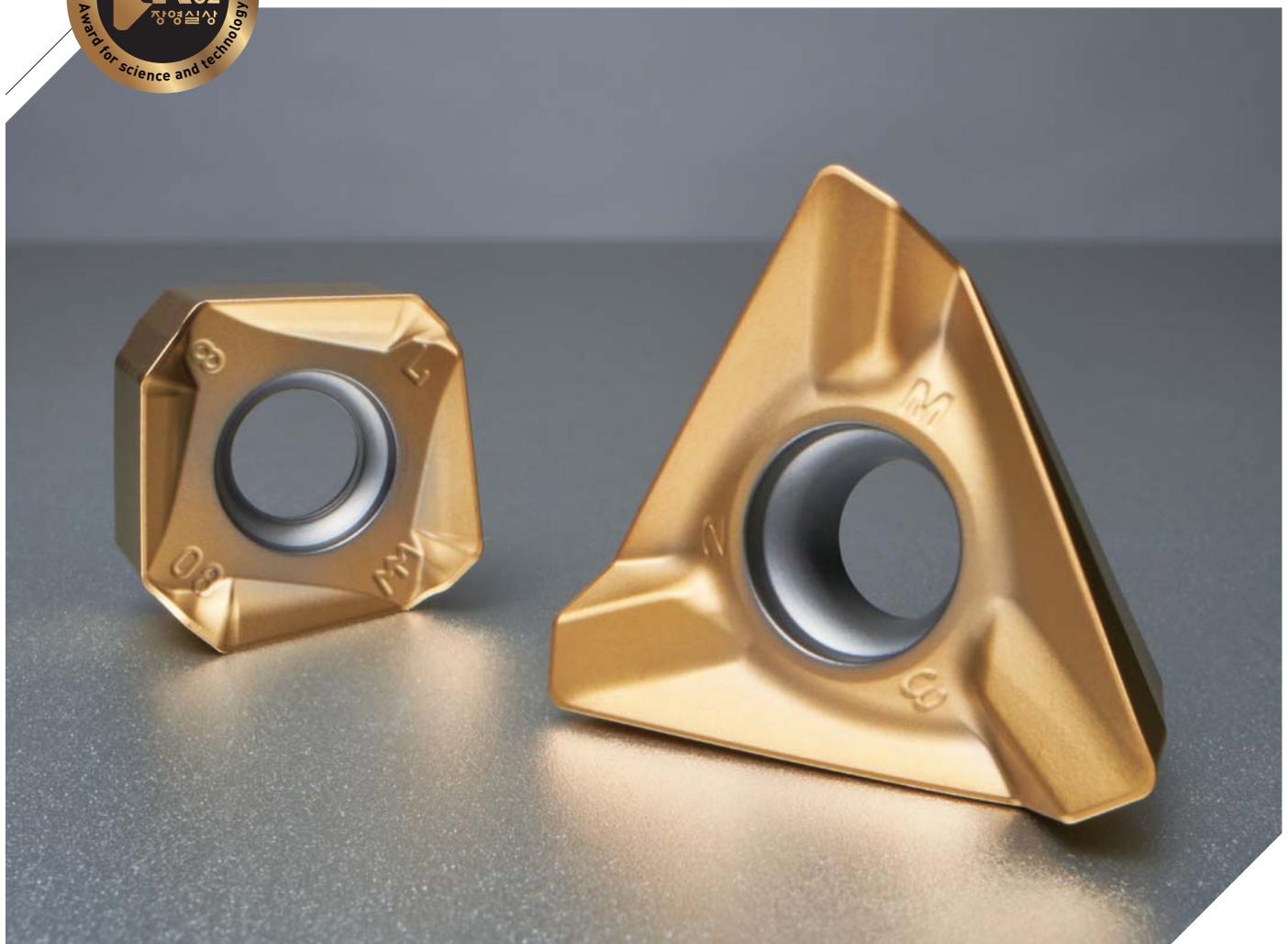


# PC3700

## high feed, Milling grade for Steel

- PVD coating insert for high-hardness and high-lubricative that optimized for milling applications of Steel
  - A highly chipping-resistant grade for minimized deviation and extended tool life under various cutting conditions



# PC3700

In general, the relief and ramped surfaces of tools get easily worn out when milling steel at high speeds. Also, chipping and tool breakage problems are frequently caused in deep milling at high feeds. Often in high-speed continuous machining, plastic deformation occurs.

On the other hand, thermal cracking occurs in interrupted machining at high speeds, or in wet applications. Both lead to extremely reduced tool life. In addition, build-up edges tend to be formed when machining easily welded workpieces, which decreases tool life and lowers surface finish of workpieces. As such, it is hard to expect the life of insert considering various machining factors when it comes to the milling applications of steel.

KORLOY newly developed PC3700, a unique milling grade specialized for steel to provide advanced performance and satisfactory efficiency. Compared to the existing PC3500 and PC3600 grades, the resistance of PC3700 to chipping and breakage has been significantly improved, and it ensures extended tool life as well as high productivity and stability.

The **PC3700** features hard and lubricative coating with smooth surface so that chips can be evacuated easily at high speeds, and the wear of ramped and relief surfaced will be significantly reduced. It also has minimized build-up edge issues to prevent chipping and improve surface finish. As a highly tough substrate specialized for steel cutting, PC3700 inhibits thermal cracking in the interrupted or wet machining process. Furthermore, it provides great chipping and breakage resistance at high depth of cuts and high feeds, or under heavy cutting loads including pre-hardened steel machining.

PC3700 provides outstanding machining efficiency and production stability due to the stable tool life for every milling process from high-speed, high-feed and deep machining to continuous or interrupted machining of various steel workpieces.

#### » Longer tool life and high chip removal rate

- Various cutting conditions and shorter cutting time available

#### » Stable tool life

- High machining efficiency and production stability

#### » Universal use for Steel Milling

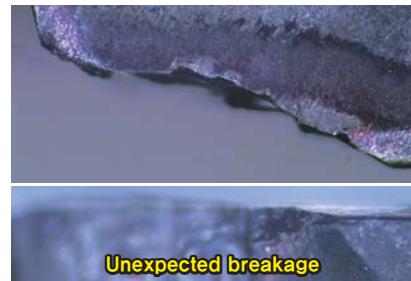
- A wide selection of workpiece materials and applications range



## Features

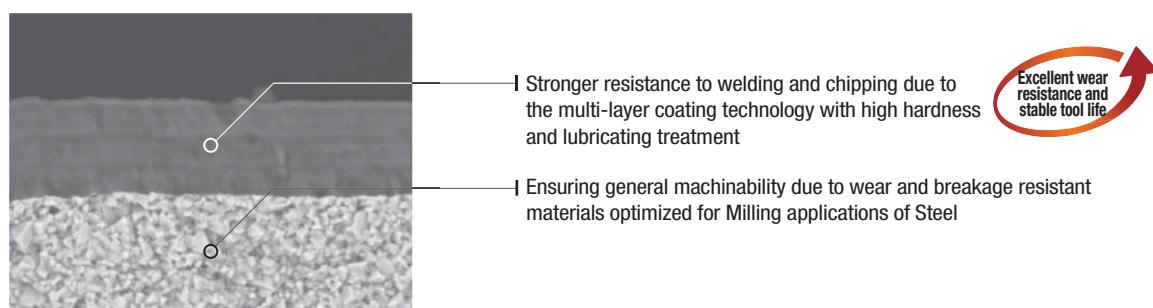
- Excellent chip removal rate due to a tough substrate specialized for Steel, and lubricative PVD coating of high-hardness
- A highly chipping-resistant grade for minimized deviation and extended tool life under various cutting conditions

### Common Problems When Milling Steel

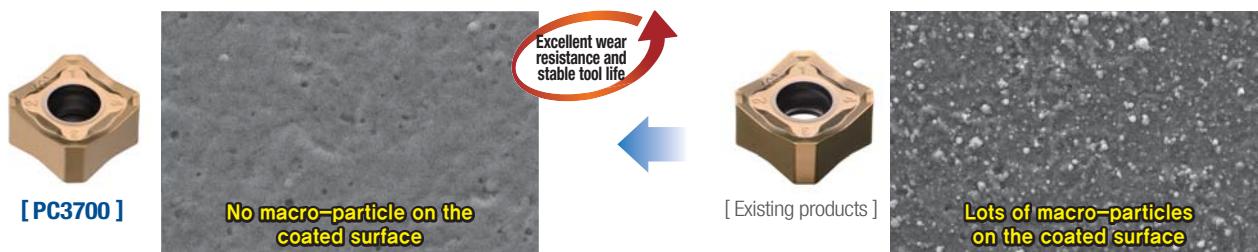


- Excessive wear at high speeds due to friction between tools and hot long chips
- Frequent breakage of cutting edges in high-feed machining, deep milling or mill scale machining

### Substrate for general Milling applications of Steel and PVD coating treatment

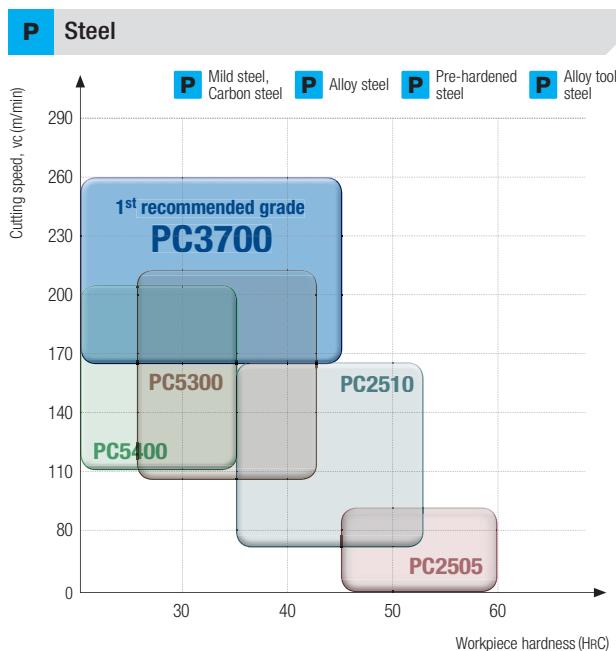
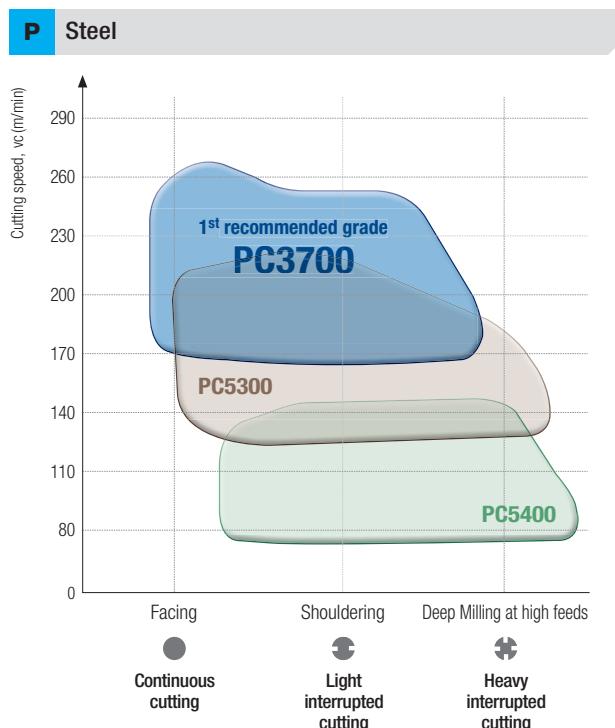


### Special coating surface treatment



- Smooth surface due to special surface treatment
  - » Smooth chip evacuation, improved chipping resistance and surface finish of the workpiece

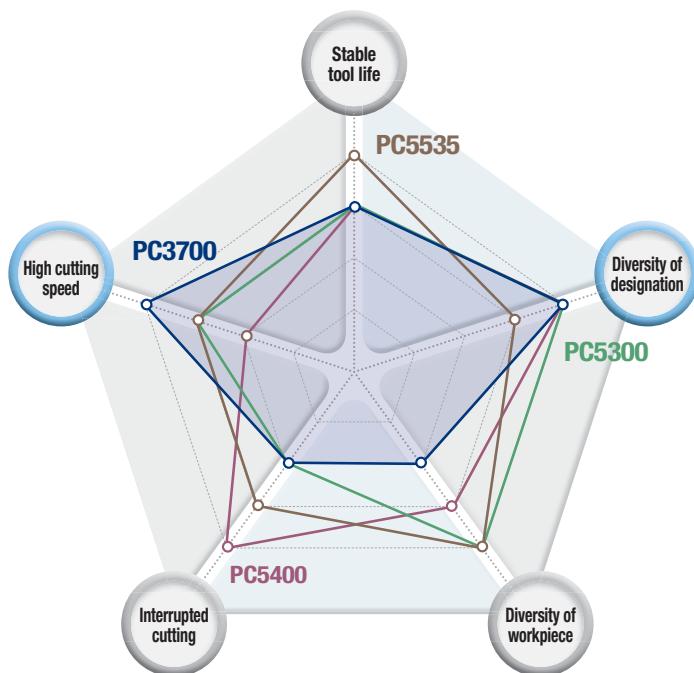
## Application range



## Recommended cutting conditions

Workpiece				Hardness (HRC)	vc (m/min)	fz (mm/t)		
ISO	Workpiece material	ISO (DIN)	AISI			Facing	Shouldering	High feed
<b>P</b>	Carbon steel	Low carbon steel	C15	Below 10	100	0.3	0.3	2
			C25		200	0.2	0.2	1.5
			C35		300	0.1	0.1	1
	Alloy steel	High carbon steel	C45	10-30	100	0.3	0.3	2
			C60		200	0.2	0.2	1.5
			1SMn28		300	0.1	0.1	1
<b>D</b>	Alloy steel	Low Alloy steel	-	Below 27	100	0.3	0.3	2
			42CrMo4		175	0.2	0.2	1.5
		High Alloy steel	-		250	0.1	0.1	1
			-		100	0.3	0.3	2
	Die steel	General die steel	210Cr12	Below 27	175	0.2	0.2	1.5
			X40CrMov5-1105V		250	0.1	0.1	1
		Easily welding die steel	D3		100	0.3	0.3	0.8
			H13		175	0.2	0.2	0.6
			W2-91/		250	0.1	0.1	0.4
					50	0.25	0.3	0.8
					100	0.15	0.2	0.6
					150	0.1	0.1	0.4

## Grade selection guide



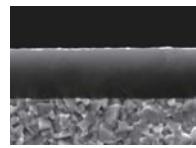
### PC3700

- Good wear resistance from high speed and continuous cutting
- Milling grade for Steel



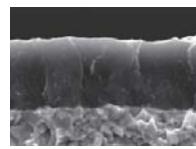
### PC5535

- Good wear resistance from continuous cutting
- Universal grade



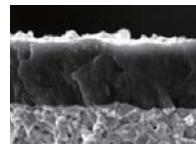
### PC5300

- Stable tool life
- Universal grade



### PC5400

- Good substrate and interrupted cutting
- Universal grade



Grade	Stable tool life	Diversity of designation	Diversity of workpiece	Interrupted cutting	High cutting speed
PC3700	★★★	★★★★	★★	★★	★★★★
PC5535	★★★★	★★★	★★★★	★★★	★★★
PC5300	★★★	★★★★	★★★★	★★	★★★
PC5400	★★★	★★★★	★★★★	★★★★	★★

## Performance evaluation

### Wear resistance

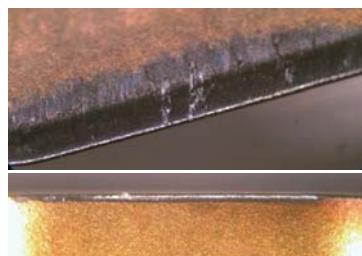
**Workpiece**

Carbon steel (C45)

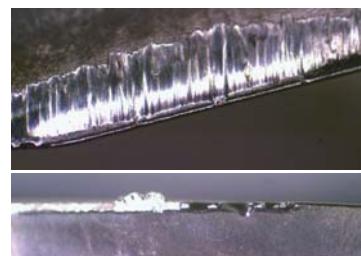
**Cutting condition**
 $v_c \text{ (m/min)} = 210, f_z \text{ (mm/t)} = 1.45, a_p \text{ (mm)} = 1, \text{ dry}$ 
**Tool**

Insert WNMX130520ZNN-MM (PC3700)

Holder HRMDCM13063HR-5



[PC3700]



[Competitor]

### Breakage resistance

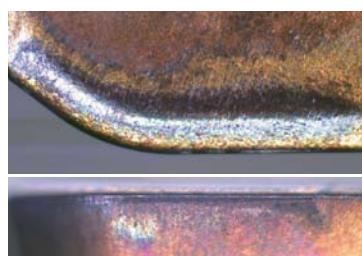
**Workpiece**

Alloy steel (42CrMo4)

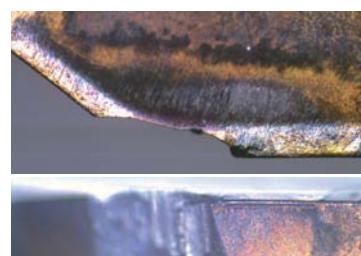
**Cutting condition**
 $v_c \text{ (m/min)} = 200, f_z \text{ (mm/t)} = 0.35, a_p \text{ (mm)} = 2, \text{ dry}$ 
**Tool**

Insert SPKN1504EDSR-SU (PC3700)

Holder EPNM5125R



[PC3700]



[Competitor]

### Wear resistance

**Workpiece**

Carbon steel (C45)

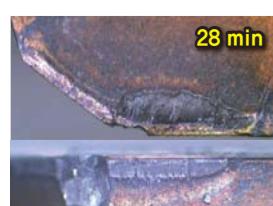
**Cutting condition**
 $v_c \text{ (m/min)} = 250, f_z \text{ (mm/t)} = 0.2, a_p \text{ (mm)} = 2, \text{ dry}$ 
**Tool**

Insert SPKN1504EDSR-SU (PC3700)

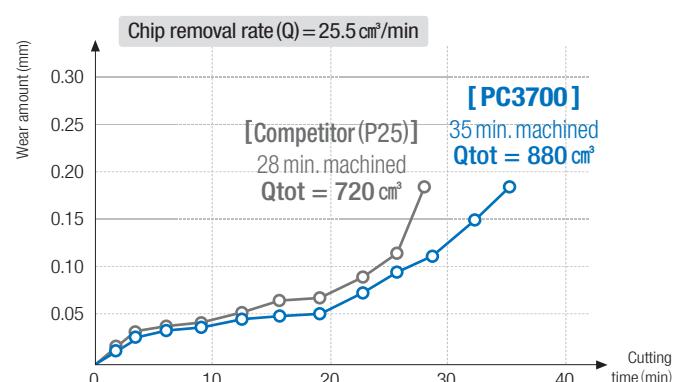
Holder EPNM5125R



[PC3700]



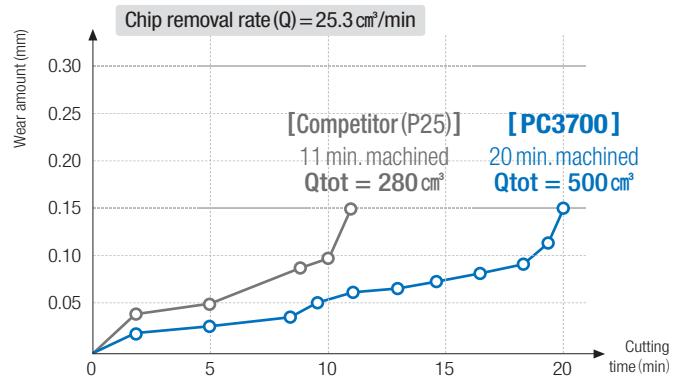
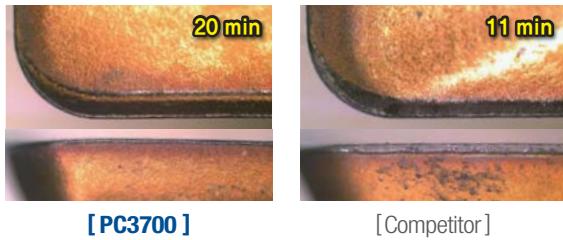
[Competitor]



## Performance evaluation

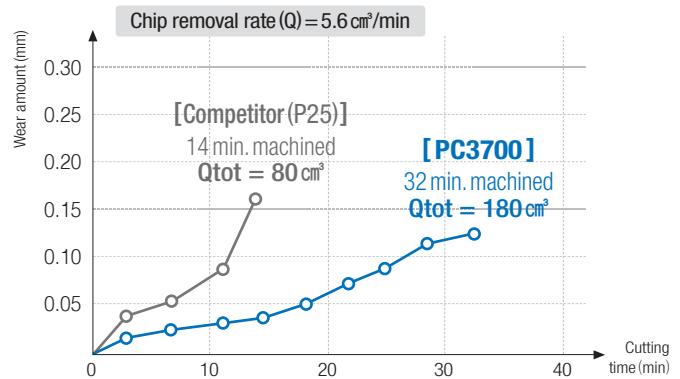
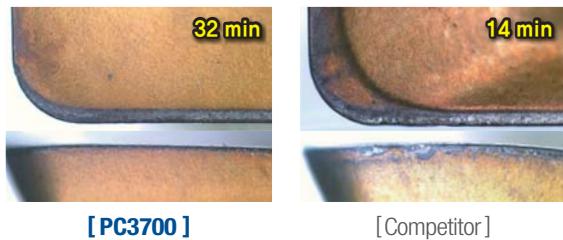
### **Wear resistance**

<b>Workpiece</b>	Alloy steel (42CrMo4)
<b>Cutting condition</b>	$v_c$ (m/min) = 250, $f_z$ (mm/t) = 0.2, $a_p$ (mm) = 10, dry
<b>Tool</b>	<b>Insert</b> APMT1604PDSR-MM (PC3700) <b>Holder</b> AMCM3063HS



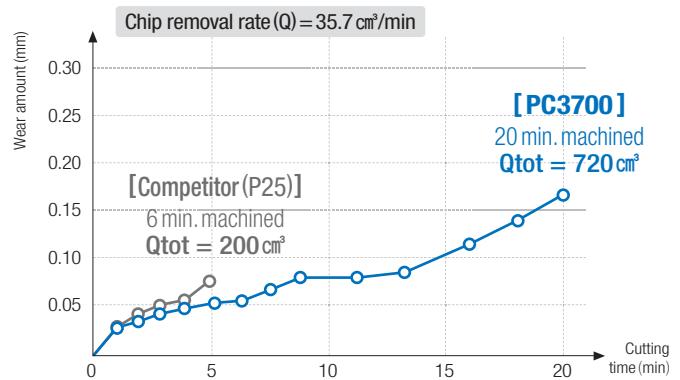
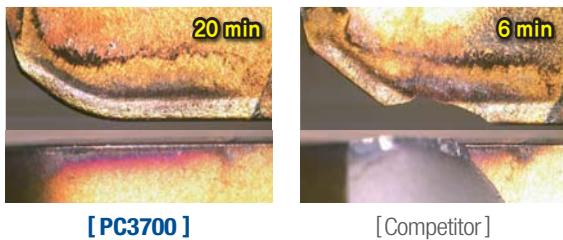
## **Wear resistance**

<b>Workpiece</b>	Die steel (10Ni3MnCuAl)
<b>Cutting condition</b>	$v_c$ (m/min) = 110, $f_z$ (mm/t) = 0.2, $a_p$ (mm) = 10, dry
<b>Tool</b>	<b>Insert</b> APMT1604PDSR-MM (PC3700) <b>Holder</b> AMCM3063HS



## **Wear resistance**

<b>Workpiece</b>	Alloy steel (42CrMo4)
<b>Cutting condition</b>	$v_c$ (m/min) = 200, $f_z$ (mm/t) = 0.35, $a_p$ (mm) = 2, dry
<b>Tool</b>	<b>Insert</b> SPKN1504EDSR-SU (PC3700) <b>Holder</b> EPNM5125R



## Application examples

### Free-harden steel (1.2738)

**Workpiece use**

Die

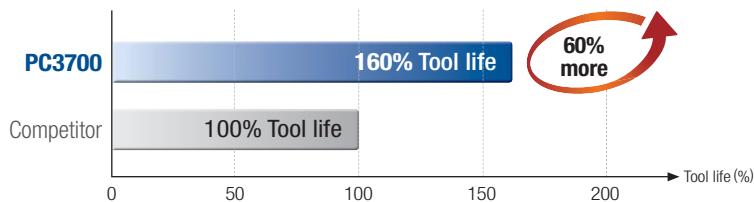
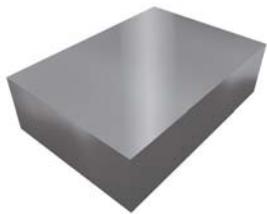
**Cutting condition**

$v_c$ (m/min) = 60,  $f_z$ (mm/t) = 0.2~0.65,  $a_p$ (mm) = 4.0, dry

**Tool**

Insert SDKN1504AESN-SU (PC3700)

Holder ADNM5250R



» 60% longer tool life compared to the competitor

### Carbon steel (C45)

**Workpiece use**

Die

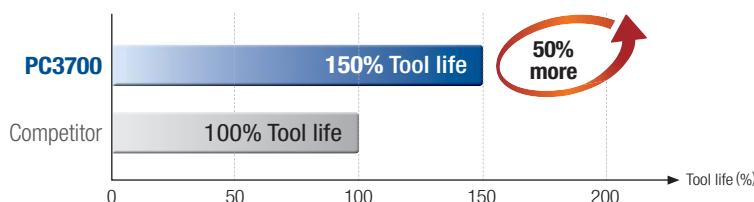
**Cutting condition**

$v_c$ (m/min) = 40,  $f_z$ (mm/t) = 0.12,  $a_p$ (mm) = 3.0, dry

**Tool**

Insert SDKN1504AESN-SU (PC3700)

Holder ADNM5250R



» 50% longer tool life compared to the competitor

### Free-harden steel (1.2738)

**Workpiece use**

Die mold

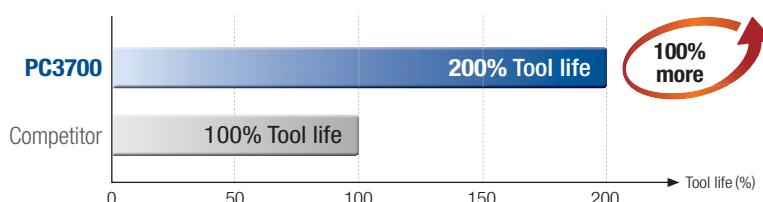
**Cutting condition**

$v_c$ (m/min) = 140,  $f_z$ (mm/t) = 1.27,  $a_p$ (mm) = 1.3, dry

**Tool**

Insert WNMX130520ZNN-MM (PC3700)

Holder HRMDCM13063HR-5



» 100% longer tool life compared to the competitor

### Carbon steel (C45)

**Workpiece use**

Automotive components

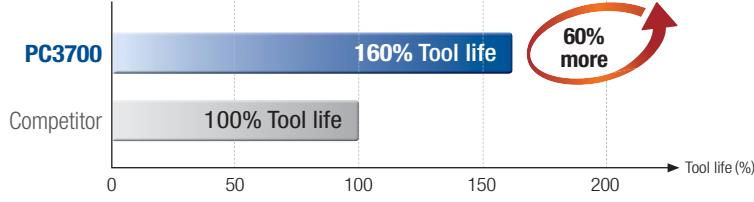
**Cutting condition**

$v_c$ (m/min) = 200,  $f_z$ (mm/t) = 0.12,  $a_p$ (mm) = 0.21, dry

**Tool**

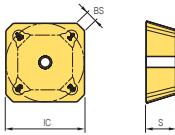
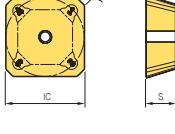
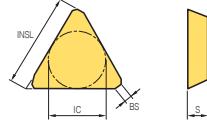
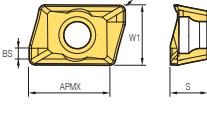
Insert APMT1604PDSR-MM (PC3700)

Holder AMCM3040HS



» 60% longer tool life compared to the competitor

 Stock items

Type	Picture	Designation	Coated PC3700	Dimension(mm)							Geometrie
				W1	S	RE	BS	APMX	INSL	IC	
<b>ISO Mill</b>		<b>SDKN</b> 1203AESN-MU 1504AESN-MU 1203AESN-SU 1504AESN-SU	●	-	3.18	-	2.181	-	-	12.7	
				-	4.76	-	2.096	-	-	15.875	
				-	3.18	-	1.75	-	-	12.7	
				-	4.76	-	1.69	-	-	15.875	
<b>ISO Mill</b>		<b>SEKN</b> 1203AFSN-SU 1504AFSN-SU	●	-	3.18	-	1.85	-	-	12.7	
				-	4.76	-	1.9	-	-	15.875	
		<b>SPKN</b> 1203EDSR-MU 1504EDSR-MU 1203EDSR-SU 1203EDSL-SU 1504EDSR-SU 1504EDSL-SU	●	-	3.18	-	1.87	-	-	12.7	
				-	4.76	-	1.92	-	-	15.875	
				-	3.18	-	1.643	-	-	12.7	
				-	3.18	-	1.91	-	-	12.7	
<b>Alpha Mill</b>		<b>TEEN</b> 43TR-ZH	●	-	4.76	-	1.477	-	22	12.7	
				-	-	-	-	-	-	-	
		<b>TPKN</b> 2204PDSR-MU 1603PDSR-SU 1603PDSL-SU 2204PDSR-SU 2204PDSL-SU	●	-	4.76	0.8	1.964	-	22	12.7	
				-	3.18	0.8	1.76	-	16.5	9.525	
				3.18	0.8	1.88	-	16.5	9.525	-	
				-	4.76	0.8	1.97	-	22	12.7	
<b>Alpha Mill</b>		<b>APMT</b> 11T3PDSR-MF 1604PDSR-MF 0602PDSR-MM 060202PDSR-MM 060208PDSR-MM 0903PDSR-MM 090308PDSR-MM 090312R-MM 090316R-MM 090320R-MM 11T3PDSR-MM 11T308PDSR-MM 11T312PDSR-MM 11T316R-MM 11T324R-MM 1604PDSR-MM 160410PDSR-MM 160416PDSR-MM	●	6.467	3.6	0.5	1.2	11.2	-	-	
				9.41	5.76	0.8	1.1	16.4	-	-	
				4.24	2.6	0.4	0.9	6	-	-	
				4.24	2.6	0.2	1.1	6	-	-	
				4.24	2.6	0.8	0.5	6	-	-	
				6.21	3.6	0.4	0.9	9.4	-	-	
				6.21	3.6	0.8	0.5	9.4	-	-	
				6.21	3.6	1.2	-	9.4	-	-	
				6.21	3.6	1.6	-	9.4	-	-	
				6.21	3.6	2	-	9.2	-	-	
				6.467	3.6	0.5	1.2	11.2	-	-	
				6.467	3.6	0.8	0.9	11.2	-	-	
				6.467	3.6	1.2	0.5	11.2	-	-	
				6.467	3.6	1.6	-	11	-	-	
				6.467	3.6	2.4	-	11	-	-	
				9.41	5.76	0.8	1.1	16.4	-	-	
				9.41	5.76	1	0.9	16.4	-	-	
				9.41	5.76	1.6	0.3	16.4	-	-	

\*: Standard insert shape

●: Stock item

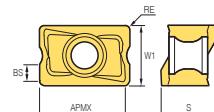
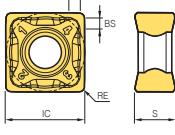
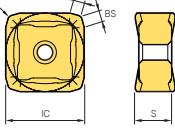
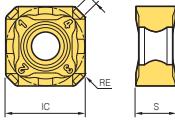
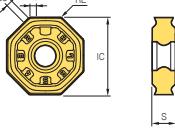
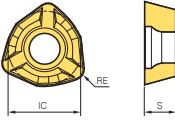
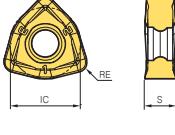
## Stock items

Type	Picture	Designation	PC3700	Dimension(mm)							Geometrie
				W1	S	RE	BS	APMX	INSL	IC	
Alpha Mill	APMT18-MM*	APMT 160424R-MM	●	9.41	5.76	2.4	-	16	-	-	
		160430R-MM	●	9.41	5.76	3	-	16	-	-	
		160432R-MM	●	9.41	5.76	3.2	-	16	-	-	
		160450R-MM	●	9.41	5.76	5	-	16	-	-	
		1806PDSR-MM	●	10.98	6.35	0.8	2.2	17.4	-	-	
		180612PDSR-MM	●	10.98	6.35	1.2	1.8	17.4	-	-	
Alpha Mill-X	ADKT-MM*	ADKT 10T304PEER-ML	●	6.424	3.819	0.4	0.96	9.5	-	-	
		120408PESR-ML	●	7.813	4.824	0.8	1.71	11.5	-	-	
		170608PESR-ML	●	10.843	6.529	0.8	3.5	16.5	-	-	
		10T304PESR-MM	●	6.424	3.819	0.4	1.2	9.5	-	-	
		120408PESR-MM	●	7.813	4.824	0.8	1.71	11.5	-	-	
		120412PESR-MM	●	7.813	4.824	1.2	1.21	11.5	-	-	
		120416PESR-MM	●	7.813	4.824	1.6	0.85	11.5	-	-	
		170604PESR-MM	●	10.843	6.529	0.4	3.17	16.5	-	-	
		170608PESR-MM	●	10.843	6.529	0.8	3.3	16.5	-	-	
HFM	LPMT-MF*	LPMT 040210R-MF	●	4.2	2.6	1	-	-	-	-	
		040220R-MF	●	4.2	2.6	2	-	-	-	-	
RM3	WNGX-ML*	XNKT 060405PNER-ML	●	-	4	0.5	1.3	5.7	-	6.5	
		080508PNER-ML	●	-	5.5	0.8	2.2	8.2	-	10	
		120608PNER-ML	●	-	6.5	0.8	2.76	12	-	13	
		060405PNSR-MM	●	-	4	0.5	1.3	5.7	-	6.5	
		060408PNSR-MM	●	-	4	0.8	1.1	5.7	-	6.5	
		080504PNSR-MM	●	-	5.5	0.4	2.57	8.2	-	10	
		080508PNSR-MM	●	-	5.5	0.8	2.2	8.2	-	10	
		080512PNSR-MM	●	-	5.5	1.2	1.81	8.2	-	10	
		080516PNSR-MM	●	-	5.5	1.6	1.43	8.2	-	10	
		120608PNSR-MM	●	-	6.5	0.8	2.76	12	-	13	
RM6	WNGX-ML*	WNGX 080604PNER-ML	●	-	6.4	0.4	4.1	8.2	-	13	
		080608PNER-ML	●	-	6.4	0.8	3.7	8.2	-	13	
		080604PNSR-MM	●	-	6.4	0.4	4.1	8.2	-	13	
		080608PNSR-MM	●	-	6.4	0.8	3.7	8.2	-	13	
RM4	LNEX-MM*	LNEX 100608PNR-MF	●	6.5	6.5	0.8	1.4	9	-	-	
		100605PNR-MM	●	6.5	6.5	0.5	1.7	9	-	-	
		151008PNR-MM	●	10	10	0.8	-	14	-	-	
	LNMX-MM*	060310R-MF	●	6.8	3.6	1	-	-	-	-	
		100412R-MF	●	10	4.2	1.2	-	-	-	-	
		151004PNR-MF	●	10	10	0.4	-	14	-	-	
		151008PNR-MF	●	10	10	0.8	-	14	-	-	
		040205R-MM	●	4.2	2.35	0.5	-	-	-	-	

\* : Standard insert shape

● : Stock item

 Stock items

Type	Picture	Designation	Coated PC3700	Dimension(mm)							Geometrie
				W1	S	RE	BS	APMX	INSL	IC	
RM4		060310R-MM	●	6.8	3.6	1	-	-	-	-	
		100412R-MM	●	10	4.2	1.2	-	-	-	-	
		100605PNR-MM	●	6.5	6.5	0.5	1.7	9	-	-	
		100608PNR-MM	●	6.5	6.5	0.8	1.4	9	-	-	
		100605PNL-MM	●	6.5	6.5	0.5	1.7	9	-	-	
		151008PNR-MM	●	10	10	0.8	-	14	-	-	
		151016PNR-MM	●	10	10	1.6	-	14	-	-	
SNEX		1206ANN-MF	●	-	6.35	0.8	1.56	-	-	12.7	
		1206QNN-MF	●	-	6.35	0.8	1.394	-	-	12.7	
		1206ANN-MM	●	-	6.35	0.8	1.56	-	-	12.7	
		1206ANN-W	●	-	6.35	1	7.63	-	-	12.7	
SNMF		1206ENN-MF	●	-	6.05	0.8	1.8	-	-	12.7	
		1206QNN-MF	●	-	6.05	0.8	1	-	-	12.7	
		1206ENN-MM	●	-	6.05	0.8	1.8	-	-	12.7	
		1206QNN-MM	●	-	6.05	0.8	1	-	-	12.7	
		1507ENN-MM	●	-	6.78	0.8	1.8	-	-	15.875	
RM8		1206ANN-MF	●	-	6.35	0.8	1.56	-	-	12.7	
		1206ENN-MF	●	-	6.35	1	1.32	-	-	12.7	
		1206QNN-MF	●	-	6.35	0.8	1.394	-	-	12.7	
		1507ANN-MF	●	-	7.94	0.8	2.36	-	-	15.875	
		1507ENN-MF	●	-	7.94	1	2.16	-	-	15.875	
		120612-MM	●	-	6.35	1.2	-	-	-	12.7	
		1206ANN-MM	●	-	6.35	0.8	1.56	-	-	12.7	
		1206ENN-MM	●	-	6.35	1	1.32	-	-	12.7	
		1206QNN-MM	●	-	6.35	0.8	1.394	-	-	12.7	
		140808ANER-MM	●	-	6.56	0.8	1.21	-	-	14	
		1507ANN-MM	●	-	7.94	0.8	2.36	-	-	15.875	
		1507ENN-MM	●	-	7.94	1	2.16	-	-	15.875	
RM16		0806ANN-MF	●	-	6	0.8	-	-	-	20.2	
		060608-MM	●	-	6	0.8	-	-	-	16	
		080608-MM	●	-	6	0.8	-	-	-	20.2	
		0606ANN-MM	●	-	6	0.8	1.035	-	-	16	
HRM		080316ZDSR-MH	●	-	3.18	-	1.8	-	-	8	
		10T320ZDSR-MH	●	-	3.97	-	2.3	-	-	10	
		130520ZDSR-MH	●	-	5.56	-	3.14	-	-	13.5	
		150625ZDSR-MH	●	-	6.35	-	3.43	-	-	15	
HRMD		09T316ZNN-MF	●	-	3.97	-	-	-	-	9.525	
		060312ZNN-MM	●	-	3.18	-	-	-	-	6.35	
		09T316ZNN-MM	●	-	3.97	-	-	-	-	9.525	
		130520ZNN-MM	●	-	5.56	-	-	-	-	12.7	
		160720ZNN-MM	●	-	7	-	-	-	-	16	

\*: Standard insert shape

●: Stock item

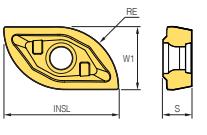
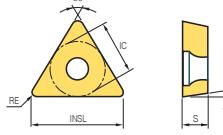
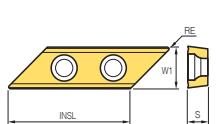
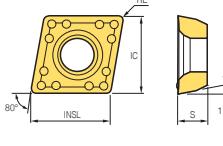
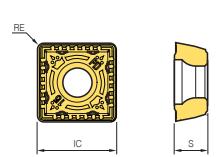
## Stock items

Type	Picture	Designation	Coated PC3700	Dimension (mm)							Geometrie
				W1	S	RE	BS	APMX	INSL	IC	
Future Mill FMPC		SDXT 09M405R-MF	●	-	3.923	0.5	-	-	-	9.525	
		09M405R-MM	●	-	3.923	0.5	-	-	-	9.525	
		130508R-MM	●	-	5.56	0.8	-	-	-	13.5	
FMR		SEET 14M4AGSN-MM	●	-	4	0.8	1.81	-	-	14	
		SEXT 0903AGSN-MM	●	-	3.18	0.8	1.44	-	-	9.525	
		14M4AGSN-MM	●	-	4	0.8	1.81	-	-	14	
		RDKT 1204M0-MF	●	-	4.76	6	-	-	6	12	
		10T3M0-MM	●	-	3.97	5	-	-	5	10	
FMR-P		1204M0-MM	●	-	4.76	6	-	-	6	12	
		1205M0-MM	●	-	5.56	8	-	-	8	16	
		2006M0-MM	●	-	6.35	10	-	-	10	20	
		RDKW 0501M0E	●	-	1.59	2.5	-	-	2.5	5	
		06T1M0E	●	-	1.98	3	-	-	3	6	
Triple Mill		0702M0E	●	-	2.38	3.5	-	-	3.5	7	
		0803M0E	●	-	3.18	4	-	-	4	8	
		RPMT 10T3M0S-MM	●	-	-	5	-	-	-	10	
		1204M0S-MM	●	-	-	6	-	-	-	12	
		1606M0S-MM	●	-	-	8	-	-	-	16	
GBE		2007M0S-MM	●	-	-	10	-	-	-	20	
		RPMW 1204M0S1	●	-	-	6	-	-	-	12	
		TNKT 110508PEER-ML	●	-	4.5	0.8	1.297	-	-	8	
		160608PEER-ML	●	-	5.5	0.8	1.581	-	-	11.7	
		200708PEER-ML	●	-	7	0.8	2	-	-	14.5	
		110508PESR-ML	●	-	4.5	0.8	1.299	-	-	8	
		160608PESR-ML	●	-	5.5	0.8	1.517	-	-	11.7	
		200708PESR-ML	●	-	7	0.8	2	-	-	14.5	
		ZPET 100M-MM	●	10.4	4.5	10	-	-	19	-	
		125M-MM	●	12.9	5.3	12	-	-	24	-	
		150M-MM	●	15.4	7	15	-	-	28	-	
		160M-MM	●	16.4	7	16	-	-	28.5	-	
		200M-MM	●	20.7	8	20	-	-	38	-	

\* : Standard insert shape

● : Stock item

 Stock items

Type	Picture	Designation	Coated PC3700	Dimension(mm)							Geometrie	
				W1	S	RE	BS	APMX	INSL	IC		
GBE		ZPET	100S-MM	●	8.4	3.8	10	-	-	-	8.4	 The diagram shows a side view of a GBE tool with a circular top surface. Labels include: RE (Radius Edge) at the top edge, W1 (Width) across the top face, S (Side relief) on the right side, and INSL (Institute) at the bottom. A small inset shows a cross-section of the tool's side profile.
			125S-MM	●	10.7	4.5	12	-	-	-	10.7	
			150S-MM	●	12.4	6.5	15	-	-	-	12.4	
			160S-MM	●	13.4	3.5	16	-	-	-	13.4	
			200S-MM	●	16.7	7	20	-	-	-	16.7	
Chamfer Tool		TWX	16R-KC	●	-	3.97	0.8	-	-	13	9.525	 The diagram shows a triangular chamfer tool. Labels include: RE (Radius Edge) at the top left, IC (Institute) at the top right, BS (Base Side) at the bottom left, INSL (Institute) at the bottom, and S (Side relief) on the right side. A small inset shows a cross-section of the tool's side profile.
			22R-KC	●	-	3.97	0.8	-	-	13	9.525	
T-Cutter		XCET	310404ER-KC	●	9.525	4.5	0.4	-	-	30.9	-	 The diagram shows a T-shaped cutter with two circular top surfaces. Labels include: RE (Radius Edge) at the top edge, W1 (Width) across the top face, S (Side relief) on the right side, and INSL (Institute) at the bottom. A small inset shows a cross-section of the tool's side profile.
			CPMH	●	-	4.76	0.8	-	-	12.7	12.7	
T-Cutter		CPMT	060204-MM	●	-	2.38	0.4	-	-	6.35	6.35	 The diagram shows a T-shaped cutter with two circular top surfaces. Labels include: RE (Radius Edge) at the top edge, IC (Institute) at the top center, BS (Base Side) at the bottom left, INSL (Institute) at the bottom, and S (Side relief) on the right side. A small inset shows a cross-section of the tool's side profile.
			080308-MM	●	-	3.18	0.8	-	-	7.938	7.938	
			09T308-MM	●	-	3.97	0.8	-	-	9.525	9.525	
KING Drill		SPMT	040204-PD	●	-	-	0.4	-	-	-	4.7	 The diagram shows a square-shaped SPMT tool with a central hole. Labels include: RE (Radius Edge) at the top edge, IC (Institute) at the top center, BS (Base Side) at the bottom left, INSL (Institute) at the bottom, and S (Side relief) on the right side. A small inset shows a cross-section of the tool's side profile.
			050204-PD	●	-	-	0.4	-	-	-	5.1	
			060205-PD	●	-	-	0.5	-	-	-	6.2	
			07T208-PD	●	-	-	0.8	-	-	-	7.5	
			090308-PD	●	-	-	0.8	-	-	-	9.2	
			11T308-PD	●	-	-	0.8	-	-	-	11	
			130410-PD	●	-	-	1	-	-	-	13	
			15M510-PD	●	-	-	1	-	-	-	15.2	
			180510-PD	●	-	-	1	-	-	-	18.2	
			110408-KC	●	-	-	0.8	-	-	-	11.5	

\*: Standard insert shape

●: Stock item

### **For the safe metalcutting**

- Use safety supplies such as protective gloves to prevent possible injury while touching the edge of tools.
- Use safety glasses or safety cover to hedge possible dangers. Inappropriate usage or excessive cutting condition may lead tool's breakage or even the fragment's scattering.
- Clamp the workpiece tightly enough to prevent its movement while its machining.
- Properly manage the tool change phase because the inordinately used tool can be easily broken under the excessive cutting load or severe wear, and it may threat the operator's safety.
- Use safety cover because chips evacuated during cutting are hot and sharp and may cause burns and cuts. To remove chips safely, stop machining, put on protective gloves, and use a hook or other tools.
- Prepare for fire prevention measures as the use of the non-water soluble cutting oil may cause fire.
- Use safety cover and other safety supplies because the spare parts or the inserts can be pulled out due to centrifugal force while high speed machining.



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