.7	C00448
		M3 x 0.5	M4.5 x 0.75	
		M3.5 x 0.6	M5 x 0.8	
			M6 x 1.0	
449	5	M6 x 1.0	M8 x 1.25	C00449
		M7 x 1.0	M10 x 1.5	
			M12 x 1.75	

DRILLS

TAPS & DIES

Description below

Tap, Die & Drill Set
Metric Round - Adjustable

HSS

Note

Each includes:

- 1 HSS tap, die, and black jobber drill sizes listed.
- Tap wrench, die stock, and screwdriver.
- Metal case.



5 Size Set
#C00451

set number	number of sizes	tap and die sizes	drill size	order number
451	5	M6 x 1.0	5.0mm	C00451
		M7 x 1.0	6.0mm	
		M8 x 1.25	6.7mm	
		M10 x 1.5	8.5mm	
		M12 x 1.75	10.2mm	

SAWS

SET

Styles: 1860

Plastic Tube Case

Jobber
Drill and Tap Sets

NEW



jobber drill sizes	plug tap spiral point	no. of pieces	order number
			1860
36	6-32	2	C22305
29	8-32	2	C22304
25	10-24	2	C22307
21	10-32	2	C22306
7	1/4-20	2	C22308
F	5/16-18	2	C22300
5/16"	3/8-16	2	C22303
U	7/16-14	2	C22302
27/64"	1/2-13	2	C22301

CARBIDE BURS

INDEX

Quick Two-Piece Die Assembly

Styles: **0550, 0551, 0552, 0553** General Information

- Quick-Set Two-Piece Die System consists of these parts
Series 0550 — Die
Series 0551 — Cap
Series 0552 — Guide
Series 0553 — Collet
- Inch sizes are sold as a complete assembly (see table on this page), or in their component parts.
- Metric sizes are sold in their component parts only.
- Use with Quick-Set die stocks; see page 72.
- Collets for use with Quick-Set dies consist of a cap and a guide; order cap and guide separately, or assembled as a collet (see below).
- Die halves are seated in the beveled cap slot and held in place by the guide, which screws into the underside of the cap.
- Die is adjusted by the set screws at either end of the slot.
- Caps of a given outside diameter are made with several different sizes of slots to take different sizes of dies as indicated in the table below.
- Separate guide is required for each cutting size.
- To order separate guides, specify cutting size of the die and the size of the collet for 1/4" and 1/2" dies.

Application Information:

- Use in most maintenance applications.
- Ideal for hand threading operations.

Collet Assembly and Components

SET

Styles: **0550, 0551, 0552, 0553, 0554**

Note

Most cutting sizes may be ordered by size only; however, sizes 1/4" and 1/2" can be furnished in two different blanks, which should be ordered by size and collet number.

Unified and American National thread form standard.

Two-piece construction with two cutting edges in each piece.

Easy to sharpen.

One side has a 2 to 3 thread chamfer for threading; the other side has a 1 to 1-1/2 thread chamfer for threading close to a shoulder.

Unified and American National thread form standard.

Enables a wide range of adjustments.



Assembly
(combined Die & Collet)



Die



Cap



Guide



Collet
(combined Cap & Guide)

Inch Sizes

nominal diameter TPI and series	decimal equiv.	collet no.	collet O.D.	order number		order number			order number		
				0554 assembly	die blank no.	0550 die	cap O.D.	0551 cap	0552 guide	0553 collet	
4 40 UNC	.1120	A1	1-1/4	C66782	A1	C66693	1-1/4	C66727	C66681	C66754	
6 32 UNC	.1380	A1	1-1/4	C66783	A1	C66694	1-1/4	C66727	C66682	C66755	
8 32 UNC	.1640	A1	1-1/4	C66784	A1	C66695	1-1/4	C66727	C66683	C66756	
10 24 UNC	.1900	A1	1-1/4	C66785	A1	C66696	1-1/4	C66727	C66684	C66757	
10 32 UNF	.1900	A1	1-1/4	C66786	A1	C66697	1-1/4	C66727	C66684	C66757	
12 24 UNC	.2160	A1	1-1/4	C66787	A1	C66698	1-1/4	C66727	C66685	C66758	
1/4 20 UNC	.2500	A1	1-1/4	C66788	A1	C66699	1-1/4	C66727	C66686	C66759	
1/4 20 UNC	.2500	1,5	2	C66789	A	C66701	2	C66728	C66737	C66775	
1/4 28 UNF	.2500	1	2	C66790	A1	C66700	2	C66728	C66737	C66775	
1/4 28 UNF	.2500	1	2	C66790	A	C66702	2	C66728	C66737	C66775	
5/16 18 UNC	.3125	1,5	2	C66791	A	C66703	2	C66728	C66738	C66776	
5/16 24 UNF	.3125	1,5	2	C66792	A	C66704	2	C66728	C66738	C66776	
3/8 16 UNC	.3750	1,5	2	C66793	B	C66705	2	C66729	C66739	C66777	
3/8 24 UNF	.3750	1,5	2	C66794	B	C66706	2	C66729	C66739	C66777	
7/16 14 UNC	.4375	1,5	2	C66795	B	C66707	2	C66729	C66740	C66778	
7/16 20 UNF	.4375	1,5	2	C66796	B	C66708	2	C66729	C66740	C66778	

Styles: **0550, 0551, 0552, 0553, 0554** (continued)

nominal diameter TPI and series	decimal equiv.	collet no.	collet O.D.	order number		order number		order number		
				0554 assembly	die blank no.	0550 die	cap O.D.	0551 cap	0552 guide	0553 collet
1/2 13 UNC	.5000	1	2	C66797	B	C66709	2	C66729	C66741	C66764
1/2 13 UNC	.5000	5	2-3/4	C66801	B	C66711	2	C66732	C66746	C66769
1/2 20 UNF	.5000	1	2	C66798	C	C66710	2-3/4	C66729	C66741	C66764
1/2 20 UNF	.5000	5	2-3/4	C66802	C	C66712	2-3/4	C66732	C66746	C66769
9/16 12 UNC	.5625	5	2-3/4	C66803	C	C66713	2-3/4	C66732	C66747	C66770
9/16 18 UNF	.5625	5	2-3/4	C66804	C	C66714	2-3/4	C66732	C66747	C66770
5/8 11 UNC	.6250	5	2-3/4	C66805	C	C66715	2-3/4	C66732	C66748	C66771
5/8 18 UNF	.6250	5	2-3/4	C66806	C	C66716	2-3/4	C66732	C66748	C66771
3/4 10 UNC	.7500	5	2-3/4	C66807	C	C66717	2-3/4	C66732	C66749	C66772
3/4 16 UNF	.7500	5	2-3/4	C66808	C	C66718	2-3/4	C66732	C66749	C66772
7/8 9 UNC	.8750	5	2-3/4	C66809	D	C66719	2-3/4	C66733	C66750	C66773
7/8 14 UNF	.8750	5	2-3/4	C66810	D	C66720	2-3/4	C66733	C66750	C66773
1 8 UNC	1.0000	5	2-3/4	C66811	D	C66721	2-3/4	C66733	C66751	C66774
1 12 UNF	1.0000	5	2-3/4	C66812	D	C66722	2-3/4	C66733	C66751	C66774
1 14 UNS	1.0000	5	2-3/4	C66813	D	C66723	2-3/4	C66733	C66751	C66774

Styles: **0550, 0551, 0552, 0553, 0554** (continued)

nominal diameter TPI and series	decimal equiv.	collet no.	die blank no.	order number		order number		
				0550 Die	cap O.D.	0551 cap	0552 guide	0553 collet
M6 x 1	.2362	5	A	C66670	2-3/4	—	C66820	—
M8 x 1.25	.3150	5	A	C66671	2-3/4	—	C66821	—
M10 x 1.5	.3937	5	B	C66672	2-3/4	—	C66822	—
M12 x 1.75	.4724	5	B	C66673	2-3/4	—	C66823	—
M14 x 2	.5512	5	C	C66674	2-3/4	C66732	C66824	—
M16 x 2	.6300	5	C	C66675	2-3/4	C66732	C66825	—
M18 x 2.5	.7087	5	C	C66676	2-3/4	C66732	C66826	—
M20 x 2.5	.7874	5	C	C66677	2-3/4	C66732	C66827	—
M22 x 2.5	.8661	5	D	C66678	2-3/4	C66733	C66828	—
M24 x 3	.9449	5	D	C66679	2-3/4	C66733	C66829	—

Quick Two-Piece Die System

Style: **223**

Carbon Steel

Note

Use with all Style #0554 Quick-Set collets with two-piece dies.

Application Information:

Quick-Set die stocks have center holes corresponding to the outside diameter of the Quick-Set collets.

stock no.	collet no.	collet capacity	length of stock	order number
#A1	A1	1-1/4	7-1/2	C67216
#1	1	2	14-1/2	C67214
#5	5	2-3/4	23	C67217
#5A	5	2-3/4	26	C67215
#5B	5	2-3/4	29	C67218



Jr. Quick Die Stock

Style: **225**

Carbon Steel

Note

Use with all Series 0550 Quick-Set two-piece dies without collet.

Application Information:

- Quick-Set Jr. die stocks are designed to use Quick-Set dies without collets.
- Double slots enable use of two different size blanks in the same stock.
- Dies fit directly into the stock and are held in place by a screw guide.

stock no.	cutting size	die blank size	guide no.	cutting size range	length of stock	order number
#1	1/4 to 5/16	A	1	1/4 to 1/2	14-1/2	C67220
	3/8 to 1/2	B				
#5	9/16 to 3/4	C	5	9/16 to 1	26	C67221
	7/8 to 1	D				



Quick Set Spanner Wrench

Styles: **226**

Carbon Steel

Note

Because all guides are so small they are round not square, so you cannot use a standard wrench.

Fits into two holes to turn guide.

stock no.	collet no.	collet capacity	order number
#A1	A1	1-1/4	C67232

SET

Style: **055**

Carbon Steel



7 Size Set Tap & Die #C00609

set no.	number of cutting sizes	threading sizes		collet number	tap wrench number	die stock number	order number
559	7	4-40 NC	10-24 NC	A1	T9, A1	A1	C00609
		6-32 NC	10-32 NF				
		8-32 NC	12-24 NC				
			1/4-20 NC				
5510	5	1/4-20 NC	7/16-14 NC	1	#5	#1	C00610
		5/16-18 NC	1/2-13 NC				
		3/8-16 NC					
5511	10	1/4-20 NC	9/16-12 NC	5	#5,#7	5A	C00611
		5/16-18 NC	5/8-11 NC				
		3/8-16 NC	3/4-10 NC				
		7/16-14 NC	7/8-9 NC				
		1/2-13 NC	1-8 NC				
5512	10	1/4-20 NC	1/4-28 NF	1	#5	#1	C00612
		5/16-18 NC	5/16-24 NF				
		3/8-16 NC	3/8-24 NF				
		7/16-14 NC	7/16-20 NF				
		1/2-13 NC	1/2-20 NF				
5513	20	1/4-20 NC	1/4-28 NF	1,5	#5,#7	#1,#5B	C00613
		5/16-18 NC	5/16-24 NF				
		3/8-16 NC	3/8-24 NF				
		7/16-14 NC	7/16-20 NF				
		1/2-13 NC	1/2-20 NF				
		9/16-12 NC	9/16-18 NF				
		5/8-11 NC	5/8-18 NF				
		3/4-10 NC	3/4-16 NF				
		7/8-9 NC	7/8-14 NF				
		1-8 NC	1-14 NS				
5514	7	M6 x 1	M16 x 2	5	#6	#5	C00614
		M8 x 1.25	M18 x 2.5				
		M10 x 1.5					
		M12 x 1.75					
		M14 x 2					

DRILLS

TAPS & DIES

SAWS

CARBIDE BURRS

INDEX

SET

Style: **055**

HSS Carbon Steel

Note

Die stock to hold dies without collet.

set no.	number of cutting sizes	threading sizes		wrench number	die stock number	order number
558	20	1/4-20 NC	1/4-28 NF	#5, #7	#1, #5	C00608
		5/16-18 NC	5/16-24 NF			
		3/8-16 NC	3/8-24 NF			
		7/16-14 NC	7/16-20 NF			
		1/2-13 NC	1/2-20 NF			
		9/16-12 NC	9/16-18 NF			
		5/8-11 NC	5/8-18 NF			
		3/4-10 NC	3/4-16 NF			
		7/8-9 NC	7/8-14 NF			
		1-8 NC	1-14NS			

Straight, Plain, Slip, Combination, Long

Standard Straight

Style: 240

Note

Used for hand tapping.

product number	machine screw	tap size ranges		pipe	overall length	order number
		fractional	metric			240
0	0 to 14	1/16 to 1/4	M1.5 to M6.3	—	7	C67201
14	0 to 14	1/16 to 3/8	M1.5 to M10	—	9	C67197
5	8 to 14	5/32 to 1/2	M4 to M12.5	1/8	11	C67202
6	8 to 14	5/32 to 3/4	M4 to M19	1/8 to 1/4	15	C67203
7	—	1/4 to 1-1/8	M12 to M28	1/8 to 3/4	19	C67204
8	—	3/4 to 1-5/8	M19 to M40	3/8 to 1-1/4	40	C67205
22	—	1 to 2-1/2	M25 to M56	3/4 to 2	54	C67200



Plain T-Handle

Style: 242

Note

Used for hand tapping in out-in-the-open jobs.

product number	mach screw	tap size ranges		overall length	order number
		fractional	metric		242
T9	0 to 14	1/16 to 1/4	M1.5 to M6.3	2-3/4	C67206
T10	12 to 14	7/32 to 1/2	M5.5 to M12.5	3-5/8	C67207



Slip T-Handle

Style: 243

Note

Used for hand tapping or in difficult spaces requiring a slip handle

product number	mach screw	tap size ranges		overall length	order number
		fractional	metric		243
T11	0 to 14	1/16 to 1/4	M1.5 to M6.3	2-3/4	C67208
T12	12 to 14	7/32 to 1/2	M5.5 to M12.5	3-5/8	C67209



SET

Straight, Plain, Slip, Combination, Long

Style: **244**

Combination Ratchet
and Slip Handle

Note

Used for hand tapping in difficult spaces needing ratchet drive.

product number	mach screw	tap size ranges		overall length	order number
		fractional	metric		244
T13	0 to 14	1/16 to 1/4	M1.5 to M6.3	3-3/4	C67210
T14	12 to 14	7/32 to 1/2	M5.5 to M12.5	5	C67211



Style: **245**

Long Shank
T-Handle

Note

Used for hand tapping where extra reach is required.

product number	mach screw	tap size ranges		overall length	order number
		fractional	metric		245
T16	0 to 14	1/16 to 1/4	M1.5 to M6.3	8-3/4	C67212
T17	12 to 14	7/32 to 1/2	M5.5 to M12.5	10-5/8	C67213



DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

SET

See product specific page for additional information

SET

Make it Easy
SETS Cost Saving Sets
 Keep it organized!
 Most styles come in a set

set number	no. of sizes	sizes	case type	order number
Carbon Steel Re-Threading				
42NC	8	1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13, 9/16-12, 5/8-11, 3/4-10	plastic	0650 C67275
42NF	8	1/4-28, 5/16-24, 3/8-24, 7/16-20, 1/2-20, 9/16-18, 5/8-11, 3/4-16	plastic	C67276
44NC	10	1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13, 9/16-12, 5/8-11, 3/4-10, 7/8-9, 1-8	plastic	C67278
45NCNF	20	1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, 9/16-12, 9/16-18, 5/8-11, 5/8-18, 3/4-10, 3/4-16, 7/8-9, 7/8-14, 1-8, 1-14	plastic	C67282
NC/NF	10	1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20	plastic	C67284
0650M				
49Metric	7	M6 x 1, M8 x 1.25, M10 x 1.5, M12 x 1.75, M14 x 2, M16 x 2, M20 x 2.5	plastic	C67283
Tap and Round Adjustable, HSS				
26S	8	2-56, 3-48, 4-40, 6-32, 8-32, 10-24, 10-32, 12-24	metal	C67271
517	7	4-40, 6-32, 8-32, 10-24, 10-32, 12-24, 1/4-20	metal	C00517
518	5	1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13	metal	C00518
525	8	0-80, 1-72, 2-56, 3-48, 4-40, 6-32, 8-32, 10-24	metal	C00525
526	10	4-40, 4-48, 6-32, 6-40, 8-32, 8-36, 10-24, 10-32, 12-24, 12-28	metal	C00526
528	11	1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, pipe size, 1/8-27 short shank	metal	C00528
532	21	1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, 9/16-12, 9/16-18, 5/8-11, 5/8-18, 3/4-10, 3/4-16, 7/8-9, 7/8-14, 1-8, 1-14, pipe size, long shank	metal	C00532
815	20	1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, 9/16-12, 9/16-18, 5/8-11, 5/8-18, 3/4-10, 3/4-16, 7/8-9, 7/8-14, 1-8, 1-12	metal	C67293
533	28 Taps 15 Dies	4-40, 6-32, 8-32, 10-24, 10-32, 12-24, 1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, 9/16-12, 9/16-18, 5/8-18, 3/4-16, 7/8-14, 1-14, pipe sizes, 1/8-27 - long shank, 1/4-18, 3/8-18, 1/2-14 metric: M14 x 1.5, M18 x 1.5	metal	C00533
448	7	M2.5 x 0.45, M3 x 0.5, M3.5 x 0.6, M4 x 0.7, M4.5 x 0.75, M5 x 0.8, M6 x 1.0		C00448
449	5	M6 x 1.0, M7 x 1.0, M8 x 1.25, M10 x 1.5, M12 x 1.75		C00449



8 Size Set
 Re-Threading
 #C67275



20 Size Set
 Re-Threading
 #C67282



7 Size Set
 Tap and Round Adjustable
 #C00448

TAPS & DIES

SET See product specific page for additional information



5 Size Set
Tap, Die and Drill
#C00451



2 Piece Set
Bright, Drill & Tap
#C22304



7 Size Set
Quick-Set Two-Piece Die System
#C00609

set number	no. of sizes	sizes	case type	order number
Tap, Die & Drill				
451	5	M6 x 1.0, M7 x 1.0, M8 x 1.25, M10 x 1.5, M12 x 1.75, 5.0mm, 6.0mm, 6.7mm, 8.5mm, 10.2mm	metal	C00451
Tap, Die & Drill				
NEW	2	Bright, Drill: #36 Tap: 6-32 spiral point	plastic tube	1860 C22305
	2	Bright, Drill: #29 Tap: 8-32 spiral point	plastic tube	C22304
	2	Bright, Drill: #25 Tap: 10-24 spiral point	plastic tube	C22307
	2	Bright, Drill: #21 Tap: 10-32 spiral point	plastic tube	C22306
	2	Bright, Drill: #7 Tap: 1/4-20 spiral point	plastic tube	C22308
	2	Bright, Drill: F Tap: 5/16-18 spiral point	plastic tube	C22300
	2	Bright, Drill: 5/16" Tap: 3/8-16 spiral point	plastic tube	C22303
	2	Bright, Drill: U Tap: 7/16-14 spiral point	plastic tube	C22302
	2	Bright, Drill: 27/64" Tap: 1/2-13 spiral point	plastic tube	C22301
Quick-Set Two-Piece Die System				
559	7	4-40, 6-32, 8-32, 10-24, 10-32, 12-24, 1/4-20 collet: A1 - Tap wrench: T9, A1 - Die stock: A1		055 C00609
5510	5	1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13 collet: 1 - Tap wrench: #5 - Die stock: #1		C00610
5511	10	1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13, 9/16-12, 5/8-11, 3/4-10, 7/8-9, 1-8 collet: 5 - Tap wrench: #5, #7 - Die stock: 5A		C00611
5512	10	1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20 collet: 1 - Tap wrench: #5 - Die stock: #1		C00612
5513	20	1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, 9/16-12, 9/16-18, 5/8-11, 5/8-18, 3/4-10, 3/4-16, 7/8-9, 7/8-14, 1-8, 1-14 collet: 1, 5 - Tap wrench: #5, #7 - Die stock: #1, #5B		C00613
5514	7	M6 x 1, M8 x 1.25, M10 x 1.5, M12 x 1.75, M14x2, M16 x 2, M18 x 2.5 collet: 5 - Tap wrench: #6 - Die stock: #5		C00614
Quick-Set Jr. Tap & Die				
558	20	1/4-20, 1/4-28, 5/16-18, 5/16-24, 3/8-16, 3/8-24, 7/16-14, 7/16-20, 1/2-13, 1/2-20, 9/16-12, 9/16-18, 5/8-11, 5/8-18, 3/4-10, 3/4-16, 7/8-9, 7/8-14, 1-8, 1-14 Wrench: #5, #7 - Die stock: #1, #5		055 C00608

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

Table of Contents
Saws

Pages 78-93

Style Number	Description	Page Number
Hole Saws		
1887...	Hole Saws	79
Technical Information		
	Recommended Operating Speeds	80
	Reference Chart / Tech Tips	81
CHK...	Hole Saw Sets	82
1884...	Hole Saw Accessories	
	Round and Hex Shank	83
	Pilot Drill, Adaptor	83
Reciprocating Saw Blades		
RSB-D...	Demolition - Wood	84
	Demolition - Metal	84
RSB-P...	Pallet	84
RSB-BM...	Bi-Metal - Wood	85
	Bi-Metal - Metal	85
	Bi-Metal - All-Purpose	86
	Bi-Metal - Plaster	86
	Bi-Metal - Air Saw	86
Hacksaws		
HB-BM...	Bi-Metal	87
Portable Band Saw Blades		
P1000...	Bi-Metal - Portable Band (Matrix II)	87
Band Saw Blades		
T1000...	Bi-Metal - Straight Tooth	88
T2000...	Bi-Metal - 5° Positive Rake Tooth	88
T3000...	Bi-Metal - 10° High Positive Rake	88
T4000...	Bi-Metal - Protective Tooth	88
T5000...	Bi-Metal - Heavy Set	89
T6000...	Bi-Metal - Turtle Back	89
T7000...	Bi-Metal - Narrow Width Band (M42)	89
Technical Information		
	Successful Band Saw Operations	90
	Tooth Pitch Selection	91
	Feeds / Examples	92
	Blade Break-in, Band Saw Terms	93

Available
starting October 1, 2016

NEW
Cut to customer specifications
Weld-to-Length
Bandsaw Program
Reduce Cost • Custom Fit



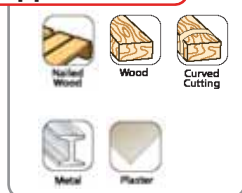
Icon Glossary

Reference

Base Material



Application





DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

Note

- Traditional narrow openings on the side wall.
- High speed cutting edge.
- 1-7/8" (48mm) cutting depth.
- 3/16" (5mm) thick heavy-duty backing plate eliminates need for drive plate.
- Shock resistant teeth, resists tooth stripping, less vibration, cuts 30% faster than conventional saws.

Creates holes for pipe, tubing, door lock installations, electrical conduit, and antennas.
 Ideal for plumbing, construction, aircraft, electrical, maintenance and automotive applications.
 Use in steel, aluminum, brass, cast iron, plastic or wood.



diameter inch (mm)	order number	
	1887 M3	M42
9/16" (14 mm)	C25058	C25000
5/8" (16 mm)	C26149	C26121
11/16" (17 mm)	C26102	C25002
3/4" (19 mm)	C25061	C26113
(20 mm)	C25062	C25004
13/16" (21 mm)	C26106	C26105
7/8" (22 mm)	C25064	C25006
15/16" (24 mm)	C25065	C25007
1" (25 mm)	C25066	C26101
1-1/16" (27 mm)	C25067	C25009
1-1/8" (29 mm)	C25068	C26103
1-3/16" (30 mm)	C25069	C25011
1-1/4" (32 mm)	C25070	C25012
1-5/16" (33 mm)	C25071	C25013
1-3/8" (35 mm)	C26108	C25014
1-7/16" (37 mm)	C25073	C25015
1-1/2" (38 mm)	C25074	C25016
1-9/16" (40 mm)	C25075	C25017
1-5/8" (41 mm)	C25076	C25018
1-11/16" (43 mm)	C25077	C26104

diameter inch (mm)	order number	
	1887 M3	M42
1-3/4" (44 mm)	C25078	C26107
(45 mm)	C26120	C25021
1-13/16" (46 mm)	C25080	C25022
1-7/8" (48 mm)	C25081	C25023
(50 mm)	C25082	C25024
2" (51 mm)	C25083	C25025
2-1/16" (52 mm)	C25084	C25026
2-1/8" (54 mm)	C25085	C25027
(55 mm)	C25086	C25028
2-1/4" (57 mm)	C26109	C25029
2-5/16" (59 mm)	C25088	C25030
2-3/8" (60 mm)	C25089	C25031
2-1/2" (64 mm)	C25090	C25032
2-9/16" (65 mm)	C25091	C25033
2-5/8" (67 mm)	C25092	C26111
(68 mm)	C25093	C25035
2-3/4" (70mm)	C26110	C25036
2-7/8" (73 mm)	C26112	C25037
(75 mm)	C25096	C25038
3" (76 mm)	C25097	C25039

diameter inch (mm)	order number	
	1887 M3	M42
3-1/8" (79 mm)	C25098	C25040
3-1/4" (83 mm)	C25099	C26115
3-3/8" (86 mm)	C26116	C25042
3-1/2" (89 mm)	C25001	C25043
3-5/8" (92 mm)	C25102	C25044
3-3/4" (95 mm)	C25103	C25045
3-7/8" (98 mm)	C25104	C25046
(100 mm)	C25105	C25047
4" (102 mm)	C25106	C25048
4-1/8" (105 mm)	C25107	C25049
4-1/4" (108 mm)	C26118	C25050
4-3/8" (111 mm)	C25109	C25051
4-1/2" (114 mm)	C26117	C25052
4-3/4" (121 mm)	C25111	C26119
5" (127 mm)	C25112	C25054
5-1/2" (140 mm)	C25113	C25055
5-3/4" (146 mm)	C25114	C25056
6" (152 mm)	C25115	C25057

Technical Information
Operating Speeds

Hole Saws

Recommended Operating Speeds for Hole Saws

Guidelines on generally recommended operating speeds. Always follow the recommendations of the hole saw manufacturer concerning use and operating speeds.

Bi-Metal Hole Saw Operating Speeds (RPM Table)

inches	mm	length	mild steel	tool steel & stainless	cast iron	brass	aluminum	wood
9/16	14	0.147	580	300	400	790	900	3000
5/8	16	0.164	550	275	365	730	825	3000
11/16	17	0.180	500	250	330	665	750	3000
3/4	19	0.196	460	230	300	600	690	3000
-	20	0.213	440	220	290	580	660	3000
7/8	22	0.229	390	195	260	520	585	3000
1	25	0.262	350	175	235	470	525	2700
1-1/16	27	0.278	325	160	215	435	480	2700
1-1/8	29	0.295	300	150	200	400	450	2700
1-3/16	30	0.311	285	145	190	380	425	2400
1-1/4	32	0.327	275	140	180	360	410	2400
1-5/16	33	0.344	260	135	175	345	390	2400
1-3/8	35	0.360	250	125	165	330	375	2400
1-7/16	37	0.376	240	120	160	315	360	2400
1-1/2	38	0.393	230	115	150	300	345	2400
1-9/16	40	0.409	220	110	145	290	330	2100
1-5/8	41	0.425	210	105	140	280	315	2100
1-11/16	43	0.442	205	100	135	270	305	2100
1-3/4	44	0.458	195	95	130	260	295	2100
1-13/16	46	0.475	190	95	125	250	285	2100
1-7/8	48	0.491	180	90	120	240	270	2100
2	51	0.524	170	85	115	230	255	2000
2-1/16	52	0.540	165	80	110	220	245	2000
2-1/8	54	0.556	160	80	105	210	240	2000
2 1/4	57	0.589	150	75	100	200	225	2000
2-5/16	59	0.605	145	75	95	195	225	2000
2-3/8	60	0.622	140	70	90	190	220	2000
2-1/2	64	0.655	135	65	85	180	205	1850
2-9/16	65	0.671	130	65	85	175	200	1850
2 5/8	67	0.687	130	65	85	170	195	1800
-	68	0.704	130	65	80	170	190	1800
2-3/4	70	0.720	125	60	80	160	185	1800
2-7/8	73	0.753	120	60	75	160	180	1800
3	76	0.785	115	55	70	150	170	1800
3-1/8	79	0.818	110	55	70	140	165	1500
3-1/4	83	0.851	105	50	65	140	155	1500
3-3/8	86	0.884	100	50	65	130	150	1500
3-1/2	89	0.916	95	45	60	130	145	1200
3 5/8	92	0.949	90	45	60	120	140	1200
3-3/4	95	0.982	90	45	60	120	135	1200
3-7/8	98	1.014	90	45	60	120	135	1200
4	102	1.047	85	40	55	110	130	1000
4-1/8	104	1.080	80	40	55	110	120	1000
4-1/4	108	1.113	80	40	55	110	120	900
4-3/8	111	1.145	80	40	50	100	120	900
4-1/2	114	1.178	75	35	50	100	105	900
4-3/4	121	1.244	75	35	50	92	95	900
5	127	1.309	65	30	45	90	90	800
5-1/2	140	1.440	60	25	40	85	85	800
5-3/4	146	1.505	55	25	35	75	75	800
6	152	1.571	55	25	35	75	75	800

Hole Saw Operating Speeds (RPM Table)

inches	mm	brick ceramic	slate	reinforced plastics	fiberglass
5/8	16	620	1540	2140	920
3/4	19	510	1280	1790	770
-	20	470	1180	1660	715
7/8	22	430	1090	1530	660
1	25	380	960	1340	580
1-1/8	29	340	850	1190	510
1-1/4	32	310	770	1070	460
1 3/8	35	280	700	980	420
1-1/2	38	260	640	890	390
1-3/4	44	220	550	770	330
1-7/8	48	200	510	720	310
2	51	190	480	670	290
2-1/8	54	180	450	630	280
2-1/4	57	170	430	600	270
2-3/8	60	160	400	570	250
2-1/2	64	150	380	540	230
2-3/4	70	140	350	500	210
3	76	130	320	450	190
3-1/4	83	120	295	415	180
3-3/8	86	115	285	400	175
3-3/4	95	102	255	350	160
4	102	95	240	330	150
4-1/2	114	82	215	290	125

Styles: 1887

1887

diameter		pipe tap dia.		pipe entrance dia		order number	
inch	mm	inch	mm	inch	mm	M3	M42
9/16	14	—	—	—	—	C25058	C25000
5/8	16	—	—	—	—	C26149	C26121
11/16	17	—	—	—	—	C26102	C25002
3/4	19	1/2	13	3/8	10	C25061	C26113
—	20	—	—	—	—	C25062	C25004
13/16	21	—	—	—	—	C26106	C26105
7/8	22	3/4	19	1/2	13	C25064	C25006
15/16	24	—	—	—	—	C25065	C25007
1	25	—	—	—	—	C25066	C26101
1-1/16	27	—	—	—	—	C25067	C25009
1-1/8	29	1	25	3/4	19	C25068	C26103
1-3/16	30	—	—	—	—	C25069	C25011
1-1/4	32	—	—	—	—	C25070	C25012
1-5/16	33	—	—	—	—	C25071	C25013
1-3/8	35	—	—	1	25	C26108	C25014
1-7/16	37	—	—	—	—	C25073	C25015
1-1/2	38	1-1/4	32	—	—	C25074	C25016
1-9/16	40	—	—	—	—	C25075	C25017
1-5/8	41	—	—	—	—	C25076	C25018
1-11/16	43	—	—	—	—	C25077	C26104
1-3/4	44	1-1/2	38	1-1/2	38	C25078	C26107
—	45	—	—	—	—	C26120	C25021
1-13/16	46	—	—	—	—	C25080	C25022
1-7/8	48	—	—	—	—	C25081	C25023
—	50	—	—	—	—	C25082	C25024
2	51	—	—	1-1/2	38	C25083	C25025
2-1/16	52	—	—	—	—	C25084	C25026
2-1/8	54	—	—	—	—	C25085	C25027
—	55	—	—	—	—	C25086	C25028
2-1/4	57	2	51	—	—	C26109	C25029
2-5/16	59	—	—	—	—	C25088	C25030
2-3/8	60	—	—	—	—	C25089	C25031
2-1/2	64	—	—	2	51	C25090	C25032
2-9/16	65	—	—	—	—	C25091	C25033
2-5/8	67	2-1/2	64	—	—	C25092	C26111
—	68	—	—	—	—	C25093	C25035
2-3/4	70	—	—	—	—	C26110	C25036
2-7/8	73	—	—	—	—	C26112	C25037
—	75	—	—	—	—	C25096	C25038
3	76	—	—	2-1/2	64	C25097	C25039
3-1/8	79	—	—	—	—	C25098	C25040
3-1/4	83	3	76	—	—	C25099	C26115
3-3/8	86	—	—	—	—	C26116	C25042
3-1/2	89	—	—	—	—	C25001	C25043
3-5/8	92	—	—	3	76	C25102	C25044
3-3/4	95	3-1/2	89	—	—	C25103	C25045
3-7/8	98	—	—	—	—	C25104	C25046
—	100	—	—	—	—	C25105	C25047
4	102	—	—	—	—	C25106	C25048
4-1/8	105	—	—	3-1/2	89	C25107	C25049
4-1/4	108	4	102	—	—	C26118	C25050
4-3/8	111	—	—	—	—	C25109	C25051
4-1/2	114	—	—	—	—	C26117	C25052
4-3/4	121	4-1/2	114	4	102	C25111	C26119
5	127	—	—	—	—	C25112	C25054
5-1/2	140	—	—	5	127	C25113	C25055
5-3/4	146	—	—	—	—	C25114	C25056
6	152	—	—	—	—	C25115	C25057

Tech Tip



- Always wear eye protection.
- Always be sure that the pilot drill extends beyond the cutting edge of the saw by at least 1/8".
- Be sure to secure the material to be cut to keep it from spinning or slipping.
- Start the cutting process with the saw square to the material being cut, this will ensure that all teeth begin to cut at the same time and will help prevent premature wear and damage to the saw.
- Following the recommended operating speed for the saw size and the material being cut.
- Operator should feed the saw in and out to allow the material shavings to clear out of the hole being cut.
- Cutting oils or lubricants should be used to extend the life of the saw, except when cutting wood or cast iron.
- Occasionally check the mandrel's drive pins to be sure they are still fully engaged in the saw and that they have not vibrated out of the drive holes in the saw.
- When sawing in wood, finish the hole from the opposite side to prevent splintering. Once the pilot drill has broken through the other side, you can use this hole to guarantee you are in line with where you have already started cutting.
- When sawing resistant and difficult to cut materials, drill a couple of small holes on the circumference to allow chip to clear.
- Keep an oil soaked sponge inside the hole saw if you:
 - Cannot lubricate in the normal way
 - Operate in stainless steel
 - Operate in a vertical position from above.

Tech Tip



Pipe and Tap Entrance

- Pipe taps are used for threading holes created by a hole saw to receive a threaded pipe. Reference the product charts for proper selection. To cut a hole for a 1" pipe tap, select a 1-1/8" hole saw.
- Pipe entrance is the diameter for the hole through which a pipe of a given diameter will pass during installation or repair.
- Pipe size is defined by the inside diameter. To cut a hole through which a 3/4" pipe may be passed, a 1-1/8" hole saw is used.
- Tubing size is defined by the outside diameter. To cut an entrance hole of a given tubing diameter, the same diameter hole saw should be used.

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

**Hole Saw Sets
Cobalt**

Saw Blades

Styles: CHK



4/6 Variable Tooth Bi-Metal M42 Cobalt

Note
Hole Saw Sets available for cutting almost any material.
The sets contain Bi-Metal 8% Cobalt hole saws of 4/6 variable pitch.
Assortment of hole saws and accessories specifically designed for the application environment.
Provided in a heavy duty case.



Electrician's Set #CHK04

Set type	3/4" 19mm	7/8" 22mm	1" 25mm	1-1/8" 29mm	1-1/4" 32mm	1-3/8" 35mm	1-1/2" 38mm	1-3/4" 44mm	2" 51mm	2-1/8" 54mm	2-1/4" 57mm	2-1/2" 64mm	3" 76mm	3-1/4" 83mm	3-5/8" 92mm	3-3/4" 95mm	4-1/8" 105mm	4-1/2" 114mm	order number
Handyman's - 7 piece (includes 1 mandrel and 1 adaptor)		✓	✓	✓	✓		✓												CHK01
Locksmith's - 9 piece (includes 2 mandrels and 1 adaptor)		✓	✓		✓		✓	✓		✓									CHK02
Plumber's - 9 piece (includes 2 mandrels and 1 adaptor)		✓	✓		✓		✓	✓			✓								CHK03
Electrician's - 9 piece (includes 2 mandrels and 1 adaptor)		✓		✓		✓		✓	✓			✓							CHK04
Electrician's - metric - 9 piece (includes 2 mandrels and 1 adaptor)	16mm(5/8"), 20mm, 25mm(1"), 32mm(1-1/4"), 40mm(1-9/16"), 51mm(2")																		CHK05
Journeyman's - 13 piece (includes 2 mandrels, 1 pilot hole drill, and 1 adaptor)	✓	✓		✓		✓	✓	✓	✓		✓	✓							CHK06

SAWS



Round Shank



fits the following		order number
chuck size	hole saw size	1884
1/4" (6mm)	9/16" - 1-3/16" (14 to 30mm)	C25116

Hex Shank



fits the following		order number
chuck size	hole saw size	1884
3/8" (9mm)	9/16" - 1-3/16" 14 to 30mm	C25118
7/16" (11mm)	9/16" - 1-3/16" (14 to 30mm)	C25119

Hex Shank Pinned



fits the following		order number
chuck size	hole saw size	1884
7/16" Pinned (11mm)	1-1/4" - 6" (32 to 152mm)	C25121

Hex Shank



fits the following		order number
chuck size	hole saw size	1884
3/8" (9mm)	1-1/4" - 6" (32 to 152mm)	C26195

Short Pilot Drill with Flat on shank



description	order number
3-1/4" overall length x 1/4" dia. (80mm)	1884 C25123

Long Pilot Drill with Whistle Notch on shank



description	order number
4" overall length x 1/4" dia. (102mm)	1884 C25124

Adaptor



fits hole saw size	order number
1-1/4" - 6" (32 to 152mm)	1884 C26196

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

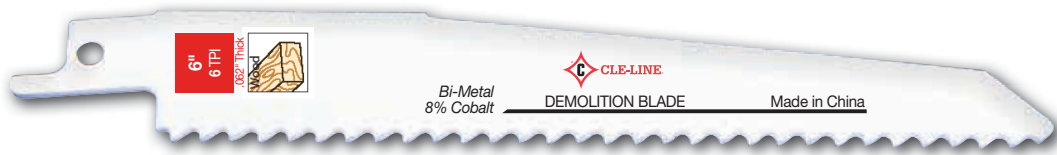
Bi-Metal Reciprocating Blade
Demolition - Wood

Saw Blades

Style: **RSB-D**

Note
Wider (7/8") and thicker (.062) blades engineered for heavy-duty, tough cutting, demolition applications.

Available in 6", 9", and 12" lengths with 1/2" universal shanks.



order number

RSB-D

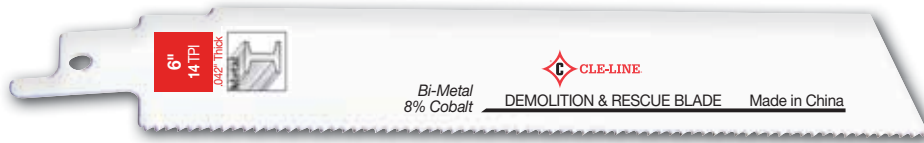
Inch (teeth per inch)	5 pc.	10 pc.	20 pc.
6" x 7/8" x 0.062" (6)	C30101	C30135	C30156
9" x 7/8" x 0.062" (6)	C30102	C30136	C30157
12" x 7/8" x 0.062" (6)	C30103	C30137	C30158

Bi-Metal Reciprocating Blade
Demolition - Metal

Style: **RSB-D**

Note
Wider (7/8") and thicker (.042) blades engineered for heavy-duty, tough cutting, demolition applications.

Available in 6", 9", and 12" lengths with 1/2" universal shanks.



order number

RSB-D

Inch (teeth per inch)	5 pc.	10 pc.	20 pc.
6" x 1" x 0.042" (14)	C30104	C30138	C30159
9" x 1" x 0.042" (14)	C30105	C30139	C30160
12" x 1" x 0.042" (14)	C30106	C30140	C30161

Reciprocating Blade
Pallet

Style: **RSB-P**

Note
Wider (7/8") and thicker (.035) blades engineered for heavy-duty, tough cutting, demolition applications.

Available in 6", 9", and 12" lengths with 1/2" universal shanks.

For high performance cutting of pallet dismantling.



- M42 cutting edge with 8% cobalt for longer life.
- Special heat treat for increased tooth life.
- Special blade backer for greater flexibility when cutting block pallets.
- Unique tooth design for fast cutting.
- Rounded nose for easy cutting and safe operation.



order number

RSB-P

Inch (teeth per inch)	10 pcs.
8" x 3/4" x 0.035" (10)	C25217

Saw Blades

Style: RSB-BM

Bi-Metal Reciprocating Blade

Wood

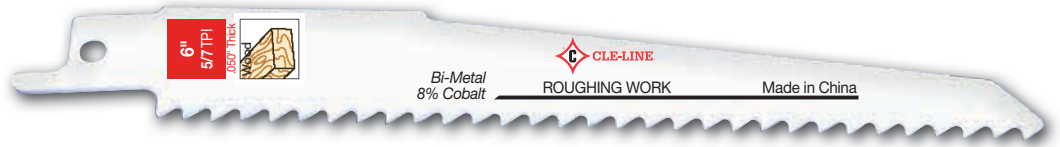
Note

General roughing-in work for wood and nail embedded woods.

Designed for efficient cutting in a wide variety of wood.

1/2" universal shank fits all standard 1/2" shank reciprocating saws.

Tapered end allows for plunge cutting.



Inch (teeth per inch)
6" x 3/4" x 0.050" (5/7)
6" x 3/4" x 0.050" (6)
6" x 3/4" x 0.050" (10)
9" x 3/4" x 0.050" (6)
12" x 3/4" x 0.050" (6)

order number		
RSB-BM		
5 pc.	10 pc.	50 pc.
C30107	C30141	C30170
C30108	C30142	C30171
C30109	C30143	C30172
C30110	C30144	C30173
C30111	C30145	C30174

Style: RSB-BM

Bi-Metal Reciprocating Blade

Metal

Note

See application information below.

Designed for efficient cutting in a wide variety of materials including metal, rod, pipe, and conduit.

1/2" universal shank fits all standard 1/2" shank reciprocating saws.

Quick and accurate cutting.



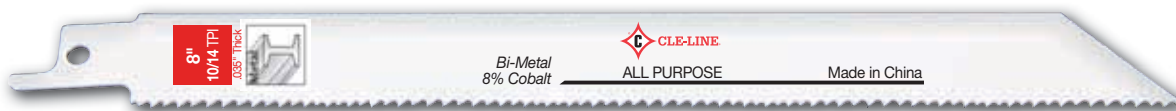
Inch (teeth per inch)	order number		
	5 pc.	10 pc.	50 pc.
6" x 3/4" x 0.035" (14)	C30112	C30146	C30175
6" x 3/4" x 0.035" (18)	C30113	C30147	C30176
6" x 3/4" x 0.035" (24)	C30114	C30148	C30177
8" x 3/4" x 0.035" (18)	C30115	C30149	C30178
9" x 3/4" x 0.035" (14)	C30116	C30150	C30179
12" x 3/4" x 0.035" (18)	C30117	C30151	C30180

Applications
14 teeth per inch: For metals heavier than 1/8", bar stock, angles, rubber, masonite, fiberglass, etc.
18 teeth per inch: For heavy gauge sheet metal, conduit, pipe, tubing, thin fiberglass.
24 teeth per inch: For metals lighter than 18-gauge, thin wall tubing, formed sheet, trim, etc.

Bi-Metal Reciprocating Blade
All-Purpose Cutting

Styles: **RSB-BM** (continued)

Note
Heavy gauge metals, compositions, masonite, wood, etc.
Designed for efficient cutting in a wide variety of materials including wood, metal, and plastic.
1/2" universal shank fits all standard 1/2" shank reciprocating saws.
Quick and accurate cutting.



Inch (teeth per inch)	order number		
	5 pc.	10 pc.	50 pc.
8" x 3/4" x 0.035" (10/14)	C30118	C30152	C30181
12" x 3/4" x 0.050" (10/14)	C30119	C30153	C30182
12" x 3/4" x 0.050" taper (10/14)	C30120	C30154	C30183

Bi-Metal Reciprocating Blade
Plaster Cutting

Style: **RSB-BM**

Note
High performance, and fast cutting for plaster.
Designed for efficient cutting in plaster or drywall by minimizing tear out.



Inch (teeth per inch)	order number		
	5 pc.	10 pc.	50 pc.
6" x 3/4" x 0.050" straight (6)	C30121	C30155	C30184

Bi-Metal Reciprocating Blade
Air Saw

Style: **RSB-BM**

Note
See application information below.
Specifically designed blades for use in pneumatic saws. Air Saw blades have fine teeth for cutting metal.



Inch (teeth per inch)	order number		Applications
	20 pcs.	50 pcs.	
3" x 1/2" x 0.025" (18)	C30162	C30163	18 teeth per inch: For scroll cutting metals lighter than 14 gauge.
3" x 1/2" x 0.025" (24)	C30163	C30164	
3" x 1/2" x 0.025" (32)	C30164	C30165	
4" x 1/2" x 0.025" (18)	C30165	C30166	24 teeth per inch: For scroll cutting metals lighter than 18 gauge, thin tubing, formed sheets, trim, etc.
4" x 1/2" x 0.025" (32)	C30166	C30167	
5" x 1/2" x 0.025" (18)	C30167		32 teeth per inch: For scroll cutting metals, very thin gauge metals, sheet, tubing, trim, etc.

Saw Blades

Style: HB-BM

Bi-Metal Hacksaw Blades
Hacksaw



**Available
October 1,
2016**

Note

Cut medium metals (1/16" to 1/4") such as sheet metal, angle iron, bolts, channels, drill rod, threaded rod, pipes, and tubing.

Bi-Metal construction.

Flexible steel spring back.

High speed steel cutting edge.

Blade is heat, shock, and shatter resistant.

For heavy-duty cutting.



Inch (teeth per inch)
10" x 1/2" x 0.025" (18)
10" x 1/2" x 0.025" (24)
10" x 1/2" x 0.025" (32)
12" x 1/2" x 0.025" (14)
12" x 1/2" x 0.025" (18)
12" x 1/2" x 0.025" (24)
12" x 1/2" x 0.025" (32)
12" x 1/2" x 0.025" (10/14)
12" x 1/2" x 0.025" (14/18)
12" x 1/2" x 0.025" (18/24)

order number



10 pcs.	100 pcs.
C25239-10	C25239
C25240-10	C25240
C25241-10	C25241
C25242-10	C25242
C26125-10	C26125
C25244-10	C25244
C25245-10	C25245
C25246-10	C25246
C25247-10	C25247
C25248-10	C25248

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

Style: P1000

Bi-Metal Portable Band Saw
Portable Bands (Matrix II)



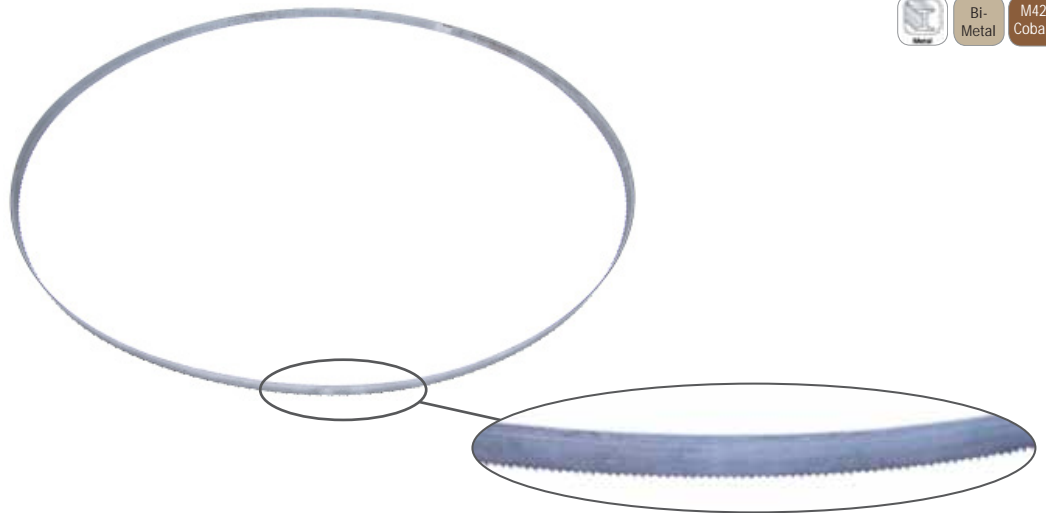
Note

Bi-metal construction.

Matrix II cutting edge containing 8% cobalt.

Available in standard and variable tooth style.

Less tooth chippage.



Inch (teeth per inch)
44-7/8" x 1/2" x 0.020" (10/14)
44-7/8" x 1/2" x 0.020" (14/18)
44-7/8" x 1/2" x 0.020" (10) Raker
44-7/8" x 1/2" x 0.020" (14) Raker
44-7/8" x 1/2" x 0.020" (18) Raker
44-7/8" x 1/2" x 0.020" (24) Raker

order number



C25126
C25127
C25129
C25130
C25131
C25132

Bi-Metal Band Saws

Various Styles

Straight Tooth

Style: T1000

Note
Bi-metal construction.
M42 high speed steel cutting edge provides higher heat and wear durability.
Tooth hardness Rc 67-69.
0° rake for smoother cutting and general applications.

All-purpose band for moderate to difficult to cut material.



Inch (teeth per inch)	order number
3/4" x 0.035" (6/10)	T1000 C25149
3/4" x 0.035" (8/12)	C25150
3/4" x 0.035" (10/14)	C26136
3/4" x 0.035" (10) Raker	C25152
3/4" x 0.035" (14) Wavy	C25153
1" x 0.035" (4/6)	C26134
1" x 0.035" (10/14)	C26133
1" x 0.035" (3/4)	C25154
1" x 0.035" (5/8)	C25156
1" x 0.035" (6/10)	C25157
1" x 0.035" (8/12)	C25158
1" x 0.035" (14T) Wavy	C25160
1-1/4" x 0.042" (3/4)	C25161
1-1/4" x 0.042" (4/6)	C25162
1-1/4" x 0.042" (5/8)	C25163
1-1/4" x 0.042" (6/10)	C25164
1-1/2" x 0.050" (4/6)	C26135

5° Positive Rake Tooth

Style: T2000

Note
Bi-metal construction.
M42 high speed steel cutting edge provides higher heat and wear durability.
Tooth hardness Rc 67-69.
Positive rake for easier penetration and reduced vibration.

For both production or non-production cutting of solids and thick wall tubing of medium alloy. For work hardened material such as stainless steel.



Inch (teeth per inch)	order number
3/4" x 0.035" (4/6)	T2000 C25166
3/4" x 0.035" (5/7)	C25167
1" x 0.035" (2/3)	C25168
1" x 0.035" (3/4)	C25169
1" x 0.035" (4/6)	C25170
1" x 0.035" (5/7)	C26137
1" x 0.035" (2) Hook	C25172
1" x 0.035" (6) Raker	C25173
1" x 0.035" (8) Raker	C25174
1-1/4" x 0.042" (2/3)	C25175
1-1/4" x 0.042" (3/4)	C25176
1-1/4" x 0.042" (4/6)	C25177
1-1/4" x 0.042" (5/7)	C26139
1-1/4" x 0.042" (6) Raker	C25179
1-1/2" x 0.050" (2/3)	C26138
1-1/2" x 0.050" (3/4)	C25181
1-1/2" x 0.050" (4/6)	C25182

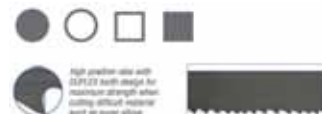
All items on pages 88-89 will be available October 1, 2016

10° High Positive Rake

Style: T3000

Note
Bi-metal construction.
M42 high speed steel cutting edge provides higher heat and wear durability.
Tooth hardness Rc 67-69.
Duplex tooth design.
High positive rake with DUPLEX tooth design for maximum strength when cutting difficult material such as super alloy.
Specially engineered relief angle.
More aggressive acting for easier chip formation.

Production sawing of exotic materials such as Inconels, Monels, Hastalloys, Hi-Alloys, Titanium, Stainless and more.



Inch (teeth per inch)	order number
3/4" x 0.035" (4/6)	T3000 C26143
1" x 0.035" (2/3)	C25184
1" x 0.035" (3/4)	C26140
1" x 0.035" (4/6)	C25186
1-1/4" x 0.042" (2/3)	C26141
1-1/4" x 0.042" (3/4)	C25188
1-1/4" x 0.042" (4/6)	C25189
1-1/2" x 0.050" (2/3)	C25190
1-1/2" x 0.050" (3/4)	C25191
1-1/2" x 0.050" (4/6)	C25192
2" x 0.063" (2/3)	C25193
2" x 0.063" (3/4)	C26142
2" x 0.063" (4/6)	C25195

All items on pages 88-89 will be available October 1, 2016

Protective Tooth

Style: T4000

Note
Specially designed for tube. To prevent tooth breakage by eliminating excessive tooth stripping due to the domino effect. To withstand the shock of interrupted cuts, allowing for heavier penetration under fast cutting rate.

Tubes, structures, small sizes bundles.



Inch (teeth per inch)	order number
1" x 0.035" (4/6)	T4000 C25196
1-1/4" x 0.042" (4/6)	C25197
1-1/2" x 0.042" (4/6)	C25198

Saw Blades

Various Styles (continued)

Bi-Metal Band Saws

Available starting October 1, 2016

NEW

Cut to customer specifications

Weld-to-Length Bandsaw Program

Reduce Cost • Custom Fit

Call 800-348-2885 for more information

All items on pages 88-89 will be available October 1, 2016

Heavy Set

Style: T5000

Note
 Bi-Metal construction.
 M42 high speed steel cutting edge provides higher heat and wear durability.
 Tooth hardness Rc 67-69.
 Heavy Set.

For large bundle cutting of structural steel. Ideal for applications where a larger kerf is needed to prevent blade pinching and stalling from material stresses and movement.



Inch (teeth per inch)	order number
	T5000
1" x 0.035" (4/6)	C25200
1" x 0.035" (5/7)	C25201
1-1/4" x 0.042" (3/4)	C25202
1-1/4" x 0.042" (4/6)	C26144
1-1/4" x 0.042" (5/7)	C25204
1-1/2" x 0.050" (3/4)	C25205
1-1/2" x 0.050" (4/6)	C25206
1-1/2" x 0.050" (5/7)	C25207
2" x 0.063" (2/3)	C25208
2" x 0.063" (3/4)	C25209
2" x 0.063" (4/6)	C26145

Turtle Back

Style: T6000

Note
 Suited for universal workshop operations.

Profiles for thick wall tube, alloy steel, single, layer, and bundle cutting steel girders.



Inch (teeth per inch)	order number
	T6000
1" x 0.035" (3/4)	C26146
1-1/4" x 0.042" (3/4)	C26147
1-1/2" x 0.050" (3/4)	C26148

Narrow Width Bands (M42)

Style: T7000

Note
 Solid and thick wall tubing of medium to difficult material, such as stainless steel.
 Narrow width from 1/4" to 1/2" for contour and miter cutting.
 Narrow width and gauge can be welded by customer for die building and internal cutting re-use.
 HSS edge contains 8% cobalt.

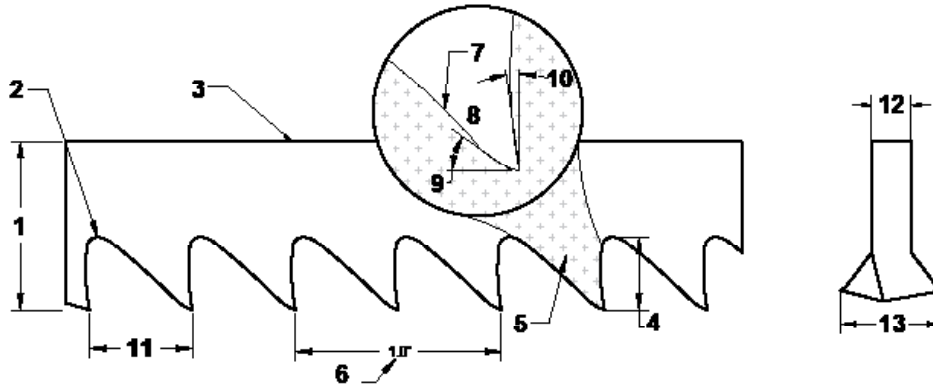


Inch (teeth per inch)	order number
	T7000
1/2" x 0.020" (10/14)	C25133
1/2" x 0.020" (10) Raker	C25134
1/2" x 0.020" (14) Raker	C25135
1/2" x 0.020" (18) Raker	C25136
1/2" x 0.020" (24) Raker	C25137
1/2" x 0.020" (24) Wavy	C25138
1/2" x 0.025" (6/10)	C26127
1/2" x 0.025" (8/12)	C26128
1/2" x 0.025" (10/14)	C25141
1/2" x 0.025" (14) Raker	C25142
1/2" x 0.025" (18) Wavy	C25143
1/2" x 0.035" (8/12)	C25144
1/2" x 0.035" (10/14)	C25145
1/2" x 0.035" (6) Positive	C25147
1/2" x 0.035" (14) Raker	C25148
1/2" x 0.035" (4) Hook	C26129

**Technical Information
Band Saws**

**Saw Blades
Blade Basics**

Terminology



1) Width

The nominal dimension of a saw blade, as measured from the tip of the tooth to the back of the blade.

2) Gullet

The curved area at the base of the tooth.

3) Blade Back

The blade body, not including the tooth portion.

4) Gullet Depth

The distance from the tooth tip to the bottom of the gullet.

5) Tooth

The cutting portion of the saw blade.

6) TPI

The number of teeth per inch.

7) Tooth Back or Relief Angle

The surface of the tooth opposite the cutting edge, or tooth face.

8) Tooth Face or Rake Angle

The cutting surface of the tooth.

9) Tooth Back Clearance Angle

The angle of the tooth back measured in relation to the cutting direction of the saw.

10) Tooth Rake Angle

The angle of the tooth face measured with respect to a line perpendicular to the cutting direction of the saw.

11) Tooth Pitch

The distance from one tooth tip to the next tooth tip.

12) Thickness (Gage)

The thickness of the blade.

13) Tooth Set

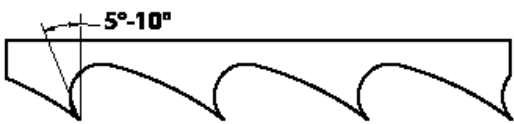
The bending of the teeth from right to left to allow clearance (**kerf**) of the blade back through the cut.

Tooth Form

Positive Rake

A positive rake is characterized by a 5° to 10° rake angle on the tooth face, resulting in better tooth penetration and easier chip formation. This tooth form is recommended for cutting difficult to machine materials, solid cross-sections.

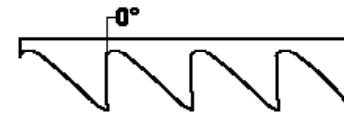
Positive Rake



Standard Straight

A standard straight tooth has a 0° cutting face, and is recommended for cutting easy-to-cut, low alloy materials. This is an efficient tooth form for cutting structural materials and interrupted cuts.

Standard Straight Rake



Tooth Type

Regular

This is a conventional tooth with a 0° cutting angle, ideal for a wide range of general purpose cutting applications.

Hook

This tooth type has a 10° positive rake angle for fast cutting with less feed pressure. The rounded, deeper gullets allow for fast chip removal, and is generally used for cutting nonmetallic and non-ferrous metals.

Skip

This tooth type has a 0° rake angle with shallow gullets and evenly spaced teeth for efficient chip removal. It is used for cutting large sections of soft, non-ferrous metal and nonmetal material, such as wood, composition materials, cork, and plastic.

Variable

A traditional tooth form that offers a 0° rake angle, varying gullet depths, and tooth sizes. Designed to reduce harmonic vibration, this blade efficiently removes chips, extending blade life in solids and structurals.

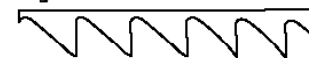
Variable Positive

Variable positive tooth form offers varying gullet depth, tooth sizes, and a positive rake angle for maximum cutting speeds and better tooth penetration in harder to machine materials.

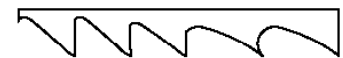
Duplex

Duplex blades offer deep, chip clearing gullets, large chip-resistant teeth, and a high positive rake angle. This results in faster sawing rates, and improved finishes. Duplex blades are recommended for production cutting of work hardened metals, tool steels, and exotic alloys.

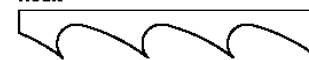
Regular



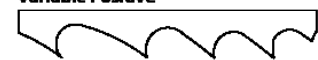
Variable



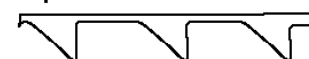
Hook



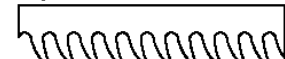
Variable Positive



Skip



Duplex



Blade Basics (continued)

Tooth Set

Raker Set

These are individually set teeth — first right then left — followed by an unset tooth. The unset tooth (raker tooth) allows for fast chip removal and a straight cutting actions. This tooth set is recommended for general purpose cutting applications.

Wavy Set

Wavy set teeth are set in groups, right and left, in varying degrees. Wavy set teeth are recommended for cutting light metal sections, such as sheet, tubing, and small solid shapes.

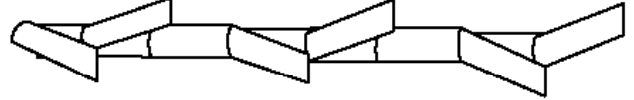
Alternate Set

In an alternate tooth set, every tooth is set — one left, one right — throughout the blade length. This tooth set is primarily used for cutting wood.

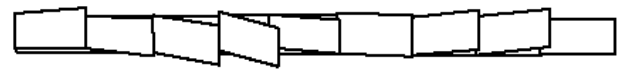
Variable Set

Variable set teeth are set in alternating groups with a single unset tooth (raker tooth). When these are combined with the varying set angles of the teeth, a faster, smoother, quieter cutting actions is achieved. Variable tooth blades perform extremely well on most applications and provide fast cutting on solids, shapes, structurals, and piping.

Raker Set



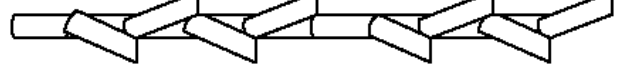
Wavy Set



Alternate Set



Variable Set



Guidelines

Successful Bandsaw Operation

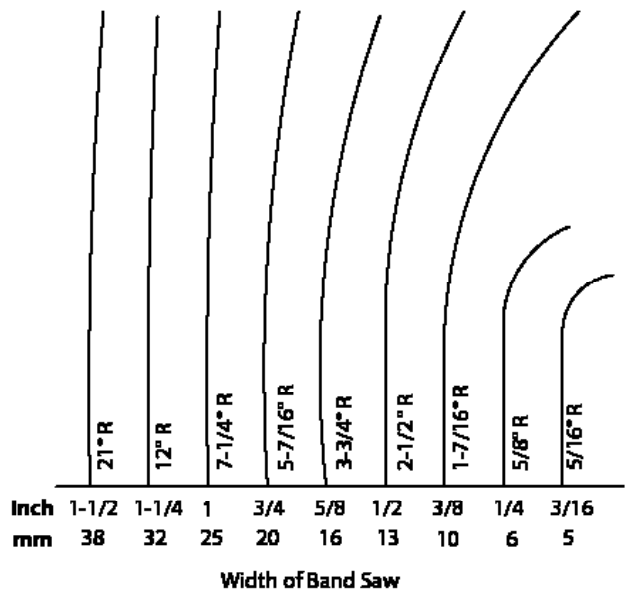
Blade Width Selection

The dimension from tooth tip to back edge of the blade is the blade width. The greater the width, the greater the resistance to deflection while cutting. For straight cutting applications, use the widest blade the machine can accept. For contour cutting use the widest blade that the contour radius will permit, see **Minimum Radii Cutting Chart** to the right.

Radii in this chart are based on manual feeding of one-inch thick milled steel. To cut close tolerance radii the following factors must be considered:

- Blade width
- Material thickness
- Machinability
- Feed force
- Location of pivot point

Minimum Radii Cut Chart



Teeth Per Inch

The pitch of the blade is defined by the number of TPI (Teeth Per Inch). Non-ferrous materials such as brass, bronze, and aluminum require a large chip area. A low TPI, or "course" pitch, prevents the chips from clogging and binding together in the gullets, which can diminish sawing and damage the blade.

On thin walled pipe, tubing, and sheet, many teeth per inch are required in order to avoid damaging or breaking the teeth. A low TPI blade is the best blade for cutting large cross-sections. The ability of each tooth to cut into the workpiece is increased because the saw's feed pressure is distributed over fewer teeth. A coarse pitch blade increases productivity and provides large chip clearing gullets.

Blade Break-In

Set Bandsaw machine at recommended speed for material to be cut. When cutting easily machined metals, cutting rate should be set at 1/3 to 1/2 the recommended rate for the first 50 to 75 square inches.

When cutting difficult to machine metals, such as tool steels or workhardened alloys, set cutting rate at 3/4 of the recommended rate for the first 25 square inches. Gradually increase the feed until you achieve the recommended cutting rate after 50 to 60 square inches.

continued on the next page

**Technical Information
Band Saws**

Blade Basics (continued)

Tooth Selection

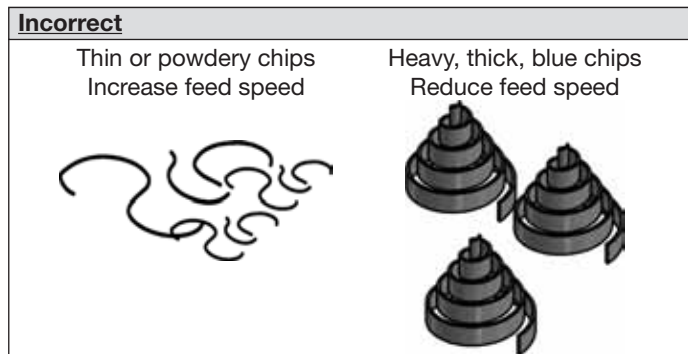
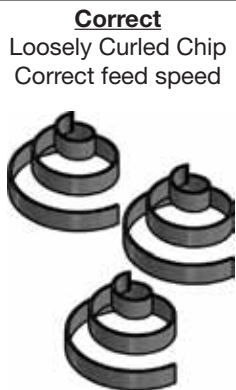
Tooth selection is based on the principle that there is a tooth pitch best suited for the cutting job. Blade selections should be based on the size, shape, accuracy, materials, and cutting rate expected. The chart below will help you select the correct pitch for cutting solids, tubes, and structurals.

Keep in mind these numbers: 3, 6, 12, and 24. There should be a minimum of three teeth in the work at all times for bi-metal bands. Ideally, 6-12 teeth should be in contact with the work; 24 teeth in the work is too many.

Solids			Structural			Tubing		
	Cross-section	Pitch		Cross-section	Pitch		Wall Thickness	Pitch
	1/4"	10/14 TPI 14 TPI		1/4" - 1/2"	10/14 TPI 10 TPI 8/12 TPI		1/4" - 1/2"	10 TPI 10/14 TPI 8/12 TPI
	3/8" - 3/4"	8/12 TPI 10 TPI 8 TPI						
	3/4" - 1-1/2"	4/6 TPI 6 TPI 5/8 TPI		1/2" - 3/4"	8 TPI 6/10 TPI 5/8 TPI		1/2" - 3/4"	8 TPI 6/10 TPI 5/8 TPI
		1-1/2" - 3"						
	3" - 6"	2/3 TPI 3/4 TPI 3 TPI		3/4" - 1"	4/6 TPI 5/8 TPI 6 TPI		3/4" - 1"	4/6 TPI 6/10 TPI 6 TPI
		6" - 10"						
	10" - 14"	.75 TPI .8/1.5 TPI						

Feed Pressure

Chips tell you what is happening with your feed pressure and your blade. Powdery or fine chips indicated not enough feed pressure is being applied. Loosely curled chips tell you everything is going well. Heavy or thick / blue burned chips mean you're pushing the blade to hard, creating too much heat and load for the teeth. If a change in feed or speed rates is required, change one at a time and observe the results after each change.



Tech Tip



Tips On Bandsaw Cutting

Machine Checklist

- ___ The blade tension on the tension meter.
- ___ The performance of the chip brush.
- ___ The wear and alignment of the blade guides.
- ___ The band speed with a tachometer.
- ___ The cutting fluid concentration with a refractometer.

Cutting Fluid

The cutting fluid keeps the blade teeth cool; it prevents the chips from welding to the tooth; it also lubricates the chips, allowing them to move through the cut.

- ___ Use a high quality cutting fluid.
- ___ Make sure the cutting fluid is distributed throughout the cut.

Problem / Solution

Problem	Reason	Solution
Premature and excessive tooth wear	Feed pressure too light	Increase feed pressure
	Band saw too slow	Adjust band speed
	Insufficient coolant, improper coolant mix, or wrong coolant	Apply proper coolant for type material being cut, check flow of coolant
	Improper tooth selection	Call Greenfield Industries for additional information
	Feed pressure too high	Call Greenfield Industries for additional information
	Guides hitting teeth alignment	Check blade
Tooth Strippage	Improper break-in with new band	Feed should be reduced for first few cuts
	Teeth too coarse for material thickness	Select finer pitch
	Material not securely vised	Adjust clamping pressure
	Insufficient or improper coolant	Apply proper coolant for type material begin cut, check flow of coolant
	Excessive feed pressure	Reduce feed pressure
Finished Surface too Rough	Band speed too slow	Increase band speed
	Chips loaded in gullet	Replace or adjust chip brush
	Improper blade selection	Select finer pitch
	Band speed too slow	Adjust band speed
	Feed rate too high	Slow down feed rate
Premature Blade Breakage	Improper coolant for type of material being cut	Apply proper coolant
	Thickness of blade too heavy for diameter of wheels	Select thinner blade
	Band tension too high	Adjust tension
	Improper speed	Call Greenfield Industries for additional information
	Excessive feed pressure	Reduce feed pressure
	Brittle weld	Increase annealing period, decreasing heat gradually
Cutting Rate too Slow	Saw out of alignment	Get machine properly re-aligned
	Improper coolant	Apply proper coolant for type of material being cut
	Band wheels worn	Replace wheels
	Incorrect band speed	Adjust band speed
	Incorrect feed pressure	Adjust feed pressure
	Blade pitch too fine	Select coarser pitch blade
Gullets Loading with Chips	Excessive cutting speed	Reduce cutting rate
	Blade pitch too fine	Select coarse pitch
	Chip brush not working	Replace or adjust chip brush
	Insufficient coolant, improper coolant mix, or improper coolant	Apply proper coolant for type of material being cut, check flow of coolant
Band Squeals	Feed rate too slow	Increase feed rate
	Insufficient coolant flow	Check coolant flow
Belly Shaped Cuts	Blade tension	Check blade tension with tension meter
	Guide arm is too far from work piece	Adjust guides closer to work piece
	Blade pitch too fine	Select coarser pitch blade
	Excessive feed force	Reduce feed force or feed rate
Blade Leading in Cut	Excessive feed force or feed rate	Reduce feed force or feed rate
	Possible hard inclusion	Use cutting oil to reduce leading
	Chip brush not working	Replace or adjust chip brush
	Blade tension too low	Check blade tension with tension meter
Band Develops Twist	Wrong width for radius being cut	Select a narrower blade
	Binding in cut	Adjust blade tension
Band Stalls in Work	Saw guides too close to work piece	Adjust saw guides further from work
	Feed pressure too great	Reduce feed pressure
	Improper blade tension	Adjust blade tension
Burring or Mushrooming of Back Edge	Blade pitch too coarse for material being cut	Select finer pitch blade
	Improper blade tension	Adjust blade tension
	Excessive feed pressure	Reduce feed pressure
	Blade pitch too fine	Select coarser pitch blade
Band Scoring	Improper guide adjustments	Adjust guides
	Band has side wear or grooving	Check saw guide inserts for wear and replace
	Improper alignment of saw guides	Adjust guides so they are square to front vise
Blade Not Running True against Saw Guide Backup Bearing	Worn guides	Replace guides
	Clicking noise against the saw guide backup bearing indicates there is a burr on the back edge of the band	Remove burr on the band
	Weld not in proper alignment	Reweld blade straight and true
Band Develops Negative Camber	Saw guide backup bearing worn	Replace
	Improper blade tracking	Check band wheel alignment
Band Develops Positive Camber	Band is riding on saw guide backup bearing too heavily	Adjust band alignment on top and bottom wheels
	Excessive feed force	Check band wheel alignment
Blade Vibration	Poor tooth penetration	Reduce feed force
	Saw guide is too far from work piece or no locked	Select a coarser pitch blade for increased tooth penetration
	Guides poorly adjusted	Adjust saw guides closer to work piece
	Improper band speed	Check guide adjustments
Chip Welding	Low blade tension	Increase or decrease band speed
	Feed rate too low	Increase blade tension
	Blade pitch too coarse for material being cut	Increase feed rate
	Work piece not properly secured	Select variable pitch blade
	Excessive feed pressure	Adjust clamping pressure
	Excessive cutting speed	Reduce feed pressure
	Chip brush not working	Reduce blade speed
	Insufficient or improper coolant	Replace or adjust chip brush
		Apply proper coolant for the type of material being cut, check coolant flow

DRILLS

TAPS & DIES

SAWS

CARBIDE BURS

INDEX

Table of Contents
Solid Carbide Burs

Pages 94-101

Style Number	Description	Page Number
1845	CLE-SA... Cylindrical	95
1846	CLE-SB... Cylindrical with End Cut	95-96
1847	CLE-SC... Cylindrical Ball Nose	96
1848	CLE-SF... Round Nose Tree	97
1849	CLE-SG... Pointed Tree	97-98
1850	CLE-SM... Pointed Cone	98
1851	CLE-SE... Egg Shaped	99
1852	CLE-SL... Included Angle	99
1853	CLE-SD... Ball Shaped	100
1854	CLE-SH... Flame Shaped	100
1856	CLE-SJ... 60° Included Angle (Countersink)	101
1857	CLE-SK... 90° Included Angle (Countersink)	101
1858	CLE-SN... Inverted Taper	101
1855	—... Bur Sets	101

Bur Cutting Speeds

Bur Diameter	Recommended RPM	Maximum RPM
1/16	60,000-90,000	100,000
1/8	40,000-70,000	90,000
3/16	35,000-60,000	80,000
1/4	30,000-50,000	70,000
5/16	20,000-40,000	68,000
3/8	20,000-40,000	66,000
7/16	15,000-40,000	58,000
1/2	15,000-40,000	50,000
5/8	12,000-25,000	40,000
3/4	10,000-20,000	33,000
1	7,500-20,000	25,000

Standard Cut Styles



RH Spiral Cut — Cle-Line's right-hand spiral cut produces a smooth finish for general-purpose use on steel, cast iron, and other ferrous and non-ferrous materials.



Double Cut — The double cut style has right- and left-hand helical flutes combined to produce a chisel-type cutting tooth. This feature results in faster penetration and stock removal with minimal bounce or chatter. This results in higher productivity with less operator fatigue and a good finish on a variety of workpiece materials.

ALL NEW!

NEW

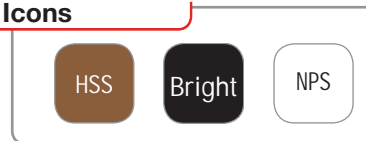
Carbide Extension Burs

now available on many style types

In this section indicated by **NEW** next to the USCTI number

- Wide selection of shapes and sizes.
- Constructed from solid carbide.
- Bright surface treatment.
- Right-hand spiral cut and double cut available.
- Solid carbide shanks (Styles A and D) and brazed steel shanks (Styles B and C) available.

Icons



Standard Shank Styles

Shank A

1/8" (3mm) solid carbide



Shank B

1/8" (3mm) hardened steel



Shank C

1/4" (6mm) hardened steel



Shank D

1/4" (6mm) solid carbide



General Purpose Burs

Style: **1845** (CLE-SA)

Solid Carbide Burs
Cylindrical without End Cut

Note

See index page for Standard Shank Styles explanation.



Right Hand Spiral Cut



Double Cut

Inch Sizes

USCTI number	cutting diameter			shank diameter	length of cut	overall length	shank type	order number	
	fractional	decimal	metric					1845	
								RH Spiral Cut	Double Cut
SA-42	3/32	.0938	2.38	1/8	7/16	1-1/2	A	C17601	C17550
SA-43	1/8	.1250	3.18	1/8	9/16	1-1/2	A	C17602	C17551
SA-14	3/16	.1875	4.76	1/4	5/8	2	C	C17608	—
SA-51	1/4	.2500	6.35	1/4	5/8	2	A	C17606	C17605
SA-1	1/4	.2500	6.35	1/4	5/8	2	D	C17609	C17552
NEW SA-1L6	1/4	.2500	6.35	1/4	1/2	6-1/2	C	C17800	C17823
SA-2	5/16	.3125	7.94	1/4	3/4	2-1/2	C	C17610	C17553
SA-3	3/8	.3750	9.53	1/4	3/4	2-1/2	C	C17611	C17554
NEW SA-3L6	3/8	.3750	9.53	1/4	3/4	6-3/4	C	C17801	C17824
SA-4	7/16	.4375	11.11	1/4	1	2-3/4	C	C17612	—
SA-5	1/2	.5000	12.70	1/4	1	2-3/4	C	C17613	C17555
NEW SA-5L6	1/2	.5000	12.70	1/4	1	7	C	C17802	C17825
SA-6	5/8	.6250	15.88	1/4	1	2-3/4	C	—	C17556
SA-7	3/4	.7500	19.05	1/4	1	2-3/4	C	—	C17615
SA-9	1	1.000	25.40	1/4	1	2-3/4	C	C17616	C17557

Metric Sizes

USCTI number	cutting diameter			shank diameter	length of cut	overall length	shank type	order number	
	MM	dec. inch						1845	
								RH Spiral Cut	Double Cut
SA-43	3	.1181		3	14.3	38.1	A	—	C17591
SA-1	6	.2362		6	15.9	50.8	D	—	C17588
SA-2	7.94	.3125		6	19.1	63.5	C	—	C17589
SA-3	9.53	.3750		6	19.1	63.5	C	—	C17590
SA-5	12.7	.5000		6	25.4	69.9	C	—	C17592

Style: **1846** (CLE-SB)

Solid Carbide Burs
Cylindrical with End Cut

Note

See index page for Standard Shank Styles explanation.

Metric sizes shown after inch.



Right Hand Spiral Cut



Double Cut

Inch Sizes

USCTI number	cutting diameter			shank diameter	length of cut	overall length	shank type	order number	
	fractional	decimal	metric					1846	
								RH Spiral Cut	Double Cut
SB-43	1/8	.1250	3.18	1/8	9/16	1-1/2	A	C17622	—
SB-11	1/8	.1250	3.18	1/4	1/2	2	C	C17625	—
SB-14	3/16	.1875	4.76	1/4	5/8	2	C	C17626	—
SB-51	1/4	.2500	6.35	1/8	3/16	1-7/16	B	C17624	—
SB-1	1/4	.2500	6.35	1/4	5/8	2	D	C17627	C17546
SB-3	3/8	.3750	9.53	1/4	3/4	2-1/2	C	C17629	C17547
SB-5	1/2	.5000	12.70	1/4	1	2-3/4	C	C17631	C17548
SB-6	5/8	.6250	15.88	1/4	1	2-3/4	C	—	C17549

metric sizes on next page

Solid Carbide Burs

Cylindrical with End Cut (cont)

Style: **1846** (CLE-SB)

Metric Sizes

USCTI number	cutting diameter		shank diameter	length of cut	overall length	shank type	order number	
	MM	dec. inch					1846	
SB-43	3	.1181	3	14.30	38.1	A	RH Spiral Cut C17632	Double Cut C17510
SB-1	6	.2362	6	15.90	50.8	D	—	C17507
SB-2	7.94	.3125	6	19.10	63.5	C	—	C17508
SB-3	9.53	.3750	6	19.10	63.5	C	—	C17509
SB-5	12.7	.5000	6	25.40	69.9	C	—	C17511
SB-6	15.88	.6250	6	25.40	69.9	C	C17633	C17512

Solid Carbide Burs

Cylindrical Ball Nose

Styles: **1847** (CLE-SC)

Note

See index page for Standard Shank Styles explanation.



Right Hand Spiral Cut



Double Cut

Inch Sizes

USCTI number	cutting diameter			shank diameter	length of cut	overall length	shank type	order number	
	fractional	decimal	metric					1847	
SC-41	3/32	.0938	2.38	1/8	7/16	1-1/2	A	RH Spiral Cut C17635	Double Cut —
SC-42	1/8	.1250	3.18	1/8	9/16	1-1/2	A	C17636	C17540
SC-11	1/8	.1250	3.18	1/4	1/2	2	C	—	C17539
SC14	3/16	.1875	4.76	1/4	5/8	2	C	C17641	—
SC-1	1/4	.2500	6.35	1/4	5/8	2	D	C17642	C17541
NEW SC-1L6	1/4	.2500	6.35	1/4	1/2	6-1/2	C	C17803	C17826
SC-2	5/16	.3125	7.94	1/4	3/4	2-1/2	C	—	C17542
SC-3	3/8	.3750	9.53	1/4	3/4	2-1/2	C	C17644	C17543
NEW SC-3L6	3/8	.3750	9.53	1/4	3/4	6-3/4	C	C17804	C17827
SC-5	1/2	.5000	12.70	1/4	1	2-3/4	C	C17646	C17544
NEW SC-5L6	1/2	.5000	12.70	1/4	1	7	C	C17805	C17828
SC-6	5/8	.6250	15.88	1/4	1	2-3/4	C	—	C17545

Metric Sizes

USCTI number	cutting diameter		shank diameter	length of cut	overall length	shank type	order number	
	MM	dec. inch					1847	
SC-43	3	.1181	3	14.3	38.1	A	RH Spiral Cut C17634	Double Cut C17517
SC-52	3.97	.1562	3	12.7	38.1	A	—	C17520
SC-53	4.76	.1875	3	12.7	38.1	A	—	C17521
SC-1	6	.2362	6	15.9	50.8	D	—	C17513
SC-51	6.35	.2500	3	12.7	44.5	B	—	C17519
SC-2	7.94	.3125	6	19.1	63.5	C	—	C17514
SC-3	9.53	.3750	6	19.1	63.5	C	—	C17515
SC-5	12.7	.5000	6	25.4	69.9	C	—	C17518
SC-6	15.88	.6250	6	25.4	69.9	C	—	C17522
SC-7	19.05	.7500	6	25.4	69.9	C	—	C17523

General Purpose Burs

Style: **1848** (CLE-SF)

Solid Carbide Burs
Round Nose Tree

Note

See index page for Standard Shank Styles explanation.



Right Hand Spiral Cut



Double Cut

Inch Sizes

USCTI number	cutting diameter			shank diameter	length of cut	overall length	shank type	order number	
	fractional	decimal	metric					1848	
								RH Spiral Cut	Double Cut
SF-41	1/8	.1250	3.18	1/8	1/4	1-1/2	A	C17650	—
SF-42	1/8	.1250	3.18	1/8	1/2	1-1/2	A	C17651	—
SF-1	1/4	.2500	6.35	1/4	5/8	2	D	C17654	C17580
NEW SF-1L6	1/4	.2500	6.35	1/4	1/2	6-1/2	C	C17812	C17835
SF-3	3/8	.3750	9.53	1/4	3/4	2-1/2	C	C17655	C17581
NEW SF-3L6	3/8	.3750	9.53	1/4	3/4	6-3/4	C	C17813	C17836
SF-13	1/2	.5000	12.70	1/4	3/4	2-1/2	C	C17657	—
SF-5	1/2	.5000	12.70	1/4	1	2-3/4	C	C17658	C17582
NEW SF-5L6	1/2	.5000	12.70	1/4	1	7	C	C17814	C17837
SF-6	5/8	.6250	15.88	1/4	1	2-3/4	C	—	C17583
SF-7	3/4	.7500	19.05	1/4	1	2-3/4	C	—	C17584
SF-14	3/4	.7500	19.05	1/4	1-1/4	3	C	C17661	—
SF-15	3/4	.7500	19.05	1/4	1-1/2	3-1/4	C	C17662	—

Metric Sizes

USCTI number	cutting diameter		shank diameter	length of cut	overall length	shank type	order number	
	MM	dec. inch					1848	
							RH Spiral Cut	Double Cut
SF-42	3	.1181	3	12.7	38.1	A	C17663	C17526
SF-53	4.76	.1875	3	12.7	38.1	A	—	C17528
SF-1	6	.2362	6	15.9	50.8	D	—	C17524
SF-51	6.35	.2500	3	12.7	44.5	B	C17596	C17597
SF-3	9.53	.3750	6	19.1	63.5	C	—	C17525
SF-5	12.7	.5000	6	25.4	69.9	C	—	C17527

Style: **1849** (CLE-SG)

Solid Carbide Burs
Pointed Tree

Note

See index page for Standard Shank Styles explanation.

Metric sizes shown after inch.



Right Hand Spiral Cut



Double Cut

Inch Sizes

USCTI number	cutting diameter			shank diameter	length of cut	overall length	shank type	order number	
	fractional	decimal	metric					1849	
								RH Spiral Cut	Double Cut
SG-41	1/8	.1250	3.18	1/8	1/4	1-1/2	A	C17675	—
SG-42	1/8	.1250	3.18	1/8	5/16	1-1/2	A	C17676	—
SG-53	3/16	.1875	4.76	1/8	1/2	1-1/2	A	C17679	—
SG-51	1/4	.2500	6.35	1/8	1/2	1-3/4	B	C17680	—
SG-1	1/4	.2500	6.35	1/4	5/8	2	D	C17681	C17575
NEW SG-1L6	1/4	.2500	6.35	1/4	1/2	6-1/2	C	C17815	C17838
SG-3	3/8	.3750	9.53	1/4	3/4	2-1/2	C	C17683	C17576
NEW SG-3L6	3/8	.3750	9.53	1/4	3/4	6-3/4	C	C17816	C17839
SG-13	1/2	.5000	12.70	1/4	3/4	2-1/2	C	—	C17577
SG-5	1/2	.5000	12.70	1/4	1	2-3/4	C	C17685	C17578
NEW SG-5L6	1/2	.5000	12.70	1/4	1	7	C	C17817	C17840
SG-6	5/8	.6250	15.88	1/4	1	2-3/4	C	—	C17579

metric sizes on next page

Solid Carbide Burs
Pointed Tree (con't)

Style: **1849** (CLE-SG)

Metric Sizes

USCTI number	cutting diameter		shank diameter	length of cut	overall length	shank type	order number	
	MM	dec. inch					1849	
							RH Spiral Cut	Double Cut
SG-44	3	.1181	3	12.7	38.1	A	C17674	C17486
SG-53	4.76	.1875	3	12.7	38.1	A	—	C17488
SG-1	6	.2362	6	15.9	50.8	D	—	C17483
SG-2	7.94	.3125	6	19.1	63.5	C	—	C17484
SG-3	9.53	.3750	6	19.1	63.5	C	—	C17485
SG-5	12.7	.5000	6	25.4	69.9	C	—	C17487

Solid Carbide Burs
Pointed Cone

Styles: **1850** (CLE-SC)

Note

See index page for Standard Shank Styles explanation.



Right Hand Spiral Cut



Double Cut

Inch Sizes

USCTI Number	cutting diameter			shank diameter	length of cut	overall length	included angle	shank type	order number	
	fractional	decimal	metric						1850	
									RH Spiral Cut	Double Cut
SM-42	1/8	.1250	3.18	1/8	7/16	1-1/2	14°	A	C17690	C17568
SM-51	1/4	.2500	6.35	1/8	1/2	1-7/8	22°	B	C17693	—
SM-1	1/4	.2500	6.35	1/4	1/2	2	22°	D	C17694	C17569
SM-2	1/4	.2500	6.35	1/4	3/4	2	14°	D	C17695	C17570
SM-3	1/4	.2500	6.35	1/4	1	2	10°	D	C17696	C17571
SM-4	3/8	.3750	9.53	1/4	5/8	2-1/2	28°	C	—	C17572
SM-5	1/2	.5000	12.70	1/4	7/8	2-3/4	28°	C	C17698	C17573
SM-6	5/8	.6250	15.88	1/4	1	2-7/8	31°	C	C17699	C17574

Metric Sizes

USCTI Number	cutting diameter		shank diameter	length of cut	overall length	included angle	shank type	order number	
	MM	dec. inch						1850	
								RH Spiral Cut	Double Cut
SM-42	3	.1181	3	11.1	38.1	14°	A	C17672	C17498
SM-53	4.76	.1875	3	12.7	38.1	16°	A	C17664	—
SM-2	6	.2362	6	19.1	50.8	14°	D	—	C17496
SM-4	9.53	.3750	6	15.9	63.5	28°	C	—	C17497
SM-5	12.7	.5000	6	22.2	69.9	28°	C	C17673	C17499
SM-6	15.88	.6250	6	25.4	66.7	31°	C	—	C17502

General Purpose Burs

Solid Carbide Burs
Egg Shape

Style: 1851 (CLE-SE)

Note

See index page for Standard Shank Styles explanation.



Right Hand Spiral Cut



Double Cut

Inch Sizes

USCTI number	cutting diameter			shank diameter	length of cut	overall length	shank type	order number	
	fractional	decimal	metric					1851	
								RH Spiral Cut	Double Cut
SE-41	1/8	.1250	3.18	1/8	7/32	1-1/2	A	C17700	—
SE-51	1/4	.2500	6.35	1/8	3/8	1-5/8	B	C17702	—
SE-1	1/4	.2500	6.35	1/4	3/8	2	D	C17703	C17558
NEW SE-1L6	1/4	.2500	6.35	1/4	3/8	6-3/8	C	C17809	C17832
SE-3	3/8	.3750	9.53	1/4	5/8	2-3/8	C	C17704	C17559
NEW SE-3L6	3/8	.3750	9.53	1/4	5/8	6.625	C	C17810	C17833
SE-5	1/2	.5000	12.70	1/4	7/8	2-5/8	C	C17705	C17560
NEW SE-5L6	1/2	.5000	12.70	1/4	7/8	6-7/8	C	C17811	C17834
SE-6	5/8	.6250	15.88	1/4	1	2-3/4	C	C17706	—
SE-7	3/4	.7500	19.05	1/4	1	2-3/4	C	—	C17561

Metric Sizes

USCTI number	cutting diameter		shank diameter	length of cut	overall length	shank type	order number	
	MM	dec. inch					1851	
							RH Spiral Cut	Double Cut
SE-41	3.0	.1181	3	5.6	38.1	A	C17708	—
SE-53	4.76	.1875	3	7.1	38.1	A	—	C17489

Style: 1852 (CLE-SL)

Solid Carbide Burs
Included Angle

Note

See index page for Standard Shank Styles explanation.



Right Hand Spiral Cut



Double Cut

Inch Sizes

USCTI number	cutting diameter			shank diameter	length of cut	overall length	included angle	shank type	order number	
	fractional	decimal	metric						1852	
									RH Spiral Cut	Double Cut
SL-42	1/8	.1250	3.18	1/8	1/2	1-1/2	8°	A	C17711	—
SL-1	1/4	.2500	6.35	1/4	5/8	2	14°	D	C17713	C17564
NEW SL-1L6	1/4	.2500	6.35	1/4	5/8	6-5/8	14°	C	C17820	C17843
SL-2	5/16	.3125	7.94	1/4	7/8	2-3/4	14°	C	C17714	C17565
SL-3	3/8	.3750	9.53	1/4	1-1/16	2-15/16	14°	C	C17715	C17566
NEW SL-3L6	3/8	.3750	9.53	1/4	1-1/16	7-1/16	14°	C	C17821	C17844
SL-4	1/2	.5000	12.70	1/4	1-1/8	3	14°	C	C17716	C17567
NEW SL-4L6	1/2	.5000	12.70	1/4	1-1/8	7-1/8	14°	C	C17822	C17845
SL-6	5/8	.6250	15.88	1/4	1-5/16	3-3/16	14°	C	C17717	C17587

Metric Sizes

USCTI Number	cutting diameter		shank diameter	length of cut	overall length	included angle	shank type	order number	
	MM	dec inch						1852	
								RH Spiral Cut	Double Cut
SL-41	3	.1181	3	9.5	38.1	8°	A	C17720	C17595
SL-3	9.53	.3750	6	27.0	74.6	14°	C	C17719	C17593
SL-4	12.7	.5000	6	31.8	76.2	14°	C	—	C17594

Solid Carbide Burs
Ball Shape

Style: **1853** (CLE-SD)

Note

See index page for Standard Shank Styles explanation.



Right Hand Spiral Cut



Double Cut

Inch Sizes

USCTI number	cutting diameter			shank diameter	length of cut	overall length	shank type	order number	
	fractional	decimal	metric					1853	
								RH Spiral Cut	Double Cut
SD-40	1/16	.0625	1.59	1/8	1/16	1-1/2	A	C17725	—
SD-41	3/32	.0938	2.38	1/8	3/32	1-1/2	A	C17726	—
SD-42	1/8	.1250	3.18	1/8	1/8	1-1/2	A	C17727	C17531
SD-11	1/8	.1250	3.18	1/4	1/8	2	C	C17730	C17530
SD-53	3/16	.1875	4.76	1/8	3/16	1-1/2	A	C17728	—
SD-14	3/16	.1875	4.76	1/4	3/16	2	C	C17731	C17532
SD-51	1/4	.2500	6.35	1/8	1/4	1-3/4	B	C17729	—
SD-1	1/4	.2500	6.35	1/4	1/4	2	D	C17732	C17533
NEW SD-1L6	1/4	.2500	6.35	1/4	7/32	6-7/32	C	C17806	C17829
SD-2	5/16	.3125	7.94	1/4	5/16	2-1/32	C	C17733	C17534
SD-3	3/8	.3750	9.53	1/4	3/8	2-5/64	C	C17734	C17535
NEW SD-3L6	3/8	.3750	9.53	1/4	5/16	6-5/16	C	C17807	C17830
SD-5	1/2	.5000	12.70	1/4	1/2	2-13/64	C	C17736	C17536
NEW SD-5L6	1/2	.5000	12.70	1/4	7/16	6-7/16	C	C17808	C17831
SD-6	5/8	.6250	15.88	1/4	5/8	2-5/16	C	C17737	C17537
SD-7	3/4	.7500	19.05	1/4	3/4	2-7/16	C	C17738	C17538
SD-9	1	1.0000	25.40	1/4	1	2-11/16	C	C17739	—

Metric Sizes

USCTI number	cutting diameter		shank diameter	length of cut	overall length	shank type	order number	
	MM	dec. inch					1853	
							RH Spiral Cut	Double Cut
SD-40	1.59	.0625	3	1.6	38.1	A	C17723	—
SD-42	3	.1181	3	3.0	38.1	A	C17724	C17457
SD-53	4.76	.1875	3	4.76	38.1	A	C17741	C17412
SD-1	6	.2362	6	6.0	50.8	D	C17721	C17455
SD-51	6.35	.2500	3	6.35	44.45	B	—	C17411
SD-3	9.53	.3750	6	9.53	52.8	C	C17722	C17456
SD-5	12.7	.5000	6	12.7	56.0	C	C17740	C17458
SD-7	19.05	.7500	6	19.05	61.9	C	—	C17413

Solid Carbide Burs
Flame Shape

Styles: **1854** (CLE-SH)

Note

See index page for Standard Shank Styles explanation.



Right Hand Spiral Cut



Double Cut

Inch Sizes

USCTI number	cutting diameter			shank diameter	length of cut	overall length	shank type	order number	
	fractional	decimal	metric					1854	
								RH Spiral Cut	Double Cut
SH-41	1/8	.1250	3.18	1/8	1/4	1-1/2	A	C17750	—
SH-2	5/16	.3125	7.94	1/4	3/4	2-1/2	C	—	C17562
NEW SH-2L6	5/16	.3125	7.94	1/4	3/4	6-3/4	C	C17818	C17841
SH-5	1/2	.5000	12.70	1/4	1-1/4	3	C	C17753	C17563
NEW SH-5L6	1/2	.5000	12.70	1/4	1-1/4	7-1/4	C	C17819	C17842

Metric Sizes

USCTI number	cutting diameter		shank diameter	length of cut	overall length	shank type	order number	
	MM	dec. inch					1854	
							RH Spiral Cut	Double Cut
SH-53	4.76	.1875	3.0	9.5	38.1	A	C17749	C17529

General Purpose Burs

Styles: **1856** (CLE-SJ), **1857** (CLE-SK)

Solid Carbide Burs

60°/ 90° Angle Burs (countersink)

Note

See index page for Standard Shank Styles explanation.



Right Hand Spiral Cut

Metric Sizes

USCTI number	cutting diameter			shank diameter	overall length	included angle	shank type	order number
	MM	dec. inch	metric					1856
SJ-6	15.88	.6250	6	61.9	60°	C	RH Spiral Cut	C17766

USCTI number	cutting diameter			shank diameter	length of cut	overall length	included angle	shank type	order number
	MM	dec. inch	metric						1857
SK-5	12.7	.5000	6	6.35	57.9	90°	C	RH Spiral Cut	C17742
SK-6	15.88	.6250	6	6.35	61.9	90°	C	RH Spiral Cut	C17767

Style: **1858** (CLE-SN)

Solid Carbide Burs

Inverted Taper Burs

Note

See index page for Standard Shank Styles explanation.



Double Cut

USCTI number	cutting diameter			shank diameter	length of cut	overall length	included angle	shank type	order number
	MM	dec. inch	metric						1858
SN-51	6.35	.2500	3.0	6.4	38.1	10°	A	Double Cut	C17780

SET

Style: **1855**

Plastic Case

Solid Carbide Burs

Inverted Taper Burs

Note

See index page for Standard Shank Styles explanation.



8-Piece Set
Bright
#C17763

set contains USCTI Nos.	cutting diameter			shank diameter	no. of pieces	shank type	order number
	fractional	decimal	metric				1855
SA-42, SA-43, SC-41, SC-42, SF-42, SG-42 SM-43, SE-41, SD-42	3/32 & 1/8	.0938 .1250	2.38 3.18	1/8	9	A	RH Spiral Cut C17760
SA-51, SA-51-2, SC-51, SF-51, SG-51, SM-51, SE-51, SD-51, SN-51	1/4	.2500	6.35	1/8	9	B	C17761
SA-1, SC-1, SF-1, SG-1, SM-2, SE-1, SL-1, SD-1	1/4	.2500	6.35	1/4	8	C	C17762
SA-5, SC-5, SF-5, SG-5, SM-5, SE-5, SL-4, SD-5	1/2	.5000	12.70	1/4	8	C	C17763

Standard Shank Styles

Shank A

1/8" (3mm) solid carbide

Shank B

1/8" (3mm) hardened steel

Shank C

1/4" (6mm) hardened steel

Shank D

1/4" (6mm) solid carbide

Index

Cle-Line Product Line

Order Number	Style	Page Number
C00448	.. 448	69,76
C00449	.. 449	69,76
C00451	.. 451	56,69,77
C00517	.. 517	68,76
C00518	.. 518	68,76
C00525	.. 525	68,76
C00526	.. 526	68,76
C00528	.. 528	68,76
C00532	.. 532	68,76
C00533	.. 533	68,76
C00608	.. 055	73,77
C00609	.. 055	73,77
C00610	.. 055	73,77
C00611	.. 055	73,77
C00612	.. 055	73,77
C00613	.. 055	73,77
C00614	.. 055	73,77
C01112	.. 1899	10
C01125	.. 1899	10
C01137	.. 1899	11
C01164	.. 1899	11
C01180	.. 1899	11
C01190	.. 1899	11
C01202	.. 1899	11
C01213	.. 1899	11
C01223	.. 1899	11
C01234	.. 1899	11
C01243	.. 1899	11
C01253	.. 1899	12
C01262	.. 1899	12
C01338	.. 1899	11
C01802	.. 1898	10
C01807	.. 1898	10
C01810	.. 1898	10
C01815	.. 1898	10
C01820	.. 1898	10
C01826	.. 1898	10
C01829	.. 1898	10
C01831	.. 1898	10
C01834	.. 1898	10
C01912	.. 1898	10
C01924	.. 1898	11
C01938	.. 1898	11
C02070	.. 1898	12
C02073	.. 1898	12
C17003	.. 1818	56
C17031	.. 1877	40
C17032	.. 1877	40
C17033	.. 1877	40
C17034	.. 1877	40
C17035	.. 1877	40
C17036	.. 1877	40
C17037	.. 1877	40
C17038	.. 1877	40
C17039	.. 1877	40
C17040	.. 1877	40
C17041	.. 1877	40
C17042	.. 1877	40
C17043	.. 1877	40
C17044	.. 1877	40
C17045	.. 1877	40
C17046	.. 1877	40
C17047	.. 1877	40
C17048	.. 1877	40
C17049	.. 1877	40

Order Number	Style	Page Number
C17050	.. 1877	40
C17051	.. 1877	40
C17052	.. 1877	40
C17053	.. 1877	40
C17054	.. 1877	40
C17055	.. 1877	40
C17056	.. 1877	40
C17057	.. 1877	40
C17058	.. 1877	40
C17059	.. 1877	40
C17060	.. 1877	41
C17061	.. 1877	41
C17062	.. 1877	41
C17066	.. 1877	41
C17070	.. 1877	41
C17074	.. 1877	41
C17078	.. 1877	41
C17082	.. 1877	41
C17086	.. 1877	41
C17090	.. 1877	41
C17094	.. 1877	41
C17100	.. 1823	51
C17101	.. 1823	51
C17102	.. 1823	51
C17103	.. 1823	51
C17104	.. 1823	51
C17105	.. 1823	51
C17106	.. 1823	51
C17107	.. 1823	51
C17108	.. 1823	51
C17109	.. 1823	51
C17110	.. 1823	51
C17111	.. 1823	51
C17112	.. 1823	51
C17113	.. 1823	51
C17114	.. 1823	51
C17115	.. 1823	51
C17116	.. 1823	51
C17170	.. 1829	53
C17171	.. 1829	53
C17172	.. 1829	53
C17173	.. 1829	53
C17174	.. 1829	53
C17176	.. 1829	53
C17178	.. 1829	53
C17180	.. 1829	53
C17411	.. 1853	100
C17412	.. 1853	100
C17413	.. 1853	100
C17455	.. 1853	100
C17456	.. 1853	100
C17457	.. 1853	100
C17458	.. 1853	100
C17483	.. 1849	98
C17484	.. 1849	98
C17485	.. 1849	98
C17486	.. 1849	98
C17487	.. 1849	98
C17488	.. 1849	98
C17489	.. 1851	99
C17496	.. 1850	98
C17497	.. 1850	98
C17498	.. 1850	98
C17499	.. 1850	98
C17502	.. 1850	98

Order Number	Style	Page Number
C17507	.. 1846	96
C17508	.. 1846	96
C17509	.. 1846	96
C17510	.. 1846	96
C17511	.. 1846	96
C17512	.. 1846	96
C17513	.. 1847	96
C17514	.. 1847	96
C17515	.. 1847	96
C17517	.. 1847	96
C17518	.. 1847	96
C17519	.. 1847	96
C17520	.. 1847	96
C17521	.. 1847	96
C17522	.. 1847	96
C17523	.. 1847	96
C17524	.. 1848	97
C17525	.. 1848	97
C17526	.. 1848	97
C17527	.. 1848	97
C17528	.. 1848	97
C17529	.. 1854	100
C17530	.. 1853	100
C17531	.. 1853	100
C17532	.. 1853	100
C17533	.. 1853	100
C17534	.. 1853	100
C17535	.. 1853	100
C17536	.. 1853	100
C17537	.. 1853	100
C17538	.. 1853	100
C17539	.. 1847	96
C17540	.. 1847	96
C17541	.. 1847	96
C17542	.. 1847	96
C17543	.. 1847	96
C17544	.. 1847	96
C17545	.. 1847	96
C17546	.. 1846	95
C17547	.. 1846	95
C17548	.. 1846	95
C17549	.. 1846	95
C17550	.. 1845	95
C17551	.. 1845	95
C17552	.. 1845	95
C17553	.. 1845	95
C17554	.. 1845	95
C17555	.. 1845	95
C17556	.. 1845	95
C17557	.. 1845	95
C17558	.. 1851	99
C17559	.. 1851	99
C17560	.. 1851	99
C17561	.. 1851	99
C17562	.. 1854	100
C17563	.. 1854	100
C17564	.. 1852	99
C17565	.. 1852	99
C17566	.. 1852	99
C17567	.. 1852	99
C17568	.. 1850	98
C17569	.. 1850	98
C17570	.. 1850	98
C17571	.. 1850	98
C17572	.. 1850	98

Order Number	Style	Page Number
C17573	.. 1850	98
C17574	.. 1850	98
C17575	.. 1849	97
C17576	.. 1849	97
C17577	.. 1849	97
C17578	.. 1849	97
C17579	.. 1849	97
C17580	.. 1848	97
C17581	.. 1848	97
C17582	.. 1848	97
C17583	.. 1848	97
C17584	.. 1848	97
C17587	.. 1852	99
C17588	.. 1845	95
C17589	.. 1845	95
C17590	.. 1845	95
C17591	.. 1845	95
C17592	.. 1845	95
C17593	.. 1852	99
C17594	.. 1852	99
C17595	.. 1852	99
C17596	.. 1848	97
C17597	.. 1848	97
C17601	.. 1845	95
C17602	.. 1845	95
C17605	.. 1845	95
C17606	.. 1845	95
C17608	.. 1845	95
C17609	.. 1845	95
C17610	.. 1845	95
C17611	.. 1845	95
C17612	.. 1845	95
C17613	.. 1845	95
C17615	.. 1845	95
C17616	.. 1845	95
C17618	.. 1815	49
C17619	.. 1815	49
C17622	.. 1846	95
C17624	.. 1846	95
C17625	.. 1846	95
C17626	.. 1846	95
C17627	.. 1846	95
C17629	.. 1846	95
C17631	.. 1846	95
C17632	.. 1846	96
C17633	.. 1846	96
C17634	.. 1847	96
C17635	.. 1847	96
C17636	.. 1847	96
C17641	.. 1847	96
C17642	.. 1847	96
C17644	.. 1847	96
C17646	.. 1847	96
C17650	.. 1848	97
C17651	.. 1848	97
C17654	.. 1848	97
C17655	.. 1848	97
C17657	.. 1848	97
C17658	.. 1848	97
C17661	.. 1848	97
C17662	.. 1848	97
C17663	.. 1848	97
C17664	.. 1850	98
C17672	.. 1850	98
C17673	.. 1850	98

Cle-Line Product Line
Index

Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number
C17674	..1849	..98	C17804	..1847	..96	C18023	..1878	..17	C18088	..1878	..15
C17675	..1849	..97	C17805	..1847	..96	C18024	..1878	..17	C18089	..1878	..15
C17676	..1849	..97	C17806	..1853	..100	C18025	..1878	..17	C18090	..1878	..15
C17679	..1849	..97	C17807	..1853	..100	C18026	..1878	..17	C18091	..1878	..15
C17680	..1849	..97	C17808	..1853	..100	C18027	..1878	..17	C18092	..1878	..15
C17681	..1849	..97	C17809	..1851	..99	C18028	..1878	..17	C18093	..1878	..15
C17683	..1849	..97	C17810	..1851	..99	C18029	..1878	..16	C18094	..1878	..15
C17685	..1849	..97	C17811	..1851	..99	C18030	..1878	..16	C18095	..1878	..15
C17690	..1850	..98	C17812	..1848	..97	C18031	..1878	..16	C18096	..1878	..15
C17693	..1850	..98	C17813	..1848	..97	C18032	..1878	..16	C18097	..1878	..15
C17694	..1850	..98	C17814	..1848	..97	C18033	..1878	..16	C18098	..1878	..15
C17695	..1850	..98	C17815	..1849	..97	C18034	..1878	..16	C18099	..1878	..15
C17696	..1850	..98	C17816	..1849	..97	C18035	..1878	..16	C18100	..1878	..15
C17698	..1850	..98	C17817	..1849	..97	C18036	..1878	..16	C18101	..1878	..15
C17699	..1850	..98	C17818	..1854	..100	C18037	..1878	..16	C18102	..1878	..15
C17700	..1851	..99	C17819	..1854	..100	C18038	..1878	..16	C18103	..1878	..15
C17702	..1851	..99	C17820	..1852	..99	C18039	..1878	..16	C18104	..1878	..15
C17703	..1851	..99	C17821	..1852	..99	C18040	..1878	..16	C18105	..1878	..15
C17704	..1851	..99	C17822	..1852	..99	C18041	..1878	..16	C18106	..1878	..15
C17705	..1851	..99	C17823	..1845	..95	C18042	..1878	..16	C18107	..1878	..15
C17706	..1851	..99	C17824	..1845	..95	C18043	..1878	..17	C18108	..1878	..15
C17708	..1851	..99	C17825	..1845	..95	C18044	..1878	..17	C18109	..1878	..15
C17711	..1852	..99	C17826	..1847	..96	C18045	..1878	..17	C18110	..1878	..15
C17713	..1852	..99	C17827	..1847	..96	C18046	..1878	..17	C18111	..1878	..15
C17714	..1852	..99	C17828	..1847	..96	C18047	..1878	..17	C18112	..1878	..15
C17715	..1852	..99	C17829	..1853	..100	C18048	..1878	..17	C18113	..1878	..15
C17716	..1852	..99	C17830	..1853	..100	C18049	..1878	..17	C18114	..1879	..17
C17717	..1852	..99	C17831	..1853	..100	C18050	..1878	..17	C18115	..1879	..17
C17719	..1852	..99	C17832	..1851	..99	C18051	..1878	..17	C18116	..1879	..17
C17720	..1852	..99	C17833	..1851	..99	C18052	..1878	..17	C18117	..1879	..17
C17721	..1853	..100	C17834	..1851	..99	C18053	..1878	..17	C18118	..1879	..17
C17722	..1853	..100	C17835	..1848	..97	C18054	..1878	..16	C18119	..1879	..17
C17723	..1853	..100	C17836	..1848	..97	C18055	..1878	..16	C18120	..1879	..17
C17724	..1853	..100	C17837	..1848	..97	C18056	..1878	..16	C18121	..1879	..17
C17725	..1853	..100	C17838	..1849	..97	C18057	..1878	..16	C18122	..1879	..18,55
C17726	..1853	..100	C17839	..1849	..97	C18058	..1878	..16	C18123	..1878	..18,54
C17727	..1853	..100	C17840	..1849	..97	C18059	..1878	..16	C18124	..1878	..18,54
C17728	..1853	..100	C17841	..1854	..100	C18060	..1878	..16	C18125	..1878	..18,54
C17729	..1853	..100	C17842	..1854	..100	C18061	..1878	..16	C18126	..1875R	..28,55
C17730	..1853	..100	C17843	..1852	..99	C18062	..1878	..16	C18127	..1898	..13,55
C17731	..1853	..100	C17844	..1852	..99	C18063	..1878	..16	C18128	..1878	..18,54
C17732	..1853	..100	C17845	..1852	..99	C18064	..1878	..16	C18400	..1898L	..14
C17733	..1853	..100	C18000	..1878	..15	C18065	..1878	..16	C18401	..1898L	..14
C17734	..1853	..100	C18001	..1878	..15	C18066	..1878	..16	C18402	..1898L	..14
C17736	..1853	..100	C18002	..1878	..15	C18067	..1878	..16	C18403	..1898L	..14
C17737	..1853	..100	C18003	..1878	..15	C18068	..1878	..16	C18404	..1898L	..14
C17738	..1853	..100	C18004	..1878	..15	C18069	..1878	..16	C18405	..1898L	..14
C17739	..1853	..100	C18005	..1878	..16	C18070	..1878	..16	C18406	..1898L	..14
C17740	..1853	..100	C18006	..1878	..16	C18071	..1878	..16	C18407	..1898L	..14
C17741	..1853	..100	C18007	..1878	..16	C18072	..1878	..16	C18408	..1898L	..14
C17742	..1857	..101	C18008	..1878	..16	C18073	..1878	..16	C18409	..1898L	..14
C17749	..1854	..100	C18009	..1878	..16	C18074	..1878	..16	C18410	..1898L	..14
C17750	..1854	..100	C18010	..1878	..16	C18075	..1878	..16	C18411	..1898L	..14
C17753	..1854	..100	C18011	..1878	..16	C18076	..1878	..16	C18412	..1898L	..14
C17760	..1855	..101	C18012	..1878	..16	C18077	..1878	..16	C18413	..1898L	..14
C17761	..1855	..101	C18013	..1878	..16	C18078	..1878	..16	C18414	..1898L	..14
C17762	..1855	..101	C18014	..1878	..16	C18079	..1878	..16	C18415	..1898L	..14
C17763	..1855	..101	C18015	..1878	..16	C18080	..1878	..16	C18416	..1898L	..14
C17766	..1856	..101	C18016	..1878	..16	C18081	..1878	..16	C18417	..1898L	..14
C17767	..1857	..101	C18017	..1878	..17	C18082	..1878	..15	C18418	..1898L	..14
C17780	..1858	..101	C18018	..1878	..17	C18083	..1878	..15	C18419	..1898L	..14
C17800	..1845	..95	C18019	..1878	..17	C18084	..1878	..15	C18420	..1898L	..14
C17801	..1845	..95	C18020	..1878	..17	C18085	..1878	..15	C18421	..1898L	..14
C17802	..1845	..95	C18021	..1878	..17	C18086	..1878	..15	C18422	..1898L	..14
C17803	..1847	..96	C18022	..1878	..17	C18087	..1878	..15	C18423	..1898L	..14

DRILLS
TAPS & DIES
SAWS
CARBIDE BURS
INDEX

Cle-Line Product Line
Index

Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number
C19007	..1844	..52	C19160	..1898T	..7	C20059	..1894	..37	C20512	..1816	..49
C19008	..1844	..52	C19161	..1898T	..7	C20060	..1894	..37	C20513	..1816	..49
C19009	..1844	..52	C19162	..1898T	..7	C20061	..1894	..37	C20514	..1816	..49
C19019	..1843	..50	C19163	..1898T	..7	C20062	..1894	..37	C20516	..1816	..49
C19020	..1843	..50	C19164	..1898T	..8	C20063	..1894	..37	C20517	..1816	..49
C19100	..1898T	..8	C19165	..1898T	..8	C20064	..1894	..37	C20518	..1816	..49
C19101	..1898T	..8	C19166	..1898T	..8	C20068	..1894	..39	C20524	..1894	..37
C19102	..1898T	..8	C19167	..1898T	..8	C20072	..1894	..39	C20525	..1894	..37
C19103	..1898T	..8	C19168	..1898T	..8	C20256	..2184	..50	C20526	..1894	..37
C19104	..1898T	..8	C19169	..1898T	..8	C20257	..2184	..50	C20527	..1894	..37
C19105	..1898T	..8	C19170	..1898T	..8	C20258	..2184	..50	C20528	..1894	..37
C19106	..1898T	..8	C19171	..1898T	..8	C20259	..2184	..50	C20529	..1894	..37
C19107	..1898T	..8	C19172	..1898T	..8	C20260	..2184	..50	C20530	..1894	..37
C19108	..1898T	..8	C19173	..1898T	..8	C20285	..1874	..48	C20535	..1894	..37
C19109	..1898T	..8	C19174	..1898T	..9	C20286	..1874	..48	C20540	..1894	..37
C19110	..1898T	..8	C19175	..1898T	..9	C20287	..1874	..48	C20543	..1894	..37
C19111	..1898T	..8	C19176	..1898T	..9	C20288	..1874	..48	C20545	..1894	..38
C19112	..1898T	..8	C19177	..1898T	..9	C20290	..1874	..48	C20549	..1894	..38
C19113	..1898T	..8	C19178	..1898T	..9	C20293	..1874	..48	C20550	..1894	..38
C19114	..1898T	..8	C19179	..1898T	..9	C20295	..1874TN	..48	C20551	..1894	..38
C19115	..1898T	..8	C19180	..1898T	..9	C20296	..1874TN	..48	C20552	..1894	..38
C19116	..1898T	..8	C19181	..1898T	..9	C20297	..1874TN	..48	C20553	..1894	..38
C19117	..1898T	..8	C19182	..1898T	..9	C20298	..1874TN	..48	C20554	..1894	..38
C19118	..1898T	..8	C19183	..1898T	..9	C20305	..1874	..48	C20555	..1894	..38
C19119	..1898T	..8	C19184	..1898T	..9	C20306	..1874	..48	C20556	..1894	..38
C19120	..1898T	..8	C19185	..1898T	..9	C20307	..1874	..48	C20557	..1894	..38
C19121	..1898T	..8	C19186	..1898T	..9	C20315	..1874TN	..48	C20558	..1894	..38
C19122	..1898T	..8	C19187	..1898T	..9	C20325	..1874	..48,56	C20559	..1894	..38
C19123	..1898T	..8	C19188	..1898T	..9	C20326	..1874TN	..48,56	C20560	..1894	..38
C19124	..1898T	..8	C19193	..1898T	..8	C20436	..1806	..36	C20561	..1894	..38
C19125	..1898T	..8	C19194	..1898T	..8	C20438	..1806	..36	C20562	..1894	..38
C19126	..1898T	..8	C19195	..1898T	..8	C20440	..1806	..36	C20563	..1894	..38
C19127	..1898T	..8	C19196	..1898T	..8	C20442	..1806	..36	C20564	..1894	..38
C19128	..1898T	..8	C19197	..1898T	..8	C20444	..1806	..36	C20565	..1894	..38
C19129	..1898T	..8	C19198	..1898T	..9	C20446	..1806	..36	C20566	..1894	..38
C19130	..1898T	..7	C19199	..1898T	..9	C20448	..1806	..36	C20567	..1894	..38
C19131	..1898T	..7	C19200	..1898T	..9	C20450	..1806	..36	C20568	..1894	..38
C19132	..1898T	..7	C19201	..1898T	..9	C20452	..1806	..36	C20569	..1894	..38
C19133	..1898T	..7	C19202	..1898T	..9	C20454	..1806	..36	C20570	..1894	..38
C19134	..1898T	..7	C19203	..1898T	..9	C20456	..1806	..36	C20571	..1894	..38
C19135	..1898T	..7	C19204	..1898T	..9	C20458	..1806	..36	C20572	..1894	..38
C19136	..1898T	..7	C19205	..1898T	..9	C20460	..1806	..36	C20573	..1894	..38
C19137	..1898T	..7	C19206	..1898T	..9	C20462	..1806	..36	C20574	..1894	..38
C19138	..1898T	..7	C19210	..1898T	..13,54	C20464	..1806	..36	C20575	..1894	..38
C19139	..1898T	..7	C19211	..1898T	..13,54	C20466	..1806	..36	C20576	..1894	..38
C19140	..1898T	..7	C20020	..1894	..37	C20468	..1806	..36	C20577	..1894	..39
C19141	..1898T	..7	C20022	..1894	..37	C20470	..1806	..36	C20578	..1894	..39
C19142	..1898T	..7	C20024	..1894	..37	C20472	..1806	..36	C20579	..1894	..39
C19143	..1898T	..7	C20026	..1894	..37	C20478	..2185	..51	C20580	..1894	..39
C19144	..1898T	..7	C20029	..1894	..38	C20479	..2185	..51	C20581	..1894	..39
C19145	..1898T	..7	C20030	..1894	..38	C20480	..2185	..51	C20582	..1894	..39
C19146	..1898T	..7	C20035	..1894	..38	C20481	..1807	..36	C20583	..1894	..39
C19147	..1898T	..7	C20040	..1894	..38	C20483	..1807	..36	C20584	..1894	..39
C19148	..1898T	..7	C20043	..1894	..39	C20485	..1807	..36	C20585	..1894	..39
C19149	..1898T	..7	C20045	..1894	..39	C20487	..1807	..36	C20586	..1894	..39
C19150	..1898T	..7	C20049	..1894	..37	C20489	..1807	..36	C20587	..1894	..39
C19151	..1898T	..7	C20050	..1894	..37	C20491	..1807	..36	C20588	..1894	..39
C19152	..1898T	..7	C20051	..1894	..37	C20493	..1807	..36	C20589	..1894	..39
C19153	..1898T	..7	C20052	..1894	..37	C20495	..1807	..36	C20590	..1894	..39
C19154	..1898T	..7	C20053	..1894	..37	C20497	..1807	..36	C20591	..1894	..39
C19155	..1898T	..7	C20054	..1894	..37	C20500	..1815	..49	C20592	..1894	..39
C19156	..1898T	..7	C20055	..1894	..37	C20501	..1815	..49	C20596	..1894	..39
C19157	..1898T	..7	C20056	..1894	..37	C20503	..1815	..49	C20621	..1808	..9
C19158	..1898T	..7	C20057	..1894	..37	C20510	..1816	..49	C20622	..1808	..9
C19159	..1898T	..7	C20058	..1894	..37	C20511	..1816	..49	C20623	..1808	..9

DRILLS
TAPS & DIES
SAWS
CARBIDE BURS
INDEX

Index

Cle-Line Product Line

Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number
C20624	..1808	..9	C20733	..1813	..40	C20975	..1888	..45	C21164	..1877	..42,56
C20625	..1808	..9	C20734	..1813	..40	C20976	..1888	..45	C21165	..1875R	..28,55
C20626	..1808	..9	C20735	..1813	..40	C20977	..1888	..45	C21170	..1877	..42
C20627	..1808	..9	C20736	..1813	..40	C20988	..2195	..51	C21171	..1877	..42
C20628	..1808	..9	C20737	..1813	..40	C20989	..2195	..51	C21172	..1877	..42
C20631	..1809	..17	C20738	..1813	..40	C20990	..2195	..51	C21173	..1877	..42
C20632	..1809	..17	C20739	..1813	..40	C21070	..1813	..42	C21174	..1877	..42
C20633	..1809	..17	C20740	..1813	..40	C21071	..1813	..42	C21175	..1877	..42
C20634	..1809	..17	C20741	..1813	..40	C21072	..1813	..42	C21176	..1877	..42
C20635	..1809	..17	C20742	..1813	..40	C21073	..1813	..42	C21177	..1877	..42
C20636	..1809	..17	C20743	..1813	..40	C21074	..1813	..42	C21178	..1877	..42
C20637	..1809	..17	C20744	..1813	..40	C21075	..1813	..42	C21179	..1877	..42
C20638	..1809	..17	C20745	..1813	..40	C21076	..1813	..42	C21180	..1877	..42
C20651	..1812	..25	C20746	..1813	..40	C21077	..1813	..42	C21181	..1877	..42
C20652	..1812	..25	C20747	..1813	..40	C21078	..1813	..42	C21182	..1877	..42
C20653	..1812	..25	C20748	..1813	..40	C21079	..1813	..42	C21183	..1877	..42
C20654	..1812	..25	C20749	..1813	..40	C21080	..1813	..42	C21184	..1877	..42
C20655	..1812	..25	C20750	..1813	..40	C21081	..1813	..42	C21185	..1877	..42
C20656	..1812	..25	C20751	..1813	..40	C21082	..1813	..42	C21186	..1877	..42
C20657	..1812	..25	C20752	..1813	..40	C21083	..1813	..42	C21187	..1877	..42
C20658	..1812	..25	C20753	..1813	..40	C21084	..1813	..42	C21188	..1877	..42
C20659	..1809	..17	C20754	..1813	..40	C21085	..1813	..42	C21189	..1877	..42
C20660	..1809	..17	C20755	..1813	..40	C21086	..1813	..42	C21190	..1898	..54
C20661	..1809	..17	C20756	..1813	..41	C21087	..1813	..42	C21191	..1878	..18,54
C20662	..1809	..17	C20757	..1813	..41	C21088	..1813	..42	C21192	..1878	..18,54
C20669	..1813	..40	C20758	..1813	..41	C21089	..1813	..42	C21947	..1896	..33,55
C20670	..1892	..40	C20759	..1813	..41	C21100	..1898	..13,54	C22300	..1860	..13,54,69,77
C20671	..1892	..40	C20760	..1813	..41	C21101	..1899	..13,54	C22301	..1860	..13,54,69,77
C20672	..1892	..40	C20761	..1813	..41	C21104	..1898	..13,54	C22302	..1860	..13,54,69,77
C20673	..1892	..40	C20762	..1813	..41	C21105	..1899	..13,54	C22303	..1860	..13,54,69,77
C20674	..1892	..40	C20763	..1813	..41	C21107	..1802	..25,54	C22304	..1860	..13,54,69,77
C20675	..1892	..40	C20764	..1813	..41	C21108	..1898	..13,54	C22305	..1860	..13,54,69,77
C20676	..1892	..40	C20765	..1813	..41	C21109	..1899	..13,54	C22306	..1860	..13,54,69,77
C20677	..1892	..40	C20877	..2185F	..51	C21110	..1801	..18,54	C22307	..1860	..13,54,69,77
C20678	..1892	..40	C20878	..2185F	..51	C21112	..1802	..25,54	C22308	..1860	..13,54,69,77
C20679	..1892	..40	C20879	..2185F	..51	C21113	..1898	..13,54	C22309	..1875R	..28,55
C20680	..1892	..40	C20880	..2185F	..51	C21114	..1899	..13,54	C22310	..1875R	..28,55
C20681	..1892	..40	C20891	..1824	..52	C21115	..1801	..18,54	C22311	..1864	..53,56
C20682	..1892	..40	C20892	..1824	..52	C21117	..1898	..13,54	C22312	..1864	..53,56
C20683	..1892	..40	C20893	..1824	..52	C21118	..1899	..13,54	C22313	..1864	..53,56
C20684	..1892	..40	C20894	..1824	..52	C21119	..1801	..18,55	C22314	..1864	..53,56
C20685	..1892	..40	C20895	..1824	..52	C21121	..1802	..25,55	C22315	..1864	..53,56
C20686	..1892	..40	C20896	..1824	..52	C21122	..1898	..13,55	C22316	..1864	..53,56
C20687	..1892	..40	C20897	..1824	..52	C21123	..1899	..13,55	C22505	..1899	..9
C20688	..1892	..40	C20898	..1824	..52	C21124	..1801	..18,55	C22506	..1899	..9
C20689	..1892	..40	C20899	..1824	..52	C21125	..1802	..25,55	C22507	..1899	..9
C20690	..1892	..40	C20908	..1816	..49	C21126	..1898	..13,55	C22508	..1899	..9
C20691	..1892	..40	C20909	..1816	..49	C21127	..1899	..13,55	C22643	..1899	..7
C20692	..1892	..40	C20920	..1817	..48	C21128	..1801	..18,55	C22644	..1899	..7
C20693	..1892	..40	C20955	..1817	..48	C21129	..1802	..25,55	C22645	..1899	..7
C20694	..1892	..41	C20956	..1817	..48	C21130	..1899	..13,55	C22646	..1899	..7
C20695	..1892	..41	C20957	..1817	..48	C21131	..1899	..13,55	C22647	..1899	..7
C20696	..1892	..41	C20958	..1817	..48	C21133	..1896	..33,55	C22648	..1899	..7
C20697	..1892	..41	C20960	..1888	..45	C21134	..1813	..42,56	C22649	..1899	..7
C20698	..1892	..41	C20961	..1888	..45	C21135	..1813	..42,56	C22650	..1899	..7
C20699	..1892	..41	C20962	..1888	..45	C21148	..1822	..56	C22651	..1899	..7
C20724	..1813	..40	C20963	..1888	..45	C21149	..1829	..53,56	C22652	..1899	..7
C20725	..1813	..40	C20964	..1888	..45	C21156	..1900	..13	C22653	..1899	..7
C20726	..1813	..40	C20965	..1888	..45	C21157	..1801	..18,54	C22654	..1899	..7
C20727	..1813	..40	C20966	..1888	..45	C21158	..1899	..13,55	C22655	..1899	..7
C20728	..1813	..40	C20970	..1888	..45	C21159	..1900	..13	C22656	..1899	..7
C20729	..1813	..41	C20971	..1888	..45	C21160	..1875R	..28,55	C22657	..1899	..7
C20730	..1813	..41	C20972	..1888	..45	C21161	..1875R	..28,55	C22658	..1899	..7
C20731	..1813	..41	C20973	..1888	..45	C21162	..1875R	..28,55	C22659	..1899	..7
C20732	..1813	..40	C20974	..1888	..45	C21163	..1876	..28,55	C22660	..1899	..7

Cle-Line Product Line
Index

Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number
C25084	..1887	..79,81	C25166	..T2000	..88	C26125	..HB-BM	..87	C30155	..RSB-BM	..86
C25085	..1887	..79,81	C25167	..T2000	..88	C26126	..1884	..83	C30156	..RSB-D	..84
C25086	..1887	..79,81	C25168	..T2000	..88	C26127	..T7000	..89	C30157	..RSB-D	..84
C25088	..1887	..79,81	C25169	..T2000	..88	C26128	..T7000	..89	C30158	..RSB-D	..84
C25089	..1887	..79,81	C25170	..T2000	..88	C26129	..T7000	..89	C30159	..RSB-D	..84
C25090	..1887	..79,81	C25172	..T2000	..88	C26133	..T1000	..88	C30160	..RSB-D	..84
C25091	..1887	..79,81	C25173	..T2000	..88	C26134	..T1000	..88	C30161	..RSB-D	..84
C25092	..1887	..79,81	C25174	..T2000	..88	C26135	..T1000	..88	C30162	..RSB-BM	..86
C25093	..1887	..79,81	C25175	..T2000	..88	C26136	..T1000	..88	C30163	..RSB-BM	..86
C25096	..1887	..79,81	C25177	..T2000	..88	C26137	..T2000	..88	C30164	..RSB-BM	..86
C25097	..1887	..79,81	C25179	..T2000	..88	C26138	..T2000	..88	C30165	..RSB-BM	..86
C25098	..1887	..79,81	C25181	..T2000	..88	C26139	..T2000	..88	C30166	..RSB-BM	..86
C25099	..1887	..79,81	C25182	..T2000	..88	C26140	..T3000	..88	C30167	..RSB-BM	..86
C25102	..1887	..79,81	C25184	..T3000	..88	C26141	..T3000	..88	C30170	..RSB-BM	..85
C25103	..1887	..79,81	C25186	..T3000	..88	C26142	..T3000	..88	C30171	..RSB-BM	..85
C25104	..1887	..79,81	C25188	..T3000	..88	C26143	..T3000	..88	C30172	..RSB-BM	..85
C25105	..1887	..79,81	C25189	..T3000	..88	C26144	..T5000	..89	C30173	..RSB-BM	..85
C25106	..1887	..79,81	C25190	..T3000	..88	C26145	..T5000	..89	C30174	..RSB-BM	..85
C25107	..1887	..79,81	C25191	..T3000	..88	C26146	..T6000	..89	C30175	..RSB-BM	..85
C25109	..1887	..79,81	C25192	..T3000	..88	C26147	..T6000	..89	C30176	..RSB-BM	..85
C25111	..1887	..79,81	C25193	..T3000	..88	C26148	..T6000	..89	C30177	..RSB-BM	..85
C25112	..1887	..79,81	C25195	..T3000	..88	C26149	..1887	..79,81	C30178	..RSB-BM	..85
C25113	..1887	..79,81	C25196	..T4000	..88	C26195	..1884	..83	C30179	..RSB-BM	..85
C25114	..1887	..79,81	C25197	..T4000	..88	C26196	..1884	..83	C30180	..RSB-BM	..85
C25115	..1887	..79,81	C25198	..T4000	..88	C30101	..RSB-D	..84	C30181	..RSB-BM	..86
C25116	..1884	..83	C25199	..T5000	..89	C30102	..RSB-D	..84	C30182	..RSB-BM	..86
C25117	..1884	..83	C25200	..T5000	..89	C30103	..RSB-D	..84	C30183	..RSB-BM	..86
C25118	..1884	..83	C25201	..T5000	..89	C30104	..RSB-D	..84	C30184	..RSB-BM	..86
C25121	..1884	..83	C25202	..T5000	..89	C30105	..RSB-D	..84	C30505	..1880	..28
C25122	..1884	..83	C25204	..T5000	..89	C30106	..RSB-D	..84	C30507	..1880	..28
C25123	..1884	..83	C25205	..T5000	..89	C30107	..RSB-BM	..85	C30508	..1880	..28
C25124	..1884	..83	C25206	..T5000	..89	C30108	..RSB-BM	..85	C30510	..1880	..28
C25125	..1884	..83	C25207	..T5000	..89	C30109	..RSB-BM	..85	C30512	..1880	..28
C25126	..P1000	..87	C25208	..T5000	..89	C30110	..RSB-BM	..85	C30514	..1880	..28
C25127	..P1000	..87	C25209	..T5000	..89	C30111	..RSB-BM	..85	C30516	..1880	..28
C25129	..P1000	..87	C25217	..RSB-P	..84	C30112	..RSB-BM	..85	C30518	..1880	..28
C25130	..P1000	..87	C25239	..HB-BM	..87	C30113	..RSB-BM	..85	C30519	..1880	..28
C25131	..P1000	..87	C25240	..HB-BM	..87	C30114	..RSB-BM	..85	C30520	..1880	..28
C25132	..P1000	..87	C25241	..HB-BM	..87	C30115	..RSB-BM	..85	C30522	..1880	..28
C25133	..T7000	..89	C25242	..HB-BM	..87	C30116	..RSB-BM	..85	C30524	..1880	..28
C25134	..T7000	..89	C25244	..HB-BM	..87	C30117	..RSB-BM	..85	C30526	..1880	..28
C25135	..T7000	..89	C25245	..HB-BM	..87	C30118	..RSB-BM	..86	C30528	..1880	..28
C25136	..T7000	..89	C25246	..HB-BM	..87	C30119	..RSB-BM	..86	C30530	..1880	..28
C25137	..T7000	..89	C25247	..HB-BM	..87	C30120	..RSB-BM	..86	C30532	..1880	..28
C25138	..T7000	..89	C25248	..HB-BM	..87	C30121	..RSB-BM	..86	C62001	..0401	..60
C25141	..T7000	..89	C26101	..1887	..79,81	C30135	..RSB-D	..84	C62002	..0402	..60
C25142	..T7000	..89	C26102	..1887	..79,81	C30136	..RSB-D	..84	C62003	..0403	..60
C25143	..T7000	..89	C26103	..1887	..79,81	C30137	..RSB-D	..84	C62004	..0404	..60
C25144	..T7000	..89	C26104	..1887	..79,81	C30138	..RSB-D	..84	C62005	..0401	..60
C25145	..T7000	..89	C26105	..1887	..79,81	C30139	..RSB-D	..84	C62006	..0402	..60
C25147	..T7000	..89	C26106	..1887	..79,81	C30140	..RSB-D	..84	C62007	..0403	..60
C25148	..T7000	..89	C26107	..1887	..79,81	C30141	..RSB-BM	..85	C62008	..0404	..60
C25149	..T1000	..88	C26108	..1887	..79,81	C30142	..RSB-BM	..85	C62009	..0401	..60
C25150	..T1000	..88	C26109	..1887	..79,81	C30143	..RSB-BM	..85	C62010	..0402	..60
C25152	..T1000	..88	C26110	..1887	..79,81	C30144	..RSB-BM	..85	C62011	..0403	..60
C25153	..T1000	..88	C26111	..1887	..79,81	C30145	..RSB-BM	..85	C62012	..0404	..60
C25154	..T1000	..88	C26112	..1887	..79,81	C30146	..RSB-BM	..85	C62013	..0401	..60
C25156	..T1000	..88	C26113	..1887	..79,81	C30147	..RSB-BM	..85	C62014	..0402	..60
C25157	..T1000	..88	C26115	..1887	..79,81	C30148	..RSB-BM	..85	C62015	..0403	..60
C25158	..T1000	..88	C26116	..1887	..79,81	C30149	..RSB-BM	..85	C62016	..0404	..60
C25160	..T1000	..88	C26117	..1887	..79,81	C30150	..RSB-BM	..85	C62017	..0401	..60
C25161	..T1000	..88	C26118	..1887	..79,81	C30151	..RSB-BM	..85	C62018	..0402	..60
C25162	..T1000	..88	C26119	..1887	..79,81	C30152	..RSB-BM	..86	C62019	..0403	..60
C25163	..T1000	..88	C26120	..1887	..79,81	C30153	..RSB-BM	..86	C62020	..0404	..60
C25164	..T1000	..88	C26121	..1887	..79,81	C30154	..RSB-BM	..86	C62021	..0401	..60

DRILLS
TAPS & DIES
SAWS
CARBIDE BURS
INDEX

Index

Cle-Line Product Line

Order Number	Style	Page Number
C62022	.0402	.60
C62023	.0403	.60
C62024	.0404	.60
C62025	.0401	.60
C62026	.0402	.60
C62027	.0403	.60
C62028	.0404	.60
C62029	.0401	.60
C62030	.0402	.60
C62031	.0403	.60
C62032	.0404	.60
C62033	.0401	.60
C62034	.0402	.60
C62035	.0403	.60
C62036	.0404	.60
C62037	.0401	.60
C62038	.0402	.60
C62039	.0403	.60
C62040	.0404	.60
C62041	.0401	.60
C62042	.0402	.60
C62044	.0404	.60
C62045	.0401	.60
C62046	.0402	.60
C62047	.0403	.60
C62048	.0404	.60
C62049	.0401	.60
C62050	.0402	.60
C62051	.0403	.60
C62052	.0404	.60
C62053	.0401	.60
C62054	.0402	.60
C62055	.0403	.60
C62056	.0404	.60
C62057	.0401	.60
C62058	.0402	.60
C62059	.0403	.60
C62060	.0404	.60
C62061	.0401	.60
C62062	.0402	.60
C62063	.0403	.60
C62064	.0404	.60
C62065	.0401	.60
C62066	.0402	.60
C62067	.0403	.60
C62068	.0404	.60
C62069	.0401	.60
C62070	.0402	.60
C62071	.0403	.60
C62072	.0404	.60
C62073	.0401	.60
C62074	.0402	.60
C62075	.0403	.60
C62076	.0404	.60
C62077	.0401	.60
C62078	.0402	.60
C62079	.0403	.60
C62080	.0404	.60
C62081	.0401	.60
C62082	.0402	.60
C62083	.0403	.60
C62084	.0404	.60
C62085	.0401	.60
C62086	.0402	.60
C62087	.0403	.60

Order Number	Style	Page Number
C62088	.0404	.60
C62089	.0401	.60
C62090	.0402	.60
C62091	.0403	.60
C62092	.0404	.60
C62093	.0401	.60
C62094	.0402	.60
C62095	.0403	.60
C62096	.0404	.60
C62097	.0401	.60
C62098	.0402	.60
C62099	.0403	.60
C62100	.0404	.60
C62101	.0401	.60
C62102	.0402	.60
C62103	.0403	.60
C62104	.0404	.60
C62105	.0401	.60
C62106	.0402	.60
C62107	.0403	.60
C62108	.0404	.60
C62109	.0401	.60
C62110	.0402	.60
C62111	.0403	.60
C62112	.0404	.60
C62151	.1694M	.61
C62152	.1694M	.61
C62153	.1694M	.61
C62154	.1694M	.61
C62155	.1694M	.61
C62156	.1694M	.61
C62157	.1694M	.61
C62158	.1694M	.61
C62159	.1694M	.61
C62160	.1694M	.61
C62161	.1694M	.61
C62162	.1694M	.61
C62163	.1694M	.61
C62164	.1694M	.61
C62172	.0411M	.61
C62175	.0411M	.61
C62177	.0411M	.61
C62179	.0411M	.61
C62180	.0411M	.61
C62183	.0411M	.61
C62185	.0411M	.61
C62187	.0411M	.61
C62191	.0411M	.61
C62793	.1898	.10
C62794	.1898	.10
C62795	.1898	.10
C62796	.1898	.10
C62797	.1898	.10
C62798	.1898	.10
C62799	.1898	.10
C62800	.1898	.10
C62801	.1898	.10
C62802	.1898	.10
C62803	.1898	.10
C62804	.1898	.10
C62805	.1898	.10
C62806	.1898	.10
C62807	.1898	.10
C62808	.1898	.10
C62809	.1898	.10

Order Number	Style	Page Number
C62810	.1898	.10
C62811	.1898	.10
C62812	.1898	.10
C62813	.1898	.10
C62814	.1898	.10
C62815	.1898	.10
C62816	.1898	.10
C62817	.1898	.10
C62818	.1898	.10
C62819	.1898	.10
C62820	.1898	.10
C62821	.1898	.10
C62822	.1898	.10
C62823	.1898	.10
C62824	.1898	.10
C62825	.1898	.10
C62826	.1898	.10
C62827	.1898	.10
C62828	.1898	.10
C62829	.1898	.10
C62830	.1898	.10
C62831	.1898	.10
C62832	.1898	.10
C62833	.1898	.10
C62834	.1898	.10
C62835	.1898	.11
C62836	.1898	.11
C62837	.1898	.11
C62838	.1898	.11
C62839	.1898	.11
C62840	.1898	.11
C62841	.1898	.11
C62842	.1898	.11
C62843	.1898	.11
C62844	.1898	.11
C62845	.1898	.11
C62846	.1898	.11
C62847	.1898	.11
C62848	.1898	.11
C62849	.1898	.11
C62850	.1898	.11
C62851	.1898	.11
C62852	.1898	.11
C62853	.1898	.11
C62854	.1898	.11
C62855	.1898	.11
C62856	.1898	.11
C62857	.1898	.11
C62858	.1898	.11
C62859	.1898	.11
C62860	.1898	.11
C62861	.1898	.11
C62862	.1898	.11
C62863	.1898	.11
C62864	.1898	.11
C62865	.1898	.11
C62866	.1898	.11
C62867	.1898	.11
C62868	.1898	.11
C62869	.1898	.11
C62870	.1898	.11
C62871	.1898	.11
C62872	.1898	.11
C62873	.1898	.11
C62874	.1898	.11

Order Number	Style	Page Number
C62875	.1898	.11
C62876	.1898	.11
C62877	.1898	.11
C62878	.1898	.11
C62879	.1898	.11
C62880	.1898	.11
C62881	.1898	.11
C62882	.1898	.11
C62883	.1898	.12
C62884	.1898	.12
C62885	.1898	.12
C62886	.1898	.12
C62887	.1898	.12
C62888	.1898	.12
C62889	.1898	.12
C62890	.1898	.12
C62891	.1898	.12
C62892	.1898	.12
C62893	.1898	.12
C62894	.1898	.12
C62895	.1898	.12
C62896	.1898	.12
C62897	.1898	.12
C62898	.1898	.12
C62899	.1898	.12
C62900	.1898	.12
C62901	.1898	.12
C62902	.1898	.12
C62903	.1898	.12
C62904	.1898	.12
C62905	.1898	.12
C62906	.1898	.12
C62907	.1898	.12
C62908	.1898	.12
C62909	.1898	.12
C62910	.1898	.12
C62911	.1898	.12
C62912	.1898	.12
C62913	.1898	.12
C62914	.1898	.12
C62915	.1898	.12
C62916	.1898	.12
C62917	.1898	.12
C62918	.1898	.12
C62920	.1898	.12
C62921	.1898	.12
C62922	.1898	.12
C62923	.1898	.12
C62924	.1898	.12
C62926	.1898	.12
C62928	.1898	.12
C62929	.1898	.12
C62931	.1898	.12
C63201	.0401M	.60
C63202	.0402M	.60
C63203	.0403M	.60
C63204	.0404M	.60
C63209	.0401M	.60
C63210	.0402M	.60
C63211	.0403M	.60
C63212	.0404M	.60
C63217	.0401M	.60
C63218	.0402M	.60
C63219	.0403M	.60
C63220	.0404M	.60

Cle-Line Product Line
Index

Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number
C63221	..0401M	..60	C64961	..0450	..63	C65329	..0610	..66	C65621	..0650	..64
C63222	..0402M	..60	C65022	..0610	..66	C65339	..0610	..66	C65622	..0650	..64
C63223	..0403M	..60	C65026	..0610	..66	C65340	..0610	..66	C65623	..0650	..64
C63224	..0404M	..60	C65027	..0610	..66	C65349	..0610	..66	C65624	..0650	..64
C63225	..0401M	..60	C65036	..0610	..66	C65350	..0610	..66	C65625	..0650	..64
C63226	..0402M	..60	C65037	..0610	..66	C65374	..0610	..66	C65627	..0650	..64
C63227	..0403M	..60	C65045	..0610	..66	C65384	..0610	..66	C65628	..0650	..64
C63228	..0404M	..60	C65046	..0610	..66	C65385	..0610	..66	C65629	..0650	..64
C63229	..0401M	..60	C65048	..0610	..66	C65395	..0610	..66	C65630	..0650	..64
C63230	..0402M	..60	C65049	..0610	..66	C65396	..0610	..66	C65631	..0650	..64
C63231	..0403M	..60	C65057	..0610	..66	C65405	..0610	..66	C65632	..0650	..64
C63232	..0404M	..60	C65058	..0610	..66	C65406	..0610	..66	C65633	..0650	..64
C63233	..0401M	..60	C65061	..0610	..66	C65407	..0610	..66	C65721	..0710M	..67
C63234	..0402M	..60	C65062	..0610	..66	C65416	..0610	..66	C65724	..0710M	..67
C63235	..0403M	..60	C65069	..0610	..66	C65417	..0610	..66	C65729	..0710	..66
C63236	..0404M	..60	C65070	..0610	..66	C65426	..0610	..66	C65730	..0710	..66
C63237	..0401M	..60	C65075	..0610	..66	C65427	..0610	..66	C65732	..0710M	..67
C63238	..0402M	..60	C65076	..0610	..66	C65433	..0610	..66	C65733	..0710	..66
C63239	..0403M	..60	C65083	..0610	..66	C65434	..0610	..66	C65734	..0710	..66
C63240	..0404M	..60	C65084	..0610	..66	C65441	..0610	..66	C65737	..0710M	..67
C63241	..0401M	..60	C65093	..0610	..66	C65442	..0610	..66	C65739	..0710	..66
C63242	..0402M	..60	C65114	..0610	..66	C65449	..0610	..66	C65740	..0710	..66
C63243	..0403M	..60	C65119	..0610	..66	C65450	..0610	..66	C65742	..0710M	..67
C63244	..0404M	..60	C65124	..0610	..66	C65470	..0610	..66	C65743	..0710	..66
C63245	..0401M	..60	C65125	..0610	..66	C65471	..0610	..66	C65744	..0710	..66
C63246	..0402M	..60	C65132	..0610	..66	C65491	..0620	..67	C65747	..0710M	..67
C63247	..0403M	..60	C65140	..0610	..66	C65492	..0620	..67	C65751	..0710	..66
C63248	..0404M	..60	C65142	..0610	..66	C65493	..0620	..67	C65752	..0710	..66
C63249	..0401M	..60	C65147	..0610	..66	C65494	..0620	..67	C65757	..0710M	..67
C63250	..0402M	..60	C65148	..0610	..66	C65495	..0620	..67	C65760	..0710	..66
C63251	..0403M	..60	C65159	..0610	..66	C65496	..0620	..67	C65761	..0710	..66
C63252	..0404M	..60	C65160	..0610	..66	C65497	..0620	..67	C65766	..0710	..66
C63253	..0401M	..60	C65171	..0610	..66	C65571	..0660	..64	C65767	..0710	..66
C63254	..0402M	..60	C65172	..0610	..66	C65572	..0660	..64	C65785	..0710	..66
C63255	..0403M	..60	C65192	..0610	..66	C65573	..0660	..64	C65789	..0710	..66
C63256	..0404M	..60	C65193	..0610	..66	C65574	..0660	..64	C65792	..0710	..66
C64213	..0462	..62	C65197	..0610	..66	C65575	..0660	..64	C65793	..0710	..66
C64214	..0462	..62	C65198	..0610	..66	C65576	..0660	..64	C65798	..0710	..66
C64215	..0462	..62	C65208	..0610	..66	C65580	..0650M	..65	C65801	..0710M	..67
C64216	..0462	..62	C65209	..0610	..66	C65581	..0650M	..65	C65804	..0710	..66
C64217	..0462	..62	C65220	..0610	..66	C65582	..0650M	..65	C65805	..0710	..66
C64218	..0462	..62	C65221	..0610	..66	C65583	..0650M	..65	C65807	..0710M	..67
C64219	..0462	..62	C65232	..0610	..66	C65584	..0650M	..65	C65808	..0710	..66
C64220	..0462	..62	C65233	..0610	..66	C65585	..0650M	..65	C65809	..0710	..66
C64221	..0462	..62	C65239	..0610	..66	C65586	..0650M	..65	C65813	..0710M	..67
C64222	..0462	..62	C65240	..0610	..66	C65587	..0650M	..65	C65816	..0710	..66
C64223	..0464	..62	C65243	..0610	..66	C65601	..0650	..64	C65817	..0710	..66
C64224	..0464	..62	C65244	..0610	..66	C65602	..0650	..64	C65824	..0710M	..67
C64225	..0464	..62	C65250	..0610	..66	C65603	..0650	..64	C65828	..0710	..66
C64226	..0464	..62	C65251	..0610	..66	C65605	..0650	..64	C65829	..0710	..66
C64227	..0464	..62	C65264	..0610	..66	C65606	..0650	..64	C65833	..0710M	..67
C64228	..0464	..62	C65265	..0610	..66	C65607	..0650	..64	C65839	..0710	..66
C64229	..0464	..62	C65269	..0610	..66	C65608	..0650	..64	C65840	..0710	..66
C64230	..0464	..62	C65270	..0610	..66	C65609	..0650	..64	C65844	..0710	..66
C64231	..0463	..62	C65280	..0610	..66	C65610	..0650	..64	C65845	..0710	..66
C64232	..0463	..62	C65281	..0610	..66	C65611	..0650	..64	C65855	..0710	..66
C64233	..0463	..62	C65292	..0610	..66	C65612	..0650	..64	C65856	..0710	..66
C64234	..0463	..62	C65293	..0610	..66	C65613	..0650	..64	C65865	..0710	..66
C64235	..0463	..62	C65303	..0610	..66	C65614	..0650	..64	C65866	..0710	..66
C64236	..0463	..62	C65304	..0610	..66	C65615	..0650	..64	C65875	..0710	..66
C64937	..0450	..63	C65311	..0610	..66	C65616	..0650	..64	C65876	..0710	..66
C64949	..0450	..63	C65312	..0610	..66	C65617	..0650	..64	C65880	..0710M	..67
C64952	..0450	..63	C65315	..0610	..66	C65618	..0650	..64	C65881	..0710	..66
C64955	..0450	..63	C65316	..0610	..66	C65619	..0650	..64	C65882	..0710	..66
C64960	..0450	..63	C65328	..0610	..66	C65620	..0650	..64	C65884	..0710	..66

DRILLS
TAPS & DIES
SAWS
CARBIDE BURS
INDEX

Index

Cle-Line Product Line

Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number
C65885	.0710	.66	C66741	.0552	.71	C67200	.240	.74	C68026	.1600	.9
C65889	.0710M	.67	C66746	.0552	.71	C67201	.240	.74	C68027	.1600	.9
C65896	.0710M	.67	C66747	.0552	.71	C67202	.240	.74	C68028	.1600	.9
C65901	.0710M	.67	C66748	.0552	.71	C67203	.240	.74	C68114	.1601	.7
C65946	.0710	.66	C66749	.0552	.71	C67204	.240	.74	C68115	.1601	.7
C65947	.0710	.66	C66750	.0552	.71	C67205	.240	.74	C68116	.1601	.7
C65957	.0710	.66	C66751	.0552	.71	C67206	.242	.74	C68117	.1601	.7
C65958	.0710	.66	C66754	.0553	.70	C67207	.242	.74	C68118	.1601	.8
C65966	.0710	.66	C66755	.0553	.70	C67208	.243	.74	C68119	.1601	.8
C65967	.0710	.66	C66756	.0553	.70	C67209	.243	.74	C68120	.1601	.8
C66670	.0550	.71	C66757	.0553	.70	C67210	.244	.75	C68121	.1601	.8
C66671	.0550	.71	C66758	.0553	.70	C67211	.244	.75	C68122	.1601	.8
C66672	.0550	.71	C66759	.0553	.70	C67212	.245	.75	C68123	.1601	.8
C66673	.0550	.71	C66764	.0553	.71	C67213	.245	.75	C68124	.1601	.8
C66674	.0550	.71	C66769	.0553	.71	C67214	.223	.72	C68125	.1601	.8
C66675	.0550	.71	C66770	.0553	.71	C67215	.223	.72	C68126	.1601	.8
C66676	.0550	.71	C66771	.0553	.71	C67216	.223	.72	C68128	.1601	.9
C66677	.0550	.71	C66772	.0553	.71	C67217	.223	.72	C68129	.1601	.9
C66678	.0550	.71	C66773	.0553	.71	C67218	.223	.72	C68130	.1601	.9
C66679	.0550	.71	C66774	.0553	.71	C67220	.225	.72	C68131	.1601	.9
C66681	.0552	.70	C66775	.0553	.70	C67221	.225	.72	C68132	.1601	.9
C66682	.0552	.70	C66776	.0553	.70	C67222	.222	.67	C68133	.1601	.9
C66683	.0552	.70	C66777	.0553	.70	C67224	.222	.67	C68134	.1601	.9
C66684	.0552	.70	C66778	.0553	.70	C67226	.222	.67	C68135	.1601	.9
C66685	.0552	.70	C66782	.0554	.70	C67227	.222	.67	C68136	.1601	.9
C66686	.0552	.70	C66783	.0554	.70	C67228	.222	.67	C68137	.1601	.9
C66693	.0550	.70	C66784	.0554	.70	C67229	.222	.67	C68138	.1601	.9
C66694	.0550	.70	C66785	.0554	.70	C67232	.226	.72	C68139	.1601	.9
C66695	.0550	.70	C66786	.0554	.70	C67235	.224	.67	C68140	.1601	.9
C66696	.0550	.70	C66787	.0554	.70	C67236	.224	.67	C68141	.1601	.9
C66697	.0550	.70	C66788	.0554	.70	C67237	.224	.67	C68142	.1601	.9
C66698	.0550	.70	C66789	.0554	.70	C67238	.224	.67	C68229	.1602	.15
C66699	.0550	.70	C66790	.0554	.70	C67271	.26S	68,76	C68230	.1602	.15
C66700	.0550	.70	C66791	.0554	.70	C67275	.42NC	65,76	C68231	.1602	.15
C66701	.0550	.70	C66792	.0554	.70	C67276	.42NF	65,76	C68232	.1602	.15
C66702	.0550	.70	C66793	.0554	.70	C67278	.44NC	65,76	C68233	.1602	.15
C66703	.0550	.70	C66794	.0554	.70	C67282	.45NCNF	65,76	C68234	.1602	.16
C66704	.0550	.70	C66795	.0554	.70	C67283	.49Metric	.65	C68235	.1602	.16
C66705	.0550	.70	C66796	.0554	.70	C67284	.NC/NF	65,76	C68236	.1602	.16
C66706	.0550	.70	C66797	.0554	.71	C67293	.815	68,76	C68237	.1602	.16
C66707	.0550	.70	C66798	.0554	.71	C68000	.1600	.7	C68238	.1602	.16
C66708	.0550	.70	C66801	.0554	.71	C68001	.1600	.7	C68239	.1602	.16
C66709	.0550	.71	C66802	.0554	.71	C68002	.1600	.7	C68240	.1602	.16
C66710	.0550	.71	C66803	.0554	.71	C68003	.1600	.7	C68241	.1602	.16
C66712	.0550	.71	C66804	.0554	.71	C68004	.1600	.8	C68242	.1602	.16
C66713	.0550	.71	C66805	.0554	.71	C68005	.1600	.8	C68243	.1602	.16
C66714	.0550	.71	C66806	.0554	.71	C68006	.1600	.8	C68244	.1602	.16
C66715	.0550	.71	C66807	.0554	.71	C68007	.1600	.8	C68245	.1602	.16
C66716	.0550	.71	C66808	.0554	.71	C68008	.1600	.8	C68246	.1602	.17
C66717	.0550	.71	C66809	.0554	.71	C68009	.1600	.8	C68247	.1602	.17
C66718	.0550	.71	C66810	.0554	.71	C68010	.1600	.8	C68248	.1602	.17
C66719	.0550	.71	C66811	.0554	.71	C68011	.1600	.8	C68249	.1602	.17
C66720	.0550	.71	C66812	.0554	.71	C68012	.1600	.8	C68250	.1602	.17
C66721	.0550	.71	C66813	.0554	.71	C68014	.1600	.9	C68251	.1602	.17
C66722	.0550	.71	C66820	.0552	.71	C68015	.1600	.9	C68252	.1602	.17
C66723	.0550	.71	C66821	.0552	.71	C68016	.1600	.9	C68253	.1602	.17
C66727	.0551	.70	C66822	.0552	.71	C68017	.1600	.9	C68254	.1602	.17
C66728	.0551	.70	C66823	.0552	.71	C68018	.1600	.9	C68255	.1602	.17
C66729	.0551	70,71	C66824	.0552	.71	C68019	.1600	.9	C68256	.1602	.17
C66732	.0551	.71	C66825	.0552	.71	C68020	.1600	.9	C68257	.1602	.17
C66733	.0551	.71	C66826	.0552	.71	C68021	.1600	.9	C68258	.1602	.16
C66737	.0552	.70	C66827	.0552	.71	C68022	.1600	.9	C68259	.1602	.16
C66738	.0552	.70	C66828	.0552	.71	C68023	.1600	.9	C68260	.1602	.16
C66739	.0552	.70	C66829	.0552	.71	C68024	.1600	.9	C68261	.1602	.16
C66740	.0552	.70	C67197	.240	.74	C68025	.1600	.9	C68262	.1602	.16

Cle-Line Product Line
Index

Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number
C68887	..1630	..35	C68952	..1631	..35	C69018	..1683	..49	C69083	..1690	..59
C68888	..1630	..35	C68953	..1631	..35	C69019	..1683	..49	C69084	..1691	..59
C68889	..1630	..35	C68954	..1631	..35	C69020	..1683	..49	C69085	..1692	..59
C68890	..1630	..35	C68955	..1631	..35	C69021	..1683	..49	C69086	..1693	..59
C68891	..1630	..35	C68956	..1631	..35	C69022	..1683	..49	C69087	..1690	..59
C68892	..1630	..35	C68957	..1631	..35	C69023	..1683	..49	C69088	..1691	..59
C68893	..1630	..35	C68958	..1631	..35	C69024	..1683	..49	C69089	..1692	..59
C68894	..1630	..35	C68959	..1631	..35	C69025	..1683	..49	C69090	..1693	..59
C68895	..1630	..35	C68960	..1631	..35	C69026	..1683	..49	C69091	..1690	..59
C68896	..1630	..35	C68961	..1631	..35	C69027	..1683	..49	C69092	..1691	..59
C68897	..1630	..35	C68962	..1631	..35	C69028	..1683	..49	C69093	..1692	..59
C68898	..1630	..35	C68963	..1631	..35	C69029	..1620	29,55	C69094	..1693	..59
C68899	..1630	..35	C68964	..1631	..35	C69030	..1604	18,54	C69095	..1690	..59
C68900	..1630	..35	C68965	..1631	..35	C69031	..1604	18,54	C69096	..1691	..59
C68901	..1630	..35	C68966	..1631	..35	C69032	..1604	18,55	C69097	..1692	..59
C68902	..1630	..35	C68967	..1631	..35	C69033	..1605	18,55	C69098	..1693	..59
C68903	..1630	..35	C68968	..1631	..35	C69034	..1600	13,54	C69099	..1690	..59
C68904	..1630	..35	C68969	..1631	..35	C69035	..1600	13,54	C69100	..1691	..59
C68905	..1630	..35	C68970	..1631	..35	C69036	..1600	13	C69101	..1692	..59
C68906	..1630	..35	C68971	..1631	..35	C69037	..1600	13	C69102	..1693	..59
C68907	..1630	..35	C68972	..1631	..35	C69038	..1600	13,55	C69103	..1690	..59
C68908	..1630	..34	C68973	..1631	..35	C69039	..1680	42,55	C69104	..1691	..59
C68909	..1630	..34	C68974	..1631	..35	C69040	..1681	42,55	C69105	..1692	..59
C68910	..1630	..34	C68975	..1631	..35	C69041	..1620	29,55	C69106	..1693	..59
C68911	..1630	..34	C68976	..1631	..35	C69042	..1604	15	C69107	..1690	..59
C68912	..1630	..34	C68977	..1631	..34	C69043	..1604	15	C69108	..1691	..59
C68913	..1630	..34	C68978	..1631	..34	C69044	..1604	15	C69109	..1692	..59
C68914	..1630	..34	C68979	..1631	..34	C69045	..1604	15	C69110	..1693	..59
C68915	..1630	..34	C68980	..1631	..34	C69046	..1604	15	C69111	..1690	..59
C68916	..1630	..34	C68981	..1631	..34	C69047	..1604	16	C69112	..1691	..59
C68917	..1630	..34	C68982	..1631	..34	C69048	..1604	16	C69113	..1692	..59
C68918	..1630	..34	C68983	..1631	..34	C69049	..1604	16	C69114	..1693	..59
C68919	..1630	..34	C68984	..1631	..34	C69050	..1604	16	C69115	..1690	..59
C68920	..1630	..34	C68985	..1631	..34	C69051	..1604	16	C69116	..1691	..59
C68921	..1630	..34	C68986	..1631	..34	C69052	..1604	16	C69117	..1692	..59
C68922	..1630	..34	C68987	..1631	..34	C69053	..1604	16	C69118	..1693	..59
C68923	..1630	..34	C68988	..1631	..34	C69054	..1604	16	C69119	..1690	..59
C68924	..1630	..34	C68989	..1631	..34	C69055	..1604	16	C69120	..1691	..59
C68925	..1630	..34	C68990	..1631	..34	C69056	..1604	16	C69121	..1692	..59
C68926	..1630	..34	C68991	..1631	..34	C69057	..1604	16	C69122	..1693	..59
C68927	..1630	..34	C68992	..1631	..34	C69058	..1604	16	C69123	..1690	..59
C68928	..1630	..34	C68993	..1631	..34	C69059	..1604	17	C69124	..1691	..59
C68929	..1630	..34	C68994	..1631	..34	C69060	..1604	17	C69125	..1692	..59
C68930	..1630	..34	C68995	..1631	..34	C69061	..1604	17	C69126	..1693	..59
C68931	..1630	..34	C68996	..1631	..34	C69062	..1604	17	C69127	..1690	..59
C68932	..1630	..34	C68997	..1631	..34	C69063	..1604	17	C69128	..1691	..59
C68933	..1630	..34	C68998	..1631	..34	C69064	..1604	17	C69129	..1692	..59
C68934	..1630	..34	C68999	..1631	..34	C69065	..1604	17	C69130	..1693	..59
C68935	..1630	..34	C69000	..1631	..34	C69066	..1604	17	C69131	..1690	..59
C68936	..1631	..34	C69001	..1631	..34	C69067	..1604	17	C69132	..1691	..59
C68937	..1631	..34	C69002	..1631	..34	C69068	..1604	17	C69133	..1692	..59
C68938	..1631	..34	C69003	..1631	..34	C69069	..1604	17	C69134	..1693	..59
C68939	..1631	..34	C69004	..1631	..34	C69070	..1604	17	C69135	..1690	..59
C68940	..1631	..34	C69005	..1683	..49	C69071	..1605	17	C69136	..1691	..59
C68941	..1631	..34	C69006	..1683	..49	C69072	..1605	17	C69137	..1692	..59
C68942	..1631	..34	C69007	..1683	..49	C69073	..1605	17	C69138	..1693	..59
C68943	..1631	..34	C69008	..1683	..49	C69074	..1605	17	C69139	..1690	..59
C68944	..1631	..35	C69009	..1683	..49	C69075	..1605	17	C69140	..1691	..59
C68945	..1631	..35	C69010	..1683	..49	C69076	..1605	17	C69141	..1692	..59
C68946	..1631	..35	C69012	..1683	..49	C69077	..1605	17	C69142	..1693	..59
C68947	..1631	..35	C69013	..1683	..49	C69078	..1605	17	C69143	..1690	..59
C68948	..1631	..35	C69014	..1683	..49	C69079	..1690	..59	C69144	..1691	..59
C68949	..1631	..35	C69015	..1683	..49	C69080	..1691	..59	C69145	..1692	..59
C68950	..1631	..35	C69016	..1683	..49	C69081	..1692	..59	C69146	..1693	..59
C68951	..1631	..35	C69017	..1683	..49	C69082	..1693	..59	C69147	..1690	..59

DRILLS
TAPS & DIES
SAWS
CARBIDE BURS
INDEX

Index

Cle-Line Product Line

Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number	Order Number	Style	Page Number
C69148	..1691	..59	C69213	..0411	..61	C69331	..1688	..62	C69419	..1698	..59
C69149	..1692	..59	C69267	..1690M	..59	C69332	..1688	..62	C69420	..1699	..59
C69150	..1693	..59	C69268	..1691M	..59	C69333	..1687	..62	C69421	..1696	..59
C69151	..1690	..59	C69269	..1692M	..59	C69334	..1687	..62	C69422	..1697	..59
C69152	..1691	..59	C69270	..1693M	..59	C69335	..1687	..62	C69423	..1698	..59
C69153	..1692	..59	C69271	..1690M	..59	C69336	..1687	..62	C69424	..1699	..59
C69154	..1693	..59	C69272	..1691M	..59	C69337	..1687	..62	C69425	..1696	..59
C69155	..1690	..59	C69273	..1692M	..59	C69338	..1687	..62	C69426	..1697	..59
C69156	..1691	..59	C69274	..1693M	..59	C69339	..1607	..15	C69427	..1698	..59
C69157	..1692	..59	C69275	..1690M	..59	C69340	..1607	..15	C69428	..1699	..59
C69158	..1693	..59	C69276	..1691M	..59	C69341	..1607	..15	C69429	..1696	..59
C69159	..1690	..59	C69277	..1692M	..59	C69342	..1607	..15	C69430	..1697	..59
C69160	..1691	..59	C69278	..1693M	..59	C69343	..1607	..15	C69431	..1698	..59
C69161	..1692	..59	C69279	..1690M	..59	C69344	..1607	..16	C69432	..1699	..59
C69162	..1693	..59	C69280	..1691M	..59	C69345	..1607	..16	C69433	..1696	..59
C69163	..1690	..59	C69281	..1692M	..59	C69346	..1607	..16	C69434	..1697	..59
C69164	..1691	..59	C69282	..1693M	..59	C69347	..1607	..16	C69435	..1698	..59
C69165	..1692	..59	C69283	..1690M	..59	C69348	..1607	..16	C69436	..1699	..59
C69166	..1693	..59	C69284	..1691M	..59	C69349	..1607	..16	C69437	..1696	..59
C69167	..1690	..59	C69285	..1692M	..59	C69350	..1607	..16	C69438	..1697	..59
C69168	..1691	..59	C69286	..1693M	..59	C69351	..1607	..16	C69439	..1698	..59
C69169	..1692	..59	C69287	..1690M	..59	C69352	..1607	..16	C69440	..1699	..59
C69170	..1693	..59	C69288	..1691M	..59	C69353	..1607	..16	C69441	..1696	..59
C69171	..1690	..59	C69289	..1692M	..59	C69354	..1607	..16	C69442	..1697	..59
C69172	..1691	..59	C69290	..1693M	..59	C69355	..1607	..16	C69443	..1698	..59
C69173	..1692	..59	C69291	..1690M	..59	C69356	..1607	..17	C69444	..1699	..59
C69174	..1693	..59	C69292	..1691M	..59	C69357	..1607	..17	C69445	..1696	..59
C69175	..1690	..59	C69293	..1692M	..59	C69358	..1607	..17	C69446	..1697	..59
C69176	..1691	..59	C69294	..1693M	..59	C69359	..1607	..17	C69447	..1698	..59
C69177	..1692	..59	C69295	..1690M	..59	C69360	..1607	..17	C69448	..1699	..59
C69178	..1693	..59	C69296	..1691M	..59	C69361	..1607	..17	C69449	..1696	..59
C69179	..1690	..59	C69297	..1692M	..59	C69362	..1607	..17	C69450	..1697	..59
C69180	..1691	..59	C69298	..1693M	..59	C69363	..1607	..17	C69451	..1698	..59
C69181	..1692	..59	C69299	..1690M	..59	C69364	..1607	..17	C69452	..1699	..59
C69182	..1693	..59	C69300	..1691M	..59	C69365	..1607	..17	C69453	..1696	..59
C69183	..1690	..59	C69301	..1692M	..59	C69366	..1607	..17	C69454	..1697	..59
C69184	..1691	..59	C69302	..1693M	..59	C69367	..1607	..17	C69455	..1698	..59
C69185	..1692	..59	C69303	..1690M	..59	C69368	..1607	..18,55	C69456	..1699	..59
C69186	..1693	..59	C69304	..1691M	..59	C69369	..1900	..9	C69457	..1696	..59
C69187	..1690	..59	C69305	..1692M	..59	C69370	..1900	..9	C69458	..1697	..59
C69188	..1691	..59	C69306	..1693M	..59	C69371	..1900	..9	C69459	..1698	..59
C69189	..1692	..59	C69307	..1690M	..59	C69372	..1900	..9	C69460	..1699	..59
C69190	..1693	..59	C69308	..1691M	..59	C69373	..1900	..9	C69461	..1696	..59
C69191	..1694	..61	C69309	..1692M	..59	C69374	..1900	..9	C69462	..1697	..59
C69192	..1694	..61	C69310	..1693M	..59	C69375	..1900	..9	C69463	..1698	..59
C69193	..1694	..61	C69311	..1690M	..59	C69376	..1900	..9	C69464	..1699	..59
C69194	..1694	..61	C69312	..1691M	..59	C69377	..1603	..25,54	C69465	..1696	..59
C69195	..1694	..61	C69313	..1692M	..59	C69378	..1603	..25,54	C69466	..1697	..59
C69196	..1694	..61	C69314	..1693M	..59	C69379	..1603	..25,55	C69467	..1698	..59
C69197	..1694	..61	C69315	..1686	..62	C69380	..1603	..25,55	C69468	..1699	..59
C69198	..1694	..61	C69316	..1686	..62	C69381	..1602	..18	C69469	..1696	..59
C69199	..1694	..61	C69317	..1686	..62	C69382	..1602	..18	C69470	..1697	..59
C69200	..1694	..61	C69318	..1686	..62	C69383	..1602	..18	C69471	..1698	..59
C69201	..1694	..61	C69319	..1686	..62	C69384	..1620	..29,55	C69472	..1699	..59
C69202	..1694	..61	C69320	..1686	..62	C69385	..1607	..18	C69473	..1696	..59
C69203	..1694	..61	C69321	..1686	..62	C69409	..1696	..59	C69474	..1697	..59
C69204	..1694	..61	C69322	..1686	..62	C69410	..1697	..59	C69475	..1698	..59
C69205	..0411	..61	C69323	..1686	..62	C69411	..1698	..59	C69476	..1699	..59
C69206	..0411	..61	C69324	..1686	..62	C69412	..1699	..59	C69477	..1696	..59
C69207	..0411	..61	C69325	..1688	..62	C69413	..1696	..59	C69478	..1697	..59
C69208	..0411	..61	C69326	..1688	..62	C69414	..1697	..59	C69479	..1698	..59
C69209	..0411	..61	C69327	..1688	..62	C69415	..1698	..59	C69480	..1699	..59
C69210	..0411	..61	C69328	..1688	..62	C69416	..1699	..59	C69481	..1696	..59
C69211	..0411	..61	C69329	..1688	..62	C69417	..1696	..59	C69482	..1697	..59
C69212	..0411	..61	C69330	..1688	..62	C69418	..1697	..59	C69483	..1698	..59

Cle-Line Product Line
Index

Order Number	Style	Page Number
C69484	..1699	..59
C69507	..1700	..62
C69508	..1700	..62
C69509	..1700	..62
C69510	..1700	..62
C69511	..1700	..62
C69512	..1700	..62
C69513	..1696M	..59
C69514	..1697M	..59
C69515	..1698M	..59
C69516	..1699M	..59
C69517	..1696M	..59
C69518	..1697M	..59
C69519	..1698M	..59
C69520	..1699M	..59
C69521	..1696M	..59
C69522	..1697M	..59
C69523	..1698M	..59
C69524	..1699M	..59
C69526	..1696M	..59
C69527	..1697M	..59
C69528	..1698M	..59
C69529	..1699M	..59
C69531	..1696M	..59
C69532	..1697M	..59
C69533	..1698M	..59
C69534	..1699M	..59
C69535	..1696M	..59
C69536	..1697M	..59
C69537	..1698M	..59
C69538	..1699M	..59
C69539	..1696M	..59
C69540	..1697M	..59
C69541	..1698M	..59
C69542	..1699M	..59
C69543	..1696M	..59
C69544	..1697M	..59
C69545	..1698M	..59
C69546	..1699M	..59
C69547	..1696M	..59
C69548	..1697M	..59
C69549	..1698M	..59
C69550	..1699M	..59
C69551	..1696M	..59
C69552	..1697M	..59
C69553	..1698M	..59
C69554	..1699M	..59
C77600	..492	..64
C77602	..492	..64
C77604	..492	..64
C77606	..492	..64
C77608	..492	..64
C77610	..492	..64
C77612	..492	..64
C77614	..492	..64
C77616	..492	..64
C77618	..492	..64
C77620	..492	..64
C77622	..492	..64
C77624	..492	..64
C77626	..492	..64
C77628	..492	..64
C77630	..492	..64
C77632	..492	..64
C77634	..492	..64

Order Number	Style	Page Number
C77636	..492	..64
C77638	..492	..64
C77640	..492	..64
C77642	..492	..64
C77644	..492	..64
C77646	..492	..64
C77648	..492	..64
C77650	..492	..64
CHK01	...CHK	..82
CHK02	...CHK	..82
CHK03	...CHK	..82
CHK04	...CHK	..82
CHK05	...CHK	..82
CHK06	...CHK	..82
CHK07	...CHK	..82

DRILLS
TAPS & DIES
SAWS
CARBIDE BURS
INDEX



CLE-LINE®

www.gfii.com

2501 Davis Creek Road, Seneca, SC 29678 USA

email: standard.distributors@gfii.com - USA

national.distributors@gfii.com - National Accounts

canada.distributors@gfii.com - Canada

international.distributors@gfii.com - International

greenfield.information@gfii.com - Tech Support

Phone: 800.348.2885 USA & Canada

706.650.4196 International

800.892.4281 Tech Support

Fax: 800.892.4290 USA

800.387.6649 Canada

706.854.4054 International



Distributed by:

