

Operating Guidelines • Series FPC and FPF Tips

ISO	Material	Condition	Tensile Strength (N/mm2)	Hardness HB	Material Group No.	Cutting Speed Vc (SFM)	Feed vs. Drill Diameter (inches/rev)				
							Ø12-Ø13.9	Ø14-Ø15.9	Ø16-Ø19.9	Ø20-Ø25.9	
							(.472-.547)	(.551-.626)	(.630-.783)	(.787-1.019)	
							IPR (inches/rev)				
P	Non-alloy steel and cast steel, free cutting steel	<0.25%C	Annealed	420	125	1	260-460	.010-.018	.012-.020	.014-.022	.016-.024
		≥0.25%C	Annealed	650	190	2	260-430				
		<0.55%C	Quenched and tempered	850	250	3	260-400				
		≥0.55%C	Annealed	750	220	4	230-360				
			Quenched and tempered	1000	300	5	165-300				
	Low alloy steel and cast steel (less than 5% of alloying elements)	Annealed	600	200	6	230-400	.008-.016	.010-.018	.012-.020	.014-.022	
		Quenched and tempered	930	275	7	230-360					
			1000	300	8	165-300					
			1200	350	9	130-230					
	High alloy steel, cast steel and tool steel	Annealed	680	200	10	165-300	.008-.014	.010-.016	.012-.018	.014-.020	
		Quenched and tempered	1100	325	11	130-260					
K	Grey cast iron (GG)	Ferritic	-	160	15	300-530	.014-.020	.016-.024	.018-.026	.020-.028	
		Pearlitic	-	250	16	260-460					
	Cast iron nodular (GGG)	Ferritic	-	180	17	300-595	.012-.018	.014-.022	.016-.024	.018-.026	
		Pearlitic	-	260	18	260-460					
	Malleable cast iron	Ferritic	-	130	19	300-530					
		Pearlitic	-	230	20	260-460					

Note: Feed and speed recommendations are starting operating parameters. They are only guidelines from which further optimization should take place. Operating parameters are influenced by many machining variables. These variables may cause for reductions in feeds and speed or dramatic increases. Additionally, DOC and WOC may need to be revised to optimize the tools performance.