

The best solution for machining various kinds of materials

PC5300 / PC5400



Series of Universal Grades

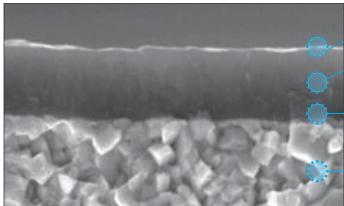
- Superior and universal grade for machining various kinds of materials
- The new PVD coating layer ensures excellent performance and stability in machining

PC5300 / PC5400

Universal Grade Series PVD PC5300

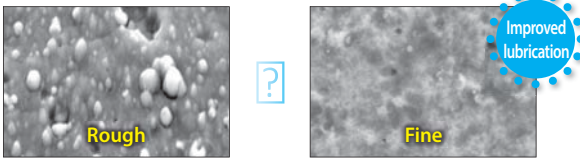
- PVD coating layer with high hardness and oxidation resistance during machining at high temperature
→ Superior oxidation resistance during machining of steel, cast iron, stainless steel, and heat-resistant alloys
- Ultra fine grain substrate with high toughness and special treatment on the surface
→ Improved welding resistance and chipping resistance

Features



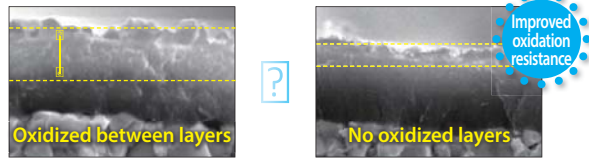
- ① Coating layer with high surface finish → Superior welding resistance
- ② Coating layer with high hardness and oxidation resistance during machining at high tempe → Superb wear resistance during machining at high speeds
- ③ Coating layer with high toughness and high adhesive strength → Excellent chipping resistance
- ④ Ultra fine grain substrate with high toughness → Great fracture resistance and stability in machining

- Special treatment on the surface



[Existing coating layer] [PC5300]

- Coating layer with oxidation resistance during machining at high temperature(after 900°C heat treatment)

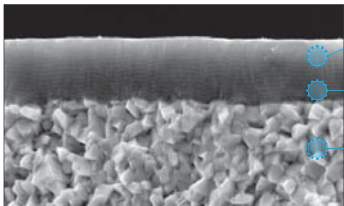


[Competitor's layer] [PC5300]

PVD PC5400

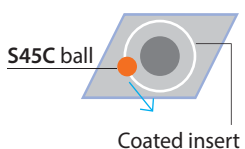
- Coating layer with excellent lubrication → Improved wear resistance and surface roughness at low speed machining or machining of deposited materials and mild steel
- Ultra fine grain substrate with high toughness and special treatment on the surface
→ chipping resistance and fracture resistance ensures stability in machining

Features

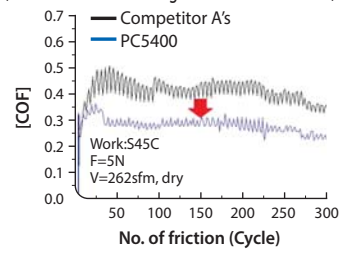


- ① Coating layer with superior lubrication → Welding resistance ensures excellent machining of carbon steel and mild steel
- ② Coating layer with high toughness and high adhesive strength → Superior chipping resistance
- ③ Ultra fine grain substrate with high toughness → Fracture resistance and high stability at machining

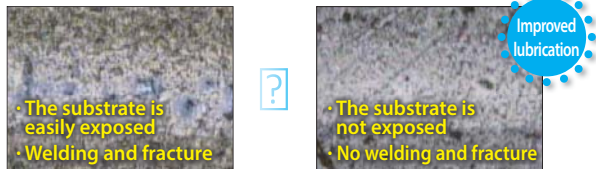
- Evaluation of measuring Coefficient of Friction



- Layer with high lubrication (Evaluation of measuring Coefficient of Friction)



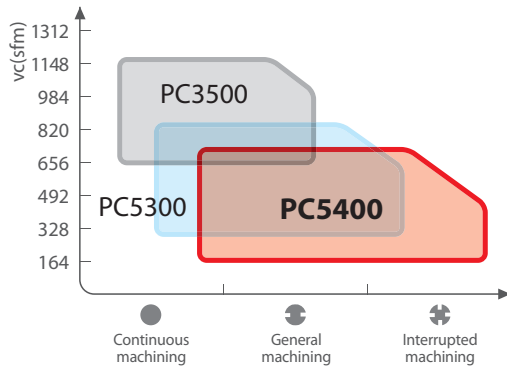
- Surface of the layer rubbed with S45C ball



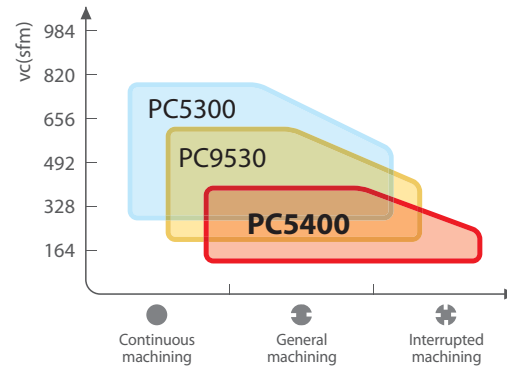
[Competitor A] [PC5400]

Milling Grades Line-up

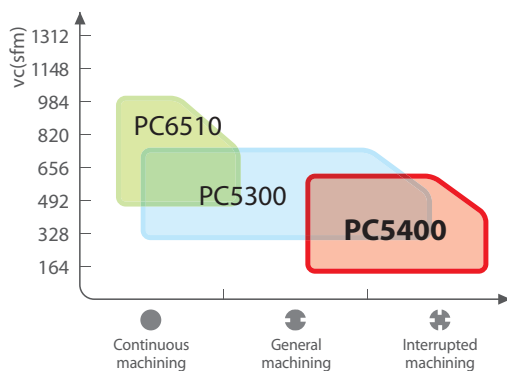
P Steel



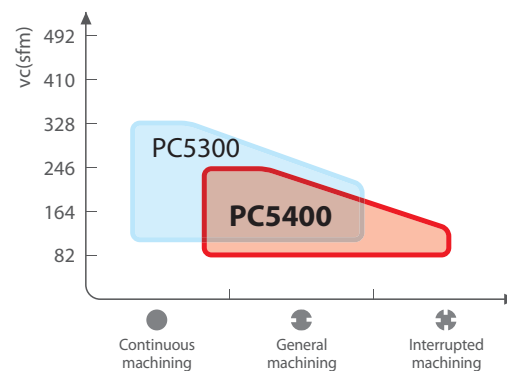
M Stainless steel



K Cast iron



S Heat-resistant alloy



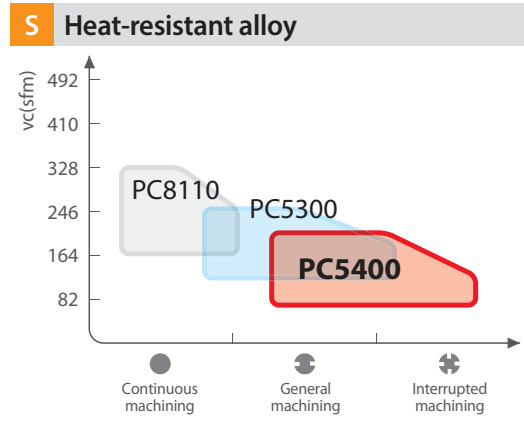
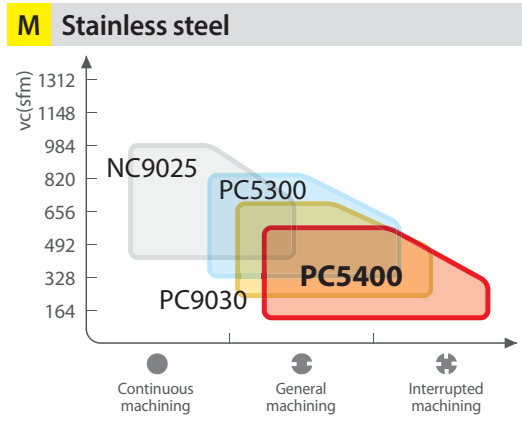
Milling Insert

Chip breaker	Cutting edge	Applications	Features
MA		Aluminum	Optimally buffed cutting edge for machining of aluminum ensures excellent performance
ML		Hard-to-cut materials	Chip breaker designed for low cutting load ensures superb performance in machining of hard-to-cut materials
MF		For finishing	Chip breaker having stronger cutting edge than ML is optimal for finishing with low cutting load
MM		Universal	Optimal for universal milling

PC5300 / PC5400

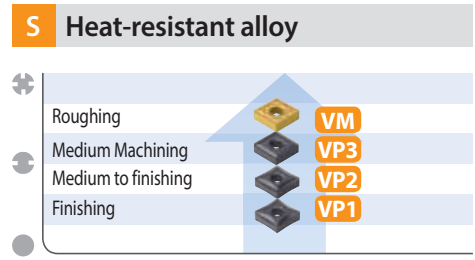
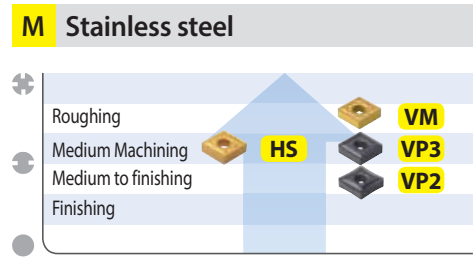


Turning grades Line-up

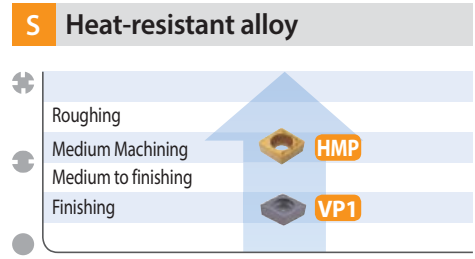
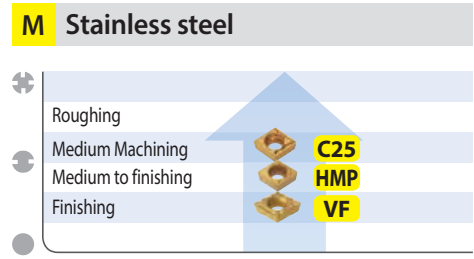


Chip breakers for turning inserts

• Negative insert



• Positive insert



Comparison for universal grades

Grade	Korloy	MMC	Sandvik	Iscar	Kyocera	KTT	Seco
S15-25 M20-35	PC5300	VP15TF	GC1025 GC1030	IC908	PR1125 PR1225 PR630	TT9030 TT9080	CP500
S25-35 M35-45	PC5400	VP30RT	GC1040 GC2040	IC328	PR660	TT8020 TT8080	F40M

Recommended Cutting Conditions

ISO	KS	Workpiece			Vc (sfm)			
		Workpiece	HB	HRC	Turning		Milling	
					PC5300	PC5400	PC5300	PC5400
P Carbon steel	SM15C SM25C SM35C	Low carbon steel	80~180	10 below	328~558	262~492	459~886	328~820
	SM45C SM58C SCMn1 SMn438(H) SUM22 SNC236	High carbon steel	180~280	10~30	262~525	230~459	295~722	262~722
P Alloy steel	SCM410S SCM440 SCMnH1	Low alloy steel	140~260	27 below	262~492	230~427	328~656	262~656
	SCr440 SNCM220 SNCM240	Low alloy pre-hardened steel	220~450	20~50	197~427	164~361	230~459	197~394
	STD1 STD61 STS43	High alloy steel	50~260	27 below	262~427	230~361	230~492	197~492
	SKH55 SKH3 SKH51	High alloy pre-hardened steel	220~450	20~48	164~328	131~328	131~361	98~295
M Stainless steel	STS304 STR31 STR316	Austenite Series	135~275 Ni>8%	29 below	394~722	328~656	328~755	262~591
	STS316 B11SSC16 STS321 STS12	Cast steel Austenite	150~250	25 below	328~656	262~591	295~623	164~558
	STS403 STS410 STS420 STS430 STR446 STR36	Ferrite series Martensite series	135~275	29 below	394~919	328~820	361~787	262~656
S Heat-resistant alloy	Incoloy800	Fe base	200~280	29 below	164~262	131~197	131~213	98~197
	Hastelloy C Inconel718 Nimonic901	Ni base	250~320	34 below	66~180	66~164	115~197	98~197
	Stellite	Co base	200~320	34 below			33~82	33~82
	TA14/17	Ti alloy steel	400	43 below	361~525	262~459	328~394	262~328
Ti High hardness alloy steel		400H	43 above	131~213	98~197	148~213	98~197	
K Cast iron	GC100 GC150 GC200	Low tensile strength	180	18 below	361~591	262~492	656~689	492~591
	GC250 GC350	High tensile strength	220	23 below	312~459	262~361	492~755	394~656
	GCD400 GCD500	Ferrite series	160	10 below	312~443	262~361	361~591	262~492
	GCD600 GCD700	Ferrite series	250	24 below	295~427	230~361	328~525	230~427
		Martensite series	380	41 below	213~328	164~295	197~394	164~328
N Aluminum Copper alloy	Aluminum	Aluminum alloy	30~150	-	131~1312	131~1312	820~1312	820~1312
	Copper, copper alloy		150~160	-	66~820	66~820	984~1640	984~1640

PC5300 / PC5400

Application Examples (PC5300)

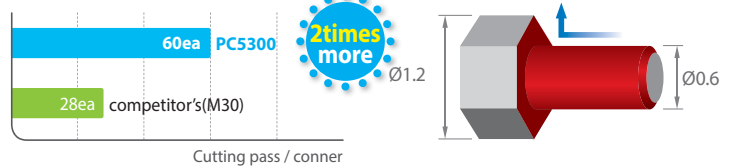
• Turning

M Stainless steel (STS304)

- Cutting conditions vc (sfm) = 925
fn (ipr) = 0.008
ap (inch) = 0.118
wet

- Tool Insert CNMG432-HS
Holder DCLNL16-4D

• Result

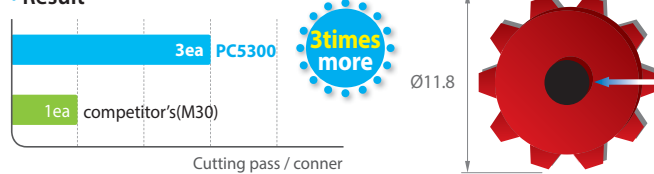


M Stainless steel (STS316)

- Cutting conditions vc (sfm) = 394
fn (ipr) = 0.008
ap (inch) = 0.020~0.059
wet

- Tool Insert SNMG432-GS
Holder DSBNL16-4D

• Result



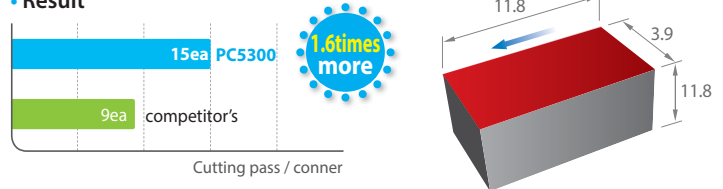
• Milling

P Carbon Steel (SM45C)

- Cutting conditions vc (sfm) = 820
fz (ipt) = 0.012
ap (inch) = 0.079
dry

- Tool Insert SPKN53EDSR-SU
Cutter EPNA5600R

• Result

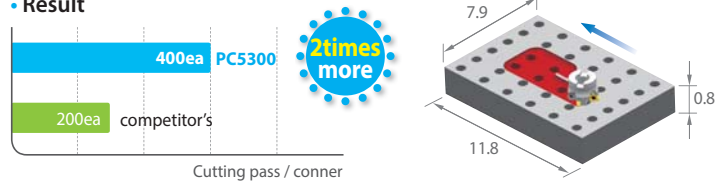


P Alloy steel (KP4M)

- Cutting conditions vc (sfm) = 820
fz (ipt) = 0.039
ap (inch) = 0.039
dry

- Tool Insert WNMX130520ZNN-MM
Cutter HRMDCA13200HR-3

• Result

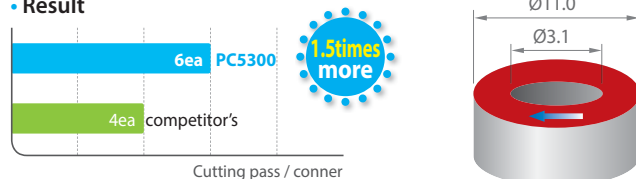


M Stainless steel (STS316)

- Cutting conditions vc (sfm) = 213
fz (ipt) = 0.006
ap (inch) = 0.118
wet

- Tool Insert SEET14M4AGSN-MM
Cutter FMACA4400HR

• Result



Application Examples (PC5400)

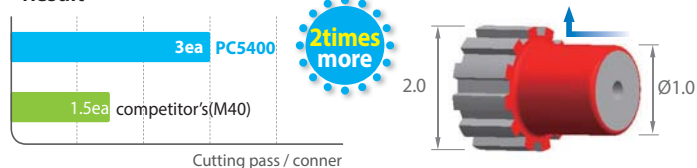
• Turning

M Stainless steel (STS304)

- Cutting conditions vc (sfm) = 361
 fn (ipr) = 0.010
 ap (inch) = 0.039~0.079
wet

- Tool Insert CNMG432-VP3
Holder DCLNL16-4D

• Result



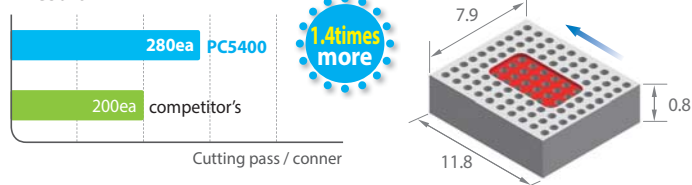
• Milling

P Carbon steel (SM45C)

- Cutting conditions vc (sfm) = 820
 fz (ipt) = 0.047
 ap (inch) = 0.039
dry

- Tool Insert WNMX130520ZNN-MM
Cutter HRMDCA13200HR-4

• Result

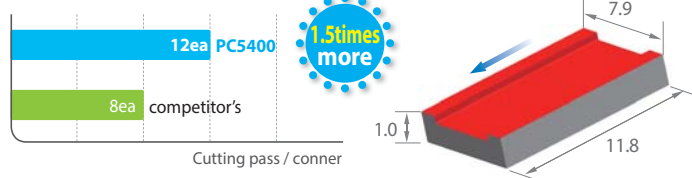


P Alloy steel (SCR440)

- Cutting conditions vc (sfm) = 591
 fz (ipt) = 0.008
 ap (inch) = 0.079
dry

- Tool Insert RDKT1605M0-MM
Cutter FMCA5250HRD-H

• Result

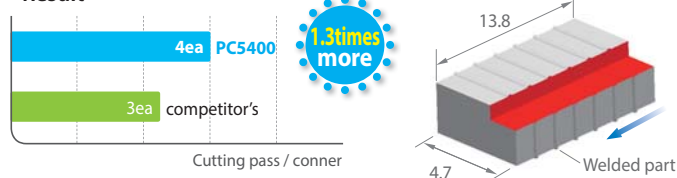


M Stainless steel (STS316)

- Cutting conditions vc (sfm) = 164
 fz (ipt) = 0.004
 ap (inch) = 0.157
 ae (inch) = 0.591
dry

- Tool Insert APMT1604PDSR-MM
Cutter AMCA3250HS

• Result

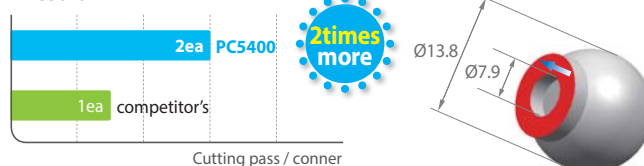


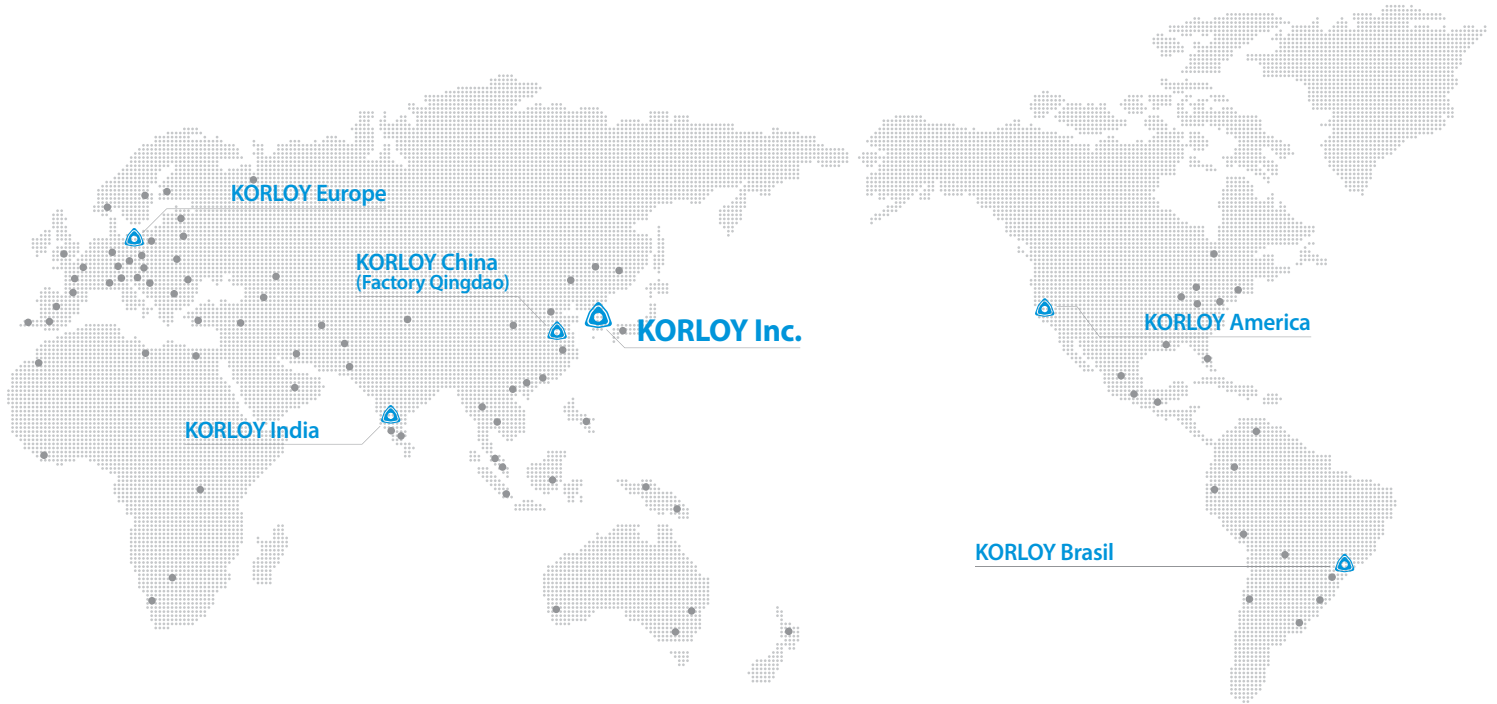
S Heat-resistant alloy (INCONEL718)

- Cutting conditions vc (sfm) = 197
 fz (ipt) = 0.004
 ap (inch) = 0.098
wet

- Tool Insert SNMX44ANN-MM
Cutter RM8ACA4300HR

• Result





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