

CEMENTED CARBIDE

Cutting Tool Blanks Grade and Application Information

TECHNICAL DATA

Cemented Tungsten Carbide Grades for Tools, Dies, and Wear Components

	Kennametal Grade Name	Legacy Name	Grain Family	Industry Classification	Cobalt Content (wt. %)	Other Carbides TiC (Ta, Nb) C	Hardness (HRA)	Density (g/cm ³)	TRS (1000 psi)
Grades for Machining Cast Irons, Non-Ferrous Alloys, Woodworking, etc.	KFF05	K96 K6 HCA HA A CA443	Fine	C2 K10-K30	5.5	0.8	92.2	14.90	310
	KFF06	K68 HTA	Fine	C2 K10-K30	5.7	2	92.7	14.95	290
	KFS06	KF306 CA306 2506 CD630	Submicron	C4 K05-K20 M10-M20	6.0	—	93.3	14.90	500
	KFS33	K313 FK10F HU6C	Submicron	C3 K05-K20 M10-M20	6.0	—	93.0	14.90	450
	KFF24	H21 FK20M CA4 CQ2	Fine	C2 K10-K30	6.0	—	91.9	14.87	325
	KFS64	2210 KMS CD636 S105	Submicron	C2 K20-K30 M25-M40	10.0	—	91.8	14.40	625
	KFM65	H91 FK40B K1 BB K94	Medium	C1/C11 K30-K50	11.5	—	89.8	14.30	380
	KFU66	2612 FR12	Ultrafine	C3 K15-K25 M10-M25	12.0	—	92.2	14.15	480
	KFS67	CA313	Submicron	—	13.0	—	91.0	14.10	425
	KFM67	H81 CD40	Medium	C1/C11	13.0	0.7	88.6	14.15	450
KFS69	KF315 CA315 CD650	Submicron	C1 K40-K50	15.0	—	90.2	13.96	530	
Steel-Cutting Grades	KPM06	FM10B	Medium	C6 P15-P25	6.0	7.4	91.8	13.95	300
	KPM07	T22 FP20M	Medium	C7 P10-P20	7.0	11	92.0	12.75	270
	KPC07	TH16 FP25B	Coarse	C6 P25-P40	7.0	7	91.1	13.70	300
	KPM09	NTA FP20B S107	Medium	C6 P20-P35	8.5	16	91.2	12.40	315
	KPC09	FP30B	Coarse	C5/C6 P25-P40	8.5	7.5	90.5	13.55	350
	KPM55	T14 FP30M CA725X	Medium	C6 P20-P30	10.0	17	91.3	12.25	300
	KPM56	T04 CA745 XT04	Medium	C5 P30-P45	11.0	9	90.5	12.85	350
	KPM58	K82	Medium	C5 P35-P50	12.6	17	90.2	11.65	310

*Kennametal application specialist should be consulted to assist in grade selection. Application suitability should be evaluated from initial field trial performance. (continued)

*Grade properties listed are nominal values and are subject to change or upgrade without notice.

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(continued)

Grades For Machining Cast Irons, Non-Ferrous Materials, High-Temp Alloys												
K01		K10	K15	K20	K25	K30	K35	K40	K45	ISO	Grade	Characteristics/Applications
	C4		C3		C2		C1			ANSI		
											KFS06	A 6% cobalt micrograin of high hardness and wear resistance. Often applied as a rotary tool. Ideal for finish turning and light roughing of cast irons and high-temp alloys, and machining aluminum and titanium alloys.
											KFS33	Turning of high-strength aerospace alloys (nickel-, iron-, and cobalt-based high-temperature alloys, titanium alloys), turning of refractory metals (tungsten, molybdenum, zirconium), turning of gray cast iron, turning and milling aluminum alloys.
											KFF06	Excellent abrasion resistance for machining cast irons, austenitic stainless steels, non-ferrous metals, non-metals, and as an alternative to the KFS33 grade on most high-temperature alloys. Use as a general-purpose grade for non-ferrous materials.
											KFS64	KFS64 is an industry-standard for round tools. Recommended for rough and interrupted turning, milling, end milling, threading, and grooving. Often PVD-coated for greater utility.
											KFF24	General-purpose grade recommended widely for both turning and milling. An excellent substrate candidate for coatings, particularly aluminum oxide coatings.
											KFM65	For heavy roughing of most high-temperature alloys, cast irons, and non-ferrous alloys at low speed and heavy chip loads through interrupted cuts.
											KFS69	A 15% cobalt micrograin, KFS69, combines the toughness of steel with the wear resistance of carbide. Recommended for milling and end milling at low speeds and high chip loads under the most unfavorable conditions.
											KFM67	For very heavy roughing of most high-temperature alloys, cast irons, and non-ferrous alloys at low speed and heavy chip loads through severe interrupted cuts.

Steel-Cutting Grades												
P01	P10	P15	P20	P25	P30	P35	P40	P45	P50	ISO	Grade	Characteristics/Applications
	C8		C7		C6		C5			ANSI		
											KPM07	Extremely wear resistant. Excellent resistance to crater wear and thermal deformation. Recommended for high-speed finishing at low to moderate chip loads.
											KPM06	Substrate for high-speed finishing operations.
											KPM55	Excellent resistance to thermal deformation and cracking. Very good combination of wear resistance and edge strength. Recommended for milling and interrupted turning at moderate speeds and higher chip loads.
											KPM09	Popular and versatile steel cutting grade for both uncoated and coated applications. Recommended for general-purpose turning and milling operations over a broad range of speeds and feeds.
											KPC07	A general-purpose grade. As coated, KPC07 may be applied in a broad range of operations, from semi-finishing to moderate roughing. Also suitable for use on cast irons and 200/300 series stainless steels.
											KPC09	Broad range of machining operations for a variety of steels.
											KPM56	A tough, general-purpose grade suitable for moderate to heavy roughing and interrupted turning of all steels and steel castings. An excellent substrate for coated products.
											KPM58	A superior combination of impact strength and resistance to thermal cracking and notching. Recommended for milling at high chip loads, heavy interrupted turning, or roughing under severe conditions.

