

CUTTING CONDITION

SUPER COBALT T-15 FLAT BOTTOM SPADE DRILL INSERTS

Material	Material Hardness (Bhn)	Speed (SFM)		Feed			
		TiN	TiAlN	Ø3/8" ~1/2"	Ø33/64" ~11/16"	Ø45/64" ~15/16"	Ø31/32" ~1*3/8"
Free machining Steel 1213, 12L13, 1215 12L14, 1118 etc	100 - 150	165	220	0.005	0.007	0.010	0.013
	150 - 200	150	215	0.005	0.007	0.010	0.013
	200 - 250	135	190	0.004	0.007	0.010	0.012
Low Carbon Steel 1015, 1020, 1140 1025 etc	85 - 125	140	195	0.005	0.007	0.009	0.012
	125 - 175	135	190	0.005	0.007	0.009	0.012
	175 - 225	125	180	0.004	0.006	0.008	0.011
Medium Carbon Steel 1035, 1050, 1045 1055, 1140 etc	225 - 275	115	175	0.004	0.006	0.008	0.011
	125 - 175	135	195	0.004	0.007	0.009	0.011
	175 - 225	125	180	0.004	0.006	0.007	0.011
Structural Steel A36, A516, A182 etc	225 - 275	115	165	0.004	0.006	0.007	0.011
	275 - 325	105	150	0.003	0.005	0.007	0.009
	100 - 150	115	165	0.004	0.007	0.009	0.011
Cast Iron / S,G Iron A48-76 GR30/GR45 A536-72 60-40-18 A220-76 GR40010 etc	150 - 250	100	140	0.004	0.007	0.008	0.009
	250 - 350	80	115	0.003	0.006	0.007	0.008
	120 - 150	145	215	0.005	0.010	0.014	0.016
Alloy Steel 8620, 4130, 4137 4140, 6150 etc	150 - 200	130	190	0.005	0.008	0.011	0.016
	200 - 220	110	165	0.005	0.008	0.010	0.014
	220 - 260	95	150	0.004	0.006	0.008	0.010
Tool Steel H13, H21, A2, S1 etc	260 - 320	80	120	0.004	0.005	0.006	0.008
	125 - 175	125	165	0.005	0.006	0.008	0.011
	175 - 225	115	150	0.004	0.006	0.008	0.011
High Temp. Alloy Hastelloy B, Inconel etc	225 - 275	105	145	0.004	0.005	0.007	0.011
	275 - 325	100	140	0.003	0.005	0.007	0.009
	325 - 375	90	120	0.003	0.005	0.007	0.009
High Strength Alloy 9840, 4340, 4330V etc	150 - 200	65	90	0.003	0.005	0.006	0.008
	200 - 250	45	75	0.003	0.005	0.006	0.008
	140 - 220	20	30	0.003	0.005	0.006	0.008
Aluminium 2014, 6061, 7075 etc	220 - 310	15	25	0.003	0.004	0.006	0.006
	225 - 300	65	90	0.004	0.006	0.007	0.008
	300 - 350	45	70	0.003	0.006	0.007	0.008
Stainless Steel 310, 316, 410, 330 etc	350 - 400	40	60	0.003	0.005	0.006	0.007
	30	520	700	0.007	0.011	0.014	0.017
	180	255	390	0.007	0.011	0.014	0.016
	135 - 185	60	90	0.005	0.007	0.008	0.009
	185 - 275	50	80	0.004	0.006	0.007	0.009

RPM = revolution per minute (rev/min)

SFM = surface feet per minute (ft/min)

DIA = diameter of drill (inch)

IPR = feed rate (in/rev)

IPM = inch per minute penetration rate

*** Formulas :**

$$SFM = (RPM) \cdot (.262) \cdot (DIA.)$$

$$IPM = (RPM) \cdot (IPR)$$

$$RPM = \frac{(SFM) \cdot (3.82)}{(DIA.)}$$

The recommendations for speeds, feeds and other parameters presented in this chart are nominal recommendations and should be considered only as good starting points. Speed and feed reductions (20% reduction in speed and 10% reduction in feed) are recommended.

YG-1 CO., LTD.

