

# PDL Type / PCT Type



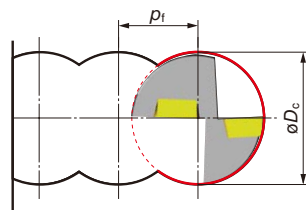
## General Features

The tool cuts in the Z axis direction where tool rigidity is highest, allowing high efficiency roughing for aeronautic components and dies with long tool overhang must be used to machine deep holes and pockets.

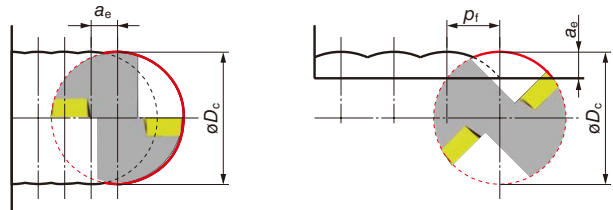
- Characteristics
  - The flat cutting edge design produces near-flat bottom profiles to reduce depth of cut variation during finishing.
  - All sizes come with an air hole for supplying coolant internally to improve chip evacuation.
  - Durable body with special surface treatment offers improved tool life and reliability.
  - The tools use SumiDrill WDX type inserts for handling a wide range of work materials, from steel to non-ferrous metals and exotic alloys.

● The PDL type has a central insert making it possible to make radial cuts beyond the tool's radius, pitch feed cutting, and drilling. (Pocket milling, etc.)

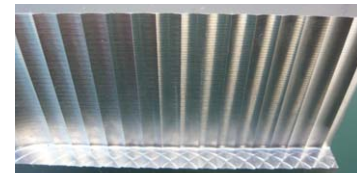
● Although the PCT type has limited radial cutting ability, the tool has many effective teeth enabling it to perform high feed cutting. (Medium finishing of corners, hole expansion, deep grooving, etc.)



Keep the value of  $p_t$  for PDL type tools to less than 70% of the tool diameter ( $\phi D_c$ ).



Keep the value of  $p_t$  for PCT type tools to less than 50% of the tool diameter ( $\phi D_c$ ). For  $a_e$ , refer to the dimension under " $a_e$  max" in the stock/ dimensions tables titled "Holders Max. Depth: 3D/5D".



## Application Examples

**Pocketing PDL** Work Material: Ti Alloy

Tool: PDL400D2S40 ( $\phi 40$ )  
 Insert: WDXT125012-G  
 Grade: ACK300

Cutting Speed:  $v_c=40\text{m/min}$   
 Feed Rate:  $f=0.07\text{mm/rev}$   
 $(v_f=22.3\text{mm/min})$   
 Depth of Cut:  $a_e(p_t)=25\text{mm}$

**Corner Finishing PCT** Work Material: Ti Alloy

Tool: PCT320D3S32 ( $\phi 32$ )  
 PCT250D3S25 ( $\phi 25$ )  
 PCT200D3S20 ( $\phi 20$ )  
 Grade: ACK300

Insert: WDXT094008-G  
 WDXT073506-G  
 WDXT063006-G

Cutting Speed:  $v_c=50\text{m/min}$   
 Feed Rate:  $f_z=0.08\text{mm/t}$   
 $(v_f=80 \text{ to } 127\text{mm/min})$   
 Depth of Cut:  $a_e=3.2 \text{ to } 6.5\text{mm}$

**Grooving PCT** Work Material: Ti Alloy

Tool: PCT320D5S32 ( $\phi 32$ )  
 Insert: WDXT094008-G  
 Grade: ACK300

Cutting Speed:  $v_c=40\text{m/min}$   
 Feed Rate:  $f_z=0.07\text{mm/t}$   
 $(v_f=56\text{mm/min})$   
 Depth of Cut:  $a_e(p_t)=5.0\text{mm}$

**Drilling PDL** Work Material: SUS316

Tool: PDL200D3S25 ( $\phi 20$ )  
 Insert: WDXT063006-G  
 Grade: ACP300

Cutting Speed:  $v_c=180\text{m/min}$   
 Feed Rate:  $f=0.10\text{mm/rev}$   
 $(v_f=286\text{mm/min})$   
 Depth of Cut:  $a_e=20\text{mm}$

**Aeronautic Components PCT** Work Material: SUS304

Tool: PCT320D3S32 ( $\phi 32$ )  
 Insert: WDXT094008-G  
 Grade: ACP300

Cutting Speed:  $v_c=180\text{m/min}$   
 Feed Rate:  $f_z=0.15\text{mm/t}$   
 $(v_f=537\text{mm/min})$   
 Depth of Cut:  $a_e=7.0\text{mm}$   
 $p_t=5.0\text{mm}$

**Machine Components PCT** Work Material: SCM435

Tool: PCT200D5S20 ( $\phi 20$ )  
 Insert: WDXT063006-G  
 Grade: ACK300

Cutting Speed:  $v_c=150\text{m/min}$   
 Feed Rate:  $f_z=0.15\text{mm/t}$   
 $(v_f=716\text{mm/min})$   
 Depth of Cut:  $a_e=3.5\text{mm}$

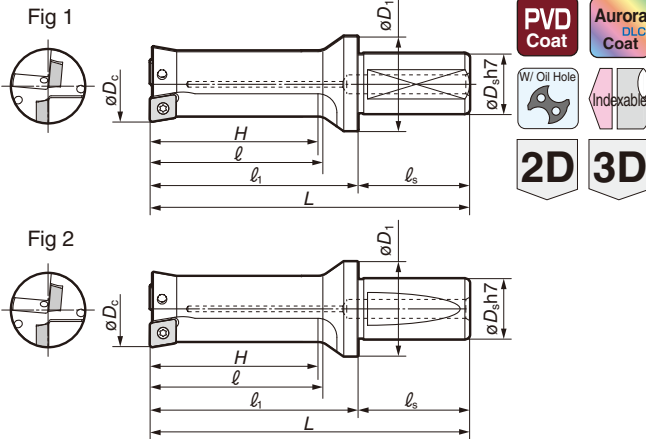
Drilling

Solid  
Special  
Indexable  
Reamer  
Brazed  
Others

# PDL Type (2D,3D)



Carbon Steel, Alloy Steel Up to 0.28% C	Tempered Steel From 0.28% C	Hardened Steel Up to 45HRC	Stainless Steel From 46HRC	Ti-Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminum Alloy	Copper Alloy	Composite CFRP
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### ■ Holders Max. Depth : 2D

Cat. No.	Stock	Dimensions (mm)								Applicable Insert	Fig
		$\phi D_c$	L	$l_1$	$l$	$\phi D_1$	$\phi D_s$	$h$	$h_1$		
PDL 160D2S20	●	16.0	94	50	35	28	20	44	32	WDXT052504	1
200D2S25	●	20.0	114	58	43	33	25	56	40	WDXT063006	
250D2S25	●	25.0	127	71	53	37	25	56	50	WDXT073506	
PDL 320D2S40	●	32.0	162	92	68	54	40	70	64	WDXT094008	2
400D2S40	●	40.0	185	115	85	54	40	70	80	WDXT125012	

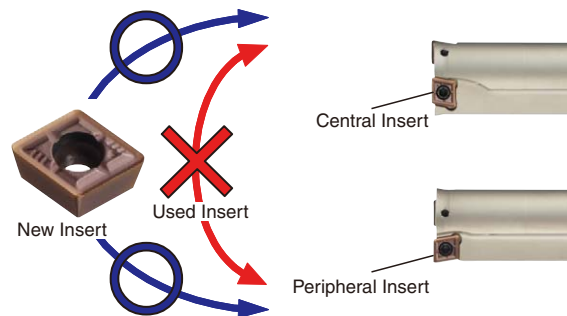
### ■ Holders Max. Depth : 3D

Cat. No.	Stock	Dimensions (mm)								Applicable Insert	Fig
		$\phi D_c$	L	$l_1$	$l$	$\phi D_1$	$\phi D_s$	$h$	$h_1$		
PDL 160D3S20	●	16.0	110	66	51	28	20	44	48	WDXT052504	1
200D3S25	●	20.0	134	78	63	33	25	56	60	WDXT063006	
250D3S25	●	25.0	152	96	78	37	25	56	75	WDXT073506	
PDL 320D3S40	●	32.0	194	124	100	54	40	70	96	WDXT094008	2
400D3S40	●	40.0	225	155	125	54	40	70	120	WDXT125012	

### ■ Spare Parts (Common)

Screw	Spanner	Spanner	Recommended Tightening Torque (N·m)	Applicable Holders
BFTX0204N	TRX06	—	0.5	PDL160D2S20 PDL160D3S20 PCT160D3S16 PCT160D5S16
BFTY02206	—	TRD07	1.0	PDL200D2S25 PDL200D3S25 PCT200D3S20 PCT200D5S20
BFTX02506N	—	TRD08	1.5	PDL250D2S25 PDL250D3S25 PCT250D3S25 PCT250D5S25
BFTX03584	—	TRD15	3.5	PDL320D2S40 PDL320D3S40 PCT320D3S32 PCT320D5S32
BFTX0511N	—	TRD20	5.0	PDL400D2S40 PDL400D3S40 PCT400D3S42 PCT400D5S42

### ● Notes About Mounting Inserts (PDL type)

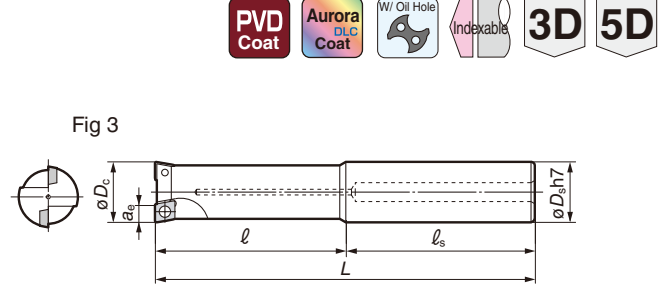


PDL type: Inserts can be used on either the centre or the outside.  
 Inserts used on the outside cannot be used in the centre. Similarly, inserts used in the centre cannot be used on the outside.  
 PCT type: 2 corners can be used only for the outer inserts.

# PCT Type (3D,5D)



Carbon Steel, Alloy Steel Up to 0.28% C	Tempered Steel From 0.28% C	Hardened Steel Up to 45HRC	Stainless Steel From 46HRC	Ti-Alloy	Heat-resistant steels	Cast Iron	Ductile Cast Iron	Aluminum Alloy	Copper Alloy	Composite CFRP
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### ■ Holders Max. Depth : 3D

Cat. No.	Stock	Dimensions (mm)								Applicable Insert	Fig
		$\phi D_c$	$a_e$ max	L	$l$	$h$	$\phi D_s$	No. of flutes	$h_1$		
PCT 160D3S16	●	16.0	4.0	123	53	70	16	2	WDXT052504	3	
200D3S20	●	20.0	5.0	145	65	80	20	2	WDXT063006		
250D3S25	●	25.0	6.5	160	80	80	25	2	WDXT073506		
320D3S32	●	32.0	8.5	191	101	90	32	2	WDXT094008		
400D3S42	●	40.0	11.0	225	125	100	42	3	WDXT125012		

### ■ Holders Max. Depth : 5D

Cat. No.	Stock	Dimensions (mm)								Applicable Insert	Fig
		$\phi D_c$	$a_e$ max	L	$l$	$h$	$\phi D_s$	No. of flutes	$h_1$		
PCT 160D5S16	●	16.0	4.0	155	85	70	16	2	WDXT052504	3	
200D5S20	●	20.0	5.0	185	105	80	20	2	WDXT063006		
250D5S25	●	25.0	6.5	210	130	80	25	2	WDXT073506		
320D5S32	●	32.0	8.5	255	165	90	32	2	WDXT094008		
400D5S42	●	40.0	11.0	305	205	100	42	3	WDXT125012		

### ■ Common to Both Inserts

Application	Grade	Cutting Conditions			Cat. No.	Fig	Dimensions (mm)			Applicable Holders
		High Speed/Light	General Purpose	Roughing			$l$	Thickness	$r_E$	
		High Speed/Light	General Purpose	Roughing			$l$	Thickness	$r_E$	
L Type Chipbreaker (Low feed, chip management type)	N	High Speed/Light	General Purpose	Roughing	WDXT 052504-L	4	5.0	2.5	0.4	PDL160D2S20 PDL160D3S20 PCT160D3S16 PCT160D5S16
		High Speed/Light	General Purpose	Roughing	052504-G	5				
G Type Chipbreaker (General purpose type)	N	High Speed/Light	General Purpose	Roughing	052504-H	6	6.0	3.0	0.6	PDL200D2S25 PDL200D3S25 PCT200D3S20 PCT200D5S20
		High Speed/Light	General Purpose	Roughing	WDXT 063006-L	4				
H Type Chipbreaker (Strong edge type)	N	High Speed/Light	General Purpose	Roughing	063006-G	5	7.5	3.5	0.6	PDL250D2S25 PDL250D3S25 PCT250D3S25 PCT250D5S25
		High Speed/Light	General Purpose	Roughing	063006-H	6				
L Type Chipbreaker (Low feed, chip management type)	N	High Speed/Light	General Purpose	Roughing	WDXT 073506-L	4	9.6	4.0	0.8	PDL320D2S40 PDL320D3S40 PCT320D3S32 PCT320D5S32
		High Speed/Light	General Purpose	Roughing	073506-G	5				
G Type Chipbreaker (General purpose type)	N	High Speed/Light	General Purpose	Roughing	073506-H	6	12.4	5.0	1.2	PDL400D2S40 PDL400D3S40 PCT400D3S42 PCT400D5S42
		High Speed/Light	General Purpose	Roughing	WDXT 094008-L	4				
H Type Chipbreaker (Strong edge type)	N	High Speed/Light	General Purpose	Roughing	094008-G	5	12.4	5.0	1.2	PDL400D2S40 PDL400D3S40 PCT400D3S42 PCT400D5S42
		High Speed/Light	General Purpose	Roughing	094008-H	6				

(Insert is common with the WDX Type)

Recommended Cutting Conditions PDL Type J66 PCT Type J67

PCT, PDL Type Identification

**PCT 250 D3 S25**

Tool Diameter ( $\phi 25.0$ ) | Max Depth L/D (3D) | Shank Size ( $\phi 25.0$ )

PCT, PDL Type Insert Identification

**WDXT 07 35 06 -G**

Width Across Flats (7.5) | Thickness x 10 (3.5) | Corner Radius x 10 (R0.6) | Breaker Type

# Recommended Cutting Conditions

## Recommended Cutting Conditions (2D)(PDL Type)

	Work Material	Work Hardness HB	Recommended Breaker	Recommended Insert Grade	v <sub>c</sub> Cutting Speed (m/min)	f Feed Rate (mm/rev) <Min.-Optimum-Max.>					
						ø16.0	ø20.0,ø25.0	ø32.0	ø40.0		
2D	Steel, Carbon Steel	SS400	125	G	ACP300	120-180-240	0.05-0.08-0.10	0.05-0.08-0.10	0.05-0.08-0.11	0.05-0.08-0.12	
		S15C	125	L	ACP300	130-170-220	0.04-0.08-0.12	0.04-0.08-0.12	0.04-0.08-0.13	0.05-0.10-0.15	
		S45C	190	G	ACP300	100-150-200	0.08-0.13-0.24	0.08-0.13-0.24	0.08-0.14-0.26	0.09-0.16-0.29	
		S45C Hardened	250	G	ACP300	80-120-160	0.06-0.11-0.18	0.06-0.11-0.18	0.06-0.12-0.19	0.07-0.13-0.22	
		S75C	270	G	ACP300	100-130-160	0.08-0.13-0.22	0.08-0.13-0.22	0.08-0.14-0.23	0.09-0.16-0.26	
		S75C Hardened	300	G	ACP300	70-100-140	0.06-0.11-0.17	0.06-0.11-0.17	0.06-0.12-0.18	0.07-0.13-0.20	
	Low Alloy Steel	SCM, SNCM	180	L	ACP300	100-140-180	0.05-0.08-0.14	0.05-0.08-0.14	0.05-0.08-0.16	0.06-0.09-0.17	
		SCM, SNCM Hardened	275	G	ACP300	80-120-160	0.06-0.11-0.17	0.06-0.11-0.17	0.06-0.12-0.18	0.07-0.13-0.20	
		SCM, SNCM Hardened	300	G	ACP300	75-110-140	0.06-0.11-0.17	0.06-0.11-0.17	0.06-0.12-0.18	0.07-0.13-0.20	
		SCM, SNCM Hardened	350	G	ACP300	60-85-110	0.06-0.11-0.17	0.06-0.11-0.17	0.06-0.12-0.18	0.07-0.13-0.20	
	High Alloy Steel	SKD, SKT, SKH	200	G	ACP300	100-130-160	0.08-0.13-0.24	0.08-0.13-0.24	0.08-0.14-0.26	0.09-0.16-0.29	
		SKD, SKT, SKH Hardened	325	G	ACP300	80-100-120	0.06-0.11-0.18	0.06-0.11-0.18	0.06-0.12-0.19	0.07-0.13-0.22	
	M	Stainless Steel	SUS403, Others (Martensite/Ferrite)	200	G	ACP300	100-140-180	0.06-0.11-0.18	0.06-0.11-0.18	0.06-0.12-0.19	0.07-0.13-0.22
			SUS403, Others Martensitic (Hardened)	240	G	ACP300	90-120-150	0.06-0.11-0.18	0.06-0.11-0.18	0.06-0.12-0.19	0.07-0.13-0.22
SUS304, SUS316 Austenitic			180	G	ACP300	100-140-180	0.06-0.11-0.18	0.06-0.11-0.18	0.06-0.12-0.19	0.07-0.13-0.22	
K	Cast Iron			H	ACK300	120-160-200	0.09-0.20-0.32	0.10-0.22-0.36	0.11-0.24-0.39	0.12-0.26-0.44	
		Ductile Cast Iron			H	ACK300	90-120-150	0.09-0.20-0.32	0.10-0.22-0.36	0.11-0.24-0.39	0.12-0.26-0.44
S	Exotic Alloy (Heat Resistant Alloy, Super Alloy, Ti Alloy, etc.)	200	G	ACP300	25-50-70	0.06-0.11-0.18	0.06-0.11-0.18	0.06-0.12-0.19	0.07-0.13-0.22		
N	Aluminium Alloy			G	DL1500	200-260-320	0.06-0.11-0.17	0.06-0.11-0.17	0.06-0.12-0.18	0.07-0.13-0.20	
		Copper Alloy			G	DL1500	180-230-280	0.06-0.11-0.17	0.06-0.11-0.17	0.06-0.12-0.18	0.07-0.13-0.20

## Recommended Cutting Conditions (3D)(PDL Type)

	Work Material	Work Hardness HB	Recommended Breaker	Recommended Insert Grade	v <sub>c</sub> Cutting Speed (m/min)	f Feed Rate (mm/rev) <Min.-Optimum-Max.>					
						ø16.0	ø20.0,ø25.0	ø32.0	ø40.0		
3D	Steel, Carbon Steel	SS400	125	G	ACP300	120-180-240	0.05-0.07-0.10	0.05-0.07-0.10	0.05-0.08-0.11	0.05-0.08-0.12	
		S15C	125	L	ACP300	130-170-220	0.04-0.07-0.10	0.04-0.07-0.10	0.04-0.08-0.11	0.05-0.09-0.12	
		S45C	190	G	ACP300	100-150-200	0.08-0.12-0.20	0.08-0.12-0.20	0.08-0.13-0.22	0.09-0.14-0.24	
		S45C Hardened	250	G	ACP300	80-120-160	0.06-0.10-0.15	0.06-0.10-0.15	0.06-0.11-0.16	0.07-0.12-0.18	
		S75C	270	G	ACP300	100-130-160	0.08-0.12-0.18	0.08-0.12-0.18	0.08-0.13-0.19	0.09-0.14-0.22	
		S75C Hardened	300	G	ACP300	70-100-140	0.06-0.10-0.14	0.06-0.10-0.14	0.06-0.11-0.15	0.07-0.12-0.17	
	Low Alloy Steel	SCM, SNCM	180	L	ACP300	100-140-180	0.05-0.07-0.12	0.05-0.07-0.12	0.05-0.08-0.13	0.06-0.08-0.15	
		SCM, SNCM Hardened	275	G	ACP300	80-120-160	0.06-0.10-0.14	0.06-0.10-0.14	0.06-0.11-0.15	0.07-0.12-0.17	
		SCM, SNCM Hardened	300	G	ACP300	75-110-140	0.06-0.10-0.14	0.06-0.10-0.14	0.06-0.11-0.15	0.07-0.12-0.17	
		SCM, SNCM Hardened	350	G	ACP300	60-85-110	0.06-0.10-0.14	0.06-0.10-0.14	0.06-0.11-0.15	0.07-0.12-0.17	
	High Alloy Steel	SKD, SKT, SKH	200	G	ACP300	100-130-160	0.08-0.12-0.20	0.08-0.12-0.20	0.08-0.13-0.22	0.09-0.14-0.24	
		SKD, SKT, SKH Hardened	325	G	ACP300	80-100-120	0.06-0.10-0.15	0.06-0.10-0.15	0.06-0.11-0.16	0.07-0.12-0.18	
	M	Stainless Steel	SUS403, Others (Martensite/Ferrite)	200	G	ACP300	100-140-180	0.06-0.10-0.15	0.06-0.10-0.15	0.06-0.11-0.16	0.07-0.12-0.18
			SUS403, Others Martensitic (Hardened)	240	G	ACP300	90-120-150	0.06-0.10-0.15	0.06-0.10-0.15	0.06-0.11-0.16	0.07-0.12-0.18
SUS304, SUS316 Austenitic			180	G	ACP300	100-140-180	0.06-0.10-0.15	0.06-0.10-0.15	0.06-0.11-0.16	0.07-0.12-0.18	
K	Cast Iron			H	ACK300	120-160-200	0.09-0.18-0.27	0.10-0.20-0.30	0.11-0.22-0.32	0.12-0.24-0.36	
		Ductile Cast Iron			H	ACK300	90-120-150	0.09-0.18-0.27	0.10-0.20-0.30	0.11-0.22-0.32	0.12-0.24-0.36
S	Exotic Alloy (Heat Resistant Alloy, Super Alloy, Ti Alloy, etc.)	200	G	ACP300	25-50-70	0.06-0.10-0.15	0.06-0.10-0.15	0.06-0.11-0.16	0.07-0.12-0.18		
N	Aluminium Alloy			G	DL1500	200-260-320	0.06-0.11-0.17	0.06-0.11-0.17	0.06-0.12-0.18	0.07-0.13-0.20	
		Copper Alloy			G	DL1500	180-230-280	0.06-0.11-0.17	0.06-0.11-0.17	0.06-0.12-0.18	0.07-0.13-0.20

Drilling

Solid

Special

Indexable

Reamer

Brazed

Others

# Recommended Cutting Conditions

## Recommended Cutting Conditions (3D)(PCT Type)

	Work Material	Work Hardness HB	Recommended Breaker	Recommended Insert Grade	v <sub>c</sub> Cutting Speed (m/min)	f <sub>z</sub> Feed Rate (mm/t) <Min.-Optimum-Max.>				
						ø16.0	ø20.0,ø25.0	ø32.0	ø40.0	
3D	P Steel, Carbon Steel	SS400	125	G	ACP300	120-180-240	0.05-0.07-0.10	0.05-0.07-0.10	0.05-0.08-0.11	0.05-0.08-0.12
		S15C	125	L	ACP300	130-170-220	0.04-0.07-0.10	0.04-0.07-0.10	0.04-0.08-0.11	0.05-0.09-0.12
		S45C	190	G	ACP300	100-150-200	0.08-0.12-0.20	0.08-0.12-0.20	0.08-0.13-0.22	0.09-0.14-0.24
		S45C Hardened	250	G	ACP300	80-120-160	0.06-0.10-0.15	0.06-0.10-0.15	0.06-0.11-0.16	0.07-0.12-0.18
		S75C	270	G	ACP300	100-130-160	0.08-0.12-0.18	0.08-0.12-0.18	0.08-0.13-0.19	0.09-0.14-0.22
		S75C Hardened	300	G	ACP300	70-100-140	0.06-0.10-0.14	0.06-0.10-0.14	0.06-0.11-0.15	0.07-0.12-0.17
	Low Alloy Steel	SCM, SNCM	180	L	ACP300	100-140-180	0.05-0.07-0.12	0.05-0.07-0.12	0.05-0.08-0.13	0.06-0.08-0.15
		SCM, SNCM Hardened	275	G	ACP300	80-120-160	0.06-0.10-0.14	0.06-0.10-0.14	0.06-0.11-0.15	0.07-0.12-0.17
		SCM, SNCM Hardened	300	G	ACP300	75-110-140	0.06-0.10-0.14	0.06-0.10-0.14	0.06-0.11-0.15	0.07-0.12-0.17
		SCM, SNCM Hardened	350	G	ACP300	60-85-110	0.06-0.10-0.14	0.06-0.10-0.14	0.06-0.11-0.15	0.07-0.12-0.17
High Alloy Steel	SKD, SKT, SKH	200	G	ACP300	100-130-160	0.08-0.12-0.20	0.08-0.12-0.20	0.08-0.13-0.22	0.09-0.14-0.24	
	SKD, SKT, SKH Hardened	325	G	ACP300	80-100-120	0.06-0.10-0.15	0.06-0.10-0.15	0.06-0.11-0.16	0.07-0.12-0.18	
M	Stainless Steel	SUS403, Others (Martensite/Ferrite)	200	G	ACP300	100-140-180	0.06-0.10-0.15	0.06-0.10-0.15	0.06-0.11-0.16	0.07-0.12-0.18
		SUS403, Others Martensitic (Hardened)	240	G	ACP300	90-120-150	0.06-0.10-0.15	0.06-0.10-0.15	0.06-0.11-0.16	0.07-0.12-0.18
		SUS304, SUS316 Austenitic	180	G	ACP300	100-140-180	0.06-0.10-0.15	0.06-0.10-0.15	0.06-0.11-0.16	0.07-0.12-0.18
K	Cast Iron			H	ACK300	120-160-200	0.09-0.18-0.27	0.10-0.20-0.30	0.11-0.22-0.32	0.12-0.24-0.36
		Ductile Cast Iron			H	ACK300	90-120-150	0.09-0.18-0.27	0.10-0.20-0.30	0.11-0.22-0.32
S	Exotic Alloy (Heat Resistant Alloy, Super Alloy, Ti Alloy, etc.)	200	G	ACP300	25-50-70	0.06-0.10-0.15	0.06-0.10-0.15	0.06-0.11-0.16	0.07-0.12-0.18	
N	Aluminium Alloy			G	DL1500	200-260-320	0.06-0.11-0.17	0.06-0.11-0.17	0.06-0.12-0.18	0.07-0.13-0.20
		Copper Alloy			G	DL1500	180-230-280	0.06-0.11-0.17	0.06-0.11-0.17	0.06-0.12-0.18

## Recommended Cutting Conditions (5D)(PCT Type)

	Work Material	Work Hardness HB	Recommended Breaker	Recommended Insert Grade	v <sub>c</sub> Cutting Speed (m/min)	f <sub>z</sub> Feed Rate (mm/t) <Min.-Optimum-Max.>				
						ø16.0	ø20.0,ø25.0	ø32.0	ø40.0	
5D	P Steel, Carbon Steel	SS400	125	G	ACP300	120-180-240	0.05-0.06-0.09	0.05-0.06-0.09	0.05-0.06-0.09	0.05-0.07-0.09
		S15C	125	L	ACP300	130-170-220	0.04-0.06-0.08	0.04-0.06-0.08	0.04-0.06-0.08	0.05-0.07-0.09
		S45C	190	G	ACP300	100-150-200	0.07-0.10-0.15	0.07-0.10-0.15	0.08-0.11-0.17	0.09-0.12-0.19
		S45C Hardened	250	G	ACP300	80-120-160	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.14
		S75C	270	G	ACP300	100-130-160	0.07-0.10-0.14	0.07-0.10-0.14	0.08-0.11-0.15	0.09-0.12-0.17
		S75C Hardened	300	G	ACP300	70-100-140	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.13
	Low Alloy Steel	SCM, SNCM	180	L	ACP300	100-140-180	0.05-0.06-0.09	0.05-0.06-0.09	0.05-0.06-0.10	0.05-0.07-0.11
		SCM, SNCM Hardened	275	G	ACP300	80-120-160	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.13
		SCM, SNCM Hardened	300	G	ACP300	75-110-140	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.13
		SCM, SNCM Hardened	350	G	ACP300	60-85-110	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.13
High Alloy Steel	SKD, SKT, SKH	200	G	ACP300	100-130-160	0.07-0.10-0.15	0.07-0.10-0.15	0.08-0.11-0.17	0.09-0.12-0.19	
	SKD, SKT, SKH Hardened	325	G	ACP300	80-100-120	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.14	
M	Stainless Steel	SUS403, Others (Martensite/Ferrite)	200	G	ACP300	100-140-180	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.14
		SUS403, Others Martensitic (Hardened)	240	G	ACP300	90-120-150	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.14
		SUS304, SUS316 Austenitic	180	G	ACP300	100-140-180	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.14
K	Cast Iron			H	ACK300	120-160-200	0.08-0.15-0.21	0.09-0.17-0.23	0.09-0.18-0.25	0.11-0.20-0.28
		Ductile Cast Iron			H	ACK300	90-120-150	0.08-0.15-0.21	0.09-0.17-0.23	0.09-0.18-0.25
S	Exotic Alloy (Heat Resistant Alloy, Super Alloy, Ti Alloy, etc.)	200	G	ACP300	25-50-70	0.05-0.09-0.11	0.05-0.09-0.11	0.06-0.09-0.12	0.06-0.10-0.14	
N	Aluminium Alloy			G	DL1500	200-260-320	0.05-0.10-0.15	0.05-0.10-0.15	0.06-0.11-0.16	0.06-0.12-0.18
		Copper Alloy			G	DL1500	180-230-280	0.05-0.10-0.15	0.05-0.10-0.15	0.06-0.11-0.16

J  
Drilling  
Solid  
Special  
Indexable  
Reamer  
Brazed  
Others