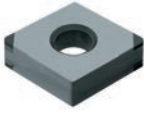
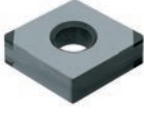
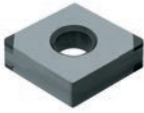
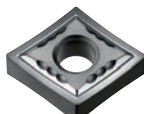
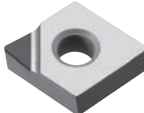


Item Number	IC	T
CN_1204_	12.7	4.76

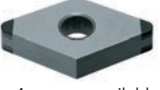
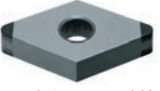

<80 degree Rhombic Negative type>

Shape	ISO Item Number	Inch Item Number	Edge Prep.	R	BIDEMICS (Coated)	CBN (Brazed) (Coated)			CBN (Brazed)					Diamond Coating		PCD	For applicable holder, see pages:	
					JP2	B16	B5K	B6K	B22	B23	B30	B36	B40	B52	UC1			PD1
 <p>4 corners available</p>	CNGA 120412 PQ SEH	CNGA433PQS0635	S01535	1.2			●	●										
	120412 PQ TBD	433PQT0215	T00515	1.2														
	120412 PQ TCE	433PQT0420	T01020	1.2														
	120416 PQ SCD	434PQS0415	S01015	1.6														
	120416 PQ SCE	434PQS0420	S01020	1.6						●								
	120416 PQ SXF	434PQS0525	S01325	1.6				●										
	120416 PQ SEH	434PQS0635	S01535	1.6														
	120416 PQ TCE	434PQT0420	T01020	1.6														
	120420 PQ SCD	435PQS0415	S01015	2														
	120420 PQ SCE	435PQS0420	S01020	2														
	120420 PQ SXF	435PQS0525	S01325	2														
	120420 PQ SEH	435PQS0635	S01535	2														
120420 PQ TCE	435PQT0420	T01020	2															
 <p>one side 2 corners available</p>	CNGA 120404 PD F	CNGA431PDFNX	None	0.4														
	120408 PD F	432PDFNX	None	0.8														
	120412 PD F	433PDFNX	None	1.2														
 <p>4 corners available with wiper</p>	CNGA 120404 PQ W SCD	CNGA431PQWS0415	S01015	0.4														
	120404 PQ W SEH	431PQWS0635	S01535	0.4														
	120408 PQ W SCD	432PQWS0415	S01015	0.8														
	120408 PQ W SEH	432PQWS0635	S01535	0.8														
	120412 PQ W SCD	433PQWS0415	S01015	1.2														
	120412 PQ W SEH	433PQWS0635	S01535	1.2														
 <p>4 corners available</p>	CNMG 120404 FN ZP	CNMG431-FN-ZP	None	0.4														
	120408 FN ZP	432-FN-ZP	None	0.8														
 <p>1 corner available with chipbreaker (rake angle 10°)</p>	CNMX 120404 P F		None	0.4													●	
	120408 P F		None	0.8														●

● : Standard stock ● : New standard stock ■ : Scheduled to be produced by order ★ : Standard stock (Specified)

Item Number	IC	T
DN_1504_	12.7	4.76
DN_1506_	12.7	6.35

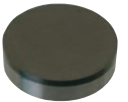

<55 degree Rhombic Negative type>

Shape	ISO Item Number	Inch Item Number	Edge Prep.	R	BIDEMICS (Coated)	CBN (Brazed) (Coated)			CBN (Brazed)					Diamond Coating		PCD	For applicable holder, see pages:
					JP2	B16	B5K	B6K	B22	B23	B30	B36	B40	B52	UC1		
 <p>4 corners available</p>	DNGA 150604 PQ TCE	DNGA441PQT0420	T01020	0.4													F13 F15 G41 K35
	150608 PQ SCD	442PQS0415	S01015	0.8													
	150608 PQ SXF	442PQS0525	S01325	0.8													
	150608 PQ TCE	442PQT0420	T01020	0.8													
	150612 PQ SCD	443PQS0415	S01015	1.2													
	150612 PQ SXF	443PQS0525	S01325	1.2													
	150612 PQ TCE	443PQT0420	T01020	1.2													
	150616 PQ SCD	444PQS0415	S01015	1.6													
	150616 PQ SXF	444PQS0525	S01325	1.6													
 <p>one side 2 corners available</p>	DNGA 150404 PD F	DNGA431PDFNX	None	0.4													
	150408 PD F	432PDFNX	None	0.8													
	150412 PD F	433PDFNX	None	1.2													
 <p>1 corner available with chipbreaker (rake angle 10°)</p>	DNMX 150404 P F		None	0.4													
	150408 P F		None	0.8													

● : Standard stock ● : New standard stock ■ : Scheduled to be produced by order ★ : Standard stock (Specified)

Item Number	IC	T
RN_1203_	12.7	3.18
RN_1204_	12.7	4.76

<Round Negative type>

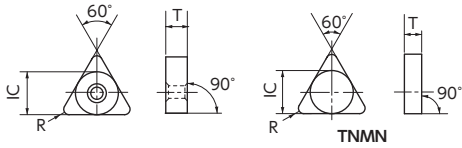
Shape	ISO Item Number	Inch Item Number	Edge Prep.	R	BIDEMICS (Coated)	CBN (Brazed) (Coated)			CBN (Brazed)					Diamond Coating		PCD	For applicable holder, see pages:
					JP2	B16	B5K	B6K	B22	B23	B30	B36	B40	B52	UC1		
 <p>(top full-face CBN)</p>	RNGN 120400 S	RNGN430S	Z01015	—													F30 N9 L23 L30
 <p>(Solid CBN)</p>	RNMN 120300 S TN	RNMN420STN	T01025	—		●											—
	RNMN 120400 S TN	RNMN430STN	T01025	—		●											

● : Standard stock ● : New standard stock ■ : Scheduled to be produced by order ★ : Standard stock (Specified)

New Products
 Tool Materials / Selection Guide
 BIDEMICS, PCD, CBN and Ceramics
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 Insert Item List
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 Unique Swiss Tooling
 Grooving / Side Turning
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 Application Introduction
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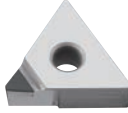

Item Number	IC	T
TN_1103_	6.35	3.18
TN_1604_	9.525	4.76

<60 degree Triangle Negative type>



Steel	P
Stainless Steel	M
Cast Iron	K
Non-Ferrous Material	N
Heat Resistant Alloy	S
Hardened Material	H

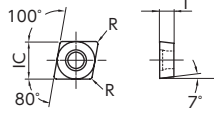
● : 1st Choice
● : 2nd choice

Shape	ISO Item Number	Inch Item Number	Edge Prep.	R	BIDEMICS (Coated)	CBN (Brazed) (Coated)			CBN (Brazed)					PCD	For applicable holder, see pages:		
					JP2	B16	B5K	B6K	B22	B23	B30	B36	B40			B52	UC1
 <p>one side 3 corners available</p>	TNGA 160402 PT F	TNGA3308PTFNX	None	0.2													
	160404 PT F	331PTFNX	None	0.4													
	160408 PT F	332PTFNX	None	0.8													
	160412 PT F	333PTFNX	None	1.2													
 <p>6 corners available</p>	TNMG 160402 FN ZP	TNMG33Y-FN-ZP	None	0.2												F23	
	160404 FN ZP	331-FN-ZP	None	0.4												F25	
	160408 FN ZP	332-FN-ZP	None	0.8												G39	
 <p>1 corner available with chipbreaker (rake angle 10°)</p>	TNMX 160404 P F	TNMX331PF	None	0.4													
	160408 P F	332PF	None	0.8													
 <p>(Solid CBN)</p>	TNMN 110312 S TNC	TNMN223STNC		1.2		●											
	160408 S TN	332STN	T01025	0.8		●											F23
	160412 S TNC	333STN		1.2		●											F25
	160412 S TNF	333STNF	T02025	1.2		●											

● : Standard stock ● : New standard stock ■ : Scheduled to be produced by order ★ : Standard stock (Specified)

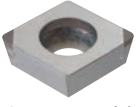
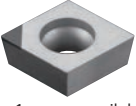
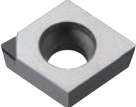
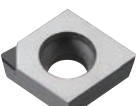
Item Number	IC	T	Relief angle
CC 0602	6.35	2.38	7°
CC 09T3	9.525	3.97	7°

<80 degree Rhombic Positive type>



Steel	P
Stainless Steel	M
Cast Iron	K
Non-Ferrous Material	N
Heat Resistant Alloy	S
Hardened Material	H

● : 1st Choice
● : 2nd choice

Shape	ISO Item Number	Inch Item Number	Edge Prep.	R	BIDEMICS (Coated)	CBN (Brazed) (Coated)			CBN (Brazed)				Diamond Coating		PCD	For applicable holder, see pages:			
					JP2	B16	B5K	B6K	B22	B23	B30	B36	B40	B52			UC1	PD1	PD2
 <p>2 corners available</p>	CCGW 060202 PD F	CCGW21.508PDFNX	None	0.2															
	060202 PD SCD	21.508PDS0415	S01015	0.2															
	060202 PD SXF	21.508PDS0525	S01325	0.2															
	060202 PD SEH	21.508PDS0635	S01535	0.2															
	060204 PD F	21.51PDFNX	None	0.4															
	060204 PD SCD	21.51PDS0415	S01015	0.4															
	060204 PD SXF	21.51PDS0525	S01325	0.4															
	060204 PD SEH	21.51PDS0635	S01535	0.4															
	060208 PD F	21.52PDFNX	None	0.8															
	060208 PD SCD	21.52PDS0415	S01015	0.8															
	060208 PD SXF	21.52PDS0525	S01325	0.8															
	060208 PD SEH	21.52PDS0635	S01535	0.8															
	060208 PD TEE	21.52PDT0620	T01520	0.8															
	CCGW 09T302 PD F	CCGW32.508PDFNX	None	0.2															
	09T302 PD SCD	32.508PDS0415	S01015	0.2															
	09T302 PD SXF	32.508PDS0525	S01325	0.2															
	09T302 PD SEH	32.508PDS0635	S01535	0.2															
	09T304 PD F	32.51PDFNX	None	0.4															
	09T304 PD SCD	32.51PDS0415	S01015	0.4															
	09T304 PD SXF	32.51PDS0525	S01325	0.4															
09T304 PD SEH	32.51PDS0635	S01535	0.4																
09T308 PD F	32.52PDFNX	None	0.8																
09T308 PD SCD	32.52PDS0415	S01015	0.8																
09T308 PD SXF	32.52PDS0525	S01325	0.8																
09T308 PD SEH	32.52PDS0635	S01535	0.8																
09T312 PD F	32.53PDFNX	None	1.2																
09T312 PD SCD	32.53PDS0415	S01015	1.2																
09T312 PD SXF	32.53PDS0525	S01325	1.2																
 <p>1 corner available</p>	CCMW 09T301	—	None	0.1															
	09T302	—	None	0.2															
	09T304	—	None	0.4															
	09T308	—	None	0.8															
 <p>1 corner available with 3D chipbreaker (rake angle 10°)</p>	CCMT 060201 PB F		None	0.1															
	060202 PB F		None	0.2															
	060204 PB F		None	0.4															
	09T301 PB F		None	0.1															
	09T302 PB F		None	0.2															
09T304 PB F		None	0.4																
 <p>1 corner available with chipbreaker (rake angle 10°)</p>	09T302 P F		None	0.2															
	09T304 P F		None	0.4															



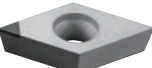
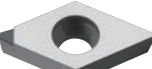

G23
K28

G23
K28

● : Standard stock ● : New standard stock ■ : Scheduled to be produced by order ★ : Standard stock (Specified)

Item Number	IC	T	Relief angle
DC_0702_	6.35	2.38	7°
DC_11T3_	9.525	3.97	7°

<55 degree Rhombic Positive type>

Shape	ISO Item Number	Inch Item Number	Edge Prep.	R	BIDEMICS (Coated)	CBN (Brazed) (Coated)				Diamond Coating			PCD	For applicable holder, see pages:		
					JP2	B16	B5K	B6K	B22	B23	B30	B36			B40	B52
 <p>2 corners available</p>	DCGW 070202 PD F	DCGW21.508PDFNX	None	0.2												
	070202 PD SCD	21.508PDS0415	S01015	0.2												
	070202 PD SEH	21.508PDS0635	S01535	0.2												
	070204 PD F	21.51PDFNX	None	0.4												
	070204 PD SCD	21.51PDS0415	S01015	0.4												
	070204 PD SEH	21.51PDS0635	S01535	0.4												
	070208 PD F	21.52PDFNX	None	0.8												
	070208 PD SCD	21.52PDS0415	S01015	0.8												
	070208 PD SXF	21.52PDS0525	S01325	0.8												
	070208 PD SEH	21.52PDS0635	S01535	0.8												
	DCGW 11T301 PD SCD	DCGW32.504PDS0415	S01015	0.1												
	11T302 PD F	32.508PDFNX	None	0.2												
	11T302 PD SCD	32.508PDS0415	S01015	0.2												
	11T302 PD SXF	32.508PDS0525	S01325	0.2												
	11T302 PD SEH	32.508PDS0635	S01535	0.2												
	11T304 PD F	32.51PDFNX	None	0.4												
	11T304 PD SCD	32.51PDS0415	S01015	0.4												
	11T304 PD SXF	32.51PDS0525	S01325	0.4												
	11T304 PD SEH	32.51PDS0635	S01535	0.4												
	11T304 PD TCD	32.51PDT0415	T01015	0.4												
11T308 PD F	32.52PDFNX	None	0.8													
11T308 PD SCD	32.52PDS0415	S01015	0.8													
11T308 PD SXF	32.52PDS0525	S01325	0.8													
11T308 PD SEH	32.52PDS0635	S01535	0.8													
11T312 PD SCD	32.53PDS0415	S01015	1.2													
 <p>2 corners available</p>	DCMT 11T301 FN AM3	—	None	0.1												
	11T302 FN AM3	—	None	0.2												
	11T304 FN AM3	—	None	0.4												
 <p>1 corner available</p>	DCMW 11T301	—	None	0.1												
	11T302	—	None	0.2												
	11T304	—	None	0.4												
	11T308	—	None	0.8												
 <p>1 corner available with 3D chipbreaker (rake angle 10°)</p>	DCMT 070201 PB F		None	0.1												
	070202 PB F		None	0.2												
	11T301 PB F		None	0.1												
	11T302 PB F		None	0.2												
	11T304 PB F		None	0.4												
 <p>1 corner available with chipbreaker (rake angle 10°)</p>	DCMT 070201 P F		None	0.1												
	070202 P F		None	0.2												
	11T302 P F		None	0.2												
	11T304 P F		None	0.4												

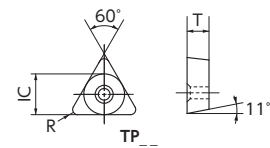
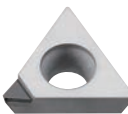


● : Standard stock ● : New standard stock ■ : Scheduled to be produced by order ★ : Standard stock (Specified)

G25
G27

New Products
Tool Materials / Selection Guide
BIDEMICS, PCD
Micrograin Carbide, PVD Coated Carbide
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Unique Swiss Tooling
Grooving / Side Turning
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Item Number	IC	T	Relief angle
TP_0902_	5.56	2.38	11°
TP_1103_	6.35	3.18	11°
TB_0601_	3.97	1.59	5°

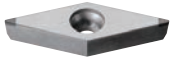
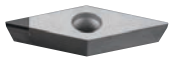
<60 degree Triangle Positive type>

Shape	ISO Item Number	Inch Item Number	Edge Prep.	R	BIDEMICS (Coated)	CBN (Brazed) (Coated)			CBN (Brazed)					Diamond Coating	PCD	For applicable holder, see pages:
					JP2	B16	B5K	B6K	B22	B23	B30	B36	B40	B52	UC1	
 3 corners available	TPMH 110302 FR F1	TPMH22Y-FR-F1	None	0.2												● : 1st Choice ● : 2nd choice
	110304 FR F1	221-FR-F1	None	0.4												
 1 corner available with 3D chipbreaker (rake angle 10°)	TPMT 090201 PB F	—	None	0.1												K30 K31 K32
	090202 PB F	—	None	0.2												
	090204 PB F	—	None	0.4												
	110301 PB F	—	None	0.1												
	110302 PB F	—	None	0.2												
 1 corner available with chipbreaker (rake angle 10°)	TPMT 090202 P F	—	None	0.2												
	090204 P F	—	None	0.4												
	110302 P F	—	None	0.2												
	110304 P F	—	None	0.4												
 3 corners available	TBGN 060102 S SNCD	TBGN52YSSN0415	S01015	0.2												—
	060104 S SNCD	521SSN0415	S01015	0.4												
	060108 S SNCD	522SSN0415	S01015	0.8												

● : Standard stock ● : New standard stock ■ : Scheduled to be produced by order ★ : Standard stock (Specified)

Item Number	IC	T	Relief angle
VC_1103_	6.35	3.18	7°
VC_1604_	9.525	4.76	7°


<35 degree Rhombic Positive type>

Shape	ISO Item Number	Inch Item Number	Edge Prep.	R	BIDEMICS (Coated)	CBN (Brazed) (Coated)			CBN (Brazed)					Diamond Coating			PCD	For applicable holder, see pages:		
					JP2	B16	B5K	B6K	B22	B23	B30	B36	B40	B52	UC1	PD1			PD2	
 <p>2 corners available</p>	VCGW 110302 PD SCD	VCGW2208PDS0415	S01015	0.2																
	110302 PD SEH	2208PDS0635	S01535	0.2																
	110304 PD SCD	221PDS0415	S01015	0.4																
	110304 PD SEH	221PDS0635	S01535	0.4																
	110308 PD SCD	222PDS0415	S01015	0.8																
	110308 PD SEH	222PDS0635	S01535	0.8																
	110312 PD SCD	223PDS0415	S01015	1.2																
	110312 PD SEH	223PDS0635	S01535	1.2																
	VCGW 160402 PD SCD	VCGW3308PDS0415	S01015	0.2																
	160402 PD SEH	3308PDS0635	S01535	0.2																
	160404 PD SCD	331PDS0415	S01015	0.4																
	160404 PD SEH	331PDS0635	S01535	0.4																
	160404 PD TCE	331PDT0420	T01020	0.4																
	160408 PD SCD	332PDS0415	S01015	0.8																
	160408 PD SEH	332PDS0635	S01535	0.8																
	160408 PD TCE	332PDT0420	T01020	0.8																
160412 PD SCD	333PDS0415	S01015	1.2																	
160412 PD SEH	333PDS0635	S01535	1.2																	
160412 PD TCE	333PDT0420	T01020	1.2																	
 <p>1 corner available</p>	VCMW 110301	—	None	0.1																
	110302	—	None	0.2																
	110304	—	None	0.4																

● : Standard stock ● : New standard stock ■ : Scheduled to be produced by order ★ : Standard stock (Specified)

G29
G31
G56

<For Machining Mill Rolls>

Shape	ISO Item Number	Inch Item Number	Edge Prep.	R	BIDEMICS (Coated)	CBN (Brazed) (Coated)			CBN (Brazed)					Diamond Coating			PCD	For applicable holder, see pages:	
					JP2	B16	B5K	B6K	B22	B23	B30	B36	B40	B52	UC1	PD1			PD2
 <p>(Top full-face CBN)</p>	RBGX 16 S	—	S01015	—															
	RBGX 20 S	—	S01015	—															

● : Standard stock ● : New standard stock ■ : Scheduled to be produced by order ★ : Standard stock (Specified)