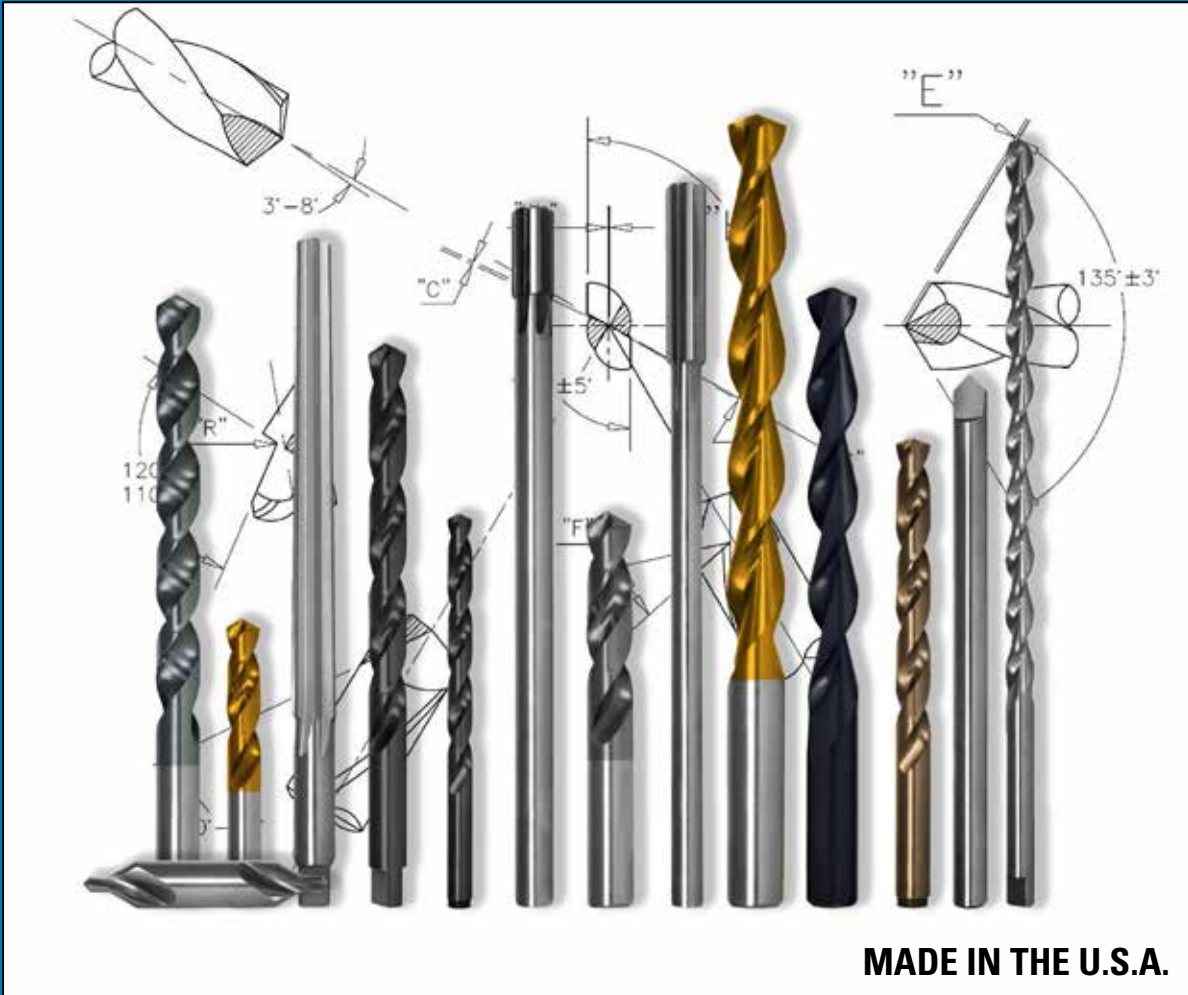




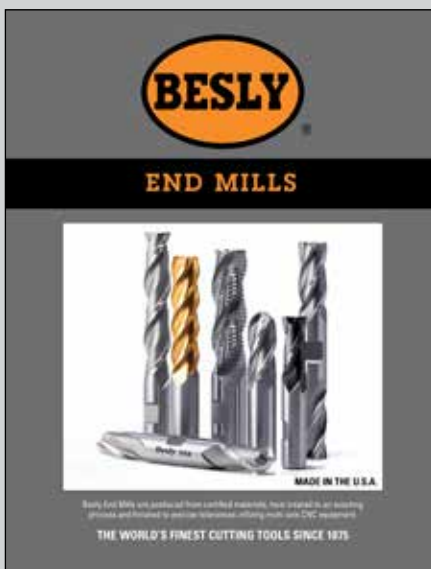
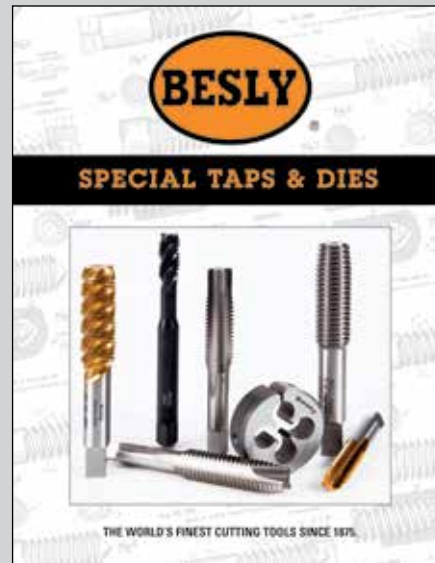
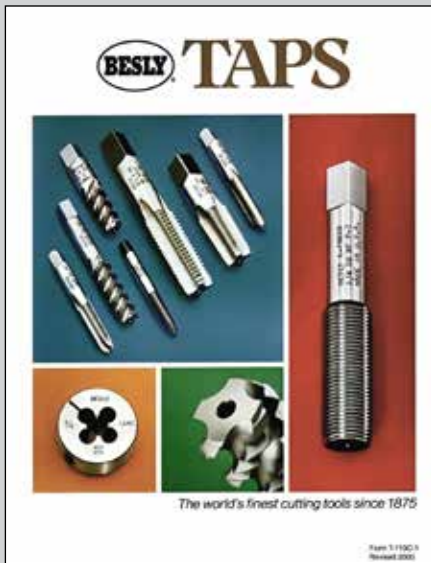
®

# DRILLS & REAMERS



THE WORLD'S FINEST CUTTING TOOLS SINCE 1875

# THE WORLD'S FINEST CUTTING TOOLS SINCE 1875



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# High Speed Steel

# TURBOFLUTE TWIST DRILLS

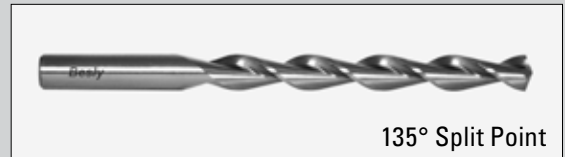
Surface Treated T-705-TF  
Bright Finish T-755-TF

Jobbers Length – Straight Shank

Heavy-duty parabolic profiled flutes for easy chip flow. Designed for automotive, aerospace, and other high volume metalworking industries. Provide longer life, better drilled hole quality, and increased feed rates. Split point design seats itself and holds centers. Surface treated drills for drilling stringy, low, and medium strength steels below 120,000 p.s.i. Bright finish drills for aluminum and other nonferrous materials.



135° Split Point



135° Split Point

Wire Gage Sizes													
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number		Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number	
					T-705-TF	T-755-TF						T-705-TF	T-755-TF
53	.0595	1-7/8	7/8	12	20948	29781	26	.1470	3	1-7/8	12	20593	29754
52	.0635	1-7/8	7/8	12	20947	29780	25	.1495	3	1-7/8	12	20592	29753
51	.0670	2	1	12	20946	29779	24	.1520	3-1/8	2	12	20591	29752
50	.0700	2	1	12	20939	29778	23	.1540	3-1/8	2	12	20590	29751
49	.0730	2	1	12	20938	29777	22	.1570	3-1/8	2	12	20585	29750
48	.0760	2	1	12	20937	29776	21	.1590	3-1/4	2-1/8	12	20584	29749
47	.0785	2	1	12	20936	29775	20	.1610	3-1/4	2-1/8	12	20583	29748
46	.0810	2-1/8	1-1/8	12	20929	29774	19	.1660	3-1/4	2-1/8	12	20582	29747
45	.0820	2-1/8	1-1/8	12	20928	29773	18	.1695	3-1/4	2-1/8	12	20581	29746
44	.0860	2-1/8	1-1/8	12	20927	29772	17	.1730	3-3/8	2-3/16	12	20580	29745
43	.0890	2-1/4	1-1/4	12	20926	29771	16	.1770	3-3/8	2-3/16	12	20575	29744
42	.0935	2-1/4	1-1/4	12	20919	29770	15	.1800	3-3/8	2-3/16	12	20574	29743
41	.0960	2-3/8	1-3/8	12	20918	29769	14	.1820	3-3/8	2-3/16	12	20573	29742
40	.0980	2-3/8	1-3/8	12	20501	29768	13	.1850	3-1/2	2-5/16	12	20572	29741
39	.0995	2-3/8	1-3/8	12	20500	29767	12	.1890	3-1/2	2-5/16	12	20571	29740
38	.1015	2-1/2	1-7/16	12	20495	29766	11	.1910	3-1/2	2-5/16	12	20570	29739
37	.1040	2-1/2	1-7/16	12	20494	29765	10	.1935	3-5/8	2-7/16	12	20565	29738
36	.1065	2-1/2	1-7/16	12	20493	29764	9	.1960	3-5/8	2-7/16	12	20564	29737
35	.1100	2-5/8	1-1/2	12	20492	29763	8	.1990	3-5/8	2-7/16	12	20563	29736
34	.1110	2-5/8	1-1/2	12	20491	29762	7	.2010	3-5/8	2-7/16	12	20444	29735
33	.1130	2-5/8	1-1/2	12	20490	29761	6	.2040	3-3/4	2-1/2	12	20562	29734
32	.1160	2-3/4	1-5/8	12	20603	29760	5	.2055	3-3/4	2-1/2	12	20561	29733
31	.1200	2-3/4	1-5/8	12	20602	29759	4	.2090	3-3/4	2-1/2	12	20560	29732
30	.1285	2-3/4	1-5/8	12	20601	29758	3	.2130	3-3/4	2-1/2	12	20555	29731
29	.1360	2-7/8	1-3/4	12	20600	29757	2	.2210	3-7/8	2-5/8	12	20554	29730
28	.1405	2-7/8	1-3/4	12	20595	29756	1	.2280	3-7/8	2-5/8	12	20553	29729
27	.1440	3	1-7/8	12	20594	29755							

# TURBOFLUTE TWIST DRILLS

Surface Treated T-705-TF  
Bright Finish T-755-TF

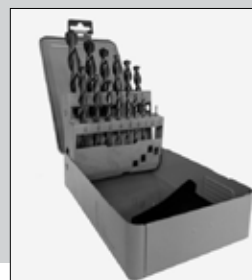
Jobbers Length – Straight Shank

Fractional Sizes							Letter Sizes						
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number		Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number	
					T-705-TF	T-755-TF						T-705-TF	T-755-TF
1/16	.0625	1-7/8	7/8	12	20909	29700	A	.2340	3-7/8	2-5/8	12	29953	29782
5/64	.0781	2	1	12	20916	29701	B	.2380	4	2-3/4	12	29954	29783
3/32	.0938	2-1/4	1-1/4	12	20917	29702	C	.2420	4	2-3/4	12	29955	29784
7/64	.1094	2-5/8	1-1/2	12	20510	29703	D	.2460	4	2-3/4	12	29956	29785
1/8	.1250	2-3/4	1-5/8	12	20511	29704	E	.2500	4	2-3/4	12	20523	29712
9/64	.1406	2-7/8	1-3/4	12	20512	29705	F	.2570	4-1/8	2-7/8	12	29957	29786
5/32	.1562	3-1/8	2	12	20513	29706	G	.2610	4-1/8	2-7/8	12	29958	29787
11/64	.1719	3-1/4	2-1/8	12	20514	29707	H	.2660	4-1/8	2-7/8	12	29959	29788
3/16	.1875	3-1/2	2-5/16	12	20515	29708	I	.2720	4-1/8	2-7/8	12	29960	29789
13/64	.2031	3-5/8	2-7/16	12	20520	29709	J	.2770	4-1/8	2-7/8	12	29961	29790
7/32	.2188	3-3/4	2-1/2	12	20521	29710	K	.2810	4-1/4	2-15/16	12	29962	29791
15/64	.2344	3-7/8	2-5/8	12	20522	29711	L	.2900	4-1/4	2-15/16	12	29963	29792
1/4	.2500	4	2-3/4	12	20523	29712	M	.2950	4-3/8	3-1/16	6	29964	29793
17/64	.2656	4-1/8	2-7/8	12	20524	29713	N	.3020	4-3/8	3-1/16	6	29965	29794
9/32	.2812	4-1/4	2-15/16	12	20525	29714	O	.3160	4-1/2	3-3/16	6	29966	29795
19/64	.2969	4-3/8	3-1/16	6	20530	29715	P	.3230	4-5/8	3-5/16	6	29967	29796
5/16	.3125	4-1/2	3-3/16	6	20531	29716	Q	.3320	4-3/4	3-7/16	6	29968	29797
21/64	.3281	4-5/8	3-5/16	6	20532	29717	R	.3390	4-3/4	3-7/16	6	29969	29798
11/32	.3438	4-3/4	3-7/16	6	20533	29718	S	.3480	4-7/8	3-1/2	6	29970	29799
23/64	.3594	4-7/8	3-1/2	6	20534	29719	T	.3580	4-7/8	3-1/2	6	29971	29800
3/8	.3750	5	3-5/8	6	20535	29720	U	.3680	5	3-5/8	6	29972	29801
25/64	.3906	5-1/8	3-3/4	6	20540	29721	V	.3770	5	3-5/8	6	29973	29802
13/32	.4062	5-1/4	3-7/8	6	20541	29722	W	.3860	5-1/8	3-3/4	6	29974	29803
27/64	.4219	5-3/8	3-5/16	6	20542	29723	X	.3970	5-1/8	3-3/4	6	29975	29804
7/16	.4375	5-1/2	4-1/16	6	20543	29724	Y	.4040	5-1/4	3-7/8	6	29976	29805
29/64	.4531	5-5/8	4-3/16	6	20544	29725	Z	.4130	5-1/4	3-7/8	6	29977	29806
15/32	.4688	5-3/4	4-5/16	6	20545	29726							
31/64	.4844	5-7/8	4-3/8	6	20550	29727							
1/2	.5000	6	4-1/2	6	20551	29728							

## DRILL SETS

135° Split Point  
Surface Treated T-715-TF

Drill Sets		
Set Number	Drill Size with Case	EDP Number
T-723C	Fractional Sizes 1/16 thru 3/8 by 64ths	25780
T-709C	Fractional Sizes 1/16 thru 1/2 by 64ths	25781
T-708C	Fractional Sizes 1/16 thru 1/2 by 32nds	25782
T-710C	Wire Gage Sizes 1 thru 53	25783
T-712C	Letter Sizes A thru Z	25784



**TURBOFLUTE TWIST DRILLS**

Surface Treated T-216-TF Tanged

Taper Length  
135° Split Point – Straight Shank – Long Flute

Heavy-duty parabolic profiled flutes for easy chip flow. Designed for automotive and other high volume metal working industries. Provide longer life, better drilled hole quality, and increased feed rates. Split point design seats itself and holds centers.

Heavier web drills ideal for use in stringy, low, and medium strength steels below 120,000 p.s.i. Also for use in exotic and difficult-to-machine materials, ferrous and nonferrous. For tang dimensions see page 14.



135° Split Point

Fractional Sizes											
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number	Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number
1/16	.0625	3	2	12	28500	23/64	.3594	6-3/4	5-3/8	6	28517
5/64	.0781	3-3/4	2-1/2	12	28501	3/8	.3750	6-3/4	5-3/8	6	28518
3/32	.0938	4-1/4	2-13/16	12	28502	25/64	.3906	7	5-5/8	6	28519
7/64	.1094	4-5/8	3-1/8	12	28503	13/32	.4062	7	5-5/8	6	28520
1/8	.1250	5-1/8	3-3/8	12	28504	27/64	.4219	7-1/4	5-11/16	6	28521
9/64	.1406	5-3/8	3-5/8	12	28505	7/16	.4375	7-1/4	5-11/16	6	28522
5/32	.1562	5-3/8	3-3/4	12	28506	29/64	.4531	7-1/2	5-3/4	6	28523
11/64	.1719	5-3/4	4-1/8	12	27998	15/32	.4688	7-1/2	5-3/4	6	28524
3/16	.1875	5-3/4	4-1/8	12	27999	31/64	.4844	7-3/4	5-3/4	6	28525
13/64	.2031	6	4-3/8	12	28507	1/2	.5000	7-3/4	5-3/4	6	28526
7/32	.2188	6	4-3/8	12	28508	33/64	.5156	8	6	1	28527
15/64	.2344	6-1/8	4-13/16	12	28509	17/32	.5312	8	6	1	28528
1/4	.2500	6-1/8	4-13/16	12	28510	9/16	.5625	8-1/4	6-1/4	1	28529
17/64	.2656	6-1/4	5	12	28511	19/32	.5938	8-3/4	6-1/2	1	28530
9/32	.2812	6-1/4	5	12	28512	5/8	.6250	8-3/4	6-1/2	1	28531
19/64	.2969	6-3/8	5-1/8	6	28513	21/32	.6562	9	6-3/4	1	28532
5/16	.3125	6-3/8	5-1/8	6	28514	11/16	.6875	9-1/4	6-7/8	1	28533
21/64	.3281	6-1/2	5-1/4	6	28515	23/32	.7188	9-1/2	7-1/8	1	28534
11/32	.3438	6-1/2	5-1/4	6	28516	3/4	.7500	9-3/4	7-3/8	1	28535

**TURBOFLUTE TWIST DRILLS**Taper Length  
Straight Shank – Long Flute

Surface Treated T-216-TF

Wire Gage Sizes											
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number	Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number
40	.0980	4-5/8	3-1/8	12	28605	20	.1610	5-3/4	4-1/8	12	28625
39	.0995	4-5/8	3-1/8	12	28606	19	.1660	5-3/4	4-1/8	12	28626
38	.1015	4-5/8	3-1/8	12	28607	18	.1695	5-3/4	4-1/8	12	28627
37	.1040	4-5/8	3-1/8	12	28608	17	.1730	5-3/4	4-1/8	12	28628
36	.1065	4-5/8	3-1/8	12	28609	16	.1770	5-3/4	4-1/8	12	28629
35	.1100	5-1/8	3-3/8	12	28610	15	.1800	5-3/4	4-1/8	12	28630
34	.1110	5-1/8	3-3/8	12	28611	14	.1820	5-3/4	4-1/8	12	28631
33	.1130	5-1/8	3-3/8	12	28612	13	.1850	5-3/4	4-1/8	12	28632
32	.1160	5-1/8	3-3/8	12	28613	12	.1890	6	4-3/8	12	28633
31	.1200	5-1/8	3-3/8	12	28614	11	.1910	6	4-3/8	12	28634
30	.1285	5-3/8	3-5/8	12	28615	10	.1935	6	4-3/8	12	28635
29	.1360	5-3/8	3-5/8	12	28616	9	.1960	6	4-3/8	12	28636
28	.1405	5-3/8	3-5/8	12	28617	8	.1990	6	4-3/8	12	28637
27	.1440	5-3/8	3-3/4	12	28618	7	.2010	6	4-3/8	12	28638
26	.1470	5-3/8	3-3/4	12	28619	6	.2040	6	4-3/8	12	28639
25	.1495	5-3/8	3-3/4	12	28620	5	.2055	6	4-3/8	12	28640
24	.1520	5-3/8	3-3/4	12	28621	4	.2090	6	4-3/8	12	28641
23	.1540	5-3/8	3-3/4	12	28622	3	.2130	6	4-3/8	12	28642
22	.1570	5-3/4	4-1/8	12	28623	2	.2210	6-1/8	4-13/16	12	28643
21	.1590	5-3/4	4-1/8	12	28624	1	.2280	6-1/8	4-13/16	12	28644

Letter Sizes											
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number	Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number
A	.2340	6-1/8	4-13/16	12	28645	O	.3160	6-1/2	5-1/4	6	28658
B	.2380	6-1/8	4-13/16	12	28646	P	.3230	6-1/2	5-1/4	6	28659
C	.2420	6-1/8	4-13/16	12	28647	Q	.3320	6-1/2	5-1/4	6	28660
D	.2460	6-1/8	4-13/16	12	28648	R	.3390	6-1/2	5-1/4	6	28661
F	.2570	6-1/4	5	12	28649	S	.3480	6-3/4	5-3/8	6	28662
G	.2610	6-1/4	5	12	28650	T	.3580	6-3/4	5-3/8	6	28663
H	.2660	6-1/4	5	12	28651	U	.3680	6-3/4	5-3/8	6	28664
I	.2720	6-1/4	5	12	28652	V	.3770	7	5-5/8	6	28665
J	.2770	6-1/4	5	12	28653	W	.3860	7	5-5/8	6	28666
K	.2810	6-1/4	5	12	28654	X	.3970	7	5-5/8	6	28667
L	.2900	6-3/8	5-1/8	12	28655	Y	.4040	7	5-5/8	6	28668
M	.2950	6-3/8	5-1/8	6	28656	Z	.4130	7-1/4	5-11/16	6	28669
N	.3020	6-3/8	5-1/8	6	28657						

For tang dimensions see page 14.



# High Speed Steel

# TURBOFLUTE TWIST DRILLS

Bright Finish T-218-TF Tanged

Extra Length  
135° Split Point – Straight Shank

Handle hole depths up to 12 times their own diameter in a single pass. Flute design produces short chips for no clogging or woodpeckering. Designed for drilling steels below 120,000 p.s.i. and iron castings. For tang dimensions see page 14.

Fractional Sizes									
Overall Length A						8	9	10	12
Flute Length B						5 1/2	6 1/2	7 1/2	9
Size	Decimal Equiv.	Tang Length C	Tang Thickness D		Std. Pkg. Qty.	EDP Number			
			Min.	Max.					
1/8	.1250	9/32	.090	.094	12	20005	20719	20749	20767
9/64	.1406	9/32	.090	.094	12	20010	20723	20756	20768
5/32	.1562	9/32	.090	.094	12	20011	20726	20757	20769
11/64	.1719	9/32	.090	.094	12	20012	20727	20758	20776
3/16	.1875	9/32	.090	.094	12	20013	20728	20759	20777
13/64	.2031	5/16	.118	.122	12	20014	20729	20764	20778
7/32	.2188	5/16	.118	.122	12	20015	20736	20765	20779
15/64	.2344	5/16	.118	.122	12	20020	20737	20766	20786
1/4	.2500	5/16	.118	.122	12	20680	20021	20034	20787
17/64	.2656	11/32	.158	.162	12	20682	20022	20040	20788
9/32	.2812	11/32	.158	.162	12	20683	20023	20042	20789
19/64	.2969	11/32	.158	.162	6	20684	20024	20052	20796
5/16	.3125	11/32	.158	.162	6	20685	20025	20502	20654
21/64	.3281	3/8	.199	.203	6	20690	20030	20503	20798
11/32	.3438	3/8	.199	.203	6	20691	20031	20072	20799
23/64	.3594	3/8	.199	.203	6	20670	20032	20073	20806
3/8	.3750	3/8	.199	.203	6	20692	20738	20473	20075
25/64	.3906	7/16	.239	.243	6	20693	20739	20474	20113
13/32	.4062	7/16	.239	.243	6	20716	20746	20475	20504
27/64	.4219	7/16	.239	.243	6	20717	20747	20480	20123
7/16	.4375	7/16	.239	.243	6	20718	20748	20481	20134
29/64	.4531	7/16	.239	.243	6			20482	20135
15/32	.4688	7/16	.239	.243	6			20483	20142
31/64	.4844	1/2	.297	.303	6			20484	20155
1/2	.5000	1/2	.297	.303	6			20485	20310
33/64	.5156	1/2	.297	.303	1				20311
17/32	.5312	1/2	.297	.303	1				20312
35/64	.5469	1/2	.297	.303	1				20313
9/16	.5625	1/2	.297	.303	1				20314
37/64	.5781	9/16	.367	.373	1				20315
19/32	.5938	9/16	.367	.373	1				20320
39/64	.6094	9/16	.367	.373	1				20321
5/8	.6250	9/16	.367	.373	1				20322
21/32	.6562	9/16	.367	.373	1				20323
11/16	.6875	5/8	.437	.443	1				20324
23/32	.7188	5/8	.437	.443	1				20325
3/4	.7500	5/8	.437	.443	1				20383

High Speed Steel

# TURBOFLUTE TWIST DRILLS

Extra Length  
135° Split Point – Straight Shank

Bright Finish T-218-TF Tanged

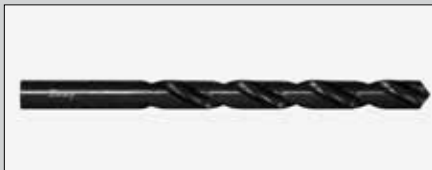
Wire Gage Sizes							
Overall Length A						6	8
Flute Length B						4	5 1/2
Size	Decimal Equiv.	Tang Length C	Tang Thickness D		Std. Pkg. Qty.	EDP Number	
			Min.	Max.			
40	.0980	5/32	.070	.073	12	20908	
39	.0995	5/32	.070	.073	12	20907	
38	.1015	5/32	.070	.073	12	20906	
37	.1040	5/32	.070	.073	12	20899	
36	.1065	5/32	.070	.073	12	20898	
35	.1100	3/16	.081	.085	12	20897	
34	.1110	3/16	.081	.085	12	20896	
33	.1130	3/16	.081	.085	12	20889	
32	.1160	3/16	.081	.085	12	20888	
31	.1200	3/16	.081	.085	12	20887	
30	.1285	9/32	.090	.094	12	20442	20384
29	.1360	9/32	.090	.094	12	20443	20385
28	.1405	9/32	.090	.094	12	20445	20390
27	.1440	9/32	.090	.094	12	20450	20391
26	.1470	9/32	.090	.094	12	20451	20392
25	.1495	9/32	.090	.094	12	20452	20393
24	.1520	9/32	.090	.094	12	20453	20394
23	.1540	9/32	.090	.094	12	20454	20395
22	.1570	9/32	.090	.094	12	20455	20400
21	.1590	9/32	.090	.094	12	20460	20401
20	.1610	9/32	.090	.094	12	20461	20402
19	.1660	9/32	.090	.094	12	20462	20403
18	.1695	9/32	.090	.094	12	20463	20412
17	.1730	9/32	.090	.094	12	20464	20413
16	.1770	9/32	.090	.094	12	20465	20414
15	.1800	9/32	.090	.094	12	20470	20415
14	.1820	9/32	.090	.094	12	20471	20420
13	.1850	9/32	.090	.094	12	20472	20421
12	.1890	5/16	.118	.122	12	20886	20422
11	.1910	5/16	.118	.122	12	20839	20423
10	.1935	5/16	.118	.122	12	20838	20424
9	.1960	5/16	.118	.122	12	20837	20425
8	.1990	5/16	.118	.122	12	20836	20430
7	.2010	5/16	.118	.122	12	20829	20431
6	.2040	5/16	.118	.122	12	20828	20432
5	.2055	5/16	.118	.122	12	20827	20433
4	.2090	5/16	.118	.122	12	20826	20434
3	.2130	5/16	.118	.122	12	20809	20435
2	.2210	5/16	.118	.122	12	20808	20440
1	.2280	5/16	.118	.122	12	20807	20441

Letter Sizes						
Overall Length A						6
Flute Length B						4
Size	Decimal Equiv.	Tang Length C	Tang Thickness D		Std. Pkg. Qty.	EDP Number
			Min.	Max.		
A	.2340	5/16	.118	.122	12	29978
B	.2380	5/16	.118	.122	12	29979
C	.2420	5/16	.118	.122	12	29980
D	.2460	5/16	.118	.122	12	29981
F	.2570	11/32	.158	.162	12	29982
G	.2610	11/32	.158	.162	12	29983
H	.2660	11/32	.158	.162	12	29984
I	.2720	11/32	.158	.162	12	29985
J	.2770	11/32	.158	.162	12	29986
K	.2810	11/32	.158	.162	12	29987
L	.2900	11/32	.158	.162	12	29988
M	.2950	11/32	.158	.162	6	29989
N	.3020	11/32	.158	.162	6	29990
O	.3160	3/8	.199	.203	6	29991
P	.3230	3/8	.199	.203	6	29992
Q	.3320	3/8	.199	.203	6	29993
R	.3390	3/8	.199	.203	6	29994
S	.3480	3/8	.199	.203	6	28997
T	.3580	3/8	.199	.203	6	29996
U	.3680	3/8	.199	.203	6	29997
V	.3770	7/16	.239	.243	6	29998
W	.3860	7/16	.239	.243	6	29999
X	.3970	7/16	.239	.243	6	29900
Y	.4040	7/16	.239	.243	6	28999
Z	.4130	7/16	.239	.243	6	28998

# JOBBERS LENGTH TWIST DRILLS

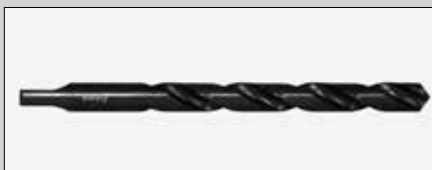
Straight Shank

## Surface Treated



### No. T-105 General Purpose

General purpose drill designed with a conventional spiral to perform satisfactorily under as many different conditions as possible. This drill may be used as a high production tool for all jobs except those in which an unusual material or setup presents a difficult machining problem, requiring heavy duty construction.



### No. T-105-T Tanged, Automotive Series

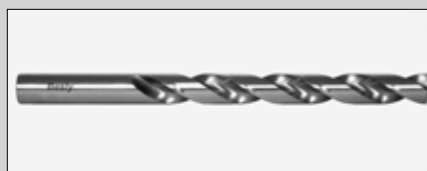
General purpose drills of the same design and general dimensions as T-105 except for the addition of a tang to fit drill holders for the purpose of driving the drill. For tang dimensions see page 14.

## Bright Finish



### No. T-405 Fast Spiral

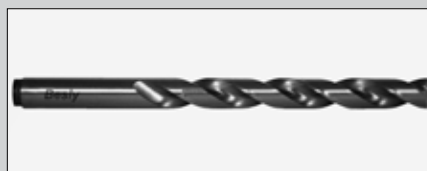
Fast spiral drills with open bright flutes for drilling aluminum, magnesium, and die castings.



### No. T-1055 General Purpose

Drills with general purpose construction similar to T-105, but with bright finish for use in materials where smooth, bright flutes are required for optimum drilling performance and chip removal.

## Cobalt



### No. T-805 Heavy Duty

These drills are made of super cobalt steel for resistance against the high temperatures generated by drilling in tough, hard materials such as high temperature alloys and stainless steels. High drill hardness also makes these tools outstanding when used in highly abrasive materials. Sizes smaller than 1/16" and No. 53 do not have split point.

High Speed Steel

# JOBBERS LENGTH TWIST DRILLS

Straight Shank

T-105, T-105-T, T405, T-1055, T-805

Fractional Sizes									
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	Surface Treated		Bright Finish		Cobalt
					T-105	T-105-T	T-405	T-1055	T-805
1/64	.0156	3/4	3/16	12	23992			27292	27798
1/32	.0312	1-3/8	1/2	12	23993		25973	27293	27799
3/64	.0469	1-3/4	3/4	12	23994		25974	27294	22815
1/16	.0625	1-7/8	7/8	12	23995		25975	27295	22820
5/64	.0781	2	1	12	24000		25980	27300	22821
3/32	.0938	2-1/4	1-1/4	12	24001		25981	27301	22822
7/64	.1094	2-5/8	1-1/2	12	24002		25982	27302	22823
1/8	.1250	2-3/4	1-5/8	12	24003	20070	25983	27303	22824
9/64	.1406	2-7/8	1-3/4	12	24004	20080	25984	27304	22825
5/32	.1562	3-1/8	2	12	24005	20084	25985	27305	22830
11/64	.1719	3-1/4	2-1/8	12	24010	20092	25990	27310	22831
3/16	.1875	3-1/2	2-5/16	12	24011	20101	25991	27311	22832
13/64	.2031	3-5/8	2-7/16	12	24012	20106	25992	27312	22833
7/32	.2188	3-3/4	2-1/2	12	24013	20112	25993	27313	22834
15/64	.2344	3-7/8	2-5/8	12	24014	20115	25994	27314	22835
1/4	.2500	4	2-3/4	12	24015	20122	25995	27315	22840
17/64	.2656	4-1/8	2-7/8	12	24020	20130	26000	27320	22841
9/32	.2812	4-1/4	2-15/16	12	24021	20133	26001	27321	22842
19/64	.2969	4-3/8	3-1/16	6	24022	20140	26002	27322	22843
5/16	.3125	4-1/2	3-3/16	6	24023	20143	26003	27323	22844
21/64	.3281	4-5/8	3-5/16	6	24024	20150	26004	27324	22845
11/32	.3438	4-3/4	3-7/16	6	24025	20153	26005	27325	22850
23/64	.3594	4-7/8	3-1/2	6	24030	20160	26010	27330	22851
3/8	.3750	5	3-5/8	6	24031	20162	26011	27331	22852
25/64	.3906	5-1/8	3-3/4	6	24032	20164	26012	27332	22853
13/32	.4062	5-1/4	3-7/8	6	24033	20170	26013	27333	22854
27/64	.4219	5-3/8	3-15/16	6	24034	20171	26014	27334	22855
7/16	.4375	5-1/2	4-1/16	6	24035	20172	26015	27335	22860
29/64	.4531	5-5/8	4-3/16	6	24040	20173	26020	27340	22861
15/32	.4688	5-3/4	4-5/16	6	24041	20174	26021	27341	22862
31/64	.4844	5-7/8	4-3/8	6	24042	20175	26022	27342	22863
1/2	.5000	6	4-1/2	6	24043	20180	26023	27343	22864
33/64	.5156	6-5/8	4-13/16	1	24044	20181			
17/32	.5312	6-5/8	4-13/16	1	24045	20182			
35/64	.5469	6-5/8	4-13/16	1	24050	20183			
9/16	.5625	6-5/8	4-13/16	1	24051	20184			
37/64	.5781	6-5/8	4-13/16	1	24052	20185			
19/32	.5938	7-1/8	5-3/16	1	24053	20190			
39/64	.6094	7-1/8	5-3/16	1	24054	20191			
5/8	.6250	7-1/8	5-3/16	1	24055	20192			
41/64	.6406	7-1/8	5-3/16	1	24060	20193			
21/32	.6562	7-1/8	5-3/16	1	24061	20194			
43/64	.6719	7-5/8	5-5/8	1	24062	20195			
11/16	.6875	7-5/8	5-5/8	1	24063	20200			

# JOBBERS LENGTH TWIST DRILLS

T-105, T-105-T, T405, T-1055, T-805

Straight Shank

Wire Gage Sizes									
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	Surface Treated		Bright Finish		Cobalt
					T-105	T-105-T	T-405	T-1055	T-805
80	.0135	3/4	3/16	12	24195			27551	
79	.0145	3/4	3/16	12	24194			27550	
78	.0160	7/8	3/16	12	24193			27545	
77	.0180	7/8	3/16	12	24192			27544	
76	.0200	7/8	3/16	12	24191			27543	
75	.0210	1	1/4	12	24190			27542	
74	.0225	1	1/4	12	24185			27541	
73	.0240	1-1/8	5/16	12	24184			27540	
72	.0250	1-1/8	5/16	12	24183			27535	
71	.0260	1-1/4	3/8	12	24182			27534	
70	.0280	1-1/4	3/8	12	24181			27533	
69	.0292	1-3/8	1/2	12	24180			27532	
68	.0310	1-3/8	1/2	12	24175			27531	
67	.0320	1-3/8	1/2	12	24174			27530	
66	.0330	1-3/8	1/2	12	24173			27525	
65	.0350	1-1/2	5/8	12	24172			27524	
64	.0360	1-1/2	5/8	12	24171			27523	
63	.0370	1-1/2	5/8	12	24170			27522	
62	.0380	1-1/2	5/8	12	24165			27521	
61	.0390	1-5/8	11/16	12	24164			27520	
60	.0400	1-5/8	11/16	12	24163		25935	27515	22964
59	.0410	1-5/8	11/16	12	24162		25934	27514	22963
58	.0420	1-5/8	11/16	12	24161		25933	27513	22962
57	.0430	1-3/4	3/4	12	24160		25932	27512	22961
56	.0465	1-3/4	3/4	12	24155		25931	27511	22960
55	.0520	1-7/8	7/8	12	24154		25930	27510	22955
54	.0550	1-7/8	7/8	12	24153		25925	27505	22954
53	.0595	1-7/8	7/8	12	24152		25924	27504	22953
52	.0635	1-7/8	7/8	12	24151		25923	27503	22952
51	.0670	2	1	12	24150		25922	27502	22951
50	.0700	2	1	12	24145		25921	27501	22950
49	.0730	2	1	12	24144		25920	27500	22945
48	.0760	2	1	12	24143		25915	27495	22944
47	.0785	2	1	12	24142		25914	27494	22943
46	.0810	2-1/8	1-1/8	12	24141		25913	27493	22942
45	.0820	2-1/8	1-1/8	12	24140		25912	27492	22941
44	.0860	2-1/8	1-1/8	12	24135		25911	27491	22940
43	.0890	2-1/4	1-1/4	12	24134		25910	27490	22935
42	.0935	2-1/4	1-1/4	12	24133		25905	27485	22934
41	.0960	2-3/8	1-3/8	12	24132		25904	27484	22933

# JOBBERS LENGTH TWIST DRILLS

Straight Shank

T-105, T-105-T, T405, T-1055, T-805

Wire Gage Sizes									
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	Surface Treated		Bright Finish		Cobalt
					T-105	T-105-T	T-405	T-1055	T-805
40	.0980	2-3/8	1-3/8	12	24131		25903	27483	22932
39	.0995	2-3/8	1-3/8	12	24130		25902	27482	22931
38	.1015	2-1/2	1-7/16	12	24125		25901	27481	22930
37	.1040	2-1/2	1-7/16	12	24124		25900	27480	22925
36	.1065	2-1/2	1-7/16	12	24123		25895	27475	22924
35	.1100	2-5/8	1-1/2	12	24122		25894	27474	22923
34	.1110	2-5/8	1-1/2	12	24121		25893	27473	22922
33	.1130	2-5/8	1-1/2	12	24120		25892	27472	22921
32	.1160	2-3/4	1-5/8	12	24115		25891	27471	22920
31	.1200	2-3/4	1-5/8	12	24114		25890	27470	22915
30	.1285	2-3/4	1-5/8	12	24113	20071	25885	27465	22914
29	.1360	2-7/8	1-3/4	12	24112	20074	25884	27464	22913
28	.1405	2-7/8	1-3/4	12	24111	25409	25883	27463	22912
27	.1440	3	1-7/8	12	24110	20081	25882	27462	22911
26	.1470	3	1-7/8	12	24105	20082	25881	27461	22910
25	.1495	3	1-7/8	12	24104	25408	25880	27460	22905
24	.1520	3-1/8	2	12	24103	20083	25875	27455	22904
23	.1540	3-1/8	2	12	24102	25407	25874	27454	22903
22	.1570	3-1/8	2	12	24101	25406	25873	27453	22902
21	.1590	3-1/4	2-1/8	12	24100	25746	25872	27452	22901
20	.1610	3-1/4	2-1/8	12	24095	20085	25871	27451	22900
19	.1660	3-1/4	2-1/8	12	24094	20090	25870	27450	22895
18	.1695	3-1/4	2-1/8	12	24093	20091	25865	27445	22894
17	.1730	3-3/8	2-3/16	12	24092	20093	25864	27444	22893
16	.1770	3-3/8	2-3/16	12	24091	20094	25863	27443	22892
15	.1800	3-3/8	2-3/16	12	24090	20095	25862	27442	22891
14	.1820	3-3/8	2-3/16	12	24085	25739	25861	27441	22890
13	.1850	3-1/2	2-5/16	12	24084	20100	25860	27440	22885
12	.1890	3-1/2	2-5/16	12	24083	25738	25855	27435	22884
11	.1910	3-1/2	2-5/16	12	24082	20102	25854	27434	22883
10	.1935	3-5/8	2-7/16	12	24081	20103	25853	27433	22882
9	.1960	3-5/8	2-7/16	12	24080	20104	25852	27432	22881
8	.1990	3-5/8	2-7/16	12	24075	20105	25851	27431	22800
7	.2010	3-5/8	2-7/16	12	24074	25737	25850	27430	22875
6	.2040	3-3/4	2-1/2	12	24073	25736	25845	27425	22874
5	.2055	3-3/4	2-1/2	12	24072	25729	25844	27424	22873
4	.2090	3-3/4	2-1/2	12	24071	20110	25843	27423	22872
3	.2130	3-3/4	2-1/2	12	24070	20111	25842	27422	22871
2	.2210	3-7/8	2-5/8	12	24065	25399	25841	27421	22870
1	.2280	3-7/8	2-5/8	12	24064	20114	25840	27420	22865

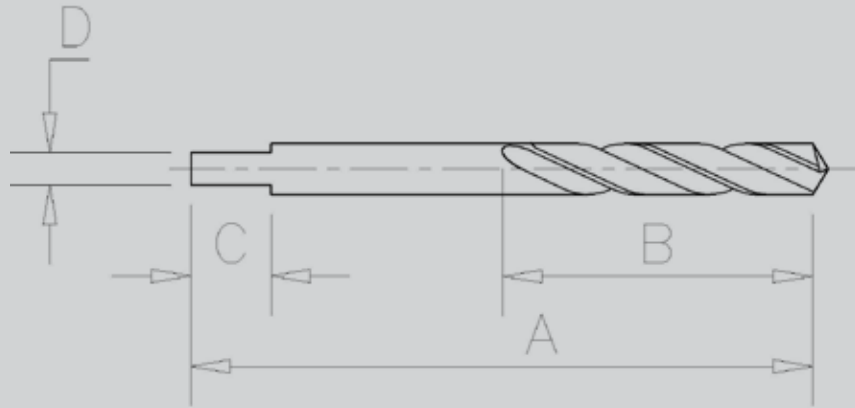
# JOBBERS LENGTH TWIST DRILLS

T-105, T-105-T, T-405, T-1055, T-805

Straight Shank

Letter Sizes									
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	Surface Treated		Bright Finish		Cobalt
					T-105	T-105-T	T-405	T-1055	T-805
A	.234	3-7/8	2-5/8	12	24200	25748	25794	27752	29892
B	.238	4	2-3/4	12	24201	25749	25795	27753	29893
C	.242	4	2-3/4	12	24202	25756	25800	27754	29894
D	.246	4	2-3/4	12	24203	20121	25801	27755	29895
E	.250	4	2-3/4	12	24015	20122	25995	27315	22840
F	.257	4-1/8	2-7/8	12	24205	20003	25803	27761	29901
G	.261	4-1/8	2-7/8	12	24210	20125	25804	27762	29902
H	.266	4-1/8	2-7/8	12	24211	25758	25805	27763	29903
I	.272	4-1/8	2-7/8	12	24212	20131	25810	27764	29904
J	.277	4-1/8	2-7/8	12	24213	20132	25811	27765	29905
K	.281	4-1/4	2-15/16	12	24214	25416	25812	27770	29910
L	.290	4-1/4	2-15/16	12	24215	25417	25813	27771	29911
M	.295	4-3/8	3-1/16	6	24220	25418	25814	27772	29912
N	.302	4-3/8	3-1/16	6	24221	20141	25815	27773	29913
O	.316	4-1/2	3-3/16	6	24222	20144	25820	27774	29914
P	.323	4-5/8	3-5/16	6	24223	20145	25821	27775	29915
Q	.332	4-3/4	3-7/16	6	24224	20151	25822	27780	29920
R	.339	4-3/4	3-7/16	6	24225	20152	25823	27781	29921
S	.348	4-7/8	3-1/2	6	24230	20154	25824	27782	29922
T	.358	4-7/8	3-1/2	6	24231	25419	25825	27783	29923
U	.368	5	3-5/8	6	24232	20161	25830	27784	29924
V	.377	5	3-5/8	6	24233	25759	25831	27785	29925
W	.386	5-1/8	3-3/4	6	24234	20163	25832	27790	29930
X	.397	5-1/8	3-3/4	6	24235	20165	25833	27791	29931
V	.404	5-1/4	3-7/8	6	24240	25766	25834	27792	29932
Z	.413	5-1/4	3-7/8	6	24241	25767	25835	27793	29933

# TANG DIMENSIONS FOR STRAIGHT SHANK DRILLS



Size (Decimal Diameter)	Length of Tang C	Thickness of Tang D	
		Max.	Min.
1/8 (.1250) through 3/16 (.1875)	9/32	.094	.090
Over 3/16 (.1875) through 1/4 (.2500)	5/16	.122	.118
Over 1/4 (.2500) through 5/16 (.3125)	11/32	.162	.158
Over 5/16 (.3125) through 3/8 (.3750)	3/8	.203	.199
Over 3/8 (.3750) through 15/32 (.4688)	7/16	.243	.239
Over 15/32 (.4688) through 9/16 (.5625)	1/2	.303	.297
Over 9/16 (.5625) through 21/32 (.6562)	9/16	.373	.367
Over 21/32 (.6562) through 3/4 (.7500)	5/8	.443	.437
Over 3/4 (.7500) through 7/8 (.8750)	11/16	.514	.508
Over 7/8 (.8750) through 1 (1.0000)	3/4	.609	.601
Over 1 (1.0000) through 1-3/16 (1.1875)	13/16	.700	.692
Over 1-3/16 (1.1875) through 1-3/8 (1.3750)	7/8	.817	.809



# JOBBERS LENGTH TWIST DRILLS

T-105

Metric Sizes  
Straight Shank – Surface Treated

## Straight Shank – High Speed Steel

Recognizing the growing need and demand for metric size drills, Besly has expanded its size range to include popular jobber drills from .95 mm through 17.50 mm. Supplied in general purpose plain shank style.

## Surface Treated – No. T-105 General Purpose

Designed with a conventional spiral to perform under as many different conditions as possible. May be used as a high production tool for all jobs except those in which unusual material or setup present difficult machining problems, requiring heavy duty construction.

Metric Sizes											
Size mm	Decimal Equiv.	Overall Length A mm	Flute Length B mm	Std. Pkg. Qty.	EDP No.	Size mm	Decimal Equiv.	Overall Length A mm	Flute Length B mm	Std. Pkg. Qty.	EDP No.
					T-105						T-105
0.95	.0374	38	16	12	24450	2.40	.0945	60	35	12	24495
1.00	.0394	41	18	12	24451	2.45	.0965	60	35	12	24500
1.05	.0413	41	18	12	24452	2.50	.0984	60	35	12	24501
1.10	.0433	44	19	12	24453	2.60	.1024	64	37	12	24502
1.15	.0453	44	19	12	24454	2.70	.1063	64	37	12	24503
1.20	.0472	48	22	12	24455	2.80	.1102	67	38	12	24505
1.25	.0492	48	22	12	24460	2.90	.1142	70	41	12	24510
1.30	.0512	48	22	12	24461	3.00	.1181	70	41	12	24511
1.35	.0531	48	22	12	24462	3.10	.1220	70	41	12	24512
1.40	.0551	48	22	12	24463	3.20	.1260	70	41	12	24513
1.45	.0571	48	22	12	24464	3.30	.1299	73	45	12	24515
1.50	.0591	48	22	12	24465	3.40	.1339	73	45	12	24520
1.55	.0610	48	22	12	24470	3.50	.1378	73	45	12	24521
1.60	.0630	48	22	12	24471	3.60	.1417	76	48	12	24522
1.65	.0650	51	25	12	24472	3.70	.1457	76	48	12	24523
1.70	.0669	51	25	12	24473	3.80	.1496	79	51	12	24525
1.75	.0689	51	25	12	24474	3.90	.1535	79	51	12	24530
1.80	.0709	51	25	12	24475	4.00	.1575	83	54	12	24531
1.85	.0728	51	25	12	24480	4.10	.1614	83	54	12	24532
1.90	.0748	51	25	12	24481	4.20	.1654	83	54	12	24533
1.95	.0768	51	25	12	24482	4.30	.1693	83	54	12	24535
2.00	.0787	54	29	12	24483	4.40	.1732	86	56	12	24540
2.05	.0807	54	29	12	24484	4.50	.1772	86	56	12	24541
2.10	.0827	54	29	12	24485	4.60	.1811	86	56	12	24542
2.15	.0846	54	29	12	24490	4.70	.1850	89	59	12	24543
2.20	.0866	57	32	12	24491	4.80	.1890	89	59	12	24545
2.25	.0886	57	32	12	24492	4.90	.1929	92	62	12	24550
2.30	.0906	57	32	12	24493	5.00	.1968	92	62	12	24551
2.35	.0925	57	32	12	24494	5.10	.2008	92	62	12	24552

# JOBBER LENGTH TWIST DRILLS

Metric Sizes  
Straight Shank – Surface Treated

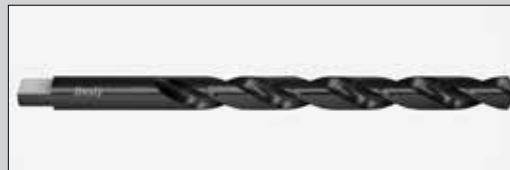
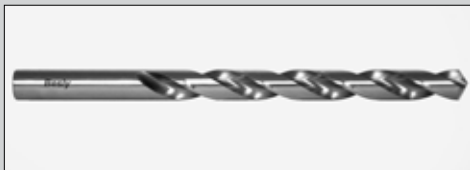
T-105

Size mm	Decimal Equiv.	Overall Length A mm	Flute Length B mm	Std. Pkg. Qty.	EDP No. T-105	Size mm	Decimal Equiv.	Overall Length A mm	Flute Length B mm	Std. Pkg. Qty.	EDP No. T-105
5.20	.2047	95	64	12	24553	9.20	.3622	127	92	6	24633
5.30	.2087	95	64	12	24555	9.30	.3661	127	92	6	24635
5.40	.2126	95	64	12	24560	9.40	.3701	127	92	6	24640
5.50	.2165	95	64	12	24561	9.50	.3740	127	92	6	24641
5.60	.2205	98	67	12	24562	9.60	.3780	130	95	6	24642
5.70	.2244	98	67	12	24563	9.70	.3819	130	95	6	24643
5.80	.2283	98	67	12	24565	9.80	.3858	130	95	6	24645
5.90	.2323	98	67	12	24570	9.90	.3898	130	95	6	24650
6.00	.2362	102	70	12	24571	10.00	.3937	130	95	6	24651
6.10	.2402	102	70	12	24572	10.20	.4016	133	98	6	27107
6.20	.2441	102	70	12	24573	10.50	.4134	137	100	6	24652
6.30	.2480	102	70	12	24575	10.80	.4252	140	103	6	27108
6.40	.2520	105	73	12	24580	11.00	.4331	140	103	6	24653
6.50	.2559	105	73	12	24581	11.20	.4409	143	106	6	27109
6.60	.2598	105	73	12	24582	11.50	.4528	143	106	6	24654
6.70	.2638	105	73	12	24583	11.80	.4646	146	110	6	27116
6.80	.2677	105	73	12	24585	12.00	.4724	150	111	6	24655
6.90	.2717	105	73	12	24590	12.20	.4803	150	111	6	27117
7.00	.2756	105	73	12	24591	12.50	.4921	152	114	6	24660
7.10	.2795	108	75	12	24592	12.80	.5039	168	122	1	27118
7.20	.2835	108	75	12	24593	13.00	.5118	168	122	1	27119
7.30	.2874	108	75	12	24595	13.20	.5197	168	122	1	27126
7.40	.2913	111	78	6	24600	13.50	.5315	168	122	1	27127
7.50	.2953	111	78	6	24601	13.80	.5433	168	122	1	27128
7.60	.2992	111	78	6	24602	14.00	.5512	168	122	1	27129
7.70	.3031	114	81	6	24603	14.25	.5610	168	122	1	27136
7.80	.3071	114	81	6	24605	14.50	.5709	168	122	1	27137
7.90	.3110	114	81	6	24610	14.75	.5807	181	132	1	27138
8.00	.3150	114	81	6	24611	15.00	.5906	181	132	1	27139
8.10	.3189	117	84	6	24612	15.25	.6004	181	132	1	27146
8.20	.3228	117	84	6	24613	15.50	.6102	181	132	1	27147
8.30	.3268	117	84	6	24615	15.75	.6201	181	132	1	27148
8.40	.3307	121	87	6	24620	16.00	.6299	181	132	1	27149
8.50	.3346	121	87	6	24621	16.25	.6398	181	132	1	27156
8.60	.3386	121	87	6	24622	16.50	.6496	181	132	1	27157
8.70	.3425	121	87	6	24623	16.75	.6594	194	143	1	27158
8.80	.3465	124	89	6	24625	17.00	.6693	194	143	1	27159
8.90	.3504	124	89	6	24630	17.25	.6791	194	143	1	27166
9.00	.3543	124	89	6	24631	17.50	.6890	194	143	1	27167
9.10	.3583	124	89	6	24632						

# TAPER LENGTH TWIST DRILLS

T-102 &amp; T-102-T

Long Series – Straight Shank



## Bright Finish

### No. T-102 General Purpose

For use on jobs where extended drill length is needed to produce deeper holes or where longer reach is required. Shank diameter is same as drill size. Sizes 33/64" and larger are supplied surface treated.

## Surface Treated

### No. T-102-T Tanged, Automotive Series

Same dimensions and design as T-102, but with tangs to fit drill holders for the purpose of driving the drill. For tang dimensions see page 14.

Fractional Sizes													
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number		Size mm	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number	
					Bright Finish	Surface Treated						Bright Finish	Surface Treated
					T-102	T-102-T						T-102	T-102-T
3/64	.0469	2-1/4	1-1/8	12	23406		13/32	.4062	7	4-3/8	6	25591	20231
1/16	.0625	3	1-3/4	12	23407		27/64	.4219	7-1/4	4-5/8	6	25592	20232
5/64	.0781	3-3/4	2	12	23408		7/16	.4375	7-1/4	4-5/8	6	25593	20233
3/32	.0938	4-1/4	2-1/4	12	23409		29/64	.4531	7-1/2	4-3/4	6	25594	20234
7/64	.1094	4-5/8	2-1/2	15	23416		15/32	.4688	7-1/2	4-3/4	6	25595	20235
1/8	.1250	5-1/8	2-3/4	12	25561	20201	31/64	.4844	7-3/4	4-3/4	6	25600	20240
9/64	.1406	5-3/8	3	12	25562	20202	1/2	.5000	7-3/4	4-3/4	6	25601	20241
5/32	.1562	5-3/8	3	12	25563	20203	33/64	.5156	8	4-3/4	1	25602	20242
11/64	.1719	5-3/4	3-3/8	12	25564	20204	17/32	.5312	8	4-3/4	1	25603	20243
3/16	.1875	5-3/4	3-3/8	12	25565	20205	35/64	.5469	8-1/4	4-7/8	1	25604	20244
13/64	.2031	6	3-5/8	12	25570	20210	9/16	.5625	8-1/4	4-7/8	1	25605	20245
7/32	.2188	6	3-5/8	12	25571	20211	37/64	.5781	8-3/4	4-7/8	1	25610	20250
15/64	.2344	6-1/8	3-3/4	12	25572	20212	19/32	.5938	8-3/4	4-7/8	1	25611	20251
1/4	.2500	6-1/8	3-3/4	12	25573	20213	39/64	.6094	8-3/4	4-7/8	1	25612	20252
17/64	.2656	6-1/4	3-7/8	12	25574	20214	5/8	.6250	8-3/4	4-7/8	1	25613	20253
9/32	.2812	6-1/4	3-7/8	12	25575	20215	41/64	.6406	9	5-1/8	1	25614	20254
19/64	.2969	6-3/8	4	6	25580	20220	21/32	.6562	9	5-1/8	1	25615	20255
5/16	.3125	6-3/8	4	6	25581	20221	43/64	.6719	9-1/4	5-3/8	1	25620	20260
21/64	.3281	6-1/2	4-1/8	6	25582	20222	11/16	.6875	9-1/4	5-3/8	1	25621	20261
11/32	.3438	6-1/2	4-1/8	6	25583	20223	45/64	.7031	9-1/2	5-5/8	1	25622	
23/64	.3594	6-3/4	4-1/4	6	25584	20224	23/32	.7188	9-1/2	5-5/8	1	25623	
3/8	.3750	6-3/4	4-1/4	6	25585	20225	47/64	.7344	9-3/4	5-7/8	1	25624	
25/64	.3906	7	4-3/8	6	25590	20230							

**TAPER LENGTH TWIST DRILLS**

Long Series – Straight Shank

T-102

Fractional Sizes											
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP No.	Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP No.
					T-102						T-102
3/4	.7500	9-3/4	5-7/8	1	25625	1-3/32	1.0938	11-1/2	6-7/8	1	25663
49/64	.7656	9-7/8	6	1	25630	1-7/64	1.1094	11-3/4	7-1/8	1	25664
25/32	.7812	9-7/8	6	1	25631	1-1/8	1.1250	11-3/4	7-1/8	1	25665
51/64	.7969	10	6-1/8	1	25632	1-9/64	1.1406	11-7/8	7-1/4	1	25670
13/16	.8125	10	6-1/8	1	25633	1-5/32	1.1562	11-7/8	7-1/4	1	25671
53/64	.8281	10	6-1/8	1	25634	1-11/64	1.1719	12	7-3/8	1	25672
27/32	.8438	10	6-1/8	1	25635	1-3/16	1.1875	12	7-3/8	1	25673
55/64	.8594	10	6-1/8	1	25640	1-13/16	1.2031	12-1/8	7-1/2	1	25674
7/8	.8750	10	6-1/8	1	25641	1-7/32	1.2188	12-1/8	7-1/2	1	25675
57/64	.8906	10	6-1/8	1	25642	1-15/64	1.2344	12-1/2	7-7/8	1	25680
29/32	.9062	10	6-1/8	1	25643	1-1/4	1.2500	12-1/2	7-7/8	1	25681
59/64	.9219	10-3/4	6-1/8	1	25644	1-9/32	1.2812	14-1/8	8-1/2	1	25682
15/16	.9375	10-3/4	6-1/8	1	25645	1-5/16	1.3125	14-1/4	8-5/8	1	25683
61/64	.9537	11	6-3/8	1	25650	1-11/32	1.3438	14-3/8	8-3/4	1	25684
31/32	.9688	11	6-3/8	1	25651	1-3/8	1.3750	14-1/2	8-7/8	1	25685
63/64	.9844	11	6-3/8	1	25652	1-13/32	1.4062	14-5/8	9	1	25690
1	1.0000	11	6-3/8	1	25653	1-7/16	1.4375	14-3/4	9-1/8	1	25691
1-1/64	1.0151	11-1/8	6-1/2	1	25654	1-15/32	1.4688	14-7/8	9-1/4	1	25692
1-1/32	1.0312	11-1/8	6-1/2	1	25655	1-1/2	1.5000	15	9-3/8	1	25693
1-3/64	1.0469	11-1/4	6-5/8	1	25660	1-9/16	1.5625	15-1/4	9-5/8	1	25694
1-1/16	1.0625	11-1/4	6-5/8	1	25661	1-5/8	1.6250	15-5/8	9-7/8	1	25695
1-5/64	1.0781	11-1/2	6-7/8	1	25662	1-3/4	1.7500	16-1/4	10-1/2	1	25701

# TAPER LENGTH TWIST DRILLS

T-102

Long Series – Straight Shank

## Bright Finish

### No. T-102 General Purpose

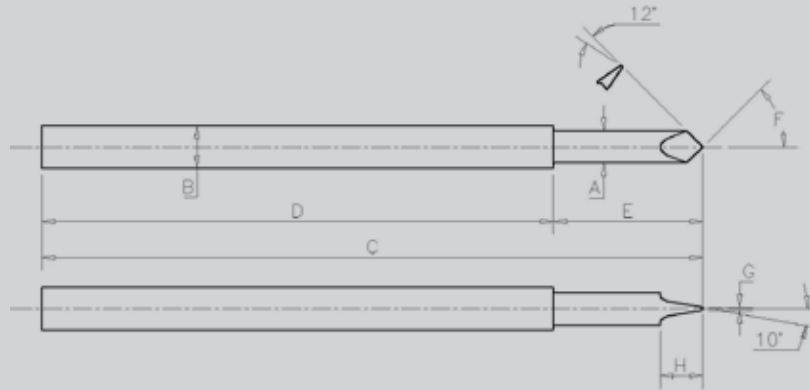
For use on jobs where extended drill length is needed to produce deeper holes or where longer reach is required. Shank diameter is same as drill size.



Wire Gage Sizes											
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP No.	Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP No.
					T-102						T-102
60	.0400	2-1/4	1-1/8	12	25257	30	.1285	5-3/8	3	12	25227
59	.0410	2-1/4	1-1/8	12	25256	29	.1360	5-3/8	3	12	25226
58	.0420	2-1/4	1-1/8	12	25518	28	.1405	5-3/8	3	12	25476
57	.0430	2-1/4	1-1/8	12	25517	27	.1440	5-3/8	3	12	25469
56	.0465	2-1/4	1-1/8	12	25516	26	.1470	5-3/8	3	12	25468
55	.0520	3	1-3/4	12	25509	25	.1495	5-3/8	3	12	25467
54	.0550	3	1-3/4	12	25508	24	.1520	5-3/8	3	12	25466
53	.0595	3	1-3/4	12	25507	23	.1540	5-3/8	3	12	25459
52	.0635	3-3/4	2	12	25249	22	.1570	5-3/4	3-3/8	12	25219
51	.0670	3-3/4	2	12	25248	21	.1590	5-3/4	3-3/8	12	25218
50	.0700	3-3/4	2	12	25247	20	.1610	5-3/4	3-3/8	12	25217
49	.0730	3-3/4	2	12	25246	19	.1660	5-3/4	3-3/8	12	25216
48	.0760	3-3/4	2	12	25506	18	.1695	5-3/4	3-3/8	12	25458
47	.0785	4-1/4	2-1/4	12	25499	17	.1730	5-3/4	3-3/8	12	25457
46	.0810	4-1/4	2-1/4	12	25498	16	.1770	5-3/4	3-3/8	12	25456
45	.0820	4-1/4	2-1/4	12	25497	15	.1800	5-3/4	3-3/8	12	25449
44	.0860	4-1/4	2-1/4	12	25496	14	.1820	5-3/4	3-3/8	12	25448
43	.0890	4-1/4	2-1/4	12	25489	13	.1850	5-3/4	3-3/8	12	25447
42	.0935	4-1/4	2-1/4	12	25239	12	.1890	6	3-5/8	12	25209
41	.0960	4-5/8	2-1/2	12	25238	11	.1910	6	3-5/8	12	25208
40	.0980	4-5/8	2-1/2	12	25237	10	.1935	6	3-5/8	12	25207
39	.0995	4-5/8	2-1/2	12	25236	9	.1960	6	3-5/8	12	25206
38	.1015	4-5/8	2-1/2	12	25488	8	.1990	6	3-5/8	12	25446
37	.1040	4-5/8	2-1/2	12	25487	7	.2010	6	3-5/8	12	25439
36	.1065	4-5/8	2-1/2	12	25486	6	.2040	6	3-5/8	12	25438
35	.1100	5-1/8	2-3/4	12	25479	5	.2055	6	3-5/8	12	25437
34	.1110	5-1/8	2-3/4	12	25478	4	.2090	6	3-5/8	12	25436
33	.1130	5-1/8	2-3/4	12	25477	3	.2130	6	3-5/8	12	25199
32	.1160	5-1/8	2-3/4	12	25229	2	.2210	6-1/8	3-3/4	12	25198
31	.1200	5-1/8	2-3/4	12	25228	1	.2280	6-1/8	3-3/4	12	25197

# SPOTTING, CENTERING AND CHAMFERING DRILLS

Provides N/C machining centers with a two-fold advantage of accurately spotting holes to be drilled, plus chamfering of drilled holes.

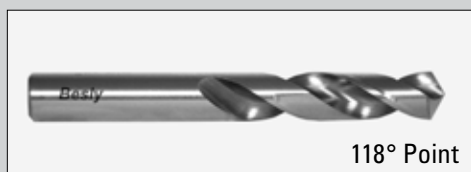


Size	A	B	C	D	E	F	G	H	Std. Pkg. Qty.	EPD No.
3/8	.3750	.5000 .4995	7.75	6.00	1.75	45°	.03	.50	1	28048
3/8	.3750	.5000 .4995	7.75	6.00	1.75	59°	.03	.50	1	28049
1/2	.5000 .4995	.5000 .4995	7.75			45°	.03	.75	1	28046
1/2	.5000 .4995	.5000 .4995	7.75			59°	.03	.75	1	28047
3/4	.7500 .7495	.7500 .7495	7.50			45°	.04	1.00	1	28056
3/4	.7500 .7495	.7500 .7495	7.50			59°	.04	1.00	1	28057
1	1.0000 .9995	1.0000 .9995	8.50			45°	.06	1.50	1	28058
1	1.0000 .9995	1.0000 .9995	8.50			59°	.06	1.50	1	28059

# SCREW MACHINE TWIST DRILLS

T-122 &amp; T-190

Straight Shank



118° Point



135° Split Point

## Bright Finish

### No. T-122

Designed for use on automatic screw machines. Short flutes and short overall length provide economy and maximum rigidity without sacrificing cutting ability. Sizes over 1" furnished with reduced shanks. Sizes 33/64" and larger are supplied surface treated.

## Surface Treated

### No. T-190 Aircraft Drill, Type C

Made to A.I.A. NAS-907 Type C Standards for Aircraft Drills. Designed for use in portable power tools or machines for drilling holes in hard and tough sheet metal alloys of the heat resistant, stainless, and titanium types. Sturdy construction with split point for ease of penetration. Popular in automobile body work and in the construction industry.

### Fractional Sizes

Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number		Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number	
					Bright Finish	Surface Treated						Bright Finish	Surface Treated
					T-122	T-190						T-122	T-190
3/64	.0469	1-3/8	1/2	12	26480		9/32	.2812	2-11/16	1-1/2	12	26503	23569
1/16	.0625	1-5/8	5/8	12	26481		19/64	.2969	2-3/4	1-9/16	6	26504	23576
5/64	.0781	1-11/16	11/16	12	26482		5/16	.3125	2-13/16	1-5/8	6	26505	23577
3/32	.0938	1-3/4	3/4	12	26483		21/64	.3281	2-15/16	1-11/16	6	26510	23578
7/64	.1094	1-13/16	13/16	12	26484	23546	11/32	.3438	3	1-11/16	6	26511	23579
1/8	.1250	1-7/8	7/8	12	26485	23547	23/64	.3594	3-1/16	1-3/4	6	26512	23586
9/64	.1406	1-15/16	15/16	12	26490	23548	3/8	.3750	3-1/8	1-13/16	6	26513	23587
5/32	.1562	2-1/16	1	12	26491	23549	25/64	.3906	3-1/4	1-7/8	6	26514	23588
11/64	.1719	2-1/8	1-1/16	12	26492	23556	13/32	.4062	3-5/16	1-15/16	6	26515	23589
3/16	.1875	2-3/16	1-1/8	12	26493	23557	27/64	.4219	3-3/8	2	6	26520	23596
13/64	.2031	2-1/4	1-3/16	12	26494	23558	7/16	.4375	3-7/16	2-1/16	6	26521	23597
7/32	.2188	2-3/8	1-1/4	12	26495	23559	29/64	.4531	3-9/16	2-1/8	6	26522	23598
15/64	.2344	2-7/16	1-5/16	12	26500	23566	15/32	.4688	3-5/8	2-1/8	6	26523	23599
1/4	.2500	2-1/2	1-3/8	12	26501	23567	31/64	.4844	3-11/16	2-3/16	6	26524	23606
17/64	.2656	2-5/8	1-7/16	12	26502	23568	1/2	.5000	3-3/4	2-1/4	6	26525	23607

# SCREW MACHINE TWIST DRILLS

Straight Shank

T-122

Fractional Sizes															
Size	Decimal Equiv.	Overall Length A	Flute Length B	Shank Dia. C	Shank Length D	Std. Pkg. Qty.	EDP Number	Size	Decimal Equiv.	Overall Length A	Flute Length B	Shank Dia. C	Shank Length D	Std. Pkg. Qty.	EDP Number
							T-122								T-122
33/64	.5156	3-7/8	2-3/8			1	26710	57/64	.8906	5-5/8	3-5/8			1	26750
17/32	.5312	3-7/8	2-3/8			1	26711	29/32	.9062	5-5/8	3-5/8			1	26751
35/64	.5469	4	2-1/2			1	26712	59/64	.9219	5-3/4	3-3/4			1	26752
9/16	.5625	4	2-1/2			1	26713	15/16	.9375	5-3/4	3-3/4			1	26753
37/64	.5781	4-1/8	2-5/8			1	26714	61/64	.9531	5-7/8	3-7/8			1	26754
19/32	.5938	4-1/8	2-5/8			1	26715	31/32	.9688	5-7/8	3-7/8			1	26755
39/64	.6094	4-1/4	2-3/4			1	26720	63/64	.9844	6	4			1	26760
5/8	.6250	4-1/4	2-3/4			1	26721	1	1.0000	6	4			1	26761
41/64	.6406	4-1/2	2-7/8			1	26722	1-1/16	1.0625	6-1/4	4	1	2-1/4	1	26762
21/32	.6562	4-1/2	2-7/8			1	26723	1-1/8	1.1250	6-3/8	4	1	2-1/4	1	26763
43/64	.6719	4-5/8	2-7/8			1	26724	1-3/16	1.1875	6-5/8	4-1/4	1	2-1/4	1	26764
11/16	.6875	4-5/8	2-7/8			1	26725	1-1/4	1.2500	6-3/4	4-3/8	1	2-1/4	1	26765
45/64	.7031	4-3/4	3			1	26730	1-5/16	1.3125	7	4-3/8	1-1/4	2-1/2	1	26770
23/32	.7188	4-3/4	3			1	26731	1-3/8	1.3750	7-1/8	4-1/2	1-1/4	2-1/2	1	26771
47/64	.7344	5	3-1/8			1	26732	1-7/16	1.4375	7-3/8	4-3/4	1-1/4	2-1/2	1	26772
3/4	.7500	5	3-1/8			1	26733	1-1/2	1.5000	7-1/2	4-7/8	1-1/4	2-1/2	1	26773
49/64	.7656	5-1/8	3-1/4			1	26734	1-9/16	1.5625	7-3/4	4-7/8	1-1/2	2-3/4	1	26774
25/32	.7812	5-1/8	3-1/4			1	26735	1-5/8	1.6250	7-3/4	4-7/8	1-1/2	2-3/4	1	26775
51/64	.7969	5-1/4	3-3/8			1	26740	1-11/16	1.6875	8	5-1/8	1-1/2	2-3/4	1	26780
13/16	.8125	5-1/4	3-3/8			1	26741	1-3/4	1.7500	8	5-1/8	1-1/2	2-3/4	1	26781
53/64	.8281	5-3/8	3-1/2			1	26742	1-13/16	1.8125	8-1/4	5-3/8	1-1/2	2-3/4	1	26782
27/32	.8438	5-3/8	3-1/2			1	26743	1-7/8	1.8750	8-1/4	5-3/8	1-1/2	2-3/4	1	26783
55/64	.8594	5-1/2	3-1/2			1	26744	1-15/16	1.9375	8-1/2	5-5/8	1-1/2	2-3/4	1	26784
7/8	.8750	5-1/2	3-1/2			1	26745	2	2.0000	8-1/2	5-5/8	1-1/2	2-3/4	1	26785



# SCREW MACHINE TWIST DRILLS

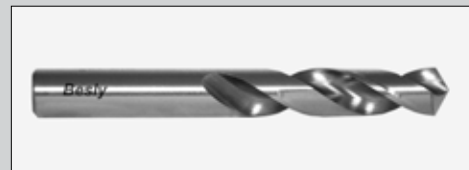
T-122

Straight Shank

## Bright Finish

### No. T-122

Designed for use on automatic screw machines. Short flutes and short overall length provide economy and maximum rigidity without sacrificing cutting ability.



Letter Sizes											
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP No.	Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP No.
					T-122						T-122
A	.234	2-7/16	1-5/16	12	26622	N	.302	2-13/16	1-5/8	6	26643
B	.238	2-1/2	1-3/8	12	26623	O	.316	2-15/16	1-11/16	6	26644
C	.242	2-1/2	1-3/8	12	26624	P	.323	2-15/16	1-11/16	6	26645
D	.246	2-1/2	1-3/8	12	26625	Q	.332	3	1-11/16	6	26650
E	.250	2-1/2	1-3/8	12	26501	R	.339	3	1-11/16	6	26651
F	.257	2-5/8	1-7/16	12	26631	S	.348	3-1/16	1-3/4	6	26652
G	.216	2-5/8	1-7/16	12	26632	T	.358	3-1/16	1-3/4	6	26653
H	.266	2-11/16	1-1/2	12	26633	U	.368	3-1/8	1-13/16	6	26654
I	.272	2-11/16	1-1/2	12	26634	V	.377	3-1/4	1-7/8	6	26655
J	.277	2-11/16	1-1/2	12	26635	W	.386	3-1/4	1-7/8	6	26660
K	.281	2-11/16	1-1/2	12	26640	X	.397	3-5/16	1-15/16	6	26661
L	.290	2-3/4	1-9/16	12	26641	Y	.404	3-5/16	1-15/16	6	26662
M	.295	2-3/4	1-9/16	6	26642	Z	.413	3-3/8	2	6	26663

# SCREW MACHINE TWIST DRILLS

Straight Shank

T-122 & T-190

**Bright Finish**  
No. T-122, 118° Point

**Surface Treated**  
No. T-190 Aircraft Drill, Type C, 135° Split Point

Wire Gage Sizes													
Size	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number		Size mm	Decimal Equiv.	Overall Length A	Flute Length B	Std. Pkg. Qty.	EDP Number	
					Bright Finish	Surface Treated						Bright Finish	Surface Treated
					T-122	T-190						T-122	T-190
60	.0400	1-3/8	1/2	12	26311		30	.1285	1-15/16	15/16	12	26261	23478
59	.0410	1-3/8	1/2	12	26310		29	.1360	1-15/16	15/16	12	26260	23479
58	.0420	1-3/8	1/2	12	26305		28	.1405	1-15/16	15/16	12	26255	23486
57	.0430	1-3/8	1/2	12	26304		27	.1440	2-1/16	1	12	26254	23487
56	.0465	1-3/8	1/2	12	26303		26	.1470	2-1/16	1	12	26253	23488
55	.0520	1-5/8	5/8	12	26302		25	.1495	2-1/16	1	12	26252	23489
54	.0550	1-5/8	5/8	12	26301		24	.1520	2-1/16	1	12	26251	23496
53	.0595	1-5/8	5/8	12	26300		23	.1540	2-1/16	1	12	26250	23497
52	.0635	1-11/16	11/16	12	26295		22	.1570	2-1/8	1-1/16	12	26245	23498
51	.0670	1-11/16	11/16	12	26294		21	.1590	2-1/8	1-1/16	12	26244	23499
50	.0700	1-11/16	11/16	12	26293		20	.1610	2-1/8	1-1/16	12	26243	23506
49	.0730	1-11/16	11/16	12	26292		19	.1660	2-1/8	1-1/16	12	26242	23507
48	.0760	1-11/16	11/16	12	26291		18	.1695	2-1/8	1-1/16	12	26241	23508
47	.0785	1-3/4	3/4	12	26290		17	.1730	2-3/16	1-1/8	12	26240	23509
46	.0810	1-3/4	3/4	12	26285		16	.1770	2-3/16	1-1/8	12	26235	23516
45	.0820	1-3/4	3/4	12	26284		15	.1800	2-3/16	1-1/8	12	26234	23517
44	.0860	1-3/4	3/4	12	26283		14	.1820	2-3/16	1-1/8	12	26233	23518
43	.0890	1-3/4	3/4	12	26282		13	.1850	2-3/16	1-1/8	12	26232	23519
42	.0935	1-3/4	3/4	12	26281		12	.1890	2-1/4	1-3/16	12	26231	23526
41	.0960	1-13/16	13/16	12	26280		11	.1910	2-1/4	1-3/16	12	26230	23527
40	.0980	1-13/16	13/16	12	26275	23456	10	.1935	2-1/4	1-3/16	12	26225	23528
39	.0995	1-13/16	13/16	12	26274	23457	9	.1960	2-1/4	1-3/16	12	26224	23529
38	.1015	1-13/16	13/16	12	26273	23458	8	.1990	2-1/4	1-3/16	12	26223	23997
37	.1040	1-13/16	13/16	12	26272	23459	7	.2010	2-1/4	1-3/16	12	26222	23998
36	.1065	1-13/16	13/16	12	26271	23466	6	.2040	2-3/8	1-1/4	12	26221	23999
35	.1100	1-7/8	7/8	12	26270	23467	5	.2055	2-3/8	1-1/4	12	26220	24006
34	.1110	1-7/8	7/8	12	26265	23468	4	.2090	2-3/8	1-1/4	12	26215	23536
33	.1130	1-7/8	7/8	12	26264	23469	3	.2130	2-3/8	1-1/4	12	26214	23537
32	.1160	1-7/8	7/8	12	26263	23476	2	.2210	2-7/16	1-5/16	12	26213	23538
31	.1200	1-7/8	7/8	12	26262	23477	1	.2280	2-7/16	1-5/16	12	26212	23539

# High Speed Steel SCREW MACHINE TWIST DRILL SETS

T-125

Straight Shank

**Bright Finish**

**No. T-125**

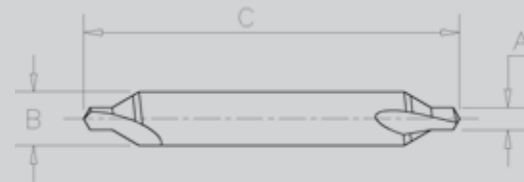
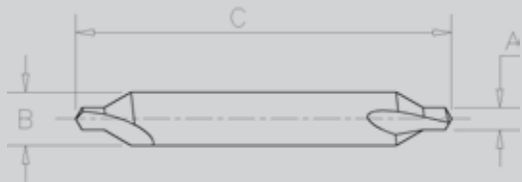
Fractional Sizes				
Size	Drills Only		Complete with Case	
	Set No.	EDP No.	Set No.	EDP No.
1/16" through 1/2" by 64ths of an inch	T-282	25169	T-282C	25176



# COMBINED DRILLS & COUNTERSINKS

Double End – Straight Shank

T-174 PLAIN & BELL



## Bright Finish

### No. T-174 Plain Type

Used for centering the ends of work where the work is subsequently revolved on machine centers. The angle of the countersink part is made the standard 60° included angle to fit standard centers.

### No. T-174 Bell Type

Preferred by some users on precision work. Additional small 120° angular chamfer protects edges of the center hole and reduces danger of inaccuracies from marred center holes.

Plain Type						Bell Type					
Size	Drill Diameter A	Body Diameter B	Overall Length C	Std. Pkg. Qty.	EDP No. T-174	Size	Drill Diameter A	Body Diameter B	Overall Length C	Std. Pkg. Qty.	EDP No. T-174
00	.025	1/8	1-7/32	12	23448	11	3/64	1/8	1-1/4	12	26874
0	1/32	1/8	1-7/32	12	23449	12	1/16	3/16	1-7/8	12	26875
1	3/64	1/8	1-1/4	12	26890	13	3/32	1/4	2	12	26880
2	5/64	3/16	1-7/8	12	26891	14	7/64	5/16	2-1/8	12	26881
3	7/64	1/4	2	12	26892	15	5/32	7/16	2-3/8	12	26882
4	1/8	5/16	2-1/8	12	26893	16	3/16	1/2	3	12	26883
5	3/16	7/16	2-3/4	12	26894	17	7/32	5/8	3-1/4	6	26884
6	7/32	1/2	3	12	26895	18	1/4	3/4	3-1/2	6	26885
7	1/4	5/8	3-1/4	6	26900						
8	5/16	3/4	3-1/2	6	26901						

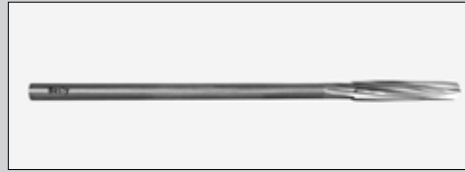
# High Speed Steel CHUCKING REAMERS

Straight Shank – Right Hand Spiral Flutes  
Right Hand Cut

712

## No. 712

For use in materials that are difficult to ream. Free-cutting design produces smooth, accurate holes.



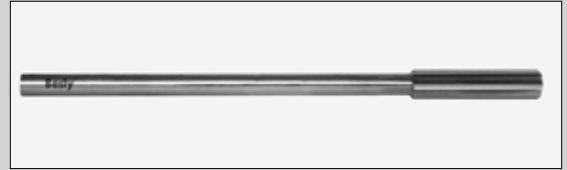
Fractional Sizes											
Size	Decimal Equiv.	Shank Diameter	Overall Length	Flute Length	EDP No.	Size	Decimal Equiv.	Shank Diameter	Overall Length	Flute Length	EDP No.
					712						712
1/16	.0625	.0585	1/2	2-1/2	21083	31/64	.4844	.4355	2	8	21130
5/64	.0781	.0720	3/4	3	21084	1/2	.5000	.4355	2	B	21131
3/32	.0938	.0880	3/4	3	21085	17/32	.5312	.4355	2	8	21132
7/64	.1094	.1030	7/8	3-1/2	21090	9/16	.5625	.4355	2	8	21133
1/8	.1250	.1190	7/8	3-1/2	21091	19/32	.5938	.4355	2	8	21134
9/64	.1406	.1350	1	4	21092	5/8	.6250	.5620	2-1/4	9	21135
5/32	.1562	.1510	1	4	21093	21/32	.6562	.5620	2-1/4	9	21140
11/64	.1719	.1645	1-1/8	4-1/2	21094	11/16	.6875	.5620	2-1/4	9	21141
3/16	.1875	.1805	1-1/8	4-1/2	21095	23/32	.7188	.5620	2-1/4	9	21142
13/64	.2031	.1945	1-1/4	5	21100	3/4	.7500	.6245	2-1/2	9-1/2	21143
7/32	.2188	.2075	1-1/4	5	21101	25/32	.7812	.6245	2-1/2	9-1/2	21144
15/64	.2344	.2265	1-1/2	6	21102	13/16	.8125	.6245	2-1/2	9-1/2	21145
1/4	.2500	.2405	1-1/2	6	21103	27/32	.8438	.6245	2-1/2	9-1/2	21150
17/64	.2656	.2485	1-1/2	6	21104	7/8	.8750	.7495	2-5/8	10	21151
9/32	.2812	.2485	1-1/2	6	21105	29/32	.9062	.7495	2-5/8	10	21152
19/64	.2969	.2792	1-1/2	6	21111	15/16	.9375	.7495	2-5/8	10	21153
5/16	.3125	.2792	1-1/2	6	21110	31/32	.9688	.7495	2-5/8	10	21154
21/64	.3281	.2792	1-1/2	6	21112	1	1.0000	.8745	2-3/4	10-1/2	21155
11/32	.3438	.2792	1-1/2	6	21113	1-1/16	1.0625	.8745	2-3/4	10-1/2	21160
23/64	.3594	.3105	1-3/4	7	21114	1-1/8	1.1250	.8745	2-7/8	11	21141
3/8	.3750	.3105	1-3/4	7	21115	1-3/16	1.1875	.9995	2-7/8	11	21162
25/64	.3906	.3105	1-3/4	7	21120	1-1/4	1.2500	.9995	3	11-1/2	21163
13/32	.4062	.3105	1-3/4	7	21121	1-5/16	1.3125	.9995	3	11-1/2	21164
27/64	.4219	.3730	1-3/4	7	21122	1-3/8	1.3750	.9995	3-1/4	12	21165
7/16	.4375	.3730	1-3/4	7	21123	1-7/16	1.4375	1.2495	3-1/4	12	21170
29/64	.4531	.3730	1-3/4	7	21124	1-1/2	1.5000	1.2495	3-1/2	12-1/2	21171
15/32	.4688	.3730	1-3/4	7	21125						

# CHUCKING REAMERS

Straight Shank – Straight Flute  
Right Hand Cut

**No. 731**

Has relatively short straight flutes on which the peripheral lands are relieved with a slight back taper and a slight chamfer on the end. In use, best results are obtained in a floating holder.



Fractional Sizes											
Size	Decimal Equiv.	Shank Diameter	Overall Length	Flute Length	EDP No.	Size	Decimal Equiv.	Shank Diameter	Overall Length	Flute Length	EDP No.
					731						731
3/64	.0469	.0455	2-1/2	1/2	21274	29/64	.4531	.3730	7	1-3/4	21320
1/16	.0625	.0585	2-1/2	1/2	21275	15/32	.4688	.3730	7	1-3/4	21321
5/64	.0781	.0720	3	3/4	21280	31/64	.4844	.4355	8	2	21322
3/32	.0938	.0880	3	3/4	21281	1/2	.5000	.4355	8	2	21323
7/64	.1094	.1030	3-1/2	7/8	21282	17/32	.5312	.4355	8	2	21324
1/8	.1250	.1190	3-1/2	7/8	21283	9/16	.5625	.4355	8	2	21325
9/64	.1406	.1350	4	1	21284	19/32	.5938	.4355	8	2	21330
5/32	.1562	.1510	4	1	21285	5/8	.6250	.5620	9	2-1/4	21331
11/64	.1719	.1645	4-1/2	1-1/8	21290	21/32	.6562	.5620	9	2-1/4	21332
3/16	.1875	.1805	4-1/2	1-1/8	21291	11/16	.6875	.5620	9	2-1/4	21333
13/64	.2031	.1945	5	1-1/4	21292	23/32	.7188	.5620	9	2-1/4	21334
7/32	.2188	.2075	5	1-1/4	21293	3/4	.7500	.6245	9-1/2	2-1/2	21335
15/64	.2344	.2265	6	1-1/2	21294	25/32	.7812	.6245	9-1/2	2-1/2	21340
1/4	.2500	.2405	6	1-1/2	21295	13/16	.8125	.6245	9-1/2	2-1/2	21341
17/64	.2656	.2485	6	1-1/2	21300	27/32	.8438	.6245	9-1/2	2-1/2	21342
9/32	.2812	.2485	6	1-1/2	21301	7/8	.8750	.7495	10	2-5/8	21343
19/64	.2969	.2792	6	1-1/2	21302	29/32	.9062	.7495	10	2-5/8	21344
5/16	.3125	.2792	6	1-1/2	21303	15/16	.9375	.7495	10	2-5/8	21345
21/64	.3281	.2792	6	1-1/2	21304	31/32	.9688	.7495	10	2-5/8	21350
11/32	.3438	.2792	6	1-1/2	21305	1	1 0000	.8745	10-1/2	2-3/4	21351
23/64	.3594	.3105	7	1-3/4	21310	1-1/16	1.0625	.8745	10-1/2	2-3/4	21352
3/8	.3750	.3105	7	1-3/4	21311	1-1/8	1.1250	.8745	11	2-7/8	21353
25/64	.3906	.3105	7	1-3/4	21312	1-3/16	1 1875	.9995	11	2-7/8	21354
13/32	.4062	.3105	7	1-3/4	21313	1-1/4	1.2500	.9995	11-1/2	3	21355
27/64	.4219	.3730	7	1-3/4	21314	1-3/8	1.3750	.9995	12	3-1/4	21360
7/16	.4375	.3730	7	1-3/4	21315	1-1/2	1 5000	1.2495	12-1/2	3-1/2	21361

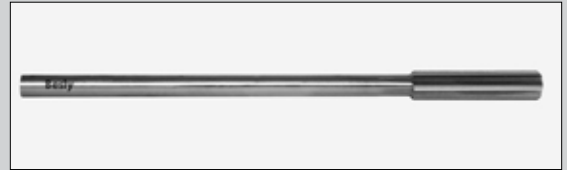
# High Speed Steel CHUCKING REAMERS

Straight Shank – Straight Flute  
Right Hand Cut

731

## No. 731

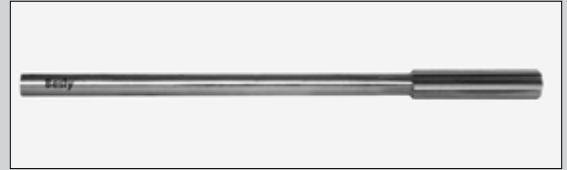
Has relatively short straight flutes on which the peripheral lands are relieved with slight back taper and a slight chamfer on the end. In use, best results are obtained in a floating holder.



Wire Gage Sizes											
Size	Decimal Equiv.	Shank Diameter	Overall Length	Flute Length	EDP No.	Size	Decimal Equiv.	Shank Diameter	Overall Length	Flute Length	EDP No.
					731						731
60	.0400	.0390	2-1/2	1/2	21461	30	.1285	.1190	3-1/2	7/8	21411
59	.0410	.0390	2-1/2	1/2	21460	29	.1360	.1275	4	1	21410
58	.0420	.0390	2-1/2	1/2	21455	28	.1405	.1350	4	1	21405
57	.0430	.0390	2-1/2	1/2	21454	27	.1440	.1350	4	1	21404
56	.0465	.0455	2-1/2	1/2	21453	26	.1470	.1430	4	1	21403
55	.0520	.0510	2-1/2	1/2	21452	25	.1495	.1430	4	1	21402
54	.0550	.0510	2-1/2	1/2	21451	24	.1520	.1460	4	1	21401
53	.0595	.0585	2-1/2	1/2	21450	23	.1540	.1460	4	1	21400
52	.0635	.0585	2-1/2	1/2	21445	22	.1570	.1510	4	1	21395
51	.0670	.0660	3	3/4	21444	21	.1590	.1530	4-1/2	1-1/8	21394
50	.0700	.0660	3	3/4	21443	20	.1610	.1530	4-1/2	1-1/8	21393
49	.0730	.0660	3	3/4	21442	19	.1660	.1595	4-1/2	1-1/8	21392
48	.0760	.0720	3	3/4	21441	18	.1695	.1595	4-1/2	1-1/8	21391
47	.0785	.0720	3	3/4	21440	17	.1730	.1645	4-1/2	1-1/8	21390
46	.0810	.0771	3	3/4	21435	16	.1770	.1704	4-1/2	1-1/8	21385
45	.0820	.0771	3	3/4	21434	15	.1800	.1755	4-1/2	1-1/8	21384
44	.0860	.0810	3	3/4	21433	14	.1820	.1755	4-1/2	1-1/8	21383
43	.0890	.0810	3	3/4	21432	13	.1850	.1805	4-1/2	1-1/8	21382
42	.0935	.0880	3	3/4	21431	12	.1890	.1805	4-1/2	1-1/8	21381
41	.0960	.0928	3-1/2	7/8	21430	11	.1910	.1860	5	1-1/4	21380
40	.0980	.0928	3-1/2	7/8	21425	10	.1935	.1860	5	1-1/4	21375
39	.0995	.0928	3-1/2	7/8	21424	9	.1960	.1895	5	1-1/4	21374
38	.1015	.0950	3-1/2	7/8	21423	8	.1990	.1895	5	1-1/4	21373
37	.1040	.0950	3-1/2	7/8	21422	7	.2010	.1945	5	1-1/4	21372
36	.1065	.1030	3-1/2	7/8	21421	6	.2040	.1945	5	1-1/4	21371
35	.1100	.1030	3-1/2	7/8	21420	5	.2055	.2016	5	1-1/4	21370
34	.1110	.1055	3-1/2	7/8	21415	4	.2090	.2016	5	1-1/4	21365
33	.1130	.1055	3-1/2	7/8	21414	3	.2130	.2075	5	1-1/4	21364
32	.1160	.1120	3-1/2	7/8	21413	2	.2210	.2173	6	1-1/2	21363
31	.1200	.1120	3-1/2	7/8	21412	1	.2280	.2173	6	1-1/2	21362

# CHUCKING REAMERS

Straight Shank – Straight Flute  
Right Hand Cut



## No. 731

Letter Sizes											
Size	Decimal Equiv.	Shank Diameter	Overall Length	Flute Length	EDP No.	Size	Decimal Equiv.	Shank Diameter	Overall Length	Flute Length	EDP No.
					731						731
A	.2340	.2265	6	1-1/2	21515	N	.3020	.2792	6	1-1/2	21540
B	.2380	.2329	6	1-1/2	21520	O	.3160	.2792	6	1-1/2	21541
C	.2420	.2329	6	1-1/2	21521	P	.3230	.2792	6	1-1/2	21542
D	.2460	.2329	6	1-1/2	21522	Q	.3320	.2792	6	1-1/2	21543
E	.2500	.2405	6	1-1/2	21523	R	.3390	.2792	6	1-1/2	21544
F	.2570	.2485	6	1-1/2	21524	S	.3480	.3105	7	1-3/4	21545
G	.2610	.2485	6	1-1/2	21525	T	.3580	.3105	7	1-3/4	21550
H	.2660	.2485	6	1-1/2	21530	U	.3680	.3105	7	1-3/4	21551
I	.2720	.2485	6	1-1/2	21531	V	.3770	.3105	7	1-3/4	11552
J	.2770	.2485	6	1-1/2	21532	W	.3860	.3105	7	1-3/4	21553
K	.2810	.2485	6	1-1/2	21533	X	.3970	.3105	7	1-3/4	21554
L	.2900	.2792	6	1-1/2	21534	Y	.4040	.3105	7	1-3/4	21555
M	.2950	.2792	6	1-1/2	21535	Z	.4130	.3730	7	1-3/4	21560

## No. 731

Decimal Sizes									
Size	Shank Diameter	Overall Length	Flute Length	EDP No.	Size	Shank Diameter	Overall Length	Flute Length	EDP No.
				731					731
.1240	.1190	7/8	3-1/2	21561	.3135	.2792	1-1/2	6	21572
.1260	.1190	7/8	3-1/2	21562	.3740	.3105	1-3/4	7	21573
.1865	.1805	1-1/8	4-1/2	21563	.3760	.3105	1-3/4	7	21574
.1885	.1805	1-1/8	4-1/2	21564	.4365	.3730	1-3/4	7	21575
.2490	.2405	1-1/2	6	21565	.4385	.3730	1-3/4	7	21580
.2510	.2405	1-1/2	6	21570	.4990	.4355	2	8	21581
.3115	.2792	1-1/2	6	21571	.5010	.4355	2	8	21582



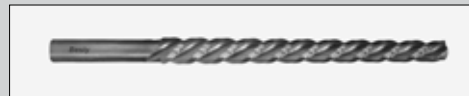
# TAPER PIN REAMERS

751, 758 &amp; 760

Straight Shank – Fast Spiral

1/4-inch per foot tapers are designed especially for producing pin holes by machine reaming.

## No. 751



Helical Flutes													
Size	Shank Diameter	Diameter Small End	Diameter Large End	Overall Length	Flute Length	EDP Number	Size	Shank Diameter	Diameter Small End	Diameter Large End	Overall Length	Flute Length	EDP Number
						751							751
7/0	5/64	.0497	.0666	1-13/16	13/16	21584	3	15/64	.1813	.2294	3-11/16	2-5/16	21601
6/0	3/32	.0611	.0806	1-15/16	15/16	21585	4	17/64	.2071	.2604	4-1/16	2-9/16	21602
5/0	7/64	.0719	.0966	2-3/16	1-3/16	21590	5	5/16	.2409	.2994	4-5/16	2-13/16	21603
4/0	1/8	.0869	.1142	2-5/16	1-5/16	21591	6	23/64	.2773	.3540	5-7/16	3-11/16	21604
3/0	9/64	.1029	.1302	2-5/16	1-5/16	21592	7	13/32	.3297	.4220	6-5/16	4-7/16	21605
2/0	5/32	.1137	.1462	2-9/16	1-9/16	21593	8	7/16	.3971	.5050	7-3/16	5-3/16	21610
0	11/64	.1287	.1638	2-15/16	1-11/16	21594	9	9/16	.4805	.6066	8-5/16	6-1/16	21611
1	3/16	.1447	.1798	2-15/16	1-11/16	21595	10	5/8	.5799	.7216	9-5/16	6-13/16	21612
2	13/64	.1605	.2008	3-3/16	1-15/16	21600							

## No. 758



Straight Flutes													
Size	Shank Diameter	Diameter Small End	Diameter Large End	Overall Length	Flute Length	EDP Number	Size	Shank Diameter	Diameter Small End	Diameter Large End	Overall Length	Flute Length	EDP Number
						758							758
7/0	5/64	.0497	.0666	1-13/16	13/16	21660	3	15/64	.1813	.2294	3-11/16	2-5/16	21673
6/0	3/32	.0611	.0806	1-15/16	15/16	21661	4	17/64	.2071	.2604	4-1/16	2-9/16	21674
5/0	7/64	.0719	.0966	2-3/16	1-3/16	21662	5	5/16	.2409	.2994	4-5/16	2-13/16	21675
4/0	1/8	.0869	.1142	2-5/16	1-5/16	21663	6	23/64	.2773	.3540	5-7/16	3-11/16	21680
3/0	9/64	.1029	.1302	2-5/16	1-5/16	21664	7	13/32	.3297	.4220	6-5/16	4-7/16	21681
2/0	5/32	.1137	.1462	2-9/16	1-9/16	21665	8	7/16	.3971	.5050	7-3/16	5-3/16	21682
0	11/64	.1287	.1638	2-15/16	1-11/16	21670	9	9/16	.4805	.6066	8-5/16	6-1/16	21683
1	3/16	.1447	.1798	2-15/16	1-11/16	21671	10	5/8	.5799	.7216	9-5/16	6-13/16	21684
2	13/64	.1605	.2008	3-3/16	1-15/16	21672							

## No. 760



Spiral Flutes													
Size	Shank Diameter	Diameter Small End	Diameter Large End	Overall Length	Flute Length	EDP Number	Size	Shank Diameter	Diameter Small End	Diameter Large End	Overall Length	Flute Length	EDP Number
						760							760
7/0	5/64	.0497	.0666	1-13/16	13/16	21685	3	15/64	.1813	.2294	3-11/16	2-5/16	21702
6/0	3/32	.0611	.0806	1-15/16	15/16	21690	4	17/64	.2071	.2604	4-1/16	2-9/16	21703
5/0	7/64	.0719	.0966	2-3/16	1-3/16	21691	5	5/16	.2409	.2994	4-5/16	2-13/16	21704
4/0	1/8	.0869	.1142	2-5/16	1-5/16	21692	6	23/64	.2773	.3540	5-7/16	3-11/16	21705
3/0	9/64	.1029	.1302	2-5/16	1-5/16	21693	7	13/32	.3297	.4220	6-5/16	4-7/16	21710
2/0	5/32	.1137	.1462	2-9/16	1-9/16	21694	8	7/16	.3971	.5050	7-3/16	5-3/16	21711
0	11/64	.1287	.1638	2-15/16	1-11/16	21695	9	9/16	.4805	.6066	8-5/16	6-1/16	21712
1	3/16	.1447	.1798	2-15/16	1-11/16	21700	10	5/8	.5799	.7216	9-5/16	6-13/16	21713
2	13/64	.1605	.2008	3-3/16	1-15/16	21701							

# EXPANSION CHUCKING REAMERS

## Straight Shank

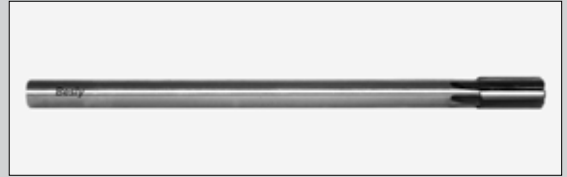
805

Can be resized to offset wear which assures success on abrasive material and is the principal advantage of these tools.

Resizing is done by expanding, circle grinding to size, and clearing as necessary. This procedure may be repeated.

Order the specific size required.

Reamers should not be reduced in size except by grinding. Do not loosen expansion plug to reduce diameter.



### No. 805

Straight Shank													
Tool Diameter**		Shank Diameter	Overall Length	Flute Length	No. of Flutes	EDP Number	Tool Diameter**		Shank Diameter	Overall Length	Flute Length	No. of Flutes	EDP Number
Size	Decimal Equiv.						Size	Decimal Equiv.					
3/8	.3750	5/16	7	1	4	20006	27/32	.8437	5/8	9-1/2	1-3/8	6	20039
13/32	.4062	5/16	7	1	4	20007	7/8	.8750	3/4	10	1-1/2	6	20046
7/16	.4375	3/8	7	1	4	20008	29/32	.9062	3/4	10	1-1/2	6	20047
15/32	.4687	3/8	7	1	4	20009	15/16	.9375	3/4	10	1-1/2	8	20048
1/2	.5000	7/16	8	1	6	20016	31/32	.9687	3/4	10	1-1/2	8	20049
17/32	.5312	7/16	8	1	6	20017	1	1.0000	7/8	10-1/2	1-5/8	8	20056
9/16	.5625	7/16	8	1-1/8	6	20018	1-1/16	1.0625	7/8	10-1/2	1-5/8	8	20057
19/32	.5937	7/16	8	1-1/8	6	20019	1-1/8	1.1250	7/8	11	1-3/4	8	20058
5/8	.6250	9/16	9	1-1/4	6	20026	1-3/16	1.1875	1	11	1-3/4	8	20059
21/32	.6562	9/16	9	1-1/4	6	20027	1-1/4	1.2500	1	11-1/2	1-7/8	8	20066
11/16	.6875	9/16	9	1-1/4	6	20028	1-5/16	1.3125	1	11-1/2	1-7/8	8	20067
23/32	.7187	9/16	9	1-1/4	6	20029	1-3/8	1.3750	1	12	2	8	20068
3/4	.7500	5/8	9-1/2	1-3/8	6	20036	1-7/16	1.4375	1-1/4	12	2	8	20069
25/32	.7812	5/8	9-1/2	1-3/8	6	20037	1-1/2	1.5000	1-1/4	12-1/2	2-1/8	8	20076
13/16	.8125	5/8	9-1/2	1-3/8	6	20038							

\*\*Tools will be furnished to a .0003" tolerance (+.0003"-.0000") unless otherwise specified.

# TURBOFLUTE – A NEW CONCEPT IN DRILLS

At Besly Cutting Tools, Inc., our many years of experience with drills and drilling, together with constant research into drilling problems, has led to the development and refinement of deep hole Turboflute drills. These drills serve industry's needs for drills capable of drilling deep holes from five to fifteen or more drill diameters in depth, efficiently and with few withdrawals or retractions.

These drills operate at penetration rates up to 100% faster than conventional drills in deep holes. In addition, "woodpeckering," or periodic withdrawal of the drill for chip removal, is eliminated in many applications and materials, and the number of withdrawals is reduced to about a third in other applications and materials.

Prime users for these drills are manufacturing plants that must drill holes greater than five diameters deep in a wide variety of materials. Examples are deep holes in parts such as automotive crankshaft forgings, cast iron engine blocks, and beryllium copper die molds.

The Turboflute drill is distinguished by a split point and the flute's parabolic profile. The split point holds the drill on center, and the chips flow along the unusual flute design without clogging and without preventing the flow of cutting fluid to the drill point.

Turboflute drills have heavy webs to provide stability and extended life between sharpenings. Resharpener is no more difficult than when regrinding ordinary split points.

These drills are also used in applications where they are required to drill straight holes with a minimum amount of stock left in the hole for reaming, either for straightness or for hole finish requirements or for both. The heavy web tends to make the Turboflute drills cut holes straighter, truer, and closer to size than many other drills that might be used for this purpose.

**Speeds and Feeds** – Multiply speed, as given in the table of suggested speeds, by this multiplying factor to give a suggested starting speed based on the depth of the hole.

**Do Not Reduce the Feed** – In Turboflute drilling, it is important to maintain a constant, heavy feed, regardless of the depth of the hole.

Drilling Speed vs. Depth	
Hole Depth (No. Drill Diams.)	Multiplying Factor
Up to 5	1
5 to 8	0.9
8 to 11	0.8
11 to 14	0.7
14 to 17	0.6
17 to 20	0.5

**Number of Retractions** – It is impossible to predict the number of retractions that might be necessary. However, a rough rule of thumb may be used, call it the "rule of three" if you will. Briefly, this means that Turboflute drills should be able to drill three times as deep before retraction as conventional drills and require only one-third, or less, of the total number of retractions required by conventional drills.

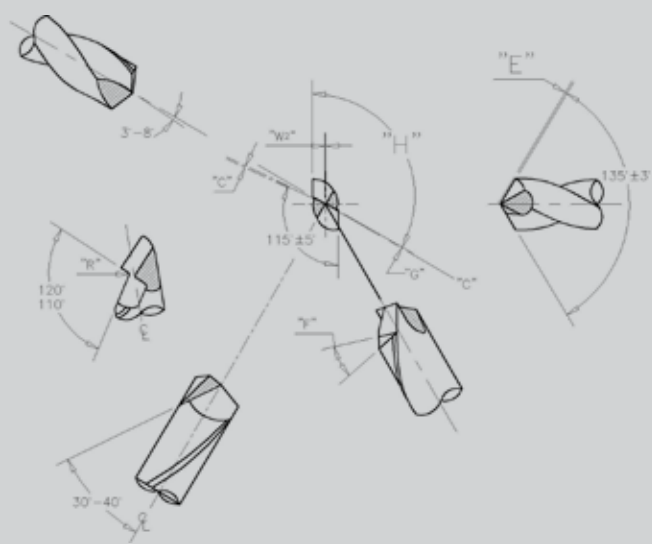
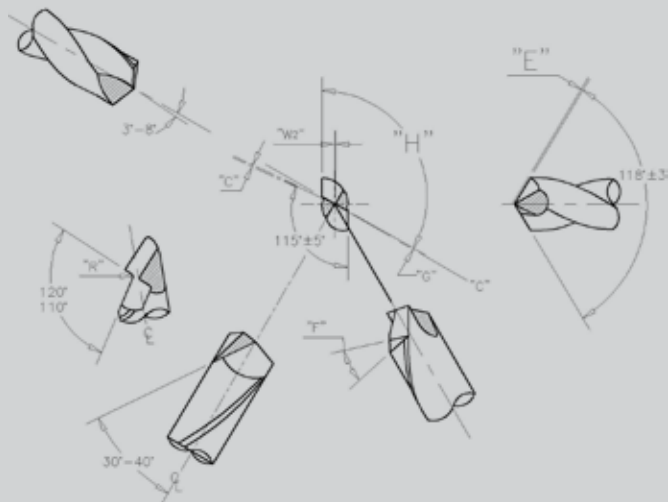
**Cutting Fluid Recommendations** – We feel, generally, that a full flow of sulfur-base oil should be used in drilling the ferrous materials, and a full flow of water-soluble fluid should be used for most of the nonferrous materials. However, many production plants now have centralized water-soluble systems and find it very difficult to set up for sulfur-base oils.

It is mandatory that a good full flow of cutting fluid be directed under pressure down the drilled hole to remove as much heat buildup as possible.

# TURBOFLUTE DRILLS

Point Dimensions and Tolerances for Regrinding  
118° Point Angle and 135° Point Angle Drills

Size Range	Max. Radius in Notch R	Chisel Edge Centrality C	Web After Notching W2	Secondary Edge Angle H	Offset G	Lip Relief F		Lip Height E
						118° Point Angle	135° Point Angle	
1/16 to 41	.005	.0020	.002 to .004	120° to 125°	.001	17° to 23°	13° to 19°	.002 TIV
40 to 1/8	.007	.0020	.002 to .004	120° to 125°	.002	15° to 19°	12° to 16°	.002 TIV
Over 1/8 to 1/4	.010	.0030	.003 to .006	120° to 125°	.002	12° to 16°	10° to 14°	.003 TIV
Over 1/4 to 1/2	.015	.0040	.005 to .009	125° to 130°	.003	10° to 14°	10° to 14°	.004 TIV
Over 1/2 to 1	.015	.0050	.007 to .010	125° to 130°	.004	8° to 12°	8° to 12°	.005 TIV
Over 1 to 1-1/2	.020	.0060	.010 to .015	125° to 130°	.005	6° to 10°	6° to 10°	.006 TIV



# TURBOFLUTE DRILLS – NOT JUST FOR DEEP HOLE DRILLING

## **Manufacturers are reaping the many other benefits of Besly Turboflute Drills**

One thing has made the Turboflute drill so successful. It can drill deep holes – up to 16 or more times its own diameter in one pass.

Although most people think the Turboflute drill can be used only in deep hole drilling applications, the very design features that make the Turboflute drill an ideal deep hole drill allow it to be used most successfully in other drilling operations.

## **Two times the normal feed rate.**

The Turboflute drill operates at penetration rates twice that of conventional drills. You are in and out of the hole faster, giving you double the amount of drill work in the same amount of time. In many screw machine applications, you could eliminate a secondary machining operation. Due to the increased feed rate, you may free up a spindle for additional machining. Simply stated, you increase your productivity.

## **Parabolic flute design makes the difference.**

The Turboflute parabolic flute design breaks the chips into smaller pieces, allowing them to freely escape out of the hole, so there is no chip packing. The increased feed rate allowed by the parabolic flute design provides a more efficient chip flow and eliminates withdrawal of the drill to clear the chips. Again, productivity is increased.

## **Center drilling can be eliminated.**

In many cases, the center drilling operation is not necessary because of the special split point design of the Turboflute drill, which centers and seats itself. Productivity is increased.

## **Drill life extended up to seven times average drills.**

The parabolic flute design results in an unusually thick web that provides stability and extends life between sharpenings up to seven times average drills. Less downtime to change and sharpen drills means fewer interruptions and greater productivity.

## **Strength and rigidity eliminates bushings and fixtures.**

Costly bushings and fixtures can be eliminated because the Turboflute drill seats itself and does not have a tendency to "walk." You get a true, straight hole.

## **Productivity increased ... add it up.**

- **2x feed rate**
- **fewer withdrawals**
- **center drilling operation eliminated**
- **7x drill life – less downtime to change drills**
- **bushings and fixtures eliminated**

The Turboflute drill is available in almost any length and diameter to suit your needs. Whether its for deep hole drills or high production screw machine operations, Besly has a Turboflute drill to fit your particular operation. Contact your Besly representative for technical assistance for your specific drilling operation.

# DRILLING SPEEDS & FEEDS

## Speeds for Drilling

The speed of a drill is usually measured in terms of the rate at which the outside or periphery of the tool moves in relation to the work being drilled. The common term for this is "Surface Feet Per Minute" abbreviated to S.F.M. The relation of S.F.M. and Revolutions Per Minute, or R.P.M., is indicated by the following formulas:

$$\text{S.F.M.} = .26 \times \text{R.P.M.} \times \text{Drill Diameter in Inches}$$

$$\text{R.P.M.} = 3.8 \times \frac{\text{S.F.M.}}{\text{Drill Diameter in Inches}}$$

In general, when operating a drill at a speed anywhere within its range for the particular material involved, increases in speed result in fewer holes before regrinding becomes necessary, and reductions in speed permit more holes before the tool is dulled. As a result, on every job there is the problem of choosing a speed which will permit the highest rate of production without entailing excessive drill costs or downtime for tool sharpening. The most efficient speed for operating a drill will depend on many variables, some of which are :

1. Composition and hardness of material.
2. Depth of hole.
3. Efficiency of cutting fluid.
4. Type and condition of drilling machine.
5. Quality of holes desired.
6. Difficulty of set up.

## Feeds for Drilling

The feed of a drill is governed by the size of the tool and the material drilled. Since the feed partially determines the rate of production and also is a factor in tool life, it should be chosen carefully for each particular job. In general the most effective feeds will be found in the ranges shown in the table below left.

## Suggested Speeds for High Speed Steel Drills

Speeds shown in the table below right indicate the approximate range for efficient operation under normal conditions. On most jobs, adjustments from these speeds will be required to reach peak efficiency.

Material	REGULAR DRILLS Speed, S.F.M.	TURBOFLUTE DRILLS Speed, S.F.M.
Alloy Steel below 260 Brinell	35-75	50-80
260 - 321 Brinell	15-25	15-25
Aluminum and Aluminum Alloys	200-300	200-300
Automotive Steel Forgings	40-50	40-50
Brass and Bronze, Common	200-300	200-300
Bronze, High Tensile	50-125	70-150
High Nickel Steel	40-50	40-50
Magnesium and Magnesium Alloys	150-350	200-400
Malleable Iron	80-120	80-120
Medium Hard Cast Iron	70-100	70-100
Monel	40-50	40-50
Low Carbon Steel	70-80	80-100
Soft Cast Iron	100-150	100-150
Stainless Steel	30-60	30-50
Thermoplastics	100-150	100-150
Titanium Alloys	20-50	20-50

## Suggested Feeds for High Speed Drills

Drill Diameter	REGULAR DRILLS Feed/Rev. Inches	TURBOFLUTE DRILLS Feed/Rev. Inches
Under 1/8	.001 -.002	.001 -.003
1/8 to 1/4	.002 -.004	.003 -.008
1/4 to 1/2	.004 -.007	.006 -.014
1/2 to 1"	.007 -.015	.010 -.030
1" and over	.015 -.025	.022 -.050

Heavy feed (H): Apply high side of feed range.  
 Medium feed (M): Apply middle of feed range.  
 Light feed (L): Apply low side of feed range.

# CONVERSION TABLE

Decimal, Fractional, Wire Gage,  
Letter, Millimeter Sizes

Dec.	Inch	Wire	mm	Dec.	Inch	Wire	mm	Dec.	Inch	Wire	mm	Dec.	Inch	Wire	mm	Dec.	Inch	Letter	mm
.0059		97		.0430		57		.1083			2.75	.1960		9		.2950		M	
.0063		96		.0433		1.10		.1094	7/64			.1968		5.00		.2953			7.50
.0067		95		.0453		1.15		.1100		35		.1990		8		.2969	19/64		
.0071		94		.0465		56		.1102			2.80	.2008			5.10	.2992			7.60
.0075		93		.0469	3/64			.1110		34		.2010		7		.3020		N	
.0079		92		.0472		1.20		.1130		33		.2031	13/64			.3031			7.70
.0083		91		.0492		1.25		.1142			2.90	.2040		6		.3051			7.75
.0087		90		.0512		1.30		.1160		32		.2047			5.20	.3071			7.80
.0091		89		.0520		55		.1181			3.00	.2055		5		.3110			7.90
.0095		88		.0531		1.35		.1200		31		.2067			5.25	.3125	5/16		
.0100		87		.0550		54		.1220			3.10	.2087			5.30	.3150			8.00
.0105		86		.0551		1.40		.1250	1/8			.2090		4		.3160		O	
.0110		85		.0571		1.45		.1260			3.20	.2126			5.40	.3189			8.10
.0115		84		.0591		1.50		.1280			3.25	.2130		3		.3228			8.20
.0120		83		.0595		53		.1285		30		.2165			5.50	.3230		P	
.0125		82		.0610		1.55		.1299			3.30	.2188	7/32			.3248			8.25
.0130		81		.0625	1/16			.1339			3.40	.2205			5.60	.3268			8.30
.0135		80		.0630		1.60		.1360		29		.2210		2		.3281	21/64		
.0138		.35		.0635		52		.1378			3.50	.2244			5.70	.3307			8.40
.0145		79		.0650		1.65		.1405		28		.2264			5.75	.3320		Q	
.0156	1/64			.0669		1.70		.1406	9/64			.2280		1		.3346			8.50
.0158		.40		.0670		51		.1417			3.60	.2283			5.80	.3386			8.60
.0160		78		.0689		1.75		.1440		27		.2323			5.90	.3390		R	
.0177		.45		.0700		50		.1457			3.70	<b>Dec.</b>	<b>Inch</b>	<b>Letter</b>	<b>mm</b>	.3425			8.70
.0180		77		.0709		1.80		.1470		26		.2340		A		.3438	11/32		
.0197		.50		.0728		1.85		.1476			3.75	.2344	15/64			.3445			8.75
.0200		76		.0730		49		.1495		25		.2362			6.00	.3465			8.80
.0210		75		.0748		1.90		.1496			3.80	.2380		B		.3480		S	
.0217		.55		.0760		48		.1520		24		.2402			6.10	.3504			8.90
.0225		74		.0768		1.95		.1535			3.90	.2420		C		.3543			9.00
.0236		.60		.0781	5/64			.1540		23		.2441			6.20	.3580		T	
.0240		73		.0785		47		.1562	5/32			.2460		D		.3583			9.10
.0250		72		.0787		2.00		.1570		22		.2461			6.25	.3594	23/64		
.0256		.65		.0807		2.05		.1575			4.00	.2480			6.30	.3622			9.20
.0260		71		.0810		46		.1590		21		.2500	1/4	E		.3642			9.25
.0276		.70		.0820		45		.1610		20		.2520			6.40	.3661			9.30
.0280		70		.0827		2.10		.1614			4.10	.2559			6.50	.3680		U	
.0292		69		.0846		2.15		.1654			4.20	.2570		F		.3701			9.40
.0295		.75		.0860		44		.1660		19		.2598			6.60	.3740			9.50
.0310		68		.0866		2.20		.1673			4.25	.2610		G		.3750	3/8		
.0312	1/32			.0886		2.25		.1693			4.30	.2638			6.70	.3770		V	
.0315		.80		.0890		43		.1695		18		.2656	17/64			.3780			9.60
.0320		67		.0906		2.30		.1719	11/64			.2657			6.75	.3819			9.70
.0330		66		.0925		2.35		.1730		17		.2660		H		.3839			9.75
.0335		.85		.0935		42		.1732			4.40	.2677			6.80	.3858			9.80
.0350		65		.0938	3/32			.1770		16		.2717			6.90	.3860		W	
.0354		.90		.0945		2.40		.1772			4.50	.2720		I		.3898			9.90
.0360		64		.0960		41		.1800		15		.2756			7.00	.3906	25/64		
.0370		63		.0965		2.45		.1811			4.60	.2770		J		.3937			10.00
.0374		.95		.0980		40		.1820		14		.2795			7.10	.3970		X	
.0380		62		.0984		2.50		.1850		13	4.70	.2810		K		.4040		Y	
.0390		61		.0995		39		.1870			4.75	.2812	9/32			.4062	13/32		
.0394		1.00		.1015		38		.1875	3/16			.2835			7.20	.4130		Z	
.0400		60		.1024		2.60		.1890		12	4.80	.2854			7.25				
.0410		59		.1040		37		.1910		11		.2874			7.30				
.0413		1.05		.1063		2.70		.1929			4.90	.2900		L					
.0420		58		.1065		36		.1935		10		.2913			7.40				

# CONVERSION TABLE

Decimal, Fractional, Wire Gage,  
Letter, Millimeter Sizes

Dec.	Inch	mm	Dec.	Inch	mm	Dec.	Inch	mm	Dec.	Inch	mm
.4134		10.50	.8661		22.00	1.3189		33.50	1.7717		45.00
.4219	27/64		.8750	7/8		1.3281	1-21/64		1.7812	1-25/32	
.4331		11.00	.8858		22.50	1.3386		34.00	1.7913		45.50
.4375	7/16		.8906	57/64		1.3438	1-11/32		1.7969	1-51/64	
.4528		11.50	.9055		23.00	1.3583		34.50	1.8110		46.00
.4531	29/64		.9062	29/32		1.3594	1-23/64		1.8125	1-13/16	
.4688	15/32		.9219	59/64		1.3750	1-3/8		1.8281	1-53/64	
.4724		12.00	.9252		23.50	1.3780		35.00	1.8307		46.50
.4844	31/64		.9375	15/16		1.3906	1-25/64		1.8438	1-27/32	
.4921		12.50	.9449		24.00	1.3976		35.50	1.8504		47.00
.5000	1/2		.9531	61/64		1.4062	1-13/32		1.8594	1-55/64	
.5118		13.00	.9646		24.50	1.4173		36.00	1.8701		47.50
.5156	33/64		.9688	31/32		1.4219	1-27/64		1.8750	1-7/8	
.5312	17/32		.9843		25.00	1.4370		36.50	1.8898		48.00
.5315		13.50	.9844	63/64		1.4375	1-7/16		1.8906	1-57/64	
.5469	35/64		1.0000	1		1.4531	1-29/64		1.9062	1-29/64	
.5512		14.00	1.0039		25.50	1.4567		37.00	1.9094		48.50
.5625	9/16		1.0156	1-1/64		1.4688	1-15/32		1.9219	1-59/64	
.5709		14.50	1.0236		26.00	1.4764		37.50	1.9291		49.00
.5781	37/64		1.0312	1-1/32		1.4844	1-31/64		1.9375	1-15/16	
.5906		15.00	1.0433		26.50	1.4961		38.00	1.9488		49.50
.5938	19/32		1.0469	1-3/64		1.5000	1-1/2		1.9531	1-61/64	
.6094	39/64		1.0625	1-1/16		1.5156	1-33/64		1.9685		50.00
.6102		15.50	1.0630		27.00	1.5157		38.50	1.9688	1-31/32	
.6250	5/8		1.0781	1-5/64		1.5312	1-17/32		1.9844	1-63/64	
.6299		16.00	1.0827		27.50	1.5354		39.00	1.9882		50.50
.6406	41/64		1.0938	1-3/32		1.5469	1-35/64		2.0000	2	
.6496		16.50	1.1024		28.00	1.5551		39.50	2.0079		51.00
.6562	21/32		1.1094	1-7/64		1.5625	1-9/16		2.0156	2-1/64	
.6693		17.00	1.1220		28.50	1.5748		40.00	2.0276		51.50
.6719	43/64		1.1250	1-1/8		1.5781	1-37/64		2.0312	2-1/32	
.6875	11/16		1.1406	1-9/64		1.5938	1-19/32		2.0469	2-3/64	
.6890		17.50	1.1417		29.00	1.5945		40.50	2.0472		52.00
.7031	45/64		1.1562	1-5/32		1.6094	1-39/64		2.0625	2-1/16	
.7087		18.00	1.1614		29.50	1.6142		41.00	2.0669		52.50
.7188	23/32		1.1719	1-11/64		1.6250	1-5/8		2.0781	2-5/64	
.7283		18.50	1.1811		30.00	1.6339		41.50	2.0866		53.00
.7344	47/64		1.1875	1-3/16		1.6406	1-41/64		2.0938	2-3/32	
.7480		19.00	1.2008		30.50	1.6535		42.00	2.1063		53.50
.7500	3/4		1.2031	1-13/64		1.6562	1-21/32		2.1094	2-7/64	
.7656	49/64		1.2188	1-7/32		1.6719	1-43/64		2.1250	2-1/8	
.7677		19.50	1.2205		31.00	1.6732		42.50	2.1260		54.00
.7812	25/32		1.2344	1-15/64		1.6875	1-11/16		2.1406	2-9/64	
.7874		20.00	1.2402		31.50	1.6929		43.00	2.1457		54.50
.7969	51/64		1.2500	1-1/4		1.7031	1-45/64		2.1562	2-5/32	
.8071		20.50	1.2598		32.00	1.7126		43.50	2.1654		55.00
.8125	13/16		1.2656	1-17/64		1.7188	1-23/32		2.1719	2-11/64	
.8268		21.00	1.2795		32.50	1.7323		44.00	2.1850		55.50
.8281	53/64		1.2812	1-9/32		1.7344	1-47/64		2.1875	2-3/16	
.8438	27/32		1.2969	1-19/64		1.7500	1-3/4		2.2031	2-13/64	
.8465		21.50	1.2992		33.00	1.7520		44.50	2.2047		56.00
.8594	55/64		1.3125	1-5/16		1.7656	1-49/64		2.2188	2-7/32	



# CONVERSION TABLE

Decimal, Fractional, Wire Gage,  
Letter, Millimeter Sizes

Dec.	Inch	mm	Dec.	Inch	mm	Dec.	Inch	mm	Dec.	Inch	mm
2.2244		56.50	2.6575		67.50	3.0781	3-5/64		3.5039		89.00
2.2344	2-15/64		2.6719	2-43/64		3.0905		78.50	3.5236		89.50
2.2441		57.00	2.6772		68.00	3.0938	3-3/32		3.5433		90.00
2.2500	2-1/4		2.6772		68.00	3.1094	3-7/64		3.5630		90.50
2.2638		57.50	2.6875	2-11/16		3.1102		79.00	3.5827		91.00
2.2656	2-17/64		2.6968		68.50	3.1250	3-1/8		3.6024		91.50
2.2812	2-9/32		2.7031	2-45/64		3.1299		79.50	3.6220		92.00
2.2835		58.00	2.7165		69.00	3.1406	3-9/64		3.6417		92.50
2.2969	2-19/64		2.7188	2-23/32		3.1496		80.00	3.6614		93.00
2.3031		58.50	2.7344	2-47/64		3.1562	3-5/32		3.6811		93.50
2.3125	2-5/16		2.7362		69.50	3.1693		80.50	3.7008		94.00
2.3228		59.00	2.7500	2-3/4		3.1719	3-11/64		3.7205		94.50
2.3281	2-21/64		2.7559		70.00	3.1875	3-3/16		3.7402		95.00
2.3425		59.50	2.7656	2-49/64		3.1890		81.00	3.7598		95.50
2.3438	2-11/32		2.7756		70.50	3.2031	3-13/64		3.7795		96.00
2.3594	2-23/64		2.7812	2-25/32		3.2087		81.50	3.7992		96.50
2.3622		60.00	2.7953		71.00	3.2188	3-7/32		3.8189		97.00
2.3750	2-3/8		2.7969	2-51/64		3.2283		82.00	3.8386		97.50
2.3819		60.50	2.8125	2-13/16		3.2344	3-15/16		3.8583		98.00
2.3906	2-25/64		2.8150		71.50	3.2480		82.50	3.8779		98.50
2.4016		61.00	2.8281	2-53/64		3.2500	3-1/4		3.8974		99.00
2.4062	2-13/32		2.8346		72.00	3.2656	3-17/64		3.9173		99.50
2.4213		61.50	2.8438	2-27/32		3.2677		83.00	3.9370		100.00
2.4219	2-27/64		2.8543		72.50	3.2812	3-9/32		4.0000		101.60
2.4375	2-7/16		2.8594	2-55/64		3.2874		83.50			
2.4409		62.00	2.8740		73.00	3.2969	3-19/32				
2.4531	2-29/64		2.8750	2-7/8		3.3071		84.00			
2.4606		62.50	2.8906	2-57/64		3.3125	3-5/16				
2.4688	2-15/32		2.8937		73.50	3.3268		84.50			
2.4803		63.00	2.9062	2-29/32		3.3281	3-21/64				
2.4844	2-31/64		2.9134		74.00	3.3438	3-11/32				
2.5000	2-1/2	63.50	2.9219	2-59/64		3.3465		85.00			
2.5156	2-23/64		2.9331		74.50	3.3594	3-23/64				
2.5197		64.00	2.9375	2-15/16		3.3661		85.50			
2.5312	2-17/32		2.9528		75.00	3.3750	3-3/8				
2.5394		64.50	2.9531	2-61/64		3.3858		86.00			
2.5469	2-35/64		2.9688	2-31/32		3.3906	3-25/64				
2.5591		65.00	2.9724		75.50	3.4055		86.50			
2.5625	2-9/16		2.9844	2-63/64		3.4062	3-13/32				
2.5781	2-37/64		2.9921		76.00	3.4219	3-27/64				
2.5787		65.50	3.0000	3		3.4252		87.00			
2.5938	2-19/32		3.0118		76.50	3.4375	3-7/16				
2.5984		66.00	3.0156	3-1/64		3.4449		87.50			
2.6094	2-39/64		3.0312	3-1/32		3.4531	3-29/64				
2.6181		66.50	3.0315		77.00	3.4646		88.00			
2.6250	2-5/8		3.0469	3-3/64		3.4688	3-15/32				
2.6378		67.00	3.0512		77.50	3.4842		88.50			
2.6406	2-41/64		3.0625	3-1/16		3.4844	3-31/64				
2.6562	2-31/32		3.0709		78.00	3.5000	3-1/2				

# TAP & DRILL SETS

Set #1 NC		Set #2 NF		Set #3 Metric	
Tap	Drill	Tap	Drill	Tap	Drill
6-32	#36	6-40	#33	M 2.5 X 0.45	2.05 mm
8-32	#29	8-36	#29	M 3.0 X 0.50	2.50 mm
10-24	#25	10-24	#25	M 3.5 X 0.60	2.90 mm
10-32	#21	10-32	#21	M 4.0 X 0.70	3.30 mm
1/4-20	#7	1/4-28	#3	M 5.0 X 0.80	4.20 mm
5/16-18	"F"	5/16-24	"I"	M 6.0 X 1.00	5.00 mm
3/8-16	5/16	3/8-24	"Q"	M 8.0 X 1.25	6.70 mm
7/16-14	"U"	7/16-20	25/64	M 10 X 1.50	8.50 mm
1/2-13	27/64	1/2-20	29/64	M 12 X 1.75	10.20 mm

## Set #1 NC & Set #2 NF Include:

HSS Taps (Straight Flute, Plug Chamfer, For Class 2B)

HSS Drills (Jobbers Length, Surface Treated)

Steel Index Case (For Easy Access and Storage)

## Set #3 METRIC Includes:

HSS Taps (Straight Flute, Plug Chamfer, For Metric 6H)

HSS Drills (Jobbers Length, Surface Treated)

Steel Index Case (For Easy Access and Storage)

Sets	EDP Number
Set #1 NC	13134
Set #2 NF	13135
Set #3 Metric	13136



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