



		Tool Group					
Material Group No.	Chip Class	SOLID CARBIDE COOLANT FED		CARBIDE TIP COOLANT FED			OTHER COOLANT FED
		High Penetration Spiral Flute <small>TiN TiAlN</small>	Straight Flute	High Performance Spiral Flute <small>TiN</small>	Spiral Flute Heavy Duty	Straight Flute	
		M	N	P	Q	R	T
1	(1)	(11-12) 500-650	(6) 200-400	(8-9) a 250-425	(6-7) a 200-400	(6-7) 200-400	○
2	(2)	(11-12) 500-650	(6-7) 350-550	(8-9) 300-500	(6-7) 200-400	(6-7) 300-500	○
3	(3)	(9-11) 400-550	(4-5) 225-300	(5-7) 250-450	(5-7) 225-425	(4-5) 200-400	○
4	(4)	(9-11) 500-650	(4-5) 175-250	(5-7) 200-400	(5-7) 200-300	(4-5) 200-300	○
5	(5)	(9-10) 300-400	(4-6) 200-300	(6-8) 225-325	(6-8) 200-260	(5-7) 225-300	(7-9) 75-110
6	(6)	(9) 275-350	(4-6) 150-250	(6-7) a 225-275	(6-7) a 200-260	(4-6) 190-250	(7-9) 60-100
7	(7)	(8-10) 290-390	○	(5-7) a 180-250	○	○	(7-9) 100-130
8	(8)	(6-8) 150-250	(2-3) 110-150	(4-6) 150-200	(3-4) 100-150	(2-3) 100-150	(6-8) 60-100
9	(9)	(5-7) 120-225	(2-3) 80-135	(4-6) 135-185	(1-2) 70-100	(2-3) 100-150	(5-7) 50-90
10	(10)	(1-2) 50-100	○	(1-2) b 45-90	(1-2) b 60-90	○	○
11	(11)	(4-6) 130-200	(2-3) 120-180	(2-3) 120-170	(2-3) 100-160	(2-3) 70-125	(4-5) 60-90
12	(12)	(4-6) 100-150	(1-2) 80-120	(2-3) a 80-120	(2-3) a 60-100	○	(4-5) 50-85
13	(13)	(4-6) 90-150	○	(1-2) a 40-60	○	○	○
14	(14)	(4-6) 90-150	(1-2) 60-100	(2-3) 50-110	(2-3) 50-100	(1-2) 60-120	○
15	(15)	(2-3) 70-130	○	(2) 60-90	(2) 60-90	○	(2-3) 30-75
16	(16)	(2-3) 40-80	○	(1-2) 40-80	(1-2) b 40-80	○	(2) 25-60
17	(17)	○	(4-5) 150-225	○	○	(4-5) 125-200	○



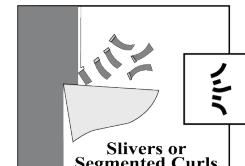
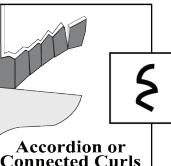
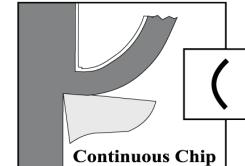
Most Appropriate



Occasionally Appropriate



Do Not Use



SFM = Surface Feet per Minute

$$\text{RPM} = \frac{\text{SFM} \times 3.82}{\text{Tool Ø Decimal (Inch)}}$$

$$\text{IPR} = \text{FM}^* \times \text{Tool Ø}$$

Use 4 place inch decimal diameter

IPM = Inch per Minute Penetration

$$\text{IPM} = \text{RPM} \times \text{IPR}$$

(Feed Curve)	FM*
(1)	0.004
(2)	0.006
(3)	0.008
(4)	0.010
(5)	0.012
(6)	0.014
(7)	0.016
(8)	0.018
(9)	0.020
(10)	0.024
(11)	0.028
(12)	0.035
(13)	0.045

\*FM is the proportionate Feed Multiplier

$$\text{ie.: } .0040 \text{ IPR} = .012 \text{ IPR} = .012 \text{ FM}^* \\ .3346'' \text{ Ø} = 1.000'' \text{ Ø} = 1.000'' \text{ Ø}$$

#### Notes

- a. 1 to 2 x Ø deep holes only.
- b. Use more aggressive points.

(Feed Curve) Notes

SFM - Surface Feet per Minute