

2021



**CLE-LINE®**

# THE BRAND FOR THE PROFESSIONALS



**Holemaking • Threading • Dies • Masonry • Saws**



**COMPLETE  
METALWORKING  
SOLUTIONS**

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CLECAT21

# Table of Contents

# Cle-Line Products

## Holemaking

Page 9



## Threading/Dies

Page 68



## Saws

Page 90



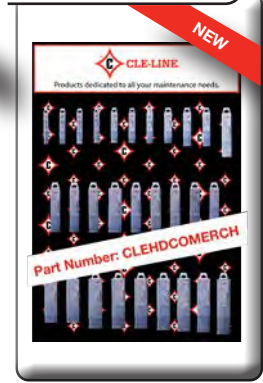
## Carbide Burs

Page 116



## Merchandisers

Page 124



Index . . Page 126

Easy Product Look-Up - Products are listed by individual part number

Style Number	Page Number	Style Number	Page Number	Style Number	Page Number	Style Number	Page Number
26S	79,87	0620	78	1809	17,20	1877	46,47,62
42NC	76,87	0650	74,75,76,87	1812	32	1878	17-21,60,61
42NF	76,87	0660	75	1813	46,47,62	1879	17,20,21,61
44NC	76,87	0710	77,78	1815	54	1880	35
45NCNF	76,87	815	79,87	1816	55	1881	92
49Metric	76	1500-TT	22,23,24	1817	54	1882	104
055	70,72,84,88	1501-TT	22,23,24	1818	49,62	1886	91
222	78	1600	9-15,60,61	1821	51,62	1887	90,107
223	83	1601	9-14	1822	50,62	1889	50
225	83	1602	17-21	1823	56	1892	46,47,62
226	83	1603	29-32,60,61	1824	58	1894	43,44,45
240	85	1604	17-21,60,61	1829	59,62	1896	36-39,62
242	85	1605	20,21,61	1833	51	1898	9-15,21,59-61
243	85	1607	17-21,60,61	1837	52,62	1898L	16
244	86	1620	33,34,61	1838	52,62	1898T	9-15,60,61
245	86	1621	36-39	1841	49	1899	9-15,60,61,72
380	70,72	1630	40,41	1843	55	1900	14,15,60
0401	69,70	1631	40,41	1844	58	2184	55
0402	69,70	1680	46,47,62	1845	116	2185	56
0403	69,70	1681	46,47,62	1846	116	2185F	56
0404	69,70	1682	43,44,45	1847	117	2195	56
0411	71,72	1683	54	1848	118	2616	57
448	72,80,87	1686	73	1849	118	2618	57
449	72,80,87	1687	73	1850	119	2619	58
0450	74	1688	73	1851	120	2874	53
451	62,72,80,88	1690	68	1852	120	3100	123
0462	73	1691	68	1853	121	3101	123
0463	73	1692	68	1854	121	4500	48
0464	73	1693	68	1855	122	4501	48
492	74,75	1694	71,72	1856	122	4502	48
517	79,87	1696	68	1857	122	HB-BM	98
518	79,87	1697	68	1858	122	NC/NF	76,87
525	79,87	1698	68	1860	15,80,88	P1000	99
526	79,87	1699	68	1864	21,59,62	RSB-BM	96-98
528	79,87	1700	73	1867	62	RSB-D	95
532	79,87	1801	17-21,60,61	1872	25-27,60,61	RSB-P	95
533	79,87	1802	29-32,60,61	1872TN	25-27,60,61	T1000	100,103
0550	81,82	1803	40,41	1873	27,60,61	T2000	100,103
0551	81,82	1804	28,61	1874	53,62	T3000	101,103
0552	81,82	1805	40,41	1874TN	53,62	T4000	101
0553	81,82	1806	42	1875L	33,34	T5000	101
0554	81,82	1807	42	1875R	33,34,61,62	T6000	102
0610	77,78	1808	14	1876	34,61	T7000	102,103



## **CLE-LINE® is part of the Greenfield Industries family of quality 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 catalog gives you all the tools you need to keep your industry working. A wide selection of high-quality drills, saw blades, 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.

### **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 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.



**WARNING:** This product contains Cobalt and/or Nickel and/or Lead a chemical known to the state of California to cause cancer, or birth defects or other reproductive harm. For more information: [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)

# Full Product Index



















## Set Sections

All Available Sets . . . . . 58-60



## Technical Information

Tolerances / Tap & Drill Recommendations . . . . . 61  
 Drill Feeds / Speed & Coolants . . . . . 62  
 Morse Taper Shank Specs . . . . . 63  
 Screw Extractor Instructions . . . . . 63

Hole Making							
Style/Surface Treatment	Image	Page	Sets Page	Style/Surface Treatment	Image	Page	Sets Page
<b>Jobber Drill</b>				<b>Mechanics Length Drill <i>continued</i></b>			
<b>118° Point - Maintenance</b>				<b>135° Split Point - Heavy Duty</b>			
<ul style="list-style-type: none"> <li>⊕1600 - Black Oxide</li> <li>⊕1601 - Bright</li> <li>1899 - Black Oxide</li> <li>1898 - Bright</li> <li>1898T - TiN</li> </ul>		9-14	15	⊕1620 - Black & Gold		33	34
<b>Reduced Shank</b>				<b>135° Split Point - Cobalt</b>			
<ul style="list-style-type: none"> <li>1900 - Black Oxide</li> <li>1808 - Bright</li> </ul>		14	15	<b>Left Hand</b>			
<b>Left Hand</b>				1880 - Straw Oxide			
1898L - Bright		16	—	<b>Screw Machine Length Drill</b>			
<b>135° Split Point - Heavy Duty</b>				<b>135° Split Point - Heavy Duty</b>			
<ul style="list-style-type: none"> <li>⊕1602 - Black Oxide</li> <li>⊕1604 - Black &amp; Gold</li> <li>⊕1607 - Black &amp; Gold*</li> <li>1801 - Black Oxide</li> <li>1878 - Black &amp; Gold*</li> </ul>		17-20	21	⊕1621 - Black Oxide		36-39	—
<b>Reduced Shank</b>				1896 - Black Oxide			
<ul style="list-style-type: none"> <li>⊕1605 - Black &amp; Gold</li> <li>1809 - Black Oxide</li> <li>1879 - Black &amp; Gold*</li> </ul>		20	21	<b>Extra Length Drill</b>			
<b>TiN Tip</b>				<b>Black Oxide</b>			
<ul style="list-style-type: none"> <li>1500-TT - HSS</li> <li>1501-TT - HS-Co - Cobalt</li> </ul>		22-24	24	<b>Style/Surface Treatment</b>			
<b>135° Split Point - Heavy Duty, Parabolic Flute</b>				<b>Image</b>			
<ul style="list-style-type: none"> <li>1872 - Black &amp; Gold</li> <li>1872TN - TiN</li> </ul>		25-27	27	<b>Page</b>			
<b>Reduced Shank</b>				<b>6" Aircraft</b>			
1873 - Black & Gold		27	27	⊕1630 - 135° Split Point			
<b>118° Split Point - Hex Shank, Cobalt</b>				1803 - 135° Split Point			
1804 - Straw		28	28	12" Aircraft			
<b>135° Split Point - Heavy Duty, Cobalt</b>				⊕1631 - 135° Split Point			
<ul style="list-style-type: none"> <li>⊕1603 - Straw Oxide</li> <li>1802 - Straw Oxide</li> </ul>		29-31	32	1805 - 135° Split Point			
<b>Reduced Shank</b>				<b>12" Heavy Duty</b>			
1812 - Straw Oxide		32	—	1806 - 118° Notched Point			
<b>Mechanics Length Drill</b>				<b>18" Extra Length</b>			
<b>135° Split Point</b>				1807 - 118° Notched Point			
1875R - Black & Gold		33	34	<b>Taper Shank Drill</b>			
<b>Reduced Shank</b>				<b>General Purpose - 118° Point</b>			
1876 - Black & Gold		34	34	⊕1682 - Black Oxide			
<b>Left Hand</b>				1894 - Black Oxide, Tanged			
1875L - Black & Gold		33	—	43-45			
<b>Annular Cutter</b>				*with flats			
⊕4500 - 1" Depth of Cut				<b>Silver &amp; Deming</b>			
⊕4501 - 2" Depth of Cut				<b>Reduced Shank - 118° Point</b>			
NEW				⊕1680 - Black Oxide			
48				1813 - Black Oxide			
—				<b>3 Flatted Shank</b>			
—				⊕1681 - Black Oxide			
—				1892 - Black Oxide			
—				<b>3 Flatted Shank</b>			
—				1877 - Black & Gold*			
—				<b>Locator Pin</b>			
—				⊕4502 - 1" & 2" Annular Cutter			
—				48			
—				—			



Hole Making			
Style/Surface Treatment	Image	Page	Sets Page
<b>Masonry - Carbide-Tipped</b>			
1818 - Carbide Tipped		49	49
1841 - Tapcon®		49	—
1889 - Carbide Tipped		50	—
1822 - Glass & Tile		50	50
1821 - SDS®		51	51
1833 - Drill Rebar - SDS®		51	—
1838 - Multi-purpose		52	52
1837 - Universal		52	52

\*with flats

Style/Surface Treatment	Image	Page	Sets Page
<b>Other Drills and Accessories</b>			
1874 - Step Drill, Bright		53	53
1874TN - Step Drill, TiN		53	53
2874 - Step Reamer		53	53
1817 - Quick Change Chuck		54	—
1683 - Double End		54	—
1815 - Double End		54	—
1816 - 1/4" Hex Shank		55	—
1843 - Rotary Chuck Drive		55	—
2184 - Rivet Hole		55	—
2195 - Welding Point Drill		56	—
2185 - Welding Point Drill		56	—
2185F - Welding Point Drill		56	—
1823 - Power Wood Bit		56	—
<b>Bridge Length Reamer</b>			
2616 - Spiral Flute/Hex Shank		57	—
<b>Car Length Reamer</b>			
2618 - Spiral Flute/Hex Shank		57	—
2619 - Spiral Flute/Straight Shank		58	—
1824 - Combined Drill and countersink		58	—
1844 - Die Drill		58	—
1829 - Screw Extractors		59	59
<b>Drill &amp; Screw Extractor Set</b>			
1864 - Black & Gold		59	59
<b>All Sets</b>			
		—	60-62
<b>Technical Information</b>			
		63-65	—

Threading			
Style/Surface Treatment	Image	Page	Sets Page
<b>Straight Flute</b>			
1690 - Taper Chamfer, HSS		68	68
1691 - Plug Chamfer, HSS			
1692 - Bottoming Chamfer, HSS			
1696 - Taper Chamfer, Carbon			
1697 - Plug Chamfer, Carbon			
1698 - Bottoming Chamfer, Carbon			
0401 - Taper Chamfer		69-70	69-70
0402 - Plug Chamfer			
0403 - Bottoming Chamfer			

Spiral Point Taps			
1694 - Plug Chamfer		71-72	72
0411 - Plug Chamfer			

Pipe Taps			
<b>Taper Pipe</b>			
1686 - Regular Threads, HSS		73	—
1700 - Regular Threads, carbon			
0462 - Regular Threads, HSS			
1688 - Interrupted Threads, HSS			
<b>Straight Pipe</b>			
1687 - Bright			
0463 - Bright			

Combination Drill & Tap			
0450 - Bright		74	—

Dies - Hexagon			
0650 - Re-Threading, Carbon Steel		74-75	76
492 - Re-Threading, HSS		74-75	—
0660 - Taper Pipe, Carbon Steel		75	—

Dies - Round Adjustable			
0610 - Carbon Steel		77-78	79-80
0710 - HSS		77-78	
0620 - Taper Pipe, Carbon Steel		78	
222 - Die Stocks		78	79-80

Die Systems - see next page			

## Threading

Style/Surface Treatment		Image	Page	Sets Page	Style/Surface Treatment		Image	Page	Sets Page
<b>Quick-Set® Two-Piece Die Systems</b>					<b>Quick-Set® Two-Piece Die Systems</b>				
0554 - Die Assemblies 0550 - Die Only 0551 - Cap 0552 - Guide 0553 - Collet (Combined Cap & Guide)			81-82	84, 87-88	240 - Standard Straight 242 - Plain T-Handle 243 - Slip T-Handle 244 - Ratchet And Slip T-Handle 245 - Long Shank T-Handle			85 85 85 86 86	— — — — —
223 - Quick Two-Piece Die System 225 - Jr. Quick Die Stock 226 - Spanner Wrench 055 - Quick Die Sets			83 83 83 84	84	<b>Sets</b>				
Complete listing of available sets					—		87-88		

## Saws



### Set Sections

All Available Sets .....91

# You SAW it here!

		Page	Set Page
<b>Hole Saws</b>			
1887 . . . . . M-3 Hole Saws		90	—
1887 . . . . . M-42 Hole Saws		90	93
<b>NEW</b> 1886 . . . . . <b>CLAW</b> Fleam Ground Hole Saws		91	93
<b>NEW</b> 1881 . . . . . Carbide Tipped Hole Saws		92	93
<b>Hole Saws Accessories</b>			
1885 . . . . . Hole Saw Accessories Round and Hex Shank Pilot Drill, Adaptor		94	—
<b>Bi-Metal Reciprocating Saw Blades</b>			
M42 - RSB-D . . . . Demolition - Wood / Nail		95	
. . . . Demolition - Metal / Rescue		95	
M42 - RSB-P . . . . Pallet		95	
M42 - RSB-BM . . . Wood		96	
. . . . Metal		96	—
. . . . All-Purpose		97	
. . . . Plaster		97	
Carbide . . . . . Metal		97	
M-42 . . . . . Air Saw		98	

		Page	Set Page
<b>Bi-Metal Hacksaw Blades</b>			
HB-BM . . . Bi-Metal		98	—
<b>M42 Bi-Metal Band Saw Blades</b>			
Portable Band Saw			
P1000 - Portable Band Saw		99	—
Weld-to-Length Band Saw			
T1000 - Straight Tooth		100	—
T2000 - 5° Positive Rake Tooth		100	—
T3000 - 10° High Positive Rake		101	—
T4000 - Protective Tooth		101	—
T5000 - Heavy Set		101	—
T6000 - Turtle Back		102	—
T7000 - Narrow Width Bands (M42)		102	—
<b>NEW</b> Pre-Welded Band Saw			
T1000 - Straight Tooth		103	—
T2000 - 5° Positive Rake Tooth		103	—
T3000 - 10° High Positive Rake		103	—
T7000 - Narrow Width Bands (M42) Carbide Tipped		103	—
<b>NEW</b> Carbide Tipped			
1882		104	—

### Technical Information

<b>Hole Saw</b>	
Recommended Operating Speeds . . . . .	106
Reference Chart / Tech Tips . . . . .	107
<b>Bi-Metal Blades</b>	
Speed and Feeds . . . . .	108-109
Blade Basics . . . . .	110-112
Problem / Solution . . . . .	113

**Burs / Routers**

**Set Sections**

All available sets .....122

Solid Carbide Burs	Image			Page
	Single Cut	Double Cut	Aluminum Cut <span style="color: red; font-weight: bold;">NEW</span>	
1845 CLE-SA ..... Cylindrical without End Cut				116
1846 CLE-SB ..... Cylindrical with End Cut				116
1847 CLE-SC ..... Cylindrical Ball Nose				117
1848 CLE-SF ..... Round Nose Tree				118
1849 CLE-SG ..... Pointed Tree				118
1850 CLE-SM ..... Pointed Cone				119
1851 CLE-SE ..... Egg Shaped				120
1852 CLE-SL ..... Included Angle				120
1853 CLE-SD ..... Ball Shaped				121
1854 CLE-SH ..... Flame Shaped				121
1856 CLE-SJ ..... 60° Included Angle (Countersink)				122
1857 CLE-SK ..... 90° Included Angle (Countersink)				122
1858 CLE-SN ..... Inverted Taper				122

<span style="color: red; font-weight: bold;">NEW</span> Carbide Router - Uncoated				Page	
3100 - Fiberglass	Plain End	Bur End	Mill End	Drill End	123
3101 - Fiberglass & Composite				123	

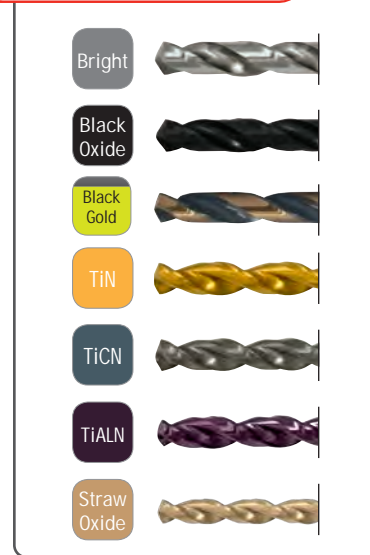
**Display Merchandiser**

Display Merchandiser - Designed with everything included to fit your pegboard wall		Image	Page
Jobber Drills	#1899 - Black Oxide Drills, General Purpose	<div style="position: absolute; top: 50%; left: 50%; transform: translate(-50%, -50%); font-weight: bold; color: red;">Part Number: CLEMERCH</div>	124 -125
Jobber Drills	#1801 - Black Oxide Drills, Heavy Duty		
Jobber Drills	#1878 - Black and Gold Drills, Heavy Duty		
Jobber Drills	#1802 - Straw Oxide Drills, Cobalt, Heavy Duty		
Hole Saw Blades			
Reciprocating and Band Saw Blades			

Material ✓ = BEST Performance \* Also Suitable

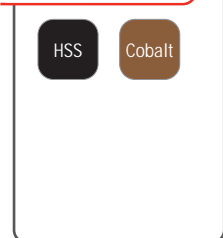
Icon	Material	Hardness	Surface Treatment Suggestion		
			TiN	TiCN	TiALN
M	Austenitic Stainless Steel	< 35 HRc		*	✓
	Martensitic Stainless Steel	< 35 HRc		*	✓
	Martensitic Stainless Steel	>= 35 HRc			✓
	PH Stainless Steel	< 35 HRc		*	✓
	PH Stainless Steel	<= 35 HRc		*	✓
S	Ni, Co, Fe Based Super Alloys				✓
	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

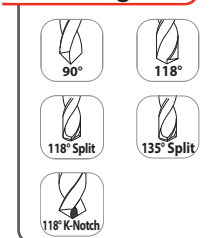


Additional treatments available upon request.

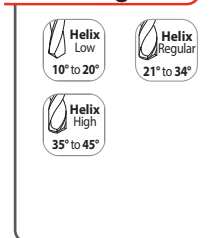
Base Material



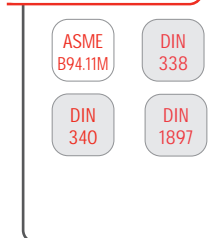
Point Angle



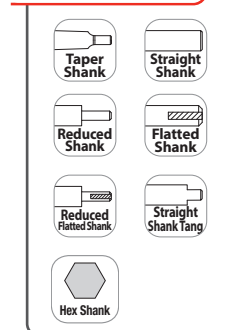
Helix Angle



Standard



Shank







**Note**

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

Style 1606 (Metric) now combined with style 1600.



Black Oxide



Bright



TiN

drill diameter		decimal equivalent	overall length	flute length	order number				
frac/wire/let	mm				1600 Black Oxide	1601 Bright	1899 Black Oxide	1898 Bright	1898T TiN
	0.35	.0138	19	4	—	—	C22780	—	—
	0.40	.0157	20	5	—	—	C22781	C01802	—
	0.45	.0177	20	5	—	—	C22782	C01807	—
	0.50	.0197	22	6	—	—	C22783	C01810	—
	0.55	.0217	24	7	—	—	C22784	—	—
	0.60	.0236	24	7	—	—	C22785	C01815	—
	0.65	.0256	26	8	—	—	C22786	—	—
	0.70	.0276	28	9	—	—	C22787	C01820	—
	0.75	.0295	28	9	—	—	C22788	—	—
1/32		.0312	1-3/8	1/2	—	—	C22643	—	—
	0.80	.0315	30	10	—	—	C22789	C01826	—
	0.85	.0335	30	10	—	—	C22790	C01829	—
	0.90	.0354	32	11	—	—	C22791	C01831	—
	0.95	.0374	32	11	—	—	C22792	C01834	—
	1.00	.0394	34	12	C68606	—	C22793	C62793	C24325
60		.0400	1-5/8	11/16	—	—	C22645	C23024	C19159
59		.0410	1-5/8	11/16	—	—	C22646	C23025	C19158
	1.05	.0413	34	12	—	—	C22794	C62794	—
58		.0420	1-5/8	11/16	—	—	C22647	C23026	C19157
57		.0430	1-3/4	3/4	—	—	C22648	C23027	C19156
	1.10	.0433	36	14	—	—	C22795	C62795	—
	1.15	.0453	36	14	—	—	C22796	C62796	—
56		.0465	1-3/4	3/4	—	—	C22649	C23028	C19155
3/64		.0469	1-3/4	3/4	—	—	C22644	—	—
	1.20	.0472	38	16	—	—	C22797	C62797	C24326
	1.25	.0492	38	16	—	—	C22798	C62798	—
	1.30	.0512	38	16	—	—	C22799	C62799	—
55		.0520	1-7/8	7/8	—	—	C22650	C23029	C19154
	1.35	.0531	40	18	—	—	C22800	C62800	—
54		.0550	1-7/8	7/8	—	—	C22651	C23030	C19153
	1.40	.0551	40	18	—	—	C22801	C62801	—
	1.45	.0571	40	18	—	—	C22802	C62802	—
	1.50	.0591	40	18	C68607	—	C22803	C62803	C24327
53		.0595	1-7/8	7/8	—	—	C22652	C23031	C19152
	1.55	.0610	43	20	—	—	C22804	C62804	—
1/16		.0625	1-7/8	7/8	C68000	C68114	C22653	C22995	C19160
	1.60	.0630	43	20	—	—	C22805	C62805	C24306
52		.0635	1-7/8	7/8	—	—	C22654	C23032	C19151
	1.65	.0650	43	20	—	—	C22806	C62806	—

continued on next page

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

**HOLEMAKING**

drill diameter frac/wire/let	decimal mm	overall equivalent length	flute length	order number					
				1600 Black Oxide	1601 Bright	1899 Black Oxide	1898 Bright	1898T TiN	
51	1.70	.0669	43	20	—	—	C22807	C62807	—
		.0670	2	1	—	—	C22655	C23033	C19150
50	1.75	.0689	46	22	—	—	C22808	C62808	—
		.0700	2	1	—	—	C22656	C23034	C19149
	1.80	.0709	46	22	—	—	C22809	C62809	—
	1.85	.0728	46	22	—	—	C22810	C62810	—
49		.0730	2	1	—	—	C22657	C23035	C19148
	1.90	.0748	46	22	—	—	C22811	C62811	—
48		.0760	2	1	—	—	C22658	C23036	C19147
	1.95	.0768	49	24	—	—	C22812	C62812	—
5/64		.0781	2	1	C68001	C68115	C22659	C22996	C19161
47		.0785	2	1	—	—	C22660	C23037	C19146
	2.00	.0787	49	24	C68608	—	C22813	C62813	C24328
	2.05	.0807	49	24	—	—	C22814	C62814	—
46		.0810	2-1/8	1-1/8	—	—	C22661	C23038	C19145
45		.0820	2-1/8	1-1/8	—	—	C22662	C23039	C19144
	2.10	.0827	49	24	—	—	C22815	C62815	—
	2.15	.0846	53	27	—	—	C22816	C62816	—
44		.0860	2-1/8	1-1/8	—	—	C22663	C23040	C19143
	2.20	.0866	53	27	—	—	C22817	C62817	—
	2.25	.0886	53	27	—	—	C22818	C62818	—
43		.0890	2-1/4	1-1/4	—	—	C22664	C23041	C19142
	2.30	.0906	53	27	—	—	C22819	C62819	C24329
	2.35	.0925	53	27	—	—	C22820	C62820	—
42		.0935	2-1/4	1-1/4	—	—	C22665	C23042	C19141
3/32		.0938	2-1/4	1-1/4	C68002	C68116	C22666	C22997	C19162
	2.40	.0945	57	30	—	—	C22821	C62821	C24330
41		.0960	2-3/8	1-3/8	—	—	C22667	C23043	C19140
	2.45	.0965	57	30	—	—	C22822	C62822	—
40		.0980	2-3/8	1-3/8	—	—	C22668	C23044	C19139
	2.50	.0984	57	30	C68609	—	C22823	C62823	C24331
39		.0995	2-3/8	1-3/8	—	—	C22669	C23045	C19138
38		.1015	2-1/2	1-7/16	—	—	C22670	C23046	C19137
	2.60	.1024	57	30	—	—	C22824	C62824	—
37		.1040	2-1/2	1-7/16	—	—	C22671	C23047	C19136
	2.70	.1063	61	33	—	—	C22825	C62825	C24332
36		.1065	2-1/2	1-7/16	—	—	C22672	C23048	C19135
	2.75	.1082	61	33	—	—	C01112	—	—
7/64		.1094	2-5/8	1-1/2	C68003	C68117	C22673	C22998	C19163
35		.1100	2-5/8	1-1/2	—	—	C22674	C23049	C19134
	2.80	.1102	61	33	—	—	C22826	C62826	C24333
34		.1110	2-5/8	1-1/2	—	—	C22675	C23050	C19133
33		.1130	2-5/8	1-1/2	—	—	C22676	C23051	C19132
	2.90	.1142	61	33	—	—	C22827	C62827	C24334
32		.1160	2-3/4	1-5/8	—	—	C22677	C23052	C19131
	3.00	.1181	61	33	C68610	—	C22828	C62828	C24335
31		.1200	2-3/4	1-5/8	—	—	C22678	C23053	C19130
	3.10	.1220	65	36	—	—	C22829	C62829	C24336
1/8		.1250	2-3/4	1-5/8	C68004	C68118	C22679	C22999	C19164
	3.20	.1260	65	36	—	—	C22830	C62830	C24337
	3.25	.1280	65	36	—	—	C01125	C01912	—
30		.1285	2-3/4	1-5/8	—	—	C22680	C23054	C19129
	3.30	.1299	65	36	—	—	C22831	C62831	C24338
	3.40	.1339	70	39	—	—	C22832	C62832	—

continued on next page

drill diameter frac/wire/let	mm	decimal equivalent	overall length	flute length	order number				
					1600 Black Oxide	1601 Bright	1899 Black Oxide	1898 Bright	1898T TiN
29		.1360	2-7/8	1-3/4	—	—	C22681	C23055	C19128
	3.50	.1378	70	39	C68611	—	C22833	C62833	C24339
28		.1405	2-7/8	1-3/4	—	—	C22682	C23056	C19127
9/64		.1406	2-7/8	1-3/4	C68005	C68119	C22683	C23000	C19165
	3.60	.1417	70	39	—	—	C22834	C62834	C24340
27		.1440	3	1-7/8	—	—	C22684	C23057	C19126
	3.70	.1457	70	39	—	—	C22835	C62835	C24341
26		.1470	3	1-7/8	—	—	C22685	C23058	C19125
	3.75	.1476	70	39	—	—	C01137	C01924	—
25		.1495	3	1-7/8	—	—	C22686	C23059	C19124
	3.80	.1496	75	43	—	—	C22836	C62836	C24342
24		.1520	3-1/8	2	—	—	C22687	C23060	C19123
	3.90	.1535	75	43	—	—	C22837	C62837	—
23		.1540	3-1/8	2	—	—	C22688	C23061	C19122
5/32		.1562	3-1/8	2	C68006	C68120	C22689	C23001	C19166
22		.1570	3-1/8	2	—	—	C22690	C23062	C19121
	4.00	.1575	75	43	C68612	—	C22838	C62838	C24343
21		.1590	3-1/4	2-1/8	—	—	C22691	C23063	C19120
20		.1610	3-1/4	2-1/8	—	—	C22692	C23064	C19119
	4.10	.1614	75	43	—	—	C22839	C62839	C24344
	4.20	.1654	75	43	—	—	C22840	C62840	C24345
19		.1660	3-1/4	2-1/8	—	—	C22693	C23065	C19118
	4.25	.1673	75	43	—	—	C01338	C01938	—
	4.30	.1693	80	47	—	—	C22841	C62841	—
18		.1695	3-1/4	2-1/8	—	—	C22694	C23066	C19117
11/64		.1719	3-1/4	2-1/8	C68007	C68121	C22695	C23002	C19167
17		.1730	3-3/8	2-3/16	—	—	C22696	C23067	C19116
	4.40	.1732	80	47	—	—	C22842	C62842	—
16		.1770	3-3/8	2-3/16	—	—	C22697	C23068	C19115
	4.50	.1772	80	47	C68613	—	C22843	C62843	C24346
15		.1800	3-3/8	2-3/16	—	—	C22698	C23069	C19114
	4.60	.1811	80	47	—	—	C22844	C62844	C24347
14		.1820	3-3/8	2-3/16	—	—	C22699	C23070	C19113
13		.1850	3-1/2	2-5/16	—	—	C22700	C23071	C19112
	4.70	.1850	80	47	—	—	C22845	C62845	—
	4.75	.1870	80	47	—	—	C01164	—	—
3/16		.1875	3-1/2	2-5/16	C68008	C68122	C22701	C23003	C19168
12		.1890	3-1/2	2-5/16	—	—	C22702	C23072	C19111
	4.80	.1890	86	52	—	—	C22846	C62846	C24348
11		.1910	3-1/2	2-5/16	—	—	C22703	C23073	C19110
	4.90	.1929	86	52	—	—	C22847	C62847	C24349
10		.1935	3-5/8	2-7/16	—	—	C22704	C23074	C19109
9		.1960	3-5/8	2-7/16	—	—	C22705	C23075	C19108
	5.00	.1969	86	52	C68614	—	C22848	C62848	C24350
8		.1990	3-5/8	2-7/16	—	—	C22706	C23076	C19107
	5.10	.2008	86	52	—	—	C22849	C62849	C24351
7		.2010	3-5/8	2-7/16	—	—	C22707	C23077	C19106
13/64		.2031	3-5/8	2-7/16	C68009	C68123	C22708	C23004	C19169
6		.2040	3-3/4	2-1/2	—	—	C22709	C23078	C19105
	5.20	.2047	86	52	—	—	C22850	C62850	C24352
5		.2055	3-3/4	2-1/2	—	—	C22710	C23079	C19104
	5.25	.2066	86	52	—	—	C01180	—	—
	5.30	.2087	86	52	—	—	C22851	C62851	—
4		.2090	3-3/4	2-1/2	—	—	C22711	C23080	C19103

continued on next page

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

**HOLEMAKING**

drill diameter frac/wire/let	decimal mm	overall equivalent	overall length	flute length	order number				
					1600 Black Oxide	1601 Bright	1899 Black Oxide	1898 Bright	1898T TiN
3	5.40	.2126	93	57	—	—	C22852	C62852	—
		.2130	3-3/4	2-1/2	—	—	C22712	C23081	C19102
7/32	5.50	.2165	93	57	C68615	—	C22853	C62853	C24353
		.2188	3-3/4	2-1/2	C68010	C68124	C22713	C23005	C19170
2	5.60	.2205	93	57	—	—	C22854	C62854	—
		.2210	3-7/8	2-5/8	—	—	C22714	C23082	C19101
1	5.70	.2244	93	57	—	—	C22855	C62855	—
		.2263	93	57	—	—	C01190	—	—
		.2280	3-7/8	2-5/8	—	—	C22715	C23083	C19100
		.2283	93	57	—	—	C22856	C62856	—
		.2323	93	57	—	—	C22857	C62857	C24354
A		.2340	3-7/8	2-5/8	—	—	C22716	C22970	C24700
15/64		.2344	3-7/8	2-5/8	C68011	C68125	C22717	C23006	C19171
B	6.00	.2362	93	57	C68616	—	C22858	C62858	C24355
		.2380	4	2-3/4	—	—	C22718	C22971	C24701
6.10		.2402	101	63	—	—	C22859	C62859	—
C		.2420	4	2-3/4	—	—	C22719	C22972	C19192
		.2441	101	63	—	—	C22860	C62860	—
D		.2460	4	2-3/4	—	—	C22720	C22973	C19193
		.2460	101	63	—	—	C01202	—	—
		.2480	101	63	—	—	C22861	C62861	—
1/4, E		.2500	4	2-3/4	C68012	C68126	C22721	C23007	C19172
		.2520	101	63	—	—	C22862	C62862	C24356
		.2559	101	63	C68617	—	C22863	C62863	C24357
F		.2570	4-1/8	2-7/8	—	—	C22722	C22974	C19194
		.2598	101	63	—	—	C22864	C62864	C24358
G		.2610	4-1/8	2-7/8	—	—	C22723	C22975	C19195
		.2638	101	63	—	—	C22865	C62865	C24359
17/64		.2656	4-1/8	2-7/8	C68013	C68127	C22724	C23008	C19173
		.2657	109	69	—	—	C01213	—	—
H		.2660	4-1/8	2-7/8	—	—	C22725	C22976	C19196
		.2677	109	69	—	—	C22866	C62866	C24360
		.2717	109	69	—	—	C22867	C62867	C24361
I		.2720	4-1/8	2-7/8	—	—	C22726	C22977	C19197
		.2756	109	69	C68618	—	C22868	C62868	C24362
J		.2770	4-1/8	2-7/8	—	—	C22727	C22978	C19198
		.2795	109	69	—	—	C22869	C62869	—
K		.2810	4-1/4	2-15/16	—	—	C22728	C22979	C24702
9/32		.2812	4-1/4	2-15/16	C68014	C68128	C22729	C23009	C19174
		.2835	109	69	—	—	C22870	C62870	C24363
		.2854	109	69	—	—	C01223	—	—
		.2874	109	69	—	—	C22871	C62871	C24317
L		.2900	4-1/4	2-15/16	—	—	C22730	C22980	C19199
		.2913	109	69	—	—	C22872	C62872	—
M		.2950	4-3/8	3-1/16	—	—	C22731	C22981	C24703
		.2953	109	69	C68619	—	C22873	C62873	C24364
19/64		.2969	4-3/8	3-1/16	C68015	C68129	C22732	C23010	C19175
		.2992	117	75	—	—	C22874	C62874	—
N		.3020	4-3/8	3-1/16	—	—	C22733	C22982	C19200
		.3031	117	75	—	—	C22875	C62875	—
		.3051	117	75	—	—	C01234	—	—
		.3071	117	75	—	—	C22876	C62876	—
		.3110	117	75	—	—	C22877	C62877	—
5/16		.3125	4-1/2	3-3/16	C68016	C68130	C22734	C23011	C19176
		.3150	117	75	C68620	—	C22878	C62878	C24365

continued on next page



drill diameter frac/wire/let	mm	decimal equivalent	overall length	flute length	order number				
					1600 Black Oxide	1601 Bright	1899 Black Oxide	1898 Bright	1898T TIN
O		.3160	4-1/2	3-3/16	—	—	C22735	C22983	C19201
	8.10	.3189	117	75	—	—	C22879	C62879	—
	8.20	.3228	117	75	—	—	C22880	C62880	—
P		.3230	4-5/8	3-5/16	—	—	C22736	C22984	C24704
	8.25	.3248	117	75	—	—	C01243	—	—
	8.30	.3268	117	75	—	—	C22881	C62881	C24366
21/64		.3281	4-5/8	3-5/16	C68017	C68131	C22737	C23012	C19177
	8.40	.3307	117	75	—	—	C22882	C62882	—
Q		.3320	4-3/4	3-7/16	—	—	C22738	C22985	C19202
	8.50	.3346	117	75	C68621	—	C22883	C62883	C24367
	8.60	.3386	125	81	—	—	C22884	C62884	—
R		.3390	4-3/4	3-7/16	—	—	C22739	C22986	C19203
	8.70	.3425	125	81	—	—	C22885	C62885	—
11/32		.3438	4-3/4	3-7/16	C68018	C68132	C22740	C23013	C19178
	8.75	.3444	125	81	—	—	C01253	—	—
	8.80	.3465	125	81	—	—	C22886	C62886	—
S		.3480	4-7/8	3-1/2	—	—	C22741	C22987	C24705
	8.90	.3504	125	81	—	—	C22887	C62887	—
	9.00	.3543	125	81	C68622	—	C22888	C62888	C24368
T		.3580	4-7/8	3-1/2	—	—	C22742	C22988	C19204
	9.10	.3583	125	81	—	—	C22889	C62889	—
23/64		.3594	4-7/8	3-1/2	C68019	C68133	C22743	C23014	C19179
	9.20	.3622	125	81	—	—	C22890	C62890	—
	9.25	.3641	125	81	—	—	C01262	—	—
	9.30	.3661	125	81	—	—	C22891	C62891	—
U		.3680	5	3-5/8	—	—	C22744	C22989	C19205
	9.40	.3701	125	81	—	—	C22892	C62892	—
	9.50	.3740	125	81	C68623	—	C22893	C62893	C24369
3/8		.3750	5	3-5/8	C68020	C68134	C22745	C23015	C19180
V		.3770	5	3-5/8	—	—	C22746	C22990	C24706
	9.60	.3780	133	87	—	—	C22894	C62894	—
	9.70	.3819	133	87	—	—	C22895	C62895	—
	9.80	.3858	133	87	—	—	C22896	C62896	—
W		.3860	5-1/8	3-3/4	—	—	C22747	C22991	C19206
	9.90	.3898	133	87	—	—	C22897	C62897	—
25/64		.3906	5-1/8	3-3/4	C68021	C68135	C22505	C23016	C19181
	10.00	.3937	133	87	C68624	—	C22898	C62898	C24370
X		.3970	5-1/8	3-3/4	—	—	C22748	C22992	C24707
	10.10	.3976	133	87	—	—	C22941	—	—
	10.20	.4016	133	87	—	—	C22899	C62899	C24371
	10.25	.4035	133	87	—	—	C22942	—	—
Y		.4040	5-1/4	3-7/8	—	—	C22749	C22993	C24708
13/32		.4062	5-1/4	3-7/8	C68022	C68136	C22506	C23017	C19182
	10.40	.4094	133	87	—	—	C22944	—	—
Z		.4130	5-1/4	3-7/8	—	—	C22750	C22994	C24709
	10.50	.4134	133	87	C68625	—	C22900	C62900	C24372
	10.70	.4212	142	94	—	—	C22947	C02070	—
27/64		.4219	5-3/8	3-15/16	C68023	C68137	C22507	C23018	C19183
	10.80	.4252	142	94	—	—	C22901	C62901	C24373
	11.00	.4331	142	94	C68626	—	C22902	C62902	C24374
	11.10	.4370	142	94	—	—	C22951	C02073	—
7/16		.4375	5-1/2	4-1/16	C68024	C68138	C22751	C23019	C19184
	11.20	.4409	142	94	—	—	C22903	C62903	—
	11.40	.4488	142	94	—	—	C22954	—	—

HOLEMAKING

continued on next page

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

**HOLEMAKING**

drill diameter frac/wire/let	mm	decimal equivalent	overall length	flute length	order number				
					1600 Black Oxide	1601 Bright	1899 Black Oxide	1898 Bright	1898T TiN
29/64	11.50	.4528	142	94	C68627	—	C22904	C62904	C24375
		.4531	5-5/8	4-3/16	C68025	C68139	C22508	C23020	C19185
15/32	11.80	.4646	142	94	—	—	C22905	C62905	C24376
		.4688	5-3/4	4-5/16	C68026	C68140	C22753	C23021	C19186
	12.00	.4724	151	101	C68628	—	C22906	C62906	C24377
	12.20	.4803	151	101	—	—	C22907	C62907	—
31/64	12.50	.4844	5-7/8	4-3/8	C68027	C68141	C22755	C23022	C19187
		.4921	151	101	C68629	—	C22908	C62908	C24378
1/2		.5000	6	4-1/2	C68028	C68142	C22757	C23023	C19188
	12.80	.5039	151	101	—	—	C22909	C62909	—
	13.00	.5118	151	101	C68630	—	C22910	C62910	C24379
	13.20	.5197	161	101	—	—	C22911	C62911	—
	13.50	.5315	160	108	—	—	C22912	C62912	—
	13.80	.5433	160	108	—	—	C22913	C62913	—
	14.00	.5512	160	108	—	—	C22914	C62914	—
	14.25	.5610	169	114	—	—	C22915	C62915	—
	14.50	.5709	169	114	—	—	C22916	C62916	—
	14.75	.5807	169	114	—	—	C22917	C62917	—
	15.00	.5906	169	114	—	—	C22918	C62918	—
	15.25	.6004	178	120	—	—	C22919	—	—
	15.50	.6102	178	120	—	—	C22920	C62920	—
	15.75	.6201	178	120	—	—	C22921	C62921	—
	16.00	.6299	178	120	—	—	C22922	C62922	—
	16.25	.6398	184	125	—	—	C22923	C62923	—
	16.50	.6496	184	125	—	—	C22924	C62924	—
	16.75	.6594	184	125	—	—	C22925	—	—
	17.00	.6693	184	125	—	—	C22926	C62926	—
	17.25	.6791	191	130	—	—	C22927	—	—
	17.50	.6890	191	130	—	—	C22928	C62928	—
	18.00	.7086	191	130	—	—	C22929	C62929	—
	18.50	.7283	198	135	—	—	C22930	—	—
	19.00	.7480	198	135	—	—	C22931	C62931	—
	19.50	.7677	205	140	—	—	C22932	—	—
	20.00	.7874	205	140	—	—	C22933	—	—

**Jobber  
3/8" Reduced Shank**

**Styles: 1900, 1808**



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

**SET**

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

Metal Case (unless noted otherwise)

13-Piece Set  
Black Oxide  
#C21105



29-Piece Set  
TiN  
#C19211



60-Piece Set  
Bright  
#C21122



**HOLEMAKING**

drill sizes	no. of pieces	order number				
		1600 Black Oxide	1899 Black Oxide	1900 BO - 3/8" shank	1898 Bright	1898T TiN
36, 29, 25, 21, 7, F, 5/16, U, 27/64 <b>Taps:</b> (Style# 0402) 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	C21109	C21156	C21108	C19210
1/16" - 3/8" x 1/64"	21	C69036	C21114	—	C21113	—
1/16" - 1/2" x 1/64"	29	*C69037	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	C21131	—	C18127	—
<b>Drill, Tap &amp; Round Die Sets</b>						
5.0, 6.0, 6.7, 8.5, 10.2mm	<b>Taps/Round Dies:</b> (Style# 0411/0710M): M6 x 1.0, M7 x 1.0, M8 x 1.25, M10 x 1.5, M12 x 1.75	18	—	C00451	—	—

\*Plastic Case

**SET**

**Styles: 1860**

Plastic Tube Case

**Jobber Sets  
Drill and Tap Sets**

**Note**

Drill style: 1898 bright

Uses Cle-Line Tap Style: #0411 Spiral Point



jobber drill sizes	plug tap spiral point	no. of pieces	order number
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

**Jobber**  
Maintenance - Left Hand

**General Application Drills**



Style: **1898L**



**Note**  
For general purpose drilling  
and maintenance applications.

HOLEMAKING



drill diameter	decimal equivalent	overall length	flute length	order number <b>1898L</b> Bright
3/64	.0469	1-3/4	3/4	C18400
1/16	.0625	1-7/8	7/8	C18401
5/64	.0781	2	1	C18402
3/32	.0938	2-1/4	1-1/4	C18403
7/64	.1094	2-5/8	1-1/2	C18404
1/8	.1250	2-3/4	1-5/8	C18405
9/64	.1406	2-7/8	1-3/4	C18406
5/32	.1562	3-1/8	2	C18407
11/64	.1719	3-1/4	2-1/8	C18408
3/16	.1875	3-1/2	2-5/16	C18409
13/64	.2031	3-5/8	2-7/16	C18410
7/32	.2188	3-3/4	2-1/2	C18411
15/64	.2344	3-7/8	2-5/8	C18412
1/4	.2500	4	2-3/4	C18413
17/64	.2656	4-1/8	2-7/8	C18414
9/32	.2812	4-1/4	2-15/16	C18415
19/64	.2969	4-3/8	3-1/16	C18416
5/16	.3125	4-1/2	3-3/16	C18417
21/64	.3281	4-5/8	3-5/16	C18418
11/32	.3438	4-3/4	3-7/16	C18419
23/64	.3594	4-7/8	3-1/2	C18420
3/8	.3750	5	3-5/8	C18421
25/64	.3906	5-1/8	3-3/4	C18422
13/32	.4062	5-1/4	3-7/8	C18423
27/64	.4219	5-3/8	3-15/16	C18424
7/16	.4375	5-1/2	4-1/16	C18425
29/64	.4531	5-5/8	4-3/16	C18426
15/32	.4688	5-3/4	4-5/16	C18427
31/64	.4844	5-7/8	4-3/8	C18428
1/2	.5000	6	4-1/2	C18429





**Note**  
Three Flats on sizes 3/16" (4.8mm) & larger for tighter chucking.  
For Reduced Shank see Style #1605, 1809, 1879.



Black Oxide



Black and Gold



Black and Gold with flats

drill diameter frac/wire/let	mm	decimal equivalent	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	*1.00	.0394	34	12	—	—	—	—	C74001
*59		.0400	1-5/8	11/16	C68342	—	—	C23154	C18113
*58		.0410	1-5/8	11/16	C68341	—	—	C23155	C18112
*57		.0420	1-5/8	11/16	C68340	—	—	C23156	C18111
*56		.0430	1-3/4	3/4	C68339	—	—	C23157	C18110
*56		.0465	1-3/4	3/4	C68338	—	—	C23158	C18109
*3/64		.0469	1-3/4	3/4	—	—	—	C23214	—
*55	*1.20	.0472	38	16	—	—	—	—	C74025
*55		.0520	1-7/8	7/8	C68337	—	—	C23159	C18108
*54		.0550	1-7/8	7/8	C68336	—	—	C23160	C18107
*53	*1.50	.0591	40	18	—	—	—	—	C74002
*53		.0595	1-7/8	7/8	C68335	—	—	C23161	C18106
1/16		.0625	1-7/8	7/8	C68229	C69042	C69339	C23125	C18000
52	1.60	.0630	43	20	—	—	—	—	C74026
52		.0635	1-7/8	7/8	C68334	—	—	C23162	C18105
51		.0670	2	1	C68333	—	—	C23163	C18104
50		.0700	2	1	C68332	—	—	C23164	C18103
49		.0730	2	1	C68331	—	—	C23165	C18102
48		.0760	2	1	C68330	—	—	C23166	C18101
5/64		.0781	2	1	C68230	C69043	C69340	C23126	C18001
47		.0785	2	1	C68329	—	—	C23167	C18100
46	2.00	.0787	49	24	—	—	—	—	C74003
46		.0810	2-1/8	1-1/8	C68328	—	—	C23168	C18099
45		.0820	2-1/8	1-1/8	C68327	—	—	C23169	C18098
44		.0860	2-1/8	1-1/8	C68326	—	—	C23170	C18097
43		.0890	2-1/4	1-1/4	C68325	—	—	C23171	C18096
42	2.30	.0906	53	27	—	—	—	—	C74027
42		.0935	2-1/4	1-1/4	C68324	—	—	C23172	C18095
3/32		.0938	2-1/4	1-1/4	C68231	C69044	C69341	C23127	C18002
41	2.40	.0945	57	30	—	—	—	—	C74028
41		.0960	2-3/8	1-3/8	C68323	—	—	C23173	C18094
40		.0980	2-3/8	1-3/8	C68322	—	—	C23174	C18093
39	2.50	.0984	57	30	—	—	—	—	C74004
39		.0995	2-3/8	1-3/8	C68321	—	—	C23175	C18092
38		.1015	2-1/2	1-7/16	C68320	—	—	C23176	C18091
37		.1040	2-1/2	1-7/16	C68319	—	—	C23177	C18090

\*Not split point under 1/16".

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

**HOLEMAKING**

drill diameter		decimal equivalent	overall length	flute length	order number				
frac/wire/let	mm				1602 Black Oxide	1604 Black and Gold	1607 Black & Gold w/flats	1801 Black Oxide	1878 Black & Gold w/flats
	2.70	.1063	61	33	—	—	—	—	C74029
36		.1065	2-1/2	1-7/16	C68318	—	—	C23178	C18089
7/64		.1094	2-5/8	1-1/2	C68232	C69045	C69342	C23128	C18003
35		.1100	2-5/8	1-1/2	C68317	—	—	C23179	C18088
	2.80	.1102	61	33	—	—	—	—	C74030
34		.1110	2-5/8	1-1/2	C68316	—	—	C23180	C18087
33		.1130	2-5/8	1-1/2	C68315	—	—	C23181	C18086
	2.90	.1142	61	33	—	—	—	—	C74031
32		.1160	2-3/4	1-5/8	C68314	—	—	C23182	C18085
	3.00	.1181	61	33	—	—	—	—	C74005
31		.1200	2-3/4	1-5/8	C68313	—	—	C23183	C18084
	3.10	.1220	65	36	—	—	—	—	C74032
1/8		.1250	2-3/4	1-5/8	C68233	C69046	C69343	C23129	C18004
	3.20	.1260	65	36	—	—	—	—	C74033
30		.1285	2-3/4	1-5/8	C68312	—	—	C23184	C18083
	3.30	.1299	65	36	—	—	—	—	C74034
29		.1360	2-7/8	1-3/4	C68311	—	—	C23185	C18082
	3.50	.1378	70	39	—	—	—	—	C74006
28		.1405	2-7/8	1-3/4	C68310	—	—	C23186	C18081
9/64		.1406	2-7/8	1-3/4	C68234	C69047	C69344	C23130	C18005
	3.60	.1417	70	39	—	—	—	—	C74035
27		.1440	3	1-7/8	C68309	—	—	C23187	C18080
	3.70	.1457	70	39	—	—	—	—	C74036
26		.1470	3	1-7/8	C68308	—	—	C23188	C18079
25		.1495	3	1-7/8	C68307	—	—	C23189	C18078
	3.80	.1496	75	43	—	—	—	—	C74037
24		.1520	3-1/8	2	C68306	—	—	C23190	C18077
23		.1540	3-1/8	2	C68305	—	—	C23191	C18076
5/32		.1562	3-1/8	2	C68235	C69048	C69345	C23131	C18006
22		.1570	3-1/8	2	C68304	—	—	C23192	C18075
	4.00	.1575	75	43	—	—	—	—	C74007
21		.1590	3-1/4	2-1/8	C68303	—	—	C23193	C18074
20		.1610	3-1/4	2-1/8	C68302	—	—	C23194	C18073
	4.10	.1614	75	43	—	—	—	—	C74038
	4.20	.1654	75	43	—	—	—	—	C74039
19		.1660	3-1/4	2-1/8	C68301	—	—	C23195	C18072
18		.1695	3-1/4	2-1/8	C68300	—	—	C23196	C18071
11/64		.1719	3-1/4	2-1/8	C68236	C69049	C69346	C23132	C18007
17		.1730	3-3/8	2-3/16	C68299	—	—	C23197	C18070
16		.1770	3-3/8	2-3/16	C68298	—	—	C23198	C18069
	4.50	.1772	80	47	—	—	—	—	C74008
15		.1800	3-3/8	2-3/16	C68297	—	—	C23199	C18068
	4.60	.1811	80	47	—	—	—	—	C74040
14		.1820	3-3/8	2-3/16	C68296	—	—	C23200	C18067
13		.1850	3-1/2	2-5/16	C68295	—	—	C23201	C18066
3/16		.1875	3-1/2	2-5/16	C68237	C69050	C69347	C23133	C18008
12		.1890	3-1/2	2-5/16	C68294	—	—	C23202	C18065
	4.80	.1890	86	52	—	—	—	—	C74041
11		.1910	3-1/2	2-5/16	C68293	—	—	C23203	C18064
	4.90	.1929	86	52	—	—	—	—	C74042
10		.1935	3-5/8	2-7/16	C68292	—	—	C23204	C18063
9		.1960	3-5/8	2-7/16	C68291	—	—	C23205	C18062
	5.00	.1969	86	52	—	—	—	—	C74009
8		.1990	3-5/8	2-7/16	C68290	—	—	C23206	C18061
	5.10	.2008	86	52	—	—	—	—	C74043
7		.2010	3-5/8	2-7/16	C68289	—	—	C23207	C18060

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drill diameter		decimal equivalent	overall length	flute length	order number				
frac/wire/let	mm				1602 Black Oxide	1604 Black and Gold	1607 Black & Gold w/flats	1801 Black Oxide	1878 Black & Gold w/flats
13/64		.2031	3-5/8	2-7/16	C68238	C69051	C69348	C23134	C18009
6		.2040	3-3/4	2-1/2	C68288	—	—	C23208	C18059
	5.20	.2047	86	52	—	—	—	—	C74044
5		.2055	3-3/4	2-1/2	C68287	—	—	C23209	C18058
4		.2090	3-3/4	2-1/2	C68286	—	—	C23210	C18057
3		.2130	3-3/4	2-1/2	C68285	—	—	C23211	C18056
	5.50	.2165	93	57	—	—	—	—	C74010
7/32		.2188	3-3/4	2-1/2	C68239	C69052	C69349	C23135	C18010
2		.2210	3-7/8	2-5/8	C68284	—	—	C23212	C18055
1		.2280	3-7/8	2-5/8	C68283	—	—	C23213	C18054
	5.90	.2323	93	57	—	—	—	—	C74045
A		.2340	3-7/8	2-5/8	C68258	—	—	C23100	C18029
15/64		.2344	3-7/8	2-5/8	C68240	C69053	C69350	C23136	C18011
	6.00	.2362	93	57	—	—	—	—	C74011
B		.2380	4	2-3/4	C68259	—	—	C23101	C18030
C		.2420	4	2-3/4	C68260	—	—	C23102	C18031
D		.2460	4	2-3/4	C68261	—	—	C23103	C18032
1/4, E		.2500	4	2-3/4	C68241	C69054	C69351	C23137	C18012
	6.40	.2520	101	63	—	—	—	—	C74046
	6.50	.2559	101	63	—	—	—	—	C74012
F		.2570	4-1/8	2-7/8	C68262	—	—	C23104	C18033
	6.60	.2598	101	63	—	—	—	—	C74047
G		.2610	4-1/8	2-7/8	C68263	—	—	C23105	C18034
	6.70	.2638	101	63	—	—	—	—	C74048
17/64		.2656	4-1/8	2-7/8	C68242	C69055	C69352	C23138	C18013
H		.2660	4-1/8	2-7/8	C68264	—	—	C23106	C18035
	6.80	.2677	109	69	—	—	—	—	C74049
	6.90	.2717	109	69	—	—	—	—	C74050
I		.2720	4-1/8	2-7/8	C68265	—	—	C23107	C18036
	7.00	.2756	109	69	—	—	—	—	C74013
J		.2770	4-1/8	2-7/8	C68266	—	—	C23108	C18037
K		.2810	4-1/4	2-15/16	C68267	—	—	C23109	C18038
9/32		.2812	4-1/4	2-15/16	C68243	C69056	C69353	C23139	C18014
	7.20	.2835	109	69	—	—	—	—	C74051
	7.30	.2874	109	69	—	—	—	—	C74052
L		.2900	4-1/4	2-15/16	C68268	—	—	C23110	C18039
M		.2950	4-3/8	3-1/16	C68269	—	—	C23111	C18040
	7.50	.2953	109	69	—	—	—	—	C74014
19/64		.2969	4-3/8	3-1/16	C68244	C69057	C69354	C23140	C18015
N		.3020	4-3/8	3-1/16	C68270	—	—	C23112	C18041
5/16		.3125	4-1/2	3-3/16	C68245	C69058	C69355	C23141	C18016
	8.00	.3150	117	75	—	—	—	—	C74015
O		.3160	4-1/2	3-3/16	C68271	—	—	C23113	C18042
P		.3230	4-5/8	3-5/16	C68272	—	—	C23114	C18043
	8.30	.3268	117	75	—	—	—	—	C74053
21/64		.3281	4-5/8	3-5/16	C68246	C69059	C69356	C23142	C18017
Q		.3320	4-3/4	3-7/16	C68273	—	—	C23115	C18044
	8.50	.3346	117	75	—	—	—	—	C74016
R		.3390	4-3/4	3-7/16	C68274	—	—	C23116	C18045
11/32		.3438	4-3/4	3-7/16	C68247	C69060	C69357	C23143	C18018
S		.3480	4-7/8	3-1/2	C68275	—	—	C23117	C18046
	9.00	.3543	125	81	—	—	—	—	C74017
T		.3580	4-7/8	3-1/2	C68276	—	—	C23118	C18047
23/64		.3594	4-7/8	3-1/2	C68248	C69061	C69358	C23144	C18019
U		.3680	5	3-5/8	C68277	—	—	C23119	C18048
	9.50	.3740	125	81	—	—	—	—	C74018

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

**HOLEMAKING**

drill diameter		decimal equivalent	overall length	flute length	order number				
frac/wire/let	mm				1602 Black Oxide	1604 Black and Gold	1607 Black & Gold w/flats	1801 Black Oxide	1878 Black & Gold w/flats
3/8		.3750	5	3-5/8	C68249	C69062	C69359	C23145	C18020
V		.3770	5	3-5/8	C68278	—	—	C23120	C18049
W		.3860	5-1/8	3-3/4	C68279	—	—	C23121	C18050
25/64		.3906	5-1/8	3-3/4	C68250	C69063	C69360	C23146	C18021
	10.00	.3937	133	87	—	—	—	—	C74019
X		.3970	5-1/8	3-3/4	C68280	—	—	C23122	C18051
	10.20	.4016	133	87	—	—	—	—	C74054
Y		.4040	5-1/4	3-7/8	C68281	—	—	C23123	C18052
13/32		.4062	5-1/4	3-7/8	C68251	C69064	C69361	C23147	C18022
Z		.4130	5-1/4	3-7/8	C68282	—	—	C23124	C18053
	10.50	.4134	133	87	—	—	—	—	C74020
27/64		.4219	5-3/8	3-15/16	C68252	C69065	C69362	C23148	C18023
	10.80	.4252	142	94	—	—	—	—	C74055
	11.00	.4331	142	94	—	—	—	—	C74021
7/16		.4375	5-1/2	4-1/16	C68253	C69066	C69363	C23149	C18024
	11.50	.4528	142	94	—	—	—	—	C74022
29/64		.4531	5-5/8	4-3/16	C68254	C69067	C69364	C23150	C18025
	11.80	.4646	142	94	—	—	—	—	C74056
15/32		.4688	5-3/4	4-5/16	C68255	C69068	C69365	C23151	C18026
	12.00	.4724	151	101	—	—	—	—	C74023
31/64		.4844	5-7/8	4-3/8	C68256	C69069	C69366	C23152	C18027
	12.50	.4921	151	101	—	—	—	—	C74024
1/2		.5000	6	4-1/2	C68257	C69070	C69367	C23153	C18028
	13.00	.5118	151	101	—	—	—	—	C74057

**Heavy Duty**  
3/8" Reduced Shank

**Styles: 1605, 1809, 1879**



Style #1605 - Black and Gold



Style #1809 - Black Oxide



Style #1879 - Black and Gold w/ flats



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



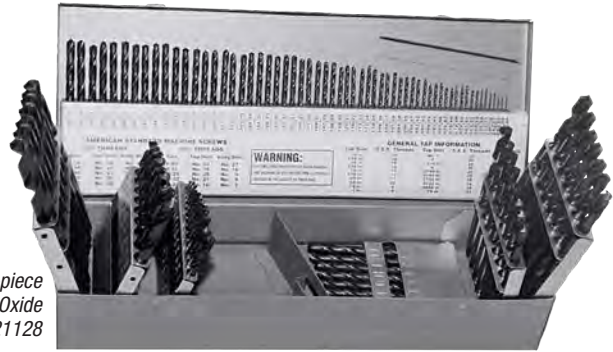
**SET**

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

Metal Case (unless noted otherwise)



29-piece  
Bit Barrel Set  
#C18128



115-piece  
Black Oxide  
#C21128

**HOLEMAKING**

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 with flats Black & Gold	1878/1879 3/8" shank Black & Gold
36, 29, 25, 21, 7, F, 5/16, U, 27/64	18	—	—	—	—	—	**C21191	—
Taps: 6-32, 8-32, 10-24, 10-32, 1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13		—	—	—	—	—	**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
<b>Bit Barrel™</b> 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	—	—
<b>Metric:</b> 1mm to 6mm	11						C74058	
1mm to 13mm	25						C74059	

\*Plastic Case

\*\*C21191 - Hand taps \*\*C21192 - Spiral point taps

**SET**

**Style: 1864**

**Specialty  
Drill & Screw Extractors**



**Note**  
Drill style: 1878 Black & Gold

Plastic Tube

Black  
Gold



jobber drill	screw extractor	no. of pcs.	order number	jobber drill	screw extractor	no. of pcs.	order number
			<b>1864</b>				<b>1864</b>
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

**Jobber**  
TiN Tip

**General Application Drills**

Styles: **1500-TT, 1501-TT**



**HOLEMAKING**



drill diameter frac/wire/let	decimal equivalent	overall length	flute length	order number	
				<b>1500-TT</b> HSS TiN	<b>1501-TT</b> HS-Co TiN
1/16	.0625	1-7/8	7/8	C97301	C66001
52	.0635	1-7/8	7/8	C97406	C66106
51	.0670	2	1	C97405	C66105
50	.0700	2	1	C97404	C66104
49	.0730	2	1	C97403	C66103
48	.0760	2	1	C97402	C66102
5/64	.0781	2	1	C97302	C66002
47	.0785	2	1	C97401	C66101
46	.0810	2-1/8	1-1/8	C97400	C66100
45	.0820	2-1/8	1-1/8	C97399	C66099
44	.0860	2-1/8	1-1/8	C97398	C66098
43	.0890	2-1/4	1-1/4	C97397	C66097
42	.0935	2-1/4	1-1/4	C97396	C66096
3/32	.0938	2-1/4	1-1/4	C97303	C66003
41	.0960	2-3/8	1-3/8	C97395	C66095
40	.0980	2-3/8	1-3/8	C97394	C66094
39	.0995	2-3/8	1-3/8	C97393	C66093
38	.1015	2-1/2	1-7/16	C97392	C66092
37	.1040	2-1/2	1-7/16	C97391	C66091
36	.1065	2-1/2	1-7/16	C97390	C66090
7/64	.1094	2-5/8	1-1/2	C97304	C66004
35	.1100	2-5/8	1-1/2	C97389	C66089
34	.1110	2-5/8	1-1/2	C97388	C66088
33	.1130	2-5/8	1-1/2	C97387	C66087
32	.1160	2-3/4	1-5/8	C97386	C66086
31	.1200	2-3/4	1-5/8	C97385	C66085
1/8	.1250	2-3/4	1-5/8	C97305	C66005
30	.1285	2-3/4	1-5/8	C97384	C66084
29	.1360	2-7/8	1-3/4	C97383	C66083
28	.1405	2-7/8	1-3/4	C97382	C66082
9/64	.1406	2-7/8	1-3/4	C97306	C66006
27	.1440	3	1-7/8	C97381	C66081
26	.1470	3	1-7/8	C97380	C66080
25	.1495	3	1-7/8	C97379	C66079
24	.1520	3-1/8	2	C97378	C66078
23	.1540	3-1/8	2	C97377	C66077
5/32	.1562	3-1/8	2	C97307	C66007
22	.1570	3-1/8	2	C97376	C66076
21	.1590	3-1/4	2-1/8	C97375	C66075
20	.1610	3-1/4	2-1/8	C97374	C66074
19	.1660	3-1/4	2-1/8	C97373	C66073
18	.1695	3-1/4	2-1/8	C97372	C66072

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drill diameter frac/wire/let	decimal equivalent	overall length	flute length	order number	
				1500-TT HSS TiN	1501-TT HS-Co TiN
11/64	.1719	3-1/4	2-1/8	C97308	C66008
17	.1730	3-3/8	2-3/16	C97371	C66071
16	.1770	3-3/8	2-3/16	C97370	C66070
15	.1800	3-3/8	2-3/16	C97369	C66069
14	.1820	3-3/8	2-3/16	C97368	C66068
13	.1850	3-1/2	2-5/16	C97367	C66067
3/16	.1875	3-1/2	2-5/16	C97309	C66009
12	.1890	3-1/2	2-5/16	C97366	C66066
11	.1910	3-1/2	2-5/16	C97365	C66065
10	.1935	3-5/8	2-7/16	C97364	C66064
9	.1960	3-5/8	2-7/16	C97363	C66063
8	.1990	3-5/8	2-7/16	C97362	C66062
7	.2010	3-5/8	2-7/16	C97361	C66061
13/64	.2031	3-5/8	2-7/16	C97310	C66010
6	.2040	3-3/4	2-1/2	C97360	C66060
5	.2055	3-3/4	2-1/2	C97359	C66059
4	.2090	3-3/4	2-1/2	C97358	C66058
3	.2130	3-3/4	2-1/2	C97357	C66057
7/32	.2188	3-3/4	2-1/2	C97311	C66011
2	.2210	3-7/8	2-5/8	C97356	C66056
1	.2280	3-7/8	2-5/8	C97355	C66055
A	.2340	3-7/8	2-5/8	C97330	C66030
15/64	.2344	3-7/8	2-5/8	C97312	C66012
B	.2380	4	2-3/4	C97331	C66031
C	.2420	4	2-3/4	C97332	C66032
D	.2460	4	2-3/4	C97333	C66033
1/4-E	.2500	4	2-3/4	C97313	C66013
F	.2570	4-1/8	2-7/8	C97334	C66034
G	.2610	4-1/8	2-7/8	C97335	C66035
17/64	.2656	4-1/8	2-7/8	C97314	C66014
H	.2660	4-1/8	2-7/8	C97336	C66036
I	.2720	4-1/8	2-7/8	C97337	C66037
J	.2770	4-1/8	2-7/8	C97338	C66038
K	.2810	4-1/4	2-15/16	C97339	C66039
9/32	.2812	4-1/4	2-15/16	C97315	C66015
L	.2900	4-1/4	2-15/16	C97340	C66040
M	.2950	4-3/8	3-1/16	C97341	C66041
19/64	.2969	4-3/8	3-1/16	C97316	C66016
N	.3020	4-3/8	3-1/16	C97342	C66042
5/16	.3125	4-1/2	3-3/16	C97317	C66017
O	.3160	4-1/2	3-3/16	C97343	C66043
P	.3230	4-5/8	3-5/16	C97344	C66044
21/64	.3281	4-5/8	3-5/16	C97318	C66018
Q	.3320	4-3/4	3-7/16	C97345	C66045
R	.3390	4-3/4	3-7/16	C97346	C66046
11/32	.3438	4-3/4	3-7/16	C97319	C66019
S	.3480	4-7/8	3-1/2	C97347	C66047
T	.3580	4-7/8	3-1/2	C97348	C66048
23/64	.3594	4-7/8	3-1/2	C97320	C66020
U	.3680	5	3-5/8	C97349	C66049
3/8	.3750	5	3-5/8	C97321	C66021
V	.3770	5	3-5/8	C97350	C66050
W	.3860	5-1/8	3-3/4	C97351	C66051
25/64	.3906	5-1/8	3-3/4	C97322	C66022

*continued on next page*

**Jobber**  
TiN Tip

**General Application Drills**



Styles: **1500-TT, 1501-TT**

HOLEMAKING

drill diameter frac/wire/let	decimal equivalent	overall length	flute length	order number	
				<b>1500-TT</b> HSS TiN	<b>1501-TT</b> HS-Co TiN
X	.3970	5-1/8	3-3/4	C97352	C66052
Y	.4040	5-1/4	3-7/8	C97353	C66053
13/32	.4062	5-1/4	3-7/8	C97323	C66023
Z	.4130	5-1/4	3-7/8	C97354	C66054
27/64	.4219	5-3/8	3-15/16	C97324	C66024
7/16	.4375	5-1/2	4-1/16	C97325	C66025
29/64	.4531	5-5/8	4-3/16	C97326	C66026
15/32	.4688	5-3/4	4-5/16	C97327	C66027
31/64	.4844	5-7/8	4-3/8	C97328	C66028
1/2	.5000	6	4-1/2	C97329	C66029

**Jobber**  
Tin Tip

SET

Styles: **1500-TT, 1501-TT**

Metal Case

NEW

drill sizes	no. of pieces	order number	
		<b>1500-TT</b> HSS TiN	<b>1501-TT</b> HS-Co TiN
1/16-1/2 x 1/64	29	C97413	C66113





**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.

\*\*Parts only available until inventory is depleted.



drill diameter		decimal equivalent	overall length	flute length	order number	
frac/wire/let	mm				1872 Black & Gold	1872TN TiN
	*1.00	.0394	34	12	C18570	**C18670
	*1.50	.0591	40	18	C18573	**C18671
1/16		.0625	1-7/8	7/8	C18430	C18630
	1.60	.0630	43	20	C18574	—
	1.65	.0650	43	20	C18575	—
	1.75	.0689	46	22	C18576	—
	1.80	.0709	46	22	C18577	—
5/64		.0781	2	1	C18431	C18631
	2.00	.0787	49	24	C18578	**C18672
	2.05	.0807	49	24	C18579	—
	2.30	.0906	53	27	C18580	—
3/32		.0938	2-1/4	1-1/4	C18432	C18632
41		.0960	2-3/8	1-3/8	C18541	—
40		.0980	2-3/8	1-3/8	C18540	—
	2.50	.0984	57	30	C18581	**C18673
39		.0995	2-3/8	1-3/8	C18539	—
38		.1015	2-1/2	1-7/16	C18538	—
	2.60	.1024	57	30	C18582	—
37		.1040	2-1/2	1-7/16	C18537	—
36		.1065	2-1/2	1-7/16	C18536	—
7/64		.1094	2-5/8	1-1/2	C18433	C18633
35		.1100	2-5/8	1-1/2	C18535	—
34		.1110	2-5/8	1-1/2	C18534	—
33		.1130	2-5/8	1-1/2	C18533	—
	2.90	.1142	61	33	C18583	—
32		.1160	2-3/4	1-5/8	C18532	—
	3.00	.1181	61	33	C18584	**C18674
31		.1200	2-3/4	1-5/8	C18531	—
1/8		.1250	2-3/4	1-5/8	C18434	C18634
	3.20	.1260	65	36	C18585	—
30		.1285	2-3/4	1-5/8	C18530	—
	3.30	.1299	65	36	C18586	**C18675
29		.1360	2-7/8	1-3/4	C18529	—
	3.50	.1378	70	39	C18587	**C18676
28		.1405	2-7/8	1-3/4	C18528	—
9/64		.1406	2-7/8	1-3/4	C18435	C18635
27		.1440	3	1-7/8	C18527	—
	3.70	.1457	70	39	C18588	—
26		.1470	3	1-7/8	C18526	—
25		.1495	3	1-7/8	C18525	—
24		.1520	3-1/8	2	C18524	—
23		.1540	3-1/8	2	C18523	—
5/32		.1562	3-1/8	2	C18436	C18636
22		.1570	3-1/8	2	C18522	—
	4.00	.1575	75	43	C18589	**C18677
21		.1590	3-1/4	2-1/8	C18521	—
20		.1610	3-1/4	2-1/8	C18520	—
	4.10	.1614	75	43	C18590	—
	4.20	.1654	75	43	C18591	**C18678

\*Not split point. \*\*Parts only available until inventory is depleted.

continued on next page



**HOLEMAKING**

drill diameter		decimal equivalent	overall length	flute length	order number	
frac/wire/let	mm				1872 Black & Gold	1872TN TiN
19		.1660	3-1/4	2-1/8	C18519	—
	4.30	.1693	80	47	C18722	—
18		.1695	3-1/4	2-1/8	C18518	—
11/64		.1719	3-1/4	2-1/8	C18437	C18637
17		.1730	3-3/8	2-3/16	C18517	—
16		.1770	3-3/8	2-3/16	C18516	—
	4.50	.1772	80	47	C18592	**C18679
15		.1800	3-3/8	2-3/16	C18515	—
14		.1820	3-3/8	2-3/16	C18514	—
13		.1850	3-1/2	2-5/16	C18513	—
3/16		.1875	3-1/2	2-5/16	C18438	C18638
12		.1890	3-1/2	2-5/16	C18512	—
	4.80	.1890	86	52	C18723	—
11		.1910	3-1/2	2-5/16	C18511	—
10		.1935	3-5/8	2-7/16	C18510	—
9		.1960	3-5/8	2-7/16	C18509	—
	5.00	.1969	86	52	C18593	**C18680
8		.1990	3-5/8	2-7/16	C18508	—
	5.10	.2008	86	52	C18724	—
7		.2010	3-5/8	2-7/16	C18507	—
13/64		.2031	3-5/8	2-7/16	C18439	C18639
6		.2040	3-3/4	2-1/2	C18506	—
	5.20	.2047	86	52	C18725	—
5		.2055	3-3/4	2-1/2	C18505	—
4		.2090	3-3/4	2-1/2	C18504	—
3		.2130	3-3/4	2-1/2	C18503	—
	5.50	.2165	93	57	C18594	**C18681
7/32		.2188	3-3/4	2-1/2	C18440	C18640
2		.2210	3-7/8	2-5/8	C18502	—
	5.70	.2244	93	57	C18726	—
1		.2280	3-7/8	2-5/8	C18501	—
15/64		.2344	3-7/8	2-5/8	C18441	C18641
	6.00	.2362	93	57	C18595	**C18682
1/4		.2500	4	2-3/4	C18442	C18642
	6.50	.2559	101	63	C18596	**C18683
F		.2570	4-1/8	2-7/8	C18474	—
	6.70	.2638	101	63	C18597	—
17/64		.2656	4-1/8	2-7/8	C18443	C18643
	6.80	.2677	109	69	C18598	**C18684
	7.00	.2756	109	69	C18599	**C18685
9/32		.2812	4-1/4	2-15/16	C18444	C18644
	7.40	.2913	109	69	C18600	—
	7.50	.2953	109	69	C18601	**C18686
19/64		.2969	4-3/8	3-1/16	C18445	C18645
	7.80	.3071	117	75	C18602	—
5/16		.3125	4-1/2	3-3/16	C18446	C18646
	8.00	.3150	117	75	C18603	**C18687
21/64		.3281	4-5/8	3-5/16	C18447	C18647
Q		.3320	4-3/4	3-7/16	C18485	—
	8.50	.3346	117	75	C18604	**C18688
	8.70	.3425	125	81	C18605	—
11/32		.3438	4-3/4	3-7/16	C18459	C18648
	9.00	.3543	125	81	C18606	**C18689
23/64		.3594	4-7/8	3-1/2	C18449	C18649
	9.40	.3701	125	81	C18607	—
	9.50	.3740	125	81	C18608	**C18690
3/8		.3750	5	3-5/8	C18450	C18650
25/64		.3906	5-1/8	3-3/4	C18451	C18651
	10.00	.3937	133	87	C18609	**C18697
	10.20	.4016	133	87	C18610	—
13/32		.4062	5-1/4	3-7/8	C18452	C18652

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\*\*Parts only available until inventory is depleted.

drill diameter		decimal equivalent	overall length	flute length	order number	
frac/wire/let	mm				1872 Black & Gold	1872TN TiN
27/64	10.50	.4134	133	87	C18611	**C18691
		.4219	5-3/8	3-15/16	C18453	C18653
7/16	10.80	.4252	142	94	C18612	—
	11.00	.4331	142	94	C18613	**C18692
29/64	11.20	.4375	5-1/2	4-1/16	C18454	C18654
	11.50	.4409	142	94	C18614	—
15/32		.4528	142	94	C18615	**C18693
		.4531	5-5/8	4-3/16	C18455	C18655
31/64	12.00	.4688	5-3/4	4-5/16	C18456	C18656
		.4724	151	101	C18616	**C18694
1/2	12.50	.4844	5-7/8	4-3/8	C18457	C18657
		.4921	151	101	C18617	**C18695
	13.00	.5000	6	4-1/2	C18458	C18658
		.5118	151	101	C18618	**C18696

\*\*Parts only available until inventory is depleted.

Style: **1873**

**Jobber**  
3/8" Reduced Shank

**Note**

Faster penetration rates than conventional HSS heavy duty jobber drills.



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

SET

Styles: **1872, 1872TN, 1873**

**Jobber Sets**  
Heavy Duty Parabolic Flute



29-Piece Set  
Black & Gold  
#C18622

drill sizes	no. of pieces	order number		
		1872 Black & Gold	1872TN TiN	1872 / 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	—

\*\*Parts only available until inventory is depleted.

General Application Drills



**Jobber**  
Hex Shank, Cobalt

Style: **1804**



**Note**

\*11/64" and smaller have a straight shank with no flats.  
3/16" and larger have a straight shank with 6 flats.



HOLEMAKING

drill diameter	decimal equivalent	overall length	flat length	order number <b>1804</b> straw
*1/16	.0625	1.875	—	C10600
*5/64	.0781	2.000	—	C10601
*3/32	.0938	2.250	—	C10602
*7/64	.1094	2.625	—	C10603
*1/8	.1250	2.750	—	C10604
*9/64	.1406	2.875	—	C10605
*5/32	.1562	3.125	—	C10606
*11/64	.1719	3.250	—	C10607
3/16	.1875	3.500	1.125	C10608
13/64	.2031	3.625	1.125	C10609
7/32	.2188	3.750	1.125	C10610
15/64	.2344	3.875	1.125	C10611
1/4	.2500	4.000	1.125	C10612
17/64	.2656	4.125	1.125	C10613
9/32	.2812	4.250	1.125	C10614
19/64	.2969	4.375	1.125	C10615
5/16	.3125	4.500	1.125	C10616
21/64	.3281	4.625	1.125	C10617
11/32	.3438	4.750	1.125	C10618
23/64	.3594	4.875	1.125	C10619
3/8	.3750	5.000	1.125	C10620
25/64	.3906	5.125	1.125	C10621
13/32	.4062	5.250	1.125	C10622
27/64	.4219	5.375	1.125	C10623
7/16	.4375	5.500	1.125	C10624
29/64	.4531	5.625	1.125	C10625
15/32	.4688	5.750	1.125	C10626
31/64	.4844	5.875	1.125	C10627
1/2	.5000	6.000	1.125	C10628

**Jobber**  
Hex Shank, Cobalt

SET

Style: **1804**

Bit Barrel



drill sizes	no. of pieces	order number <b>1804</b> straw
1/16"– 1/2" x 1/64"	29	C10629



**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.

Style 1891 (Metric) now combined with style 1802.



**HOLEMAKING**

drill diameter		decimal equivalent	overall length	flute length	order number	
frac/wire/let	mm				1603 Straw Oxide	1802 Straw Oxide
	*1.00	.0394	34	12	—	C18900
*60		.0400	1-5/8	11/16	C68460	C23374
*59		.0410	1-5/8	11/16	C68459	C23375
*58		.0420	1-5/8	11/16	C68458	C23376
*57		.0430	1-3/4	3/4	C68457	C23377
*56		.0465	1-3/4	3/4	C68456	C23378
	*1.20	.0472	38	16	—	C18902
*55		.0520	1-7/8	7/8	C68455	C23379
*54		.0550	1-7/8	7/8	C68454	C23380
	*1.50	.0591	40	18	—	C18905
*53		.0595	1-7/8	7/8	C68453	C23381
1/16		.0625	1-7/8	7/8	C68344	C23345
	1.60	.0630	43	20	—	C18906
52		.0635	1-7/8	7/8	C68452	C23382
51		.0670	2	1	C68451	C23383
50		.0700	2	1	C68450	C23384
49		.0730	2	1	C68449	C23385
48		.0760	2	1	C68448	C23386
5/64		.0781	2	1	C68345	C23346
47		.0785	2	1	C68447	C23387
	2.00	.0787	49	24	—	C18910
46		.0810	2-1/8	1-1/8	C68446	C23388
45		.0820	2-1/8	1-1/8	C68445	C23389
44		.0860	2-1/8	1-1/8	C68444	C23390
43		.0890	2-1/4	1-1/4	C68443	C23391
42		.0935	2-1/4	1-1/4	C68442	C23392
3/32		.0938	2-1/4	1-1/4	C68346	C23347
	2.40	.0945	57	30	—	C18914
41		.0960	2-3/8	1-3/8	C68441	C23393
40		.0980	2-3/8	1-3/8	C68440	C23394
	2.50	.0984	57	30	—	C18915
39		.0995	2-3/8	1-3/8	C68439	C23395
38		.1015	2-1/2	1-7/16	C68438	C23396
37		.1040	2-1/2	1-7/16	C68437	C23397
36		.1065	2-1/2	1-7/16	C68436	C23398
7/64		.1094	2-5/8	1-1/2	C68347	C23348
35		.1100	2-5/8	1-1/2	C68435	C23399
	2.80	.1102	61	33	—	C18918
34		.1110	2-5/8	1-1/2	C68434	C23400
33		.1130	2-5/8	1-1/2	C68433	C23401
32		.1160	2-3/4	1-5/8	C68432	C23402
	3.00	.1181	61	33	—	C18920
31		.1200	2-3/4	1-5/8	C68431	C23403
	3.10	.1220	65	36	—	C18921
1/8		.1250	2-3/4	1-5/8	C68351	C23349
	3.20	.1260	65	36	—	C18922

\*Not split point.

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**HOLEMAKING**

drill diameter		decimal equivalent	overall length	flute length	order number	
frac/wire/let	mm				1603 Straw Oxide	1802 Straw Oxide
30		.1285	2-3/4	1-5/8	C68430	C23404
	3.30	.1299	65	36	—	C18923
29		.1360	2-7/8	1-3/4	C68429	C23405
	3.50	.1378	70	39	—	C18925
28		.1405	2-7/8	1-3/4	C68428	C23406
9/64		.1406	2-7/8	1-3/4	C68352	C23350
	3.60	.1417	70	39	—	C18926
27		.1440	3	1-7/8	C68427	C23407
	3.70	.1457	70	39	—	C18927
26		.1470	3	1-7/8	C68426	C23408
25		.1495	3	1-7/8	C68425	C23409
24		.1520	3-1/8	2	C68424	C23410
	3.90	.1535	75	43	—	C18929
23		.1540	3-1/8	2	C68423	C23411
5/32		.1562	3-1/8	2	C68353	C23351
22		.1570	3-1/8	2	C68422	C23412
	4.00	.1575	75	43	—	C18930
21		.1590	3-1/4	2-1/8	C68421	C23413
20		.1610	3-1/4	2-1/8	C68420	C23414
	4.10	.1614	75	43	—	C18931
	4.20	.1654	75	43	—	C18932
19		.1660	3-1/4	2-1/8	C68419	C23415
18		.1695	3-1/4	2-1/8	C68418	C23416
11/64		.1719	3-1/4	2-1/8	C68354	C23352
17		.1730	3-3/8	2-3/16	C68417	C23417
16		.1770	3-3/8	2-3/16	C68416	C23418
	4.50	.1772	80	47	—	C18935
15		.1800	3-3/8	2-3/16	C68415	C23419
	4.60	.1811	80	47	—	C18936
14		.1820	3-3/8	2-3/16	C68414	C23420
13		.1850	3-1/2	2-5/16	C68413	C23421
3/16		.1875	3-1/2	2-5/16	C68355	C23353
12		.1890	3-1/2	2-5/16	C68412	C23422
	4.80	.1890	86	52	—	C18938
11		.1910	3-1/2	2-5/16	C68411	C23423
	4.90	.1929	86	52	—	C18939
10		.1935	3-5/8	2-7/16	C68410	C23424
9		.1960	3-5/8	2-7/16	C68409	C23425
	5.00	.1969	86	52	—	C18940
8		.1990	3-5/8	2-7/16	C68408	C23426
	5.10	.2008	86	52	—	C18941
7		.2010	3-5/8	2-7/16	C68407	C23427
13/64		.2031	3-5/8	2-7/16	C68356	C23354
6		.2040	3-3/4	2-1/2	C68406	C23428
	5.20	.2047	86	52	—	C18942
5		.2055	3-3/4	2-1/2	C68405	C23429
4		.2090	3-3/4	2-1/2	C68404	C23430
3		.2130	3-3/4	2-1/2	C68403	C23431
	5.50	.2165	93	57	—	C18945
7/32		.2188	3-3/4	2-1/2	C68357	C23355
2		.2210	3-7/8	2-5/8	C68402	C23432
1		.2280	3-7/8	2-5/8	C68401	C23433
A		.2340	3-7/8	2-5/8	C68376	C23320
15/64		.2344	3-7/8	2-5/8	C68358	C23356
	6.00	.2362	93	57	—	C18950
B		.2380	4	2-3/4	C68377	C23321

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drill diameter		decimal equivalent	overall length	flute length	order number	
frac/wire/let	mm				1603 Straw Oxide	1802 Straw Oxide
C		.2420	4	2-3/4	C68378	C23322
D		.2460	4	2-3/4	C68379	C23323
1/4, E		.2500	4	2-3/4	C68359	C23357
	6.50	.2559	101	63	—	C18955
F		.2570	4-1/8	2-7/8	C68380	C23324
G		.2610	4-1/8	2-7/8	C68381	C23325
17/64		.2656	4-1/8	2-7/8	C68360	C23358
H		.2660	4-1/8	2-7/8	C68382	C23326
	6.80	.2677	109	69	—	C18958
I		.2720	4-1/8	2-7/8	C68383	C23327
	7.00	.2756	109	69	—	C18960
J		.2770	4-1/8	2-7/8	C68384	C23328
K		.2810	4-1/4	2-15/16	C68385	C23329
9/32		.2812	4-1/4	2-15/16	C68361	C23359
L		.2900	4-1/4	2-15/16	C68386	C23330
M		.2950	4-3/8	3-1/16	C68387	—
	7.50	.2953	109	69	—	C18965
19/64		.2969	4-3/8	3-1/16	C68362	C23360
N		.3020	4-3/8	3-1/16	C68388	—
5/16		.3125	4-1/2	3-3/16	C68363	C23361
	8.00	.3150	117	75	—	C18970
O		.3160	4-1/2	3-3/16	C68389	—
P		.3230	4-5/8	3-5/16	C68390	—
21/64		.3281	4-5/8	3-5/16	C68364	C23362
Q		.3320	4-3/4	3-7/16	C68391	C23335
	8.50	.3346	117	75	—	C18975
R		.3390	4-3/4	3-7/16	C68392	C23336
11/32		.3438	4-3/4	3-7/16	C68365	C23363
S		.3480	4-7/8	3-1/2	C68393	—
	9.00	.3543	125	81	—	C18980
T		.3580	4-7/8	3-1/2	C68394	—
23/64		.3594	4-7/8	3-1/2	C68366	C23364
U		.3680	5	3-5/8	C68395	C23339
	9.50	.3740	125	81	—	C18985
3/8		.3750	5	3-5/8	C68367	C23365
V		.3770	5	3-5/8	C68396	C23340
W		.3860	5-1/8	3-3/4	C68397	C23341
25/64		.3906	5-1/8	3-3/4	C68368	C23366
	10.00	.3937	133	87	—	C18990
X		.3970	5-1/8	3-3/4	C68398	—
	10.20	.4016	133	87	—	C18991
Y		.4040	5-1/4	3-3/4	C68399	—
13/32		.4062	5-1/4	3-7/8	C68369	C23367
Z		.4130	5-1/4	3-7/8	C68400	—
	10.50	.4134	133	87	—	C18992
27/64		.4219	5-3/8	3-15/16	C68370	C23368
	11.00	.4331	142	94	—	C18993
7/16		.4375	5-1/2	4-1/16	C68371	C23369
	11.50	.4528	142	94	—	C18995
29/64		.4531	5-5/8	4-3/16	C68372	C23370
15/32		.4688	5-3/4	4-5/16	C68373	C23371
	12.00	.4724	151	101	—	C18996
31/64		.4844	5-7/8	4-3/8	C68374	C23372
	12.50	.4921	151	101	—	C18998
1/2		.5000	6	4-1/2	C68375	C23373
	13.00	.5118	151	101	—	C18999

## General Application Drills



**Jobber**  
Cobalt Heavy Duty

Style: **1812**



HOLEMAKING

**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 equivalent	overall length	flute length	order number <b>1812</b> Straw Oxide
25/64	.3906	5-1/8	3-3/4	C20651
13/32	.4063	5-1/4	3-7/8	C20652
27/64	.4219	5-3/8	3-15/16	C20653
7/16	.4375	5-1/2	4-1/16	C20654
29/64	.4531	5-5/8	4-3/16	C20655
15/32	.4688	5-3/4	4-5/16	C20656
31/64	.4844	5-7/8	4-3/8	C20657
1/2	.5000	6	4-1/2	C20658

**Jobber Sets**  
Cobalt Heavy Duty

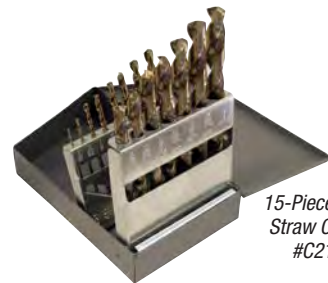
SET

Styles: **1603, 1802**

Metal Case (unless noted otherwise)

drill size	no. of pieces	order number	
		<b>1603</b> Straw Oxide	<b>1802</b> 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

\*Plastic Case



15-Piece Set  
Straw Oxide  
#C21112



**Note**  
Three flats on sizes above 11/64" for tighter chucking.  
For Reduced Shank see Style #1876.



**HOLEMAKING**

drill diameter	decimal equivalent	overall length	flute length	order number		
				1620 Black & Gold	1875R Black & Gold	1875L Black & Gold
*1/16	.0625	1-7/8	7/8	C68462	C23830	C23701
*5/64	.0781	2	1	C68463	C23831	—
*3/32	.0938	2-1/4	1-1/4	C68464	C23832	—
*7/64	.1094	2-3/8	1-5/16	C68465	C23833	—
*1/8	.1250	2-1/2	1-7/16	C68466	C23834	C23702
*9/64	.1406	2-5/8	1-9/16	C68467	C23835	—
*5/32	.1562	2-3/4	1-11/16	C68468	C23836	—
*11/64	.1719	2-7/8	1-13/16	C68469	C23837	—
3/16	.1875	3	1-7/8	C68470	C23838	C23703
13/64	.2031	3-1/8	1-15/16	C68471	C23839	—
7/32	.2188	3-1/4	2	C68472	C23840	—
15/64	.2344	3-3/8	2-1/16	C68473	C23841	—
1/4	.2500	3-1/2	2	C68474	C23842	C23704
17/64	.2656	3-5/8	2-1/8	C68475	C23843	—
9/32	.2812	3-3/4	2-1/4	C68476	C23844	—
19/64	.2969	3-7/8	2-3/8	C68477	C23845	—
5/16	.3125	4	2-1/2	C68478	C23846	C23706
21/64	.3281	4-1/16	2-9/16	C68479	C23847	—
11/32	.3438	4-1/8	2-5/8	C68480	C23848	—
23/64	.3594	4-3/16	2-11/16	C68481	C23849	—
3/8	.3750	4-1/4	2-11/16	C68482	C23850	C23707
**25/64	.3906	4-5/16	2-3/4	C68483	C23851	—
**13/32	.4062	4-3/8	2-13/16	C68484	C23852	—
27/64	.4219	4-7/16	2-7/8	C68485	C23853	—
7/16	.4375	4-1/2	2-15/16	C68486	C23854	C23708
29/64	.4531	4-5/8	3	C68487	C23855	—
15/32	.4688	4-3/4	3-1/8	C68488	C23856	—
31/64	.4844	4-7/8	3-1/4	C68489	C23857	—
1/2	.5000	5	3-3/8	C68490	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.

**Mechanics Length**  
3/8" Reduced Shank

**General Application Drills**



**Style: 1876**



**HOLEMAKING**

drill diameter	decimal equivalent	overall length	flute length	order number
27/64	.4219	4-7/16	2-7/8	<b>1876</b> Black & Gold C23860
7/16	.4375	4-1/2	2-15/16	C23861
29/64	.4531	4-5/8	3	C23862
15/32	.4688	4-3/4	3-1/8	C23863
31/64	.4844	4-7/8	3-1/4	C23864
1/2	.5000	5	3-3/8	C23865

**Mechanics Length Sets**  
Heavy Duty

**SET**

**Styles: 1620, 1875R, 1875L**

Metal unless noted below



drill sizes	no. of pieces	order number					
		1620 Black & Gold	Bit Barrel™ 1620 Black & Gold	1875R Black & Gold	Bit Barrel™ 1875R Black & Gold	Plastic Tube 1875R Black & Gold	3/8" Shank 1875/1876 Black & Gold
1/16" - 1/4" x 1/64"	13	C69029		C18126	-	-	-
1/16" - 3/8" x 1/64"	21			C21161	-	-	-
1/16" - 1/2" x 1/64"	29	**C69041	**C69384	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	-

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

\*\*Plastic Case



**Note**  
Superior rigidity in portable drilling.



HOLEMAKING

drill diameter	decimal equivalent	overall length	flute length	order number 1880 Straw Oxide
5/64	.0781	2	1	C30505
7/64	.1094	2-3/16	1	C30507
1/8	.1250	2-1/4	1-1/16	C30508
5/32	.1562	2-9/16	1-1/4	C30510
3/16	.1875	2-7/8	1-1/2	C30512
7/32	.2188	3-1/8	1-5/8	C30514
1/4	.2500	3-5/16	1-3/4	C30516
9/32	.2812	3-9/16	2	C30518
19/64	.2969	3-5/8	2-1/16	C30519
5/16	.3125	3-3/4	2-1/8	C30520
11/32	.3438	3-15/16	2-1/4	C30522
3/8	.3750	4-1/8	2-3/8	C30524
13/32	.4063	4-3/8	2-1/2	C30526
7/16	.4375	4-9/16	2-5/8	C30528
15/32	.4688	4-3/4	2-3/4	C30530
1/2	.5000	5	2-7/8	C30532



**Screw Machine Length**  
Heavy Duty

**General Application Drills**



Styles: **1621, 1896**



**Note**  
Superior rigidity in hand or machine drilling.



HOLEMAKING

drill diameter		decimal equivalent	overall length	flute length	order number	
frac/wire/let	mm				1621 Black Oxide	1896 Black Oxide
	*1.00	.0394	26	6	—	C23885
*60		.0400	1-3/8	1/2	—	C23500
*59		.0410	1-3/8	1/2	—	C23501
*58		.0420	1-3/8	1/2	—	C23502
*57		.0430	1-3/8	1/2	—	C23503
*56		.0465	1-3/8	1/2	—	C23504
	*1.25	.0492	30	8	—	C23886
*55		.0520	1-5/8	5/8	—	C23505
*54		.0550	1-5/8	5/8	—	C23506
	*1.50	.0591	32	9	—	C23887
*53		.0595	1-5/8	5/8	—	C23507
1/16		.0625	1-5/8	5/8	C68491	C23460
52		.0635	1-11/16	11/16	—	C23508
51		.0670	1-11/16	11/16	—	C23509
50		.0700	1-11/16	11/16	—	C23510
	1.80	.0709	36	11	—	C24018
49		.0730	1-11/16	11/16	—	C23511
48		.0760	1-11/16	11/16	—	C23512
5/64		.0781	1-11/16	11/16	C68492	C23461
47		.0785	1-3/4	3/4	—	C23513
	2.00	.0787	38	12	—	C23888
46		.0810	1-3/4	3/4	—	C23514
45		.0820	1-3/4	3/4	—	C23515
44		.0860	1-3/4	3/4	—	C23516
	2.20	.0866	40	13	—	C23889
43		.0890	1-3/4	3/4	—	C23517
	2.30	.0906	40	13	—	C23890
42		.0935	1-3/4	3/4	—	C23518
3/32		.0938	1-3/4	3/4	C68493	C23462
	2.40	.0945	43	14	—	C23891
41		.0960	1-13/16	13/16	—	C23519
40		.0980	1-13/16	13/16	—	C23520
	2.50	.0984	43	14	—	C23892
39		.0995	1-13/16	13/16	—	C23521
38		.1015	1-13/16	13/16	—	C23522
	2.60	.1024	43	14	—	C23893
37		.1040	1-13/16	13/16	—	C23523
36		.1065	1-13/16	13/16	—	C23524
7/64		.1094	1-13/16	13/16	C68494	C23463
35		.1100	1-7/8	7/8	—	C23525
	2.80	.1102	46	16	—	C23894

\*Not split point.

continued on next page

drill diameter		decimal equivalent	overall length	flute length	order number	
frac/wire/let	mm				1621 Black Oxide	1896 Black Oxide
34		.1110	1-7/8	7/8	—	C23526
33		.1130	1-7/8	7/8	—	C23527
32		.1160	1-7/8	7/8	—	C23528
	3.00	.1181	46	16	—	C23895
31		.1200	1-7/8	7/8	—	C23529
	3.10	.1220	49	18	—	C23896
1/8		.1250	1-7/8	7/8	C68495	C23464
	3.20	.1260	49	18	—	C23898
30		.1285	1-15/16	15/16	—	C23530
	3.30	.1299	49	18	—	C23899
	3.40	.1339	52	20	—	C23900
29		.1360	1-15/16	15/16	—	C23531
	3.50	.1378	52	20	—	C23901
28		.1405	1-15/16	15/16	—	C23532
9/64		.1406	1-15/16	15/16	C68496	C23465
	3.60	.1417	52	20	—	C24036
27		.1440	2-1/16	1	—	C23533
	3.70	.1457	52	20	—	C23902
26		.1470	2-1/16	1	—	C23534
25		.1495	2-1/16	1	—	C23535
	3.80	.1496	55	22	—	C23903
24		.1520	2-1/16	1	—	C23536
23		.1540	2-1/16	1	—	C23537
5/32		.1562	2-1/16	1	C68497	C23466
22		.1570	2-1/8	1-1/16	—	C23538
	4.00	.1575	55	22	—	C23904
21		.1590	2-1/8	1-1/16	—	C23539
20		.1610	2-1/8	1-1/16	—	C23540
	4.10	.1614	55	22	—	C23905
	4.20	.1654	55	22	—	C23906
19		.1660	2-1/8	1-1/16	—	C23541
	4.30	.1693	58	24	—	C23907
18		.1695	2-1/8	1-1/16	—	C23542
11/64		.1719	2-1/8	1-1/16	C68498	C23467
17		.1730	2-3/16	1-1/8	—	C23543
16		.1770	2-3/16	1-1/8	—	C23544
	4.50	.1772	58	24	—	C23908
15		.1800	2-3/16	1-1/8	—	C23545
	4.60	.1811	58	24	—	C23909
14		.1820	2-3/16	1-1/8	—	C23546
13		.1850	2-3/16	1-1/8	—	C23547
	4.70	.1850	58	24	—	C23910
3/16		.1875	2-3/16	1-1/8	C68499	C23468
12		.1890	2-1/4	1-3/16	—	C23548
	4.80	.1890	62	26	—	C23911
11		.1910	2-1/4	1-3/16	—	C23549
	4.90	.1929	62	26	—	C23912
10		.1935	2-1/4	1-3/16	—	C23550
9		.1960	2-1/4	1-3/16	—	C23551
	5.00	.1969	62	26	—	C23913
8		.1990	2-1/4	1-3/16	—	C23552

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drill diameter		decimal equivalent	overall length	flute length	order number	
frac/wire/let	mm				1621 Black Oxide	1896 Black Oxide
	5.10	.2008	62	26	—	C23914
7		.2010	2-1/4	1-3/16	—	C23553
13/64		.2031	2-1/4	1-3/16	C68500	C23469
6		.2040	2-3/8	1-1/4	—	C23554
	5.20	.2047	62	26	—	C23915
5		.2055	2-3/8	1-1/4	—	C23555
	5.30	.2087	62	26	—	C23916
4		.2090	2-3/8	1-1/4	—	C23556
3		.2130	2-3/8	1-1/4	—	C23557
	5.50	.2165	66	28	—	C23917
7/32		.2188	2-3/8	1-1/4	C68501	C23470
	5.60	.2205	66	28	—	C23918
2		.2210	2-7/16	1-5/16	—	C23558
	5.70	.2244	66	28	—	C23919
1		.2280	2-7/16	1-5/16	—	C23559
	5.80	.2283	66	28	—	C24058
A		.2340	2-7/16	1-5/16	—	C24060
15/64		.2344	2-7/16	1-5/16	C68502	C23471
	6.00	.2362	66	28	—	C23920
B		.2380	2-1/2	1-3/8	—	C24061
	6.10	.2402	70	31	—	C23921
C		.2420	2-1/2	1-3/8	—	C24062
D		.2460	2-1/2	1-3/8	—	C24063
	6.30	.2480	70	31	—	C23922
1/4-E		.2500	2-1/2	1-3/8	C68503	C23472
	6.50	.2559	70	31	—	C23923
F		.2570	2-5/8	1-7/16	—	C24064
	6.60	.2598	70	31	—	C23924
G		.2610	2-5/8	1-7/16	—	C24065
17/64		.2656	2-5/8	1-7/16	C68504	C23473
H		.2660	2-11/16	1-1/2	—	C24066
	6.80	.2677	74	34	—	C23925
	6.90	.2717	74	34	—	C23926
I		.2720	2-11/16	1-1/2	—	C24067
	7.00	.2756	74	34	—	C23927
J		.2770	2-11/16	1-1/2	—	C24068
K		.2810	2-11/16	1-1/2	—	C24069
9/32		.2812	2-11/16	1-1/2	C68505	C23474
	7.20	.2835	74	34	—	C23928
	7.30	.2874	74	34	—	C23929
L		.2900	2-3/4	1-9/16	—	C24070
M		.2950	2-3/4	1-9/16	—	C24071
	7.50	.2953	74	34	—	C23930
19/64		.2969	2-3/4	1-9/16	C68506	C23475
N		.3020	2-13/16	1-5/8	—	C24072
5/16		.3125	2-13/16	1-5/8	C68507	C23476
	8.00	.3150	79	37	—	C23931
O		.3160	2-15/16	1-11/16	—	C24073
P		.3230	2-15/16	1-11/16	—	C24074
21/64		.3281	2-15/16	1-11/16	C68508	C23477
Q		.3320	3	1-11/16	—	C24075

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drill diameter frac/wire/let	mm	decimal equivalent	overall length	flute length	order number	
					<b>1621</b> Black Oxide	<b>1896</b> Black Oxide
	8.50	.3346	79	37	—	C23932
R		.3390	3	1-11/16	—	C24076
11/32		.3438	3	1-11/16	C68509	C23478
S		.3480	3-1/16	1-3/4	—	C24077
	9.00	.3543	84	40	—	C23933
T		.3580	3-1/16	1-3/4	—	C24078
23/64		.3594	3-1/16	1-3/4	C68510	C23479
U		.3680	3-1/8	1-13/16	—	C24079
	9.50	.3740	84	40	—	C23934
3/8		.3750	3-1/8	1-13/16	C68511	C23480
V		.3770	3-1/4	1-7/8	—	C24080
W		.3860	3-1/4	1-7/8	—	C24081
25/64		.3906	3-1/4	1-7/8	C68512	C23481
	10.00	.3937	89	43	—	C23935
X		.3970	3-5/16	1-15/16	—	C24082
	10.20	.4016	89	43	—	C23936
Y		.4040	3-5/16	1-15/16	—	C24083
13/32		.4062	3-5/16	1-15/16	C68513	C23482
Z		.4130	3-3/8	2	—	
	10.50	.4134	89	43	—	C23937
27/64		.4219	3-3/8	2	C68514	C23483
	11.00	.4331	95	47	—	C23938
7/16		.4375	3-7/16	2-1/16	C68515	C23484
	11.50	.4528	95	47	—	C23939
29/64		.4531	3-9/16	2-1/8	C68516	C23485
15/32		.4688	3-5/8	2-1/8	C68517	C23486
	12.00	.4724	102	51	—	C23940
	12.20	.4803	102	51	—	C23941
31/64		.4844	3-11/16	2-3/16	C68518	C23487
	12.50	.4921	102	51	—	C23942
1/2		.5000	3-3/4	2-1/4	C68519	C23488
	13.00	.5118	102	51	—	C23943
	13.50	.5315	107	54	—	C23964
	14.00	.5512	107	54	—	C23965
	14.50	.5709	111	56	—	C23966
	15.00	.5906	111	56	—	C23967
	16.00	.6299	115	58	—	C23969
	17.00	.6693	119	60	—	C23971

SET

Style: **1896**

Screw Machine Length  
- Sets Heavy Duty

Metal Case



60-Piece Set  
Black Oxide  
#C21947

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

**Extended Length**  
Aircraft Extension 6" and 12"

**General Application Drills**

Styles: **1630, 1631, 1803, 1805**



**Note**  
Superior rigidity in hand  
or machine drilling.

ASME B94.11M HSS Black Oxide 135° Split Helix Regular 21° to 34° Straight Shank



6" OAL Black Oxide





12" OAL Black Oxide

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

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HOLEMAKING



drill diameter	decimal equivalent	flute length	order number			
			 <b>1630</b> 6" Overall	 <b>1631</b> 12" Overall	<b>1803</b> 6" Overall	<b>1805</b> 12" Overall
3/16	.1875	2-5/16	C68875	C68944	C23629	C23729
12	.1890	2-5/16	C68907	C68976	C23672	C23772
11	.1910	2-5/16	C68906	C68975	C23671	C23771
10	.1935	2-7/16	C68905	C68974	C23670	C23770
9	.1960	2-7/16	C68904	C68973	C23669	C23769
8	.1990	2-7/16	C68903	C68972	C23668	C23768
7	.2010	2-7/16	C68902	C68971	C23667	C23767
13/64	.2031	2-7/16	C68876	C68945	C23630	C23730
6	.2040	2-1/2	C68901	C68970	C23666	C23766
5	.2055	2-1/2	C68900	C68969	C23665	C23765
4	.2090	2-1/2	C68899	C68968	C23664	C23764
3	.2130	2-1/2	C68898	C68967	C23663	C23763
7/32	.2188	2-1/2	C68877	C68946	C23631	C23731
2	.2210	2-5/8	C68897	C68966	C23662	C23762
1	.2280	2-5/8	C68896	C68965	C23661	C23761
15/64	.2344	2-5/8	C68878	C68947	C23632	C23732
1/4, E	.2500	2-3/4	C68879	C68948	C23633	C23733
17/64	.2656	2-5/8	C68880	C68949	C23634	C23734
9/32	.2812	3-1/16	C68881	C68950	C23635	C23735
19/64	.2969	3-1/16	C68882	C68951	C23636	C23736
5/16	.3125	3-3/16	C68883	C68952	C23637	C23737
21/64	.3281	3-7/16	C68884	C68953	C23638	C23738
11/32	.3438	3-7/16	C68885	C68954	C23639	C23739
23/64	.3594	3-1/2	C68886	C68955	C23640	C23740
3/8	.3750	3-5/8	C68887	C68956	C23641	C23741
25/64	.3906	3-3/4	C68888	C68957	C23642	C23742
13/32	.4062	3-3/4	C68889	C68958	C23643	C23743
27/64	.4219	3-15/16	C68890	C68959	C23644	C23744
7/16	.4375	4-1/16	C68891	C68960	C23645	C23745
29/64	.4531	4-3/16	C68892	C68961	—	C23746
15/32	.4688	4-5/6	C68893	C68962	—	—
31/64	.4844	4-3/8	C68894	C68963	—	—
1/2	.5000	4-1/2	C68895	C68964	C23649	C23749

**Extra Length**  
Extended 12", and 18"

**General Application Drills**



**Styles: 1806, 1807**



**HOLEMAKING**



drill diameter	decimal equivalent	order number	
		1806 9" Flute Length 12" Overall Length	1807 14" Flute Length 18" Overall Length
1/8	.1250	C20436	—
5/32	.1562	C20438	—
3/16	.1875	C20440	—
7/32	.2188	C20442	—
1/4	.2500	C20444	C20481
9/32	.2812	C20446	C20483
5/16	.3125	C20448	C20485
11/32	.3438	C20450	C20487
3/8	.3750	C20452	C20489
13/32	.4062	C20454	C20491
7/16	.4375	C20456	C20493
15/32	.4688	C20458	C20495
1/2	.5000	C20460	C20497
17/32	.5313	C20462	—
9/16	.5625	C20464	—
19/32	.5938	C20466	—
5/8	.6250	C20468	—
21/32	.6563	C20470	—
11/16	.6875	C20472	—
3/4	.7500	C24746	—



HOLEMAKING

drill diameter		decimal equivalent	overall length	flute length	morse taper number	order number	
fraction	mm					1682 Black Oxide	1894 Black Oxide
1/8		.1250	5-1/8	1-7/8	1	—	C20049
9/64		.1406	5-1/8	1-7/8	1	—	C20050
5/32		.1562	5-3/8	2-1/8	1	—	C20051
11/64		.1719	5-3/4	2-1/2	1	—	C20052
3/16		.1875	5-3/4	2-1/2	1	—	C20053
13/64		.2031	6	2-3/4	1	—	C20054
7/32		.2188	6	2-3/4	1	—	C20055
15/64		.2344	6-1/8	2-7/8	1	—	C20056
1/4		.2500	6-1/8	2-7/8	1	—	C20057
17/64		.2656	6-1/4	3	1	—	C20058
9/32		.2812	6-1/4	3	1	—	C20059
19/64		.2969	6-3/8	3-1/8	1	—	C20060
5/16		.3125	6-3/8	3-1/8	1	C68779	C20061
21/64		.3281	6-1/2	3-1/4	1	C68780	C20062
11/32		.3438	6-1/2	3-1/4	1	C68781	C20063
23/64		.3594	6-3/4	3-1/2	1	C68782	C20064
3/8		.3750	6-3/4	3-1/2	1	C68794	C20524
3/8		.3750	7-3/8	3-1/2	2	C68738	C20020
25/64		.3906	7	3-5/8	1	C68795	C20525
25/64		.3906	7	3-5/8	2	C68739	—
13/32		.4062	7	3-5/8	1	C68796	C20526
13/32		.4063	7-1/2	3-5/8	2	C68740	C20022
	10.50	.4134	165	85	1	C21950	—
27/64		.4219	7-1/4	3-7/8	1	C68797	C20527
27/64		.4219	7-3/4	3-7/8	2	C68741	—
7/16		.4375	7-1/4	3-7/8	1	C68798	C20528
7/16		.4375	7-3/4	3-7/8	2	C68742	C20024
29/64		.4531	7-1/2	4-1/8	1	C68799	C20529
29/64		.4531	8	4-1/8	2	C68743	—
15/32		.4688	7-1/2	4-1/8	1	C68800	C20530
31/64		.4844	8-1/4	4-3/8	2	C68801	C24730
	12.50	.4921	182	101	1	C21951	—
1/2		.5000	7-3/4	4-3/8	1	C68744	C20026
1/2		.5000	8-1/4	4-3/8	2	C68802	C24731
	12.80	.5039	182	101	1	C21952	—
33/64		.5156	8-1/2	4-5/8	2	C68803	C24732
17/32		.5312	8	4-5/8	1	C68745	—
17/32		.5312	8-1/2	4-5/8	2	C68804	C24733
	13.75	.5413	189	108	1	C21953	—
35/64		.5469	8-3/4	4-7/8	2	C68805	C20535
9/16		.5625	8-3/4	4-7/8	2	C68806	C24734
37/64		.5781	8-3/4	4-7/8	2	C68807	C24735
19/32		.5938	8-3/4	4-7/8	2	C68808	C24736
	15.25	.6004	218	120	2	C21954	—
39/64		.6094	8-3/4	4-7/8	2	C68809	C24737
5/8		.6250	8-3/4	4-7/8	2	C68810	C20540
	16.25	.6398	223	125	2	C21955	—
41/64		.6406	9	5-1/8	2	C68811	C24738

continued on next page

drill diameter		decimal equivalent	overall length	flute length	morse taper number	order number	
fraction	mm					1682 Black Oxide	1894 Black Oxide
21/32		.6562	9	5-1/8	2	C68812	C24739
21/32		.6562	9-3/4	5-1/8	3	C68746	—
43/64		.6719	9-1/4	5-3/8	2	C68813	C20543
11/16		.6875	9-1/4	5-3/8	2	C68814	C24740
11/16		.6875	10	5-3/8	3	C68747	C20029
45/64		.7031	9-1/2	5-5/8	2	C68815	C20545
23/32		.7188	9-1/2	5-5/8	2	C68816	C24741
	18.50	.7283	233	135	2	C21956	—
47/64		.7344	9-3/4	5-7/8	2	C68817	C24742
3/4		.7500	9-3/4	5-7/8	2	C68818	C24743
3/4		.7500	10-1/2	5-7/8	3	C68748	C20030
	19.25	.7579	238	140	2	C21957	—
49/64		.7656	9-7/8	6	2	C68819	C20549
49/64		.7656	10-5/8	6	3	C68749	—
	19.50	.7677	238	140	2	C21958	—
25/32		.7812	9-7/8	6	2	C68820	C20550
25/32		.7812	10-5/8	6	3	C68750	—
51/64		.7969	10-3/4	6-1/8	3	C68821	C20551
	20.50	.8071	243	145	2	C21959	—
13/16		.8125	10	6-1/8	2	C68751	—
13/16		.8125	10-3/4	6-1/8	3	C68822	C20552
53/64		.8281	10-3/4	6-1/8	3	C68823	C20553
27/32		.8438	10	6-1/8	2	C68752	—
27/32		.8438	10-3/4	6-1/8	3	C68824	C20554
	21.50	.8465	248	150	2	C21960	—
55/64		.8594	10-3/4	6-1/8	3	C68825	C20555
7/8		.8750	10	6-1/8	2	C68753	C20035
7/8		.8750	10-3/4	6-1/8	3	C68826	C20556
	22.50	.8858	253	155	2	C21961	—
57/64		.8906	10-3/4	6-1/8	3	C68827	C20557
	23.00	.9055	253	155	2	C21962	—
29/32		.9062	10-3/4	6-1/8	3	C68828	C20558
59/64		.9219	10-3/4	6-1/8	3	C68829	C20559
	23.50	.9252	276	155	3	C21963	—
15/16		.9375	10-3/4	6-1/8	3	C68830	C20560
61/64		.9531	11	6-3/8	3	C68831	C20561
31/32		.9688	11	6-3/8	3	C68832	C20562
63/64		.9844	11	6-3/8	3	C68833	C20563
1		1.0000	11	6-3/8	3	C68834	C20564
1		1.0000	12	6-3/8	4	C68754	—
	25.50	1.0039	286	165	3	C21964	—
1-1/64		1.0156	11-1/8	6-1/2	3	C68835	C20565
1-1/32		1.0312	11-1/8	6-1/2	3	C68836	C20566
	26.50	1.0433	286	165	3	C21965	—
1-3/64		1.0469	11-1/4	6-5/8	3	C68837	C20567
1-1/16		1.0625	11-1/4	6-5/8	3	C68838	C20568
1-1/16		1.0625	12-1/4	6-5/8	4	C68755	—
	27.00	1.0630	291	170	3	C21966	—
1-5/64		1.0781	12-1/2	6-7/8	4	C68839	C20569
1-3/32		1.0938	11-1/2	6-7/8	3	C68756	—
1-3/32		1.0938	12-1/2	6-7/8	4	C68840	C20570
	28.00	1.1024	291	170	3	C21967	—
1-7/64		1.1094	11-3/4	7-1/8	3	C68757	—
1-7/64		1.1094	12-3/4	7-1/8	4	C68841	C20571
	28.50	1.1220	296	175	3	C21968	—
1-1/8		1.1250	11-3/4	7-1/8	3	C68758	C20040
1-1/8		1.1250	12-3/4	7-1/8	4	C68842	C20572
1-9/64		1.1406	12-7/8	7-1/4	4	C68843	C20573

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drill diameter		decimal equivalent	overall length	flute length	morse taper number	order number	
fraction	mm					1682 Black Oxide	1894 Black Oxide
	29.00	1.1417	296	175	3	C21969	—
1-5/32		1.1562	11-7/8	7-1/4	3	C68759	—
1-5/32		1.1562	12-7/8	7-1/4	4	C68844	C20574
	29.50	1.1614	296	175	3	C21970	—
1-11/64		1.1719	13	7-3/8	4	C68845	C20575
	30.00	1.1811	296	175	3	C21971	—
1-3/16		1.1875	12	7-3/8	3	C68760	—
1-3/16		1.1875	13	7-3/8	4	C68846	C20576
	30.50	1.2008	301	180	3	C21972	—
1-13/64		1.2031	13-1/8	7-1/2	4	C68847	C20577
1-7/32		1.2188	13-1/8	7-1/2	4	C68848	C20578
1-15/64		1.2344	13-1/2	7-7/8	4	C68849	C20579
	31.00	1.2205	301	180	3	C21973	—
	31.50	1.2402	301	180	3	C21974	—
1-1/4		1.2500	12-1/2	7-7/8	3	C68761	C20043
1-1/4		1.2500	13-1/2	7-7/8	4	C68850	C20580
1-17/64		1.2656	14-1/8	8-1/2	4	C68851	C20581
1-9/32		1.2812	14-1/8	8-1/2	4	C68852	C20582
1-19/64		1.2969	14-1/4	8-5/8	4	C68853	C20583
	33.00	1.2992	334	185	4	C21975	—
1-5/16		1.3125	14-1/4	8-5/8	4	C68854	C20584
1-21/64		1.3281	14-3/8	8-3/4	4	C68855	C20585
	34.00	1.3386	339	190	4	C21976	—
1-11/32		1.3438	14-3/8	8-3/4	4	C68856	C20586
1-23/64		1.3594	14-1/2	8-7/8	4	C68857	C20587
1-3/8		1.3750	14-1/2	8-7/8	4	C68858	C20588
	35.00	1.3780	339	190	4	C21977	—
1-25/64		1.3906	14-5/8	9	4	C68859	C20589
1-13/32		1.4062	14-5/8	9	4	C68860	C20590
	36.00	1.4173	344	195	4	C21978	—
1-27/64		1.4219	14-3/4	9-1/8	4	C68861	C20591
1-7/16		1.4375	14-3/4	9-1/8	4	C68862	C20592
1-29/64		1.4531	14-7/8	9-1/4	4	C68863	—
1-15/32		1.4688	14-7/8	9-1/4	4	C68864	—
1-31/64		1.4844	15	9-3/8	4	C68865	—
	38.00	1.4961	349	200	4	C21979	—
1-1/2		1.5000	15	9-3/8	4	C68866	C20596
1-17/32		1.5312	15	9-3/8	4	C68762	—
1-17/32		1.5312	16-3/8	9-3/8	5	C68783	—
	39.00	1.5354	349	200	4	C21980	—
1-9/16		1.5625	16-5/8	9-5/8	5	C68784	C20068
	40.00	1.5748	349	200	4	C21981	—
1-19/32		1.5938	16-7/8	9-7/8	5	C68785	—
1-5/8		1.6250	15-5/8	10	4	C68763	C20045
1-5/8		1.6250	17	10	5	C68786	C20072
1-21/32		1.6562	17-1/8	10-1/8	5	C68787	—
1-11/16		1.6875	17-1/8	10-1/8	5	C68788	—
1-23/32		1.7188	17-1/8	10-1/8	5	C68764	—
1-3/4		1.7500	16-1/4	10-3/8	4	C68765	—
1-3/4		1.7500	17-1/8	10-3/8	5	C68789	—
	45.00	1.7717	359	210	4	C21982	—
1-13/16		1.8125	17-1/8	10-1/8	5	C68790	—
1-7/8		1.8750	17-3/8	10-3/8	5	C68791	—
1-15/16		1.9375	17-3/8	10-3/8	5	C68792	—
	49.00	1.9291	369	220	4	C21983	—
	50.00	1.9685	369	220	4	C21984	—
2		2.0000	16-5/8	10-5/8	4	C68766	—
2		2.0000	17-3/8	10-3/8	5	C68793	—

**Reduced Shank**  
Silver & Deming

**General Application Drills**



**Styles: 1680, 1681, 1813, 1892, 1877**



**Note**

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

Style 1877M (Metric) now combined with style 1877.



Style #1680 / 1813 black oxide with round shank



Style #1681 / 1892 black oxide with flatted shank



Style #1877 black & gold split point with flatted shank

order number

drill diameter fractional	mm	decimal equivalent	overall length	flute length	1680	1681	1813	1892	1877
					Round Shank Black Oxide	(3)Flatted Shank Black Oxide	Round Shank Black Oxide	(3)Flatted Shank Black Oxide	(3)Flatted Shank Black & Gold
1/2		.5000	6	3-1/8	C68631	C68674	C20732	C20670	—
	13.0	.5118	152	79	—	—	C21070	—	C21170
33/64		.5156	6	3-1/8	C68632	C68675	C20733	C20671	C17031
17/32		.5312	6	3-1/8	C68633	C68676	C20734	C20672	C17032
	13.5	.5315	152	79	—	—	C21071	—	C21171
35/64		.5469	6	3-1/8	C68634	C68677	C20735	C20673	C17033
	14.0	.5512	152	79	—	—	C21072	—	C21172
9/16		.5625	6	3-1/8	C68635	C68678	C20736	C20674	C17034
	14.5	.5709	152	79	—	—	C21073	—	C21173
37/64		.5781	6	3-1/8	C68636	C68679	C20737	C20675	C17035
	15.0	.5906	152	79	—	—	C21074	—	C21174
19/32		.5938	6	3-1/8	C68637	C68680	C20738	C20676	C17036
39/64		.6094	6	3-1/8	C68638	C68681	C20739	C20677	C17037
	15.5	.6102	152	79	—	—	C21075	—	C21175
5/8		.6250	6	3-1/8	C68639	C68682	C20740	C20678	C17038
	16.0	.6299	152	79	—	—	C21076	—	C21176
41/64		.6406	6	3-1/8	C68640	C68683	C20741	C20679	C17039
	16.5	.6496	152	79	—	—	C21077	—	C21177
21/32		.6562	6	3-1/8	C68641	C68684	C20742	C20680	C17040
	17.0	.6693	152	79	—	—	C21078	—	C21178
43/64		.6719	6	3-1/8	C68642	C68685	C20743	C20681	C17041
11/16		.6875	6	3-1/8	C68643	C68686	C20744	C20682	C17042
	17.5	.6890	152	79	—	—	C21079	—	C21179
45/64		.7031	6	3-1/8	C68644	C68687	C20745	C20683	C17043
	18.0	.7087	152	79	—	—	C21080	—	C21180
23/32		.7188	6	3-1/8	C68645	C68688	C20746	C20684	C17044
	18.5	.7283	152	79	—	—	C21081	—	C21181
47/64		.7344	6	3-1/8	C68646	C68689	C20747	C20685	C17045
	19.0	.7480	152	79	—	—	C21082	—	C21182
3/4		.7500	6	3-1/8	C68647	C68690	C20748	C20686	C17046
49/64		.7656	6	3-1/8	C68648	C68691	C20749	C20687	C17047
	19.5	.7677	152	79	—	—	C21083	—	C21183
25/32		.7812	6	3-1/8	C68649	C68692	C20750	C20688	C17048
	20.0	.7874	152	79	—	—	C21084	—	C21184
51/64		.7969	6	3-1/8	C68650	C68693	C20669	—	C17049
13/16		.8125	6	3-1/8	C68651	C68694	C20751	C20689	C17050
	21.0	.8268	152	79	—	—	C21085	—	C21185
53/64		.8281	6	3-1/8	C68652	C68695	C20724	—	C17051
27/32		.8438	6	3-1/8	C68653	C68696	C20752	C20690	C17052
55/64		.8594	6	3-1/8	C68654	C68697	C20725	—	C17053
	22.0	.8661	152	79	—	—	C21086	—	C21186
7/8		.8750	6	3-1/8	C68655	C68698	C20753	C20691	C17054
57/64		.8906	6	3-1/8	C68656	C68699	C20726	—	C17055

continued on next page



**Styles: 1680, 1681, 1813, 1892, 1877** (continued)

drill diameter		decimal equivalent	overall length	flute length	order number				
fractional	mm				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
	23.0	.9055	152	79	—	—	C21087	—	C21187
29/32		.9062	6	3-1/8	C68657	C68700	C20754	C20692	C17056
59/64		.9219	6	3-1/8	C68658	C68701	C20727	—	C17057
15/16		.9375	6	3-1/8	C68659	C68702	C20755	C20693	C17058
	24.0	.9449	152	79	—	—	C21088	—	C21188
61/64		.9531	6	3-1/8	C68660	C68703	C20728	—	C17059
31/32		.9688	6	3-1/8	C68661	C68704	C20756	C20694	C17060
	25.0	.9843	152	79	—	—	C21089	—	C21189
63/64		.9844	6	3-1/8	C68662	C68705	C20729	—	C17061
1		1.0000	6	3-1/8	C68663	C68706	C20757	C20695	C17062
1-1/64		1.0156	6	3-1/8	—	C68707	—	—	—
1-1/32		1.0312	6	3-1/8	C68664	C68708	C20730	—	—
1-3/64		1.0469	6	3-1/8	—	C68709	—	—	—
1-1/16		1.0625	6	3-1/8	C68665	C68710	C20758	C20696	C17066
1-5/64		1.0781	6	3-1/8	—	C68711	—	—	—
1-3/32		1.0938	6	3-1/8	—	C68712	—	—	—
1-7/64		1.1094	6	3-1/8	—	C68713	—	—	—
1-1/8		1.1250	6	3-1/8	C68666	C68714	C20759	C20697	C17070
1-9/64		1.1406	6	3-1/8	—	C68715	—	—	—
1-5/32		1.1562	6	3-1/8	C68667	C68716	C20731	—	—
1-11/64		1.1719	6	3-1/8	—	C68717	—	—	—
1-3/16		1.1875	6	3-1/8	C68668	C68718	C20760	C20698	C17074
1-13/64		1.2031	6	3-1/8	—	C68719	—	—	—
1-7/32		1.2188	6	3-1/8	—	C68720	—	—	—
1-15/64		1.2344	6	3-1/8	—	C68721	—	—	—
1-1/4		1.2500	6	3-1/8	C68669	C68722	C20761	C20699	C17078
1-17/64		1.2656	6	3-1/8	—	C68723	—	—	—
1-9/32		1.2812	6	3-1/8	—	C68724	—	—	—
1-19/64		1.2969	6	3-1/8	—	C68725	—	—	—
1-5/16		1.3125	6	3-1/8	C68670	C68726	C20762	—	C17082
1-21/64		1.3281	6	3-1/8	—	C68727	—	—	—
1-11/32		1.3438	6	3-1/8	—	C68728	—	—	—
1-23/64		1.3594	6	3-1/8	—	C68729	—	—	—
1-3/8		1.3750	6	3-1/8	C68671	C68730	C20763	—	C17086
1-25/64		1.3906	6	3-1/8	—	C68731	—	—	—
1-13/32		1.4062	6	3-1/8	—	C68732	—	—	—
1-27/64		1.4219	6	3-1/8	—	C68733	—	—	—
1-7/16		1.4375	6	3-1/8	C68672	C68734	C20764	—	C17090
1-29/64		1.4531	6	3-1/8	—	C68735	—	—	—
1-31/64		1.4844	6	3-1/8	—	C68736	—	—	—
1-1/2		1.5000	6	3-1/8	C68673	C68737	C20765	—	C17094

HOLEMAKING

**SET**

**Styles: 1680, 1681, 1813, 1892, 1877**

**Reduced Shank Sets  
Silver & Deming**

Metal Case (unless noted otherwise)

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	—	—

\*Plastic Case



8-Piece Set  
Flatted Shank  
#C21164

33-Piece Set  
Round Shank  
#C21134

## General Application Drills



### Annular Cutter

Styles: **4500 & 4501**

NEW

#### Note

High Speed Steel - M2.

Can cut materials up a maximum tensile strength of 900 N/mm<sup>2</sup> (266 BHN / 27 HRC).

1 Inch and 2 Inch Depth of Cut.

1/2 Inch (0.500") Diameter to 2 Inch (2.000") Diameter Range.

Used in Magnetic (MAG) Drills.

3/4" (0.750") Shanks on all sizes.

Used on the following applications: Mild Steel, Structural Steel, Construction Steel, Aluminum, Copper / Brass, Plastics.

Annular Cutters allows hole to be produced quicker and more efficiently, compared to conventional drills.

Due to the cutter design the load per tooth is greatly reduced and the power used by the machine is kept to a minimum.

This greatly increases productivity and the life expectancy of the tool and machine.

See Technical Section for cutting speeds and application information.



diameter	decimal equivalent	depth of cut	order number 4500	depth of cut	order number 4501
1/2	0.5000	1"	C34060	2"	C34077
9/16	0.5625	1"	C34061	2"	C34078
5/8	0.6250	1"	C34062	2"	C34079
11/16	0.6875	1"	C34063	2"	C34080
3/4	0.7500	1"	C34064	2"	C34081
13/16	0.8125	1"	C34065	2"	C34082
7/8	0.8750	1"	C34066	2"	C34083
15/16	0.9375	1"	C34102	2"	C34084
1	1.0000	1"	C34067	2"	C34085
1-1/16	1.0625	1"	C34068	2"	C34086
1-1/8	1.1250	1"	C34069	2"	C34087
1-3/16	1.1875	1"	C34070	2"	C34088
1-1/4	1.2500	1"	C34071	2"	C34089
1-5/16	1.3125	—	—	2"	C34090
1-3/8	1.3750	—	—	2"	C34091
1-1/2	1.5000	1"	C34073	2"	C34092
1-9/16	1.5625	—	—	2"	C34093
1-5/8	1.6250	1"	C34074	2"	C34094
1-11/16	1.6875	—	—	2"	C34095
1-3/4	1.7500	—	—	2"	C34096
1-13/16	1.8125	1"	C34075	2"	C34097
1-7/8	1.8750	—	—	2"	C34098
2	2.0000	1"	C34076	2"	C34099

### Locator Pin for Annular Cutter

SET

Styles: **4502**

NEW



diameter (mm)	decimal equivalent	locator pin for	order number 4502
6	0.236	1" long cutter	C34100
6.20	0.244	2" long cutter	C34101

**Style: 1818**

**Note**

*Precision: squared tip for better centering.*  
*High grade carbide for longer lasting life.*  
*Use with rotation or rotary percussion drill motors.*  
*Sandblasted finish.*



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



cutting diameter		shank diameter	working length	overall length	order number
fractional	decimal				
1/8	.1250	3/32"	1-3/8	3	C20930
3/16	.1875	5/32"	2-1/2	4	C20932
3/16	.1875	5/32"	4	6	C20910
1/4	.2500	7/32"	2-1/2	4	C20934
1/4	.2500	7/32"	4	6	C20935
1/4	.2500	3/16"	10	12	C20911
5/16	.3125	15/64"	2-1/2	4	C20937
5/16	.3125	15/64"	4	6	C20938
5/16	.3125	15/64"	10	12	C20912
3/8	.3750	5/16"	2-1/2	4	C20939
3/8	.3750	5/16"	4	6	C20940
3/8	.3750	5/16"	10	12	C20913
1/2	.5000	3/8"	4	6	C20944
1/2	.5000	3/8"	10	12	C20914
5/8	.6250	1/2"	4	6	C20946
5/8	.6250	1/2"	10	12	C20925
3/4	.7500	1/2"	4	6	C20948
3/4	.7500	1/2"	10	12	C20926
7/8	.8750	1/2"	10	12	C20927
1	1.0000	1/2"	4	6	C20950
1	1.0000	1/2"	10	12	C20928



HOLEMAKING

**SET**

**Style: 1818**

Plastic Case

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



**Style: 1841 Tapcon**

**Note**

*Sandblasted finish.*  
*Flat and cylindrical shank.*  
*Squared tip for better centering.*  
*20% More battery life.*



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



cutting diameter		shank diameter	flute length	overall length	order number
fractional	decimal				
5/32	.1562	5/32"	3-3/32"	4-1/2	C19010
5/32	.1562	5/32"	3-53/64"	5-1/2	C19012
3/16	.1875	5/32"	2-9/16"	4-1/2	C19011
3/16	.1875	5/32"	3-13/16"	5-1/2	C19013

**Masonry**  
Carbide Tipped

Other Drills / Accessories



Style: **1889**



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

**Note**

Durability in concrete, brick, and brittle materials.  
Speeds up dust extraction.  
Better resistance to high temperature when drilling.  
Use with rotation or rotary percussion drill motors.  
Sandblasted finish.



cutting diameter		shank diameter	flute length	overall length	order number
fractional	decimal				
1/8	.1250	3/32"	1-9/16"	3	<b>1889</b> C23286
3/16	.1875	5/32"	3-15/16	4	C23270
1/4	.2500	7/32"	2-11/64	4	C23287
1/4	.2500	7/32"	3-3/4	6	C23271
1/4	.2500	7/32"	8-25/32	12	C23272
5/16	.3125	15/64"	2-11/64	4	C23288
5/16	.3125	15/64"	3-3/4	6	C23273
5/16	.3125	15/64"	8-25/32	12	C23274
3/8	.3750	5/16"	2-11/64	4-1/2	C23289
3/8	.3750	5/16"	3-3/4	6	C23275
3/8	.3750	5/16"	8-25/32	12	C23276
1/2	.5000	3/8"	2-11/64	4-1/2	C23278
1/2	.5000	3/8"	3-3/4	6	C23280
1/2	.5000	3/8"	8-25/32	12	C23281
5/8	.6250	1/2"	3-11/32	6	C23282
3/4	.7500	1/2"	3-5/64	6	C23283

**Masonry**  
Glass & Tile

Style: **1822**

**Note**

New harder carbide grade.  
4 Sided design "diamond style" tip improves precision and penetration  
Drills through up to class 3 ceramic tiles.

Used dry.  
Suitable for more materials: non-tempered glass, plastic, composite, brick, marble.

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



cutting diameter		overall length	order number
fractional	decimal		
1/8	.1250	3-5/32	<b>1822</b> C20718
3/16	.1875	3-5/32	C20719
1/4	.2500	3-15/16	C20720
5/16	.3125	3-15/16	C20721
3/8	.3750	3-15/16	C20722
1/2	.5000	3-15/16	C20723

**Masonry**  
Glass & Tile

SET

Style: **1822**

drill sizes	no. of pieces	order number
1/8", 1/4", 3/8", 1/2"	4	<b>1822</b> C21148

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

**Masonry**  
SDS® Carbide Tipped

**Note**

- Carbide Tip. Square Flute.
- Self Centering And Concrete Breaker Tip. Compatible SDS-Plus Shank.
- 160° Tip Angle. Chiseling Effect To Break Concrete.



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



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



HOLEMAKING

**SET**

**Styles: 1821**

**Masonry**  
SDS® Carbide Tipped

Plastic Case

drill sizes	no. of pieces	order number
3/16", 1/4", 5/16", 3/8", 1/2" x 6	5	C21031



**Style: 1833 - SDS® - plus 3 Cutting Premium**

**Masonry**  
SDS® - Drill ReBar

**Note**

- Monobloc carbide tip with self centering point.
- 3 Cutting edges.
- 135° Tip angle.
- Combines square and round flute shape.
- Compatible SDS-plus shank.
- The solution for drilling rebar and concrete without cracking.



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





**Masonry**

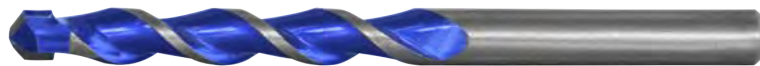
Multi-purpose Carbide Tipped

Style: **1838**

NEW

**Note**

Carbide tip. Used in low density  
118° point angle. Wood, Alloy Steel, Non-  
Universal use. Ferrous Materials, Slate,  
Composite, and Tile



HOLEMAKING

cutting diameter		shank diameter	working length	overall length	order number
fractional	decimal				
1/8	.1250	7/64"	25/32	2-1/2	<b>1838</b> C22210
5/32	.1562	5/32"	1-3/8	3	C22211
3/16	.1875	3/16"	1-25/32	3-1/2	C22212
1/4	.2500	7/32"	2-1/2	4	C22213
5/16	.3125	19/64"	3	4-1/2	C22214
3/8	.3750	23/64"	3	4-1/2	C22215
1/2	.5000	31/64"	4	6	C22216
5/8	.6250	1/2"	4	6	C22217

**Masonry**

Multi-purpose Carbide Tipped

SET

Style: **1838**

drill sizes	no. of pieces	order number
1/8", 5/32", 3/16", 1/4", 5/16"	5	<b>1838</b> C22218

**Masonry**

Universal

Style: **1837**

**Note**

Carbide tip.  
L shaped flute.  
Universal use.

\*\*Parts only available until inventory is depleted.



cutting diameter		shank diameter	flute length	overall length	order number
fractional	decimal				
1/8	.1250	7/64"	1-11/32	2-3/4	**C22200
5/32	.1562	5/32"	1-9/16	3	**C22201
3/16	.1875	3/16"	1-31/32	3-5/16	**C22202
1/4	.2500	7/32"	2-23/64	3-15/16	**C22203
5/16	.3125	19/64"	2-53/64	4-3/4	**C22204
3/8	.3750	23/64"	2-53/64	4-3/4	**C22205
1/2	.5000	31/64"	3-19/32	5-7/8	**C22206
5/8	.6250	1/2"	3-7/64	5-7/8	**C22207



**Masonry**

Universal

SET

Style: **1837**

\*\*Parts only available until inventory is depleted.

drill sizes	no. of pieces	order number
1/8", 5/32", 3/16", 1/4", 5/16"	5	<b>1837</b> **C22208

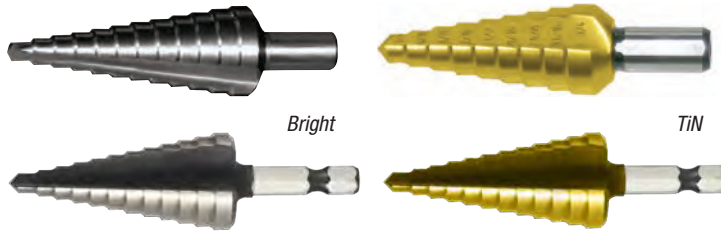




Styles: **1874, 1874TN**

**Note**

Standard off-the-shelf delivery from stock.



HOLEMAKING

step description	hole sizes	decimal equivalent	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
<b>NEW</b> 3/16-1/2 x 1/16	3/16-1/2	.1875 - .5000	1/4 Hex	3-1/8	C20310	C20312
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
<b>NEW</b> 1/8-1/2 x 1/32	1/8-1/2	.1250 - .5000	1/4 Hex	3-1/8	C20311	C20313
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	—

**SET**

Styles: **1874, 1874TN**

Metal Case

drilling diameter range	no. of pieces	order number	
		1874 Bright	1874TN TiN
1/8 - 3/4	3	C20325	C20326



3-Piece Set  
TiN  
#C20326

Specialty  
Step Drills

Styles: **2874**

Step Reamer

**NEW**



step description	hole sizes	decimal equivalent	shank diameter	step length	order number	
					2874 Black Oxide	
5/16 - 9/16 x 1/16	5/16 - 9/16	.3125 - .5625	3/8	1/2	C20300	
9/16 - 13/16 x 1/16	9/16 - 13/16	.5625 - .8125	3/8	1/2	C20301	
13/16 - 1-1/16 x 1/16	13/16 - 1-1/16	.8125 - 1.0625	3/8	1/2	C20302	

**SET**

Styles: **2874**

Metal Case

drilling diameter range	no. of pieces	order number	
		2874 Black Oxide	
5/16 - 1-1/16	3	C20303	

Set includes one of each size



Specialty  
Step Drills

**Specialty**  
Quick Change Chucks

Other Drills / Accessories



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



#C20958



#C20957

description

order number

	<b>1817</b>
Quick-change chuck insert converts standard chucks to quick-change operation	C20920
Quick-change chuck for 1/4" hex shank drills	C20955
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

**Specialty**  
Double End

Styles: **1683, 1815**

P



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



drill diameter frac/wire	mm	decimal equivalent	overall length	flute length	order number	
					<b>1683</b> Black Oxide	<b>1815</b> Black Oxide
	2.00	.0787	38	9	C69005	—
	2.10	.0826	38	9	C69006	—
	2.50	.0984	43	10	C69007	—
	3.00	.1181	46	11	C69008	—
1/8		.1250	1.929	.433	C69021	C20500
	3.20	.1259	49	12	C69009	—
	3.26	.1283	49	12	C69010	—
#30		.1285	1.875	.500	C69028	C23811
	3.30	.1299	49	12	C69012	—
	3.50	.1377	52	14	C69013	—
9/64		.1406	2.047	.551	C69022	C17618
5/32		.1562	2.165	.551	C69023	C17619
	4.00	.1574	55	14	C69014	—
#20		.1610	2.063	.625	C69027	C23810
	4.10	.1614	55	14	C69015	—
	4.20	.1653	55	14	C69016	—
3/16		.1875	2.441	.669	C69024	C20501
#11		.1910	2.344	.688	C69026	C23809
	4.90	.1929	62	17.5	C69017	—
	5.00	.1968	62	17.5	C69018	—
	5.10	.2007	62	17.5	C69019	—
	5.20	.2047	62	17.5	C69020	—
1/4		.2500	2.756	.787	C69025	C20503

HOLEMAKING

**P**



HSS Bright 135° Split

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

drill diameter	decimal equivalent	order number
		<b>1816</b>
		Bright
1/16	.0625	C20510
5/64	.0781	C20511
3/32	.0938	C20512
7/64	.1094	C20513
1/8	.1250	C20514
9/64	.1406	C20516
5/32	.1562	C20517
3/16	.1875	C20518
7/32	.2188	C20908
1/4	.2500	C20909

HOLEMAKING

**Style: 1843**

**Specialty**  
Rotary Chuck Drivers



Use **CLE-LINE**® rotary chuck drivers on these models:

	Order Number: #C19019 Spline Drive	Order Number: # 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

**Style: 2184**

**Specialty**  
Rivet Hole Drills

**P**

HSS Black Oxide 135° Split Straight Shank

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



drill diameter	decimal equivalent	overall length	flute length	order number
				<b>2184</b>
				Black Oxide
3/32	.0938	1-3/4	7/16	C20259
1/8	.1250	1-7/8	1/2	C20257
5/32	.1562	2-1/16	9/16	C20260
3/16	.1875	2-3/16	9/16	C20258
1/4	.2500	2-1/2	3/4	C20256

**Specialty - Metric**  
Welding Point Drills

Other Drills / Accessories

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



**P**

Cobalt

Straw Oxide



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



order number

drill diameter (mm)	decimal equivalent	overall length	flute length	2195 Cobalt	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

**Specialty**  
Power Wood Bit

Style: **1823**

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

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

Bright



order number

drill diameter	decimal equivalent	overall length	1823 Black Oxide
1/4	.2500	6	C17100
5/16	.3125	6	C17101
3/8	.3750	6	C17102
7/16	.4375	6	C17103
1/2	.5000	6	C17104
9/16	.5625	6	C17105
5/8	.6250	6	C17106
11/16	.6875	6	C17107
3/4	.7500	6	C17108
13/16	.8125	6	C17109
7/8	.8750	6	C17110
15/16	.9375	6	C17111
1	1.0000	6	C17112
1-1/8	1.1250	6	C17113
1-1/4	1.2500	6	C17114
1-3/8	1.3750	6	C17115
1-1/2	1.5000	6	C17116

HOLEMAKING

Style: **2616**

**P K**

HSS Black Gold LHS RHC

HOLEMAKING

**Note**  
Heavy duty reaming in steel assemblies.  
Tapered at the point which is ideal for holes which are out of alignment.  
Magnets are 180° apart in the hex shank to reduce the chance of falling out of the socket.



reamer size		point diameter		hex size	overall length	flute length	order number
							<b>2616</b>
							Black & Gold
9/16	.5625	11/32	.344	1-1/16	6-7/8	5-1/8	C36000
5/8	.6250	3/8	.375	1-1/16	7-7/8	6-1/8	C36001
11/16	.6875	3/8	.375	1-1/16	9-1/4	7-1/8	C36002
3/4	.7500	13/32	.406	1-1/4	9-3/8	7-3/8	C36003
13/16	.8125	1/2	.500	1-1/4	9-3/8	7-3/8	C36004
7/8	.8750	9/16	.563	1-7/16	9-3/8	7-3/8	C36005
15/16	.9375	19/32	.594	1-7/16	9-3/8	7-3/8	C36006
1	1.0000	11/16	.687	1-7/16	9-3/8	7-3/8	C36007
1-1/16	1.0625	3/4	.750	1-5/8	9-3/8	7-3/8	C36008
1-1/8	1.1250	13/16	.812	1-5/8	9-3/8	7-3/8	C36009
1-3/16	1.1875	7/8	.875	1-13/16	9-3/8	7-3/8	C36010
1-1/4	1.2500	15/16	.937	1-13/16	9-3/8	7-3/8	C36011
1-5/16	1.3125	1	1.000	2	10	7-3/8	C36012
1-3/8	1.3750	1-1/16	1.062	2	10	7-3/8	C36013
1-7/16	1.4375	1-1/8	1.125	2	10	7-3/8	C36014
1-1/2	1.5000	1-3/16	1.187	2"	10	7-3/8	C36015
1-9/16	1.5625	1-9/16	1.562	2	10	7-3/8	C36016
1-5/8	1.6250	1-5/16	1.312	2	10	7-3/8	C36017

Style: **2618**

**Car Length Reamer**  
Spiral Flute / Hex Shank

**P K**

HSS Black Gold LHS RHC

**Note**  
Heavy duty reaming in steel assemblies.  
Tapered at the point which is ideal for holes which are out of alignment.  
Magnets are 180° apart in the hex shank to reduce the chance of falling out of the socket.



reamer size		point diameter		hex size	overall length	flute length	order number
							<b>2618</b>
							Black & Gold
1/2	.5000	9/32	.281	1-1/16	5-1/2	4	C36018
9/16	.5625	11/32	.344	1-1/16	5-7/8	4	C36019
5/8	.6250	11/32	.344	1-1/16	6	4-1/2	C36020
11/16	.6875	3/8	.375	1-1/16	6-3/8	4-1/2	C36021
3/4	.7500	13/32	.406	1-1/4	7	5	C36022
13/16	.8125	1/2	.500	1-1/4	7	5	C36023
7/8	.8750	9/16	.562	1-7/16	7	5	C36024
15/16	.9375	19/32	.594	1-7/16	7	5	C36025
1	1.0000	11/16	.687	1-7/16	7	5	C36026
1-1/16	1.0625	3/4	.750	1-5/8	7	5	C36027
1-1/8	1.1250	13/16	.812	1-5/8	7	5	C36028
1-3/16	1.1875	7/8	.875	1-13/16	7	5	C36029
1-1/4	1.2500	15/16	.937	1-13/16	7	5	C36030
1-5/16	1.3125	1	1.000	2	7-7/8	5	C36031

**Car Reamer**  
Spiral Flute / Straight Shank

Style: **2619**



order number

**2619**  
Black & Gold

**NEW**

**Note**  
3 flats on shank.

reamer size	decimal equivalent	diameter at point	length of taper	length of flute	overall length	number of flutes	Helix	shank diameter	order number
5/16	.3125	0.183	2.000	3.179	5.000	4	25 LHS	0.313	C24002
3/8	.3750	0.193	2.000	3.179	5.000	4	25 LHS	0.375	C24003
7/16	.4375	0.223	2.250	3.429	5.250	4	25 LHS	0.438	C24004
1/2	.5000	0.236	2.625	4.117	5.938	5	25 LHS	0.500	C24005
9/16	.5625	0.299	2.625	4.117	5.938	5	25 LHS	0.500	C24006
5/8	.6250	0.264	3.375	4.742	6.563	5	25 LHS	0.500	C24007
11/16	.6875	0.327	3.375	4.742	6.563	5	25 LHS	0.500	C24008
3/4	.7500	0.458	3.750	5.179	7.000	5	25 LHS	0.500	C24009
13/16	.8125	0.522	3.750	5.179	7.000	5	25 LHS	0.500	C24010
7/8	.8750	0.585	3.875	5.429	7.250	5	25 LHS	0.500	C24011
15/16	.9375	0.648	3.875	5.429	7.250	5	25 LHS	0.500	C24012
1	1.0000	0.713	3.875	5.429	7.250	5	25 LHS	0.500	C24013
1-1/16	1.0625	0.778	3.875	5.429	7.250	5	25 LHS	0.500	C24014

**Specialty**  
Combined Drill and Countersink

Style: **1824**



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

size	drill diameter	decimal equivalent	body diameter	overall length	order number
0	1/32	.0312	1/8	1-1/8	<b>1824</b> Bright C20891
1	3/64	.0469	1/8	1-1/4	C20892
2	5/64	.0781	3/16	1-7/8	C20893
3	7/64	.1094	1/4	2	C20894
4	1/8	.1250	5/16	2-1/8	C20895
5	3/16	.1875	7/16	2-3/4	C20896
6	7/32	.2188	1/2	3	C20897
7	1/4	.2500	5/8	3-1/4	C20898
8	5/16	.2344	3/4	3-1/2	C20899

**Specialty**  
Die Drill

Style: **1844**



**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 equivalent	shank diameter	overall length	order number	
				Right-Hand	Left-Hand
3/16	.1875	3/16	3	C19000	C19005
1/4	.2500	1/4	4	C19001	C19006
1/4	.2500	1/4	6	C19002	C19007
5/16	.3125	1/4	4	C19003	C19008
3/8	.3750	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.



HOLEMAKING

extractor size	small end	large diameter	length of taper	overall length	order number
1	.0625	.1562	3/4	2	<b>1829</b> Bright C17170
2	.0860	.1800	3/4	2-3/8	C17171
3	.1250	.2500	1	2-3/4	C17172
4	.1875	.3125	1	3	C17173
5	.2500	.4375	1-1/2	3-3/8	C17174

extractor size	small end	large diameter	length of taper	overall length	order number
6	.3750	.5938	1-3/4	3-3/4	<b>1829</b> Bright C17176
7	.5000	.7812	2-1/4	4-1/8	C17178
8	.7500	1.0312	2-1/4	4-3/8	C17180
9	1.0000	1.2812	2-1/4	4-5/8	C24750
10	1.2500	1.5625	2-1/2	5	C24751

SET

Style: **1829**

**Specialty**  
Screw Extractors

Fold-up Pouch

**P** **K** **H**



size range	no. of pieces	order number
#1 - #5	5	<b>1829</b> Bright C21149

SET

Style: **1864**

**Specialty**  
Drill & Screw Extractors

Black Gold

NEW

**P** **K** **H**

**Note**

Drill style: **1878** Black & Gold



jobber drill	screw extractor	no. of pcs.	order number
5/64	#1	2	<b>1864</b> C22311
7/64	#2	2	C22312
5/32	#3	2	C22313

jobber drill	screw extractor	no. of pcs.	order number
1/4", E	#4	2	<b>1864</b> C22314
17/64"	#5	2	C22315
13/32"	#6	2	C22316

**SET**

**Cost Saving Drill Sets**

See product specific page for additional information

**SETS**

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

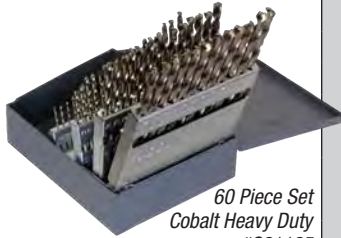
**Cost Saving Drill Sets (continued)**

See product specific page for additional information

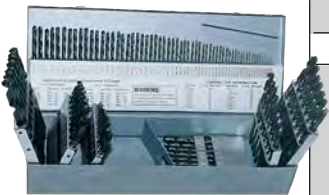
size range	no. of pcs.	drill description	case type	style	order number
<b>Jobber Length - Drills Set (Continued)</b>					
1mm to 6mm	11	Metric Black & Gold, flatted shank		<b>1878</b>	C74058
1mm to 13mm	25	Metric Black & Gold, flatted shank		<b>1878</b>	C74059
1/16"-1/2" x 1/64"	29	Black & Gold, Heavy Duty, 3/8" shank	metal	<b>1878/1879</b>	C18122
		Black & gold heavy duty, 135° split point	plastic	<b>1604</b>	C69032
		Black & gold HD, 3/8" shank, 135° split pt	plastic	<b>1605</b>	C69033
		Black & gold HD, flats on shank, 135° split pt	plastic	<b>1607</b>	C69368
		Heavy Duty, 135° split	metal	<b>1801</b>	C21119
		Heavy duty parabolic, 135° split point	metal	<b>1872</b>	C18622
		TiN heavy duty parabolic, 135° split point	metal	<b>1872TN</b>	C18703
		Heavy duty parabolic 3/8" shank	metal	<b>1872/1873</b>	C18718
		Cobalt heavy duty, 135° split point	plastic	<b>1603</b>	C69379
		Cobalt heavy duty, 135° split	metal	<b>1802</b>	C21121
		Cobalt hex shank, 135° split point	metal	<b>1804</b>	C10629
		HSS, TiN Tip, 135° split point	metal	<b>1500-TT</b>	C97413
HS-CO, TiN Tip, 135° split point	metal	<b>1501-TT</b>	C66113		
A - Z	26	Black, general purpose, 118° point	metal	<b>1899</b>	C21158
#1 - #60	60	Bright, general purpose, 118° point	metal	<b>1898</b>	C21122
		Black, general purpose, 118° point	metal	<b>1899</b>	C21123
		Heavy duty, 135° split point	metal	<b>1801</b>	C21124
		Cobalt heavy duty, 135° split point	metal	<b>1603</b>	C69380
		Cobalt heavy duty, 135° split point	metal	<b>1802</b>	C21125
		1/16"-1/2" x 1/64", #1- #60, A - Z	115	Bright, general purpose, 118° point	metal
1mm-6mm x 0.5mm	11	Black, 118° point	metal	<b>1899</b>	C21130
		Heavy duty parabolic, 135° split point	metal	<b>1872</b>	C18626
		TiN heavy duty parabolic, 135° split point	metal	<b>1872TN</b>	**C18704
		1mm-10mm x 0.5mm	19	TiN, general purpose, 118° point	metal
1mm-13mm x 0.5mm	25	Black, general purpose, 118° point	plastic	<b>1600</b>	C69038
		Bright, general purpose, 118° point	metal	<b>1898</b>	C18127
		Black, general purpose, 118° point	metal	<b>1899</b>	C21131
		TiN, general purpose, 118° point	metal	<b>1898T</b>	C24381
		Heavy duty parabolic, 135° split point	metal	<b>1872</b>	C18628
		TiN heavy duty parabolic, 135° split point	metal	<b>1872TN</b>	**C18706
<b>Mechanics Length</b>					
1/16" - 1/4" x 1/64"	13	Black & gold, gen purpose, 135° sp point	metal	<b>1620</b>	C69029
		Black & gold, heavy duty, 135° split point	metal	<b>1875R</b>	C18126
1/16" - 3/8" x 1/64"	21	Black & gold, heavy duty, 135° split point	metal	<b>1875R</b>	C21161
1/16" - 1/2" x 1/64"	29	Black & gold, gen purpose, 135° sp point	metal	<b>1620</b>	C69041
		Black & gold, gen purpose, 135° sp point	Bit Barrel™	<b>1620</b>	C69384
		Black & gold, heavy duty, 135° split point	metal	<b>1875R</b>	C21162
		Black & gold, heavy duty	Bit Barrel™	<b>1875R</b>	C21165
		Black & gold, 3/8" shank, 135° split point	metal	<b>1875/1876</b>	C21163
1/16" - 1/2" x 1/32"	15	Black & gold, heavy duty, 135° split point	metal	<b>1875R</b>	C21160
1/16" - 1/4" x 1/16"	4	Black & gold, heavy duty, 135° split point	plastic tube	<b>1875R</b>	C22310

\*\*Parts only available until inventory is depleted.

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

SETS

size range	no. of pcs.	drill description	case type	style	order number
1/16" - 3/8" x 1/16"	6	Black & gold, heavy duty, 135° split point	plastic tube	<b>1875R</b>	C22309
<b>Screw Machine Length</b>					
1/16" - 1/2" x 1/64"	29	Black heavy duty, 135° split point	metal	<b>1896</b>	C21133
#1 - #60	60	Black heavy duty, 135° split point	metal	<b>1896</b>	C21947
<b>Reduced Shank</b>					
9/16" - 1" x 1/16"	8	1/2" reduced round shank, black	metal	<b>1680</b>	C69039
		1/2" reduced shank with flats, black	metal	<b>1681</b>	C69040
<b>Silver &amp; Deming</b>					
9/16" - 1" x 1/16"	8	1/2" reduced round shank, black	metal	<b>1813</b>	C21135
		1/2" reduced shank with flats, black	metal	<b>1892</b>	C22761
		1/2" reduced shank with flats, black & gold	metal	<b>1877</b>	C21164
	33	1/2" reduced round shank, black	metal	<b>1813</b>	C21134
<b>Step Drills</b>					
3/16 - 3/4"	3	Bright, 118° split point	metal	<b>1874</b>	C20325
		TiN, 118° split point	metal	<b>1874TN</b>	C20326
<b>Step Reamer</b>					
5/16 - 1-1/16 (Hex)	3	Bright, 118° split point	plastic	<b>2874</b>	C20303
<b>Masonry</b>					
1/8, 5/32, 3/16, 1/4, 5/16"	5	Carbide Tipped	plastic	<b>1818</b>	C20929
3/16, 1/4, 5/16, 3/8, 1/2" x 6"	5	Carbide Tipped - SDS® plus 2 Cutting Premium	plastic	<b>1821</b>	C21031
1/8, 1/4, 3/8, 1/2"	4	Glass & Tile	plastic	<b>1822</b>	C21148
1/8, 5/32, 3/16, 1/4, 5/16"	5	Multi-purpose	plastic	<b>1837</b>	C22208
1/8", 5/32", 3/16", 1/4", 5/16"	5	Multi-purpose		<b>1838</b>	C22218
<b>Screw Extractor Set in Fold-up Pouch</b>					
#1 - #5	5	Screw extractors	fold-up	<b>1829</b>	C21149
<b>Screw Extractor &amp; Drill Set</b>					
Extractor #1	2	5/64" drill - black and gold	plastic tube	<b>1864</b>	C22311
Extractor #2		7/64" drill - black and gold	plastic tube	<b>1864</b>	C22312
Extractor #3		5/32" drill - black and gold	plastic tube	<b>1864</b>	C22313
Extractor #4		1/4"(E) drill - black and gold	plastic tube	<b>1864</b>	C22314
Extractor #5		17/64" drill - black and gold	plastic tube	<b>1864</b>	C22315
Extractor #6		13/32" drill - black and gold	plastic tube	<b>1864</b>	C22316
<b>Drill Dispensers</b>					
1/16" - 1/2"		Dispenser Only	metal	<b>1867</b>	C23992
Letter A - Z		Dispenser Only	metal	<b>1867</b>	C23993
#1 - #60		Dispenser Only	metal	<b>1867</b>	C23994
<b>Tap, Die and Drill</b> - 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



5 piece Set  
Masonry, Carbide  
Tipped #C20929



Drill Dispenser  
#C23992



5-Size Set  
Tap, Die and Drill  
#C00451



**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

**Tap Drill Sizes**

**Machine Screw and Fractional Sizes**

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

**Metric Sizes**

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

**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
1-11½	1-9/64	1-1/8	1-13/64	1-5/32	1-5/32
1¼-11½	1-31/64	1-15/32	1-35/64	1-1/2	—
1½-11½	1-23/32	1-45/64	1-25/32	1-3/4	—
2-11½	2-3/16	2-11/64	2-1/4	2-7/32	—

Technical Information

Drill Feeds / Speed & Coolants

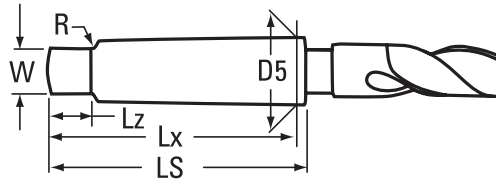
TECHNICAL

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

Recommended Drill Speeds and Coolants

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, 4165SE, 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
Non-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	Monel	80-170	70	Cutting or Soluble Oil
		115-240	55	Cutting or Soluble Oil
Beryllium Nickel		200-250	12	Soluble Oil
Zinc Alloy		112-126	200-250	Soluble Oil
Armor Plate		200-250	40	Soluble Oil
		250-300	35	Soluble Oil
		300-350	30	Cutting Oil





**Morse Taper Shank Specifications**

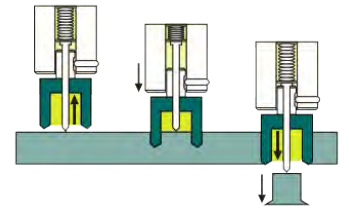
morse taper shank no.	taper per foot	taper per inch	D5 max shank diameter	LS length of shank	Lx shank lngth to gage line	Lz length of tang	W thickness of tang	R radius
1	.5985	.0498	.475	2.56	2.44	.37	.20	.19
2	.5994	.0499	.700	3.12	2.94	.44	.25	.25
3	.6023	.0501	.938	3.87	3.69	.56	.31	.28
4	.6232	.0519	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

TECHNICAL

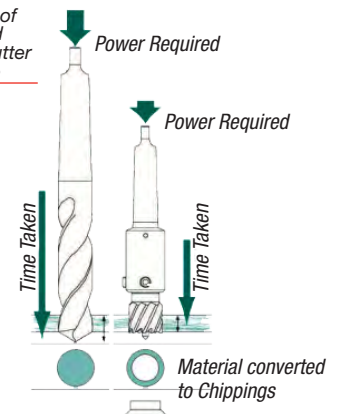
**Cutting Speeds (RPM) / Application**

Material Strength N/mm <sup>2</sup>	Diameter						
	.472 to .709	.748 to .984	1.024 to 1.260	1.575 to 1.811	1.850 to 2.087	2.126 to 2.362	2.402 to 2.559
<500 High Speed	660	420	305	240	195	165	145
<500 Low Speed	440	320	250	200	170	150	130
<750 High Speed	530	340	245	195	160	135	115
<750 Low Speed	350	250	200	165	140	120	105
<900 High Speed	340	250	185	145	120	100	88
<900 Low Speed	265	190	150	125	105	90	80
Stainless Steel - High Speed	320	200	145	115	90	80	70
Stainless Steel - Low Speed	210	150	120	95	85	72	63
Aluminum - High Speed	980	620	455	360	295	250	220
Aluminum - Low Speed	655	470	370	305	255	225	195
Cast Iron - High Speed	480	300	200	175	143	122	106
Cast Iron - Low Speed	320	230	180	147	125	108	95
Brass - High Speed	660	420	305	240	195	165	145
Brass - Low Speed	440	320	250	200	170	150	130
Copper - High Speed	1060	670	490	390	320	270	235
Copper - Low Speed	700	510	400	330	280	240	210

**Annular Cutters**



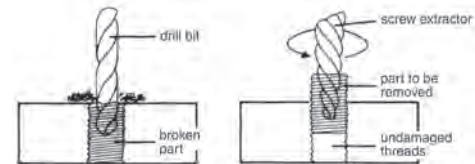
Comparison of twist drill and broaching cutter performance



**How to Use**

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

**Screw Extractor**



**Set Sections**

All Available Sets . . . . . 85-86



**Technical Information**

Drill & Tap Recommendations . . . . . 61

THREADING / DIES

Style/Surface Treatment	Image	Page	Sets Page
<b>Straight Flute</b>			
1690 - Taper Chamfer, HSS		66	66
1691 - Plug Chamfer, HSS		66	66
1692 - Bottoming Chamfer, HSS		66	66
1696 - Taper Chamfer, Carbon		66	66
1697 - Plug Chamfer, Carbon		66	66
1698 - Bottoming Chamfer, Carbon		66	66
<b>Spiral Point Taps</b>			
0401 - Taper Chamfer		67-68	67-68
0402 - Plug Chamfer		67-68	67-68
0403 - Bottoming Chamfer		67-68	67-68
<b>Pipe Taps</b>			
<b>Taper Pipe</b>			
1686 - Regular Threads, HSS		71	
1700 - Regular Threads, carbon		71	
0462 - Regular Threads, HSS		71	
1688 - Interrupted Threads, HSS		71	
0464 - Interrupted Threads, HSS		71	
<b>Straight Pipe</b>			
1687 - Bright		71	
0463 - Bright		71	
<b>Combination Drill &amp; Tap</b>			
0450 - Bright		72	



Style/Surface Treatment	Image	Page	Sets Page
<b>Dies - Hexagon</b>			
0650 - Re-Threading, Carbon Steel		72-73	74
492 - Re-Threading, HSS		72-73	—
0660 - Taper Pipe, Carbon Steel		73	—
<b>Dies - Round Adjustable</b>			
0610 - Carbon Steel		75-76	
0710 - HSS		75-76	77
0620 - Taper Pipe, Carbon Steel		76	
222 - Die Stocks		76	77
<b>Quick-Set® Two-Piece Die Systems</b>			
0554 - Die Assemblies		79-80	
0550 - Die Only		79-80	
0551 - Cap		79-80	82, 85-86
0552 - Guide		79-80	
0553 - Collet (Combined Cap & Guide)		79-80	
<b>Quick Two-Piece Die System</b>			
223 - Quick Two-Piece Die System		81	
225 - Jr. Quick Die Stock		81	
226 - Spanner Wrench		81	
055 - Quick Die Sets		82	
<b>Sets</b>			
Complete listing of available sets			85-86

**Material**

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

*Refer to the Icon Glossary in the Drilling section for more detailed information*

**Surface Treatment**

- Bright 
- Black Oxide 
- TiN 

*Additional treatments available upon request.*





**Base Material**

- HSS
- Carbon Steel

**Standard**

- ASME B94.9

**Chamfers**

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

**Thread Form**

- 302 
- 302A 

**Styles: 1690, 1691, 1692, 1693, 1696, 1697, 1698, 1699**

**Note**

General use:

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

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

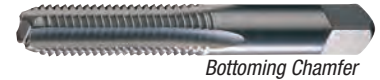
Style **169 M** (Metric) now combined with  
corresponding style below.



Taper Chamfer



Plug Chamfer



Bottoming Chamfer



Set:  
1 each

order number

tap size	tap size	dec.	no. of	overall	thread	1690	1691	1692	1693	1696	1697	1698	1699
TPI	series	equiv.	flutes	length	length	taper HSS	plug HSS	bottoming HSS	set 1 ea. HSS	taper Carbon	plug Carbon	bottoming Carbon	set 1 ea. Carbon
4-40	UNC	.1120	3	1-7/8	9/16	C69079	C69080	C69081	C69082	—	—	—	—
	M3 x 0.5	.1181	3	49	16	C69267	C69268	C69269	C69270	C69513	C69514	C69515	C69516
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	—	—	—	—
	M4 x 0.7	.1575	4	54	19	C69271	C69272	C69273	C69274	C69517	C69518	C69519	C69520
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	—	—	—	—
	M5 x 0.8	.1969	4	60	22	C69275	C69276	C69277	C69278	C69521	C69522	C69523	C69524
12-24	UNC	.2160	4	2-3/8	15/16	C69103	C69104	C69105	C69106	—	—	—	—
	M6 x 1	.2362	4	63.5	25.4	C69279	C69280	C69281	C69282	C69526	C69527	C69528	C69529
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
	M7 x 1	.2756	4	69	29	C69283	C69284	C69285	C69286	—	—	—	—
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
	M8 x 1.25	.3150	4	69	29	C69287	C69288	C69289	C69290	C69531	C69532	C69533	C69534
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
	M10 x 1.5	.3937	4	75	31.75	C69291	C69292	C69293	C69294	C69535	C69536	C69537	C69538
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
	M12 x 1.75	.4724	4	86	42	C69295	C69296	C69297	C69298	C69539	C69540	C69541	C69542
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
	M14 x 2	.5512	4	91	42	C69299	C69300	C69301	C69302	C69543	C69544	C69545	C69546
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
	M16 x 2	.6299	4	96	46	C69303	C69304	C69305	C69306	C69547	C69548	C69549	C69550
	M18 x 2.5	.7087	4	102	46	C69307	C69308	C69309	C69310	—	—	—	—
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
	M20 x 2.5	.7874	4	113.5	50.8	C69311	C69312	C69313	C69314	C69551	C69552	C69553	C69554
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	—	—	—	—

**Note**

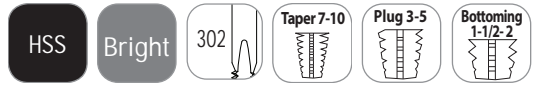
General use:

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

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

Inch products provided with H-limits, Metric products provided with D-limits.

Style 040 M (Metric) now combined with corresponding style below.



Taper Chamfer style 0401



Plug Chamfer style 0402



Bottoming Chamfer style 0403



tap size	TPI series	tap size pitch	decimal equiv.	no. of flutes	limit	overall length	thread length	order number			
								0401 Taper	0402 Plug	0403 Bottoming	0404 Set of 1 each
0-80	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	H2	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
		M3 x 0.5	.1181	3	D3	49	16	C63201	C63202	C63203	C63204
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
		M4 x 0.7	.1575	4	D4	54	19	C63209	C63210	C63211	C63212
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
		M5 x 0.8	.1969	4	D4	60	22	C63217	C63218	C63219	C63220
12-24	UNC		.2160	4	H3	2-3/8	15/16	C62025	C62026	C62027	C62028
12-28	UNF		.2160	4	H3	2-3/8	15/16	C00734	C00735	C00736	C00335
		M6 x 1	.2362	4	D5	63.5	25.4	C63221	C63222	C63223	C63224
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	—
1/4-17	UNF		.2500	4	H2	2-1/2	1	—	C00739	C00740	—
1/4-28	UNF		.2500	4	H3	2-1/2	1	C62033	C62034	C62035	C62036
		M7 x 1	.2756	4	D5	69	29	C63225	C63226	C63227	C63228
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
		M8 x 1.25	.3150	4	D5	69	29	C63229	C63230	C63231	C63232
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
		M10 x 1.5	.3937	4	D6	75	31.75	C63233	C63234	C63235	C63236
7/16-14	UNC		.4375	4	H3	3-5/32	1-7/16	C62053	C62054	C62055	C62056

continued on next page



Hand Taps

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

tap size TPI	series	tap size pitch	decimal equiv.	no. of flutes	limit	overall length	thread length	order number			
								0401 Taper	0402 Plug	0403 Bottoming	0404 Set of 1 each
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	—
		M12 x 1.75	.4724	4	D6	86	42	C63237	C63238	C63239	C63240
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	—
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	—	—
		M14 x 2	.5512	4	D7	91	42	C63241	C63242	C63243	C63244
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
		M16 x 2	.6299	4	D7	96	46	C63245	C63246	C63247	C63248
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
		M18 x 2.5	.7087	4	D7	102	46	C63249	C63250	C63251	C63252
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
		M20 x 2.5	.7874	4	D7	113.5	50.8	C63253	C63254	C63255	C63256
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

THREADING / DIES

Hand Tap & Die Sets

Quick-Set Die

SET

Style: **0402**

Plastic Case

Note

All use Cap Style #1383 and Guide style #1384, unless noted with an asterisks.



20 cutting sizes  
#C00608

set no.	number of cutting sizes	Tap: <b>0402</b> threading sizes	collet <b>055</b> number	wrench number	die stock <b>380</b> number	order number
558	20	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	—	#5, #7	#1, #5	C00608
559	7	4-40, 6-32, 8-32, 10-24, 10-32, 12-24, 1/4-20	A1	T9, A1	A1	C00609
5510	5	1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13	1	#5	#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	5	#5, #7	5A	C00611
5512	10	1/4-20, 5/16-18, 3/8-16, 7/16-14, 1/2-13	1	#5	#1	C00612
5513	20	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	1,5	#5, #7	#1, #5B	*C00613

\*No Cap included



**Note**

General use:

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

Style 1694 are maintenance taps.

Style 0411 provided with H-limits.

Style **1694M, 0411M** (Metric) now combined with corresponding style below.



tap size TPI	series	tap size pitch	decimal equivalent	no. of flutes	overall length	thread length	order number		
							1694 Plug	0411 Plug	limit
0-80	UNF		.0600	2	1-11/16	3/8	—	C00775	H2
1-64	UNC		.0730	2	1-11/16	3/8	—	C00776	H2
1-72	UNF		.0730	2	1-11/16	3/8	—	C00777	H2
		M2 x 0.4	.0787	2	44	11	*C69205	C62172	D3
2-56	UNC		.0860	2	1-3/4	7/16	—	C00778	H2
2-64	UNF		.0860	2	1-3/4	7/16	—	C00779	H2
3-48	UNC		.0990	2	1-13/16	1/2	—	C00780	H2
3-56	UNF		.0990	2	1-13/16	1/2	—	C00781	H2
4-40	UNC		.1120	2	1-7/8	9/16	*C69191	C62151	H2
4-48	UNF		.1120	2	1-7/8	9/16	—	C00782	H2
		M3 x 0.5	.1181	2	49	16	*C69206	C62175	D3
5-40	UNC		.1250	2	1-15/16	5/8	*C69192	C62152	H2
6-32	UNC		.1380	2	2	11/16	—	C00783	H2
6-32	UNC		.1380	2	2	11/16	*C69193	C62153	H3
6-40	UNF		.1380	2	2	11/16	—	C00784	H2
		M4 x 0.7	.1575	2	54	19	*C69207	C62177	D4
8-32	UNC		.1640	2	2-1/8	3/4	—	C00785	H2
8-32	UNC		.1640	2	2-1/8	3/4	*C69194	C62154	H3
8-36	UNF		.1640	2	2-1/8	3/4	—	C00786	H2
10-24	UNC		.1900	2	2-3/8	7/8	—	C00787	H2
10-24	UNC		.1900	2	2-3/8	7/8	*C69195	C62155	H3
10-32	UNF		.1900	2	2-3/8	7/8	—	C00788	H2
10-32	UNF		.1900	2	2-3/8	7/8	*C69196	C62156	H3
		M5 x 0.8	.1969	2	60	22	*C69208	C62179	D4
12-24	UNC		.2160	2	2-3/8	15/16	*C69197	C62157	H3
12-28	UNF		.2160	2	2-3/8	15/16	—	C00789	H3
		M6 x 1	.2362	2	63.5	25.4	*C69209	C62180	D5
1/4-20	UNC		.2500	2	2-1/2	1	*C69198	C62158	H3
1/4-20	UNC		.2500	3	2-1/2	1	—	C00790	H3
1/4-20	UNC		.2500	3	2-1/2	1	—	C00791	H5
1/4-28	UNF		.2500	2	2-1/2	1	*C69199	C62159	H3
5/16-18	UNC		.3125	2	2-23/32	1-1/8	*C69200	C62160	H3
5/16-18	UNC		.3125	3	2-23/32	1-1/8	—	C00793	H3
5/16-18	UNC		.3125	3	2-23/32	1-1/8	—	C00794	H5
5/16-24	UNF		.3125	2	2-23/32	1-1/8	*C69201	C62161	H3
		M8 x 1.25	.3150	2	69	29	*C69210	C62183	D5
3/8-16	UNC		.3750	3	2-15/16	1-1/4	*C69202	C62162	H3
3/8-16	UNC		.3750	3	2-15/16	1-1/4	—	C00795	H5
3/8-24	UNF		.3750	3	2-15/16	1-1/4	*C69203	C62163	H3
		M10 x 1.5	.3937	3	75	31.75	*C69211	C62185	D6
7/16-14	UNC		.4375	3	3-5/32	1-7/16	—	C00796	H3
7/16-14	UNC		.4375	3	3-5/32	1-7/16	—	C00797	H5
7/16-20	UNF		.4375	3	3-5/32	1-7/16	—	C00798	H3
7/16-20	UNF		.4375	3	3-5/32	1-7/16	—	C00799	H5

\*No H-limit

continued on next page

THREADING / DIES

Spiral Point Tap

Styles: **1694, 0411** (continued)

tap size TPI	series	tap size pitch	decimal equivalent	no. of flutes	overall length	thread length	order number		
							<b>1694</b> Plug	<b>0411</b> Plug	limit
		M12 x 1.75	.4724	3	86	42	*C69212	C62187	D6
1/2-13	UNC		.5000	3	3-3/8	1-21/32	*C69204	C62164	H3
1/2-13	UNC		.5000	3	3-3/8	1-21/32	—	C00800	H5
1/2-20	UNF		.5000	3	3-3/8	1-21/32	—	C00801	H3
5/8-11	UNC		.6250	3	3-13/16	1-13/16	—	C00802	H3
5/8-11	UNC		.6250	3	3-13/16	1-13/16	—	C00803	H5
5/8-18	UNF		.6250	3	3-13/16	1-13/16	—	C00804	H3
		M16 x 2	.6299	3	96	46	*C69213	C62191	D7
3/4-10	UNC		.7500	3	4-1/4	2	—	C00805	H3
3/4-10	UNC		.7500	3	4-1/4	2	—	C00806	H5
3/4-16	UNF		.7500	3	4-1/4	2	—	C00774	H3

\*No H-limit

THREADING / DIES

Spiral Point Tap & Die Set

SET

See description below

Plastic Case

Note

Uses Cap Style #1383 and Guide style #1384  
Uses Cleveland® Brand Tap Style #1011 unless noted otherwise.

set no.	number of cutting sizes	Tap: <b>0411</b> threading sizes	collet <b>055</b> number	wrench number	die stock <b>380</b> number	order number
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
5514	7	M6 x 1, M8 x 1.25, M10 x 1.5, M12 x 1.75, *M14 x 2, M16 x 2, *M18 x 2.5	5	#6	#5	C00614

\*Uses Cleveland® Brand Tap Style #1002

Spiral Point Tap, Die, & Drill Set

SET

See description below

Plastic Case

set no.	number of cutting sizes	Tap: <b>0411</b> threading sizes	Drill: <b>1899</b> drill sizes (mm)	collet <b>055</b> number	wrench number	die stock <b>710</b> number	order number
451	5	M6 x 1.0, M7 x 1.0, M8 x 1.25, M10 x 1.5, M12 x 1.75	5.0, 6.0, 6.7, 8.5, 10.2	—	—		C00451

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.

HSS Carbon Steel Bright 311 NPT



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	
1/16	27	NPT	0.0625	0.3125	2.125	0.688	4	—	—	C29000	—	—	—
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	3-5/8	1-3/8	5	C69320	C69511	C64218	5	C69330	C64228
1	11-1/2	NPT	1.0000	1.1250	3-3/4	1-3/4	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

THREADING / DIES

Styles: **1687, 0463**

Pipe Tap  
Straight Pipe Taps

**Note**

3-1/2 thread chamfer.

NPS thread design  
- suitable for NPSC or NPSM.

HSS Bright NPS



tap size	tap TPI	tap series	decimal equivalent	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

**Other Tools**  
Combination Drill & Tap

**General Purpose Taps / Dies**



Style: **0450**

**Note**

Drill and tap in one operation without changing tools.

Two flutes run length of the tool.

HSS

Bright



tap size	tap TPI	thread series	decimal equivalent	no. of flutes	overall length	thread length	drill length	drill size	order number
6	32	UNF	.1380	2	2	7/16	5/16	.1095	<b>0450</b> Bright C64937
8	32	UNC	.1640	2	2-1/8	1/2	3/8	.1360	C64960
10	24	UNC	.1900	2	2.375	5/8	13/32	.1545	C29186
10	32	UNF	.1900	2	2-3/8	5/8	13/32	.1610	C64961
12	24	UNC	.2160	2	2.375	21/32	15/32	.1805	C29187
1/4	20	UNC	.2500	2	2-1/2	25/32	17/32	.2010	C64949
1/4	28	UNF	.2500	2	2.500	25/32	17/32	.2220	C29188
5/16	18	UNC	.3125	2	3	15/16	11/16	.2570	C64952
5/16	24	UNF	.3125	2	2.844	15/16	11/16	.2770	C29200
3/8	16	UNC	.3750	2	3-1/2	1-1/16	13/16	.3225	C64955
3/8	24	UNF	.3750	2	3.375	1-1/16	13/16	.3395	C29189
1/2	13	UNF	.5000	2	4.062	1-3/8	1-1/8	.4350	C29190
1/2	20	UNF	.5000	2	4.062	1-3/8	1-1/8	.4580	C29191

**Die - Hexagon**  
Re-Threading

Styles: **0650, 492**

**Note**

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

Can be used only in free machining materials.

Style **0650M** (Metric) now combined with style 0650.

HSS

Carbon Steel

Bright



die diameter TPI	series	die diameter pitch	decimal equivalent	length across flats	thickness	order number	order number
						<b>0650</b> Carbon Steel	<b>492</b> High-Speed Steel
		M3 x 0.5	.1181	19/32	1/4	C29192	—
		M4 x 0.7	.1575	19/32	1/4	C29193	—
		M5 x 0.8	.1969	19/32	1/4	C65580	—
		M6 x 1	.2362	19/32	1/4	C65581	—
1/4-20	UNC		.2500	19/32	1/4	C65601	C77600
1/4-28	UNF		.2500	19/32	1/4	C65602	C77602
		M7 x 1.0	.2756	11/16	5/16	C29194	—
5/16-18	UNC		.3125	11/16	5/16	C65603	C77604
5/16-24	UNF		.3125	11/16	5/16	C65605	C77606
		M8 x 1.25	.3150	11/16	5/16	C65582	—
3/8-16	UNC		.3750	25/32	3/8	C65606	C77608
3/8-24	UNF		.3750	25/32	3/8	C65607	C77610
		M10 x 1.25	.3937	7/8	7/16	C29195	—
		M10 x 1.5	.3937	7/8	7/16	C65583	—
7/16-14	UNC		.4375	7/8	7/16	C65608	C77612
7/16-20	UNF		.4375	7/8	7/16	C65609	C77614
		M12 x 1.75	.4724	1-1/16	1/2	C65584	—
1/2-13	UNC		.5000	1-1/16	1/2	C65610	C77616

continued on next page

die diameter TPI	series	die diameter pitch	decimal equivalent	length across flats	thickness	order number	
						<b>0650</b> Carbon Steel	<b>492</b> High-Speed Steel
1/2-20	UNF		.5000	1-1/16	1/2	C65611	C77618
		M14 x 1.5	.5512	1-1/16	1/2	C29196	—
		M14 x 2	.5512	1-1/16	1/2	C65585	—
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
		M16 x 2	.6299	1-1/4	5/8	C65586	—
11/16-11	NS		.6875	1-7/16	3/4	C65616	—
11/16-16	NS		.6875	1-7/16	3/4	C65617	—
		M18x1.5	.7087	1-7/16	3/4	C29197	—
		M18x2.5	.7087	1-7/16	3/4	C29198	—
3/4-10	UNC		.7500	1-7/16	3/4	C65618	C77628
3/4-16	UNF		.7500	1-7/16	3/4	C65619	C77630
		M20 x 2.5	.7874	1-5/8	7/8	C65587	—
7/8-9	UNC		.8750	1-5/8	7/8	C65620	C77632
7/8-14	UNF		.8750	1-5/8	7/8	C65621	C77634
		M24x3.0	.9449	1-13/16	1	C29199	—
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	—

THREADING / DIES

Style: **0660**

Die - Hexagon  
Taper Pipe - Carbon Steel



Carbon Steel    Bright    NPT

die diameter TPI and series	decimal equivalent	length across flats	thickness	order number
				<b>0660</b> 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

**Die - Hexagon Sets**  
Re-Threading Sets

**SET**

Styles: **0650**

Plastic Case

Carbon Steel

UNC  
UNF

**Note**  
NC or NF sets  
1 each of die sizes listed

THREADING / DIES

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	5/8-18 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	
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	

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



8-Piece Die Set  
#C67275



20-Piece Die Set  
#C67282



**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.

Style **0710M** (Metric) now combined with style 0710.

HSS Bright Carbon Steel



diameter TPI	series	diameter pitch	decimal equiv.	outside dia.	thick- ness	order number	
						0610 Carbon Steel	0710 HSS
0-80	UNF		.0600	13/16	1/4	C65022	—
1-64	UNC		.0730	13/16	1/4	C65026	—
1-72	UNF		.0730	13/16	1/4	C65027	—
2-56	UNC		.0860	13/16	1/4	C65036	—
2-64	UNF		.0860	13/16	1/4	C65037	—
		M2.5x 0.45	.0984	21	6	—	C65721
3-48	UNC		.0990	13/16	1/4	C65045	—
3-56	UNF		.0990	13/16	1/4	C65046	—
4-40	UNC		.1120	13/16	1/4	C65048	—
4-48	UNF		.1120	13/16	1/4	C65049	—
		M3 x 0.5	.1181	21	6	—	C65724
5-40	UNC		.1250	13/16	1/4	C65057	C65729
5-44	UNF		.1250	13/16	1/4	C65058	C65730
		M3.5 x 0.6	.1378	21	6	—	C65732
6-32	UNC		.1380	13/16	1/4	C65061	C65733
6-32	UNC		.1380	1	3/8	C65114	C65785
6-40	UNF		.1380	13/16	1/4	C65062	C65734
		M4 x 0.7	.1575	21	6	—	C65737
8-32	UNC		.1640	13/16	1/4	C65069	C65739
8-32	UNC		.1640	1	3/8	C65119	C65789
8-36	UNF		.1640	13/16	1/4	C65070	C65740
		M4.5 x 0.75	.1772	21	6	—	C65742
10-24	UNC		.1900	13/16	1/4	C65075	C65743
10-24	UNC		.1900	1	3/8	C65124	C65792
10-32	UNF		.1900	13/16	1/4	C65076	C65744
10-32	UNF		.1900	1	3/8	C65125	C65793
		M5 x 0.8	.1969	21	6	—	C65747
12-24	UNC		.2160	13/16	1/4	C65083	C65751
12-24	UNC		.2160	1	3/8	C65132	C65798
12-28	UNF		.2160	13/16	1/4	C65084	C65752
		M6 x 1	.2362	21	6	—	C65757
		M6 x 1	.2362	25.4	9.5	—	C65801
1/4-20	UNC		.2500	13/16	1/4	C65093	C65760
1/4-20	UNC		.2500	1	3/8	C65140	C65804
1/4-20	UNC		.2500	1-1/2	1/2	C65192	C65839
1/4-20	UNC		.2500	2	5/8	C65264	—
1/4-28	UNF		.2500	13/16	1/4	—	C65761
1/4-28	UNF		.2500	1	3/8	C65142	C65805
1/4-28	UNF		.2500	1-1/2	1/2	C65193	C65840
1/4-28	UNF		.2500	2	5/8	C65265	—
		M7 x 1	.2756	25.4	9.5	—	C65807
5/16-18	UNC		.3125	13/16	1/4	—	C65766
5/16-18	UNC		.3125	1	3/8	C65147	C65808
5/16-18	UNC		.3125	1-1/2	1/2	C65197	C65844
5/16-18	UNC		.3125	2	5/8	C65269	—
5/16-24	UNF		.3125	13/16	1/4	—	C65767
5/16-24	UNF		.3125	1	3/8	C65148	C65809

diameter TPI	series	diameter pitch	decimal equiv.	outside dia.	thick- ness	order number	
						0610 Carbon Steel	0710 HSS
5/16-24	UNF		.3125	1-1/2	1/2	C65198	C65845
5/16-24	UNF		.3125	2	5/8	C65270	—
		M8 x 1.25	.3150	25.4	9.5	—	C65813
3/8-16	UNC		.3750	1	3/8	C65159	C65816
3/8-16	UNC		.3750	1-1/2	1/2	C65208	C65855
3/8-16	UNC		.3750	2	5/8	C65280	—
3/8-24	UNF		.3750	1	3/8	C65160	C65817
3/8-24	UNF		.3750	1-1/2	1/2	C65209	C65856
3/8-24	UNF		.3750	2	5/8	C65281	—
		M10 x 1.5	.3937	25.4	9.5	—	C65824
7/16-14	UNC		.4375	1	3/8	C65171	C65828
7/16-14	UNC		.4375	1-1/2	1/2	C65220	C65865
7/16-14	UNC		.4375	2	5/8	C65292	—
7/16-20	UNF		.4375	1	3/8	C65172	C65829
7/16-20	UNF		.4375	1-1/2	1/2	C65221	C65866
7/16-20	UNF		.4375	2	5/8	C65293	—
		M12 x 1.75	.4724	25.4	9.5	—	C65833
1/2-13	UNC		.5000	1	3/8	C65470	—
1/2-13	UNC		.5000	1-1/2	1/2	C65232	C65875
1/2-13	UNC		.5000	2	5/8	C65303	—
1/2-20	UNF		.5000	1	3/8	C65471	—
1/2-20	UNF		.5000	1-1/2	1/2	C65233	C65876
1/2-20	UNF		.5000	2	5/8	C65304	—
		M14 x 2	.5512	38	13	—	C65880
9/16-12	UNC		.5625	1-1/2	1/2	C65239	C65881
9/16-12	UNC		.5625	2	5/8	C65311	—
9/16-18	UNF		.5625	1-1/2	1/2	C65240	C65882
9/16-18	UNF		.5625	2	5/8	C65312	—
5/8-11	UNC		.6250	1-1/2	1/2	C65243	C65884
5/8-11	UNC		.6250	2	5/8	C65315	C65946
5/8-11	UNC		.6250	2-1/2	3/4	C65374	—
5/8-18	UNF		.6250	1-1/2	1/2	C65244	C65885
5/8-18	UNF		.6250	2	5/8	C65316	C65947
		M16 x 2	.6300	38	13	—	C65889
		M18 x 2.5	.7087	38	13	—	C65896
3/4-10	UNC		.7500	1-1/2	1/2	C65250	—
3/4-10	UNC		.7500	2	5/8	C65328	C65957
3/4-10	UNC		.7500	2-1/2	3/4	C65384	—
3/4-16	UNF		.7500	1-1/2	1/2	C65251	—
3/4-16	UNF		.7500	2	5/8	C65329	C65958
3/4-16	UNF		.7500	2-1/2	3/4	C65385	—
		M20 x 2.5	.7874	38	13	—	C65901
7/8-9	UNC		.8750	2	5/8	C65339	C65966
7/8-9	UNC		.8750	2-1/2	3/4	C65395	—
7/8-14	UNF		.8750	2	5/8	C65340	C65967
7/8-14	UNF		.8750	2-1/2	3/4	C65396	—

continued on next page

**Die**  
Round and Taper Pipe

General Purpose Taps / Dies

Styles: **0610, 0710, 0620**



THREADING / DIES

diameter TPI	series	diameter pitch	decimal equiv.	outside dia.	thick- ness	order number	
						0610 Carbon Steel	0710 HSS
1-8	UNC		1.0000	2	5/8	C65349	—
1-8	UNC		1.0000	2-1/2	3/4	C65405	—
1-8	UNC		1.0000	3	1	C65416	—
1-12	UNF		1.0000	2	5/8	C65350	—
1-12	UNF		1.0000	2-1/2	3/4	C65406	—
1-12	UNF		1.0000	3	1	C65417	—
1-14	UNF		1.0000	2	5/8	C65407	—
1-1/8-7	UNC		1.1250	3	1	C65426	—
1-1/8-12	UNF		1.1250	3	1	C65427	—
1-1/4-7	UNC		1.2500	3	1	C65433	—
1-1/4-12	UNF		1.2500	3	1	C65434	—
1-3/8-6	UNC		1.3750	3	1	C65441	—
1-3/8-12	UNF		1.3750	3	1	C65442	—
1-1/2-6	UNC		1.5000	3	1	C65449	—
1-1/2-12	UNF		1.5000	3	1	C65450	—

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

Note: Pipe size round adjustable dies are not split.

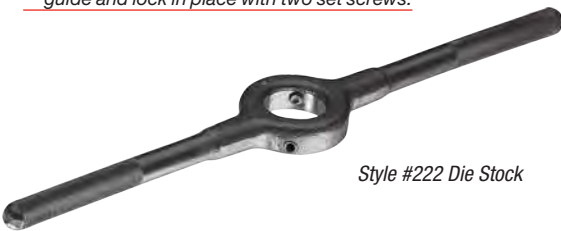
**Die Stock**  
Round Adjustable

Styles: **222**

**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

product number	die O.D.	overall length	order number
			222
2	13/16	7	C67223
3	1	9-1/4	C67224
5	1-1/2	13-1/4	C67226
6	2	15-3/8	C67227
7	2-1/2	19-1/2	C67228
8	3	23	C67229

**SET**

Descriptions below

**Note**

Each includes:  
Combination UNC/UNF sizes.  
1 each of tap and die sizes listed.  
Tap wrench and die stock included  
HSS Maintenance Hand Taps and  
Carbon Steel Round Adjustable Die.

HSS Carbon Steel UNC UNF



8 Size Set  
#C67271

THREADING / DIES

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

set number	number of sizes	tap and die sizes		order number	
815	20	1/4-20 UNC	1/4-28 UNF	C67293	
		5/16-18 UNC	5/16-24 UNF		
		3/8-16 UNC	3/8-24 UNF		
		7/16-14 UNC	7/16-20 UNF		
		1/2-13 UNC	1/2-20 UNF		
		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	1-12 UNF		
533	28 Taps 15 Dies	4-40 UNC	1/4-20 UNC	C00533	
		6-32 UNC	1/4-28 UNF		
		8-32 UNC	5/16-18 UNC		
		10-24 UNC	5/16-24 UNF		
		10-32 UNF	3/8-16 UNC		
		12-24 UNC	3/8-24 UNF		
		7/16-14 UNC	7/16-20 UNF		
		1/2-13 UNC	1/2-20 UNF		
		9/16-12 UNC	9/16-18 UNF		
			5/8-18 UNC		
			3/4-16 UNC		
			7/8-14 UNC		
			1-14 UNS		
			pipe sizes		1/8-27 (long shank)
					1/4-18
		3/8-18			
		1/2-14			
		M14 x 1.5			
	metric sizes	M18 x 1.5			

## Tap & Die Sets

Metric Round - Adjustable

### General Purpose Taps / Dies



Descriptions below

**Note**

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

HSS



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	

THREADING / DIES

## Tap, Die & Drill Set

Metric Round - Adjustable

Description below

**Note**

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

HSS

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	



5 Size Set #C00451

## Jobber Drill & Tap Sets

SET

Styles: 1860

**Note**

Drill style: 1898 bright  
 Uses Cle-Line Tap Style: #0411 Spiral Point

jobber drill sizes	plug tap spiral point	no. of pieces	order number
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



- 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 below), or in their component parts.
- Metric sizes are sold in their component parts only.
- Use with Quick-Set die stocks; see styles 0650, 0610, and 0710.

- 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.

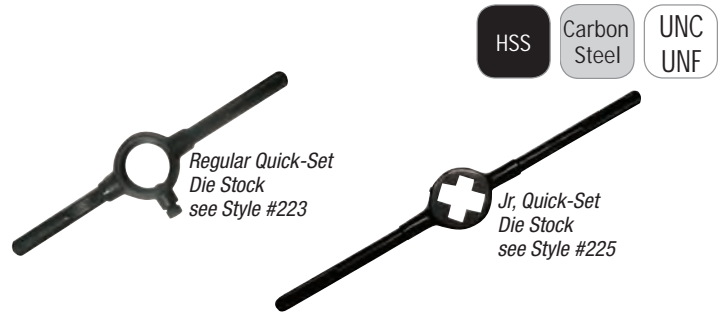
**Application Information:**

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

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

**Collet Assembly and Components**

**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.



nominal dia. TPI	nominal dia. series	decimal pitch	decimal equivalent	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
	M6 x 1		.2362	5	—	—	A	C66670	70	—	C66820	—
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
	M8 x 1.25		.3150	5	—	—	A	C66671	70	—	C66821	—
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

continued on next page



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

**THREADING / DIES**

nominal dia. TPI	nominal dia. series	nominal dia. pitch	decimal equivalent	collet no.	collet O.D.	order number		die blank no.	cap O.D.	order number		
						<b>0554</b> assembly	<b>0550</b> die			<b>0551</b> cap	<b>0552</b> guide	<b>0553</b> collet
		M10 x 1.5	.3937	5	—	—	B	C66672	70	—	C66822	—
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
		M12 x 1.75	.4724	5	—	—	B	C66673	70	—	C66823	—
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	C66710	2	C66732	C66746	C66769
1/2-20	UNF		.5000	1	2	C66798	C	C66711	2-3/4	C66729	C66741	C66764
1/2-20	UNF		.5000	5	2-3/4	C66802	C	C66712	2-3/4	C66732	C66746	C66769
		M14 x 2	.5512	5	—	—	C	C66674	70	C66732	C66824	—
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
		M16 x 2	.6300	5	—	—	C	C66675	70	C66732	C66825	—
		M18 x 2.5	.7087	5	—	—	C	C66676	70	C66732	C66826	—
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
		M20 x 2.5	.7874	5	—	—	C	C66677	70	C66732	C66827	—
		M22 x 2.5	.8661	5	—	—	D	C66678	70	C66733	C66828	—
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
		M24 x 3	.9449	5	—	—	D	C66679	70	C66733	C66829	—
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



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
				<b>223</b>
#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

Style: **225**

Jr. Quick Die Stock

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
						<b>225</b>
#1	1/4 to 5/16 3/8 to 1/2	A B	1	1/4 to 1/2	14-1/2	C67220
#5	9/16 to 3/4 7/8 to 1	C D	5	9/16 to 1	26	C67221

Styles: **226**

Quick Set Spanner Wrench

Carbon Steel

**Note**

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

Fits into two holes to turn guide.



stock no.	collet no.	collet capacity	order number
			<b>226</b>
#A1	A1	1-1/4	C67232

# Tap & Die Sets

Quick-Set Two-Piece Die System

SET

General Purpose Taps / Dies

Style: 055



Carbon Steel

THREADING / DIES

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					



7 Size Set Tap & Die #C00609

# Tap & Die Sets

Quick-Set Jr. Tap & Die

SET

Style: 055

**Note**

Die stock to hold dies without collet.

HSS

Carbon Steel

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

Style: 240

Standard Straight

**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

Style: 242

Plain T-Handle

**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

Style: 243

Slip T-Handle

**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

THREADING / DIES

**SET** Straight, Plain, Slip, Combination, Long

**Combination Ratchet and Slip Handle**

Style: **244**

**Note**  
Used for hand tapping in difficult spaces needing ratchet drive.

product number	mach screw	tap size ranges		overall length	order number
		fractional	metric		<b>244</b>
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



SETS

**Long Shank T-Handle**

Style: **245**

**Note**  
Used for hand tapping where extra reach is required.

product number	mach screw	tap size ranges		overall length	order number
		fractional	metric		<b>245</b>
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



See product specific page for additional information

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



8 Size Set Re-Threading #C67275



20 Size Set Re-Threading #C67282



7 Size Set Tap and Round Adjustable #C00448



5 Size Set Tap and Round Adjustable #C00449

set number	no. of sizes	sizes	case type	style number	order number
<b>Carbon Steel Re-Threading</b>					<b>0650</b>
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		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
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
<b>Tap and Round Adjustable Die HSS</b>					
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
<b>Tap &amp; Die</b>					
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		0411	C00448
449	5	M6 x 1.0, M7 x 1.0, M8 x 1.25, M10 x 1.5, M12 x 1.75		0411	C00449

Tap, Die, & Drill Sets

**SET**

Cost Saving Sets (continued)

See product specific page for additional information

set number	no. of sizes	sizes	case type	style number	order number
<b>Tap &amp; Die</b>					
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
<b>Tap &amp; Drill</b> - Drill style: 1898 Bright, Uses Cle-Line Tap Style: #0411 Spiral Point					<b>1860</b>
<b>NEW</b>	2	Bright, Drill: #36 Tap: 6-32 spiral point	plastic tube		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
<b>Quick-Set Two-Piece Die System</b> Uses: Die #380, Cap #1383, Guide #1384					<b>055</b>
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		<b>0402</b>	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		<b>0402</b>	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		<b>0402</b>	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		<b>0402</b>	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		<b>0402</b>	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		<b>0411</b> <b>1002</b>	C00614
<b>Quick-Set Jr. Tap &amp; Die</b> Uses: Die #380, Guide #1384					<b>055</b>
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		<b>0402</b>	C00608



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

SETS














**Set Sections**

All Available Sets . . . . .91

# You **SAW** it here!

	Page	Set Page
<b>Hole Saws</b>		
1887 . . . . . M-3 Hole Saws 	90	
1887 . . . . . M-42 Hole Saws 	90	93
<b>NEW</b> 1886 . . . . . <b>CLAW</b> Fleam Ground Hole Saws 	91	93
<b>NEW</b> 1881 . . . . . Carbide Tipped Hole Saws 	92	93
<b>Hole Saws Accessories</b>		
1885 . . . . . Hole Saw Accessories Round and Hex Shank Pilot Drill, Adaptor 	94	
<b>Bi-Metal Reciprocating Saw Blades</b>		
M42 - RSB-D . . . . Demolition - Wood / Nail	95	
. . . . . Demolition - Metal / Rescue	95	
M42 - RSB-P . . . . Pallet 	95	
M42 - RSB-BM. . . . Wood	96	
. . . . . Metal	96	
. . . . . All-Purpose	97	
. . . . . Plaster	97	
Carbide . . . . . Metal <b>NEW</b> 	97	
M-42 . . . . . Air Saw	98	

	Page	Set Page
<b>Bi-Metal Hacksaw Blades</b>		
HB-BM . . . Bi-Metal 	98	
<b>M42 Bi-Metal Band Saw Blades</b>		
Portable Band Saw		
P1000 - Portable Band Saw 	99	
Weld-to-Length Band Saw		
T1000 - Straight Tooth	100	
T2000 - 5° Positive Rake Tooth	100	
T3000 - 10° High Positive Rake	101	
T4000 - Protective Tooth	101	
T5000 - Heavy Set	101	
T6000 - Turtle Back	102	
T7000 - Narrow Width Bands (M42)	102	
<b>NEW</b> Pre-Welded Band Saw		
T1000 - Straight Tooth	103	
T2000 - 5° Positive Rake Tooth	103	
T3000 - 10° High Positive Rake	103	
T7000 - Narrow Width Bands (M42) Carbide Tipped	103	
<b>NEW</b> Carbide Tipped		
1882	104	

SAWS

Cut to customer specifications

**Weld-to-Length**

**Band Saw Program**

Reduce Cost • Custom Fit

Choose from the most common length

**Pre-Welded**

**Band Saw Program**

to make delivery quick & easy!

**Icon Glossary**

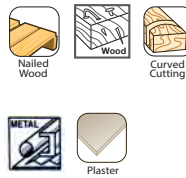
**Base Material**



**Threads per Inch**



**Application**



**Technical Information**

Hole Saw	
Recommended Operating Speeds . . . . .	106
Reference Chart / Tech Tips . . . . .	107
Bi-Metal Blades	
Speed and Feeds . . . . .	108-109
Blade Basics . . . . .	110-112
Problem / Solution . . . . .	113

 International products

# Hole Saws

## M-3 / M-42

### Saw Blades

Styles: **1887**



#### Note

Traditional narrow openings on the side wall.

High speed cutting edge.

1-7/8" (48mm) cutting depth.

\*1-1/2" (32mm) cutting depth.

3/16" (5mm) thick heavy-duty backing plate eliminates need for drive plate.

Shock resistant teeth, resists tooth strippage, less vibration, cuts 30% faster than conventional saws.

Creates holes for pipe, tubing, door lock installations, electrical conduits, and antennas.

Ideal for plumbing, construction, aircraft, electrical, maintenance and automotive applications.

Use in steel, aluminum, brass, cast iron, plastic or wood.



4/6 variable tooth configuration

1-7/8" (48mm) depth of cut  
Unless noted otherwise



Thin kerf design 0.050" thickness for faster cutting. Prolongs battery life when used on cordless tools.

3/16" (5mm) thick heavy-duty backing plate eliminates need for drive plate

SAWS

diameter inch (mm)	order number	
	1887	
	M3	M42
9/16" (14mm)	C25058	C25000
5/8" (16mm)	C26149	C26121
11/16" (17mm)	C26102	C25002
3/4" (19mm)	C25061	C26113
20mm	C25062	C25004
13/16" (21mm)	C26106	C26105
7/8" (22mm)	C25064	C25006
*7/8" (22mm)	C24998	C24999
15/16" (24mm)	C25065	C25007
1" (25mm)	C25066	C26101
1-1/16" (27mm)	C25067	C25009
1-1/8" (29mm)	C25068	C26103
1-3/16" (30mm)	C25069	C25011
1-1/4" (32mm)	C25070	C25012
1-5/16" (33mm)	C25071	C25013
1-3/8" (35mm)	C26108	C25014
1-7/16" (37mm)	C25073	C25015
1-1/2" (38mm)	C25074	C25016
1-9/16" (40mm)	C25075	C25017
1-5/8" (41mm)	C25076	C25018
1-11/16" (43mm)	C25077	C26104

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

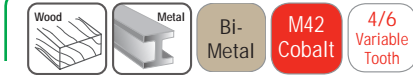
diameter inch (mm)	order number	
	1887	
	M3	M42
3-1/8" (79mm)	C25098	C25040
3-1/4" (83mm)	C25099	C26115
3-3/8" (86mm)	C26116	C25042
3-1/2" (89mm)	C25001	C25043
3-5/8" (92mm)	C25102	C25044
3-3/4" (95mm)	C25103	C25045
3-7/8" (98mm)	C25104	C25046
100mm	C25105	C25047
4" (102mm)	C25106	C25048
4-1/8" (105mm)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



Saw Blades

Styles: 1886

Hole Saws  
CLAW Fleam Ground



"You asked for *speed* and a smooth finish ... Cle-Line *CLAW* delivers."



- **CLAW** has a cutting edge made from M42 cobalt steel
- Shock resistant teeth
- Reduces tooth stripping
- 4/6 positive tooth
- Less vibration



Easy Plug Removal

triple slot design makes plug removal easier

Size Range

9/16" to 6"

Turtle Back Tooth

reinforced tooth back

Heavy Duty Cutting

up to 40% faster than traditional bi-metal hole saws and a longer working life

Gullets

designed deeper for faster chip removal

SAWS

diameter inch (mm)	order number 1886
9/16" (14mm)	C43100
5/8" (16mm)	C43101
11/16" (17mm)	C43102
3/4" (19mm)	C43103
20mm	C43104
13/16" (21mm)	C43105
7/8" (22mm)	C43106
15/16" (24mm)	C43107
1" (25mm)	C43108
1-1/16" (27mm)	C43109
1-1/8" (29mm)	C43110
1-3/16" (30mm)	C43111
1-1/4" (32mm)	C43112
1-5/16" (33mm)	C43113
1-3/8" (35mm)	C43114
1-7/16" (37mm)	C43115
1-1/2" (38mm)	C43116
1-9/16" (40mm)	C43117
1-5/8" (41mm)	C43118
1-11/16" (43mm)	C43119

diameter inch (mm)	order number 1886
1-3/4" (44mm)	C43120
45mm	C43121
1-13/16" (46mm)	C43122
1-7/8" (48mm)	C43123
50mm	C43124
2" (51mm)	C43125
2-1/16" (52mm)	C43126
2-1/8" (54mm)	C43127
55mm	C43128
2-1/4" (57mm)	C43129
2-5/16" (59mm)	C43130
2-3/8" (60mm)	C43131
2-1/2" (64mm)	C43132
2-9/16" (65mm)	C43133
2-5/8" (67mm)	C43134
68mm	C43135
2-3/4" (70mm)	C43136
2-7/8" (73mm)	C43137
75mm	C43138
3" (76mm)	C43139

diameter inch (mm)	order number 1886
3-1/8" (79mm)	C43140
3-1/4" (83mm)	C43141
3-3/8" (86mm)	C43142
3-1/2" (89mm)	C43143
3-5/8" (92mm)	C43144
3-3/4" (95mm)	C43145
3-7/8" (98mm)	C43146
100mm	C43147
4" (102mm)	C43148
4-1/8" (105mm)	C43149
4-1/4" (108mm)	C43150
4-3/8" (111mm)	C43151
4-1/2" (114mm)	C43152
4-3/4" (121mm)	C43153
5" (127mm)	C43154
5-1/2" (140mm)	C43155
5-3/4" (146mm)	C43156
6" (152mm)	C43157

**Hole Saws**  
Carbide Tipped

**Saw Blades**

Styles: **1881**

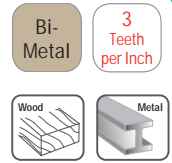


**NEW**



**CLE-LINE**  
**CARBIDE TIPPED**  
Hole Saws

- Creates holes for pipes, tubing, door lock installations, electrical conduits, and antennas.
- Ideal for plumbing, construction, aircraft, electrical, maintenance, and automotive applications.
- Use in steel, brass, plastic, wood, fiberglass, drywall, counter tops, plaster, and fiberboard.



**Carbide Tipped**

*up to 20x longer life for cutting wood and metal*

**Tooth Geometry**

*provides cleaner and faster cuts for aggressive cutting (3 teeth per inch)*

**1-1/2" Depth of Cut**

SAWS

diameter	order number
9/16" (14mm)	C43000
16mm	C43001
11/16" (17mm)	C43002
3/4" (19mm)	C43003
20mm	C43004
13/16" (21mm)	C43005
7/8" (22mm)	C43006
15/16" (24mm)	C43007
1" (25mm)	C43008
1-1/16" (27mm)	C43009
1-1/8" (29mm)	C43010
1-3/16" (30mm)	C43011
1-1/4" (32mm)	C43012
1-5/16" (33mm)	C43013
1-3/8" (35mm)	C43014
1-7/16" (37mm)	C43015
1-1/2" (38mm)	C43016
1-9/16" (40mm)	C43017

diameter	order number
1-5/8" (41mm)	C43018
1-11/16" (43mm)	C43019
1-3/4" (44mm)	C43020
1-13/16" (46mm)	C43021
1-7/8" (48mm)	C43022
2" (51mm)	C43023
2-1/16" (52mm)	C43024
2-1/8" (54mm)	C43025
2-1/4" (57mm)	C43026
2-5/16" (59mm)	C43027
2-3/8" (60mm)	C43028
2-1/2" (64mm)	C43029
2-9/16" (65mm)	C43030
2-5/8" (67mm)	C43031
2-3/4" (70mm)	C43032
2-7/8" (73mm)	C43033
3" (76mm)	C43034
3-1/8" (79mm)	C43035

diameter	order number
3-1/4" (83mm)	C43036
3-3/8" (86mm)	C43037
3-1/2" (89mm)	C43038
3-5/8" (92mm)	C43039
3-3/4" (95mm)	C43040
3-7/8" (98mm)	C43041
4" (102mm)	C43042
4-1/8" (105mm)	C43043
4-1/4" (108mm)	C43044
4-3/8" (111mm)	C43045
4-1/2" (114mm)	C43046
4-3/4" (121mm)	C43047
5" (127mm)	C43048
5-1/4" (133mm)	C43049
5-1/2" (140mm)	C43050
5-3/4" (146mm)	C43051
6" (152mm)	C43052



**Note**

Hole Saw Kits available for cutting almost any material.

The M-42 and CLAW kits contain Bi-Metal 8% Cobalt hole saws of 4/6, Carbide contain .

Assortment of hole saws and accessories specifically designed for the application environment.

Provided in a heavy duty, plastic case.

4/6 TPI  
(Teeth per Inch)

3 TPI  
(Teeth per Inch)

Bi-Metal

M42  
Cobalt

Style:  
1887 &  
1886

Style:  
1881



**M-42 Bi-Metal**  
9 piece  
Electrician's Kit  
#CHK04



**CLAW® Fleam Ground**  
9 piece  
Electrician's Kit  
#C43161



**Carbide Tipped**  
9 piece  
Electrician's Kit  
#C43053

Kit 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	
<b>1887 - M-42 Bi-Metal</b>																				
<b>Handyman's Kit - 7 piece</b> (includes 1 mandrel and 1 adaptor)																				
Sizes		✓	✓	✓	✓		✓													CHK01
<b>Locksmith's Kit - 9 piece</b> (includes 2 mandrels and 1 adaptor)																				
Sizes		✓	✓		✓		✓	✓		✓										CHK02
<b>Plumber's Kit - 9 piece</b> (includes 2 mandrels and 1 adaptor)																				
Sizes	✓	✓		✓			✓	✓			✓									CHK03
<b>Electrician's Kit - 9 piece</b> (includes 2 mandrels and 1 adaptor)																				
Sizes		✓		✓		✓		✓	✓				✓							CHK04
<b>Electrician's Kit - Metric - 9 piece</b> (includes 2 mandrels and 1 adaptor)																				
Sizes	16mm(5/8"), 20mm, 25mm(1"), 32mm(1-1/4"), 40mm(1-9/16"), 51mm(2")																		CHK05	
<b>Journeyman's Kit - 13 piece</b> (includes 2 mandrels, 1 pilot hole drill, and 1 adaptor)																				
Sizes	✓	✓		✓		✓	✓	✓	✓		✓	✓								CHK06
<b>1886 - CLAW/Fleam Ground</b>																				
<b>Handyman's Kit - 7 piece</b> (includes 1 mandrel / arbors, 1 adaptor)																				
Sizes		✓	✓	✓	✓		✓													C43158
<b>Locksmith's Kit - 9 piece</b> (includes 2 mandrels / arbors, 1 adaptor)																				
Sizes		✓	✓		✓		✓	✓		✓										C43159
<b>Plumber's Kit - 9 piece</b> (includes 2 mandrels / arbor, and 1 adaptor)																				
Sizes	✓	✓		✓			✓	✓			✓									C43160
<b>Electrician's Kit - 9 piece</b> (includes 2 mandrels / arbor, and 1 adaptor)																				
Sizes		✓		✓		✓		✓	✓				✓							C43161
<b>Electrician's Kit - Metric - 9 piece</b> (includes 2 mandrels / arbor, and 1 adaptor)																				
Sizes	16mm(5/8"), 20mm, 25mm(1"), 32mm(1-1/4"), 40mm(1-9/16"), 51mm(2")																		C43162	
<b>Journeyman's Kit - 13 piece</b> (includes 2 mandrels / arbor, 1 pilot hole drill, and 1 adaptor)																				
Sizes	✓	✓		✓		✓	✓	✓	✓		✓	✓								C43163
<b>1881 - Carbide Tipped</b>																				
<b>Electrician's Kit - 8 piece</b> (includes 2 mandrel / arbors)																				
Sizes		✓		✓		✓		✓	✓				✓							C43053
<b>Maintenance Kit - 11 piece</b> (includes 2 mandrel / arbors)																				
Sizes	✓	✓		✓		✓	✓	✓	✓		✓	✓								C43054


**SAWS**

## Accessories

## Hole Saws

## Round Shank




fits the following		order number
chuck size	hole saw size	 <b>1885</b>
1/4" (6mm)	9/16" - 1-3/16" (14 to 30mm)	*C25116

\*Included in kit #: C43158, C43159, C43160, C43161, C43162, C43163.


## Hex Shank



fits the following		order number	
chuck size	hole saw size	<b>1881</b>	 <b>1885</b>
3/8" (9mm)	9/16" - 1-3/16" (14 to 30mm)	C43055	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	<b>1881</b>	 <b>1885</b>
3/8" Pinned (9mm)	1-1/4" - 6" (32 to 152mm)	—	C26198
7/16" Pinned (11mm)	1-1/4" - 6" (32 to 152mm)	C43056	*C25121

\*Included in kit #: C43159, C43160, C43161, C43162, C43163.


## Hex Shank



fits the following		order number
chuck size	hole saw size	 <b>1885</b>
3/8" (9mm)	1-1/4" - 6" (32 to 152mm)	C26195
7/16" (11mm)	1-1/4" - 6" (32 to 152mm)	C26197


## Short Pilot Drill with Flat on Shank



description	order number	
	<b>1881</b> (10 per pkg.)	 <b>1885</b> (2 per pkg.)
3-3/32" overall length x 1/4" dia. (80mm)	C43057	—
3-1/4" overall length x 1/4" dia. (80mm)	—	C25123

## Long Pilot Drill with Whistle Notch on Shank



description	order number
	 <b>1885</b> (2 per pkg.)
4" overall length x 1/4" dia. (102mm)	C25124


## Arbor Extension



description	order number
	 <b>1881, 1886, 1887</b> (2 per pkg.)
3/8" x 12" (9mm dia. x 302mm)	C26199

## Adaptor



fits hole saw size	order number
1-1/4" - 6" (32 to 152mm)	 <b>1885</b> C26196





## Saw Blades

Style: **RSB-D**

**Bi-Metal Reciprocating Blade**  
Demolition - Wood / Nail

**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.



M42  
Cobalt

Inch (teeth per inch)	order number		
	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 / Rescue

Style: **RSB-D**

**Note**

Wider (1.0") and thicker (.042) blades engineered for heavy-duty, tough cutting, demolition applications.

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



M42  
Cobalt

Inch (teeth per inch)	order number		
	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

**Bi-Metal Reciprocating Blade**  
Pallet

Style: **RSB-P**

**Note**

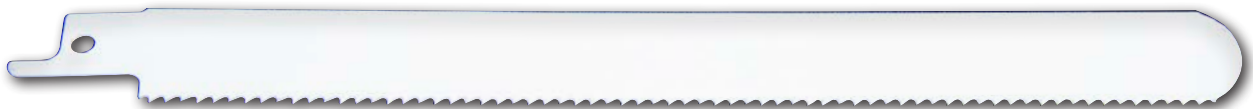
Wider (3/4") and thicker (.035) blades engineered for the dismantling of pallets.

Available in 8" lengths with 1/2" universal shanks.

- 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.



M42  
Cobalt



Inch (teeth per inch)	order number	
	10 pc.	200 pc.
8" x 3/4" x 0.035" (10)	C25217	C25217BP

## Bi-Metal Reciprocating Blade Wood

### Saw Blades

Style: **RSB-BM**



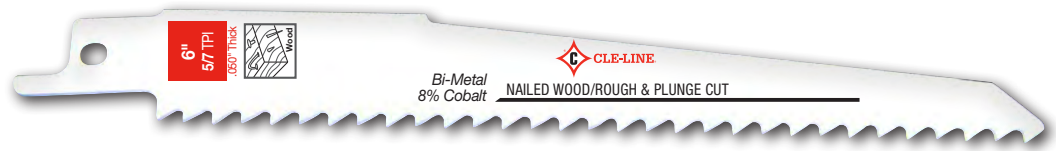
#### Note

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)	order number		
	5 pc.	10 pc.	50 pc.
6" x 3/4" x 0.050" (5/7)	C30107	C30141	C30170
6" x 3/4" x 0.050" (6)	C30108	C30142	C30171
6" x 3/4" x 0.050" (10)	C30109	C30143	C30172
9" x 3/4" x 0.050" (6)	C30110	C30144	C30173
12" x 3/4" x 0.050" (6)	C30111	C30145	C30174

## Bi-Metal Reciprocating Blade Metal

Style: **RSB-BM**

#### 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			Applications
	5 pc.	10 pc.	50 pc.	
6" x 3/4" x 0.035" (14)	C30112	C30146	C30175	14 teeth per inch: For metals heavier than 1/8", bar stock, angles, rubber, masonite, fiberglass, etc.
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	18 teeth per inch: For heavy gauge sheet metal, conduit, pipe, tubing, thin fiberglass.
9" x 3/4" x 0.035" (14)	C30116	C30150	C30179	
12" x 3/4" x 0.035" (18)	C30117	C30151	C30180	24 teeth per inch: For metals lighter than 18-gauge, thin wall tubing, formed sheet, trim, etc.



## Saw Blades

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

## Bi-Metal Reciprocating Blade All-Purpose Cutting

### Note

Heavy gauge metals, composites, 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.



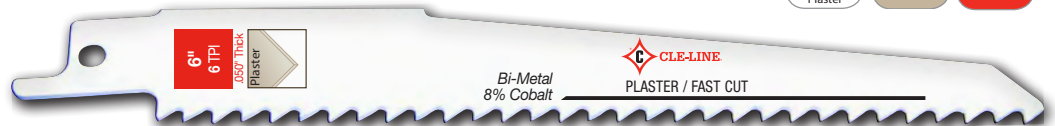
Inch (teeth per inch)	order number		
	5 pc.	10 pc.	50 pc.
8" x 3/4" x 0.035" (10/14)	C30118	C30152	C30181
12" x 3/4" x 0.050" (10/14)	C30119	C30153	C30182
12" x 3/4" x 0.050" taper (10/14)	C30120	C30154	C30183

Style: **RSB-BM**

## Bi-Metal Reciprocating Blade Plaster Cutting

### 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

Style: **RSB-CT**

## Carbide Tipped Reciprocating Blade - Metal

### Note

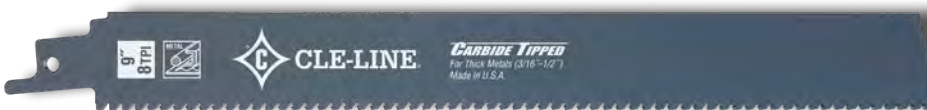
Cuts faster / lasts longer than a traditional bi-metal blade  
Carbide teeth stay sharp  
Faster cutting without binding  
Less vibration  
Straighter cuts

### Recommended for:

Metal Alloys; Cast Iron; Stainless Steel; Steel Plate; Threaded Rod; EMT Conduit; Ferrous Metal; Steel Studs; Rubber; Black Iron Pipe; Rebar and Angle Iron



**NEW**



Inch (teeth per inch)	Length	Width	Thickness	order number		
				RSB-CT (1 piece)		
8	6"	152mm	1" 25mm	0.050"	1.30mm	C30185
8	9"	229mm	1" 25mm	0.050"	1.30mm	C30186
8	12"	305mm	1" 25mm	0.050"	1.30mm	C30187

## Bi-Metal Reciprocating Blade Air Saw

### Saw Blades

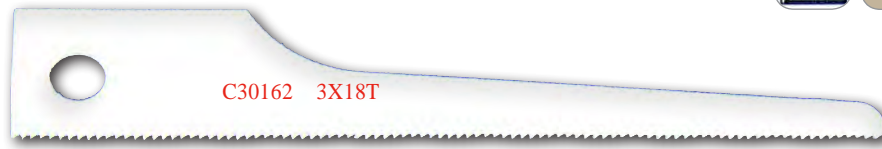
Style: **RSB-BM**



#### Note

See application information below.

Specifically designed blades for use in pneumatic saws. Air Saw blades have fine teeth for cutting metal.



order number

**RSB-BM**

Inch (teeth per inch)

**20 pc.**

#### Applications

3" x 1/2" x 0.025" (18)

C30162

18 teeth per inch:

For scroll cutting metals lighter than 14 gauge.

3" x 1/2" x 0.025" (24)

C30163

24 teeth per inch:

For scroll cutting metals lighter than 18 gauge, thin tubing, formed sheets, trim, etc.

3" x 1/2" x 0.025" (32)

C30164

4" x 1/2" x 0.025" (18)

C30165

4" x 1/2" x 0.025" (32)

C30166

32 teeth per inch:

For scroll cutting metals, very thin gauge metals, sheet, tubing, trim, etc.

5" x 1/2" x 0.025" (18)

C30167

## Bi-Metal Hacksaw Blades

Style: **HB-BM**



#### 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.



order number

**HB-BM**

Inch (teeth per inch)

**10 pc.**

**100 pc.**

10" x 1/2" x 0.025" (18)

C25239-10

C25239

10" x 1/2" x 0.025" (24)

C25240-10

C25240

10" x 1/2" x 0.025" (32)

C25241-10

C25241

12" x 1/2" x 0.025" (14)

C25242-10

C25242

12" x 1/2" x 0.025" (18)

C26125-10

C26125

12" x 1/2" x 0.025" (24)

C25244-10

C25244

12" x 1/2" x 0.025" (32)

C25245-10

C25245

12" x 1/2" x 0.025" (10/14)

C25246-10

C25246

12" x 1/2" x 0.025" (14/18)

C25247-10

C25247

12" x 1/2" x 0.025" (18/24)

C25248-10

C25248



### Saw Blades

Style: **P1000**

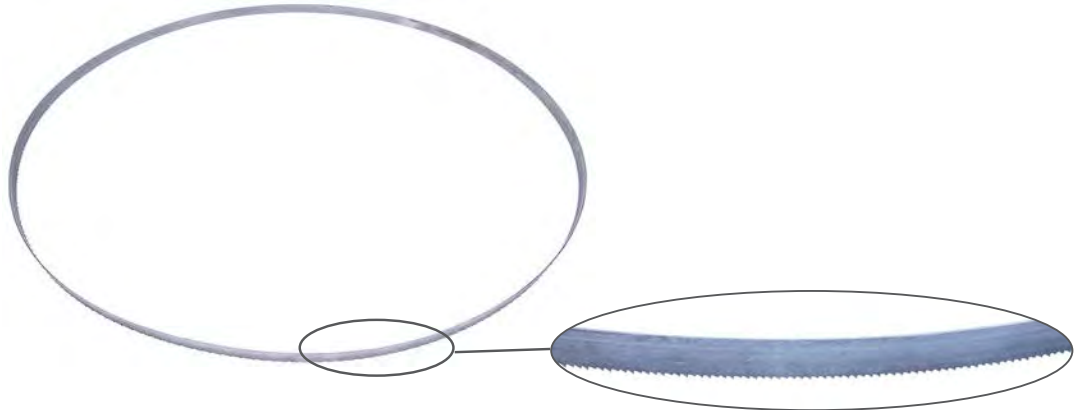
### Bi-Metal Portable Band Saw Portable Bands (Matrix II)



#### Note

*Bi-metal construction.  
Matrix II cutting edge containing  
8% cobalt.  
Available in standard and  
variable tooth style.  
Less tooth chippage.*

3 packs - 3 per box  
150 pack - 3 per poly bag =  
50 bags



order number

Inch (teeth per inch)	P1000	
	3 bands	150 bands
44-7/8" x 1/2" x 0.020" (10/14)	C25126	C25126-150
44-7/8" x 1/2" x 0.020" (14/18)	C25127	C25127-150
44-7/8" x 1/2" x 0.020" (10) Raker	C25129	C25129-150
44-7/8" x 1/2" x 0.020" (14) Raker	C25130	C25130-150
44-7/8" x 1/2" x 0.020" (18) Raker	C25131	C25131-150
44-7/8" x 1/2" x 0.020" (24) Raker	C25132	C25132-150



SAWS



>> **Order Weld-to-Length** <<

**How To Order Example**

Order Number	Add	*Add Length Required (specify in inches)
C25149	WTL	144"
<b>New Part Number</b>		
<b>C26149WTL144"</b>		
Available with all styles T1000 - T7000		

\* **Minimum Length = 60"**

Cut to customer specifications  
**Weld-to-Length**  
Band Saw Program

Reduce Cost • Custom Fit

Call 800-348-2885  
for more information

**Please Note...**



**All Band Saw Coils**

+/- 10% shipping policy on the number of feet sold. Coils thru 1-1/4" are 250 feet per coil, over 1-1/4" 150 feet per coil.

**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.

Straight tooth 0° rake for smoother cutting and general applications.  
\* 150 foot coils, all others 250 feet  
**Minimum Length = 60"**

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



**Abbreviations below:** C = Constant, V = Variable / R = Raker, W = Wavy

Inch (teeth per inch)	C / V	R / W	order number T1000
3/4" x 0.035" (6/10)	V	R	C25149
3/4" x 0.035" (8/12)	V	R	C25150
3/4" x 0.035" (10/14)	V	R	C26136
3/4" x 0.035" (10)	C	R	C25152
3/4" x 0.035" (14)	C	W	C25153
1" x 0.035" (4/6)	V	R	C26134
1" x 0.035" (10/14)	V	R	C26133
1" x 0.035" (3/4)	V	R	C25154
1" x 0.035" (5/8)	V	R	C25156

Inch (teeth per inch)	C / V	R / W	order number T1000
1" x 0.035" (6/10)	V	R	C25157
1" x 0.035" (8/12)	V	R	C25158
1" x 0.035" (14T)	C	W	C25160
1-1/4" x 0.042" (3/4)	V	R	C25161
1-1/4" x 0.042" (4/6)	V	R	C25162
1-1/4" x 0.042" (5/8)	V	R	C25163
1-1/4" x 0.042" (6/10)	V	R	C25164
1-1/2" x 0.050" (4/6)	V	R	*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.

5° Positive rake tooth for easier penetration and reduced vibration.  
\* 150 foot coils, all others 250 feet  
**Minimum Length = 60"**

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



**Abbreviations below:** C = Constant, V = Variable / R = Raker, W = Wavy

Inch (teeth per inch)	C / V	R / W	order number T2000
3/4" x 0.035" (4/6)	V	R	C25166
3/4" x 0.035" (5/7)	V	R	C25167
1" x 0.035" (2/3)	V	R	C25168
1" x 0.035" (3/4)	V	R	C25169
1" x 0.035" (4/6)	V	R	C25170
1" x 0.035" (5/7)	V	R	C26137
1" x 0.035" (2) Hook	C	R	C25172
1" x 0.035" (6)	C	R	C25173
1" x 0.035" (8)	C	R	C25174

Inch (teeth per inch)	C / V	R / W	order number T2000
1-1/4" x 0.042" (2/3)	V	R	C25175
1-1/4" x 0.042" (3/4)	V	R	C25176
1-1/4" x 0.042" (4/6)	V	R	C25177
1-1/4" x 0.042" (5/7)	V	R	C26139
1-1/4" x 0.042" (6)	C	R	C25179
1-1/2" x 0.050" (2/3)	V	R	*C26138
1-1/2" x 0.050" (3/4)	V	R	*C25181
1-1/2" x 0.050" (4/6)	V	R	*C25182



**Various Styles (continued)**

**Bi-Metal Band Saws**

**Style: T3000**

**10° High Positive Rake**

**Note**

*Bi-metal construction.*  
*M42 high speed steel cutting edge provides higher heat and wear durability.*  
*Tooth hardness Rc 67-69.*  
*Duplex tooth design.*  
*10° 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.*  
*\* 150 foot coils, all others 250 feet*  
**Minimum Length = 60"**

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



**Abbreviations below: C = Constant, V = Variable / R = Raker, W = Wavy**

Inch (teeth per inch)	C / V	R / W	order number
3/4" x 0.035" (4/6)	V	R	<b>T3000</b> C26143
1" x 0.035" (2/3)	V	R	C25184
1" x 0.035" (3/4)	V	R	C26140
1" x 0.035" (4/6)	V	R	C25186
1-1/4" x 0.042" (2/3)	V	R	C26141
1-1/4" x 0.042" (3/4)	V	R	C25188
1-1/4" x 0.042" (4/6)	V	R	C25189

Inch (teeth per inch)	C / V	R / W	order number
1-1/2" x 0.050" (2/3)	V	R	*C25190
1-1/2" x 0.050" (3/4)	V	R	*C25191
1-1/2" x 0.050" (4/6)	V	R	*C25192
2" x 0.063" (2/3)	V	R	*C25193
2" x 0.063" (3/4)	V	R	*C26142
2" x 0.063" (4/6)	V	R	*C25195

**Style: T4000**

**Protective Tooth**

**Note**

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

*Protective tooth 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.*  
*\* 150 foot coils, all others 250 feet*  
**Minimum Length = 60"**

Tubes, structures, small sizes bundles.



Positive Rake



**Abbreviations below: C = Constant, V = Variable / R = Raker, W = Wavy**

Inch (teeth per inch)	C / V	R / W	order number
1" x 0.035" (4/6)	V	R	<b>T4000</b> C25196
1-1/4" x 0.042" (4/6)	V	R	C25197
1-1/2" x 0.042" (4/6)	V	R	*C25198

**Style: T5000**

**Heavy Set**

**Note**

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

*Heavy Set teeth are individually set teeth similar to the Raker Set but are set wider preventing the blade from being pinched or becoming bound during cutting*  
*\* 150 foot coils, all others 250 feet*  
**Minimum Length = 60"**

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.



Positive Rake



**Abbreviations below: C = Constant, V = Variable / R = Raker, W = Wavy**

Inch (teeth per inch)	C / V	R / W	order number
1" x 0.035" (4/6)	V	R	<b>T5000</b> C25200
1" x 0.035" (5/7)	V	R	C25201
1-1/4" x 0.042" (3/4)	V	R	C25202
1-1/4" x 0.042" (4/6)	V	R	C26144
1-1/4" x 0.042" (5/7)	V	R	C25204

Inch (teeth per inch)	C = Constant V = Variable	R / W	order number
1-1/2" x 0.050" (3/4)	V	R	*C25205
1-1/2" x 0.050" (4/6)	V	R	*C25206
1-1/2" x 0.050" (5/7)	V	R	*C25207
2" x 0.063" (2/3)	V	R	*C25208
2" x 0.063" (3/4)	V	R	*C25209
2" x 0.063" (4/6)	V	R	*C26145

Bi-Metal Band Saws

Various Styles (continued)

Turtle Back

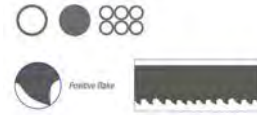
Style: **T6000**

**Note**

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

Turtle Back Set is a tooth configuration that has a reinforced shoulder or "Turtle Back Hump" on the back of the cutting edge to prevent stripping out and interrupting cuts.  
\* 150 foot coils, all others 250 feet  
**Minimum Length = 60"**

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



Abbreviations below: C = Constant, V = Variable / R = Raker, W = Wavy

Inch (teeth per inch)	C / V	R / W	order number
1" x 0.035" (3/4)	V	R	<b>T6000</b> C26146
1-1/4" x 0.042" (3/4)	C	R	C26147
1-1/2" x 0.050" (3/4)	V	R	*C26148

Narrow Width Bands (M42)

Style: **T7000**

**Note**

Narrow Width (M42)  
Bi-Metal construction.  
M42 high speed steel cutting edge provides higher heat and wear durability.  
Solid and thick wall tubing of medium to difficult material, such as stainless steel.

Tooth hardness Rc 67-69.  
Narrow width (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.  
**Minimum Length = 60"**



Abbreviations below: C = Constant, V = Variable / R = Raker, W = Wavy

Inch (teeth per inch)	C / V	R / W	order number
1/2" x 0.025" (6/10)	V	R	<b>T7000</b> C26127
1/2" x 0.025" (8/12)	V	R	C26128
1/2" x 0.025" (10/14)	V	R	C25141
1/2" x 0.025" (14) Raker	C	R	C25142
1/2" x 0.025" (18) Wavy	C	W	C25143
1/2" x 0.035" (8/12)	V	R	C25144

Inch (teeth per inch)	C / V	R / W	order number
1/2" x 0.035" (10/14)	V	R	<b>T7000</b> C25145
1/2" x 0.035" (6) Positive	C	R	C25147
1/2" x 0.035" (14) Raker	C	R	C25148
1/2" x 0.035" (4) Hook	C	R	C26129

Please Note...



**All Band Saw Coils**

+/- 10% shipping policy on the number of feet sold. Coils thru 1-1/4" are 250 feet per coil, over 1-1/4" 150 feet per coil.

**Delivery: 1-2 business days!**

**Style (Tooth) Definitions:**

- T1000 = 0° Straight
  - T2000 = 5° Positive Rake
  - T3000 = 10° High Positive Rake
  - T7000 = Narrow Width Bands (M42)
- Other lengths, thicknesses, and tooth configurations available. Call for additional information.



teeth per inch (TPI)	Length x Width x Thickness	order number (1 piece)
<b>T1000</b>		
4/6	115.5" x 1 x .035	C254414WTL
4/6	119.5" x 1 x .035	C254 15WTL
4/6	130.5 x 1 x .035	C254416WTL
4/6	138" x 1 x .035	C254417WTL
4/6	144" x 1 x .035	C254418WTL
4/6	162" x 1 x .035	C254419WTL
4/6	174" x 1 x .035	C254420WTL
3/4	138" x 1-1/4 x .042	C254421WTL
3/4	144" x 1-1/4 x .042	C254422WTL
3/4	150" x 1-1/4 x .042	C254423WTL
3/4	162" x 1-1/4 x .042	C254424WTL
3/4	174" x 1-1/4 x .042	C254425WTL
3/4	180" x 1-1/4 x .042	C254426WTL
3/4	186" x 1-1/4 x .042	C254427WTL
10/14	80" x 3/4 x .035	C254428WTL
10/14	93" x 3/4 x .035	C254429WTL
10/14	120" x 3/4 x .035	C254430WTL
10/14	125" x 3/4 x .035	C254431WTL
10/14	130.5" x 3/4 x .035	C254432WTL
10/14	138" x 3/4 x .035	C254433WTL
10/14	174" x 3/4 x .035	C254434WTL
10/14	115.5" x 1 x .035	C254435WTL
10/14	119.5" x 1 x .035	C254436WTL
10/14	130.5 x 1 x .035	C254437WTL
10/14	138" x 1 x .035	C254438WTL
10/14	144" x 1 x .035	C254439WTL
10/14	162" x 1 x .035	C254440WTL
10/14	174" x 1 x .035	C254441WTL
4/6	138" x 1-1/4 x .042	C254442WTL
4/6	144" x 1-1/4 x .042	C254443WTL
4/6	150" x 1-1/4 x .042	C254444WTL
4/6	162" x 1-1/4 x .042	C254445WTL
4/6	174" x 1-1/4 x .042	C254446WTL
4/6	180" x 1-1/4 x .042	C254447WTL
4/6	186" x 1-1/4 x .042	C254448WTL
5/8	138" x 1-1/4 x .042	C254456WTL
5/8	144" x 1-1/4 x .042	C254457WTL
5/8	150" x 1-1/4 x .042	C254458WTL

teeth per inch (TPI)	Length x Width x Thickness	order number (1 piece)
5/8	162" x 1-1/4 x .042	C254459WTL
5/8	174" x 1-1/4 x .042	C254460WTL
5/8	180" x 1-1/4 x .042	C254461WTL
5/8	186" x 1-1/4 x .042	C254462WTL
<b>T2000</b>		
5/7	80" x 3/4 x .035	C254407WTL
5/7	93" x 3/4 x .035	C254408WTL
5/7	120" x 3/4 x .035	C254409WTL
5/7	125" x 3/4 x .035	C254410WTL
5/7	130.5" x 3/4 x .035	C254411WTL
5/7	138" x 3/4 x .035	C254412WTL
5/7	174" x 3/4 x .035	C254413WTL
4/6	115.5" x 1 x .035	C254449WTL
4/6	119.5" x 1 x .035	C254450WTL
4/6	130.5 x 1 x .035	C254451WTL
4/6	138" x 1 x .035	C254452WTL
4/6	144" x 1 x .035	C254453WTL
4/6	162" x 1 x .035	C254454WTL
4/6	174" x 1 x .035	C254455WTL
3/4	138" x 1-1/4 x .042	C254470WTL
3/4	144" x 1-1/4 x .042	C254471WTL
3/4	150" x 1-1/4 x .042	C254472WTL
3/4	162" x 1-1/4 x .042	C254473WTL
3/4	174" x 1-1/4 x .042	C254474WTL
3/4	180" x 1-1/4 x .042	C254475WTL
3/4	186" x 1-1/4 x .042	C254476WTL
4/6	138" x 1-1/4 x .042	C254477WTL
4/6	144" x 1-1/4 x .042	C254478WTL
4/6	150" x 1-1/4 x .042	C254479WTL
4/6	162" x 1-1/4 x .042	C254480WTL
4/6	174" x 1-1/4 x .042	C254481WTL
4/6	180" x 1-1/4 x .042	C254482WTL
4/6	186" x 1-1/4 x .042	C254483WTL
5/7	138" x 1-1/4 x .042	C254484WTL
5/7	144" x 1-1/4 x .042	C254485WTL
5/7	150" x 1-1/4 x .042	C254486WTL
5/7	162" x 1-1/4 x .042	C254487WTL
5/7	174" x 1-1/4 x .042	C254488WTL
5/7	180" x 1-1/4 x .042	C254489WTL
5/7	186" x 1-1/4 x .042	C254490WTL

teeth per inch (TPI)	Length x Width x Thickness	order number (1 piece)
<b>T3000</b>		
4/6	115.5" x 1 x .035	C254463WTL
4/6	119.5" x 1 x .035	C254464WTL
4/6	130.5 x 1 x .035	C254465WTL
4/6	138" x 1 x .035	C254466WTL
4/6	144" x 1 x .035	C254467WTL
4/6	162" x 1 x .035	C254468WTL
4/6	174" x 1 x .035	C254469WTL
3/4	138" x 1-1/4 x .042	C254491WTL
3/4	144" x 1-1/4 x .042	C254492WTL
3/4	150" x 1-1/4 x .042	C254493WTL
3/4	162" x 1-1/4 x .042	C254494WTL
3/4	174" x 1-1/4 x .042	C254495WTL
3/4	180" x 1-1/4 x .042	C254497WTL
3/4	186" x 1-1/4 x .042	C254498WTL
4/6	138" x 1-1/4 x .042	C254499WTL
4/6	144" x 1-1/4 x .042	C254500WTL
4/6	150" x 1-1/4 x .042	C254501WTL
4/6	162" x 1-1/4 x .042	C254502WTL
4/6	174" x 1-1/4 x .042	C254503WTL
4/6	180" x 1-1/4 x .042	C254504WTL
4/6	186" x 1-1/4 x .042	C254505WTL
<b>T7000</b>		
10/14	64.5" x 1/2 x .025	C254400WTL
10/14	89" x 1/2 x .025	C254401WTL
10/14	93" x 1/2 x .025	C254402WTL
10/14	93.5" x 1/2 x .025	C254403WTL
10/14	101" x 1/2 x .025	C254404WTL
10/14	120" x 1/2 x .025	C254405WTL
10/14	150" x 1/2 x .025	C254406WTL

SAWS

You **SAW** it here!

**NEW**

The new, Cle-Line carbide tipped band saw blades deliver on **performance, productivity and cost savings** to a variety of applications including general manufacturing, steel service centers and forging operations.

**Features and Benefits**

*Designed and manufactured to be extremely wear resistant in the toughest conditions.  
Triple Tooth Geometry .  
Produces a smooth finish which means less secondary work and cost savings.*

**General Purpose Series**

*Our multi-chip tooth geometry is designed for cutting solid steels and non-ferrous alloys. It allows for faster cutting rates, a vibration free operation and an optimum band saw blade life.*

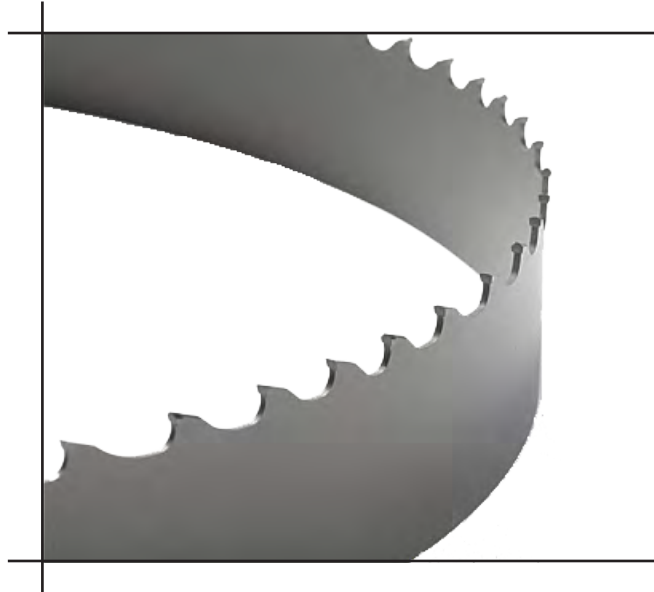
**Recommended for:**

*Aluminum Silicon Alloys; Cold Steels; Copper-Nickel Alloys; Hardened Steel (up to 1900 N/mm<sup>2</sup>); Heat-Resistant Steels; Exotic Alloys; Stainless Steels; Titanium and Titanium Alloys; Applications and Materials Alloy Steels; Hardieboard Building Materials; Mold Steels; Nickel-Based Alloys; Plastic(s); Stainless Steels; Titanium Alloys; Tool Steels*


**Superior Quality**

*Custom, weld to length bands are welded in our modern weld center centrally located in the Chicago-land area.*

*Made in Germany to the highest manufacturing standards and a multi-step Quality Assurance process.*



**SAWS**

Description	Thickness		order number
	Inch	mm	
1" Band Saw Blade Carbide Tipped 2/3T	0.035	27	 <b>1882</b> C43058
1" Band Saw Blade Carbide Tipped 3/4T	0.035	27	C43059
1-1/4" Band Saw Blade Carbide Tipped 1.4/2T	0.042	34	C43060
1-1/4" Band Saw Blade Carbide Tipped 2/3T	0.042	34	C43061
1-1/4" Band Saw Blade Carbide Tipped 3/4T	0.042	34	C43062
1-1/2" Band Saw Blade Carbide Tipped 1.4/2T	0.050	41	C43063
1-1/2" Band Saw Blade Carbide Tipped 2/3T	0.050	41	C43064
1-1/2" Band Saw Blade Carbide Tipped 3/4T	0.050	41	C43065
2" Band Saw Blade Carbide Tipped 1.4/2T	0.063	54	C43066
2" Band Saw Blade Carbide Tipped 2/3T	0.063	54	C43067

**Technical Information on the next page**

**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



Hole Saws

diameter		pipe tap dia.		pipe entrance dia		order number	
inch	mm	inch	mm	inch	mm	 1887	
						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
*7/8	22	3/4	19	1/2	13	C24998	C24999
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

\*1-1/2" (32mm) cutting depth

**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.
- Follow 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.

TECHNICAL

**Speed and Feeds**

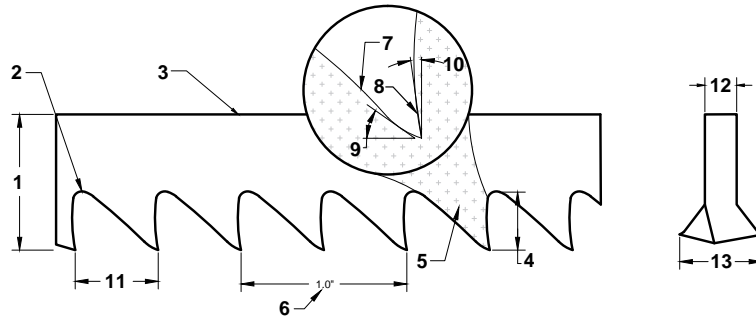
Type of Material		Under 1"		1" to 3"		3" to 6"		6" - Over	
		Blade Speed (SFM)	Removal Rate (in <sup>2</sup> /min.)	Blade Speed (SFM)	Removal Rate (in <sup>2</sup> /min.)	Blade Speed (SFM)	Removal Rate (in <sup>2</sup> /min.)	Blade Speed (SFM)	Removal Rate (in <sup>2</sup> /min.)
Special Purpose Steel	L2, L6	210	3-5	210	4 - 7	190	5 - 8	175	4 - 7
	L7	200	3 - 5	190	4 - 6	180	4 - 7	130	3 - 6
Water Hardening Steel	W1	265	3 - 6	240	5 - 7	220	5 - 7	180	3 - 5
High Speed Steel	M1, M2, M7	165	2 - 4	150	2 - 5	145	3 - 6	100	3 - 5
	M3, M4, M10	125	2 - 4	100	2 - 5	100	3 - 5	80	3 - 4
	M30, M33	100	1 - 3	90	2 - 3	75	2 - 3	70	1 - 3
	M41, M42, M43	100	1 - 3	90	1 - 3	75	1 - 4	70	1 - 3
	T1, T2	150	2 - 4	135	2 - 4	120	2 - 5	100	2 - 4
	T4, T5, T6	125	1 - 3	110	1 - 4	100	2 - 4	85	1 - 3
	T15, M15	90	1 - 3	70	1 - 3	60	1 - 3	50	1 - 2
Austenitic Stainless Steel	201, 202, 301 - 304	135	3 - 4	120	2 - 5	120	3 - 6	85	2 - 4
	303, 303F, 303Se	160	3 - 6	140	3 - 6	135	4 - 6	90	3 - 5
	305, 308 - 314	100	1 - 2	85	1 - 2	75	1 - 3	65	1 - 2
	316, 317, 329	100	1 - 2	90	1 - 2	80	1 - 3	60	1 - 2
	321, 347, 348	140	2 - 4	125	2 - 5	120	3 - 6	90	2 - 4
	330	85	1 - 2	65	1 - 3	55	1 - 4	45	1 - 2
Ferritic Stainless Steel	429, 430	120	2 - 4	100	3 - 4	90	3 - 6	75	2 - 4
	430F, 430FSe	130	3 - 5	115	5 - 6	100	5 - 7	90	4 - 6
	434, 436	100	2 - 4	80	3 - 4	75	3 - 5	55	3 - 4
	442	110	2 - 4	85	3 - 5	75	3 - 6	60	3 - 5
	446	90	2 - 4	70	3 - 4	60	2 - 5	50	1 - 3
Martensitic Stainless	403, 410, 420	170	2 - 5	155	3 - 6	145	3 - 7	100	2 - 4
	414, 416Se	235	5 - 9	210	6 - 9	195	7 - 11	170	5 - 9
	420F, 416	220	3 - 8	200	5 - 9	190	6 - 10	150	4 - 8
	440A, B, C	130	2 - 4	120	2 - 6	110	3 - 7	70	1 - 4
	501, 502	135	1 - 2	120	2 - 4	100	3 - 4	80	2 - 3
Nickel Based Alloys	Monel	100	1 - 4	90	1 - 4	85	2 - 4	65	1 - 3
	K-Monel	115	1 - 4	90	1 - 4	70	2 - 4	50	1 - 2
	R-Monel	130	2 - 4	100	2 - 5	90	3 - 5	60	1 - 4
	K-R Monel	115	1 - 4	100	1 - 4	100	2 - 5	65	1 - 3
	Inconel	105	2 - 4	90	2 - 4	75	2 - 3	50	1 - 2
	Inconel 625-x-750	95	1 - 2	80	1 - 2	70	1 - 2	40	1
	Inconel 718	95	1 - 2	80	1 - 2	70	1 - 2	40	1
	Incoloy 800 - 802	95	1 - 2	75	1 - 2	60	1 - 2	35	1
	Incoloy 804 - 825	60	1	40	1 - 2	40	1 - 2	30	1
	Waspalloy	100	1	90	1 - 2	70	1 - 2	50	1
	Hastelloy A	130	2 - 3	110	3 - 4	100	4 - 6	70	1-3
	Hastelloy B	110	1 - 2	80	1 - 3	75	1 - 4	60	1-2
	Hastelloy C	100	1 - 2	90	1 - 2	80	1 - 2	65	1
	Rene 41	90	1	80	1 - 2	60	1 - 2	50	1
	Udimet 500	95	1	80	1 - 2	70	1 - 2	60	1
Titanium	6AL 4V	65	.5-1	50	1 - 2	50	1 - 2	40	.5 - 1
Maraging Steel	Most	190	3 - 4	145	4 - 6	110	6 - 7	90	4 - 6
Bronze	Most	230	6 - 9	205	10 - 12	180	10 - 12	140	7 - 9
	Aluminum Bronze	100	2 - 4	95	3 - 4	85	3 - 5	70	3 - 4
Aluminum	Most	800		700		600		500	
	Class 20	210	9 - 12	200	11 - 15	180	11 - 15	160	10 - 14
Cast Iron	Class 40	170	7 - 9	160	7 - 10	140	8 - 12	120	7 - 11
	Ductile - 60-40-18, 150 HB	240	6 - 8	230	8 - 10	230	8 - 10	220	6 - 7
	Ductile - 80-55-06, 225 HB	140	3 - 4	130	4 - 5	120	5 - 7	110	3 - 5

SAWS

Type of Material	Dim (FPM)	Speed (FPM)	Feed (IPM)	Cutting Time (h:min:sec)	Cutting Rate (sq/min)
INCONEL 718	4	79	0.33	0:12:01	1.03
	6	79	0.33	0:18:15	1.55
	8	79	0.33	0:24:10	2.07
17-4PH	4	82	0.38	0:10:23	1.21
	6	82	0.38	0:15:34	1.82
	8	82	0.38	0:20:46	2.42
WASPALLOY	4	79	0.33	0:12:10	1.03
	6	79	0.33	0:18:15	1.55
	8	79	0.33	0:24:20	2.07
P021	4	135	0.84	0:04:45	2.65
	6	135	0.84	0:07:07	3.97
	8	135	0.84	0:09:30	5.29
TITANIUM (T40)	4	148	0.77	0:05:11	2.42
	6	148	0.77	0:07:47	3.63
	8	148	0.77	0:10:23	4.84

**Important Note:**

Suggest reducing speed & feed around 10% every time when reducing widths  
 (1-½" bands around 90% of 2" bands, 1-¼" bands around 90% of the 1-½" bands, etc.).



## 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, and solid cross-sections.

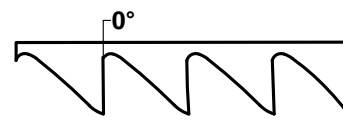
#### Positive Rake



### 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 materials, such as wood, composite materials, cork, and plastic.

### Turtle Back

This is a tooth configuration that has a reinforced shoulder or "Turtle Back Hump" on the back of the cutting edge to prevent stripping out and interrupted cuts.

### 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 structural.

### Variable Positive

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

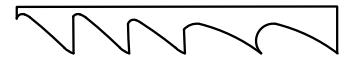
### Duplex

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



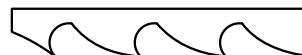
#### Skip



#### Duplex



#### Turtle Back



**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.

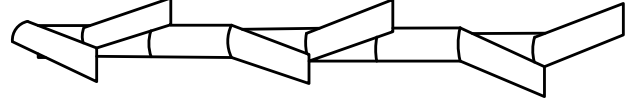
**Alternate Set**

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.

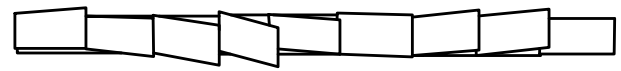
**Variable Set**

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, structural, and piping.

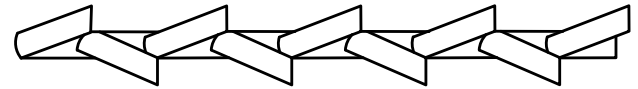
**Raker Set**



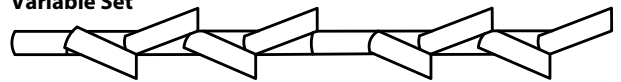
**Wavy Set**



**Alternate Set**



**Variable Set**



**Guidelines**

**Successful Band Saw Operation and Geometries**



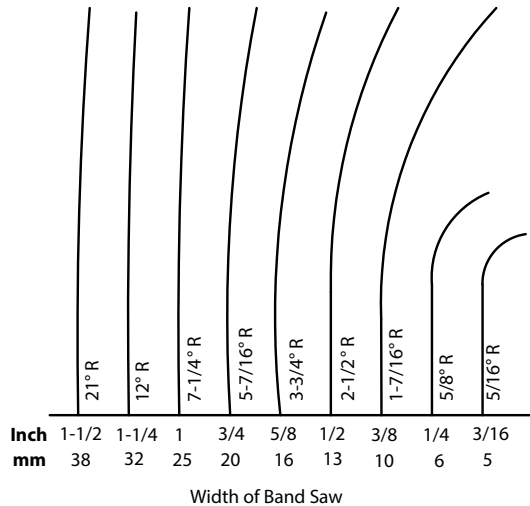
**Blade Width Selection**

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 Band Saw machine at the recommended speed for the material to be cut. When cutting easily machined metals, the cutting rate should be set at 1/3 to 1/2 of 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 the 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

**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		1/4" - 1/2"	10/14 TPI		1/4" - 1/2"	10 TPI
		14 TPI						
	3/8" - 3/4"	8/12 TPI		1/2" - 3/4"	8 TPI		1/2" - 3/4"	8 TPI
		10 TPI						
		8 TPI						
	3/4" - 1-1/2"	4/6 TPI		3/4" - 1"	4/6 TPI		3/4" - 1"	4/6 TPI
		6 TPI						
		5/8 TPI						
	1-1/2" - 3"	4/6 TPI		3/4" - 1"	5/8 TPI		3/4" - 1"	6/10 TPI
		4 TPI						
		3/4 TPI						
	3" - 6"	2/3 TPI						
		3/4 TPI						
		3 TPI						
	6" - 10"	2 TPI						
		2/3 TPI						
	10" - 14"	.75 TPI						
		.8/1.5 TPI						

TECHNICAL

**Feed Pressure**

Chips tell you what is happening with your feed pressure and your blade. Powdery or fine chips indicate not enough feed pressure is being applied. Loosely curled chips tell you everything is going well. Heavy or thick / blue burned chips mean you are 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.

**Correct**

Loosely Curled Chip  
Correct feed, speed



**Incorrect**

Thin or powdery chips  
Increase feed, speed



Heavy, thick, blue chips  
Reduce feed, speed



**Tech Tip**



**Tips On Band Saw 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 teeth; 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**

<b>Problem</b>	<b>Reason</b>	<b>Solution</b>
<b>Premature and excessive tooth wear</b>	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
<b>Tooth Strippage</b>	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
<b>Finished Surface too Rough</b>	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
<b>Premature Blade Breakage</b>	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
	Saw out of alignment	Get machine properly re-aligned
<b>Cutting Rate too Slow</b>	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
<b>Gullets Loading with Chips</b>	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
<b>Band Squeals</b>	Feed rate too slow	Increase feed rate
	Insufficient coolant flow	Check coolant flow
<b>Belly Shaped Cuts</b>	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
<b>Blade Leading in Cut</b>	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
<b>Band Develops Twist</b>	Wrong width for radius being cut	Select a narrower blade
	Binding in cut	Adjust blade tension
	Saw guides too close to work piece	Adjust saw guides further from work
<b>Band Stalls in Work</b>	Feed pressure too great	Reduce feed pressure
	Improper blade tension	Adjust blade tension
	Blade pitch too coarse for material being cut	Select finer pitch blade
<b>Burring or Mushrooming of Back Edge</b>	Improper blade tension	Adjust blade tension
	Excessive feed pressure	Reduce feed pressure
	Blade pitch too fine	Select coarser pitch blade
	Improper guide adjustments	Adjust guides
<b>Band Scoring</b>	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
	Worn guides	Replace guides
<b>Blade Not Running True against Saw Guide Backup Bearing</b>	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
	Saw guide backup bearing worn	Replace
	Improper blade tracking	Check band wheel alignment
<b>Band Develops Negative Camber</b>	Band is riding on saw guide backup bearing too heavily	Adjust band alignment on top and bottom wheels
<b>Band Develops Positive Camber</b>	Excessive feed force	Check band wheel alignment
	Poor tooth penetration	Reduce feed force
<b>Blade Vibration</b>	Select a coarser pitch blade for increased tooth penetration	Adjust saw guides closer to work piece
	Saw guide is too far from work piece or no locked	Check guide adjustments
	Guides poorly adjusted	Increase or decrease band speed
	Improper band speed	Increase blade tension
	Low blade tension	Increase feed rate
<b>Chip Welding</b>	Feed rate too low	Select variable pitch blade
	Blade pitch too coarse for material being cut	Adjust clamping pressure
	Work piece not properly secured	Reduce feed pressure
	Excessive feed pressure	Reduce blade speed
	Excessive cutting speed	Replace or adjust chip brush
	Chip brush not working	Apply proper coolant for the type of material being cut, check coolant flow
	Insufficient or improper coolant	



**Set Sections**

All available sets . . . . .122

Solid Carbide Burs	Image			Page
	Single Cut	Double Cut	Aluminum Cut <span style="color:red">NEW</span>	
1845 CLE-SA . . . . . Cylindrical without End Cut				116
1846 CLE-SB . . . . . Cylindrical with End Cut				116
1847 CLE-SC . . . . . Cylindrical Ball Nose				117
1848 CLE-SF . . . . . Round Nose Tree				118
1849 CLE-SG . . . . . Pointed Tree				118
1850 CLE-SM . . . . . Pointed Cone				119
1851 CLE-SE . . . . . Egg Shaped				120
1852 CLE-SL . . . . . Included Angle				120
1853 CLE-SD . . . . . Ball Shaped				121
1854 CLE-SH . . . . . Flame Shaped				121
1856 CLE-SJ . . 60° Included Angle (Countersink)				122
1857 CLE-SK . . 90° Included Angle (Countersink)				122
1858 CLE-SN . . . . . Inverted Taper				122

CARBIDE BURS/ROUTERS

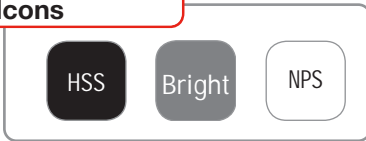
<span style="color:red">NEW</span> Carbide Router - Uncoated	Image				Page
3100 - Fiberglass					123
3101 - Fiberglass & Composite					123

**Carbide Extension Burs**

now available on many style types

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

**Icons**



**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

**Bur Selection by Material**

Workpiece Material	First Choice	Alternative
aluminum	aluminum cut	-
brass	double cut	standard cut
bronze	double cut	standard cut
cast iron	double cut	standard cut
copper	aluminum cut	-
fiberglass	double cut	standard cut
inconel	double cut	standard cut
malleable iron	double cut	standard cut
magnesium	aluminum cut	-
masonite	double cut	standard cut
plastic	standard cut	-
steel alloy	double cut	-
carbon steel	double cut	-
stainless steel	double cut	-
titanium	double cut	-
zinc	aluminum cut	standard cut

**Standard Cut Styles**



**Single 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.



**Aluminum (end mill) Cut** — The aluminum cut can be used for deburring softer, non-ferrous metals and non-metallic materials. The wide clearance and end mill type geometry of the flutes promotes fast stock removal with minimum loading.

**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



CARBIDE BURS/ROUTERS

**Solid Carbide Burs**  
Cylindrical without End Cut

**General Purpose Burs**

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



**Note**

See index page for Standard Shank Styles explanation.



Single Cut



Double Cut

USCTI number	cutting diameter			shank diameter	length of cut	overall length	shank type	order number	
	fractional	mm	decimal					1845	Double Cut
SA-41	1/16		.0625	1/8	1/4	1-1/2	A	C10005	C10008
SA-42	3/32		.0938	1/8	7/16	1-1/2	A	C17601	C17550
SA-43		3	.1181	3	14.3	38.1	A	—	C17591
SA-43	1/8		.1250	1/8	9/16	1-1/2	A	C17602	C17551
SA-14	3/16		.1875	1/4	5/8	2	C	C17608	—
SA-1		6	.2362	6	15.9	50.8	D	—	C17588
SA-51	1/4		.2500	1/8	5/8	2	B	C17606	C17605
SA-1	1/4		.2500	1/4	5/8	2	D	C17609	C17552
SA-1L6	1/4		.2500	1/4	1/2	6-1/2	C	C17800	C17823
SA-2	5/16		.3125	1/4	3/4	2-1/2	C	C17610	C17553
SA-2		7.94	.3125	6	19.1	63.5	C	—	C17589
SA-3	3/8		.3750	1/4	3/4	2-1/2	C	C17611	C17554
SA-3		9.53	.3750	6	19.1	63.5	C	—	C17590
SA-3L6	3/8		.3750	1/4	3/4	6-3/4	C	C17801	C17824
SA-4	7/16		.4375	1/4	1	2-3/4	C	C17612	—
SA-5	1/2		.5000	1/4	1	2-3/4	C	C17613	C17555
SA-5L6	1/2		.5000	1/4	1	7	C	C17802	C17825
SA-5		12.7	.5000	6	25.4	69.9	C	—	C17592
SA-6	5/8		.6250	1/4	1	2-3/4	C	C10006	C17556
SA-7	3/4		.7500	1/4	1	2-3/4	C	C10007	C17615
SA-9	1		1.000	1/4	1	2-3/4	C	C17616	C17557

**Solid Carbide Burs**  
Cylindrical with End Cut

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

**Note**

See index page for Standard Shank Styles explanation.



Single Cut



Double Cut



Aluminum Cut

USCTI number	cutting diameter			shank dia	length of cut	overall length	shank type	order number		
	fractional	mm	decimal					1846	Aluminum Cut	
SB-41	1/16		.0625	1/8	1/4	1-1/2	A	C10009	—	—
SB-42	3/32		.0938	1/8	7/16	1-1/2	A	C10010	—	—
SB-43		3	.1181	3	14.30	38.1	A	C17632	C17510	—
SB-43	1/8		.1250	1/8	9/16	1-1/2	A	C17622	—	—
SB-11	1/8		.1250	1/4	1/2	2	C	C17625	—	—
SB-14	3/16		.1875	1/4	5/8	2	C	C17626	—	—
SB-1		6	.2362	6	15.90	50.8	D	—	C17507	—
SB-1	1/4		.2500	1/4	5/8	2	D	C17627	C17546	C10015
SB-51	1/4		.2500	1/8	3/16	1-7/16	B	C17624	—	—
SB-51	1/4		.2500	1/8	3/16	1-11/16	A	C10011	C10013	—
SB-2		7.94	.3125	6	19.10	63.5	C	—	C17508	—
SB-3	3/8		.3750	1/4	3/4	2-1/2	C	C17629	C17547	C10016
SB-3		9.53	.3750	6	19.10	63.5	C	—	C17509	—
SB-5	1/2		.5000	1/4	1	2-3/4	C	C17631	C17548	C10017
SB-5		12.7	.5000	6	25.40	69.9	C	—	C17511	—
SB-6	5/8		.6250	1/4	1	2-3/4	C	—	C17549	C10018
SB-6		15.88	.6250	6	25.40	69.9	C	C17633	C17512	—
SB-7	3/4		.7500	1/4	1	2-3/4	C	—	C10014	C10019
SB-9	1		1.0000	1/4	1	2-3/4	C	C10012	—	—

CARBIDE BURS/ROUTERS

**Note**

See index page for Standard Shank Styles explanation.



Single Cut



Double Cut



Aluminum Cut

USCTI number	cutting diameter		shank dia	length of cut	overall length	shank type	order number			
	fractional	mm					decimal	1847	Single Cut	Double Cut
SC-41	3/32		.0938	1/8	7/16	1-1/2	A	C17635	C10023	—
SC-43		3	.1181	3	14.3	38.1	A	C17634	C17517	—
SC-42	1/8		.1250	1/8	9/16	1-1/2	A	C17636	C17540	—
SC-11	1/8		.1250	1/4	1/2	2	C	—	C17539	—
SC-52		3.97	.1562	3	12.7	38.1	A	—	C17520	—
SC14	3/16		.1875	1/4	5/8	2	C	C17641	—	—
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	1/4		.2500	1/8	1/2	1-3/4	B	C10020	C10024	—
SC-1	1/4		.2500	1/4	5/8	2	D	C17642	C17541	C10026
SC-51		6.35	.2500	3	12.7	44.5	B	—	C17519	—
SC-1L6	1/4		.2500	1/4	1/2	6-1/2	C	C17803	C17826	—
SC-2	5/16		.3125	1/4	3/4	2-1/2	C	—	C17542	—
SC-2		7.94	.3125	6	19.1	63.5	C	—	C17514	—
SC-3	3/8		.3750	1/4	3/4	2-1/2	C	C17644	C17543	C10027
SC-3		9.53	.3750	6	19.1	63.5	C	—	C17515	—
SC-3L6	3/8		.3750	1/4	3/4	6-3/4	C	C17804	C17827	—
SC-5	1/2		.5000	1/4	1	2-3/4	C	—	—	C10028
SC-5	1/2		.5000	1/4	1	2-3/4	C	C17646	C17544	—
SC-5		12.7	.5000	6	25.4	69.9	C	—	C17518	—
SC-5L6	1/2		.5000	1/4	1	7	C	C17805	C17828	—
SC-6	5/8		.6250	1/4	1	2-3/4	C	C10021	C17545	—
SC-6		15.88	.6250	6	25.4	69.9	C	—	C17522	—
SC-7	3/4		.7500	1/4	1	2-3/4	C	C10022	C10025	C10029
SC-7		19.05	.7500	6	25.4	69.9	C	—	C17523	—



**Solid Carbide Burs**  
Round Nose Tree

**General Purpose Burs**

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



**Note**

See index page for Standard Shank Styles explanation.



Single Cut



Double Cut



Aluminum Cut

USCTI number	cutting diameter			shank dia	length of cut	overall length	shank type	order number		
	fractional	mm	decimal					1848		
								Single Cut	Double Cut	Aluminum Cut
SF-42		3	.1181	3	12.7	38	A	C17663	C17526	—
SF-41	1/8		.1250	1/8	1/4	1-1/2	A	C17650	C10033	—
SF-42	1/8		.1250	1/8	1/2	1-1/2	A	C17651	C10034	—
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	1/4		.2500	1/8	1/2	1-3/4	B	C10030	C10035	—
SF-1	1/4		.2500	1/4	5/8	2	D	C17654	C17580	C10036
SF-1L6	1/4		.2500	1/4	1/2	6-1/2	C	C17812	C17835	—
SF-51		6.35	.2500	3	12.7	44.5	B	C17596	C17597	—
SF-3	3/8		.3750	1/4	3/4	2-1/2	C	C17655	C17581	C10037
SF-3L6	3/8		.3750	1/4	3/4	6-3/4	C	C17813	C17836	—
SF-3		9.53	.3750	6	19.1	63.5	C	—	C17525	—
SF-13	1/2		.5000	1/4	3/4	2-1/2	C	C17657	—	—
SF-5	1/2		.5000	1/4	1	2-3/4	C	C17658	C17582	C10038
SF-5L6	1/2		.5000	1/4	1	7	C	C17814	C17837	—
SF-5		12.7	.5000	6	25.4	69.9	C	—	C17527	—
SF-6	5/8		.6250	1/4	1	2-3/4	C	C10031	C17583	C10039
SF-7	3/4		.7500	1/4	1	2-3/4	C	C10032	C17584	—
SF-14	3/4		.7500	1/4	1-1/4	3	C	C17661	—	—
SF-15	3/4		.7500	1/4	1-1/2	3-1/4	C	C17662	—	—

**Solid Carbide Burs**  
Pointed Tree

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

**Note**

See index page for Standard Shank Styles explanation.



Single Cut



Double Cut

USCTI number	cutting diameter			shank diameter	length of cut	overall length	shank type	order number	
	fractional	mm	decimal					1849	
								Single Cut	Double Cut
SG-44		3	.1181	3	12.7	38	A	C17674	C17486
SG-41	1/8		.1250	1/8	1/4	1-1/2	A	C17675	C10044
SG-42	1/8		.1250	1/8	5/16	1-1/2	A	C17676	C10042
SG-43	1/8		.1250	1/8	3/8	1-1/2	A	C10040	C10043
SG-51	1/4		.2500	1/8	1/2	1-3/4	B	—	C10045
SG-53	3/16		.1875	1/8	1/2	1-1/2	A	C17679	—
SG-53		4.76	.1875	3	12.7	38.1	A	—	C17488
SG-1		6	.2362	6	15.9	50.8	D	—	C17483
SG-51	1/4		.2500	1/8	1/2	1-3/4	B	C17680	—
SG-1	1/4		.2500	1/4	5/8	2	D	C17681	C17575
SG-1L6	1/4		.2500	1/4	1/2	6-1/2	C	C17815	C17838
SG-2		7.94	.3125	6	19.1	63.5	C	—	C17484
SG-3	3/8		.3750	1/4	3/4	2-1/2	C	C17683	C17576
SG-3L6	3/8		.3750	1/4	3/4	6-3/4	C	C17816	C17839
SG-3		9.53	.3750	6	19.1	63.5	C	—	C17485
SG-13	1/2		.5000	1/4	3/4	2-1/2	C	—	C17577
SG-5	1/2		.5000	1/4	1	2-3/4	C	C17685	C17578
SG-5L6	1/2		.5000	1/4	1	7	C	C17817	C17840
SG-5		12.7	.5000	6	25.4	69.9	C	—	C17487
SG-6	5/8		.6250	1/4	1	2-3/4	C	C10041	C17579

CARBIDE BURS/ROUTERS



**Note**

See index page for Standard Shank Styles explanation.



Single Cut



Double Cut

USCTI Number	cutting diameter		shank diameter	length of cut	overall length	included angle	shank type	order number		
	fractional	mm decimal						<b>1850</b>		
								Single Cut	Double Cut	
SM-42		3	.1181	3	11.1	38.1	14°	A	C17672	C17498
SM-41	1/8		.1250	1/8	3/8	1-1/2	12°	A	C10046	C10049
SM-42	1/8		.1250	1/8	7/16	1-1/2	14°	A	C17690	C17568
SM-43	1/8		.1250	1/8	5/8	1-1/2	7°	A	C10047	C10050
SM-53		4.76	.1875	3	12.7	38.1	16°	A	C17664	—
SM-2		6	.2362	6	19.1	50.8	12°	D	—	C17496
SM-51	1/4		.2500	1/8	1/2	1-7/8	22°	B	C17693	C10076
SM-1	1/4		.2500	1/4	1/2	2	22°	D	C17694	C17569
SM-2	1/4		.2500	1/4	3/4	2	14°	D	C17695	C17570
SM-3	1/4		.2500	1/4	1	2	10°	D	C17696	C17571
SM-4	3/8		.3750	1/4	5/8	2-1/2	28°	C	C10048	C17572
SM-4		9.5	.3750	6	16	61	28°	C	—	C17497
SM-5	1/2		.5000	1/4	7/8	2-3/4	28°	C	C17698	C17573
SM-5		12.7	.5000	6	22.2	69.9	28°	C	C17673	C17499
SM-6	5/8		.6250	1/4	1	2-7/8	31°	C	C17699	C17574
SM-6		15.88	.6250	6	25.4	66.7	31°	C	—	C17502

## Solid Carbide Burs Egg Shape

### General Purpose Burs

Style: **1851** (CLE-SE)



#### Note

See index page for  
Standard Shank  
Styles explanation.



Single Cut



Double Cut



Aluminum Cut

order number

USCTI number	cutting diameter		shank dia	length of cut	overall length	shank type	order number			
	fractional	mm decimal					<b>1851</b>			
							Single Cut	Double Cut	Aluminum Cut	
SE-41		3.0	.1181	3	5.5	38	A	C17708	—	—
SE-41	1/8		.1250	1/8	7/32	1-1/2	A	C17700	C10052	—
SE-53		4.76	.1875	3	7.1	38.1	A	—	C17489	—
SE-51	1/4		.2500	1/8	3/8	1-5/8	B	C17702	C10053	—
SE-1	1/4		.2500	1/4	3/8	2	D	C17703	C17558	—
SE-1L6	1/4		.2500	1/4	3/8	6-3/8	C	C17809	C17832	—
SE-3	3/8		.3750	1/4	5/8	2-3/8	C	C17704	C17559	C10054
SE-3L6	3/8		.3750	1/4	5/8	6.625	C	C17810	C17833	—
SE-5	1/2		.5000	1/4	7/8	2-5/8	C	C17705	C17560	C10055
SE-5L6	1/2		.5000	1/4	7/8	6-7/8	C	C17811	C17834	—
SE-6	5/8		.6250	1/4	1	2-3/4	C	C17706	—	C10056
SE-7	3/4		.7500	1/4	1	2-3/4	C	C10051	C17561	—

## Solid Carbide Burs Included Angle

Style: **1852** (CLE-SL)

#### Note

See index page for  
Standard Shank  
Styles explanation.



Single Cut



Double Cut



Aluminum Cut

order number

USCTI number	cutting diameter		shank dia	length of cut	overall length	included angle	shank type	order number			
	fractional	mm decimal						<b>1852</b>			
							Single Cut	Double Cut	Aluminum Cut		
SL-41		3	.1181	3	9.5	38	8°	A	C17720	C17595	—
SL-41	1/8		.1250	1/8	3/8	1-1/2	14°	A	C10057	C10058	—
SL-42	1/8		.1250	1/8	1/2	1-1/2	8°	A	C17711	C10059	C10060
SL-1	1/4		.2500	1/4	5/8	2	14°	D	C17713	C17564	C10061
SL-1L6	1/4		.2500	1/4	5/8	6-5/8	14°	C	C17820	C17843	—
SL-2	5/16		.3125	1/4	7/8	2-3/4	14°	C	C17714	C17565	—
SL-3	3/8		.3750	1/4	1-1/16	2-15/16	14°	C	C17715	C17566	—
SL-3L6	3/8		.3750	1/4	1-1/16	7-1/16	14°	C	C17821	C17844	—
SL-3		9.53	.3750	6	27.0	74.6	14°	C	C17719	C17593	—
SL-4	1/2		.5000	1/4	1-1/8	3	14°	C	C17716	C17567	C10062
SL-4L6	1/2		.5000	1/4	1-1/8	7-1/8	14°	C	C17822	C17845	—
SL-4		12.7	.5000	6	28	73	14°	C	—	C17594	—
SL-6	5/8		.6250	1/4	1-5/16	3-3/16	14°	C	C17717	C17587	C10063

**Note**

See index page for Standard Shank Styles explanation.



Single Cut



Double Cut



Aluminum Cut

USCTI number	cutting diameter		shank dia	length of cut	overall length	shank type	order number		
	fractional	mm decimal					1853 Single Cut	1853 Double Cut	1853 Aluminum Cut
SD-40						A	C17723	—	—
SD-40	1/16	.0625	1/8	1/16	1-1/2	A	C17725	—	—
SD-41	3/32	.0938	1/8	3/32	1-1/2	A	C17726	C10064	—
SD-42		3 .1181	3	2.5	38	A	C17724	C17457	—
SD-42	1/8	.1250	1/8	1/8	1-1/2	A	C17727	C17531	—
SD-11	1/8	.1250	1/4	1/8	2	A	C17730	C17530	—
SD-53	3/16	.1875	1/8	3/16	1-1/2	A	C17728	—	—
SD-14	3/16	.1875	1/4	1/8	2	A	C17731	C17532	—
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	1/4	.2500	1/8	1/4	1-3/4	B	C17729	C10065	—
SD-1	1/4	.2500	1/4	1/4	2	D	C17732	C17533	C10068
SD-1L6	1/4	.2500	1/4	7/32	6-7/32	C	C17806	C17829	—
SD-51		6.35 .2500	3	6.35	44.45	B	—	C17411	—
SD-2	5/16	.3125	1/4	5/16	2-1/32	C	C17733	C17534	—
SD-3	3/8	.3750	1/4	3/8	2-5/64	C	C17734	C17535	C10069
SD-3L6	3/8	.3750	1/4	5/16	6-5/16	C	C17807	C17830	—
SD-3		9.53 .3750	6	9.53	52.8	C	C17722	C17456	—
SD-5	1/2	.5000	1/4	1/2	2-13/64	C	C17736	C17536	C10070
SD-5L6	1/2	.5000	1/4	7/16	6-7/16	C	C17808	C17831	—
SD-5		12.7 .5000	6	12.7	56.0	C	C17740	C17458	—
SD-6	5/8	.6250	1/4	5/8	2-5/16	C	C17737	C17537	—
SD-7	3/4	.7500	1/4	3/4	2-7/16	C	C17738	C17538	—
SD-7		19.05 .7500	6	19.05	61.9	C	—	C17413	—
SD-9	1	1.0000	1/4	1	2-11/16	C	C17739	C10066	—

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

**Note**

See index page for Standard Shank Styles explanation.



Single Cut



Double Cut

USCTI number	cutting diameter		shank diameter	length of cut	overall length	shank type	order number	
	fractional	mm decimal					1854 Single Cut	1854 Double Cut
SH-41	1/8	.1250	1/8	1/4	1-1/2	A	C17750	C10072
SH-53		4.76 .1875	3.0	9.5	38.1	A	C17749	C17529
SH-2	5/16	.3125	1/4	3/4	2-1/2	C	C10071	C17562
SH-2L6	5/16	.3125	1/4	3/4	6-3/4	C	C17818	C17841
SH-5	1/2	.5000	1/4	1-1/4	3	C	C17753	C17563
SH-5L6	1/2	.5000	1/4	1-1/4	7-1/4	C	C17819	C17842

## Solid Carbide Burs

60°/ 90° Angle Burs (countersink)

### General Purpose Burs

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



#### Note

See index page for Standard Shank Styles explanation.



USCTI number	cutting diameter		shank diameter	length of cut	overall length	included angle	shank type	order number	
	mm	decimal						1856 (60° incl.) Single Cut	1857 (90° incl.) Single Cut
SK-5	12.7	.5000	6	6.35	57.9	90°	C	—	C17742
SJ-6	15.88	.6250	6		61.9	60°	C	C17766	—
SK-6	15.88	.6250	6		61.9	90°	C	—	C17767

## Solid Carbide Burs

Inverted Taper Burs

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

#### Note

See index page for Standard Shank Styles explanation.



USCTI number	cutting diameter		shank diameter	length of cut	overall length	included angle	shank type	order number	
	fraction	mm						1858 Single Cut	Double Cut
SN-41	3/32		1/8	3/16	1-1/2	—	A	C10073	—
SN-51	1/4		1/8	1/4	1-1/2	10°	A	C10074	C10075
SN-51		6.35	3.0	6.4	38.1	10°	A	C17780	—

## Solid Carbide Burs

Variety Set

SET

Style: **1855**

Plastic Case

#### Note

See index page for Standard Shank Styles explanation.



8-Piece Set  
Bright  
#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

set contains USCTI Nos.	cutting diameter			shank diameter	no. of pieces	shank type	order number	
	fractional	decimal	metric				1855 Single Cut	Double Cut
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	C17760	C17768
SA-51, SB-51, SC-51, SF-51, SG-51, SM-51, SE-51, SD-51, SN-51	1/4	.2500	6.35	1/8	9	B	C17761	C17769
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	C17770
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	C17771

**Styles: 3100**

Plain End



Bur End



Mill End



Drill End



diameter		decimal equivalent	length of cut	shank diameter	overall length	order number			
inch	metric					plain end	bur end	mill end	drill end
	1.5	0.0591	5	3	38	C95365	C95394	C95423	C95452
1/16		0.0625	3/16	1/8	1-1/2	C95350	C95379	C95408	C95437
	2	0.0787	10	3	38	C95366	C95395	C95424	C95453
3/32		0.0938	3/8	1/8	1-1/2	C95351	C95380	C95409	C95438
	3	0.1181	12	3	38	C95367	C95396	C95425	C95454
1/8		0.1250	1/2	1/8	1-1/2	C95352	C95381	C95410	C95439
1/8		0.1250	1	1/8	2	C95353	C95382	C95411	C95440
3/16		0.1875	5/8	3/19	2	C95354	C95383	C95412	C95441
3/16		0.1875	5/8	1/4	2	C95355	C95384	C95413	C95442
	5	0.1969	16	5	50	C95368	C95397	C95426	C95455
	5	0.1969	16	6	50	C95369	C95398	C95427	C95456
	6	0.2362	18	6	50	C95370	C95399	C95428	C95457
	6	0.2362	18	6	63	C95371	C95400	C95429	C95458
	6	0.2362	25	6	63	C95372	C95401	C95430	C95459
	6	0.2362	18	6	75	C95373	C95402	C95431	C95460
	6	0.2362	25	6	75	C95374	C95403	C95432	C95461
	6	0.2362	38	6	75	C95375	C95404	C95433	C95462
1/4		0.2500	3/4	1/4	2	C95356	C95385	C95414	C95443
1/4		0.2500	3/4	1/4	2-1/2	C95357	C95386	C95415	C95444
1/4		0.2500	3/4	1/4	3	C95358	C95387	C95416	C95445
1/4		0.2500	1	1/4	2-1/2	C95359	C95388	C95417	C95446
1/4		0.2500	1	1/4	3	C95360	C95389	C95418	C95447
1/4		0.2500	1-1/2	1/4	3	C95361	C95390	C95419	C95448
5/16		0.3125	1	5/16	2-1/2	C95362	C95391	C95420	C95449
	8	0.3150	25	8	63	C95376	C95405	C95434	C95463
3/8		0.3750	1	3/8	2-1/2	C95363	C95392	C95421	C95450
	10	0.3937	25	10	63	C95377	C95406	C95435	C95464
	12	0.4724	25	12	75	C95378	C95407	C95436	C95465
1/2		0.5000	1	1/2	3	C95364	C95393	C95422	C95451

CARBIDE BURS/ROUTERS

**Styles: 3101**

**Carbide Fiberglass & Composite Router**



diameter	decimal equivalent	length of flute	shank diameter	overall length	part number uncoated
1/4	0.2500	3/4	1/4	2-1/2	C95466
3/8	0.3750	7/8	3/8	2-1/2	C95467
1/2	0.500	1	1/2	3	C95468



# NEW



## Display Merchandisers

Designed with everything included to fit your pegboard wall

### Six Display Choices

#### Jobber Drill Displays

- Part # CLEMERCH . . . . #1899 - Black Oxide Drills, General Purpose
- Part # CLEHDMERCH. . . #1801 - Black Oxide Drills, Heavy Duty
- Part # CLEHDBGMERCH . . #1878 - Black and Gold Drills, Heavy Duty
- Part # CLEHDCOMERCH . . #1802 - Straw Oxide Drills, Cobalt, Heavy Duty

#### Saw Blade Displays

- Part # CLEBISAWMERCH. . Hole Saw Blades
- Part # CLESASAWMERCH. . . Reciprocating and Band Saw Blades

See back page for display samples.

#### Each display includes:

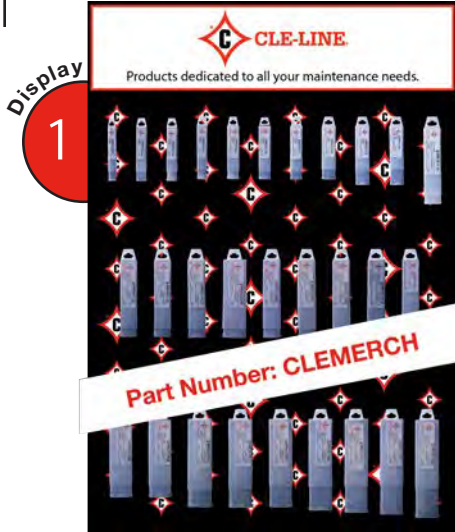
- Cle-Line® 24"x6" sign
- Cle-Line® 24" wide vinyl backdrop
- Cle-Line® products
- Hanging Hooks
- Labels with part number
- Detailed planogram instructions
- Does **not** include pegboard



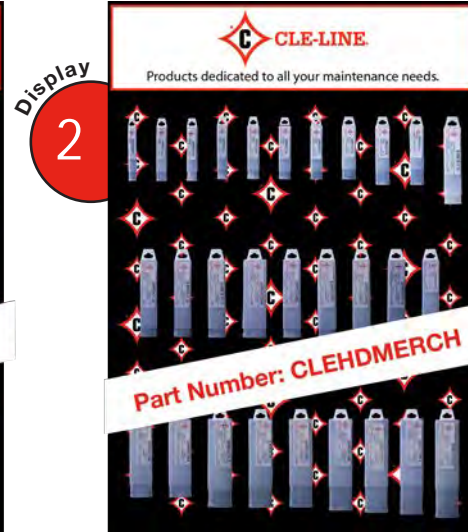
MERCHANDISER



#1899 - Black Oxide, General Purpose



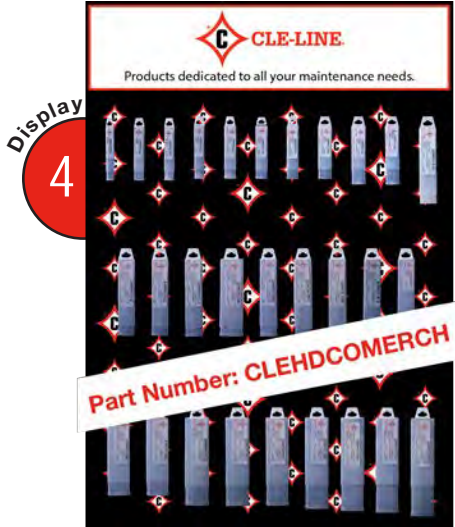
#1801 - Black Oxide, Heavy Duty



#1878 - Black and Gold, Heavy Duty



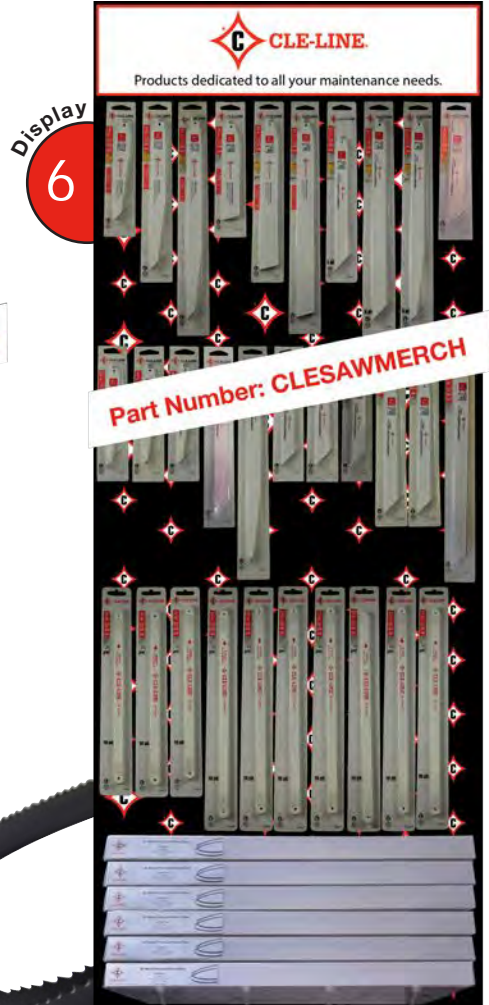
#1802 - Straw Oxide, Cobalt, Heavy Duty



Hole Saw Blades



Reciprocating Blades and Band Saw Blades



**Product Choices:**

- Display 1 #1899 - Black Oxide, General Purpose
- Display 2 #1801 - Black Oxide, Heavy Duty
- Display 3 #1878 - Black and Gold, Heavy Duty
- Display 4 #1802 - Straw Oxide, Cobalt, Heavy Duty



**MERCHANDISER**

## 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
C00323	0404	69	C00734	0401	69	C00801	0411	72	C10036	1848	118
C00325	0404	69	C00735	0402	69	C00802	0411	72	C10037	1848	118
C00326	0404	69	C00736	0403	69	C00803	0411	72	C10038	1848	118
C00327	0404	69	C00737	0402	69	C00804	0411	72	C10039	1848	118
C00328	0404	69	C00738	0403	69	C00805	0411	72	C10040	1849	118
C00329	0404	69	C00739	0402	69	C00806	0411	72	C10041	1849	118
C00330	0404	69	C00740	0403	69	C01112	1899	10	C10042	1849	118
C00331	0404	69	C00741	0402	69	C01125	1899	10	C10043	1849	118
C00332	0404	69	C00742	0403	69	C01137	1899	11	C10044	1849	118
C00333	0404	69	C00743	0402	69	C01164	1899	11	C10045	1849	118
C00334	0404	69	C00744	0403	69	C01180	1899	11	C10046	1850	119
C00335	0404	69	C00745	0402	70	C01190	1899	12	C10047	1850	119
C00336	0404	70	C00746	0403	70	C01202	1899	12	C10048	1850	119
C00337	0404	70	C00747	0402	70	C01213	1899	12	C10049	1850	119
C00448	448	72,80,87	C00748	0403	70	C01223	1899	12	C10050	1850	119
C00449	449	72,80,87	C00749	0402	70	C01234	1899	12	C10051	1851	120
C00451	451	62,72,80,88	C00750	0403	70	C01243	1899	13	C10052	1851	120
C00517	517	79,87	C00751	0402	70	C01253	1899	13	C10053	1851	120
C00518	518	79,87	C00752	0402	70	C01262	1899	13	C10054	1851	120
C00525	525	79,87	C00753	0403	70	C01338	1899	11	C10055	1851	120
C00526	526	79,87	C00754	0401	70	C01802	1898	9	C10056	1851	120
C00528	528	79,87	C00756	0402	70	C01807	1898	9	C10057	1852	120
C00532	532	79,87	C00757	0403	70	C01810	1898	9	C10058	1852	120
C00533	533	79,87	C00758	0401	70	C01815	1898	9	C10059	1852	120
C00608	055	70,84,88	C00759	0402	70	C01820	1898	9	C10060	1852	120
C00609	055	70,84,88	C00760	0403	70	C01826	1898	9	C10061	1852	120
C00610	055	70,84,88	C00761	0401	69	C01829	1898	9	C10062	1852	120
C00611	055	70,84,88	C00762	0401	69	C01831	1898	9	C10063	1852	120
C00612	055	70,84,88	C00763	0401	69	C01834	1898	9	C10064	1853	121
C00613	055	70,84,88	C00764	0401	69	C01912	1898	10	C10065	1853	121
C00614	055	72,84,88	C00765	0401	69	C01924	1898	11	C10066	1853	121
C00700	0402	69	C00766	0402	69	C01938	1898	11	C10068	1853	121
C00701	0403	69	C00767	0402	69	C02070	1898	13	C10069	1853	121
C00702	0401	69	C00768	0402	69	C02073	1898	13	C10070	1853	121
C00703	0402	69	C00769	0402	69	C10005	1845	116	C10071	1854	121
C00704	0403	69	C00770	0403	69	C10006	1845	116	C10072	1854	121
C00705	0401	69	C00771	0403	69	C10007	1845	116	C10073	1858	122
C00706	0402	69	C00772	0403	69	C10008	1845	116	C10074	1858	122
C00707	0403	69	C00773	0403	69	C10009	1846	116	C10075	1858	122
C00708	0401	69	C00774	0411	72	C10010	1846	116	C10076	1850	119
C00709	0402	69	C00775	0411	71	C10011	1846	116	C10600	1804	28
C00710	0403	69	C00776	0411	71	C10012	1846	116	C10601	1804	28
C00711	0402	69	C00777	0411	71	C10013	1846	116	C10602	1804	28
C00712	0403	69	C00778	0411	71	C10014	1846	116	C10603	1804	28
C00713	0401	69	C00779	0411	71	C10015	1846	116	C10604	1804	28
C00714	0402	69	C00780	0411	71	C10016	1846	116	C10605	1804	28
C00715	0403	69	C00781	0411	71	C10017	1846	116	C10606	1804	28
C00716	0401	69	C00782	0411	71	C10018	1846	116	C10607	1804	28
C00717	0402	69	C00783	0411	71	C10019	1846	116	C10608	1804	28
C00718	0403	69	C00784	0411	71	C10020	1847	117	C10609	1804	28
C00719	0401	69	C00785	0411	71	C10021	1847	117	C10610	1804	28
C00720	0402	69	C00786	0411	71	C10022	1847	117	C10611	1804	28
C00721	0403	69	C00787	0411	71	C10023	1847	117	C10612	1804	28
C00722	0401	69	C00788	0411	71	C10024	1847	117	C10613	1804	28
C00723	0402	69	C00789	0411	71	C10025	1847	117	C10614	1804	28
C00724	0403	69	C00790	0411	71	C10026	1847	117	C10615	1804	28
C00725	0401	69	C00791	0411	71	C10027	1847	117	C10616	1804	28
C00726	0402	69	C00793	0411	71	C10028	1847	117	C10617	1804	28
C00727	0403	69	C00794	0411	71	C10029	1847	117	C10618	1804	28
C00728	0401	69	C00795	0411	71	C10030	1848	118	C10619	1804	28
C00729	0402	69	C00796	0411	71	C10031	1848	118	C10620	1804	28
C00730	0403	69	C00797	0411	71	C10032	1848	118	C10621	1804	28
C00731	0401	69	C00798	0411	71	C10033	1848	118	C10622	1804	28
C00732	0402	69	C00799	0411	71	C10034	1848	118	C10623	1804	28
C00733	0403	69	C00800	0411	72	C10035	1848	118	C10624	1804	28

**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
C10625	1804	28	C17173	1829	59	C17549	1846	116	C17627	1846	116
C10626	1804	28	C17174	1829	59	C17550	1845	116	C17629	1846	116
C10627	1804	28	C17176	1829	59	C17551	1845	116	C17631	1846	116
C10628	1804	28	C17178	1829	59	C17552	1845	116	C17632	1846	116
C10629	1804	28,61	C17180	1829	59	C17553	1845	116	C17633	1846	116
C17031	1877	46	C17411	1853	121	C17554	1845	116	C17634	1847	117
C17032	1877	46	C17412	1853	121	C17555	1845	116	C17635	1847	117
C17033	1877	46	C17413	1853	121	C17556	1845	116	C17636	1847	117
C17034	1877	46	C17455	1853	121	C17557	1845	116	C17641	1847	117
C17035	1877	46	C17456	1853	121	C17558	1851	120	C17642	1847	117
C17036	1877	46	C17457	1853	121	C17559	1851	120	C17644	1847	117
C17037	1877	46	C17458	1853	121	C17560	1851	120	C17646	1847	117
C17038	1877	46	C17483	1849	118	C17561	1851	120	C17650	1848	118
C17039	1877	46	C17484	1849	118	C17562	1854	121	C17651	1848	118
C17040	1877	46	C17485	1849	118	C17563	1854	121	C17654	1848	118
C17041	1877	46	C17486	1849	118	C17564	1852	120	C17655	1848	118
C17042	1877	46	C17487	1849	118	C17565	1852	120	C17657	1848	118
C17043	1877	46	C17488	1849	118	C17566	1852	120	C17658	1848	118
C17044	1877	46	C17489	1851	120	C17567	1852	120	C17661	1848	118
C17045	1877	46	C17496	1850	119	C17568	1850	119	C17662	1848	118
C17046	1877	46	C17497	1850	119	C17569	1850	119	C17663	1848	118
C17047	1877	46	C17498	1850	119	C17570	1850	119	C17664	1850	119
C17048	1877	46	C17499	1850	119	C17571	1850	119	C17672	1850	119
C17049	1877	46	C17502	1850	119	C17572	1850	119	C17673	1850	119
C17050	1877	46	C17507	1846	116	C17573	1850	119	C17674	1849	118
C17051	1877	46	C17508	1846	116	C17574	1850	119	C17675	1849	118
C17052	1877	46	C17509	1846	116	C17575	1849	118	C17676	1849	118
C17053	1877	46	C17510	1846	116	C17576	1849	118	C17679	1849	118
C17054	1877	46	C17511	1846	116	C17577	1849	118	C17680	1849	118
C17055	1877	46	C17512	1846	116	C17578	1849	118	C17681	1849	118
C17056	1877	47	C17513	1847	117	C17579	1849	118	C17683	1849	118
C17057	1877	47	C17514	1847	117	C17580	1848	118	C17685	1849	118
C17058	1877	47	C17515	1847	117	C17581	1848	118	C17690	1850	119
C17059	1877	47	C17517	1847	117	C17582	1848	118	C17693	1850	119
C17060	1877	47	C17518	1847	117	C17583	1848	118	C17694	1850	119
C17061	1877	47	C17519	1847	117	C17584	1848	118	C17695	1850	119
C17062	1877	47	C17520	1847	117	C17587	1852	120	C17696	1850	119
C17066	1877	47	C17521	1847	117	C17588	1845	116	C17698	1850	119
C17070	1877	47	C17522	1847	117	C17589	1845	116	C17699	1850	119
C17074	1877	47	C17523	1847	117	C17590	1845	116	C17700	1851	120
C17078	1877	47	C17524	1848	118	C17591	1845	116	C17702	1851	120
C17082	1877	47	C17525	1848	118	C17592	1845	116	C17703	1851	120
C17086	1877	47	C17526	1848	118	C17593	1852	120	C17704	1851	120
C17090	1877	47	C17527	1848	118	C17594	1852	120	C17705	1851	120
C17094	1877	47	C17528	1848	118	C17595	1852	120	C17706	1851	120
C17100	1823	56	C17529	1854	121	C17596	1848	118	C17708	1851	120
C17101	1823	56	C17530	1853	121	C17597	1848	118	C17711	1852	120
C17102	1823	56	C17531	1853	121	C17601	1845	116	C17713	1852	120
C17103	1823	56	C17532	1853	121	C17602	1845	116	C17714	1852	120
C17104	1823	56	C17533	1853	121	C17605	1845	116	C17715	1852	120
C17105	1823	56	C17534	1853	121	C17606	1845	116	C17716	1852	120
C17106	1823	56	C17535	1853	121	C17608	1845	116	C17717	1852	120
C17107	1823	56	C17536	1853	121	C17609	1845	116	C17719	1852	120
C17108	1823	56	C17537	1853	121	C17610	1845	116	C17720	1852	120
C17109	1823	56	C17538	1853	121	C17611	1845	116	C17721	1853	121
C17110	1823	56	C17539	1847	117	C17612	1845	116	C17722	1853	121
C17111	1823	56	C17540	1847	117	C17613	1845	116	C17723	1853	121
C17112	1823	56	C17541	1847	117	C17615	1845	116	C17724	1853	121
C17113	1823	56	C17542	1847	117	C17616	1845	116	C17725	1853	121
C17114	1823	56	C17543	1847	117	C17618	1815	54	C17726	1853	121
C17115	1823	56	C17544	1847	117	C17619	1815	54	C17727	1853	121
C17116	1823	56	C17545	1847	117	C17622	1846	116	C17728	1853	121
C17170	1829	59	C17546	1846	116	C17624	1846	116	C17729	1853	121
C17171	1829	59	C17547	1846	116	C17625	1846	116	C17730	1853	121
C17172	1829	59	C17548	1846	116	C17626	1846	116	C17731	1853	121



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
C17732	1853	121	C17841	1854	121	C18060	1878	18	C18125	1878	21,60
C17733	1853	121	C17842	1854	121	C18061	1878	18	C18126	1875R	34,61
C17734	1853	121	C17843	1852	120	C18062	1878	18	C18127	1898	15,61
C17736	1853	121	C17844	1852	120	C18063	1878	18	C18128	1878	21,60
C17737	1853	121	C17845	1852	120	C18064	1878	18	C18400	1898L	16
C17738	1853	121	C18000	1878	17	C18065	1878	18	C18401	1898L	16
C17739	1853	121	C18001	1878	17	C18066	1878	18	C18402	1898L	16
C17740	1853	121	C18002	1878	17	C18067	1878	18	C18403	1898L	16
C17741	1853	121	C18003	1878	18	C18068	1878	18	C18404	1898L	16
C17742	1857	122	C18004	1878	18	C18069	1878	18	C18405	1898L	16
C17749	1854	121	C18005	1878	18	C18070	1878	18	C18406	1898L	16
C17750	1854	121	C18006	1878	18	C18071	1878	18	C18407	1898L	16
C17753	1854	121	C18007	1878	18	C18072	1878	18	C18408	1898L	16
C17760	1855	122	C18008	1878	18	C18073	1878	18	C18409	1898L	16
C17761	1855	122	C18009	1878	19	C18074	1878	18	C18410	1898L	16
C17762	1855	122	C18010	1878	19	C18075	1878	18	C18411	1898L	16
C17763	1855	122	C18011	1878	19	C18076	1878	18	C18412	1898L	16
C17766	1856	122	C18012	1878	19	C18077	1878	18	C18413	1898L	16
C17767	1857	122	C18013	1878	19	C18078	1878	18	C18414	1898L	16
C17768	1855	122	C18014	1878	19	C18079	1878	18	C18415	1898L	16
C17769	1855	122	C18015	1878	19	C18080	1878	18	C18416	1898L	16
C17770	1855	122	C18016	1878	19	C18081	1878	18	C18417	1898L	16
C17771	1855	122	C18017	1878	19	C18082	1878	18	C18418	1898L	16
C17780	1858	122	C18018	1878	19	C18083	1878	18	C18419	1898L	16
C17800	1845	116	C18019	1878	19	C18084	1878	18	C18420	1898L	16
C17801	1845	116	C18020	1878	20	C18085	1878	18	C18421	1898L	16
C17802	1845	116	C18021	1878	20	C18086	1878	18	C18422	1898L	16
C17803	1847	117	C18022	1878	20	C18087	1878	18	C18423	1898L	16
C17804	1847	117	C18023	1878	20	C18088	1878	18	C18424	1898L	16
C17805	1847	117	C18024	1878	20	C18089	1878	18	C18425	1898L	16
C17806	1853	121	C18025	1878	20	C18090	1878	17	C18426	1898L	16
C17807	1853	121	C18026	1878	20	C18091	1878	17	C18427	1898L	16
C17808	1853	121	C18027	1878	20	C18092	1878	17	C18428	1898L	16
C17809	1851	120	C18028	1878	20	C18093	1878	17	C18429	1898L	16
C17810	1851	120	C18029	1878	19	C18094	1878	17	C18430	1872	25
C17811	1851	120	C18030	1878	19	C18095	1878	17	C18431	1872	25
C17812	1848	118	C18031	1878	19	C18096	1878	17	C18432	1872	25
C17813	1848	118	C18032	1878	19	C18097	1878	17	C18433	1872	25
C17814	1848	118	C18033	1878	19	C18098	1878	17	C18434	1872	25
C17815	1849	118	C18034	1878	19	C18099	1878	17	C18435	1872	25
C17816	1849	118	C18035	1878	19	C18100	1878	17	C18436	1872	25
C17817	1849	118	C18036	1878	19	C18101	1878	17	C18437	1872	26
C17818	1854	121	C18037	1878	19	C18102	1878	17	C18438	1872	26
C17819	1854	121	C18038	1878	19	C18103	1878	17	C18439	1872	26
C17820	1852	120	C18039	1878	19	C18104	1878	17	C18440	1872	26
C17821	1852	120	C18040	1878	19	C18105	1878	17	C18441	1872	26
C17822	1852	120	C18041	1878	19	C18106	1878	17	C18442	1872	26
C17823	1845	116	C18042	1878	19	C18107	1878	17	C18443	1872	26
C17824	1845	116	C18043	1878	19	C18108	1878	17	C18444	1872	26
C17825	1845	116	C18044	1878	19	C18109	1878	17	C18445	1872	26
C17826	1847	117	C18045	1878	19	C18110	1878	17	C18446	1872	26
C17827	1847	117	C18046	1878	19	C18111	1878	17	C18447	1872	26
C17828	1847	117	C18047	1878	19	C18112	1878	17	C18449	1872	26
C17829	1853	121	C18048	1878	19	C18113	1878	17	C18450	1872	26
C17830	1853	121	C18049	1878	20	C18114	1879	20	C18451	1872	26
C17831	1853	121	C18050	1878	20	C18115	1879	20	C18452	1872	26
C17832	1851	120	C18051	1878	20	C18116	1879	20	C18453	1872	27
C17833	1851	120	C18052	1878	20	C18117	1879	20	C18454	1872	27
C17834	1851	120	C18053	1878	20	C18118	1879	20	C18455	1872	27
C17835	1848	118	C18054	1878	19	C18119	1879	20	C18456	1872	27
C17836	1848	118	C18055	1878	19	C18120	1879	20	C18457	1872	27
C17837	1848	118	C18056	1878	19	C18121	1879	20	C18458	1872	27
C17838	1849	118	C18057	1878	19	C18122	1879	21,61	C18459	1872	26
C17839	1849	118	C18058	1878	19	C18123	1878	21,60	C18474	1872	26
C17840	1849	118	C18059	1878	19	C18124	1878	21,60	C18485	1872	26

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
C18501	1872	26	C18596	1872	26	C18677	1872TN	25	C18940	1802	30
C18502	1872	26	C18597	1872	26	C18678	1872TN	25	C18941	1802	30
C18503	1872	26	C18598	1872	26	C18679	1872TN	26	C18942	1802	30
C18504	1872	26	C18599	1872	26	C18680	1872TN	26	C18945	1802	30
C18505	1872	26	C18600	1872	26	C18681	1872TN	26	C18950	1802	30
C18506	1872	26	C18601	1872	26	C18682	1872TN	26	C18955	1802	31
C18507	1872	26	C18602	1872	26	C18683	1872TN	26	C18958	1802	31
C18508	1872	26	C18603	1872	26	C18684	1872TN	26	C18960	1802	31
C18509	1872	26	C18604	1872	26	C18685	1872TN	26	C18965	1802	31
C18510	1872	26	C18605	1872	26	C18686	1872TN	26	C18970	1802	31
C18511	1872	26	C18606	1872	26	C18687	1872TN	26	C18975	1802	31
C18512	1872	26	C18607	1872	26	C18688	1872TN	26	C18980	1802	31
C18513	1872	26	C18608	1872	26	C18689	1872TN	26	C18985	1802	31
C18514	1872	26	C18609	1872	26	C18690	1872TN	26	C18990	1802	31
C18515	1872	26	C18610	1872	26	C18691	1872TN	27	C18991	1802	31
C18516	1872	26	C18611	1872	27	C18692	1872TN	27	C18992	1802	31
C18517	1872	26	C18612	1872	27	C18693	1872TN	27	C18993	1802	31
C18518	1872	26	C18613	1872	27	C18694	1872TN	27	C18995	1802	31
C18519	1872	26	C18614	1872	27	C18695	1872TN	27	C18996	1802	31
C18520	1872	25	C18615	1872	27	C18696	1872TN	27	C18998	1802	31
C18521	1872	25	C18616	1872	27	C18697	1872TN	26	C18999	1802	31
C18522	1872	25	C18617	1872	27	C18700	1872TN	27,60	C19000	1844	58
C18523	1872	25	C18618	1872	27	C18701	1872TN	27,60	C19001	1844	58
C18524	1872	25	C18619	1872	27,60	C18702	1872TN	27,60	C19002	1844	58
C18525	1872	25	C18620	1872	27,60	C18703	1872TN	27,61	C19003	1844	58
C18526	1872	25	C18621	1872	27,60	C18704	1872TN	27,61	C19004	1844	58
C18527	1872	25	C18622	1872	27,61	C18706	1872TN	27	C19005	1844	58
C18528	1872	25	C18626	1872	27,61	C18710	1873	27	C19006	1844	58
C18529	1872	25	C18628	1872	27,61	C18711	1873	27	C19007	1844	58
C18530	1872	25	C18630	1872TN	25	C18712	1873	27	C19008	1844	58
C18531	1872	25	C18631	1872TN	25	C18713	1873	27	C19009	1844	58
C18532	1872	25	C18632	1872TN	25	C18714	1873	27	C19010	1841	49
C18533	1872	25	C18633	1872TN	25	C18715	1873	27	C19011	1841	49
C18534	1872	25	C18634	1872TN	25	C18716	1873	27	C19012	1841	49
C18535	1872	25	C18635	1872TN	25	C18717	1873	27	C19013	1841	49
C18536	1872	25	C18636	1872TN	25	C18718	1873	27,61	C19019	1843	55
C18537	1872	25	C18637	1872TN	26	C18719	1873	27,60	C19020	1843	55
C18538	1872	25	C18638	1872TN	26	C18722	1872	26	C19100	1898T	12
C18539	1872	25	C18639	1872TN	26	C18723	1872	26	C19101	1898T	12
C18540	1872	25	C18640	1872TN	26	C18724	1872	26	C19102	1898T	12
C18541	1872	25	C18641	1872TN	26	C18725	1872	26	C19103	1898T	11
C18570	1872	25	C18642	1872TN	26	C18726	1872	26	C19104	1898T	11
C18573	1872	25	C18643	1872TN	26	C18900	1802	29	C19105	1898T	11
C18574	1872	25	C18644	1872TN	26	C18902	1802	29	C19106	1898T	11
C18575	1872	25	C18645	1872TN	26	C18905	1802	29	C19107	1898T	11
C18576	1872	25	C18646	1872TN	26	C18906	1802	29	C19108	1898T	11
C18577	1872	25	C18647	1872TN	26	C18910	1802	29	C19109	1898T	11
C18578	1872	25	C18648	1872TN	26	C18914	1802	29	C19110	1898T	11
C18579	1872	25	C18649	1872TN	26	C18915	1802	29	C19111	1898T	11
C18580	1872	25	C18650	1872TN	26	C18918	1802	29	C19112	1898T	11
C18581	1872	25	C18651	1872TN	26	C18920	1802	29	C19113	1898T	11
C18582	1872	25	C18652	1872TN	26	C18921	1802	29	C19114	1898T	11
C18583	1872	25	C18653	1872TN	27	C18922	1802	29	C19115	1898T	11
C18584	1872	25	C18654	1872TN	27	C18923	1802	30	C19116	1898T	11
C18585	1872	25	C18655	1872TN	27	C18925	1802	30	C19117	1898T	11
C18586	1872	25	C18656	1872TN	27	C18926	1802	30	C19118	1898T	11
C18587	1872	25	C18657	1872TN	27	C18927	1802	30	C19119	1898T	11
C18588	1872	25	C18658	1872TN	27	C18929	1802	30	C19120	1898T	11
C18589	1872	25	C18670	1872TN	25	C18930	1802	30	C19121	1898T	11
C18590	1872	25	C18671	1872TN	25	C18931	1802	30	C19122	1898T	11
C18591	1872	25	C18672	1872TN	25	C18932	1802	30	C19123	1898T	11
C18592	1872	26	C18673	1872TN	25	C18935	1802	30	C19124	1898T	11
C18593	1872	26	C18674	1872TN	25	C18936	1802	30	C19125	1898T	11
C18594	1872	26	C18675	1872TN	25	C18938	1802	30	C19126	1898T	11
C18595	1872	26	C18676	1872TN	25	C18939	1802	30	C19127	1898T	11

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
C19128	1898T	11	C19196	1898T	12	C20326	1874TN	53,62	C20561	1894	44
C19129	1898T	10	C19197	1898T	12	C20436	1806	42	C20562	1894	44
C19130	1898T	10	C19198	1898T	12	C20438	1806	42	C20563	1894	44
C19131	1898T	10	C19199	1898T	12	C20440	1806	42	C20564	1894	44
C19132	1898T	10	C19200	1898T	12	C20442	1806	42	C20565	1894	44
C19133	1898T	10	C19201	1898T	13	C20444	1806	42	C20566	1894	44
C19134	1898T	10	C19202	1898T	13	C20446	1806	42	C20567	1894	44
C19135	1898T	10	C19203	1898T	13	C20448	1806	42	C20568	1894	44
C19136	1898T	10	C19204	1898T	13	C20450	1806	42	C20569	1894	44
C19137	1898T	10	C19205	1898T	13	C20452	1806	42	C20570	1894	44
C19138	1898T	10	C19206	1898T	13	C20454	1806	42	C20571	1894	44
C19139	1898T	10	C19210	1898T	15,60	C20456	1806	42	C20572	1894	44
C19140	1898T	10	C19211	1898T	15,60	C20458	1806	42	C20573	1894	44
C19141	1898T	10	C20020	1894	43	C20460	1806	42	C20574	1894	44
C19142	1898T	10	C20022	1894	43	C20462	1806	42	C20575	1894	44
C19143	1898T	10	C20024	1894	43	C20464	1806	42	C20576	1894	44
C19144	1898T	10	C20026	1894	43	C20466	1806	42	C20577	1894	45
C19145	1898T	10	C20029	1894	44	C20468	1806	42	C20578	1894	45
C19146	1898T	10	C20030	1894	44	C20470	1806	42	C20579	1894	45
C19147	1898T	10	C20035	1894	44	C20472	1806	42	C20580	1894	45
C19148	1898T	10	C20040	1894	44	C20478	2185	56	C20581	1894	45
C19149	1898T	10	C20043	1894	45	C20479	2185	56	C20582	1894	45
C19150	1898T	10	C20045	1894	45	C20480	2185	56	C20583	1894	45
C19151	1898T	9	C20049	1894	43	C20481	1807	42	C20584	1894	45
C19152	1898T	9	C20050	1894	43	C20483	1807	42	C20585	1894	45
C19153	1898T	9	C20051	1894	43	C20485	1807	42	C20586	1894	45
C19154	1898T	9	C20052	1894	43	C20487	1807	42	C20587	1894	45
C19155	1898T	9	C20053	1894	43	C20489	1807	42	C20588	1894	45
C19156	1898T	9	C20054	1894	43	C20491	1807	42	C20589	1894	45
C19157	1898T	9	C20055	1894	43	C20493	1807	42	C20590	1894	45
C19158	1898T	9	C20056	1894	43	C20495	1807	42	C20591	1894	45
C19159	1898T	9	C20057	1894	43	C20497	1807	42	C20592	1894	45
C19160	1898T	9	C20058	1894	43	C20500	1815	54	C20596	1894	45
C19161	1898T	10	C20059	1894	43	C20501	1815	54	C20621	1808	14
C19162	1898T	10	C20060	1894	43	C20503	1815	54	C20622	1808	14
C19163	1898T	10	C20061	1894	43	C20510	1816	55	C20623	1808	14
C19164	1898T	10	C20062	1894	43	C20511	1816	55	C20624	1808	14
C19165	1898T	11	C20063	1894	43	C20512	1816	55	C20625	1808	14
C19166	1898T	11	C20064	1894	43	C20513	1816	55	C20626	1808	14
C19167	1898T	11	C20068	1894	45	C20514	1816	55	C20627	1808	14
C19168	1898T	11	C20072	1894	45	C20516	1816	55	C20628	1808	14
C19169	1898T	11	C20256	2184	55	C20517	1816	55	C20631	1809	20
C19170	1898T	12	C20257	2184	55	C20518	1816	55	C20632	1809	20
C19171	1898T	12	C20258	2184	55	C20524	1894	43	C20633	1809	20
C19172	1898T	12	C20259	2184	55	C20525	1894	43	C20634	1809	20
C19173	1898T	12	C20260	2184	55	C20526	1894	43	C20635	1809	20
C19174	1898T	12	C20285	1874	53	C20527	1894	43	C20636	1809	20
C19175	1898T	12	C20286	1874	53	C20528	1894	43	C20637	1809	20
C19176	1898T	12	C20287	1874	53	C20529	1894	43	C20638	1809	20
C19177	1898T	13	C20288	1874	53	C20530	1894	43	C20651	1812	32
C19178	1898T	13	C20290	1874	53	C20535	1894	43	C20652	1812	32
C19179	1898T	13	C20293	1874	53	C20543	1894	43	C20653	1812	32
C19180	1898T	13	C20295	1874TN	53	C20545	1894	44	C20654	1812	32
C19181	1898T	13	C20296	1874TN	53	C20549	1894	44	C20655	1812	32
C19182	1898T	13	C20297	1874TN	53	C20550	1894	44	C20656	1812	32
C19183	1898T	13	C20298	1874TN	53	C20551	1894	44	C20657	1812	32
C19184	1898T	13	C20300	2874	53	C20552	1894	44	C20658	1812	32
C19185	1898T	14	C20301	2874	53	C20553	1894	44	C20659	1809	20
C19186	1898T	14	C20302	2874	53	C20554	1894	44	C20660	1809	20
C19187	1898T	14	C20303	2874	53,62	C20555	1894	44	C20661	1809	20
C19188	1898T	14	C20310	1874	53	C20556	1894	44	C20662	1809	20
C19192	1898T	12	C20311	1874	53	C20557	1894	44	C20669	1813	46
C19193	1898T	12	C20312	1874TN	53	C20558	1894	44	C20670	1892	46
C19194	1898T	12	C20313	1874TN	53	C20559	1894	44	C20671	1892	46
C19195	1898T	12	C20325	1874	53,62	C20560	1894	44	C20672	1892	46

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
C20673	1892	46	C20752	1813	46	C21027	1821	51	C21148	1822	50,62
C20674	1892	46	C20753	1813	46	C21028	1821	51	C21149	1829	59,62
C20675	1892	46	C20754	1813	47	C21029	1821	51	C21156	1900	15
C20676	1892	46	C20755	1813	47	C21030	1821	51	C21157	1801	21,60
C20677	1892	46	C20756	1813	47	C21031	1821	51,62	C21158	1899	15,61
C20678	1892	46	C20757	1813	47	C21032	1821	51	C21159	1900	15
C20679	1892	46	C20758	1813	47	C21033	1821	51	C21160	1875R	34,61
C20680	1892	46	C20759	1813	47	C21034	1821	51	C21161	1875R	34,61
C20681	1892	46	C20760	1813	47	C21035	1821	51	C21162	1875R	34,61
C20682	1892	46	C20761	1813	47	C21036	1821	51	C21163	1876	34,61
C20683	1892	46	C20762	1813	47	C21039	1821	51	C21164	1877	47,62
C20684	1892	46	C20763	1813	47	C21040	1821	51	C21165	1875R	34,61
C20685	1892	46	C20764	1813	47	C21042	1821	51	C21170	1877	46
C20686	1892	46	C20765	1813	47	C21043	1821	51	C21171	1877	46
C20687	1892	46	C20877	2185F	56	C21046	1821	51	C21172	1877	46
C20688	1892	46	C20878	2185F	56	C21048	1821	51	C21173	1877	46
C20689	1892	46	C20879	2185F	56	C21070	1813	46	C21174	1877	46
C20690	1892	46	C20880	2185F	56	C21071	1813	46	C21175	1877	46
C20691	1892	46	C20891	1824	58	C21072	1813	46	C21176	1877	46
C20692	1892	47	C20892	1824	58	C21073	1813	46	C21177	1877	46
C20693	1892	47	C20893	1824	58	C21074	1813	46	C21178	1877	46
C20694	1892	47	C20894	1824	58	C21075	1813	46	C21179	1877	46
C20695	1892	47	C20895	1824	58	C21076	1813	46	C21180	1877	46
C20696	1892	47	C20896	1824	58	C21077	1813	46	C21181	1877	46
C20697	1892	47	C20897	1824	58	C21078	1813	46	C21182	1877	46
C20698	1892	47	C20898	1824	58	C21079	1813	46	C21183	1877	46
C20699	1892	47	C20899	1824	58	C21080	1813	46	C21184	1877	46
C20712	1821	51	C20908	1816	55	C21081	1813	46	C21185	1877	46
C20713	1821	51	C20909	1816	55	C21082	1813	46	C21186	1877	46
C20714	1821	51	C20910	1818	49	C21083	1813	46	C21187	1877	47
C20715	1821	51	C20911	1818	49	C21084	1813	46	C21188	1877	47
C20717	1821	51	C20912	1818	49	C21085	1813	46	C21189	1877	47
C20718	1822	50	C20913	1818	49	C21086	1813	46	C21190	1898	15,60
C20719	1822	50	C20914	1818	49	C21087	1813	47	C21191	1878	21,60
C20720	1822	50	C20920	1817	54	C21088	1813	47	C21192	1878	21,60
C20721	1822	50	C20925	1818	49	C21089	1813	47	C21947	1896	39,62
C20722	1822	50	C20926	1818	49	C21100	1898	15,60	C21950	1682	43
C20723	1822	50	C20927	1818	49	C21101	1899	15,60	C21951	1682	43
C20724	1813	46	C20928	1818	49	C21104	1898	15,60	C21952	1682	43
C20725	1813	46	C20929	1818	49,62	C21105	1899	15,60	C21953	1682	43
C20726	1813	46	C20930	1818	49	C21107	1802	32,60	C21954	1682	43
C20727	1813	47	C20932	1818	49	C21108	1898	15,60	C21955	1682	43
C20728	1813	47	C20934	1818	49	C21109	1899	15,60	C21956	1682	44
C20729	1813	47	C20935	1818	49	C21110	1801	21,60	C21957	1682	44
C20730	1813	47	C20937	1818	49	C21112	1802	32,60	C21958	1682	44
C20731	1813	47	C20938	1818	49	C21113	1898	15,60	C21959	1682	44
C20732	1813	46	C20939	1818	49	C21114	1899	15,60	C21960	1682	44
C20733	1813	46	C20940	1818	49	C21115	1801	21,60	C21961	1682	44
C20734	1813	46	C20944	1818	49	C21117	1898	15,60	C21962	1682	44
C20735	1813	46	C20946	1818	49	C21118	1899	15,60	C21963	1682	44
C20736	1813	46	C20948	1818	49	C21119	1801	21,61	C21964	1682	44
C20737	1813	46	C20950	1818	49	C21121	1802	32,61	C21965	1682	44
C20738	1813	46	C20955	1817	54	C21122	1898	15,61	C21966	1682	44
C20739	1813	46	C20957	1817	54	C21123	1899	15,61	C21967	1682	44
C20740	1813	46	C20958	1817	54	C21124	1801	21,61	C21968	1682	44
C20741	1813	46	C20988	2195	56	C21125	1802	32,61	C21969	1682	45
C20742	1813	46	C20989	2195	56	C21126	1898	15,61	C21970	1682	45
C20743	1813	46	C20990	2195	56	C21127	1899	15,61	C21971	1682	45
C20744	1813	46	C21020	1821	51	C21128	1801	21,61	C21972	1682	45
C20746	1813	46	C21021	1821	51	C21129	1802	32,61	C21973	1682	45
C20747	1813	46	C21022	1821	51	C21130	1899	15,61	C21974	1682	45
C20748	1813	46	C21023	1821	51	C21131	1899	15,61	C21975	1682	45
C20749	1813	46	C21024	1821	51	C21133	1896	39,62	C21976	1682	45
C20750	1813	46	C21025	1821	51	C21134	1813	47,62	C21977	1682	45
C20751	1813	46	C21026	1821	51	C21135	1813	47,62	C21978	1682	45

## 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
C21979	1682	45	C22650	1899	9	C22715	1899	12	C22804	1899	9
C21980	1682	45	C22651	1899	9	C22716	1899	12	C22805	1899	9
C21981	1682	45	C22652	1899	9	C22717	1899	12	C22806	1899	9
C21982	1682	45	C22653	1899	9	C22718	1899	12	C22807	1899	10
C21983	1682	45	C22654	1899	9	C22719	1899	12	C22808	1899	10
C21984	1682	45	C22655	1899	10	C22720	1899	12	C22809	1899	10
C22100	1833	51	C22656	1899	10	C22721	1899	12	C22810	1899	10
C22101	1833	51	C22657	1899	10	C22722	1899	12	C22811	1899	10
C22102	1833	51	C22658	1899	10	C22723	1899	12	C22812	1899	10
C22103	1833	51	C22659	1899	10	C22724	1899	12	C22813	1899	10
C22104	1833	51	C22660	1899	10	C22725	1899	12	C22814	1899	10
C22105	1833	51	C22661	1899	10	C22726	1899	12	C22815	1899	10
C22106	1833	51	C22662	1899	10	C22727	1899	12	C22816	1899	10
C22107	1833	51	C22663	1899	10	C22728	1899	12	C22817	1899	10
C22108	1833	51	C22664	1899	10	C22729	1899	12	C22818	1899	10
C22109	1833	51	C22665	1899	10	C22730	1899	12	C22819	1899	10
C22110	1833	51	C22666	1899	10	C22731	1899	12	C22820	1899	10
C22111	1833	51	C22667	1899	10	C22732	1899	12	C22821	1899	10
C22112	1833	51	C22668	1899	10	C22733	1899	12	C22822	1899	10
C22200	1837	52	C22669	1899	10	C22734	1899	12	C22823	1899	10
C22201	1837	52	C22670	1899	10	C22735	1899	13	C22824	1899	10
C22202	1837	52	C22671	1899	10	C22736	1899	13	C22825	1899	10
C22203	1837	52	C22672	1899	10	C22737	1899	13	C22826	1899	10
C22204	1837	52	C22673	1899	10	C22738	1899	13	C22827	1899	10
C22205	1837	52	C22674	1899	10	C22739	1899	13	C22828	1899	10
C22206	1837	52	C22675	1899	10	C22740	1899	13	C22829	1899	10
C22207	1837	52	C22676	1899	10	C22741	1899	13	C22830	1899	10
C22208	1837	52,62	C22677	1899	10	C22742	1899	13	C22831	1899	10
C22210	1838	52	C22678	1899	10	C22743	1899	13	C22832	1899	10
C22211	1838	52	C22679	1899	10	C22744	1899	13	C22833	1899	11
C22212	1838	52	C22680	1899	10	C22745	1899	13	C22834	1899	11
C22213	1838	52	C22681	1899	11	C22746	1899	13	C22835	1899	11
C22214	1838	52	C22682	1899	11	C22747	1899	13	C22836	1899	11
C22215	1838	52	C22683	1899	11	C22748	1899	13	C22837	1899	11
C22216	1838	52	C22684	1899	11	C22749	1899	13	C22838	1899	11
C22217	1838	52	C22685	1899	11	C22750	1899	13	C22839	1899	11
C22218	1838	52,62	C22686	1899	11	C22751	1899	13	C22840	1899	11
C22300	1860	15,60,80,88	C22687	1899	11	C22753	1899	14	C22841	1899	11
C22301	1860	15,60,80,88	C22688	1899	11	C22755	1899	14	C22842	1899	11
C22302	1860	15,60,80,88	C22689	1899	11	C22757	1899	14	C22843	1899	11
C22303	1860	15,60,80,88	C22690	1899	11	C22761	1892	47,62	C22844	1899	11
C22304	1860	15,60,80,88	C22691	1899	11	C22780	1899	9	C22845	1899	11
C22305	1860	15,60,80,88	C22692	1899	11	C22781	1899	9	C22846	1899	11
C22306	1860	15,60,80,88	C22693	1899	11	C22782	1899	9	C22847	1899	11
C22307	1860	15,60,80,88	C22694	1899	11	C22783	1899	9	C22848	1899	11
C22308	1860	15,60,80,88	C22695	1899	11	C22784	1899	9	C22849	1899	11
C22309	1875R	34,62	C22696	1899	11	C22785	1899	9	C22850	1899	11
C22310	1875R	34,61	C22697	1899	11	C22786	1899	9	C22851	1899	11
C22311	1864	21,59,62	C22698	1899	11	C22787	1899	9	C22852	1899	12
C22312	1864	21,59,62	C22699	1899	11	C22788	1899	9	C22853	1899	12
C22313	1864	21,59,62	C22700	1899	11	C22789	1899	9	C22854	1899	12
C22314	1864	21,59,62	C22701	1899	11	C22790	1899	9	C22855	1899	12
C22315	1864	21,59,62	C22702	1899	11	C22791	1899	9	C22856	1899	12
C22316	1864	21,59,62	C22703	1899	11	C22792	1899	9	C22857	1899	12
C22505	1899	13	C22704	1899	11	C22793	1899	9	C22858	1899	12
C22506	1899	13	C22705	1899	11	C22794	1899	9	C22859	1899	12
C22507	1899	13	C22706	1899	11	C22795	1899	9	C22860	1899	12
C22508	1899	14	C22707	1899	11	C22796	1899	9	C22861	1899	12
C22643	1899	9	C22708	1899	11	C22797	1899	9	C22862	1899	12
C22644	1899	9	C22709	1899	11	C22798	1899	9	C22863	1899	12
C22645	1899	9	C22710	1899	11	C22799	1899	9	C22864	1899	12
C22646	1899	9	C22711	1899	11	C22800	1899	9	C22865	1899	12
C22647	1899	9	C22712	1899	12	C22801	1899	9	C22866	1899	12
C22648	1899	9	C22713	1899	12	C22802	1899	9	C22867	1899	12
C22649	1899	9	C22714	1899	12	C22803	1899	9	C22868	1899	12

**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
C22869	1899	12	C22941	1899	13	C23029	1898	9	C23110	1801	19
C22870	1899	12	C22942	1899	13	C23030	1898	9	C23111	1801	19
C22871	1899	12	C22944	1899	13	C23031	1898	9	C23112	1801	19
C22872	1899	12	C22947	1899	13	C23032	1898	9	C23113	1801	19
C22873	1899	12	C22951	1899	13	C23033	1898	10	C23114	1801	19
C22874	1899	12	C22954	1899	13	C23034	1898	10	C23115	1801	19
C22875	1899	12	C22970	1898	12	C23035	1898	10	C23116	1801	19
C22876	1899	12	C22971	1898	12	C23036	1898	10	C23117	1801	19
C22877	1899	12	C22972	1898	12	C23037	1898	10	C23118	1801	19
C22878	1899	12	C22973	1898	12	C23038	1898	10	C23119	1801	19
C22879	1899	13	C22974	1898	12	C23039	1898	10	C23120	1801	20
C22880	1899	13	C22975	1898	12	C23040	1898	10	C23121	1801	20
C22881	1899	13	C22976	1898	12	C23041	1898	10	C23122	1801	20
C22882	1899	13	C22977	1898	12	C23042	1898	10	C23123	1801	20
C22883	1899	13	C22978	1898	12	C23043	1898	10	C23124	1801	20
C22884	1899	13	C22979	1898	12	C23044	1898	10	C23125	1801	17
C22885	1899	13	C22980	1898	12	C23045	1898	10	C23126	1801	17
C22886	1899	13	C22981	1898	12	C23046	1898	10	C23127	1801	17
C22887	1899	13	C22982	1898	12	C23047	1898	10	C23128	1801	18
C22888	1899	13	C22983	1898	13	C23048	1898	10	C23129	1801	18
C22889	1899	13	C22984	1898	13	C23049	1898	10	C23130	1801	18
C22890	1899	13	C22985	1898	13	C23050	1898	10	C23131	1801	18
C22891	1899	13	C22986	1898	13	C23051	1898	10	C23132	1801	18
C22892	1899	13	C22987	1898	13	C23052	1898	10	C23133	1801	18
C22893	1899	13	C22988	1898	13	C23053	1898	10	C23134	1801	19
C22894	1899	13	C22989	1898	13	C23054	1898	10	C23135	1801	19
C22895	1899	13	C22990	1898	13	C23055	1898	11	C23136	1801	19
C22896	1899	13	C22991	1898	13	C23056	1898	11	C23137	1801	19
C22897	1899	13	C22992	1898	13	C23057	1898	11	C23138	1801	19
C22898	1899	13	C22993	1898	13	C23058	1898	11	C23139	1801	19
C22899	1899	13	C22994	1898	13	C23059	1898	11	C23140	1801	19
C22900	1899	13	C22995	1898	9	C23060	1898	11	C23141	1801	19
C22901	1899	13	C22996	1898	10	C23061	1898	11	C23142	1801	19
C22902	1899	13	C22997	1898	10	C23062	1898	11	C23143	1801	19
C22903	1899	13	C22998	1898	10	C23063	1898	11	C23144	1801	19
C22904	1899	14	C22999	1898	10	C23064	1898	11	C23145	1801	20
C22905	1899	14	C23000	1898	11	C23065	1898	11	C23146	1801	20
C22906	1899	14	C23001	1898	11	C23066	1898	11	C23147	1801	20
C22907	1899	14	C23002	1898	11	C23067	1898	11	C23148	1801	20
C22908	1899	14	C23003	1898	11	C23068	1898	11	C23149	1801	20
C22909	1899	14	C23004	1898	11	C23069	1898	11	C23150	1801	20
C22910	1899	14	C23005	1898	12	C23070	1898	11	C23151	1801	20
C22911	1899	14	C23006	1898	12	C23071	1898	11	C23152	1801	20
C22912	1899	14	C23007	1898	12	C23072	1898	11	C23153	1801	20
C22913	1899	14	C23008	1898	12	C23073	1898	11	C23154	1801	17
C22914	1899	14	C23009	1898	12	C23074	1898	11	C23155	1801	17
C22915	1899	14	C23010	1898	12	C23075	1898	11	C23156	1801	17
C22916	1899	14	C23011	1898	12	C23076	1898	11	C23157	1801	17
C22917	1899	14	C23012	1898	13	C23077	1898	11	C23158	1801	17
C22918	1899	14	C23013	1898	13	C23078	1898	11	C23159	1801	17
C22919	1899	14	C23014	1898	13	C23079	1898	11	C23160	1801	17
C22920	1899	14	C23015	1898	13	C23080	1898	11	C23161	1801	17
C22921	1899	14	C23016	1898	13	C23081	1898	12	C23162	1801	17
C22922	1899	14	C23017	1898	13	C23082	1898	12	C23163	1801	17
C22923	1899	14	C23018	1898	13	C23083	1898	12	C23164	1801	17
C22924	1899	14	C23019	1898	13	C23100	1801	19	C23165	1801	17
C22925	1899	14	C23020	1898	14	C23101	1801	19	C23166	1801	17
C22926	1899	14	C23021	1898	14	C23102	1801	19	C23167	1801	17
C22927	1899	14	C23022	1898	14	C23103	1801	19	C23168	1801	17
C22928	1899	14	C23023	1898	14	C23104	1801	19	C23169	1801	17
C22929	1899	14	C23024	1898	9	C23105	1801	19	C23170	1801	17
C22930	1899	14	C23025	1898	9	C23106	1801	19	C23171	1801	17
C22931	1899	14	C23026	1898	9	C23107	1801	19	C23172	1801	17
C22932	1899	14	C23027	1898	9	C23108	1801	19	C23173	1801	17
C22933	1899	14	C23028	1898	9	C23109	1801	19	C23174	1801	17

## 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
C23175	1801	17	C23329	1802	31	C23403	1802	29	C23505	1896	36
C23176	1801	17	C23330	1802	31	C23404	1802	30	C23506	1896	36
C23177	1801	17	C23335	1802	31	C23405	1802	30	C23507	1896	36
C23178	1801	18	C23336	1802	31	C23406	1802	30	C23508	1896	36
C23179	1801	18	C23339	1802	31	C23407	1802	30	C23509	1896	36
C23180	1801	18	C23340	1802	31	C23408	1802	30	C23510	1896	36
C23181	1801	18	C23341	1802	31	C23409	1802	30	C23511	1896	36
C23182	1801	18	C23345	1802	29	C23410	1802	30	C23512	1896	36
C23183	1801	18	C23346	1802	29	C23411	1802	30	C23513	1896	36
C23184	1801	18	C23347	1802	29	C23412	1802	30	C23514	1896	36
C23185	1801	18	C23348	1802	29	C23413	1802	30	C23515	1896	36
C23186	1801	18	C23349	1802	29	C23414	1802	30	C23516	1896	36
C23187	1801	18	C23350	1802	30	C23415	1802	30	C23517	1896	36
C23188	1801	18	C23351	1802	30	C23416	1802	30	C23518	1896	36
C23189	1801	18	C23352	1802	30	C23417	1802	30	C23519	1896	36
C23190	1801	18	C23353	1802	30	C23418	1802	30	C23520	1896	36
C23191	1801	18	C23354	1802	30	C23419	1802	30	C23521	1896	36
C23192	1801	18	C23355	1802	30	C23420	1802	30	C23522	1896	36
C23193	1801	18	C23356	1802	30	C23421	1802	30	C23523	1896	36
C23194	1801	18	C23357	1802	31	C23422	1802	30	C23524	1896	36
C23195	1801	18	C23358	1802	31	C23423	1802	30	C23525	1896	36
C23196	1801	18	C23359	1802	31	C23424	1802	30	C23526	1896	37
C23197	1801	18	C23360	1802	31	C23425	1802	30	C23527	1896	37
C23198	1801	18	C23361	1802	31	C23426	1802	30	C23528	1896	37
C23199	1801	18	C23362	1802	31	C23427	1802	30	C23529	1896	37
C23200	1801	18	C23363	1802	31	C23428	1802	30	C23530	1896	37
C23201	1801	18	C23364	1802	31	C23429	1802	30	C23531	1896	37
C23202	1801	18	C23365	1802	31	C23430	1802	30	C23532	1896	37
C23203	1801	18	C23366	1802	31	C23431	1802	30	C23533	1896	37
C23204	1801	18	C23367	1802	31	C23432	1802	30	C23534	1896	37
C23205	1801	18	C23368	1802	31	C23433	1802	30	C23535	1896	37
C23206	1801	18	C23369	1802	31	C23460	1896	36	C23536	1896	37
C23207	1801	18	C23370	1802	31	C23461	1896	36	C23537	1896	37
C23208	1801	19	C23371	1802	31	C23462	1896	36	C23538	1896	37
C23209	1801	19	C23372	1802	31	C23463	1896	36	C23539	1896	37
C23210	1801	19	C23373	1802	31	C23464	1896	37	C23540	1896	37
C23211	1801	19	C23374	1802	29	C23465	1896	37	C23541	1896	37
C23212	1801	19	C23375	1802	29	C23466	1896	37	C23542	1896	37
C23213	1801	19	C23376	1802	29	C23467	1896	37	C23543	1896	37
C23214	1801	17	C23377	1802	29	C23468	1896	37	C23544	1896	37
C23270	1889	50	C23378	1802	29	C23469	1896	38	C23545	1896	37
C23271	1889	50	C23379	1802	29	C23470	1896	38	C23546	1896	37
C23272	1889	50	C23380	1802	29	C23471	1896	38	C23547	1896	37
C23273	1889	50	C23381	1802	29	C23472	1896	38	C23548	1896	37
C23274	1889	50	C23382	1802	29	C23473	1896	38	C23549	1896	37
C23275	1889	50	C23383	1802	29	C23474	1896	38	C23550	1896	37
C23276	1889	50	C23384	1802	29	C23475	1896	38	C23551	1896	37
C23278	1889	50	C23385	1802	29	C23476	1896	38	C23552	1896	37
C23280	1889	50	C23386	1802	29	C23477	1896	38	C23553	1896	38
C23281	1889	50	C23387	1802	29	C23478	1896	39	C23554	1896	38
C23282	1889	50	C23388	1802	29	C23479	1896	39	C23555	1896	38
C23283	1889	50	C23389	1802	29	C23480	1896	39	C23556	1896	38
C23286	1889	50	C23390	1802	29	C23481	1896	39	C23557	1896	38
C23287	1889	50	C23391	1802	29	C23482	1896	39	C23558	1896	38
C23288	1889	50	C23392	1802	29	C23483	1896	39	C23559	1896	38
C23289	1889	50	C23393	1802	29	C23484	1896	39	C23621	1803	40
C23320	1802	30	C23394	1802	29	C23485	1896	39	C23622	1803	40
C23321	1802	30	C23395	1802	29	C23486	1896	39	C23623	1803	40
C23322	1802	31	C23396	1802	29	C23487	1896	39	C23624	1803	40
C23323	1802	31	C23397	1802	29	C23488	1896	39	C23625	1803	40
C23324	1802	31	C23398	1802	29	C23500	1896	36	C23626	1803	40
C23325	1802	31	C23399	1802	29	C23501	1896	36	C23627	1803	40
C23326	1802	31	C23400	1802	29	C23502	1896	36	C23628	1803	40
C23327	1802	31	C23401	1802	29	C23503	1896	36	C23629	1803	41
C23328	1802	31	C23402	1802	29	C23504	1896	36	C23630	1803	41



**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
C23631	1803	41	C23722	1805	40	C23843	1875R	33	C23929	1896	38
C23632	1803	41	C23723	1805	40	C23844	1875R	33	C23930	1896	38
C23633	1803	41	C23724	1805	40	C23845	1875R	33	C23931	1896	38
C23634	1803	41	C23725	1805	40	C23846	1875R	33	C23932	1896	39
C23635	1803	41	C23726	1805	40	C23847	1875R	33	C23933	1896	39
C23636	1803	41	C23727	1805	40	C23848	1875R	33	C23934	1896	39
C23637	1803	41	C23728	1805	40	C23849	1875R	33	C23935	1896	39
C23638	1803	41	C23729	1805	41	C23850	1875R	33	C23936	1896	39
C23639	1803	41	C23730	1805	41	C23851	1875R	33	C23937	1896	39
C23640	1803	41	C23731	1805	41	C23852	1875R	33	C23938	1896	39
C23641	1803	41	C23732	1805	41	C23853	1875R	33	C23939	1896	39
C23642	1803	41	C23733	1805	41	C23854	1875R	33	C23940	1896	39
C23643	1803	41	C23734	1805	41	C23855	1875R	33	C23941	1896	39
C23644	1803	41	C23735	1805	41	C23856	1875R	33	C23942	1896	39
C23645	1803	41	C23736	1805	41	C23857	1875R	33	C23943	1896	39
C23649	1803	41	C23737	1805	41	C23859	1875R	33	C23964	1896	39
C23661	1803	41	C23738	1805	41	C23860	1876	34	C23965	1896	39
C23662	1803	41	C23739	1805	41	C23861	1876	34	C23966	1896	39
C23663	1803	41	C23740	1805	41	C23862	1876	34	C23967	1896	39
C23664	1803	41	C23741	1805	41	C23863	1876	34	C23969	1896	39
C23665	1803	41	C23742	1805	41	C23864	1876	34	C23971	1896	39
C23666	1803	41	C23743	1805	41	C23865	1876	34	C23992	1867	62
C23667	1803	41	C23744	1805	41	C23885	1896	36	C23993	1867	62
C23668	1803	41	C23745	1805	41	C23886	1896	36	C23994	1867	62
C23669	1803	41	C23746	1805	41	C23887	1896	36	C24002	2619	58
C23670	1803	41	C23749	1805	41	C23888	1896	36	C24003	2619	58
C23671	1803	41	C23761	1805	41	C23889	1896	36	C24004	2619	58
C23672	1803	41	C23762	1805	41	C23890	1896	36	C24005	2619	58
C23673	1803	40	C23763	1805	41	C23891	1896	36	C24006	2619	58
C23674	1803	40	C23764	1805	41	C23892	1896	36	C24007	2619	58
C23675	1803	40	C23765	1805	41	C23893	1896	36	C24008	2619	58
C23676	1803	40	C23766	1805	41	C23894	1896	36	C24009	2619	58
C23677	1803	40	C23767	1805	41	C23895	1896	37	C24010	2619	58
C23678	1803	40	C23768	1805	41	C23896	1896	37	C24011	2619	58
C23679	1803	40	C23769	1805	41	C23898	1896	37	C24012	2619	58
C23680	1803	40	C23770	1805	41	C23899	1896	37	C24013	2619	58
C23681	1803	40	C23771	1805	41	C23900	1896	37	C24014	2619	58
C23682	1803	40	C23772	1805	41	C23901	1896	37	C24018	1896	36
C23683	1803	40	C23773	1805	40	C23902	1896	37	C24036	1896	37
C23684	1803	40	C23776	1805	40	C23903	1896	37	C24058	1896	38
C23685	1803	40	C23779	1805	40	C23904	1896	37	C24060	1896	38
C23686	1803	40	C23780	1805	40	C23905	1896	37	C24061	1896	38
C23687	1803	40	C23781	1805	40	C23906	1896	37	C24062	1896	38
C23688	1803	40	C23785	1805	40	C23907	1896	37	C24063	1896	38
C23689	1803	40	C23789	1805	40	C23908	1896	37	C24064	1896	38
C23690	1803	40	C23790	1805	40	C23909	1896	37	C24065	1896	38
C23691	1803	40	C23791	1805	40	C23910	1896	37	C24066	1896	38
C23692	1803	40	C23799	1805	40	C23911	1896	37	C24067	1896	38
C23693	1803	40	C23800	1805	40	C23912	1896	37	C24068	1896	38
C23694	1803	40	C23809	1815	54	C23913	1896	37	C24069	1896	38
C23695	1803	40	C23810	1815	54	C23914	1896	38	C24070	1896	38
C23696	1803	40	C23811	1815	54	C23915	1896	38	C24071	1896	38
C23697	1803	40	C23830	1875R	33	C23916	1896	38	C24072	1896	38
C23698	1803	40	C23831	1875R	33	C23917	1896	38	C24073	1896	38
C23699	1803	40	C23832	1875R	33	C23918	1896	38	C24074	1896	38
C23700	1803	40	C23833	1875R	33	C23919	1896	38	C24075	1896	38
C23701	1875L	33	C23834	1875R	33	C23920	1896	38	C24076	1896	39
C23702	1875L	33	C23835	1875R	33	C23921	1896	38	C24077	1896	39
C23703	1875L	33	C23836	1875R	33	C23922	1896	38	C24078	1896	39
C23704	1875L	33	C23837	1875R	33	C23923	1896	38	C24079	1896	39
C23706	1875L	33	C23838	1875R	33	C23924	1896	38	C24080	1896	39
C23707	1875L	33	C23839	1875R	33	C23925	1896	38	C24081	1896	39
C23708	1875L	33	C23840	1875R	33	C23926	1896	38	C24082	1896	39
C23709	1875L	33	C23841	1875R	33	C23927	1896	38	C24083	1896	39
C23721	1805	40	C23842	1875R	33	C23928	1896	38	C24084	1896	39



## 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
C24306	1898T	9	C24706	1898T	13	C25050	1887	90,107	C25141	T7000	102
C24317	1898T	12	C24707	1898T	13	C25051	1887	90,107	C25142	T7000	102
C24325	1898T	9	C24708	1898T	13	C25052	1887	90,107	C25143	T7000	102
C24326	1898T	9	C24709	1898T	13	C25054	1887	90,107	C25144	T7000	102
C24327	1898T	9	C24730	1894	43	C25055	1887	90,107	C25145	T7000	102
C24328	1898T	10	C24731	1894	43	C25056	1887	90,107	C25147	T7000	102
C24329	1898T	10	C24732	1894	43	C25057	1887	90,107	C25148	T7000	102
C24330	1898T	10	C24733	1894	43	C25058	1887	90,107	C25149	T1000	100
C24331	1898T	10	C24734	1894	43	C25061	1887	90,107	C25150	T1000	100
C24332	1898T	10	C24735	1894	43	C25062	1887	90,107	C25152	T1000	100
C24333	1898T	10	C24736	1894	43	C25064	1887	90,107	C25153	T1000	100
C24334	1898T	10	C24737	1894	43	C25065	1887	90,107	C25154	T1000	100
C24335	1898T	10	C24738	1894	44	C25066	1887	90,107	C25156	T1000	100
C24336	1898T	10	C24739	1894	44	C25067	1887	90,107	C25157	T1000	100
C24337	1898T	10	C24740	1894	44	C25068	1887	90,107	C25158	T1000	100
C24338	1898T	10	C24741	1894	44	C25069	1887	90,107	C25160	T1000	100
C24339	1898T	11	C24742	1894	44	C25070	1887	90,107	C25161	T1000	100
C24340	1898T	11	C24743	1894	44	C25071	1887	90,107	C25162	T1000	100
C24341	1898T	11	C24746	1806	42	C25073	1887	90,107	C25163	T1000	100
C24342	1898T	11	C24750	1829	59	C25074	1887	90,107	C25164	T1000	100
C24343	1898T	11	C24751	1829	59	C25075	1887	90,107	C25166	T2000	100
C24344	1898T	11	C24998	1887	90	C25076	1887	90,107	C25167	T2000	100
C24345	1898T	11	C24999	1887	90	C25077	1887	90,107	C25168	T2000	100
C24346	1898T	11	C25000	1887	90,107	C25078	1887	90,107	C25169	T2000	100
C24347	1898T	11	C25001	1887	90,107	C25080	1887	90,107	C25170	T2000	100
C24348	1898T	11	C25002	1887	90,107	C25081	1887	90,107	C25172	T2000	100
C24349	1898T	11	C25004	1887	90,107	C25082	1887	90,107	C25173	T2000	100
C24350	1898T	11	C25006	1887	90,107	C25083	1887	90,107	C25174	T2000	100
C24351	1898T	11	C25007	1887	90,107	C25084	1887	90,107	C25175	T2000	100
C24352	1898T	11	C25009	1887	90,107	C25085	1887	90,107	C25177	T2000	100
C24353	1898T	12	C25011	1887	90,107	C25086	1887	90,107	C25179	T2000	100
C24354	1898T	12	C25012	1887	90,107	C25088	1887	90,107	C25181	T2000	100
C24355	1898T	12	C25013	1887	90,107	C25089	1887	90,107	C25182	T2000	100
C24356	1898T	12	C25014	1887	90,107	C25090	1887	90,107	C25184	T3000	101
C24357	1898T	12	C25015	1887	90,107	C25091	1887	90,107	C25186	T3000	101
C24358	1898T	12	C25016	1887	90,107	C25092	1887	90,107	C25188	T3000	101
C24359	1898T	12	C25017	1887	90,107	C25093	1887	90,107	C25189	T3000	101
C24360	1898T	12	C25018	1887	90,107	C25096	1887	90,107	C25190	T3000	101
C24361	1898T	12	C25021	1887	90,107	C25097	1887	90,107	C25191	T3000	101
C24362	1898T	12	C25022	1887	90,107	C25098	1887	90,107	C25192	T3000	101
C24363	1898T	12	C25023	1887	90,107	C25099	1887	90,107	C25193	T3000	101
C24364	1898T	12	C25024	1887	90,107	C25102	1887	90,107	C25195	T3000	101
C24365	1898T	12	C25025	1887	90,107	C25103	1887	90,107	C25196	T4000	101
C24366	1898T	13	C25026	1887	90,107	C25104	1887	90,107	C25197	T4000	101
C24367	1898T	13	C25027	1887	90,107	C25105	1887	90,107	C25198	T4000	101
C24368	1898T	13	C25028	1887	90,107	C25106	1887	90,107	C25200	T5000	101
C24369	1898T	13	C25029	1887	90,107	C25107	1887	90,107	C25201	T5000	101
C24370	1898T	13	C25030	1887	90,107	C25109	1887	90,107	C25202	T5000	101
C24371	1898T	13	C25031	1887	90,107	C25111	1887	90,107	C25204	T5000	101
C24372	1898T	13	C25032	1887	90,107	C25112	1887	90,107	C25205	T5000	101
C24373	1898T	13	C25033	1887	90,107	C25113	1887	90,107	C25206	T5000	101
C24374	1898T	13	C25035	1887	90,107	C25114	1887	90,107	C25207	T5000	101
C24375	1898T	14	C25036	1887	90,107	C25115	1887	90,107	C25208	T5000	101
C24376	1898T	14	C25037	1887	90,107	C25116	1885	94	C25209	T5000	101
C24377	1898T	14	C25038	1887	90,107	C25118	1885	94	C25217	RSB-P	95
C24378	1898T	14	C25039	1887	90,107	C25119	1885	94	C25239	HB-BM	98
C24379	1898T	14	C25040	1887	90,107	C25121	1885	94	C25240	HB-BM	98
C24380	1898T	15,61	C25042	1887	90,107	C25123	1885	94	C25241	HB-BM	98
C24381	1898T	61	C25043	1887	90,107	C25124	1885	94	C25242	HB-BM	98
C24700	1898T	12	C25044	1887	90,107	C25126	P1000	99	C25244	HB-BM	98
C24701	1898T	12	C25045	1887	90,107	C25127	P1000	99	C25245	HB-BM	98
C24702	1898T	12	C25046	1887	90,107	C25129	P1000	99	C25246	HB-BM	98
C24703	1898T	12	C25047	1887	90,107	C25130	P1000	99	C25247	HB-BM	98
C24704	1898T	13	C25048	1887	90,107	C25131	P1000	99	C25248	HB-BM	98
C24705	1898T	13	C25049	1887	90,107	C25132	P1000	99	C254400WTL	T7000	103

**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
C254401WTL	T7000	103	C254466WTL	T3000	103	C26135	T1000	100	C30143	RSB-BM	96
C254402WTL	T7000	103	C254467WTL	T3000	103	C26136	T1000	100	C30144	RSB-BM	96
C254403WTL	T7000	103	C254468WTL	T3000	103	C26137	T2000	100	C30145	RSB-BM	96
C254404WTL	T7000	103	C254469WTL	T3000	103	C26138	T2000	100	C30146	RSB-BM	96
C254405WTL	T7000	103	C254470WTL	T2000	103	C26139	T2000	100	C30147	RSB-BM	96
C254406WTL	T7000	103	C254471WTL	T2000	103	C26140	T3000	101	C30148	RSB-BM	96
C254407WTL	T2000	103	C254472WTL	T2000	103	C26141	T3000	101	C30149	RSB-BM	96
C254408WTL	T2000	103	C254473WTL	T2000	103	C26142	T3000	101	C30150	RSB-BM	96
C254409WTL	T2000	103	C254474WTL	T2000	103	C26143	T3000	101	C30151	RSB-BM	96
C254410WTL	T2000	103	C254475WTL	T2000	103	C26144	T5000	101	C30152	RSB-BM	97
C254411WTL	T2000	103	C254476WTL	T2000	103	C26145	T5000	101	C30153	RSB-BM	97
C254412WTL	T2000	103	C254477WTL	T2000	103	C26146	T6000	102	C30154	RSB-BM	97
C254413WTL	T2000	103	C254478WTL	T2000	103	C26147	T6000	102	C30155	RSB-BM	97
C254414WTL	T1000	103	C254479WTL	T2000	103	C26148	T6000	102	C30156	RSB-D	95
C254415WTL	T1000	103	C254480WTL	T2000	103	C26149	1887	90,107	C30157	RSB-D	95
C254416WTL	T1000	103	C254481WTL	T2000	103	C26195	1885	94	C30158	RSB-D	95
C254417WTL	T1000	103	C254482WTL	T2000	103	C26196	1885	94	C30159	RSB-D	95
C254418WTL	T1000	103	C254483WTL	T2000	103	C26197	1885	94	C30160	RSB-D	95
C254419WTL	T1000	103	C254484WTL	T2000	103	C26198	1885	94	C30161	RSB-D	95
C254420WTL	T1000	103	C254485WTL	T2000	103	C26199	1881	94	C30162	RSB-BM	98
C254421WTL	T1000	103	C254486WTL	T2000	103	C29000	0462	73	C30163	RSB-BM	98
C254422WTL	T1000	103	C254487WTL	T2000	103	C29186	0450	74	C30164	RSB-BM	98
C254423WTL	T1000	103	C254488WTL	T2000	103	C29187	0450	74	C30165	RSB-BM	98
C254424WTL	T1000	103	C254489WTL	T2000	103	C29188	0450	74	C30166	RSB-BM	98
C254425WTL	T1000	103	C254490WTL	T2000	103	C29189	0450	74	C30167	RSB-BM	98
C254426WTL	T1000	103	C254491WTL	T3000	103	C29190	0450	74	C30170	RSB-BM	96
C254427WTL	T1000	103	C254492WTL	T3000	103	C29191	0450	74	C30171	RSB-BM	96
C254428WTL	T1000	103	C254493WTL	T3000	103	C29192	0650	74	C30172	RSB-BM	96
C254429WTL	T1000	103	C254494WTL	T3000	103	C29193	0650	74	C30173	RSB-BM	96
C254430WTL	T1000	103	C254495WTL	T3000	103	C29194	0650	74	C30174	RSB-BM	96
C254431WTL	T1000	103	C254497WTL	T3000	103	C29195	0650	74	C30175	RSB-BM	96
C254432WTL	T1000	103	C254498WTL	T3000	103	C29196	0650	75	C30176	RSB-BM	96
C254433WTL	T1000	103	C254499WTL	T3000	103	C29197	0650	75	C30177	RSB-BM	96
C254434WTL	T1000	103	C254500WTL	T3000	103	C29198	0650	75	C30178	RSB-BM	96
C254435WTL	T1000	103	C254501WTL	T3000	103	C29199	0650	75	C30179	RSB-BM	96
C254436WTL	T1000	103	C254502WTL	T3000	103	C29200	0450	74	C30180	RSB-BM	96
C254437WTL	T1000	103	C254503WTL	T3000	103	C30101	RSB-D	95	C30181	RSB-BM	97
C254438WTL	T1000	103	C254504WTL	T3000	103	C30102	RSB-D	95	C30182	RSB-BM	97
C254439WTL	T1000	103	C254505WTL	T3000	103	C30103	RSB-D	95	C30183	RSB-BM	97
C254440WTL	T1000	103	C26101	1887	90,107	C30104	RSB-D	95	C30184	RSB-BM	97
C254441WTL	T1000	103	C26102	1887	90,107	C30105	RSB-D	95	C30185	RSB-CT	97
C254442WTL	T1000	103	C26103	1887	90,107	C30106	RSB-D	95	C30186	RSB-CT	97
C254443WTL	T1000	103	C26104	1887	90,107	C30107	RSB-BM	96	C30187	RSB-CT	97
C254444WTL	T1000	103	C26105	1887	90,107	C30108	RSB-BM	96	C30505	1880	35
C254445WTL	T1000	103	C26106	1887	90,107	C30109	RSB-BM	96	C30507	1880	35
C254446WTL	T1000	103	C26107	1887	90,107	C30110	RSB-BM	96	C30508	1880	35
C254447WTL	T1000	103	C26108	1887	90,107	C30111	RSB-BM	96	C30510	1880	35
C254448WTL	T1000	103	C26109	1887	90,107	C30112	RSB-BM	96	C30512	1880	35
C254449WTL	T2000	103	C26110	1887	90,107	C30113	RSB-BM	96	C30514	1880	35
C254450WTL	T2000	103	C26111	1887	90,107	C30114	RSB-BM	96	C30516	1880	35
C254451WTL	T2000	103	C26112	1887	90,107	C30115	RSB-BM	96	C30518	1880	35
C254452WTL	T2000	103	C26113	1887	90,107	C30116	RSB-BM	96	C30519	1880	35
C254453WTL	T2000	103	C26115	1887	90,107	C30117	RSB-BM	96	C30520	1880	35
C254454WTL	T2000	103	C26116	1887	90,107	C30118	RSB-BM	97	C30522	1880	35
C254455WTL	T2000	103	C26117	1887	90,107	C30119	RSB-BM	97	C30524	1880	35
C254456WTL	T1000	103	C26118	1887	90,107	C30120	RSB-BM	97	C30526	1880	35
C254457WTL	T1000	103	C26119	1887	90,107	C30121	RSB-BM	97	C30528	1880	35
C254458WTL	T1000	103	C26120	1887	90,107	C30135	RSB-D	95	C30530	1880	35
C254459WTL	T1000	103	C26121	1887	90,107	C30136	RSB-D	95	C30532	1880	35
C254460WTL	T1000	103	C26125	HB-BM	98	C30137	RSB-D	95	C34060	4500	48
C254461WTL	T1000	103	C26127	T7000	102	C30138	RSB-D	95	C34061	4500	48
C254462WTL	T1000	103	C26128	T7000	102	C30139	RSB-D	95	C34062	4500	48
C254463WTL	T3000	103	C26129	T7000	102	C30140	RSB-D	95	C34063	4500	48
C254464WTL	T3000	103	C26133	T1000	100	C30141	RSB-BM	96	C34064	4500	48
C254465WTL	T3000	103	C26134	T1000	100	C30142	RSB-BM	96	C34065	4500	48

## 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
C34066	4500	48	C36029	2618	57	C43062	1882	104	C43159	1886	93
C34067	4500	48	C36030	2618	57	C43063	1882	104	C43160	1886	93
C34068	4500	48	C36031	2618	57	C43064	1882	104	C43161	1886	93
C34069	4500	48	C43000	1881	92	C43065	1882	104	C43162	1886	93
C34070	4500	48	C43001	1881	92	C43066	1882	104	C43163	1886	93
C34071	4500	48	C43002	1881	92	C43067	1882	104	C62001	0401	69
C34073	4500	48	C43003	1881	92	C43100	1886	91	C62002	0402	69
C34074	4500	48	C43004	1881	92	C43101	1886	91	C62003	0403	69
C34075	4500	48	C43005	1881	92	C43102	1886	91	C62004	0404	69
C34076	4500	48	C43006	1881	92	C43103	1886	91	C62005	0401	69
C34077	4501	48	C43007	1881	92	C43104	1886	91	C62006	0402	69
C34078	4501	48	C43008	1881	92	C43105	1886	91	C62007	0403	69
C34079	4501	48	C43009	1881	92	C43106	1886	91	C62008	0404	69
C34080	4501	48	C43010	1881	92	C43107	1886	91	C62009	0401	69
C34081	4501	48	C43011	1881	92	C43108	1886	91	C62010	0402	69
C34082	4501	48	C43012	1881	92	C43109	1886	91	C62011	0403	69
C34083	4501	48	C43013	1881	92	C43110	1886	91	C62012	0404	69
C34084	4501	48	C43014	1881	92	C43111	1886	91	C62013	0401	69
C34085	4501	48	C43015	1881	92	C43112	1886	91	C62014	0402	69
C34086	4501	48	C43016	1881	92	C43113	1886	91	C62015	0403	69
C34087	4501	48	C43017	1881	92	C43114	1886	91	C62016	0404	69
C34088	4501	48	C43018	1881	92	C43115	1886	91	C62017	0401	69
C34089	4501	48	C43019	1881	92	C43116	1886	91	C62018	0402	69
C34090	4501	48	C43020	1881	92	C43117	1886	91	C62019	0403	69
C34091	4501	48	C43021	1881	92	C43118	1886	91	C62020	0404	69
C34092	4501	48	C43022	1881	92	C43119	1886	91	C62021	0401	69
C34093	4501	48	C43023	1881	92	C43120	1886	91	C62022	0402	69
C34094	4501	48	C43024	1881	92	C43121	1886	91	C62023	0403	69
C34095	4501	48	C43025	1881	92	C43122	1886	91	C62024	0404	69
C34096	4501	48	C43026	1881	92	C43123	1886	91	C62025	0401	69
C34097	4501	48	C43027	1881	92	C43124	1886	91	C62026	0402	69
C34098	4501	48	C43028	1881	92	C43125	1886	91	C62027	0403	69
C34099	4501	48	C43029	1881	92	C43126	1886	91	C62028	0404	69
C34100	4502	48	C43030	1881	92	C43127	1886	91	C62029	0401	69
C34101	4502	48	C43031	1881	92	C43128	1886	91	C62030	0402	69
C34102	4500	48	C43032	1881	92	C43129	1886	91	C62031	0403	69
C36000	2616	57	C43033	1881	92	C43130	1886	91	C62032	0404	69
C36001	2616	57	C43034	1881	92	C43131	1886	91	C62033	0401	69
C36002	2616	57	C43035	1881	92	C43132	1886	91	C62034	0402	69
C36003	2616	57	C43036	1881	92	C43133	1886	91	C62035	0403	69
C36004	2616	57	C43037	1881	92	C43134	1886	91	C62036	0404	69
C36005	2616	57	C43038	1881	92	C43135	1886	91	C62037	0401	69
C36006	2616	57	C43039	1881	92	C43136	1886	91	C62038	0402	69
C36007	2616	57	C43040	1881	92	C43137	1886	91	C62039	0403	69
C36008	2616	57	C43041	1881	92	C43138	1886	91	C62040	0404	69
C36009	2616	57	C43042	1881	92	C43139	1886	91	C62041	0401	69
C36010	2616	57	C43043	1881	92	C43140	1886	91	C62042	0402	69
C36011	2616	57	C43044	1881	92	C43141	1886	91	C62043	0403	69
C36012	2616	57	C43045	1881	92	C43142	1886	91	C62044	0404	69
C36013	2616	57	C43046	1881	92	C43143	1886	91	C62045	0401	69
C36014	2616	57	C43047	1881	92	C43144	1886	91	C62046	0402	69
C36015	2616	57	C43048	1881	92	C43145	1886	91	C62047	0403	69
C36016	2616	57	C43049	1881	92	C43146	1886	91	C62048	0404	69
C36017	2616	57	C43050	1881	92	C43147	1886	91	C62049	0401	69
C36018	2618	57	C43051	1881	92	C43148	1886	91	C62050	0402	69
C36019	2618	57	C43052	1881	92	C43149	1886	91	C62051	0403	69
C36020	2618	57	C43053	1881	93	C43150	1886	91	C62052	0404	69
C36021	2618	57	C43054	1881	93	C43151	1886	91	C62053	0401	69
C36022	2618	57	C43055	1881	94	C43152	1886	91	C62054	0402	69
C36023	2618	57	C43056	1881	94	C43153	1886	91	C62055	0403	69
C36024	2618	57	C43057	1881	94	C43154	1886	91	C62056	0404	69
C36025	2618	57	C43058	1882	104	C43155	1886	91	C62057	0401	70
C36026	2618	57	C43059	1882	104	C43156	1886	91	C62058	0402	70
C36027	2618	57	C43060	1882	104	C43157	1886	91	C62059	0403	70
C36028	2618	57	C43061	1882	104	C43158	1886	93	C62060	0404	70

**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
C62061	0401	70	C62164	0411	72	C62848	1898	11	C62913	1898	14
C62062	0402	70	C62172	0411	71	C62849	1898	11	C62914	1898	14
C62063	0403	70	C62175	0411	71	C62850	1898	11	C62915	1898	14
C62064	0404	70	C62177	0411	71	C62851	1898	11	C62916	1898	14
C62065	0401	70	C62179	0411	71	C62852	1898	12	C62917	1898	14
C62066	0402	70	C62180	0411	71	C62853	1898	12	C62918	1898	14
C62067	0403	70	C62183	0411	71	C62854	1898	12	C62920	1898	14
C62068	0404	70	C62185	0411	71	C62855	1898	12	C62921	1898	14
C62069	0401	70	C62187	0411	72	C62856	1898	12	C62922	1898	14
C62070	0402	70	C62191	0411	72	C62857	1898	12	C62923	1898	14
C62071	0403	70	C62793	1898	9	C62858	1898	12	C62924	1898	14
C62072	0404	70	C62794	1898	9	C62859	1898	12	C62926	1898	14
C62073	0401	70	C62795	1898	9	C62860	1898	12	C62928	1898	14
C62074	0402	70	C62796	1898	9	C62861	1898	12	C62929	1898	14
C62075	0403	70	C62797	1898	9	C62862	1898	12	C62931	1898	14
C62076	0404	70	C62798	1898	9	C62863	1898	12	C63201	0401	69
C62077	0401	70	C62799	1898	9	C62864	1898	12	C63202	0402	69
C62078	0402	70	C62800	1898	9	C62865	1898	12	C63203	0403	69
C62079	0403	70	C62801	1898	9	C62866	1898	12	C63204	0404	69
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C62089	0401	70	C62811	1898	10	C62876	1898	12	C63222	0402	69
C62090	0402	70	C62812	1898	10	C62877	1898	12	C63223	0403	69
C62091	0403	70	C62813	1898	10	C62878	1898	12	C63224	0404	69
C62092	0404	70	C62814	1898	10	C62879	1898	13	C63225	0401	69
C62093	0401	70	C62815	1898	10	C62880	1898	13	C63226	0402	69
C62094	0402	70	C62816	1898	10	C62881	1898	13	C63227	0403	69
C62095	0403	70	C62817	1898	10	C62882	1898	13	C63228	0404	69
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C62100	0404	70	C62822	1898	10	C62887	1898	13	C63233	0401	69
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C62102	0402	70	C62824	1898	10	C62889	1898	13	C63235	0403	69
C62103	0403	70	C62825	1898	10	C62890	1898	13	C63236	0404	69
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C62106	0402	70	C62828	1898	10	C62893	1898	13	C63239	0403	70
C62107	0403	70	C62829	1898	10	C62894	1898	13	C63240	0404	70
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C62110	0402	70	C62832	1898	10	C62897	1898	13	C63243	0403	70
C62111	0403	70	C62833	1898	11	C62898	1898	13	C63244	0404	70
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C62151	0411	71	C62835	1898	11	C62900	1898	13	C63246	0402	70
C62152	0411	71	C62836	1898	11	C62901	1898	13	C63247	0403	70
C62153	0411	71	C62837	1898	11	C62902	1898	13	C63248	0404	70
C62154	0411	71	C62838	1898	11	C62903	1898	13	C63249	0401	70
C62155	0411	71	C62839	1898	11	C62904	1898	14	C63250	0402	70
C62156	0411	71	C62840	1898	11	C62905	1898	14	C63251	0403	70
C62157	0411	71	C62841	1898	11	C62906	1898	14	C63252	0404	70
C62158	0411	71	C62842	1898	11	C62907	1898	14	C63253	0401	70
C62159	0411	71	C62843	1898	11	C62908	1898	14	C63254	0402	70
C62160	0411	71	C62844	1898	11	C62909	1898	14	C63255	0403	70
C62161	0411	71	C62845	1898	11	C62910	1898	14	C63256	0404	70
C62162	0411	71	C62846	1898	11	C62911	1898	14	C64213	0462	73
C62163	0411	71	C62847	1898	11	C62912	1898	14	C64214	0462	73



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
C64215	0462	73	C65208	0610	77	C65580	0650	74	C66027	1501-TT	24
C64216	0462	73	C65209	0610	77	C65581	0650	74	C66028	1501-TT	24
C64217	0462	73	C65220	0610	77	C65582	0650	74	C66029	1501-TT	24
C64218	0462	73	C65221	0610	77	C65583	0650	74	C66030	1501-TT	23
C64219	0462	73	C65232	0610	77	C65584	0650	74	C66031	1501-TT	23
C64220	0462	73	C65233	0610	77	C65585	0650	75	C66032	1501-TT	23
C64221	0462	73	C65239	0610	77	C65586	0650	75	C66033	1501-TT	23
C64222	0462	73	C65240	0610	77	C65587	0650	75	C66034	1501-TT	23
C64223	0464	73	C65243	0610	77	C65601	0650	74	C66035	1501-TT	23
C64224	0464	73	C65244	0610	77	C65602	0650	74	C66036	1501-TT	23
C64225	0464	73	C65250	0610	77	C65603	0650	74	C66037	1501-TT	23
C64226	0464	73	C65251	0610	77	C65605	0650	74	C66038	1501-TT	23
C64227	0464	73	C65264	0610	77	C65606	0650	74	C66039	1501-TT	23
C64228	0464	73	C65265	0610	77	C65607	0650	74	C66040	1501-TT	23
C64229	0464	73	C65269	0610	77	C65608	0650	74	C66041	1501-TT	23
C64230	0464	73	C65270	0610	77	C65609	0650	74	C66042	1501-TT	23
C64231	0463	73	C65280	0610	77	C65610	0650	74	C66043	1501-TT	23
C64232	0463	73	C65281	0610	77	C65611	0650	75	C66044	1501-TT	23
C64233	0463	73	C65292	0610	77	C65612	0650	75	C66045	1501-TT	23
C64234	0463	73	C65293	0610	77	C65613	0650	75	C66046	1501-TT	23
C64235	0463	73	C65303	0610	77	C65614	0650	75	C66047	1501-TT	23
C64236	0463	73	C65304	0610	77	C65615	0650	75	C66048	1501-TT	23
C64937	0450	74	C65311	0610	77	C65616	0650	75	C66049	1501-TT	23
C64949	0450	74	C65312	0610	77	C65617	0650	75	C66050	1501-TT	23
C64952	0450	74	C65315	0610	77	C65618	0650	75	C66051	1501-TT	23
C64955	0450	74	C65316	0610	77	C65619	0650	75	C66052	1501-TT	24
C64960	0450	74	C65328	0610	77	C65620	0650	75	C66053	1501-TT	24
C64961	0450	74	C65329	0610	77	C65621	0650	75	C66054	1501-TT	24
C65022	0610	77	C65339	0610	77	C65622	0650	75	C66055	1501-TT	23
C65026	0610	77	C65340	0610	77	C65623	0650	75	C66056	1501-TT	23
C65027	0610	77	C65349	0610	78	C65624	0650	75	C66057	1501-TT	23
C65036	0610	77	C65350	0610	78	C65625	0650	75	C66058	1501-TT	23
C65037	0610	77	C65374	0610	77	C65627	0650	75	C66059	1501-TT	23
C65045	0610	77	C65384	0610	77	C65628	0650	75	C66060	1501-TT	23
C65046	0610	77	C65385	0610	77	C65629	0650	75	C66061	1501-TT	23
C65048	0610	77	C65395	0610	77	C65630	0650	75	C66062	1501-TT	23
C65049	0610	77	C65396	0610	77	C65631	0650	75	C66063	1501-TT	23
C65057	0610	77	C65405	0610	78	C65632	0650	75	C66064	1501-TT	23
C65058	0610	77	C65406	0610	78	C65633	0650	75	C66065	1501-TT	23
C65061	0610	77	C65407	0610	78	C66001	1501-TT	22	C66066	1501-TT	23
C65062	0610	77	C65416	0610	78	C66002	1501-TT	22	C66067	1501-TT	23
C65069	0610	77	C65417	0610	78	C66003	1501-TT	22	C66068	1501-TT	23
C65070	0610	77	C65426	0610	78	C66004	1501-TT	22	C66069	1501-TT	23
C65075	0610	77	C65427	0610	78	C66005	1501-TT	22	C66070	1501-TT	23
C65076	0610	77	C65433	0610	78	C66006	1501-TT	22	C66071	1501-TT	23
C65083	0610	77	C65434	0610	78	C66007	1501-TT	22	C66072	1501-TT	22
C65084	0610	77	C65434	0610	78	C66007	1501-TT	22	C66073	1501-TT	22
C65084	0610	77	C65441	0610	78	C66008	1501-TT	23	C66074	1501-TT	22
C65093	0610	77	C65442	0610	78	C66009	1501-TT	23	C66075	1501-TT	22
C65114	0610	77	C65449	0610	78	C66010	1501-TT	23	C66076	1501-TT	22
C65119	0610	77	C65450	0610	78	C66011	1501-TT	23	C66077	1501-TT	22
C65124	0610	77	C65470	0610	77	C66012	1501-TT	23	C66078	1501-TT	22
C65125	0610	77	C65471	0610	77	C66013	1501-TT	23	C66079	1501-TT	22
C65132	0610	77	C65491	0620	78	C66014	1501-TT	23	C66080	1501-TT	22
C65140	0610	77	C65492	0620	78	C66015	1501-TT	23	C66081	1501-TT	22
C65142	0610	77	C65493	0620	78	C66016	1501-TT	23	C66082	1501-TT	22
C65147	0610	77	C65494	0620	78	C66017	1501-TT	23	C66083	1501-TT	22
C65148	0610	77	C65495	0620	78	C66018	1501-TT	23	C66084	1501-TT	22
C65159	0610	77	C65496	0620	78	C66019	1501-TT	23	C66085	1501-TT	22
C65160	0610	77	C65497	0620	78	C66020	1501-TT	23	C66086	1501-TT	22
C65171	0610	77	C65571	0660	75	C66021	1501-TT	23	C66087	1501-TT	22
C65172	0610	77	C65572	0660	75	C66022	1501-TT	23	C66088	1501-TT	22
C65192	0610	77	C65573	0660	75	C66023	1501-TT	24	C66089	1501-TT	22
C65193	0610	77	C65574	0660	75	C66024	1501-TT	24	C66090	1501-TT	22
C65197	0610	77	C65575	0660	75	C66025	1501-TT	24	C66091	1501-TT	22
C65198	0610	77	C65576	0660	75	C66026	1501-TT	24			

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
C66092	1501-TT	22	C66729	0551	81,82	C66824	0552	82	C68023	1600	13
C66093	1501-TT	22	C66732	0551	82	C66825	0552	82	C68024	1600	13
C66094	1501-TT	22	C66733	0551	82	C66826	0552	82	C68025	1600	14
C66095	1501-TT	22	C66737	0552	81	C66827	0552	82	C68026	1600	14
C66096	1501-TT	22	C66738	0552	81	C66828	0552	82	C68027	1600	14
C66097	1501-TT	22	C66739	0552	81	C66829	0552	82	C68028	1600	14
C66098	1501-TT	22	C66740	0552	82	C67197	240	85	C68114	1601	9
C66099	1501-TT	22	C66741	0552	82	C67200	240	85	C68115	1601	10
C66100	1501-TT	22	C66746	0552	82	C67201	240	85	C68116	1601	10
C66101	1501-TT	22	C66747	0552	82	C67202	240	85	C68117	1601	10
C66102	1501-TT	22	C66748	0552	82	C67203	240	85	C68118	1601	10
C66103	1501-TT	22	C66749	0552	82	C67204	240	85	C68119	1601	11
C66104	1501-TT	22	C66750	0552	82	C67205	240	85	C68120	1601	11
C66105	1501-TT	22	C66751	0552	82	C67206	242	85	C68121	1601	11
C66106	1501-TT	22	C66754	0553	81	C67207	242	85	C68122	1601	11
C66113	1501-TT	24	C66755	0553	81	C67208	243	85	C68123	1601	11
C66670	0550	81	C66756	0553	81	C67209	243	85	C68124	1601	12
C66671	0550	81	C66757	0553	81	C67210	244	86	C68125	1601	12
C66672	0550	82	C66758	0553	81	C67211	244	86	C68126	1601	12
C66673	0550	82	C66759	0553	81	C67212	245	86	C68127	1601	12
C66674	0550	82	C66764	0553	82	C67213	245	86	C68128	1601	12
C66675	0550	82	C66769	0553	82	C67214	223	83	C68129	1601	12
C66676	0550	82	C66770	0553	82	C67215	223	83	C68130	1601	12
C66677	0550	82	C66771	0553	82	C67216	223	83	C68131	1601	13
C66678	0550	82	C66772	0553	82	C67217	223	83	C68132	1601	13
C66679	0550	82	C66773	0553	82	C67220	225	83	C68133	1601	13
C66681	0552	81	C66774	0553	82	C67221	225	83	C68134	1601	13
C66682	0552	81	C66775	0553	81	C67222	222	78	C68135	1601	13
C66683	0552	81	C66776	0553	81	C67224	222	78	C68136	1601	13
C66684	0552	81	C66777	0553	81	C67226	222	78	C68137	1601	13
C66685	0552	81	C66778	0553	82	C67227	222	78	C68138	1601	13
C66686	0552	81	C66782	0554	81	C67228	222	78	C68139	1601	14
C66693	0550	81	C66783	0554	81	C67229	222	78	C68140	1601	14
C66694	0550	81	C66784	0554	81	C67232	226	83	C68141	1601	14
C66695	0550	81	C66785	0554	81	C67271	26S	79,87	C68142	1601	14
C66696	0550	81	C66786	0554	81	C67275	42NC	76,87	C68229	1602	17
C66697	0550	81	C66787	0554	81	C67276	42NF	76,87	C68230	1602	17
C66698	0550	81	C66788	0554	81	C67278	44NC	76,87	C68231	1602	17
C66699	0550	81	C66789	0554	81	C67282	45NCNF	76,87	C68232	1602	18
C66700	0550	81	C66790	0554	81	C67283	49Metric	76	C68233	1602	18
C66701	0550	81	C66791	0554	81	C67284	NC/NF	76,87	C68234	1602	18
C66702	0550	81	C66792	0554	81	C67293	815	79,87	C68235	1602	18
C66703	0550	81	C66793	0554	81	C68000	1600	9	C68236	1602	18
C66704	0550	81	C66794	0554	81	C68001	1600	10	C68237	1602	18
C66705	0550	81	C66795	0554	82	C68002	1600	10	C68238	1602	19
C66706	0550	81	C66796	0554	82	C68003	1600	10	C68239	1602	19
C66707	0550	82	C66797	0554	82	C68004	1600	10	C68240	1602	19
C66708	0550	82	C66798	0554	82	C68005	1600	11	C68241	1602	19
C66709	0550	82	C66801	0554	82	C68006	1600	11	C68242	1602	19
C66710	0550	82	C66802	0554	82	C68007	1600	11	C68243	1602	19
C66711	0550	82	C66803	0554	82	C68008	1600	11	C68244	1602	19
C66712	0550	82	C66804	0554	82	C68009	1600	11	C68245	1602	19
C66713	0550	82	C66805	0554	82	C68010	1600	12	C68246	1602	19
C66714	0550	82	C66806	0554	82	C68011	1600	12	C68247	1602	19
C66715	0550	82	C66807	0554	82	C68012	1600	12	C68248	1602	19
C66716	0550	82	C66808	0554	82	C68013	1600	12	C68249	1602	20
C66717	0550	82	C66809	0554	82	C68014	1600	12	C68250	1602	20
C66718	0550	82	C66810	0554	82	C68015	1600	12	C68251	1602	20
C66719	0550	82	C66811	0554	82	C68016	1600	12	C68252	1602	20
C66720	0550	82	C66812	0554	82	C68017	1600	13	C68253	1602	20
C66721	0550	82	C66813	0554	82	C68018	1600	13	C68254	1602	20
C66722	0550	82	C66820	0552	81	C68019	1600	13	C68255	1602	20
C66723	0550	82	C66821	0552	81	C68020	1600	13	C68256	1602	20
C66727	0551	81	C66822	0552	82	C68021	1600	13	C68257	1602	20
C66728	0551	81	C66823	0552	82	C68022	1600	13	C68258	1602	19

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
C68259	1602	19	C68324	1602	17	C68392	1603	31	C68457	1603	29
C68260	1602	19	C68325	1602	17	C68393	1603	31	C68458	1603	29
C68261	1602	19	C68326	1602	17	C68394	1603	31	C68459	1603	29
C68262	1602	19	C68327	1602	17	C68395	1603	31	C68460	1603	29
C68263	1602	19	C68328	1602	17	C68396	1603	31	C68461	1607	21
C68264	1602	19	C68329	1602	17	C68397	1603	31	C68462	1620	33
C68265	1602	19	C68330	1602	17	C68398	1603	31	C68463	1620	33
C68266	1602	19	C68331	1602	17	C68399	1603	31	C68464	1620	33
C68267	1602	19	C68332	1602	17	C68400	1603	31	C68465	1620	33
C68268	1602	19	C68333	1602	17	C68401	1603	30	C68466	1620	33
C68269	1602	19	C68334	1602	17	C68402	1603	30	C68467	1620	33
C68270	1602	19	C68335	1602	17	C68403	1603	30	C68468	1620	33
C68271	1602	19	C68336	1602	17	C68404	1603	30	C68469	1620	33
C68272	1602	19	C68337	1602	17	C68405	1603	30	C68470	1620	33
C68273	1602	19	C68338	1602	17	C68406	1603	30	C68471	1620	33
C68274	1602	19	C68339	1602	17	C68407	1603	30	C68472	1620	33
C68275	1602	19	C68340	1602	17	C68408	1603	30	C68473	1620	33
C68276	1602	19	C68341	1602	17	C68409	1603	30	C68474	1620	33
C68277	1602	19	C68342	1602	17	C68410	1603	30	C68475	1620	33
C68278	1602	20	C68343	1607	21	C68411	1603	30	C68476	1620	33
C68279	1602	20	C68344	1603	29	C68412	1603	30	C68477	1620	33
C68280	1602	20	C68345	1603	29	C68413	1603	30	C68478	1620	33
C68281	1602	20	C68346	1603	29	C68414	1603	30	C68479	1620	33
C68282	1602	20	C68347	1603	29	C68415	1603	30	C68480	1620	33
C68283	1602	19	C68351	1603	29	C68416	1603	30	C68481	1620	33
C68284	1602	19	C68352	1603	30	C68417	1603	30	C68482	1620	33
C68285	1602	19	C68353	1603	30	C68418	1603	30	C68483	1620	33
C68286	1602	19	C68354	1603	30	C68419	1603	30	C68484	1620	33
C68287	1602	19	C68355	1603	30	C68420	1603	30	C68485	1620	33
C68288	1602	19	C68356	1603	30	C68421	1603	30	C68486	1620	33
C68289	1602	18	C68357	1603	30	C68422	1603	30	C68487	1620	33
C68290	1602	18	C68358	1603	30	C68423	1603	30	C68488	1620	33
C68291	1602	18	C68359	1603	31	C68424	1603	30	C68489	1620	33
C68292	1602	18	C68360	1603	31	C68425	1603	30	C68490	1620	33
C68293	1602	18	C68361	1603	31	C68426	1603	30	C68491	1621	36
C68294	1602	18	C68362	1603	31	C68427	1603	30	C68492	1621	36
C68295	1602	18	C68363	1603	31	C68428	1603	30	C68493	1621	36
C68296	1602	18	C68364	1603	31	C68429	1603	30	C68494	1621	36
C68297	1602	18	C68365	1603	31	C68430	1603	30	C68495	1621	37
C68298	1602	18	C68366	1603	31	C68431	1603	29	C68496	1621	37
C68299	1602	18	C68367	1603	31	C68432	1603	29	C68497	1621	37
C68300	1602	18	C68368	1603	31	C68433	1603	29	C68498	1621	37
C68301	1602	18	C68369	1603	31	C68434	1603	29	C68499	1621	37
C68302	1602	18	C68370	1603	31	C68435	1603	29	C68500	1621	38
C68303	1602	18	C68371	1603	31	C68436	1603	29	C68501	1621	38
C68304	1602	18	C68372	1603	31	C68437	1603	29	C68502	1621	38
C68305	1602	18	C68373	1603	31	C68438	1603	29	C68503	1621	38
C68306	1602	18	C68374	1603	31	C68439	1603	29	C68504	1621	38
C68307	1602	18	C68375	1603	31	C68440	1603	29	C68505	1621	38
C68308	1602	18	C68376	1603	30	C68441	1603	29	C68506	1621	38
C68309	1602	18	C68377	1603	30	C68442	1603	29	C68507	1621	38
C68310	1602	18	C68378	1603	31	C68443	1603	29	C68508	1621	38
C68311	1602	18	C68379	1603	31	C68444	1603	29	C68509	1621	39
C68312	1602	18	C68380	1603	31	C68445	1603	29	C68510	1621	39
C68313	1602	18	C68381	1603	31	C68446	1603	29	C68511	1621	39
C68314	1602	18	C68382	1603	31	C68447	1603	29	C68512	1621	39
C68315	1602	18	C68383	1603	31	C68448	1603	29	C68513	1621	39
C68316	1602	18	C68384	1603	31	C68449	1603	29	C68514	1621	39
C68317	1602	18	C68385	1603	31	C68450	1603	29	C68515	1621	39
C68318	1602	18	C68386	1603	31	C68451	1603	29	C68516	1621	39
C68319	1602	17	C68387	1603	31	C68452	1603	29	C68517	1621	39
C68320	1602	17	C68388	1603	31	C68453	1603	29	C68518	1621	39
C68321	1602	17	C68389	1603	31	C68454	1603	29	C68519	1621	39
C68322	1602	17	C68390	1603	31	C68455	1603	29	C68606	1600	9
C68323	1602	17	C68391	1603	31	C68456	1603	29	C68607	1600	9

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
C68608	1600	10	C68673	1680	47	C68738	1682	43	C68815	1682	44
C68609	1600	10	C68674	1681	46	C68739	1682	43	C68816	1682	44
C68610	1600	10	C68675	1681	46	C68740	1682	43	C68817	1682	44
C68611	1600	11	C68676	1681	46	C68741	1682	43	C68818	1682	44
C68612	1600	11	C68677	1681	46	C68742	1682	43	C68819	1682	44
C68613	1600	11	C68678	1681	46	C68743	1682	43	C68820	1682	44
C68614	1600	11	C68679	1681	46	C68744	1682	43	C68821	1682	44
C68615	1600	12	C68680	1681	46	C68745	1682	43	C68822	1682	44
C68616	1600	12	C68681	1681	46	C68746	1682	44	C68823	1682	44
C68617	1600	12	C68682	1681	46	C68747	1682	44	C68824	1682	44
C68618	1600	12	C68683	1681	46	C68748	1682	44	C68825	1682	44
C68619	1600	12	C68684	1681	46	C68749	1682	44	C68826	1682	44
C68620	1600	12	C68685	1681	46	C68750	1682	44	C68827	1682	44
C68621	1600	13	C68686	1681	46	C68751	1682	44	C68828	1682	44
C68622	1600	13	C68687	1681	46	C68752	1682	44	C68829	1682	44
C68623	1600	13	C68688	1681	46	C68753	1682	44	C68830	1682	44
C68624	1600	13	C68689	1681	46	C68754	1682	44	C68831	1682	44
C68625	1600	13	C68690	1681	46	C68755	1682	44	C68832	1682	44
C68626	1600	13	C68691	1681	46	C68756	1682	44	C68833	1682	44
C68627	1600	14	C68692	1681	46	C68757	1682	44	C68834	1682	44
C68628	1600	14	C68693	1681	46	C68758	1682	44	C68835	1682	44
C68629	1600	14	C68694	1681	46	C68759	1682	44	C68836	1682	44
C68630	1600	14	C68695	1681	46	C68760	1682	44	C68837	1682	44
C68631	1680	46	C68696	1681	46	C68761	1682	45	C68838	1682	44
C68632	1680	46	C68697	1681	46	C68762	1682	45	C68839	1682	44
C68633	1680	46	C68698	1681	46	C68763	1682	45	C68840	1682	44
C68634	1680	46	C68699	1681	46	C68764	1682	45	C68841	1682	44
C68635	1680	46	C68700	1681	47	C68765	1682	45	C68842	1682	44
C68636	1680	46	C68701	1681	47	C68766	1682	45	C68843	1682	44
C68637	1680	46	C68702	1681	47	C68779	1682	43	C68844	1682	44
C68638	1680	46	C68703	1681	47	C68780	1682	43	C68845	1682	44
C68639	1680	46	C68704	1681	47	C68781	1682	43	C68846	1682	44
C68640	1680	46	C68705	1681	47	C68782	1682	43	C68847	1682	45
C68641	1680	46	C68706	1681	47	C68783	1682	45	C68848	1682	45
C68642	1680	46	C68707	1681	47	C68784	1682	45	C68849	1682	45
C68643	1680	46	C68708	1681	47	C68785	1682	45	C68850	1682	45
C68644	1680	46	C68709	1681	47	C68786	1682	45	C68851	1682	45
C68645	1680	46	C68710	1681	47	C68787	1682	45	C68852	1682	45
C68646	1680	46	C68711	1681	47	C68788	1682	45	C68853	1682	45
C68647	1680	46	C68712	1681	47	C68789	1682	45	C68854	1682	45
C68648	1680	46	C68713	1681	47	C68790	1682	45	C68855	1682	45
C68649	1680	46	C68714	1681	47	C68791	1682	45	C68856	1682	45
C68650	1680	46	C68715	1681	47	C68792	1682	45	C68857	1682	45
C68651	1680	46	C68716	1681	47	C68793	1682	45	C68858	1682	45
C68652	1680	46	C68717	1681	47	C68794	1682	43	C68859	1682	45
C68653	1680	46	C68718	1681	47	C68795	1682	43	C68860	1682	45
C68654	1680	46	C68719	1681	47	C68796	1682	43	C68861	1682	45
C68655	1680	46	C68720	1681	47	C68797	1682	43	C68862	1682	45
C68656	1680	46	C68721	1681	47	C68798	1682	43	C68863	1682	45
C68657	1680	47	C68722	1681	47	C68799	1682	43	C68864	1682	45
C68658	1680	47	C68723	1681	47	C68800	1682	43	C68865	1682	45
C68659	1680	47	C68724	1681	47	C68801	1682	43	C68866	1682	45
C68660	1680	47	C68725	1681	47	C68802	1682	43	C68867	1630	40
C68661	1680	47	C68726	1681	47	C68803	1682	43	C68868	1630	40
C68662	1680	47	C68727	1681	47	C68804	1682	43	C68869	1630	40
C68663	1680	47	C68728	1681	47	C68805	1682	43	C68870	1630	40
C68664	1680	47	C68729	1681	47	C68806	1682	43	C68871	1630	40
C68665	1680	47	C68730	1681	47	C68807	1682	43	C68872	1630	40
C68666	1680	47	C68731	1681	47	C68808	1682	43	C68873	1630	40
C68667	1680	47	C68732	1681	47	C68809	1682	43	C68874	1630	40
C68668	1680	47	C68733	1681	47	C68810	1682	43	C68875	1630	41
C68669	1680	47	C68734	1681	47	C68811	1682	44	C68876	1630	41
C68670	1680	47	C68735	1681	47	C68812	1682	44	C68877	1630	41
C68671	1680	47	C68736	1681	47	C68813	1682	44	C68878	1630	41
C68672	1680	47	C68737	1681	47	C68814	1682	44	C68879	1630	41

## 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
C68880	1630	41	C68945	1631	41	C69010	1683	54	C69076	1605	20
C68881	1630	41	C68946	1631	41	C69012	1683	54	C69077	1605	20
C68882	1630	41	C68947	1631	41	C69013	1683	54	C69078	1605	20
C68883	1630	41	C68948	1631	41	C69014	1683	54	C69079	1690	68
C68884	1630	41	C68949	1631	41	C69015	1683	54	C69080	1691	68
C68885	1630	41	C68950	1631	41	C69016	1683	54	C69081	1692	68
C68886	1630	41	C68951	1631	41	C69017	1683	54	C69082	1693	68
C68887	1630	41	C68952	1631	41	C69018	1683	54	C69083	1690	68
C68888	1630	41	C68953	1631	41	C69019	1683	54	C69084	1691	68
C68889	1630	41	C68954	1631	41	C69020	1683	54	C69085	1692	68
C68890	1630	41	C68955	1631	41	C69021	1683	54	C69086	1693	68
C68891	1630	41	C68956	1631	41	C69022	1683	54	C69087	1690	68
C68892	1630	41	C68957	1631	41	C69023	1683	54	C69088	1691	68
C68893	1630	41	C68958	1631	41	C69024	1683	54	C69089	1692	68
C68894	1630	41	C68959	1631	41	C69025	1683	54	C69090	1693	68
C68895	1630	41	C68960	1631	41	C69026	1683	54	C69091	1690	68
C68896	1630	41	C68961	1631	41	C69027	1683	54	C69092	1691	68
C68897	1630	41	C68962	1631	41	C69028	1683	54	C69093	1692	68
C68898	1630	41	C68963	1631	41	C69029	1620	34,61	C69094	1693	68
C68899	1630	41	C68964	1631	41	C69030	1604	21,60	C69095	1690	68
C68900	1630	41	C68965	1631	41	C69031	1604	21,60	C69096	1691	68
C68901	1630	41	C68966	1631	41	C69032	1604	21,61	C69097	1692	68
C68902	1630	41	C68967	1631	41	C69033	1605	21,61	C69098	1693	68
C68903	1630	41	C68968	1631	41	C69034	1600	15,60	C69099	1690	68
C68904	1630	41	C68969	1631	41	C69035	1600	15,60	C69100	1691	68
C68905	1630	41	C68970	1631	41	C69036	1600	15	C69101	1692	68
C68906	1630	41	C68971	1631	41	C69037	1600	15	C69102	1693	68
C68907	1630	41	C68972	1631	41	C69038	1600	15,61	C69103	1690	68
C68908	1630	40	C68973	1631	41	C69039	1680	47,62	C69104	1691	68
C68909	1630	40	C68974	1631	41	C69040	1681	47,61,62	C69105	1692	68
C68910	1630	40	C68975	1631	41	C69041	1620	34,61	C69106	1693	68
C68911	1630	40	C68976	1631	41	C69042	1604	17	C69107	1690	68
C68912	1630	40	C68977	1631	40	C69043	1604	17	C69108	1691	68
C68913	1630	40	C68978	1631	40	C69044	1604	17	C69109	1692	68
C68914	1630	40	C68979	1631	40	C69045	1604	18	C69110	1693	68
C68915	1630	40	C68980	1631	40	C69046	1604	18	C69111	1690	68
C68916	1630	40	C68981	1631	40	C69047	1604	18	C69112	1691	68
C68917	1630	40	C68982	1631	40	C69048	1604	18	C69113	1692	68
C68918	1630	40	C68983	1631	40	C69049	1604	18	C69114	1693	68
C68919	1630	40	C68984	1631	40	C69050	1604	18	C69115	1690	68
C68920	1630	40	C68985	1631	40	C69051	1604	19	C69116	1691	68
C68921	1630	40	C68986	1631	40	C69052	1604	19	C69117	1692	68
C68922	1630	40	C68987	1631	40	C69053	1604	19	C69118	1693	68
C68923	1630	40	C68988	1631	40	C69054	1604	19	C69119	1690	68
C68924	1630	40	C68989	1631	40	C69055	1604	19	C69120	1691	68
C68925	1630	40	C68990	1631	40	C69056	1604	19	C69121	1692	68
C68926	1630	40	C68991	1631	40	C69057	1604	19	C69122	1693	68
C68927	1630	40	C68992	1631	40	C69058	1604	19	C69123	1690	68
C68928	1630	40	C68993	1631	40	C69059	1604	19	C69124	1691	68
C68929	1630	40	C68994	1631	40	C69060	1604	19	C69125	1692	68
C68930	1630	40	C68995	1631	40	C69061	1604	19	C69126	1693	68
C68931	1630	40	C68996	1631	40	C69062	1604	20	C69127	1690	68
C68932	1630	40	C68997	1631	40	C69063	1604	20	C69128	1691	68
C68933	1630	40	C68998	1631	40	C69064	1604	20	C69129	1692	68
C68934	1630	40	C68999	1631	40	C69065	1604	20	C69130	1693	68
C68935	1630	40	C69000	1631	40	C69066	1604	20	C69131	1690	68
C68936	1631	40	C69001	1631	40	C69067	1604	20	C69132	1691	68
C68937	1631	40	C69002	1631	40	C69068	1604	20	C69133	1692	68
C68938	1631	40	C69003	1631	40	C69069	1604	20	C69134	1693	68
C68939	1631	40	C69004	1631	40	C69070	1604	20	C69135	1690	68
C68940	1631	40	C69005	1683	54	C69071	1605	20	C69136	1691	68
C68941	1631	40	C69006	1683	54	C69072	1605	20	C69137	1692	68
C68942	1631	40	C69007	1683	54	C69073	1605	20	C69138	1693	68
C68943	1631	40	C69008	1683	54	C69074	1605	20	C69139	1690	68
C68944	1631	41	C69009	1683	54	C69075	1605	20	C69140	1691	68



**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
C69141	1692	68	C69206	1694	71	C69324	1686	73	C69412	1699	68
C69142	1693	68	C69207	1694	71	C69325	1688	73	C69413	1696	68
C69143	1690	68	C69208	1694	71	C69326	1688	73	C69414	1697	68
C69144	1691	68	C69209	1694	71	C69327	1688	73	C69415	1698	68
C69145	1692	68	C69210	1694	71	C69328	1688	73	C69416	1699	68
C69146	1693	68	C69211	1694	71	C69329	1688	73	C69417	1696	68
C69147	1690	68	C69212	1694	72	C69330	1688	73	C69418	1697	68
C69148	1691	68	C69213	1694	72	C69331	1688	73	C69419	1698	68
C69149	1692	68	C69267	1690	68	C69332	1688	73	C69420	1699	68
C69150	1693	68	C69268	1691	68	C69333	1687	73	C69421	1696	68
C69151	1690	68	C69269	1692	68	C69334	1687	73	C69422	1697	68
C69152	1691	68	C69270	1693	68	C69335	1687	73	C69423	1698	68
C69153	1692	68	C69271	1690	68	C69336	1687	73	C69424	1699	68
C69154	1693	68	C69272	1691	68	C69337	1687	73	C69425	1696	68
C69155	1690	68	C69273	1692	68	C69338	1687	73	C69426	1697	68
C69156	1691	68	C69274	1693	68	C69339	1607	17	C69427	1698	68
C69157	1692	68	C69275	1690	68	C69340	1607	17	C69428	1699	68
C69158	1693	68	C69276	1691	68	C69341	1607	17	C69429	1696	68
C69159	1690	68	C69277	1692	68	C69342	1607	18	C69430	1697	68
C69160	1691	68	C69278	1693	68	C69343	1607	18	C69431	1698	68
C69161	1692	68	C69279	1690	68	C69344	1607	18	C69432	1699	68
C69162	1693	68	C69280	1691	68	C69345	1607	18	C69433	1696	68
C69163	1690	68	C69281	1692	68	C69346	1607	18	C69434	1697	68
C69164	1691	68	C69282	1693	68	C69347	1607	18	C69435	1698	68
C69165	1692	68	C69283	1690	68	C69348	1607	19	C69436	1699	68
C69166	1693	68	C69284	1691	68	C69349	1607	19	C69437	1696	68
C69167	1690	68	C69285	1692	68	C69350	1607	19	C69438	1697	68
C69168	1691	68	C69286	1693	68	C69351	1607	19	C69439	1698	68
C69169	1692	68	C69287	1690	68	C69352	1607	19	C69440	1699	68
C69170	1693	68	C69288	1691	68	C69353	1607	19	C69441	1696	68
C69171	1690	68	C69289	1692	68	C69354	1607	19	C69442	1697	68
C69172	1691	68	C69290	1693	68	C69355	1607	19	C69443	1698	68
C69173	1692	68	C69291	1690	68	C69356	1607	19	C69444	1699	68
C69174	1693	68	C69292	1691	68	C69357	1607	19	C69445	1696	68
C69175	1690	68	C69293	1692	68	C69358	1607	19	C69446	1697	68
C69176	1691	68	C69294	1693	68	C69359	1607	20	C69447	1698	68
C69177	1692	68	C69295	1690	68	C69360	1607	20	C69448	1699	68
C69178	1693	68	C69296	1691	68	C69361	1607	20	C69449	1696	68
C69179	1690	68	C69297	1692	68	C69362	1607	20	C69450	1697	68
C69180	1691	68	C69298	1693	68	C69363	1607	20	C69451	1698	68
C69181	1692	68	C69299	1690	68	C69364	1607	20	C69452	1699	68
C69182	1693	68	C69300	1691	68	C69365	1607	20	C69453	1696	68
C69183	1690	68	C69301	1692	68	C69366	1607	20	C69454	1697	68
C69184	1691	68	C69302	1693	68	C69367	1607	20	C69455	1698	68
C69185	1692	68	C69303	1690	68	C69368	1607	21,61	C69456	1699	68
C69186	1693	68	C69304	1691	68	C69369	1900	14	C69457	1696	68
C69187	1690	68	C69305	1692	68	C69370	1900	14	C69458	1697	68
C69188	1691	68	C69306	1693	68	C69371	1900	14	C69459	1698	68
C69189	1692	68	C69307	1690	68	C69372	1900	14	C69460	1699	68
C69190	1693	68	C69308	1691	68	C69373	1900	14	C69461	1696	68
C69191	1694	71	C69309	1692	68	C69374	1900	14	C69462	1697	68
C69192	1694	71	C69310	1693	68	C69375	1900	14	C69463	1698	68
C69193	1694	71	C69311	1690	68	C69376	1900	14	C69464	1699	68
C69194	1694	71	C69312	1691	68	C69377	1603	32,60	C69465	1696	68
C69195	1694	71	C69313	1692	68	C69378	1603	32,60	C69466	1697	68
C69196	1694	71	C69314	1693	68	C69379	1603	32,61	C69467	1698	68
C69197	1694	71	C69315	1686	73	C69380	1603	32,61	C69468	1699	68
C69198	1694	71	C69316	1686	73	C69381	1602	21	C69469	1696	68
C69199	1694	71	C69317	1686	73	C69382	1602	21	C69470	1697	68
C69200	1694	71	C69318	1686	73	C69383	1602	21	C69471	1698	68
C69201	1694	71	C69319	1686	73	C69384	1620	34,61	C69472	1699	68
C69202	1694	71	C69320	1686	73	C69385	1607	21	C69473	1696	68
C69203	1694	71	C69321	1686	73	C69409	1696	68	C69474	1697	68
C69204	1694	72	C69322	1686	73	C69410	1697	68	C69475	1698	68
C69205	1694	71	C69323	1686	73	C69411	1698	68	C69476	1699	68



## 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
C69477	1696	68	C74012	1878	19	C77634	492	75	C95406	3100	123
C69478	1697	68	C74013	1878	19	C77636	492	75	C95407	3100	123
C69479	1698	68	C74014	1878	19	C77638	492	75	C95408	3100	123
C69480	1699	68	C74015	1878	19	C77640	492	75	C95409	3100	123
C69481	1696	68	C74016	1878	19	C77642	492	75	C95410	3100	123
C69482	1697	68	C74017	1878	19	C77644	492	75	C95411	3100	123
C69483	1698	68	C74018	1878	19	C77646	492	75	C95412	3100	123
C69484	1699	68	C74019	1878	20	C77648	492	75	C95413	3100	123
C69507	1700	73	C74020	1878	20	C77650	492	75	C95414	3100	123
C69508	1700	73	C74021	1878	20	C95350	3100	123	C95415	3100	123
C69509	1700	73	C74022	1878	20	C95351	3100	123	C95416	3100	123
C69510	1700	73	C74023	1878	20	C95352	3100	123	C95417	3100	123
C69511	1700	73	C74024	1878	20	C95353	3100	123	C95418	3100	123
C69512	1700	73	C74025	1878	17	C95354	3100	123	C95419	3100	123
C69513	1696	68	C74026	1878	17	C95355	3100	123	C95420	3100	123
C69514	1697	68	C74027	1878	17	C95356	3100	123	C95421	3100	123
C69515	1698	68	C74028	1878	17	C95357	3100	123	C95422	3100	123
C69516	1699	68	C74029	1878	18	C95358	3100	123	C95423	3100	123
C69517	1696	68	C74030	1878	18	C95359	3100	123	C95424	3100	123
C69518	1697	68	C74031	1878	18	C95360	3100	123	C95425	3100	123
C69519	1698	68	C74032	1878	18	C95361	3100	123	C95426	3100	123
C69520	1699	68	C74033	1878	18	C95362	3100	123	C95427	3100	123
C69521	1696	68	C74034	1878	18	C95363	3100	123	C95428	3100	123
C69522	1697	68	C74035	1878	18	C95364	3100	123	C95429	3100	123
C69523	1698	68	C74036	1878	18	C95365	3100	123	C95430	3100	123
C69524	1699	68	C74037	1878	18	C95366	3100	123	C95431	3100	123
C69526	1696	68	C74038	1878	18	C95367	3100	123	C95432	3100	123
C69527	1697	68	C74039	1878	18	C95368	3100	123	C95433	3100	123
C69528	1698	68	C74040	1878	18	C95369	3100	123	C95434	3100	123
C69529	1699	68	C74041	1878	18	C95370	3100	123	C95435	3100	123
C69531	1696	68	C74042	1878	18	C95371	3100	123	C95436	3100	123
C69532	1697	68	C74043	1878	18	C95372	3100	123	C95437	3100	123
C69533	1698	68	C74044	1878	19	C95373	3100	123	C95438	3100	123
C69534	1699	68	C74045	1878	19	C95374	3100	123	C95439	3100	123
C69535	1696	68	C74046	1878	19	C95375	3100	123	C95440	3100	123
C69536	1697	68	C74047	1878	19	C95376	3100	123	C95441	3100	123
C69537	1698	68	C74048	1878	19	C95377	3100	123	C95442	3100	123
C69538	1699	68	C74049	1878	19	C95378	3100	123	C95443	3100	123
C69539	1696	68	C74050	1878	19	C95379	3100	123	C95444	3100	123
C69540	1697	68	C74051	1878	19	C95380	3100	123	C95445	3100	123
C69541	1698	68	C74052	1878	19	C95381	3100	123	C95446	3100	123
C69542	1699	68	C74053	1878	19	C95382	3100	123	C95447	3100	123
C69543	1696	68	C74054	1878	20	C95383	3100	123	C95448	3100	123
C69544	1697	68	C74055	1878	20	C95384	3100	123	C95449	3100	123
C69545	1698	68	C74056	1878	20	C95385	3100	123	C95450	3100	123
C69546	1699	68	C74057	1878	20	C95386	3100	123	C95451	3100	123
C69547	1696	68	C74058	1878	21	C95387	3100	123	C95452	3100	123
C69548	1697	68	C74059	1878	21	C95388	3100	123	C95453	3100	123
C69549	1698	68	C77600	492	74	C95389	3100	123	C95454	3100	123
C69550	1699	68	C77602	492	74	C95390	3100	123	C95455	3100	123
C69551	1696	68	C77604	492	74	C95391	3100	123	C95456	3100	123
C69552	1697	68	C77606	492	74	C95392	3100	123	C95457	3100	123
C69553	1698	68	C77608	492	74	C95393	3100	123	C95458	3100	123
C69554	1699	68	C77610	492	74	C95394	3100	123	C95459	3100	123
C74001	1878	17	C77612	492	74	C95395	3100	123	C95460	3100	123
C74002	1878	17	C77614	492	74	C95396	3100	123	C95461	3100	123
C74003	1878	17	C77616	492	74	C95397	3100	123	C95462	3100	123
C74004	1878	17	C77618	492	75	C95398	3100	123	C95463	3100	123
C74005	1878	18	C77620	492	75	C95399	3100	123	C95464	3100	123
C74006	1878	18	C77622	492	75	C95400	3100	123	C95465	3100	123
C74007	1878	18	C77624	492	75	C95401	3100	123	C95466	3101	123
C74008	1878	18	C77626	492	75	C95402	3100	123	C95467	3101	123
C74009	1878	18	C77628	492	75	C95403	3100	123	C95468	3101	123
C74010	1878	19	C77630	492	75	C95404	3100	123	C97301	1500-TT	22
C74011	1878	19	C77632	492	75	C95405	3100	123	C97302	1500-TT	22



Cle-Line Product Line

Index

<u>Order Number</u>	<u>Style</u>	<u>Page Number</u>	<u>Order Number</u>	<u>Style</u>	<u>Page Number</u>	<u>Order Number</u>	<u>Style</u>	<u>Page Number</u>	<u>Order Number</u>	<u>Style</u>	<u>Page Number</u>
C97303	1500-TT	22	C97368	1500-TT	23						
C97304	1500-TT	22	C97369	1500-TT	23						
C97305	1500-TT	22	C97370	1500-TT	23						
C97306	1500-TT	22	C97371	1500-TT	23						
C97307	1500-TT	22	C97372	1500-TT	22						
C97308	1500-TT	23	C97373	1500-TT	22						
C97309	1500-TT	23	C97374	1500-TT	22						
C97310	1500-TT	23	C97375	1500-TT	22						
C97311	1500-TT	23	C97376	1500-TT	22						
C97312	1500-TT'	23	C97377	1500-TT	22						
C97313	1500-TT	23	C97378	1500-TT	22						
C97314	1500-TT	23	C97379	1500-TT	22						
C97315	1500-TT	23	C97380	1500-TT	22						
C97316	1500-TT	23	C97381	1500-TT	22						
C97317	1500-TT	23	C97382	1500-TT	22						
C97318	1500-TT	23	C97383	1500-TT	22						
C97319	1500-TT	23	C97384	1500-TT	22						
C97320	1500-TT	23	C97385	1500-TT	22						
C97321	1500-TT	23	C97386	1500-TT	22						
C97322	1500-TT	23	C97387	1500-TT	22						
C97323	1500-TT	24	C97388	1500-TT	22						
C97324	1500-TT	24	C97389	1500-TT	22						
C97325	1500-TT	24	C97390	1500-TT	22						
C97326	1500-TT	24	C97391	1500-TT	22						
C97327	1500-TT	24	C97392	1500-TT	22						
C97328	1500-TT	24	C97393	1500-TT	22						
C97329	1500-TT	24	C97394	1500-TT	22						
C97330	1500-TT	23	C97395	1500-TT	22						
C97331	1500-TT	23	C97396	1500-TT	22						
C97332	1500-TT	23	C97397	1500-TT	22						
C97333	1500-TT	23	C97398	1500-TT	22						
C97334	1500-TT	23	C97399	1500-TT	22						
C97335	1500-TT	23	C97400	1500-TT	22						
C97336	1500-TT	23	C97401	1500-TT	22						
C97337	1500-TT	23	C97402	1500-TT	22						
C97338	1500-TT	23	C97403	1500-TT	22						
C97339	1500-TT	23	C97404	1500-TT	22						
C97340	1500-TT	23	C97405	1500-TT	22						
C97341	1500-TT	23	C97406	1500-TT	22						
C97342	1500-TT	23	C97413	1500-TT	24						
C97343	1500-TT	23	CHK01	CHK	93						
C97344	1500-TT	23	CHK02	CHK	93						
C97345	1500-TT	23	CHK03	CHK	93						
C97346	1500-TT	23	CHK04	CHK	93						
C97347	1500-TT	23	CHK05	CHK	93						
C97348	1500-TT	23	CHK06	CHK	93						
C97349	1500-TT	23									
C97350	1500-TT	23									
C97351	1500-TT	23									
C97352	1500-TT	24									
C97353	1500-TT	24									
C97354	1500-TT	24									
C97355	1500-TT	23									
C97356	1500-TT	23									
C97357	1500-TT	23									
C97358	1500-TT	23									
C97359	1500-TT	23									
C97360	1500-TT	23									
C97361	1500-TT	23									
C97362	1500-TT	23									
C97363	1500-TT	23									
C97364	1500-TT	23									
C97365	1500-TT	23									
C97366	1500-TT	23									
C97367	1500-TT	23									

INDEX

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