

Grade Properties

A

Cermet

Symbol	Color	Main Component	Coating Layer	Ratio	Hardness of Substrate		Fracture Toughness (MPam ^{1/2})	Transverse Strength (MPa)
					(HV)	(GPa)		
TN6010	Gray	TiCN	-	6.5	1,700	16.7	7.0	2,000
TN6020	Gray	TiCN	-	6.4	1,500	14.7	10.0	2,500
TN60	Gray	TiCN+NbC	-	6.6	1,600	15.7	9.0	1,760
TN90	Gray	TiCN+NbC	-	6.4	1,450	14.2	10.0	1,960
TN100M	Gray	TiCN+NbC	-	6.7	1,520	14.9	10.5	1,860
TC40	Gray	TiC+TiN	-	6.0	1,650	16.2	9.0	1,570
TC60	Gray	NbC	-	8.1	1,500	14.7	10.5	1,670

PVD Coated Cermet

Symbol	Color	Main Component	Coating Layer	Ratio	Hardness of Substrate		Fracture Toughness (MPam ^{1/2})	Transverse Strength (MPa)
					(HV)	(GPa)		
PV7005	Blackish red	MEGACOAT	Thin coating	6.0	1,650	16.2	8.5	1,470
PV7010	Blackish red	MEGACOAT	Thin coating	6.5	1,700	16.7	7.0	2,000
PV7025	Blackish red	MEGACOAT	Thin coating	6.4	1,500	14.7	10.0	2,500
PV7020	Gold	TiAlN+TiN	Thin coating	6.4	1,500	14.7	10.0	2,500
PV60	Gold	TiN	Thin coating	6.6	1,600	15.7	9.0	1,760
PV90	Gold	TiN	Thin coating	6.4	1,450	14.2	10.0	1,960

CVD Coated Carbide

Symbol	Color	Main Component	Coating Layer	Ratio	Hardness of Substrate		Fracture Toughness (MPam ^{1/2})	Transverse Strength (MPa)
					(HV)	(GPa)		
CA4010	Gold	Columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.8	1,670	16.4	10.0	3,000
CA4115	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.7	1,550	15.2	12.0	2,750
CA4120	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.7	1,550	15.2	12.0	2,750
CA4505	Blackish gray	Micro columnar TiCN+Al ₂ O ₃	Thick coating	14.9	1,780	17.4	9.5	2,350
CA4515	Blackish gray	Micro columnar TiCN+Al ₂ O ₃	Thick coating	14.9	1,570	15.4	12.0	2,780
CA5505	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.7	1,730	17.0	10.0	2,540
CA5515	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.7	1,550	15.2	12.0	2,750
CA5525	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.5	1,400	13.7	12.0	2,780
CA5535	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thick coating	14.1	1,340	13.1	16.5	2,970
CA6515	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thin coating	14.7	1,530	15.0	12.0	2,780
CA6525	Gold	Micro columnar TiCN+Al ₂ O ₃ +TiN	Thin coating	14.7	1,370	13.4	16.0	3,100
CR9025	Gold	Columnar TiCN+TiN	Thick coating	14.5	1,400	13.7	12.0	2,780

PVD Coated Carbide

Symbol	Color	Main Component	Coating Layer	Ratio	Hardness of Substrate		Fracture Toughness (MPam ^{1/2})	Transverse Strength (MPa)
					(HV)	(GPa)		
PR630	Gold	TiN	Thin coating	12.5	1,500	14.7	11.0	2,160
PR660	Gold	TiN	Thin coating	13.7	1,450	14.2	12.0	2,250
PR730	Gold	TiAlN+TiN	Thin coating	13.7	1,450	14.2	12.0	2,250
PR830	Gold	TiAlN+TiN	Thin coating	13.7	1,450	14.2	12.0	2,250
PR905	Bluish violet	TiAlN	Thin coating	14.8	1,670	16.4	10.0	3,000
PR915	Bluish violet	TiAlN	Thin coating	14.1	1,700	16.7	11.0	4,140
PR930	Reddish gray	TiCN	Thin coating	14.1	1,700	16.7	11.0	4,140
PR1005	Reddish gray	TiCN	Thin coating	14.9	1,800	17.6	10.0	3,300
PR1025	Reddish gray	TiCN	Thin coating	14.5	1,600	15.8	13.0	3,400
PR1115	Purple red	TiAlN	Thin coating	14.7	1,700	16.7	11.0	3,000
PR1125	Purple red	TiAlN	Thin coating	14.5	1,600	15.8	13.0	3,400
PR1210	Blackish red	MEGACOAT	Thin coating	14.8	1,670	16.4	10.0	3,000
PR1215	Blackish red	MEGACOAT	Thin coating	14.7	1,700	16.7	11.0	3,000
PR1225	Blackish red	MEGACOAT	Thin coating	14.5	1,600	15.8	13.0	3,400
PR1230	Blackish red	MEGACOAT	Thin coating	13.7	1,450	14.2	12.0	2,250
PR1305	Blackish red	MEGACOAT	Thin coating	15.0	1,790	17.5	9.5	2,350
PR1310	Blackish red	MEGACOAT	Thin coating	14.8	1,670	16.4	10.0	3,000
PR1325	Blackish red	MEGACOAT	Thin coating	14.7	1,370	13.4	16.0	3,100

Carbide

Symbol	Color	Main Component	Ratio	Hardness of Substrate		Fracture Toughness (MPam ^{1/2})	Transverse Strength (MPa)
				(HV)	(GPa)		
PW30	Gray	WC+Co+TiC+TaC	12.5	1,500	14.7	12.0	2,160
KW10	Gray	WC+Co	15.0	1,650	16.2	10.0	1,470
GW15	Gray	WC+Co	14.7	1,700	16.7	11.0	3,000
GW25	Gray	WC+Co	14.5	1,600	15.8	13.0	3,400
SW05	Gray	WC+Co	15.0	1,790	17.5	9.5	2,350
SW10	Gray	WC+Co	14.8	1,670	16.4	10.0	3,000
SW25	Gray	WC+Co	14.7	1,370	13.4	16.0	3,100