



Insert Shapes

- CCMT
- DCMT
- SCMT
- TCMT
- VBMT / VCMT

Corner Radii

- .008", .016", .031", .047"

Grades

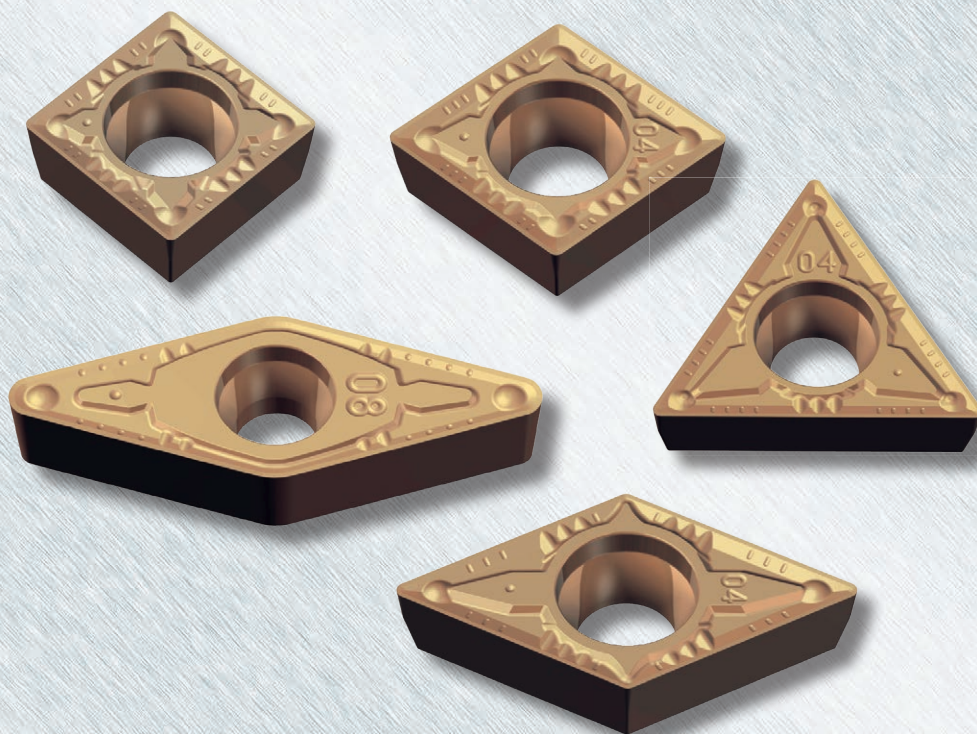
- Cermet (CT3000, PV3010)
- CVD Coated (TT8115, TT8125, TT8135)
- PVD Coated (TT5080, TT8020)

Feed Rate Range

- .003-.010 ipr

Depth of Cut Range

- .020" - .100" (per side)



New FM Chip Breaker for Positive ISO Turning Inserts

Ingersoll is pleased to introduce a new chip breaker for positive ISO turning inserts. The FM chip breaker series targets steel and stainless steel applications where semi-finish to medium machining is required.

All inserts within this series feature positive rake face geometry, with a 5° angle at the cutting edge and the nose. This optimized design reduces cutting forces during machining, and effectively breaks chips at a wide range of feed rates and cutting depths, making it an ideal general purpose solution in these materials.

FM chip breaker inserts are all single-sided, and are available in five different shapes and multiple insert sizes, providing the user with a wide selection of inserts that can be applied in either internal boring or external turning applications.

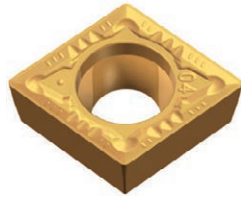
FEATURES

- Medium and semi-finish machining for steel and stainless steel
- Low cutting force chip breaker geometry with wide chip breaking range
- Pressed to size inserts provide high durability and excellent economy
- Five different insert shapes, and multiple insert sizes.
- Over 200 unique inserts to choose from.

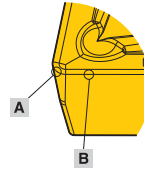
NEW
PRODUCT
ANNOUNCEMENT
2018

FM CHIP BREAKER'S EDGE GEOMETRY

CHIP BREAKER



CCMT FM



EDGE GEOMETRY

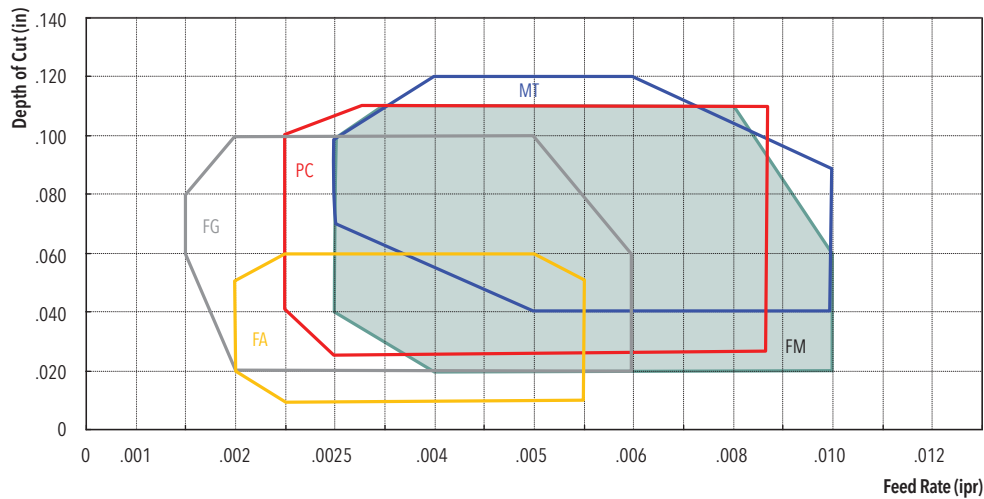


A



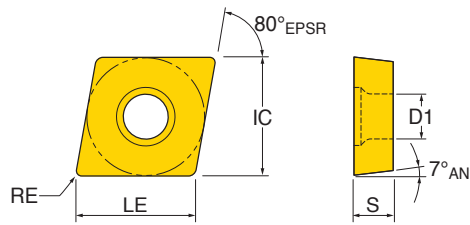
B

FM CHIP BREAKER RANGE



- Insert: CCMT32.51
- Cutting Speed: 650sfm
- Material: 0.45% Carbon Steel (HB 200-230)

CCMT Positive 7° Clearance 80° Rhombic Inserts

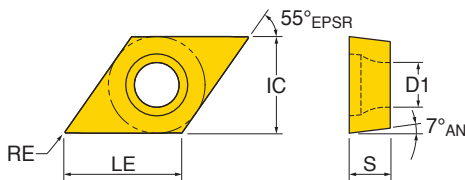


Size	Dimension (inch)				
	IC	RE	S	LE	D1
CCMT21.50.5	0.250	0.008	0.094	0.252	0.110
CCMT21.51	0.250	0.016	0.094	0.251	0.110
CCMT32.50.5	0.375	0.008	0.156	0.379	0.173
CCMT32.51	0.375	0.016	0.156	0.378	0.173
CCMT32.52	0.375	0.031	0.156	0.374	0.173

Insert	Designation		FDMN Min Feed (ipr)	FDMX Max Feed (ipr)	APMN Min Depth of Cut (in)	APMX Max Depth of Cut (in)	Cermet		CVD coated			PVD coated	
	ANSI Part Number	ISO Part Number					PV3010	CT3000	TT8115	TT8125	TT8135	TT5080	TT8020
	CCMT21.50.5FM	CCMT060202FM	0.003	0.006	0.020	0.059	•	•	•	•	•	•	•
	CCMT21.51FM	CCMT060204FM	0.003	0.006	0.020	0.059	•	•	•	•	•	•	•
	CCMT32.50.5FM	CCMT09T302FM	0.003	0.008	0.020	0.079	•	•	•	•	•	•	•
	CCMT32.51FM	CCMT09T304FM	0.003	0.010	0.020	0.098	•	•	•	•	•	•	•
	CCMT32.52FM	CCMT09T308FM	0.004	0.010	0.031	0.098	•	•	•	•	•	•	•

• : Standard item

DCMT Positive 7° Clearance 55° Rhombic Inserts

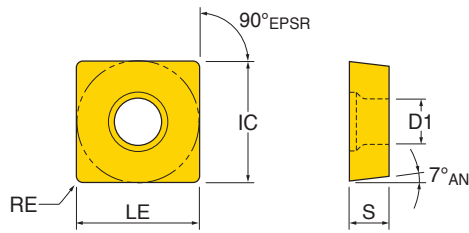


Size	Dimension (inch)				
	IC	RE	S	LE	D1
DCMT21.50.5	0.250	0.008	0.094	0.298	0.110
DCMT21.51	0.250	0.016	0.094	0.291	0.110
DCMT21.52	0.250	0.031	0.094	0.276	0.110
DCMT32.50.5	0.375	0.008	0.156	0.451	0.173
DCMT32.51	0.375	0.016	0.156	0.434	0.173
DCMT32.52	0.375	0.031	0.156	0.429	0.173

Insert	Designation		FDMN Min Feed (ipr)	FDMX Max Feed (ipr)	APMN Min Depth of Cut (in)	APMX Max Depth of Cut (in)	Cermet		CVD coated			PVD coated	
	ANSI Part Number	ISO Part Number					PV3010	CT3000	TT8115	TT8125	TT8135	TT5080	TT8020
	DCMT21.50.5FM	DCMT070202FM	0.003	0.008	0.020	0.059	•	•	•	•	•	•	•
	DCMT21.51FM	DCMT070204FM	0.003	0.008	0.020	0.059	•	•	•	•	•	•	•
	DCMT21.52FM	DCMT070208FM	0.004	0.008	0.031	0.059	•	•	•	•	•	•	•
	DCMT32.50.5FM	DCMT11T302FM	0.003	0.008	0.020	0.079	•	•	•	•	•	•	•
	DCMT32.51FM	DCMT11T304FM	0.003	0.008	0.020	0.079	•	•	•	•	•	•	•
	DCMT32.52FM	DCMT11T308FM	0.004	0.010	0.031	0.098	•	•	•	•	•	•	•

• : Standard item

SCMT Positive 7° Clearance Square Inserts

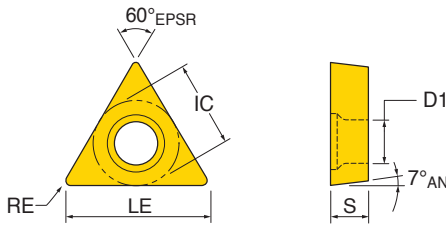


Size	Dimension (inch)				
	IC	RE	S	LE	D1
SCMT32.51	0.375	0.016	0.156	0.375	0.173
SCMT32.52	0.375	0.031	0.156	0.375	0.173

Insert	Designation		FDMN Min Feed (ipr)	FDMX Max Feed (ipr)	APMN Min Depth of Cut (in)	APMX Max Depth of Cut (in)	Cermet		CVD coated			PVD coated	
	ANSI Part Number	ISO Part Number					PV3010	CT3000	TT8115	TT8125	TT8135	TT5080	TT8020
	SCMT32.51FM	SCMT09T304FM	0.003	0.010	0.020	0.098	•	•	•	•	•	•	•
	SCMT32.52FM	SCMT09T308FM	0.004	0.010	0.031	0.098	•	•	•	•	•	•	•

• : Standard item

TCMT Positive 7° Clearance Triangular Inserts

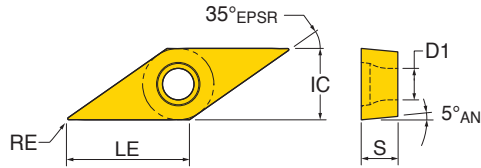


Size	Dimension (inch)				
	IC	RE	S	LE	D1
TCMT730.5	0.219	0.008	0.094	0.373	0.098
TCMT731	0.219	0.016	0.094	0.367	0.098
TCMT21.50.5	0.250	0.008	0.094	0.427	0.110
TCMT21.51	0.250	0.016	0.094	0.422	0.110
TCMT21.52	0.250	0.031	0.094	0.410	0.110
TCMT32.51	0.375	0.016	0.156	0.638	0.173
TCMT32.52	0.375	0.031	0.156	0.627	0.173
TCMT32.53	0.375	0.047	0.156	0.615	0.173

Insert	Designation		FDMN Min Feed (ipr)	FDMX Max Feed (ipr)	APMN Min Depth of Cut (in)	APMX Max Depth of Cut (in)	Cermet		CVD coated			PVD coated	
	ANSI Part Number	ISO Part Number					PV3010	CT3000	TT8115	TT8125	TT8135	TT5080	TT8020
	TCMT730.5FM	TCMT090202FM	0.003	0.008	0.020	0.059	•	•	•	•	•	•	•
	TCMT731FM	TCMT090204FM	0.003	0.008	0.020	0.059	•	•	•	•	•	•	•
	TCMT21.50.5FM	TCMT110202FM	0.003	0.008	0.020	0.059	•	•	•	•	•	•	•
	TCMT21.51FM	TCMT110204FM	0.003	0.008	0.020	0.059	•	•	•	•	•	•	•
	TCMT21.52FM	TCMT110208FM	0.004	0.008	0.031	0.059	•	•	•	•	•	•	•
	TCMT32.51FM	TCMT16T304FM	0.003	0.008	0.020	0.079	•	•	•	•	•	•	•
	TCMT32.52FM	TCMT16T308FM	0.004	0.008	0.031	0.079	•	•	•	•	•	•	•
	TCMT32.53FM	TCMT16T312FM	0.004	0.010	0.039	0.098	•	•	•	•	•	•	•

• : Standard item

VBMT Positive 5° Clearance 35° Rhombic Inserts

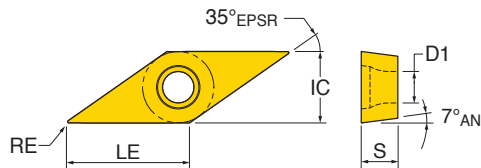


Size	Dimension (inch)				
	IC	RE	S	LE	D1
VBMT221	0.250	0.016	0.125	0.402	0.110
VBMT222	0.250	0.031	0.125	0.368	0.110
VBMT331	0.375	0.016	0.187	0.620	0.173
VBMT332	0.375	0.031	0.187	0.586	0.173
VBMT333	0.375	0.047	0.187	0.552	0.173

Insert	Designation		FDMN Min Feed (ipr)	FDMX Max Feed (ipr)	APMN Min Depth of Cut (in)	APMX Max Depth of Cut (in)	Cermet		CVD coated			PVD coated	
	ANSI Part Number	ISO Part Number					PV3010	CT3000	TT8115	TT8125	TT8135	TT5080	TT8020
	VBMT221FM	VBMT110304FM	0.003	0.008	0.020	0.059	•	•	•	•	•	•	•
	VBMT222FM	VBMT110308FM	0.004	0.008	0.020	0.059	•	•	•	•	•	•	•
	VBMT331FM	VBMT160404FM	0.003	0.008	0.020	0.079	•	•	•	•	•	•	•
	VBMT332FM	VBMT160408FM	0.004	0.008	0.031	0.079	•	•	•	•	•	•	•
	VBMT333FM	VBMT160412FM	0.004	0.010	0.039	0.098	•	•	•	•	•	•	•

• : Standard item

VCMT Positive 7° Clearance 35° Rhombic Inserts



Size	Dimension (inch)				
	IC	RE	S	LE	D1
VCMT1.51.50.5	0.187	0.008	0.094	0.310	0.094
VCMT1.51.51	0.187	0.016	0.094	0.293	0.094
VCMT221	0.250	0.016	0.125	0.402	0.110
VCMT331	0.375	0.016	0.187	0.620	0.173
VCMT332	0.375	0.031	0.187	0.586	0.173

Insert	Designation		FDMN Min Feed (ipr)	FDMX Max Feed (ipr)	APMN Min Depth of Cut (in)	APMX Max Depth of Cut (in)	Cermet		CVD coated			PVD coated	
	ANSI Part Number	ISO Part Number					PV3010	CT3000	TT8115	TT8125	TT8135	TT5080	TT8020
	VCMT1.51.50.5FM	VCMT080202FM	0.003	0.006	0.020	0.059	•	•	•	•	•	•	•
	VCMT1.51.51FM	VCMT080204FM	0.003	0.006	0.020	0.059	•	•	•	•	•	•	•
	VCMT221FM	VCMT110304FM	0.003	0.008	0.020	0.059	•	•	•	•	•	•	•
	VCMT331FM	VCMT160404FM	0.003	0.008	0.020	0.079	•	•	•	•	•	•	•
	VCMT332FM	VCMT160408FM	0.004	0.008	0.031	0.079	•	•	•	•	•	•	•

• : Standard item

RECOMMENDED CUTTING CONDITIONS

ISO	Material	Condition	Tensile strength (N/mm ²)	Hardness HB	Mat'l No.	Cutting speed Vc (sfm)													
						Cermet				CVD coated						PVD coated			
						PV3010		CT3000		TT8115		TT8125		TT8135		TT5080		TT8020	
						low	high	low	high	low	high	low	high	low	high	low	high	low	high
P	Non-alloy steel, cast steel, free cutting steel	< 0.25%C	Annealed	420	125	1	1150	2130	985	1870	920	1740	755	1575	655	1475		330	985
		>= 0.25%C	Annealed	650	190	2	885	1705	820	1640	785	1575	655	1380	560	1280		330	885
		< 0.55%C	Quenched/tempered	850	250	3	785	1575	720	1510	655	1445	525	1245	425	1115		260	655
		>= 0.55%C	Annealed	750	220	4	855	1640	785	1540	720	1475	625	1310	525	1215		295	690
			Quenched/tempered	1000	300	5	785	1510	720	1445	590	1380	490	1150	395	1050		260	590
	Low alloy steel and cast steel (less than 5% of alloying elements)	Annealed		600	200	6	785	1770	720	1705	655	1640	560	1310	460	1215		260	655
				930	275	7	625	1080	560	985	490	920	460	820	360	720		130	395
		Quenched/tempered		1000	300	8	560	985	490	885	425	820	395	755	295	655		130	295
				1200	350	9	460	885	425	820	395	755	360	655	260	560		100	295
	High alloy steel, cast steel and tool steel	Annealed		680	200	10	855	1330	820	1295	625	1245	460	920	360	820		195	525
		Quenched/tempered		1100	325	11	460	670	425	640	295	590	230	425	130	330		130	260
M	Stainless steel and cast steel	Ferritic / martensitic		680	200	12	655	985	590	885						525	1280	330	820
		Martensitic		820	240	13	655	885	560	820						525	920	330	755
		Austenitic		600	180	14	560	855	490	785						330	820	260	655
K	Gray cast iron (GG)	Ferritic			160	15	755	1080	720	1050									
		Pearlitic			250	16	705	950	670	920									
	Cast iron nodular (GGG)	Ferritic			180	17	560	870	525	835									
		Pearlitic			260	18	590	785	560	755									
	Malleable cast iron	Ferritic			130	19	475	720	445	655									
		Pearlitic			230	20	345	490	310	460									
N	Aluminum - wrought alloy	Not cureable			60	21													
		Cured			100	22													
	Aluminum-cast, alloyed	<= 12% Si	Not cureable		75	23													
			Cured		90	24													
		> 12% Si	High temp.		130	25													
	> 1% Pb	Free cutting			110	26													
		Brass			90	27													
		Electrolitic copper			100	28													
	Non-metallic	Duroplastics, fiber plastics				29													
		Hard rubber				30													
S	High temp. alloys	Fe based	Annealed		200	31										165	590	65	230
			Cured		280	32										130	525	35	165
		Ni or Co based	Annealed		250	33										150	330	35	130
			Cured		350	34										115	295	35	100
			Cast		320	35										100	260	35	65
	Titanium, Ti alloys		Rm 400			36										360	655	230	490
		Alpha+beta alloys cured	Rm 1050			37										165	330	65	130
H	Hardened steel	Hardened			55HRC	38													
		Hardened			60HRC	39													
	Chilled cast iron	Cast			400	40													
	Cast iron nodular	Hardened			55HRC	41													

■ P: Steel
 ■ M: Stainless Steel
 ■ K: Cast Iron
 ■ N: Nonferrous
 ■ S: High Temp. Alloys
 ■ H: Hardened Steel