INNOVATOR IN TECHNOLOGY

PCD/PCBN CUTTING TOOLS

DIPROTEX SINCE 1968

diprotex

diprotex

CONTENTS

INNOVATOR IN TECHNOLOGY

TÜV SÜD ISO 9001

PCD / PCBN CUTTING TOOLS

DIPROTEX
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Tél. + 33 (0)4 76 41 14 81
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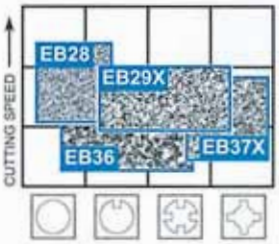
PCBN GRADE

Grade	Micro structure	CBN Vol%	Binder	Grit size (μm)	Application
EB50		95	AlN	10	• Extreme wear and chemical resistance • Rough machining hardened steel • Finish machining grey cast iron • Solid PCBN
EB51		95	Co	2	• Higher toughness and good wear resistance • Finish machining of grey cast iron and Ni/Co based superalloy • Rough machining hardened steel
EB11		90	Al - Co	2 ~ 4	
EB14		80	Tin	4	• Machining of powder metal and nodular cast iron
EB37X		65	TiCN	1	• Good chemical and impact resistance (Heavy interruption) • Hard turning of hardened steel and alloy steel
EB36		60	TiN	1	• Good chemical and impact resistance (Light interruption) • Hard turning of hardened steel and alloy steel
EB28		50	TiC	2	• Superior thermal resistance and wear resistance • General usage in continuous cutting of hardened steel • Finish machining of hardened steel
EB29X		45	TiN	1	• Interrupted machining of hardened steel (Light interruption) • Good for high speed machining

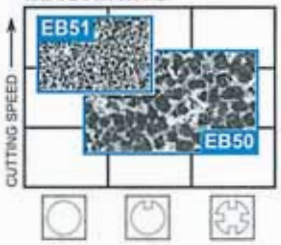
• HARDENED STEEL



• GREY CAST IRON MACHINING

• SINTERED METAL MACHINING

• TC ROLL MATERIAL MACHINING

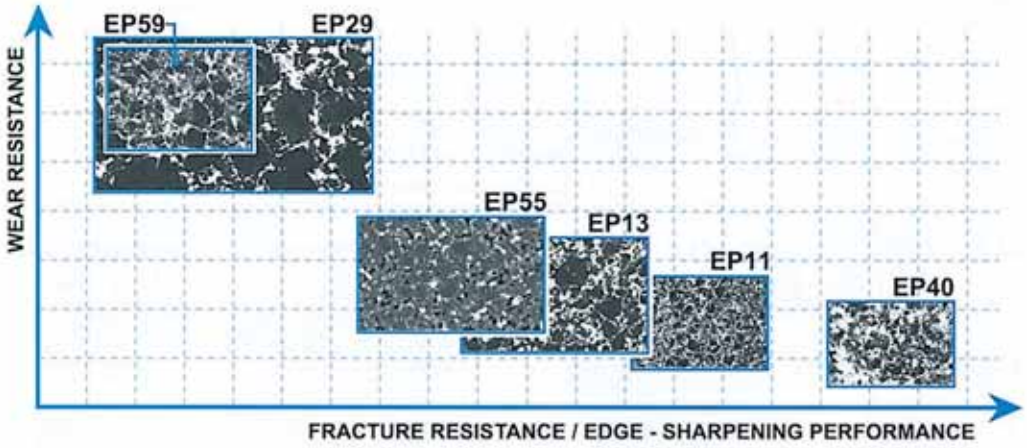


TYPICAL PCBN WORKING PARAMETERS

WORKPIECE MATERIAL	OPERATION		DIPROTEX PRODUCT	CUTTING SPEED (m/min)	FEED RATE (mm/rev)	DEPTH OF CUT (mm)
	ROUGH	FINISH				
HARDENED STEEL	●		EB50 / EB51 / EB11	60 - 200	0.1 - 0.3	UP TO 3.0
		●	EB28 / EB29 / EB37	90 - 200	UP TO 0.2	UP TO 0.5
GREY CAST IRON	●	●	EB50 / EB51 / EB11	400 - 2500	0.1 - 0.8	UP TO 3.0
		●	EB50 / EB51 / EB11 / EB28	400 - 2000	0.1 - 0.6	UP TO 1.0
HARD IRON	●	●	EB50 / EB51 / EB11 / EB37X	40 - 150	0.1 - 1.0	UP TO 5.0
HARD FACING ALLOYS	●		EB50 / EB51 / EB11 / EB37X	50 - 200	0.2 - 0.4	UP TO 3.0
		●	EB28 / EB29 / EB37	50 - 200	UP TO 0.2	UP TO 5.0
SINTERED IRON	●	●	EB28 / EB29 / EB14	100 - 300	0.1 - 0.3	UP TO 1.0

PCD GRADE

Grade	Micro structure	DIA Vol%	Binder	Grit size (μm)	Application
EP29		95	Co	30+2	• Specially designed for Extreme wear & Impact resistance • Good for milling machining (Heavy interruption) • Laminated floor, T.C, Ceramics, Advaned composites, >18% Si-Al alloy
EP59		95	Co	25	• Good wear resistance & impact resistance • T.C, Ceramics, High Si-Al Alloy
EP55		94	Co	10	• General purpose • Copper alloy, <16% Si-Al alloy, Wood working
EP13		90	Co	8	
EP11		90	Co	2	• Good surface finish • Wood working, Copper alloy
EP40		90	Co	0.5	• Excellent surface finish • Copper alloy, Rubber, Acrylic plastics

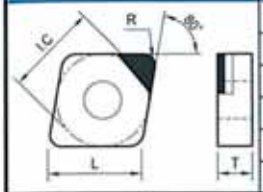


TYPICAL PCD WORKING PARAMETERS

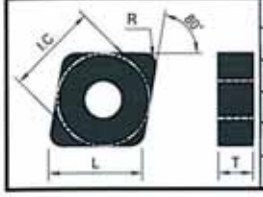
WORKPIECE MATERIAL	CUTTING SPEED (m/min)	FEED RATE (mm/rev)	DEPTH OF CUT (mm)
TURNING & BORING			
ALUMINIUM ALLOYS, COPPER, BRASS AND THEIR ALLOYS	300 - 1000	0.05 - 0.5	UP TO 10.0
SINTERED TUNGSTEN CARBIDE	10 - 30	0.1 - 0.2	UP TO 2.0
GREEN TUNGSTEN CARBIDE	50 - 200	0.1 - 0.5	UP TO 5.0
GLASS-AND CARBON-FIBER- REINFORCED PLASTICS	100 - 600	0.05 - 0.5	UP TO 5.0
GREEN CERAMICS	100 - 600	UP TO 0.2	UP TO 2.0
RECONSTITUTED AND FIBER-REINFORCED PLASTICS	50 - 150	0.1 - 0.5	UP TO 3.0
MILLING, SAWING & ROUTING			
ALUMINIUM ALLOYS	500 - 3000	0.1 - 0.5	UP TO 5.0
CHIPBOARD, FIBREBOARD AND PLASTICS	2000 - 3000	0.1 - 0.5	UP TO 15.0
			(mm/tooth)

PCBN TURNING INSERTS

CNMA

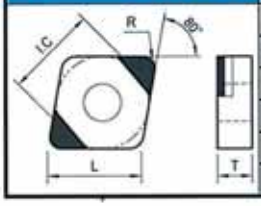


SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
CNMA 120404	CNMA 431					12.7	4.76	0.4
CNMA 120408	CNMA 432		●		●	12.7	4.76	0.8
CNMA 120412	CNMA 433		●		●	12.7	4.76	1.2



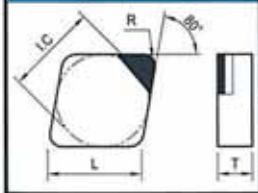
CNMA 120408	CNMA 432	●				12.7	4.76	0.8
CNMA 120412	CNMA 433	●				12.7	4.76	1.2
CNMA 120416	CNMA 434	●				12.7	4.76	1.6

2C-CNMA

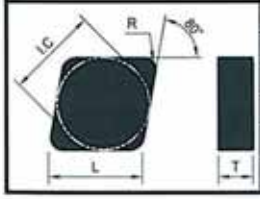


SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
CNMA 120404	CNMA 431					12.7	4.76	0.4
CNMA 120408	CNMA 432		●		●	12.7	4.76	0.8
CNMA 120412	CNMA 433		●		●	12.7	4.76	1.2

CNMN



SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
CNMN 120408	CNMN 432		●		●	12.7	4.76	0.8
CNMN 120412	CNMN 433		●		●	12.7	4.76	1.2

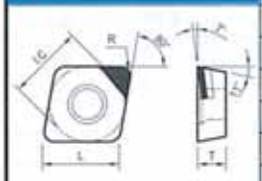


CNMN 120408	CNMN 432	●				12.7	4.76	0.8
CNMN 120412	CNMN 433	●				12.7	4.76	1.2

CCMW

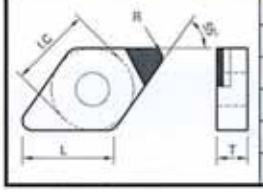
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
CCMW 060202	CCMW 2(1.5) 0.5					6.35	2.38	0.2
CCMW 060204	CCMW 2(1.5) 1		●		●	6.35	2.38	0.4
CCMW 060208	CCMW 2(1.5) 2		●		●	6.35	2.38	0.8
CCMW 09T302	CCMW 3(2.5) 0.5					9.525	3.97	0.2
CCMW 09T304	CCMW 3(2.5) 1		●		●	9.525	3.97	0.4
CCMW 09T308	CCMW 3(2.5) 2		●		●	9.525	3.97	0.8
CCMW 120402	CCMW 43(0.5)					12.7	4.76	0.2
CCMW 120404	CCMW 431		●		●	12.7	4.76	0.4
CCMW 120408	CCMW 432		●		●	12.7	4.76	0.8
CCMW 120412	CCMW 433		●		●	12.7	4.76	1.2

CPMW



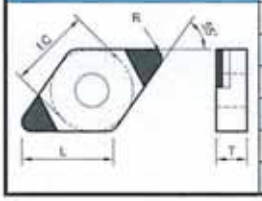
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
CPMW 080202	CPMW 2.5 (1.5) 0.5					7.94	2.38	0.2
CPMW 080204	CPMW 2.5 (1.5) 1					7.94	2.38	0.4
CPMW 090302	CPMW 32 (0.5)		●		●	9.525	3.18	0.2
CPMW 090304	CPMW 321		●		●	9.525	3.18	0.4
CPMW 090308	CPMW 322		●		●	9.525	3.18	0.8

DNMA



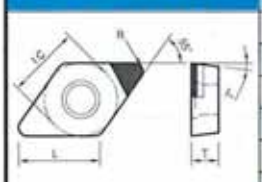
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
DNMA 110404	DNMA 331		●		●	9.525	4.76	0.4
DNMA 110408	DNMA 332		●		●	9.525	4.76	0.8
DNMA 150404	DNMA 431		●		●	12.7	4.76	0.4
DNMA 150408	DNMA 432		●		●	12.7	4.76	0.8
DNMA 150412	DNMA 433					12.7	4.76	1.2

2C-DNMA



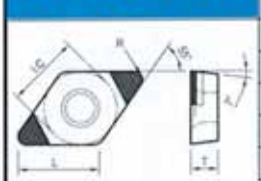
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
DNMA 110404	DNMA 331		●		●	9.525	4.76	0.4
DNMA 110408	DNMA 332		●		●	9.525	4.76	0.8
DNMA 150404	DNMA 431		●		●	12.7	4.76	0.4
DNMA 150408	DNMA 432		●		●	12.7	4.76	0.8
DNMA 150412	DNMA 433					12.7	4.76	1.2

DCMW



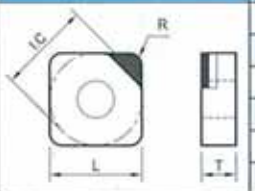
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
DCMW 11T302	DCMW 3 (2.5) 0.5					9.525	3.97	0.2
DCMW 11T304	DCMW 3 (2.5) 1		●		●	9.525	3.97	0.4
DCMW 11T308	DCMW 3 (2.5) 2		●		●	9.525	3.97	0.8
DCMW 150404	DCMW 431		●		●	12.7	4.76	0.4
DCMW 150408	DCMW 432		●		●	12.7	4.76	0.8

2C-DCMW

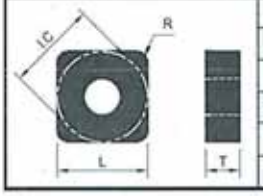


SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
DCMW 11T302	DCMW 3 (2.5) 0.5					9.525	3.97	0.2
DCMW 11T304	DCMW 3 (2.5) 1		●		●	9.525	3.97	0.4
DCMW 11T308	DCMW 3 (2.5) 2		●		●	9.525	3.97	0.8
DCMW 150404	DCMW 431		●		●	12.7	4.76	0.4
DCMW 150408	DCMW 432		●		●	12.7	4.76	0.8

SNMA

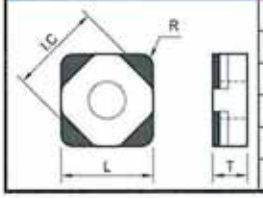


SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
SNMA 090304	SNMA 321					9.525	3.18	0.4
SNMA 090308	SNMA 322		●		●	9.525	3.18	0.8
SNMA 120404	SNMA 431					12.7	4.76	0.4
SNMA 120408	SNMA 432		●		●	12.7	4.76	0.8
SNMA 120412	SNMA 433					12.7	4.76	1.2



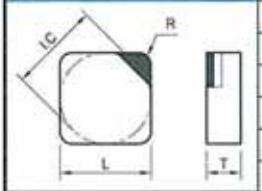
SNMA 120404	SNMA 431	●				12.7	4.76	0.4
SNMA 120408	SNMA 432	●				12.7	4.76	0.8
SNMA 120412	SNMA 433	●				12.7	4.76	1.2

4C-SNMA

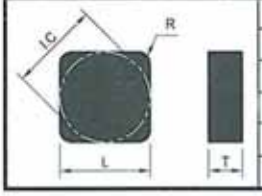


SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
SNMA 090304	SNMA 321					9.525	3.18	0.4
SNMA 090308	SNMA 322					9.525	3.18	0.8
SNMA 120404	SNMA 431					12.7	4.76	0.4
SNMA 120408	SNMA 432					12.7	4.76	0.8
SNMA 120412	SNMA 433					12.7	4.76	1.2

SNMN

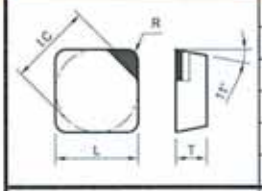


SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
SNMN 090304	SNMN 321					9.525	3.18	0.4
SNMN 090308	SNMN 322					9.525	3.18	0.8
SNMN 120404	SNMN 431					12.7	4.76	0.4
SNMN 120408	SNMN 432					12.7	4.76	0.8
SNMN 120412	SNMN 433					12.7	4.76	1.2

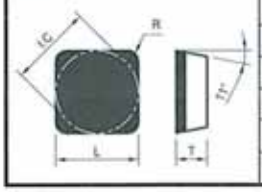


SNMN 090304	SNMN 321	●				9.525	3.18	0.4
SNMN 090308	SNMN 322	●				9.525	3.18	0.8
SNMN 120404	SNMN 431	●				12.7	4.76	0.4
SNMN 120408	SNMN 432	●				12.7	4.76	0.8
SNMN 120412	SNMN 433	●				12.7	4.76	1.2

SPMN

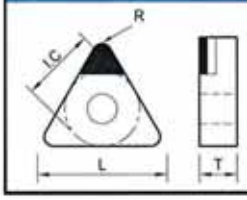


SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
SPMN 090304	SPMN 321					9.525	3.18	0.4
SPMN 090308	SPMN 322					9.525	3.18	0.8
SPMN 120404	SPMN 431					12.7	4.76	0.4
SPMN 120408	SPMN 432					12.7	4.76	0.8



SPMN 090304	SPMN 321		●			9.525	3.18	0.4
SPMN 090308	SPMN 322		●			9.525	3.18	0.8
SPMN 120404	SPMN 431		●			12.7	4.76	0.4
SPMN 120408	SPMN 432		●			12.7	4.76	0.8

TNMA



SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
TNMA 110304	TNMA 221				●	6.35	3.18	0.4
TNMA 160404	TNMA 331				●	9.525	4.76	0.4
TNMA 160408	TNMA 332				●	9.525	4.76	0.8
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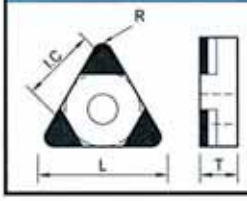
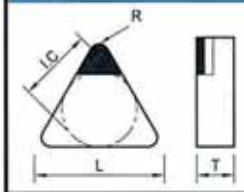
TNMA 220408	TNMA 432					12.7	4.76	0.8

3C-TNMA



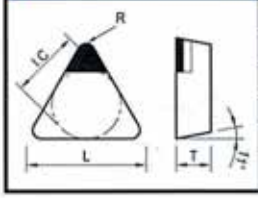
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
TNMA 110304	TNMA 221				●	6.35	3.18	0.4
TNMA 160404	TNMA 331				●	9.525	4.76	0.4
TNMA 160408	TNMA 332				●	9.525	4.76	0.8
TNMA 220404	TNMA 431					12.7	4.76	0.4
TNMA 220408	TNMA 432					12.7	4.76	0.8

TNGN



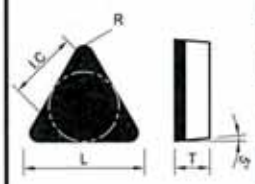
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
TNGN 160404	TNGN 321					9.525	4.76	0.4
TNGN 160408	TNGN 322					9.525	4.76	0.8
TNGN 160304	TNGN 321	●				9.525	3.18	0.4
TNGN 160308	TNGN 322	●				9.525	3.18	0.8
TNGN 160408	TNGN 332	●				9.525	4.76	0.8
TNGN 160412	TNGN 333	●				9.525	4.76	1.2

TPUN



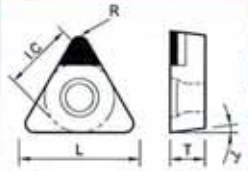
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
TPUN 160304	TPUN 321					9.525	3.18	0.4
TPUN 160408	TPUN 332					9.525	4.76	0.8

TBGN



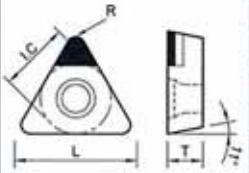
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
TBGN 060102	TBGN (1.2)1(0.5)		●			3.97	1.59	0.2
TBGN 060104	TBGN (1.2)11		●		●	3.97	1.59	0.4
TBGN 060108	TBGN (1.2)12		●		●	3.97	1.59	0.8
TBGN 080202	TBGN 1.5(1.5)0.5		●			4.76	2.38	0.2
TBGN 080204	TBGN 1.5(1.5)1		●		●	4.76	2.38	0.4
TBGN 080208	TBGN 1.5(1.5)2		●		●	4.76	2.38	0.8
TBGN 080212	TBGN 1.5(1.5)3		●			4.76	2.38	1.2

TCGW



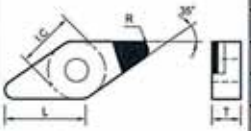
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
TCGW 110204	TCGW 2(1.5)1					6.35	2.38	0.4
TCGW 110208	TCGW 2(1.5)2					6.35	2.38	0.8
TCGW 16T304	TCGW 3(2.5)1					9.525	3.97	0.4
TCGW 16T308	TCGW 3(2.5)2					9.525	3.97	0.8

TPGW



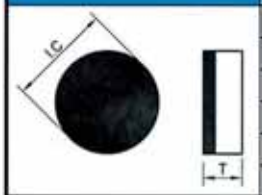
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
TPGW 080202	TPGW 1.5(1.5)0.5					4.76	2.38	0.2
TPGW 080204	TPGW 1.5(1.5)1					4.76	2.38	0.4
TPGW 110202	TPGW 2(1.5)0.5					6.35	2.38	0.2
TPGW 110204	TPGW 2(1.5)1					6.35	2.38	0.4
TPGW 110304	TPGW 221					6.35	3.18	0.4
TPGW 110308	TPGW 222					6.35	3.18	0.8
TPGW 160304	TPGW 321					9.525	3.18	0.4
TPGW 160308	TPGW 322					9.525	3.18	0.8
TPGW 160404	TPGW 331					9.525	4.76	0.4
TPGW 160408	TPGW 332					9.525	4.76	0.8

VNMA



SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
VNMA 160404	VNMA 331		●		●	9.525	4.76	0.4
VNMA 160408	VNMA 332		●		●	9.525	4.76	0.8

RNGN

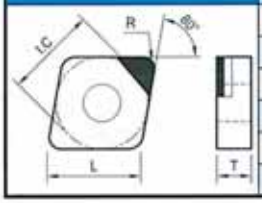


SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EB10	EB51	EB18	EB36	I.C	T	R
RNGN 090300	RNGN 320		●			9.525	3.18	
RNGN 090400	RNGN 330		●			9.525	4.76	
RNGN 120300	RNGN 420		●			12.7	3.18	
RNGN 120400	RNGN 430		●			12.7	4.76	
RNGN 150400	RNGN 530		●			15.875	4.76	
RNGN 090300	RNGN 320	●				9.525	3.18	
RNGN 090400	RNGN 330	●				9.525	4.76	
RNGN 120300	RNGN 420	●				12.7	3.18	
RNGN 120400	RNGN 430	●				12.7	4.76	

PCD TURNING INSERTS

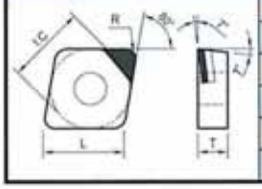
INNOVATOR IN TECHNOLOGY

CNMA



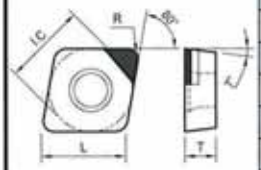
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
CNMA 120404	CNMA 431		●			12.7	4.76	0.4
CNMA 120408	CNMA 432		●			12.7	4.76	0.8
CNMA 120412	CNMA 433					12.7	4.76	1.2

CNMG



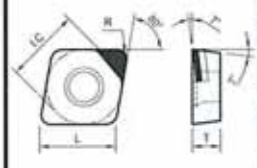
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
CNMG 120404	CNMG 431					12.7	4.76	0.4
CNMG 120408	CNMG 432					12.7	4.76	0.8
CNMG 120412	CNMG 433					12.7	4.76	1.2

CCMW



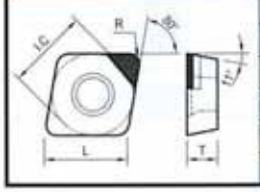
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
CCMW 060202	CCMW 2(1.5) 0.5		●			6.35	2.38	0.2
CCMW 060204	CCMW 2(1.5) 1		●			6.35	2.38	0.4
CCMW 060208	CCMW 2(1.5) 2					6.35	2.38	0.8
CCMW 09T302	CCMW 3(2.5) 0.5					9.525	3.97	0.2
CCMW 09T304	CCMW 3(2.5) 1		●			9.525	3.97	0.4
CCMW 09T308	CCMW 3(2.5) 2		●			9.525	3.97	0.8
CCMW 120402	CCMW 43(0.5)					12.7	4.76	0.2
CCMW 120404	CCMW 431		●			12.7	4.76	0.4
CCMW 120408	CCMW 432		●			12.7	4.76	0.8
CCMW 120412	CCMW 433					12.7	4.76	1.2

CCMT



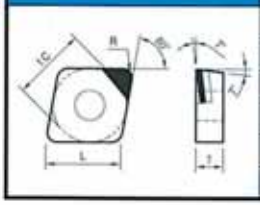
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
CCMT 060202	CCMT 2(1.5) 0.5		●			6.35	2.38	0.2
CCMT 060204	CCMT 2(1.5) 1		●			6.35	2.38	0.4
CCMT 060208	CCMT 2(1.5) 2					6.35	2.38	0.8
CCMT 09T302	CCMT 3(2.5) 0.5					9.525	3.97	0.2
CCMT 09T304	CCMT 3(2.5) 1		●			9.525	3.97	0.4
CCMT 09T308	CCMT 3(2.5) 2		●			9.525	3.97	0.8
CCMT 120402	CCMT 43(0.5)					12.7	4.76	0.2
CCMT 120404	CCMT 431		●			12.7	4.76	0.4
CCMT 120408	CCMT 432		●			12.7	4.76	0.8
CCMT 120412	CCMT 433					12.7	4.76	1.2

CPMW



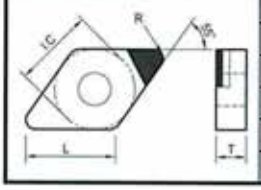
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
CPMW 080202	CPMW 2.5(1.5)0.5					7.94	2.38	0.2
CPMW 080204	CPMW 2.5(1.5)1					7.94	2.38	0.4
CPMW 090302	CPMW 320.5		●			9.525	3.18	0.2
CPMW 090304	CPMW 321		●			9.525	3.18	0.4
CPMW 090308	CPMW 322					9.525	3.18	0.8

CPMT



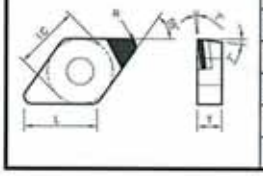
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
CPMT 080202	CPMT 2.5(1.5)0.5					7.94	2.38	0.2
CPMT 080204	CPMT 2.5(1.5)1					7.94	2.38	0.4
CPMT 090302	CPMT 320.5					9.525	3.18	0.2
CPMT 090304	CPMT 321					9.525	3.18	0.4
CPMT 090308	CPMT 322					9.525	3.18	0.8

DNMA



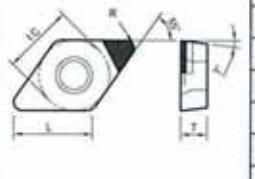
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
DNMA 110404	DNMA 331		●			9.525	4.76	0.4
DNMA 110408	DNMA 332		●			9.525	4.76	0.8
DNMA 150404	DNMA 431		●			12.7	4.76	0.4
DNMA 150408	DNMA 432		●			12.7	4.76	0.8
DNMA 150412	DNMA 433					12.7	4.76	1.2

DNMG



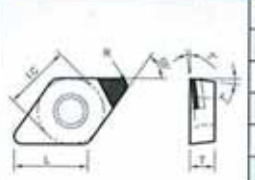
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
DNMG 110404	DNMG 331					9.525	4.76	0.4
DNMG 110408	DNMG 332					9.525	4.76	0.8
DNMG 150404	DNMG 431					12.7	4.76	0.4
DNMG 150408	DNMG 432					12.7	4.76	0.8
DNMG 150412	DNMG 433					12.7	4.76	1.2

DCMW



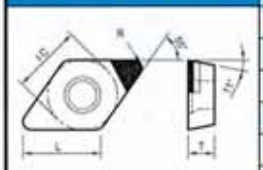
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
DCMW 070202	DCMW 2(1.5)0.5		●			6.35	2.38	0.2
DCMW 070204	DCMW 2(1.5)1					6.35	2.38	0.4
DCMW 11T302	DCMW 3(2.5)0.5		●			9.525	3.97	0.2
DCMW 11T304	DCMW 3(2.5)1		●			9.525	3.97	0.4
DCMW 11T308	DCMW 3(2.5)2		●			9.525	3.97	0.8
DCMW 150404	DCMW 431		●			12.7	4.76	0.4
DCMW 150408	DCMW 432		●			12.7	4.76	0.8

DCMT



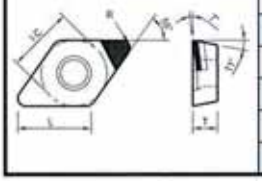
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
DCMT 070202	DCMT 2(1.5)0.5		●			6.35	2.38	0.2
DCMT 070204	DCMT 2(1.5)1					6.35	2.38	0.4
DCMT 11T302	DCMT 3(2.5)0.5		●			9.525	3.97	0.2
DCMT 11T304	DCMT 3(2.5)1		●			9.525	3.97	0.4
DCMT 11T308	DCMT 3(2.5)2		●			9.525	3.97	0.8
DCMT 150404	DCMT 431		●			12.7	4.76	0.4
DCMT 150418	DCMT 432		●			12.7	4.76	0.8

DPMW



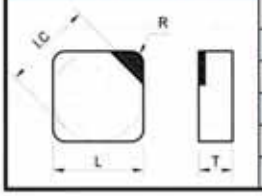
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
DPMW 070202	DPMW 2(1.5)0.5					6.35	2.38	0.2
DPMW 070204	DPMW 2(1.5)1					6.35	2.38	0.4
DPMW 11T302	DPMW 3(2.5)0.5					9.525	3.97	0.2
DPMW 11T304	DPMW 3(2.5)1					9.525	3.97	0.4
DPMW 11T308	DPMW 3(2.5)2					9.525	3.97	0.8

DPMT



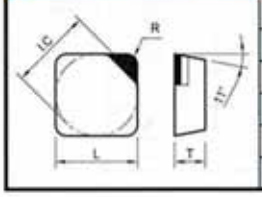
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
DPMT 070202	DPMT 2(1.5)0.5		●			6.35	2.38	0.2
DPMT 070204	DPMT 2(1.5)1		●			6.35	2.38	0.4
DPMT 11T302	DPMT 3(2.5)0.5					9.525	3.97	0.2
DPMT 11T304	DPMT 3(2.5)1					9.525	3.97	0.4
DPMT 11T308	DPMT 3(2.5)2					9.525	3.97	0.8

SNMN



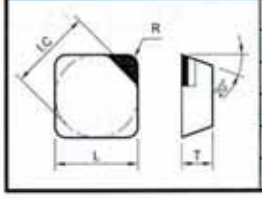
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
SNMN 090304	SNMN 321					9.525	3.18	0.4
SNMN 090308	SNMN 322					9.525	3.18	0.8
SNMN 120404	SNMN 431					12.7	4.76	0.4
SNMN 120408	SNMN 432					12.7	4.76	0.8
SNMN 120412	SNMN 433					12.7	4,76	1.2

SPGN



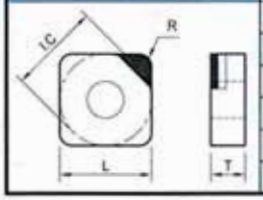
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
SPGN 090304	SPGN 321		●			9.525	3.18	0.4
SPGN 090308	SPGN 322		●			9.525	3.18	0.8
SPGN 120304	SPGN 421					12.7	3.18	0.4
SPGN 120308	SPGN 422					12.7	3.18	0.8

SEGN



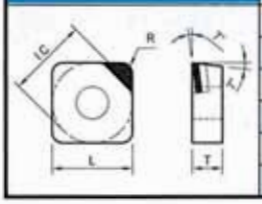
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
SEGN 120304	SEGN 431		●			12.7	3.18	0.4
SEGN 120308	SEGN 432		●			12.7	3.18	0.8

SNMA



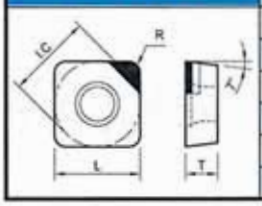
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
SNMA 090304	SNMA 321		●			9.525	3.18	0.4
SNMA 090308	SNMA 322		●			9.525	3.18	0.8
SNMA 120404	SNMA 431		●			12.7	4.76	0.4
SNMA 120408	SNMA 432		●			12.7	4.76	0.8
SNMA 120412	SNMA 433					12.7	4.76	1.2

SNMG



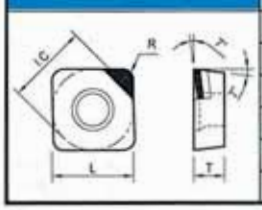
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
SNMG 090304	SNMG 321					9.525	3.18	0.4
SNMG 090308	SNMG 322					9.525	3.18	0.8
SNMG 120404	SNMG 431					12.7	4.76	0.4
SNMG 120408	SNMG 432					12.7	4.76	0.8
SNMG 120412	SNMG 433					12.7	4.76	1.2

SCMW



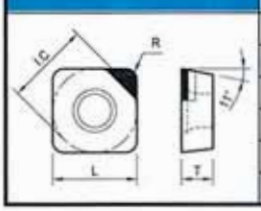
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
SCMW 120404	SCMW 431		●			12.7	4.76	0.4
SCMW 120408	SCMW 432		●			12.7	4.76	0.8
SCMW 120412	SCMW 433					12.7	4.76	1.2

SCMT



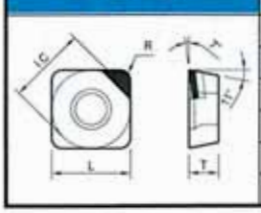
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
SCMT 120404	SCMT 431		●			12.7	4.76	0.4
SCMT 120408	SCMT 432		●			12.7	4.76	0.8
SCMT 120412	SCMT 433					12.7	4.76	1.2

SPMW



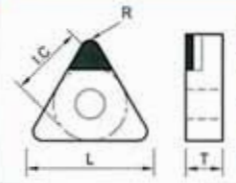
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
SPMW 090304	SPMW 321					9.525	3.18	0.4
SPMW 090308	SPMW 322					9.525	3.18	0.8
SPMW 120404	SPMW 431					12.7	4.76	0.4
SPMW 120408	SPMW 432					12.7	4.76	0.8
SPMW 120412	SPMW 433					12.7	4.76	1.2

SPMT



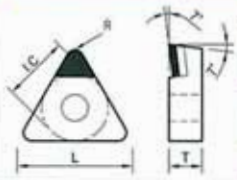
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
SPMT 090304	SPMT 321					9.525	3.18	0.4
SPMT 090308	SPMT 322					9.525	3.18	0.8
SPMT 120404	SPMT 431		●			12.7	4.76	0.4
SPMT 120408	SPMT 432		●			12.7	4.76	0.8
SPMT 120412	SPMT 433					12.7	4.76	1.2

TNMA



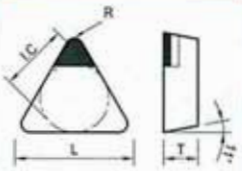
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
TNMA 110304	TNMA 221					6.35	3.18	0.4
TNMA 160404	TNMA 331		●			9.525	4.76	0.4
TNMA 160408	TNMA 332		●			9.525	4.76	0.8
TNMA 220404	TNMA 431					12.7	4.76	0.4
TNMA 220408	TNMA 432					12.7	4.76	0.8

TNMG



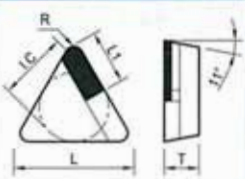
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
TNMG 110304	TNMG 221					6.35	3.18	0.4
TNMG 160404	TNMG 331					9.525	4.76	0.4
TNMG 160408	TNMG 332					9.525	4.76	0.8
TNMG 220404	TNMG 431					12.7	4.76	0.4
TNMG 220408	TNMG 432					12.7	4.76	0.8

TPUN



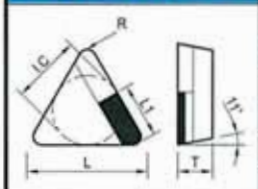
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
TPUN 160304	TPUN 321		●			9.525	3.18	0.4
TPUN 160308	TPUN 322		●			9.525	3.18	0.8

TPGN(L)



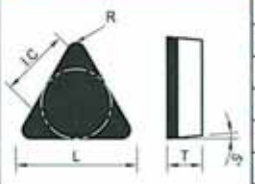
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
TPGN 160304 L	TPGN 321 L		●			9.525	3.18	0.4
TPGN 160308 L	TPGN 322 L		●			9.525	3.18	0.8

TPGN(R)



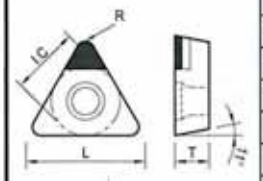
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
TPGN 160304 R	TPGN 321 R		●			9.525	3.18	0.4
TPGN 160308 R	TPGN 322 R		●			9.525	3.18	0.8

TBGN



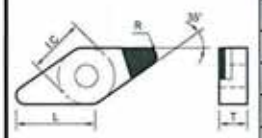
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
TBGN 060102	TBGN (1.2) 1 (0.5)		●			3.97	1.59	0.2
TBGN 060104	TBGN (1.2) 11		●			3.97	1.59	0.4
TBGN 060108	TBGN (1.2) 12		●			3.97	1.59	0.8
TBGN 080202	TBGN 1.5 (1.5) 0.5		●			4.76	2.38	0.2
TBGN 080204	TBGN 1.5 (1.5) 1		●			4.76	2.38	0.4
TBGN 080208	TBGN 1.5 (1.5) 2		●			4.76	2.38	0.8
TBGN 080212	TBGN 1.5 (1.5) 3		●			4.76	2.38	1.2

TPGW



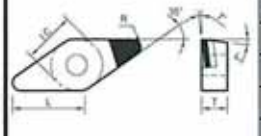
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
TPGW 080202	TPGW 1.5 (1.5) 0.5		●			4.76	2.38	0.2
TPGW 080204	TPGW 1.5 (1.5) 1		●			4.76	2.38	0.4
TPGW 110202	TPGW 21 (0.5)		●			6.35	2.38	0.2
TPGW 110204	TPGW 211		●			6.35	2.38	0.4
TPGW 110304	TPGW 221		●			6.35	3.18	0.4
TPGW 110308	TPGW 222					6.35	3.18	0.8
TPGW 160304	TPGW 321					9.525	3.18	0.4
TPGW 160308	TPGW 322					9.525	3.18	0.8
TPGW 160404	TPGW 331					9.525	4.76	0.4
TPGW 160408	TPGW 332					9.525	4.76	0.8

VNMA



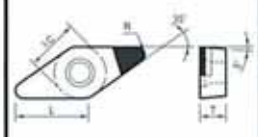
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
VNMA 160404	VNMA 331		●			9.525	4.76	0.4
VNMA 160408	VNMA 332		●			9.525	4.76	0.8

VNMG



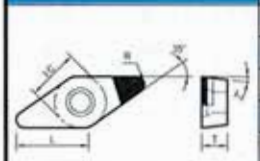
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EB13	EP45	EP59	I.C	T	R
VNMG 160404	VNMG 331					9.525	4.76	0.4
VNMG 160408	VNMG 332					9.525	4.76	0.8

VBMW



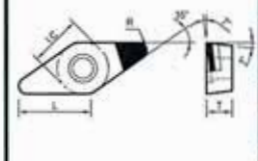
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
VBMW 110302	VBMW 22 (0.5)		●			6.35	3.18	0.2
VBMW 110304	VBMW 221		●			6.35	3.18	0.4
VBMW 160404	VBMW 331		●			9.525	4.76	0.4
VBMW 160408	VBMW 332		●			9.525	4.76	0.8
VBMW 160412	VBMW 333					9.525	4.76	1.2

VCMW



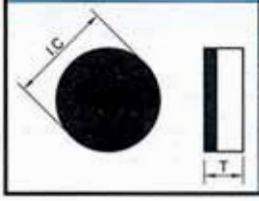
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
VCMW 110302	VCMW 22 (0.5)		●			6.35	3.18	0.2
VCMW 110304	VCMW 221		●			6.35	3.18	0.4
VCMW 160404	VCMW 331		●			9.525	4.76	0.4
VCMW 160408	VCMW 332		●			9.525	4.76	0.8
VCMW 160412	VCMW 333					9.525	4.76	1.2
VCMW 220512	VCMW 4 (3.5) 3					12.7	5.56	1.2
VCMW 220520	VCMW 4 (3.5) 5					12.7	5.56	2

VCMT



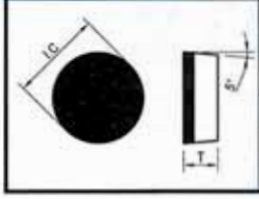
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
VCMT 110302	VCMT 22 (0.5)					6.35	3.18	0.2
VCMT 110304	VCMT 221					6.35	3.18	0.4
VCMT 160404	VCMT 331					9.525	4.76	0.4
VCMT 160408	VCMT 332					9.525	4.76	0.8
VCMT 160412	VCMT 333					9.525	4.76	1.2
VCMT 220512	VCMT 4 (3.5) 3		●			12.7	5.56	1.2
VCMT 220520	VCMT 4 (3.5) 5		●			12.7	5.56	2

RNGN



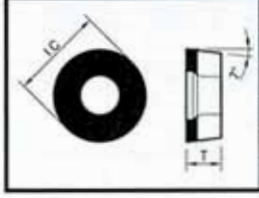
SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
RNGN 090300	RNGN 320		●			9.252	3.18	
RNGN 090400	RNGN 330		●			9.525	4.76	
RNGN 120300	RNGN 420		●			12.7	3.18	
RNGN 120400	RNGN 430		●			12.7	4.76	
RNGN 150400	RNGN 530					15.875	4.76	

RBGN



SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
RBGN 090300	RBGN 320		●			9.252	3.18	
RBGN 090400	RBGN 330		●			9.525	4.76	
RBGN 120300	RBGN 420		●			12.7	3.18	
RBGN 120400	RBGN 430		●			12.7	4.76	
RBGN 150400	RBGN 530					15.875	4.76	

RCMW

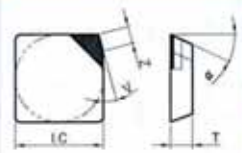


SPEC		GRADE				DIMENSIONS (mm)		
METRIC CODE	INCH CODE	EP11	EP13	EP45	EP59	I.C	T	R
RCMW 090300	RCMW 320					9.252	3.18	
RCMW 090400	RCMW 330					9.525	4.76	
RCMW 120300	RCMW 420		●			12.7	3.18	
RCMW 120400	RCMW 430		●			12.7	4.76	

PCD MILLING INSERTS

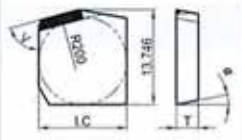
INNOVATOR IN TECHNOLOGY

SPKN



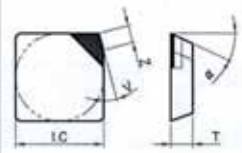
SPEC		GRADE			DIMENSIONS (mm)					
METRIC CODE	INCH CODE	EP13	EP55	EP59	I.C	Z	α	V	R	T
SPKN 1203EDR	SPKN 42EDR		●		12.7	1.4	11	15		3.18
SPKN 1203EDL	SPKN 42EDL		●		12.7	1.4	11	15		3.18
SPKN 1504EDR	SPKN 53EDR		●		15.875	1.4	11	15		3.18

SPEX



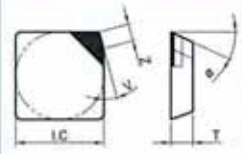
SPEC		GRADE			DIMENSIONS (mm)					
METRIC CODE	INCH CODE	EP13	EP55	EP59	I.C	Z	α	V	R	T
SPEX 1203EDR-W	SPEX 42EDR-W		●		12.7		11	15		3.18
SPEX 1203EDL-W	SPEX 42EDL-W		●		12.7		11	15		3.18

SDKN



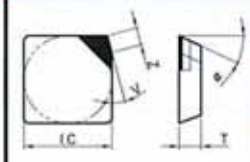
SPEC		GRADE			DIMENSIONS (mm)					
METRIC CODE	INCH CODE	EP13	EP55	EP59	I.C	Z	α	V	R	T
SDKN 1203AFN	SDKN 42AFN		●		12.7	2	11	45		3.18
SDKN 1203EFR	SDKN 42EFR		●		12.7	2	11	15		3.18

SEKN



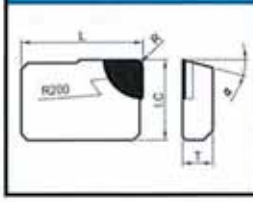
SPEC		GRADE			DIMENSIONS (mm)					
METRIC CODE	INCH CODE	EP13	EP55	EP59	I.C	Z	α	V	R	T
SEKN 1203AFN	SEKN 42AFN		●		12.7	2	20	45		3.18
SEKN 1203EFR	SEKN 42EFR		●		12.7	2	20	15		3.18
SEKN 1504AFN	SEKN 53AFN				15.875	2	20	45		4.76
SEKN1504EFR	SEKN 53EFR				15.875	2	20	15		4.76

SFAN



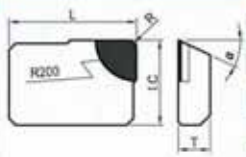
SPEC		GRADE			DIMENSIONS (mm)					
METRIC CODE	INCH CODE	EP13	EP55	EP59	I.C	Z	α	V	R	T
SFAN 1203EFR	SFAN 42EFR		●		12.7	2	25	15		3.18

LDCN



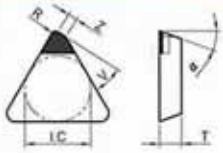
SPEC		GRADE			DIMENSIONS (mm)					
METRIC CODE	INCH CODE	EP13	EP55	EP59	I.C	Z	α	L	R	T
LDCN 190412R			●		12.7		15	19.05	1.2	4.76
LDCN 190412L			●		12.7		15	19.05	1.2	4.76

LFCN



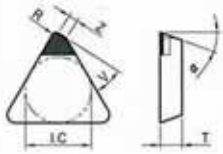
SPEC		GRADE			DIMENSIONS (mm)					
METRIC CODE	INCH CODE	EP13	EP55	EP59	I.C	Z	α	V	R	T
LFCN 190412R			●		12.7		25	19.05	1.2	4.76
LFCN 190412L			●		12.7		25	19.05	1.2	4.76

TPKN



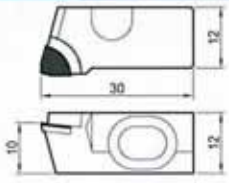
SPEC		GRADE			DIMENSIONS (mm)					
METRIC CODE	INCH CODE	EP13	EP55	EP59	I.C	Z	α	V	R	T
TPKN 1603PDR	TPKN 32PDR		●		12.7	1.2	11	30		3.18
TPKN 1603PDL	TPKN 32PDL		●		12.7	1.2	11	30		3.18
TPKN 2204PDR	TPKN 43PDR				15.875	1.4	11	30		4.76

TEKN



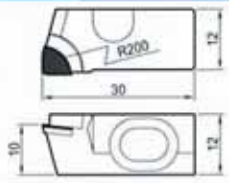
SPEC		GRADE			DIMENSIONS (mm)					
METRIC CODE	INCH CODE	EP13	EP55	EP59	I.C	Z	α	V	R	T
TEKN 1603PER	TEKN 32PER		●		12.7	1.2	20	30	0.8	3.18
TEKN 2204PER	TEKN 43PER		●		12.7	1.4	20	30	0.8	4.76

CARTRIDGE



SPEC	GRADE			DIMENSIONS (mm)					
	EP13	EP55	EP59	I.C	Z	α	V	R	T
ECP - R		●		12					12

CARTRIDGE



SPEC	GRADE			DIMENSIONS (mm)					
	EP13	EP55	EP59	I.C	Z	α	V	R	T
ECP - F		●		12				200	12

GENERAL PCD / PCBN TURNING TOOLS (inch)

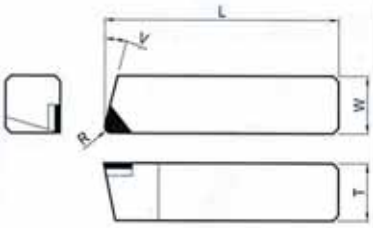
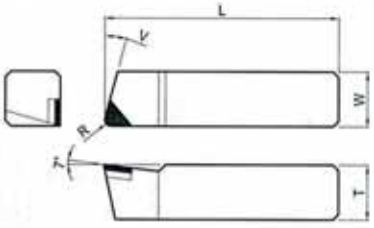
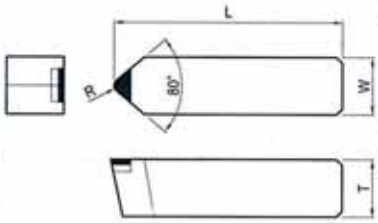
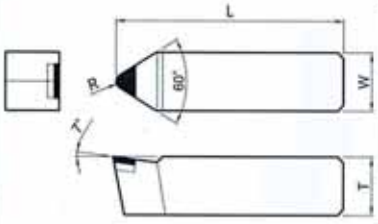
FIGURE	SPEC		T	W	L	R
	RIGHT HAND	LEFT HAND				
	TSR-1	TSL-1	0.25	0.25	2	0.016
	TSR-2	TSL-2	0.375	0.375	2.5	0.016
	TSR-3	TSL-3	0.5	0.5	3.5	0.031
	TSR-4	TSL-4	0.625	0.625	4	0.031
	TSR-5	TSL-5	0.75	0.75	4.5	0.031
	TSR-6	TSL-6	1	1	7	0.031
	TSR-7	TSL-7	0.25	0.25	2	0.016
	TSR-8	TSL-8	0.375	0.375	2.5	0.016
	TSR-9	TSL-9	0.5	0.8	3.5	0.031
	TSR-10	TSL-10	0.625	0.625	4	0.031
	TSR-11	TSL-11	0.75	0.75	4.5	0.031
	TSR-12	TSL-12	1	1	7	0.031
RIGHT HAND TOOL SHOWN						

FIGURE	SPEC	T	W	L	R
	TSC-1	0.25	0.25	2	0.016
	TSC-2	0.375	0.375	2.5	0.016
	TSC-3	0.5	0.5	3.5	0.031
	TSC-4	0.625	0.625	4	0.031
	TSC-5	0.75	0.75	4.5	0.031
	TSC-6	1	1	7	0.031
	TSC-7	0.25	0.25	2	0.016
	TSC-8	0.375	0.375	2.5	0.016
	TSC-9	0.5	0.8	3.5	0.031
	TSC-10	0.625	0.625	4	0.031
	TSC-11	0.75	0.75	4.5	0.031
	TSC-12	1	1	7	0.031

PCD / PCBN BORING TOOLS (inch)

INNOVATOR IN TECHNOLOGY

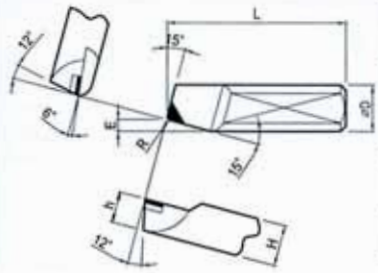
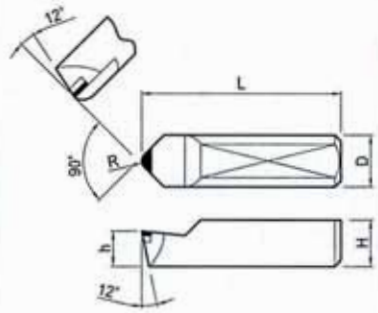
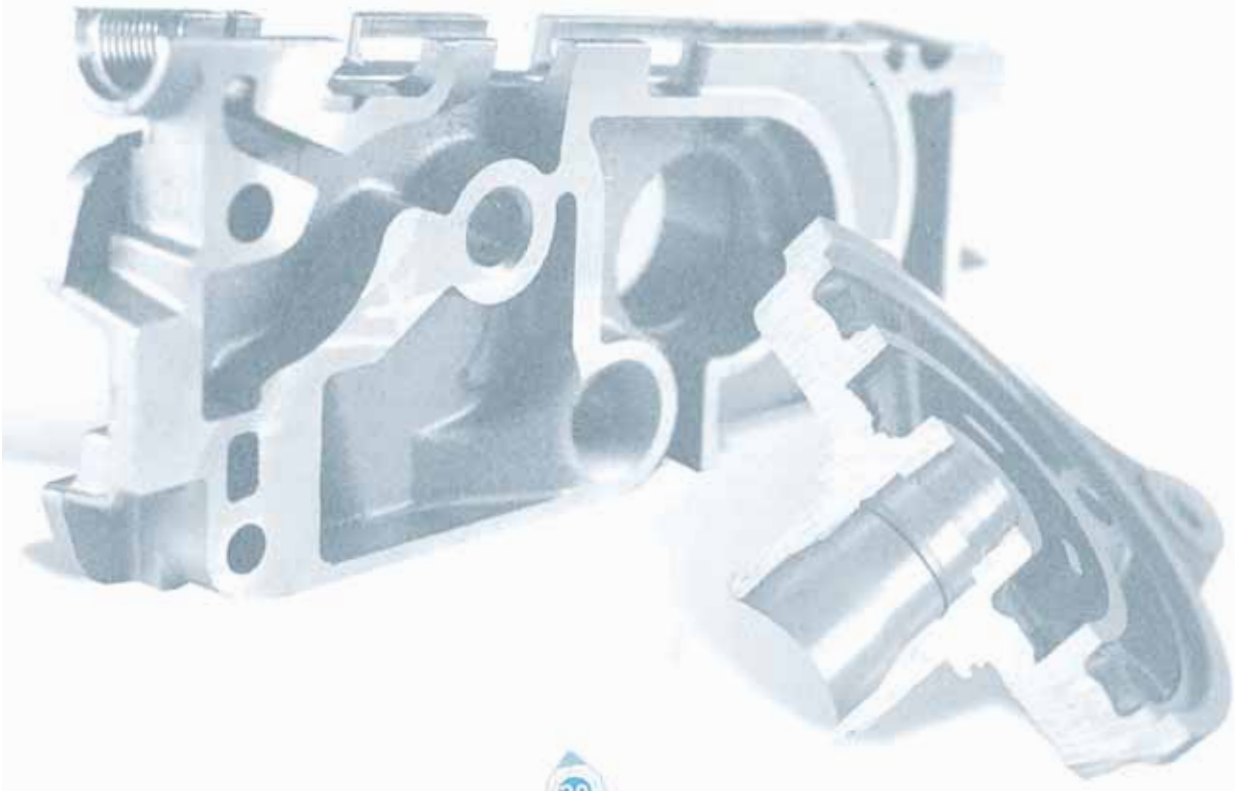
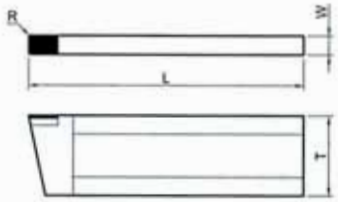
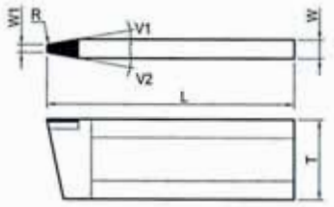
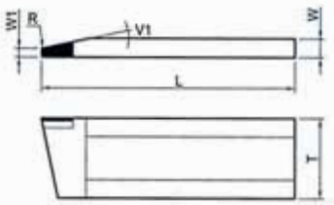
FIGURE	SPEC		L	W	T	R
	RIGHT HAND	LEFT HAND				
	BRR-1	BRL-1	1.5	0.313	0.297	0.008
	BRR-2	BRL-2	1.75	0.375	0.344	0.008
	BRR-3	BRL-3	2.5	0.438	0.406	0.008
	BRR-4	BRL-4	2.5	0.5	0.469	0.008
RIGHT HAND TOOL SHOWN						

FIGURE	SPEC	L	W	T	R
	BRC-1	1.5	0.313	0.297	0.008
	BRC-2	1.75	0.375	0.344	0.008
	BRC-3	2.5	0.438	0.406	0.008
	BRC-4	2.5	0.5	0.469	0.008



PCD / PCBN GROOVING TOOLS

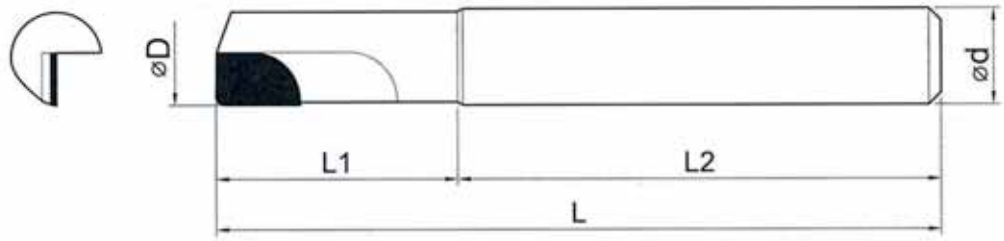
INNOVATOR IN TECHNOLOGY

FIGURE	W	W1	R	L	V1
					
					
					
NOTE	Please specify the workpiece, L, R, T, V1, V2, W and W1.				

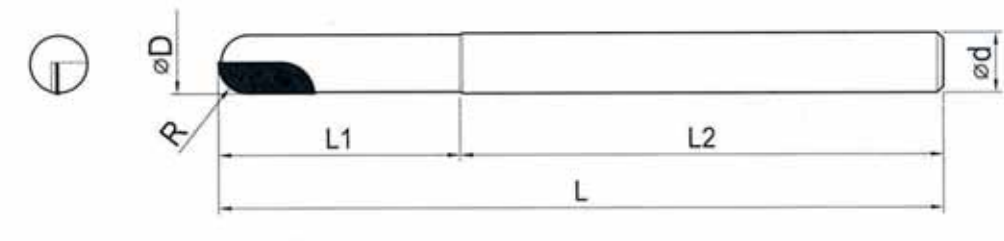
PCD / PCBN ROTATION TOOLS

INNOVATOR IN TECHNOLOGY

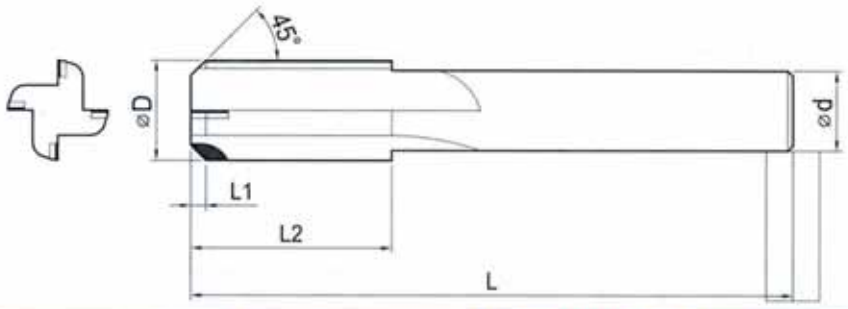
MODEL NO.	DIMENSIONS (mm)				
	ΦD	Φd	L1	L2	L
EDEF20808-15-60	8	8	15	45	60
EDEF21010-15-60	10	10	15	45	60
EDEF21212-15-60	12	12	15	45	60
EDEF21414-15-60	14	14	15	45	60
EDEF21616-15-60	16	16	15	45	60



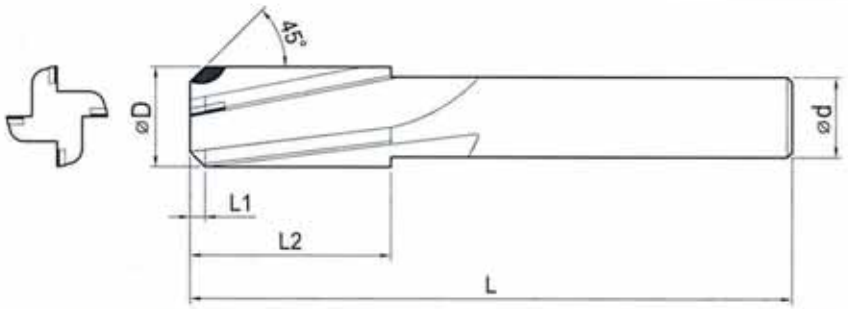
MODEL NO.	DIMENSIONS (mm)				
	ΦD	Φd	L1	L2	L
EDEF10303-15-60	3	3	15	45	60
EDEF10404-15-60	4	4	15	45	60
EDEF10606-15-60	6	6	15	45	60
EDEF10808-15-60	8	8	15	45	60
EDEF11010-15-60	10	10	15	45	60



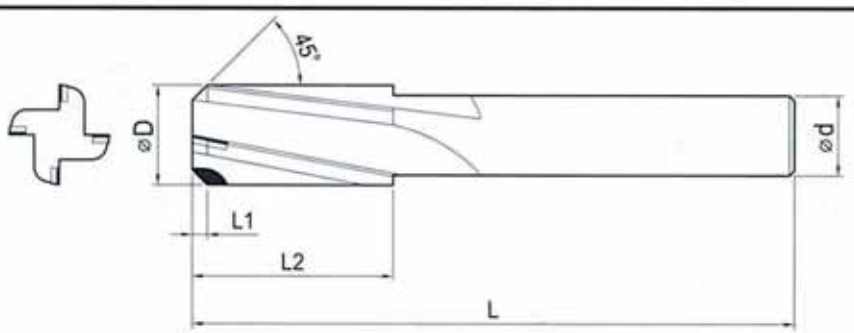
MODEL NO.	DIMENSIONS (mm)				
	ΦD	Φd	L1	L2	L
EDEB10303-15-60	3	3	15	45	60
EDEB10404-15-60	4	4	15	45	60
EDEB10606-15-60	6	6	15	45	60
EDEB10808-15-60	8	8	15	45	60
EDEB11010-15-60	10	10	15	45	60



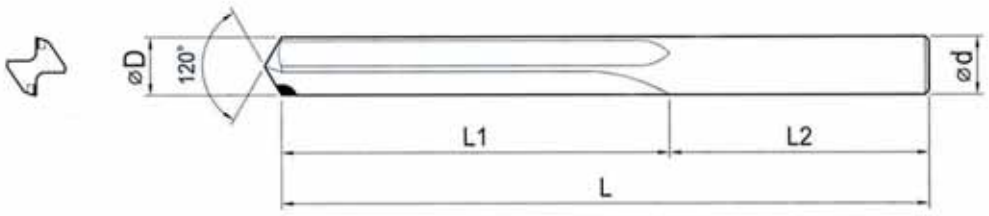
MODEL NO.	DIMENSIONS (mm)				
	ΦD	Φd	L1	L2	L
EDRF40808-40-80	8H7	8h7	0.3	40	80
EDRF41010-40-80	10H7	10h7	0.3	40	80
EDRF41212-50-80	12H7	12h7	0.3	50	100
EDRF41414-50-80	14H7	14h7	0.3	50	100
EDRF41616-50-80	16H7	16h7	0.3	50	100



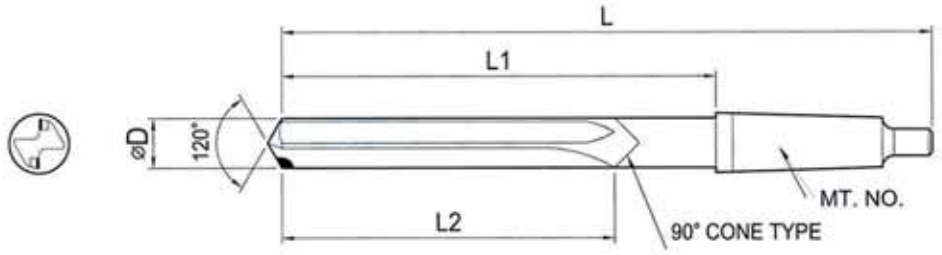
MODEL NO.	DIMENSIONS (mm)				
	ΦD	Φd	L1	L2	L
EDRF40808-40-80-L	8H7	8h7	0.3	40	80
EDRF41010-50-100-L	12H7	12h7	0.5	50	100
EDRF41616-50-100-L	16H7	16h7	0.8	50	100
EDRF42020-70-130-L	20H7	20h7	1.0	70	130
EDRF42424-80-150-L	24H7	24h7	1.2	80	150



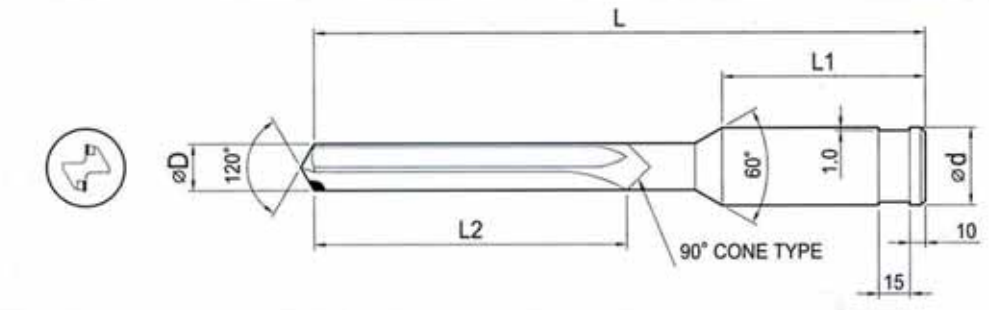
MODEL NO.	DIMENSIONS (mm)				
	ΦD	Φd	L1	L2	L
EDRF40808-40-80-R	8H7	8h7	10.3	40	80
EDRF41212-50-100-R	12H7	12h7	0.5	50	100
EDRF41616-50-100-R	16H7	16h7	0.8	50	100
EDRF42020-70-130-R	20H7	20h7	1.0	70	130
EDRF42424-80-150-R	24H7	24h7	1.2	80	150



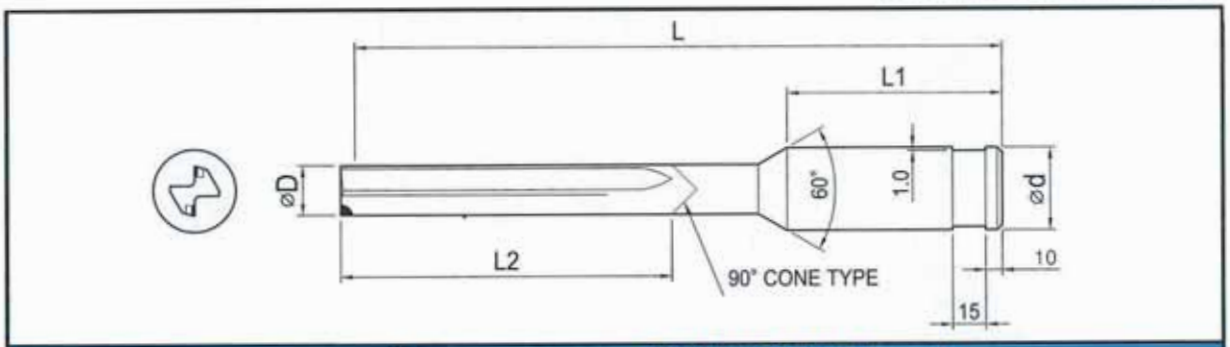
MODEL NO.	DIMENSIONS (mm)				
	ΦD	Φd	L1	L2	L
EDBF20606-50-100	6H7	6h7	50	50	100
EDBF20707-50-100	7H7	7h7	50	50	100
EDBF20808-50-100	8H7	8h7	50	50	100
EDBF20909-60-100	9H7	9h7	50	60	100
EDBF21010-60-100	10H7	10h7	50	60	100



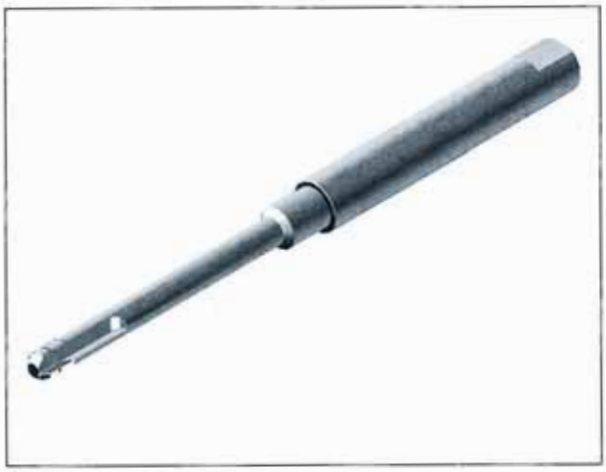
MODEL NO.	DIMENSIONS (mm)				
	ΦD	Φd	L1	L2	L
EDBF21212-100-175-MT1	12H7	12h7	109.5	100	175
EDBF21616-100-215-MT2	16H7	16h7	135	100	215
EDBF22020-100-225-MT2	20H7	20h7	145	100	225
EDBF22424-100-266-MT4	24H7	24h7	142	100	266
EDBF23030-100-275-MT4	30H7	30h7	151	100	275

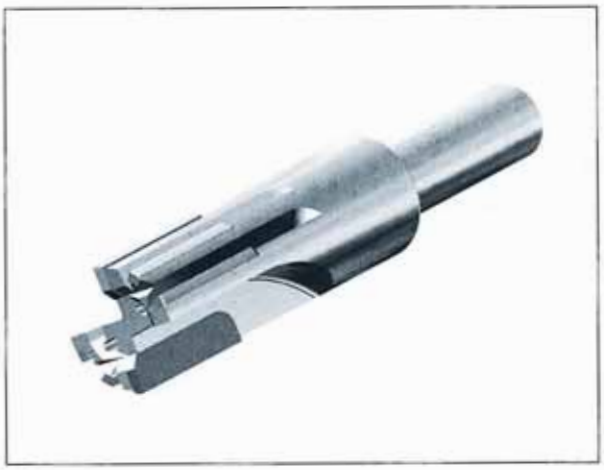


MODEL NO.	DIMENSIONS (mm)				
	ΦD	Φd	L1	L2	L
EDBF21212-100-150-S	12H7	12h7	70	70	150
EDBF21616-100-170-S	16H7	16h7	70	70	170
EDBF22020-100-210-S	20H7	20h7	70	70	210
EDBF22424-100-210-S	24H7	24h7	70	70	210
EDBF23030-100-240-S	30H7	30h7	70	70	240

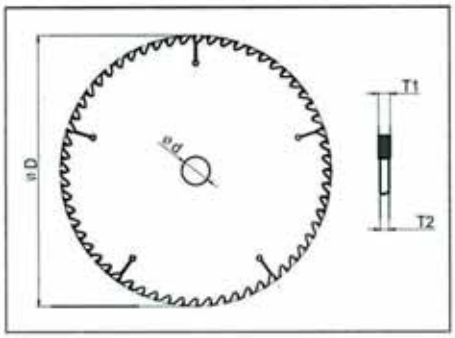


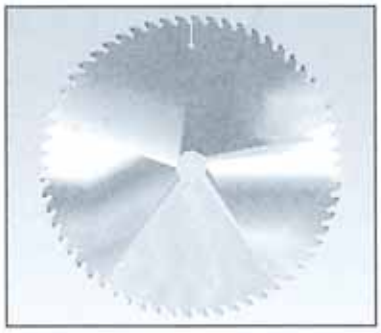
MODEL NO.	DIMENSIONS (mm)				
	ΦD	Φd	L1	L2	L
EDBF21212-100-195-L	12H7	12h7	100	80	195
EDBF21616-100-205-L	16H7	16h7	100	80	205
EDBF22020-100-260-L	20H7	20h7	100	100	260
EDBF22424-100-260-L	24H7	24h7	100	100	260
EDBF23030-100-290-L	30H7	30h7	100	100	290

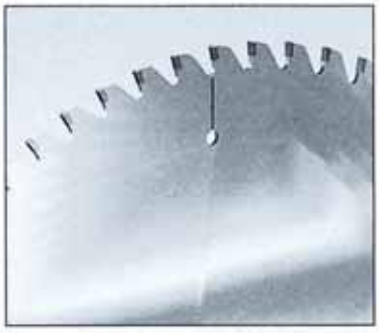




PCD SAWS FOR PCB CUTTING

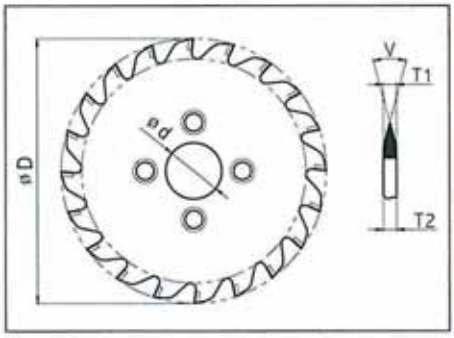


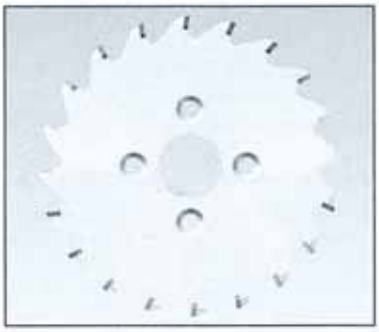


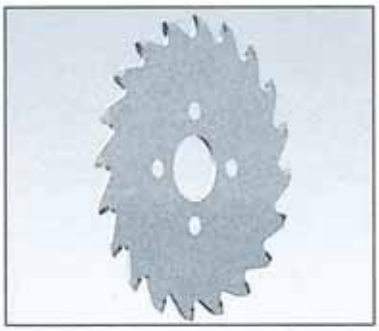


MODEL NO.	DIMENSIONS (mm)				
	ΦD	Φd	T1	T2	Z
PCD-CTX255	255	25.4 / 31.75	2.2 / 2.5 / 3.0 / 3.2	2.2	40 / 60 / 80
PCD-CTX305	305	25.4 / 31.75	2.2 / 2.5 / 3.0 / 3.2	2.2	40 / 60 / 80
PCD-CTX355	355	25.4 / 31.75	2.2 / 2.5 / 3.0 / 3.2	2.2	40 / 60 / 80

PCD V-CUTTERS FOR PCB CUTTING

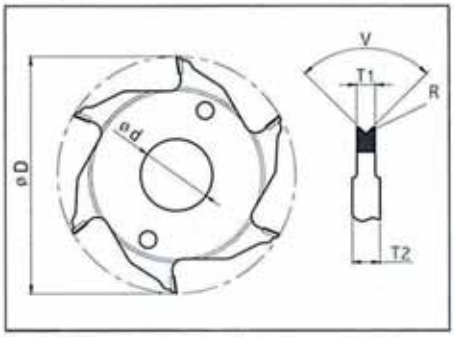


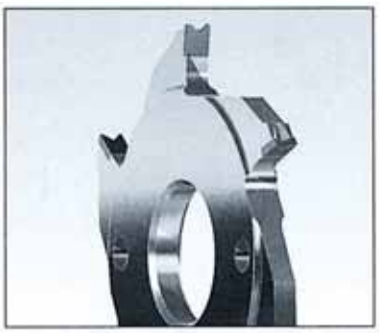




MODEL NO.	DIMENSIONS (mm)					
	ΦD	Φd	T1	T2	V	Z
PCD-CTX100-V	100	20 / 25.4	2.0	2.0	35°/ 40°/ 45°	20 / 30
PCD-CTX105-V	105	20 / 25.4	2.0	2.0	35°/ 40°/ 45°	20 / 30
PCD-CTX110-V	110	20 / 25.4	2.0	2.0	35°/ 40°/ 45°	20 / 30
PCD-CTX120-V	120	20 / 25.4	2.0	2.0	35°/ 40°/ 45°	20 / 30

PCD BEVEL CUTTERS FOR PCB BEVELLING



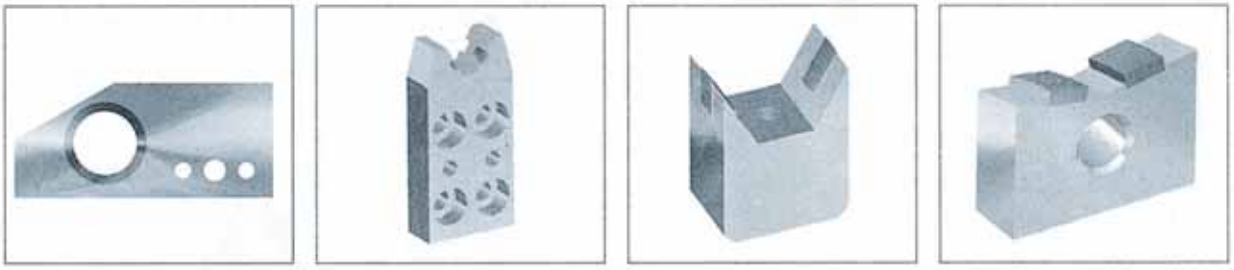


MODEL NO.	DIMENSIONS (mm)						
	ΦD	Φd	T1	T2	V	R	Z
PCD-CTX80-B	80	25.4	5.0	6.5 / 7.0 / 7.5	40°/ 60°/ 90°	0.2 / 0.5 / 1.0	3 / 4 / 6 / 8
PCD-CTX83-B	83	25.4	5.0	6.5 / 7.0 / 7.5	40°/ 60°/ 90°	0.2 / 0.5 / 1.0	3 / 4 / 6 / 8
PCD-CTX90-B	90	25.4	5.0	6.5 / 7.0 / 7.5	40°/ 60°/ 90°	0.2 / 0.5 / 1.0	3 / 4 / 6 / 8

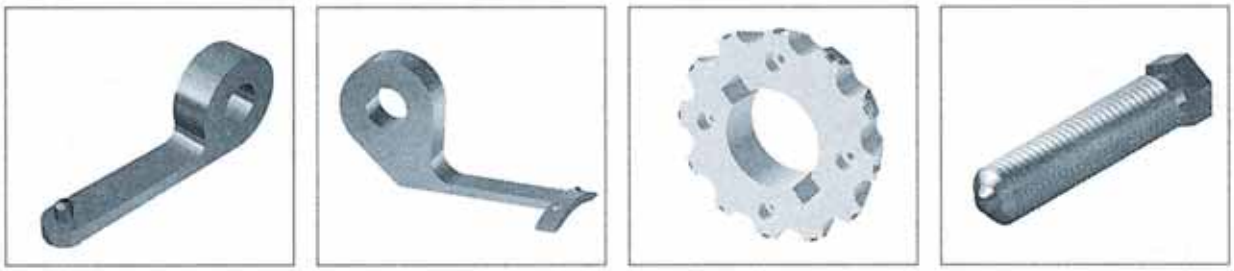
OTHER PRODUCTS

WEARLESS TOOLS

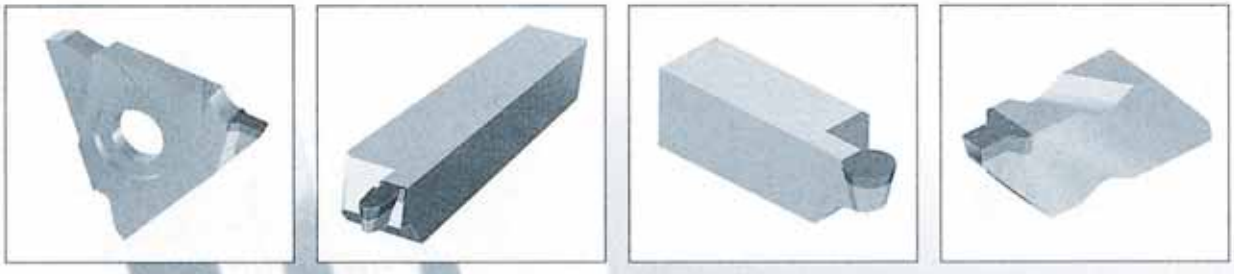
INNOVATOR IN TECHNOLOGY



SPECIAL GAUGES



SPECIAL PROFILE TOOLS



* TAILOR MADE PRODUCTS ARE AVAILABLE UPON REQUEST.

TURNING INSERTS DESIGNATION SYSTEMS

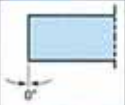
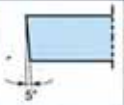
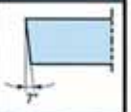
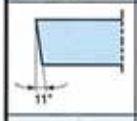
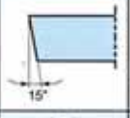
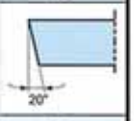
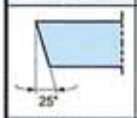
INNOVATOR IN TECHNOLOGY

C	N	M	G
1	2	3	4

1 SHAPE

 C	 D	 E
 K	 R	 S
 T	 V	 W

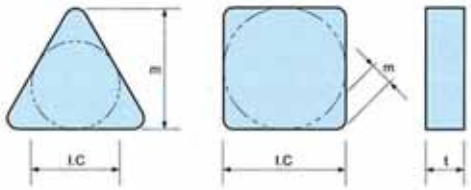
2 CLEARANCE ANGLE

 N	 B	 C
 P	 D	 E
 F		

4 TYPE

 A	 G	 M
 R	 B, W	 T, H
 N	SPECIAL Z, X	

3 TOLERANCE

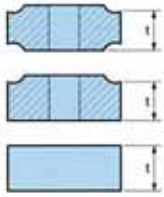


CLASS	m	t	I.C
A	±0.005	±0.025	±0.025
F	±0.005	±0.025	±0.013
C	±0.013	±0.025	±0.025
H	±0.013	±0.025	±0.013
E	±0.025	±0.025	±0.025
G	±0.025	±0.13	±0.025
M	±0.08 - ±0.18	±0.13	±0.05 - ±0.13
U	±0.13 - ±0.38	±0.13	±0.08 - ±0.25

DIAMETER OF IC	TOLERANCE			
	m		I.C	
	M CLASS	U CLASS	M CLASS	U CLASS
6.35	±0.08	±0.13	±0.05	±0.08
9.52	±0.08	±0.13	±0.05	±0.08
12.70	±0.13	±0.20	±0.08	±0.13
15.88	±0.15	±0.27	±0.10	±0.18
19.05	±0.15	±0.27	±0.10	±0.18
25.40	±0.18	±0.38	±0.13	±0.25
31.75	±0.18	±0.38	±0.13	±0.25

12	04	08	(T2501)	(R)
5	6	7	8	9

6 THICKNESS



01 = 1.59mm
T1 = 1.98mm
02 = 2.38mm
T2 = 2.78mm
03 = 3.18mm
T3 = 3.97mm
04 = 4.76mm
05 = 5.56mm
06 = 6.35mm
07 = 7.94mm
09 = 9.52mm

7 CORNER RADIUS

01 = 0.1mm
02 = 0.2mm
04 = 0.4mm
05 = 0.5mm
08 = 0.8mm
12 = 1.2mm
16 = 1.6mm
20 = 2.0mm
24 = 2.4mm
32 = 3.2mm

8 SYMBOLS OF MAJOR CUTTING EDGE

SYMBOL	CONDITION OF CUTTING EDGE	SHAPE
F	SHAPE EDGE	
E	ROUND HONING EDGE	
T	CHAMFERING EDGE	
S	COMBINATION HONING EDGE	

9 HAND OF INSERT

R right hand

L left hand

5 CUTTING EDGE LENGTH

I.C(mm)	C	D	E	R	S	T	V	W	K
3.97	03	04			03	06			
5.56	05	06			05	09	09	03	
6.53	06	07			06	11	11	04	
7.94	08	09			07	13	13	05	
8.0				08					
9.52	09	11		09	09	16	16	06	16
10.0				10					
12.0				12					
12.7	12	15	13		12	22	22	08	
15.88	16	19		16	15	27	27	10	
16.0				16					
19.05	19	23		19	19	33	33	13	
20.0				20					
25.0				25					
25.1	25	31		25	25	44			
32.0				32					

MILLING INSERTS DESIGNATION SYSTEMS

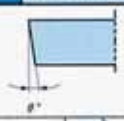
INNOVATOR IN TECHNOLOGY

S	P	K	N
1	2	3	4

1 INSERT SHAPE

			
A	B	C	H
			
L	O	P	R
			SPECIAL
S	T	W	X

2 CLEARANCE ANGLE



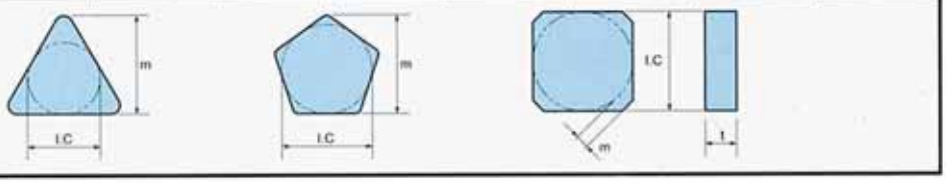
N	0°	B	5°
C	7°	P	11°
D	15°	E	20°
F	25°	G	30°

4 CHIP BREAKER AND CLAMP TYPE

		
A	F	G
		
M	N	R
		SPECIAL
T	W	X

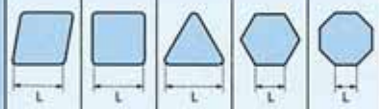
3 TOLERANCE

CLASS	TOLERANCE (mm)			I.C. DIMENSION (mm)					
	m	t	I.C	6.35	9.525	12.7	15.875	19.05	25.4
A	±0.005	±0.025	±0.025	●	●	●	●	●	●
E	±0.025	±0.025	±0.025	●	●	●	●	●	●
F	±0.005	±0.025	±0.013	●	●	●	●	●	●
G	±0.025	±0.13	±0.025	●	●	●	●	●	●
H	±0.013	±0.025	±0.013	●	●	●	●	●	●
K	±0.013	±0.025	±0.05	●	●				
			±0.08			●			
			±0.10				●	●	
			±0.13						●
M	±0.08	±0.13	±0.05	●	●				
	±0.13		±0.08			●			
	±0.15		±0.10				●	●	
	±0.18		±0.13						●



12	03	08 / ED	T	R
5	6	7	8	9

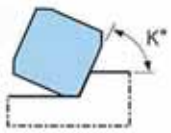
5 EDGE LENGTH (mm)

I.C.	C	R,S	T	H	O
5.56			09		
6.35	06	06	11		
7.94	08		13		
9.525	09	09	16		
12.7	12	12	22		05
15.875	16	15	27	09	
17.94					07
19.05	19	19	33	10	
25.4	25	25			
					

7 PARALLEL LAND

ENTERING ANGLE

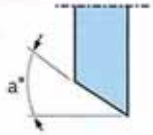
1st



A = 45°
D = 60°
E = 75°
F = 85°
P = 90°
Z = SPECIAL

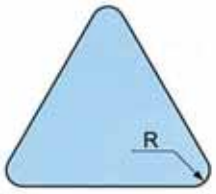
CLEARANCE ANGLE OF LAND

2nd



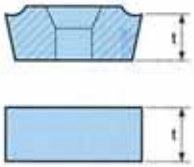
B = 5°
C = 7°
D = 15°
E = 20°
F = 25°
G = 30°
N = 0°
P = 11°
Z = SPECIAL

NOSE RADIUS (mm)



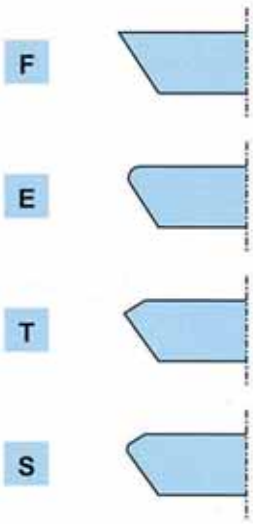
00R = SHARP
02R = 0.2
04R = 0.4
05R = 0.5
08R = 0.8
10R = 1.0
12R = 1.2
15R = 1.5
16R = 1.6
24R = 2.4
32R = 3.2
40R = 4.0

6 THICKNESS (mm)

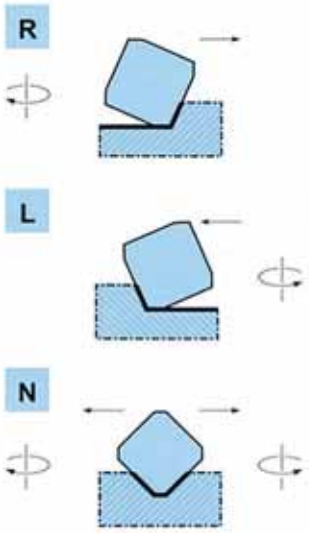


01t = 1.59
02t = 2.38
03t = 3.18
T3t = 3.97
04t = 4.76
05t = 5.56
06t = 6.35
07t = 7.94
09t = 9.52

8 EDGE CONDITION



9 HAND OF TOOL



QUOTATION REQUEST FORM

DATE / /		
COMPANY		
OPERATION	☐ EXTERNAL TURNING	☐ CUT - OFF
	☐ INTERNAL TURNING	☐ GROOVING
	☐ MILLING / SHOULDERING	☐ DRILLING
	☐ MILLING / FACING	☐ THREADING
MACHINE TYPE / POWER /		
WORKPIECE / HARDNESS /		
CUTTING CONDITION	☐ DRY	☐ EMULSION
	☐ AIR	☐ CONTINUOUS CUT
	☐ OIL	☐ INTERRUPTED CUT

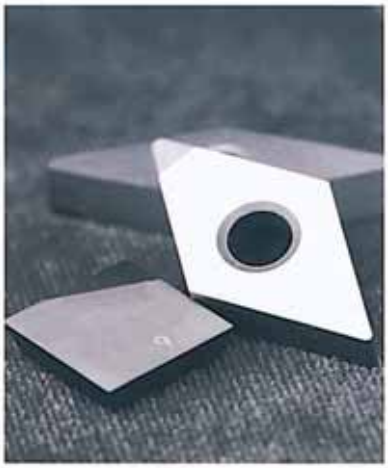
MANUFACTURER / BRAND	
ITEM CODE	
GRADE / ISO CLASSIFICATION	

CUTTING CONDITION IN USE	
WORKPIECE DIAMETER (mm)	
DEPTH OF CUT (mm)	
FEED RATE (mm/rev)	
CUTTING SPEED (mm)	

MILLING CUTTER DIAMETER (mm)	
FEED RATE / TOOTH (mm)	
TABLE FEED (mm/min)	
R.P.M.	

TOOL LIFE	
PRESENT	
TARGET	

WORKPIECE SHAPE	**NOTES**



PCD / PCBN CUTTING TOOLS

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