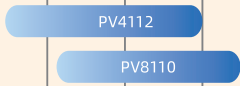
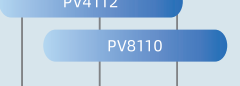


## Fine machining PVD Coated cemented carbide tools

Workpiece Material	Steel (Carbon steel/Alloy Steel)					Stainless steel Stainless steel/cast steel					Cast iron (Grey cast iron/Nodular cast iron)			
Application	Fine ↔ Rough					Fine ↔ Rough					Fine ↔ Rough			
Material Type	P01	P10	P20	P30	P40	M01	M10	M20	M30	M40	K01	K10	K20	K30
Suitable range of PVD Carbide tool grades														

## PVD Coated carbide tools

Base Material grade	Density g/cm <sup>3</sup>	Base Material Hardness		Anti collapse toughness (MPa·m <sup>1/2</sup> )	Bending Strength (MPa)
		HV30	HRA		
MF810	14.4	1600	92.5	12	4500
MF412	14.2	1700	93.5	11	4800

## PVD Coating Grade description

Grade	Color	Coating Hardness HV	Antioxidant Tem. (°C)	Frictional coefficient	Coating thickness (μm)	Recommendation
PV8110	Purple-black	3500	900	0.3	2.5-3	Steel, SuS, Cast S, Titanium Alloy etc working condition
PV4112						
PV8210	Grey-black	4000	1200	0.3	3-4	General Stainless steel machining
PV4212						
PV8310	Bronze	4200	1000	0.3	2-3	HRC55 hardened materials, High-Tem Alloy, Titanium Alloy
PV4312						

\* Below Table edited based on publication of brands, non-official recognized by mentioned brands.

## PVD Coated carbide tool (Truning application)

Materials type		Metcera	Koycera	Mitsubishi	NTK	Sandvik
Type	Code					
P(Steel.)	P01	PV4112	/	/	/	/
	P10	PV4112	/	/	/	/
	P20	PV4112 PV8110	PR930 PR1225	VP15TF	/	GC1125
	P30	PV8110	PR1225	VP15TF	ZM3 QM3	GC1125
M(SUS)	M10	PV4112	PR930	VP10MF	/	/
	M20	PV4112 PV8110	PR930 PR1225	VP15TF	/	GC1125
	M30	PV8110	PR1225	VP15TF	ZM3 QM3	GC1125