

The best solution for the 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

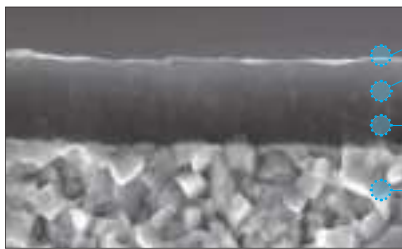


# PC5300 / PC5400

## Universal Grade Series PVD PC 5300

- 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

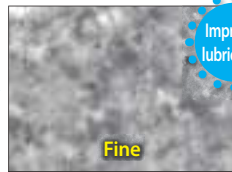


- ① Coating layer with high surface finish → Superior welding resistance
- ② Coating layer with high hardness and oxidation resistance during machining at high temperature → Superb wear resistance during machining at high speeds
- ③ Coating layer with high toughness and high adhesive strength → Excellent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

- Special treatment on the surface



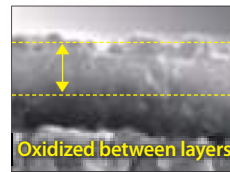
[ Existing coating layer ]



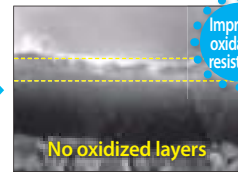
[ PC5300 ]



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



[ Competitor's layer ]



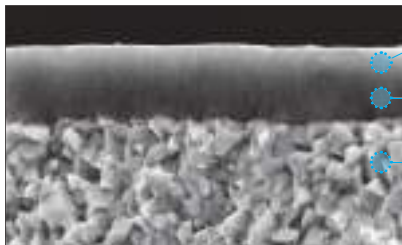
[ PC5300 ]



## PVD PC 5400

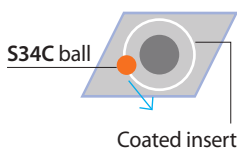
- Coating layer with excellent lubrication → Improved wear resistance and surface roughness at low speed machining or machining of deposited materials and mild steel
- Ultra fine grain substrate with high toughness and special treatment on the surface  
→ chipping resistance and fracture resistance ensures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

### Features

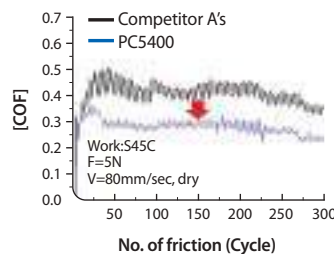


- ① Coating layer with superior lubrication → Welding resistance ensures excellent machining of carbon steel and mild steel
- ② Coating layer with high toughness and high adhesive strength → Superior chipping resistance
- ③ Ultra fine grain substrate with high toughness → Fracture resistance and high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

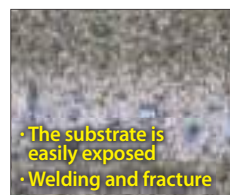
- Evaluation of measuring Coefficient of Friction



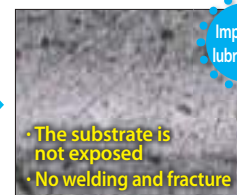
- Layer with high lubrication (Evaluation of measuring Coefficient of Friction)



- Surface of the layer rubbed with S34C ball



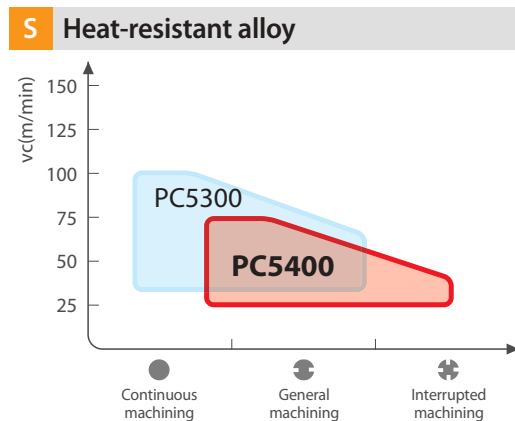
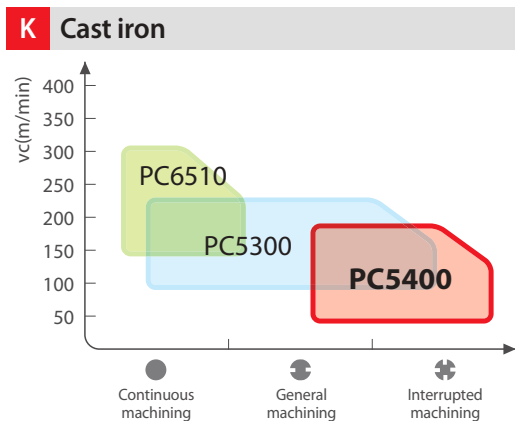
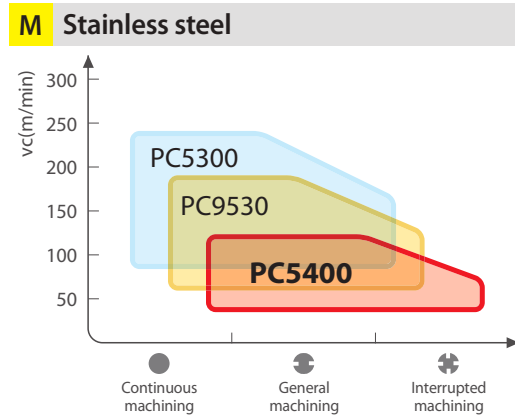
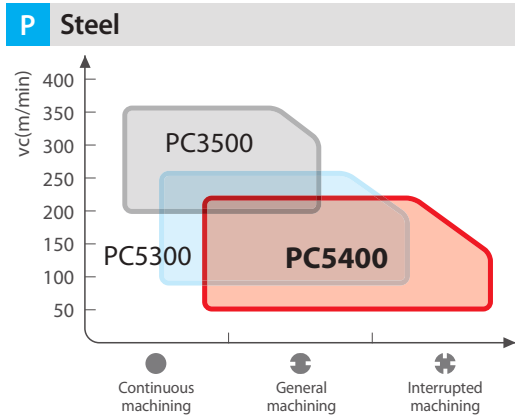
[ Competitor A ]



[ PC5400 ]



## Milling Grades Line-up

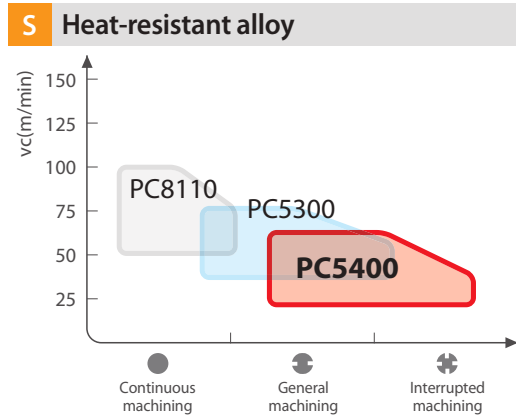
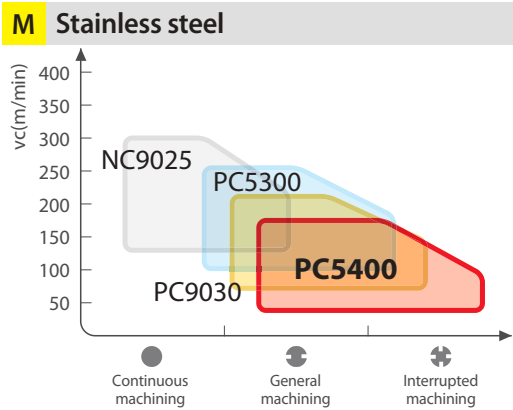


## Milling Insert

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

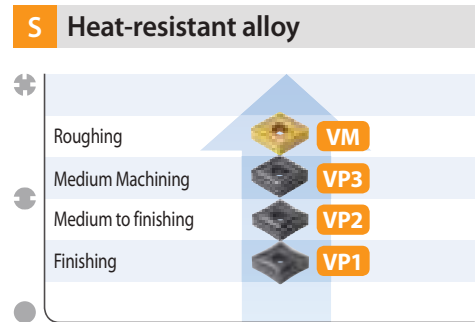
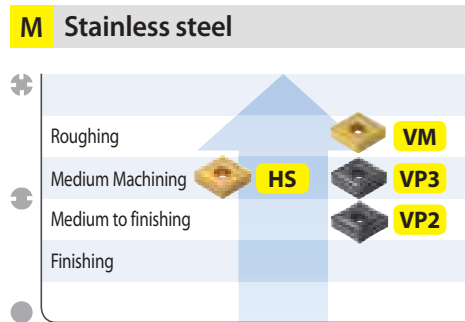
# PC5300 / PC5400

## Turning grades Line-up

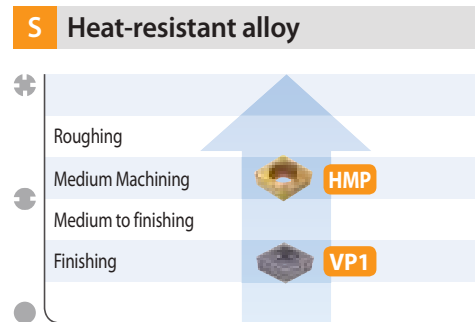
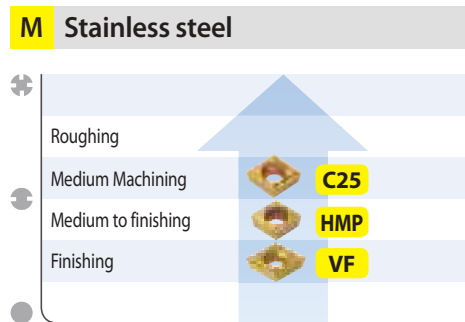


## Chip breakers for turning inserts

### • Negative insert



### • Positive insert



## Comparison for universal grades

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

## Recommended Cutting Conditions

Workpiece					vc(m/min)			
ISO	KS	Workpiece	HB	HrC	Turning		Milling	
					PC5300	PC5400	PC5300	PC5400
P Carbon steel	SM15C SM25C SM35C	Low carbon steel	80~180	10below	100~170	80~150	140~270	100~250
	SM45C SM58C SCMn1 SMn438(H) SUM22 SNC236	High carbon steel	180~280	10~30	80~160	70~140	90~220	80~220
P Alloy steel	SCM410S SCM440 SCMnH1	Low alloy steel	140~260	27below	80~150	70~130	100~200	80~200
	SCr440 SNCM220 SNCM240	Low alloy pre-hardened steel	220~450	20~50	60~130	50~110	70~140	60~120
	STD1 STD61 STS43	High alloy steel	50~260	27below	80~130	70~110	70~150	60~150
	SKH55 SKH3 SKH51	High alloy pre-hardened steel	220~450	20~48	50~100	40~100	40~110	30~90
M Stainless steel	STS304 STR31 STR316	Austenite Series	135~275 Ni>8%	29below	120~220	100~200	100~230	80~180
	STS316 B11SSC16 STS321 STS12	Cast steel Austenite	150~250	25below	100~200	80~180	90~190	50~170
	STS403 STS410 STS420 STS430 STR446 STR36	Ferrite series Martensite series	135~275	29below	120~280	100~250	110~240	80~200
	Incoloy800 Hastelloy C Inconel718 Nimonic901	Fe base Ni base	200~280 250~320	29below 34below	50~80 20~55	40~60 20~50	40~65 35~60	30~60 30~60
S Heat-resistant alloy	Stellite	Co base	200~320	34below			10~25	10~25
	TA14/17	Ti alloy steel Ti High hardness alloy steel	400 400이상	43below 43above	110~160 40~65	80~140 30~60	100~120 45~65	80~100 30~60
K Cast iron	GC100 GC150 GC200	Low tensile strength	180	18below	110~180	80~150	200~210	150~180
	GC250 GC350	High tensile strength	220	23below	95~140	80~110	150~230	120~200
	GCD400 GCD500	Ferrite series	160	10below	95~135	80~110	110~180	80~150
	GCD600 GCD700	Ferrite series	250	24below	90~130	70~110	100~160	70~130
		Martensite series	380	41below	65~100	50~90	60~120	50~100
	N Aluminum Copper alloy	Aluminum	Aluminum alloy	30~150	-	40~400	40~400	250~400
Copper, copper alloy			150~160	-	20~250	20~250	300~500	300~500

# PC5300 / PC5400

## Application Examples(PC5300)

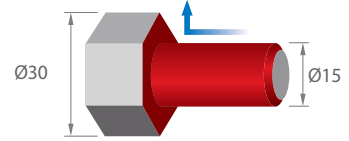
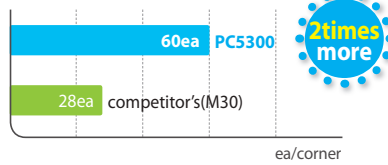
### • Turning

#### M Stainless steel (STS304)

- Cutting conditions  $vc(m/min) = 282$   
 $fn(mm/rev) = 0.2$   
 $ap(mm) = 3.0$   
 wet

- Tool Insert CNMG120408-HS  
 Holder DCLNL2525-M12

#### • Result

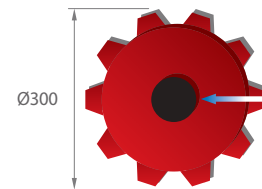
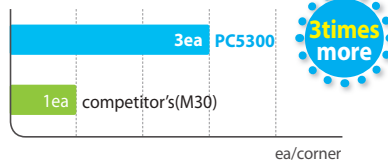


#### M Stainless steel (STS316)

- Cutting conditions  $vc(m/min) = 120$   
 $fn(mm/rev) = 0.2$   
 $ap(mm) = 0.5\sim 1.5$   
 wet

- Tool Insert SNMG120408-GS  
 Holder DSBNL2525-M12

#### • Result



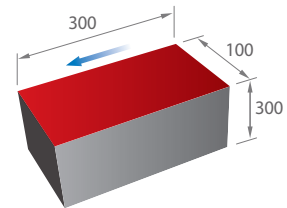
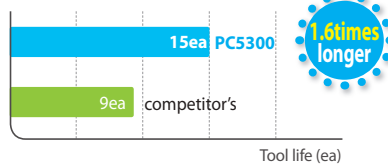
### • Milling

#### P Carbon Steel (SM45C)

- Cutting conditions  $vc(m/min) = 250$   
 $fz(mm/t) = 0.3$   
 $ap(mm) = 2.0$   
 dry

- Tool Insert SPKN1504EDSR-SU  
 Cutter EPN5160R

#### • Result

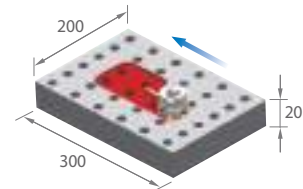
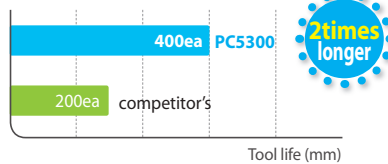


#### P Alloy steel (KP4M)

- Cutting conditions  $vc(m/min) = 250$   
 $fz(mm/t) = 1.0$   
 $ap(mm) = 1.0$   
 dry

- Tool Insert WNMX130520ZNN-MM  
 Cutter HRMDCM13050HR-3

#### • Result

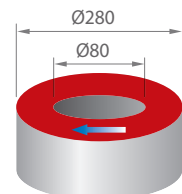
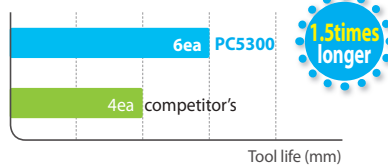


#### M Stainless steel (STS316)

- Cutting conditions  $vc(m/min) = 65$   
 $fz(mm/t) = 0.14$   
 $ap(mm) = 3.0$   
 wet

- Tool Insert SEET14M4AGSN-MM  
 Cutter FMACM4100HR

#### • Result



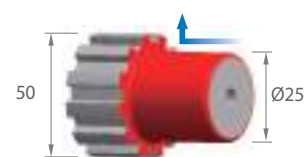
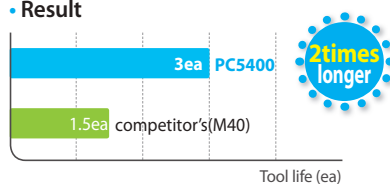
## Application Examples(PC5400)

### • Turning

#### M Stainless steel (STS304)

- **Cutting conditions**  $vc(m/min) = 110$   
 $fn(mm/rev) = 0.25$   
 $ap(mm) = 1.0\sim 2.0$   
wet
- **Tool** Insert CNMG120408-VP3  
Holder DCLNL2525-M12

#### • Result

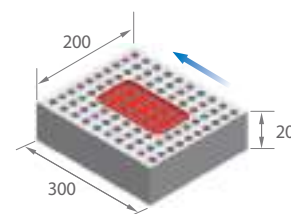
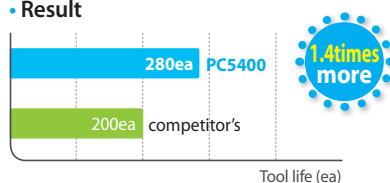


### • Milling

#### P Carbon steel (SM45C)

- **Cutting conditions**  $vc(m/min) = 250$   
 $fz(mm/t) = 1.2$   
 $ap(mm) = 1.0$   
dry
- **Tool** Insert WNMX130520ZNN-MM  
Cutter HRMDCM13050HR-4

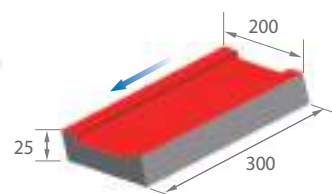
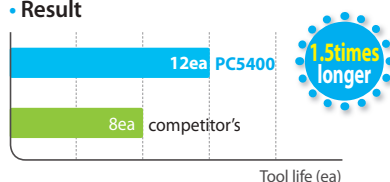
#### • Result



#### P Alloy steel (SCR440)

- **Cutting conditions**  $vc(m/min) = 180$   
 $fz(mm/t) = 0.2$   
 $ap(mm) = 2.0$   
dry
- **Tool** Insert RDKT1605M0-MM  
Cutter FMRC5063HRD-H

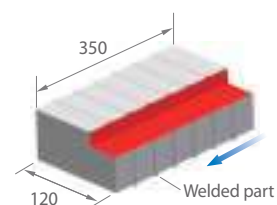
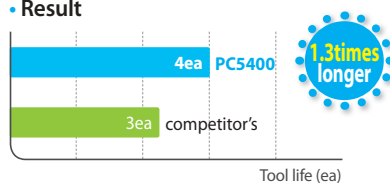
#### • Result



#### M Stainless steel (STS316)

- **Cutting conditions**  $vc(m/min) = 50$   
 $fz(mm/t) = 0.1$   
 $ap(mm) = 4.0$   
 $ae(mm) = 15.0$   
dry
- **Tool** Insert APMT1604PDSR-MM  
Cutter AMC3063HS

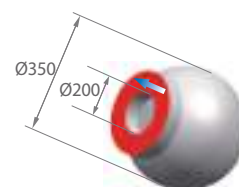
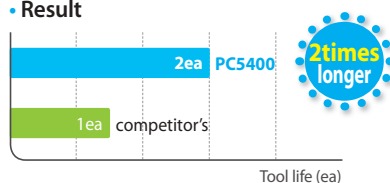
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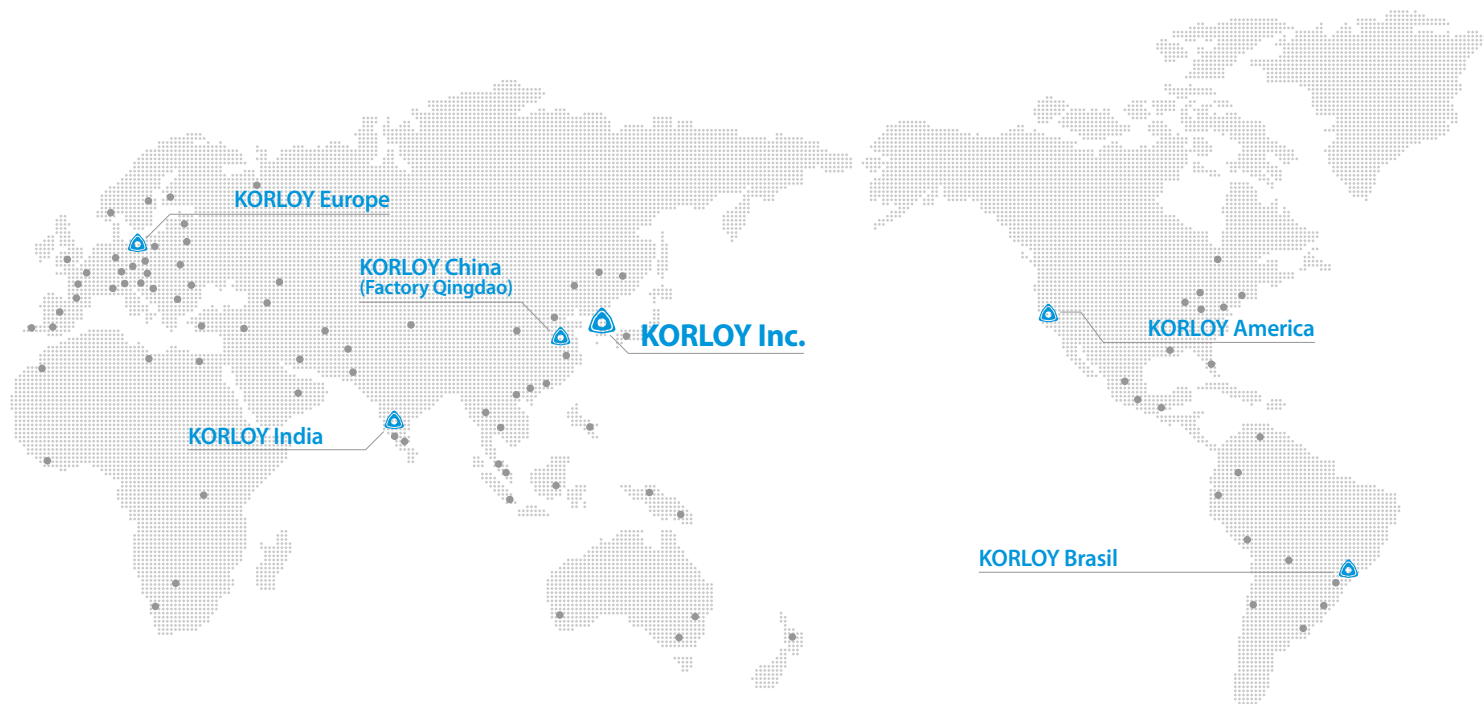


#### S Heat-resisting alloy (INCONEL718)

- **Cutting conditions**  $vc(m/min) = 60$   
 $fz(mm/t) = 0.1$   
 $ap(mm) = 2.5$   
wet
- **Tool** Insert SNMX1206ANN-MM  
Cutter RM8AC4080HR

#### • Result





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• Please refer to stock management of cutters and detail dimensions in the 2014 catalogue



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