Cutting Tool Blanks

Grade Specifications and Application Chart

KENNAMETAL®

Cemented Tungsten Carbide Grades for Cutting Tool Blanks and Engineered Components

	Kennametal Grade Name	Legacy Name	Average WC Grain Size (µm)	Industry Classification	Cobalt Content (wt. %)	Other Carbides TiC (Ta, Nb) C	Hardness (HRA)	Density (g/cm³)	TRS (1000 psi)	Common Applications: Turning	Milling	Drilling	Threading	Grooving	Round Tools	STB & Tips
Grades for Machining Cast Irons, Non-Ferrous Alloys, Woodworking, etc.	KFF15	HTA	Fine	C2 K10–K30	5.5	3	92.4	14.80	300	●			●	●		●
	KFF05	K96 K6 HCA HA A CA443	Fine	C2 K10–K30	5.5	0.8	92.2	14.90	310	●			●	●		●
	KFF06	K68	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	–	93.2	14.90	450						●	●
	KFS33	K313 FK10F MMT2 CQ6 PWX	Submicron	C3 K05–K20 M10–M20	6.0	–	93.0	14.90	450	●	●	●	●	●	●	
	HU6C	HU6C	Fine	C3 K05–K20 M10–M20	6.0	–	92.8	14.82	500	●	●	●	●	●	●	
	KFF24	H21 FK20M CA4 CQ2	Fine	C2 K10–K30	6.0	–	92.0	14.90	325	●	●	●	●	●		●
	KFU07	CA307	Ultrafine	–	7.0	–	93.2	14.75	375				●	●		
	KFS64	2210 FR10 FK30F S105 X160	Submicron	C2 K20–K30 M25–M40	10.0	–	91.8	14.40	625		●	●			●	●
	KFM65	H91 FK40B K1 BB K94	Medium	C1/C11 K30–K50	11.0	–	89.7	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	510		●					
	KFM67	H81	Medium	C1/C11	13.0	0.7	88.6	14.15	450		●	●				
	KFS69	KF315 CA315 FR15 2216	Submicron	C1 K40–K50	15.0	–	90.2	13.96	525						●	●
Steel Cutting Grades	KPM06	FM10B	Medium	C6 P15–P25	6.0	8.3	91.4	14.00	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	Medium	C6 P20–P35	8.5	16	91.4	12.15	275	●	●	●	●	●		
	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	Medium	C5 P30–P45	11.0	9	90.3	13.05	350	●		●		●		
	KPM58	K82	Medium	C5 P35–P50	12.6	17	90.2	11.65	310	●				●		
										Turning	Milling	Drilling	Threading	Grooving	Round Tools	STB & Tips

**Grade properties are subject to change without notice.*

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Grades For Machining Cast Irons, Non-Ferrous Materials, High-Temp Alloys

ISO ANSI	Grade Name	Legacy Name	Characteristics/Applications
K01 / C4	KFS06	KF306 CA306 2506 CD630	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.
K10 / C3	KFS33	K313 FK10F MMT2 CQ6 PWX	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.
K15 / C3	KFF06	K68	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.
K20 / C2	KFF05	K96 K6 HCA HA A CA443	For moderate roughing of most high-temperature alloys, cast irons, non-ferrous alloys, and non-metals at moderate to low speeds and moderate to heavy chip loads through light interruptions.
K25 / C2	KFS64	2210 FR10 FK30F S105 X160	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.
K30 / C2	KFF24	H21 FK20M CA4 CQ2	General purpose grade recommended widely for both turning and milling. An excellent substrate candidate for coatings, particularly aluminum oxide coatings.
K35 / C1	KFM65	H91 FK40B K1 BB K94	For heavy roughing of most high-temperature alloys, cast irons, and non-ferrous alloys at low speed and heavy chip loads through interrupted cuts.
K40 / C1	KFS69	KF315 CA315 FR15 2216	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.
K45 / C1	KFM67	H81	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

ISO ANSI	Grade Name	Legacy Name	Characteristics/Applications
P01 / C8	KPM07	T22 FP20M	Extremely wear resistant. Excellent resistance to crater wear and thermal deformation. Recommended for high-speed finishing at low to moderate chip loads.
P10 / C7	KPM06	FM10B	Substrate for high-speed finishing operations.
P15 / C7	KPM55	T14 FP30M CA725X	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.
P20 / C6	KPM09	NTA FP20B	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.
P25 / C6	KPC07	TH16 FP25B	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.
P30 / C6	KPC09	FP30B	Broad range of machining operations for a variety of steels.
P35 / C5	KPM56	T04 CA745	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.
P40 / C5	KPM58	K82	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.
P45 / C5			
P50 / C5			