PCD AND CVD APPLICATION GUIDE

SELECTING PRODUCTS & GRADES FOR YOUR APPLICATIONS

PCD / CVD GRADE SELECTION CUTTING CONDITIONS AND EDGE DESIGN

		CMX850	CTX002	CTB010	CTH025	CTM302	CDM	CDE	CUTTING SPEED (M/MIN) 10 100 200 500 1000 5000	FEED, F (MM) FZ (MM/ INSERT)	DEPTH OF CUT A_p (MM)	TYPICAL EDGE GEOMETRIES
NON FERROUS METALS HYPOEUTECTIC (SI< 12%) AND EUTECTIC (SI =12%) SILICON ALLOYS	N01									0.1 - 0.4	0.1 - 4.0	F α = 7-20° γ = 0°/+6°
	N10											
	N20									0.1 - 0.3	0.1 - 3.0	
	N30											
HYPEREUTECTIC (SI > 12%) ALUMINIUM CASTING ALLOYS METAL MATRIX COMPOSITES (MMC)	N01									0.1 - 0.5	0.1 - 4.0	F/E α = 7-11° γ = 0°/+6°
	N10											
	N20									0.1 - 0.3	0.1 - 3.0	
	N30											
CERAMIC MACHINING (GREEN) CERAMIC MACHINING (SINTERED)	UNSINTERED									0.1 - 0.4	0.2 - 1.0	F/E α = 0-7° γ = 0°/-6°
	SINTERED									0.1 - 0.25	0.1 - 0.5	
COPPER AND ITS ALLOYS MAGNESIUM AND ITS ALLOYS	N01									0.03 - 0.3	0.05 - 2.0	F α = 7-11° γ = 0°/+6°
	N30											
BI METALS	N20									0.08 - 0.2	0.25 - 1.0	F/E α = 7-11° γ = 0°/+6°
GREY & HIGH STRENGTH IRONS	K01									0.08 - 0.2	0.25 - 1.0	F α = 7-11° γ = 0°/+6°
	K40											
COMPOSITE PLASTICS	01									0.1 - 0.2	0.2 - 3.0	F/E α = 7-11° γ = 0°/+6°
	20											
TITANIUM	S01									0.1 - 0.2	0.2 - 0.5	F/E α = 7-11° γ = 0°/+6°
	S30											

Work material characteristics and to a lesser extent, cutting parameters, determine the demands placed on the cutting tool and hence, the optimum balance of tool material properties. Knowledge of the application, including workpiece composition, facilitates selection of the optimum grade and selection of the correct tool geometry. Often, work material composition and machining parameters (vc, f, ap) go hand in hand. It is possible, therefore, only to provide a typical range of values for each parameter.

LEGEND

F=up-sharp

E=honed edge