material property

Carbide Grade	ISO-Classif_ication	Co (%)	WC+other (%)	Density (g/cm³)	HV30	HRA	Bending strength (N/mm²)	WC Grain Size(μm)	Notes	Recommended Applications
GK03M	K01	3.0	97.0	15.10	2020	94.5	2700	0.8	excellent abrasive wear resistance, good toughness	Appropriate for rotating tools in machining of hard woods, plastics, fiber reinforced composites and casting aluminum alloys.
GK05UF	K05/K10	5.0	95.0	14.82	2000	94.0	3600	0.4	excellent wear resistance, very good strength and toughness	Recommend for rotating tools for high speed machining hardening steels, plastics, fiber reinforced materials, and aluminum alloys. Highly recommend using in PCB router for routing difficult boards.
GK33UF	K20/K30	10.0	90.0	14.35	1750	93.0	4000	0.4	extremely high hardness supported with excellent strength and toughness	Recommend using in rotating tools for high speed machining. Appropriate for machining hard steels, carbon steels, stainless steels, nickel-base alloys, titanium alloys, heat-resistant alloys, casting irons and the hard steels with HRC between 45-65.
GK44UF	K30/K40	12.0	88.0	14.05	1700	93.0	4100	0.4	excellent strength and toughness supporting excellent wear resistance	Highly recommend using in rotating tools for high speed machining. Appropriate for machining glass fiber reinforced materials, carbon steels, stainless steels, nickel-base alloys, titanium alloys, composite and the hard steels with HRC between 55-60 and the impact resistance needed.

material application.（◎Best；〇Better）。

Grade	tools					material machined												
	router	drill	reamer	PCB drill	PCB router	mild steels	steels	hard steels	stainless steels	titanium alloys	nickel-base alloys	casting irons	aluminum alloy	copper alloys	wood	composite	acrylics	graphite
GK03M					◎								◎	◎	◎	◎	◎	
GK05UF			◎	◎	◎								◎	◎	◎	◎	◎	
GK33UF	◎		◎	◎		〇	〇	◎	◎	〇	〇	◎	〇	〇	〇	〇	〇	
GK44UF	◎	◎	◎			◎	◎	◎	◎	◎	◎	〇	◎	◎	〇	◎	◎	