

# HIGH PERFORMANCE DRILLS

L9812 Metric Size  
L9813 Fractional Size

List #	EDP #	Size	Decimal Equivalent	Flute Length	Overall Length	L1	Shank Dia.	Stock
		Dc		ℓ	L	L1	Ds	
L9812	0719544	10.7	0.4213	49	116	51	11	•
L9812	0719550	10.8	0.4252					•
L9812	0719567	10.9	0.4291					•
L9812	0719573	11.0	0.4331	50	122	53	12	•
L9812	0719580	11.1	0.4370					•
L9813	1489736	7/16	0.4375	51	122	53	12	•
L9812	0719596	11.2	0.4409					•
L9812	0719601	11.3	0.4449					•
L9812	0719618	11.4	0.4488	52	122	54	12	•
L9812	0719624	11.5	0.4528					•
L9813	1489742	29/64	0.4531	54	122	55	12	•
L9812	0719630	11.6	0.4567					•
L9812	0719647	11.7	0.4606					•
L9812	0719653	11.8	0.4646	54	122	55	12	•
L9812	0719660	11.9	0.4685					•

\* Package Qty: 1 per Tube Size

List #	EDP #	Size	Decimal Equivalent	Flute Length	Overall Length	L1	Shank Dia.	Stock
		Dc		ℓ	L	L1	Ds	
L9813	1489759	15/32	0.4688	54	122	55	12	•
L9812	0719676	12.0	0.4724					•
L9812	0719682	12.5	0.4921	57	128	59	13	•
L9813	1489765	1/2	0.5000					•
L9812	0719699	13.0	0.5118	61	134	63	14	•
L9812	0719704	13.5	0.5315					•
L9812	0719710	14.0	0.5512	63	134	64	15	•
L9813	1489771	9/16	0.5625					•
L9812	0719727	14.5	0.5709	66	140	68	16	•
L9812	0719733	15.0	0.5906					•
L9812	0719740	15.5	0.6102	70	146	72	18	•
L9813	1489788	5/8	0.6250					•
L9812	0719756	16.0	0.6299	72	146	73	20	•
L9813	1496964	11/16	0.6875					•
L9813	1496970	3/4	0.7500	76	152	77	20	•

⚠ WARNING: Cancer - www.P65Warnings.ca.gov

CARBIDE DRILLS

## Standard Drilling Conditions

LIST 9812, 9813

Work Material		Cast Irons / Carbon Steels		Alloy Steels (20-30 HRC)		Mold Steels (30-40 HRC)		Hardened Steels (40-50 HRC)		Ductile Cast Irons		Stainless Steel (300-Series Stainless)		Nickel Alloys, Titanium Alloys, PH Stainless		Aluminum Alloys		Aluminum Casting	
Speed (SFM)		160 - 200 SFM		130 - 170 SFM		95 - 140 SFM		80 - 100 SFM		130 - 165 SFM		95 - 135 SFM		70 - 80 SFM		180 - 200 SFM		160 - 185 SFM	
Drill Diameter		RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)	RPM	Feed (IPR)
Metric mm	Decimal																		
1	0.039	15900	0.0003	12700	0.0002	9550	0.0002	7960	0.0002	12700	0.0002	9550	0.0001	6850	0.0006	18400	0.0008	15610	0.0004
1.5	0.059	10600	0.0005	8490	0.0004	6370	0.0003	5320	0.0003	8490	0.0003	6370	0.0001	4600	0.0009	12300	0.0012	10430	0.0006
2	0.079	9550	0.0007	7960	0.0005	5570	0.0004	4790	0.0004	7960	0.0004	6370	0.0002	3900	0.0012	9200	0.0014	8890	0.0007
Speed (SFM)		390 - 395 SFM		245 - 330 SFM		225 - 245 SFM		145 - 165 SFM		245 - 330 SFM		175 - 195 SFM		80 - 100 SFM		450 - 550 SFM		360 - 455 SFM	
2.5	0.098	11500	0.002	9600	0.001	9500	0.001	5750	0.001	10600	0.001	7500	0.001	3300	0.002	19400	0.004	14000	0.002
3	0.118	12700	0.003	10600	0.002	7400	0.002	5300	0.002	10600	0.002	6000	0.003	3200	0.002	16200	0.005	14800	0.004
4	0.157	9500	0.004	7900	0.003	5550	0.002	4000	0.003	7900	0.002	4500	0.004	2400	0.003	12100	0.006	11100	0.005
5	0.197	7600	0.005	6300	0.004	4450	0.003	3200	0.004	6300	0.003	3600	0.005	1900	0.004	9700	0.008	8900	0.006
6	0.236	6300	0.006	5300	0.005	3700	0.004	2700	0.004	5300	0.004	3000	0.006	1600	0.005	8100	0.010	7400	0.007
8	0.315	4800	0.008	3950	0.006	2790	0.005	2000	0.006	3950	0.005	2250	0.008	1200	0.006	6050	0.011	5570	0.009
10	0.394	3800	0.010	3150	0.008	2230	0.006	1600	0.007	3150	0.006	1800	0.010	950	0.007	4850	0.013	4460	0.012
12	0.472	3200	0.012	2650	0.009	1860	0.007	1300	0.009	2650	0.007	1500	0.012	800	0.007	4050	0.016	3710	0.014
16	0.630	2400	0.016	1990	0.013	1390	0.009	1000	0.011	1990	0.009	1100	0.016	600	0.009	3050	0.018	2790	0.019

- Note : 1) Adjust drilling conditions according to the rigidity of machine or work clamp state.  
 2) Use the table values for drilling depths upto 5xD. Adjust cutting conditions per table based on "degree angle to be drilled."  
 3) Above table values are for drilling water soluble cutting fluid. For non-water soluble cutting fluid reduce the RPM and feed rates by 20%  
 4) Center Drill or Guide hole required. (1: Use AG Starting drill or Aqua Ex Flat drill 2: For drilling guide holes in Stainless use AQUA EX Flat OH3D)

Formulas :  $RPM = \frac{SFM \times 3.82}{\text{Drill dia.}}$  Feed Rate (in/min) :  $RPM \times IPR$

Drilling Conditions for Angled Surfaces					
Reduction % to above table values					
Degree Angle		Reduction %		Reduction % (Multiplier)	
		RPM	Feed	RPM	Feed
0°	5°	100%	100%	Table Value	Table Value
6°	20°	50%	50%	(Table Value)x0.5	(Table Value)x0.5
21°	35°	70%	40%	(Table Value)x0.3	(Table Value)x0.6
36°	60°	70%	40%	(Table Value)x0.3	(Table Value)x0.6
61°		70%	30%	(Table Value)x0.3	(Table Value)x0.7