

Grade Descriptions & Selection

Coatings add wear resistance and lubricity to the cutting edge, providing longer insert life and increased productivity through higher feeds and speeds. Choose the class and coating that best suits your application's material, or contact us for a recommendation.



GRADE DESCRIPTIONS

CLASS	COATING	DESCRIPTION	WORKPIECE MATERIALS
C1/C2	none	Unalloyed micrograin with an excellent combination of toughness and wear resistance.	Cast iron, aluminum, non-ferrous alloys, high-temp alloys
C1/C2	TiCN	Tough, unalloyed micrograin with a PVD TiCN coating for enhanced wear resistance in abrasive and adhesive materials. Low heat resistance.	Moderate to machine steel, stainless, and abrasive materials like cast iron and high silicon aluminum alloys
C2/C6	TiAlN	Tough, unalloyed micrograin substrate with a PVD TiAlN coating. Maintains hardness and improves productivity in high heat applications.	Steel, stainless, cast iron, high temperature alloys
C5	TiN	Tough, alloyed substrate with PVD TiN coating. For general purpose machining of ferrous materials at low to medium speeds.	Easy and moderate to machine ferrous materials
C5/C6	TiAlN	Tough, alloyed substrate with PVD TiAlN coating. First choice for moderate to difficult steels and hardened stainless.	Moderate and difficult to machine steel, 400-series stainless

GRADE SELECTION

WORKPIECE MATERIAL			MATERIAL EXAMPLES	GRADES				
				C1/C2	C1/C2 TiCN	C2/C6 TiAlN	C5 TiN	C5/C6 TiAlN
Steel	Carbon steels	Annealed	10xx, 11xx, 12xx, 12Lxx, 15xx	○	○	○	◆	○
		>=0.25% C Hardened	10xx, 15xx	-	○	○	○	◆
	Alloyed steels	Annealed	41xx, 43xx, 86xx	-	○	○	○	◆
		Hardened	41xx, 43xx, 86xx	-	○	○	○	◆
Tool & die steels	Annealed	A2, D2, H13, O1, S7	-	○	○	○	◆	
Stainless	Ferritic/Martensitic	Annealed	416, 420F, 430F	-	○	○	○	◆
		Hardened	403, 410, 416, 17-4 PH	-	-	○	○	◆
	Austenitic	Annealed	304, 316, 321	○	○	◆	-	-
CI	Gray	Pearlitic/ferritic	Class 20, 25, 30, 45, 50, 60	○	○	◆	-	-
	Ductile	Ferritic/pearlitic	60-40-18, 80-55-06, 100-70-03	○	○	◆	-	-
Hi-temp	Titanium alloys	α+β alloys	Ti-6Al-4V	◆	-	○	-	-
	High temp alloys		Inconel; Monel; Waspaloy	◆	-	○	-	-
NF	Aluminum	Wrought	20xx; 50xx; 60xx; 70xx	◆	○	-	-	-
	Brass, bronze, copper			○	◆	-	-	-

- ◆ first choice
- alternate choice

The above grades and coatings are suitable for a wide range of materials and operating conditions. Other grades and coatings that are not listed in this catalog are available by request and may offer enhanced productivity in certain applications.