



Tsukuba Plant
ISO 9001-1994
Registration No. JSAQ 080



Tsukuba Plant
ISO 14001-1996
Registration No. JSAE 036

Gifu Plant
ISO 9001-1994
Registration No. JSAQ 094

DRIVING THE FUTURE

Indexable insert with wiper style geometry

MWbreaker / SWbreaker

Special wiper edge geometry shortens cycle times and improves surface finish



Features of *MW breaker* and *SW breaker*

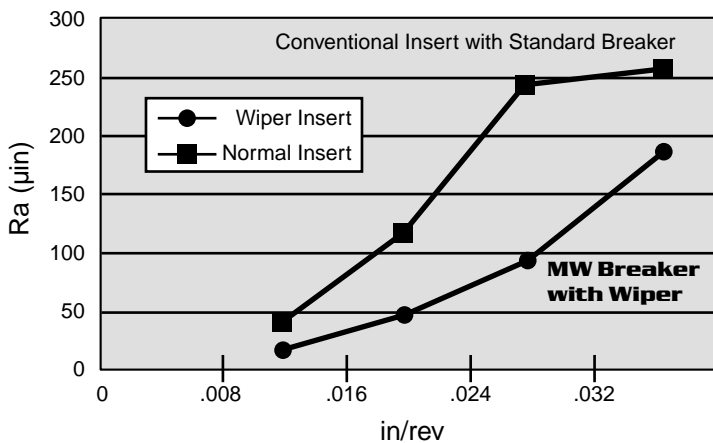
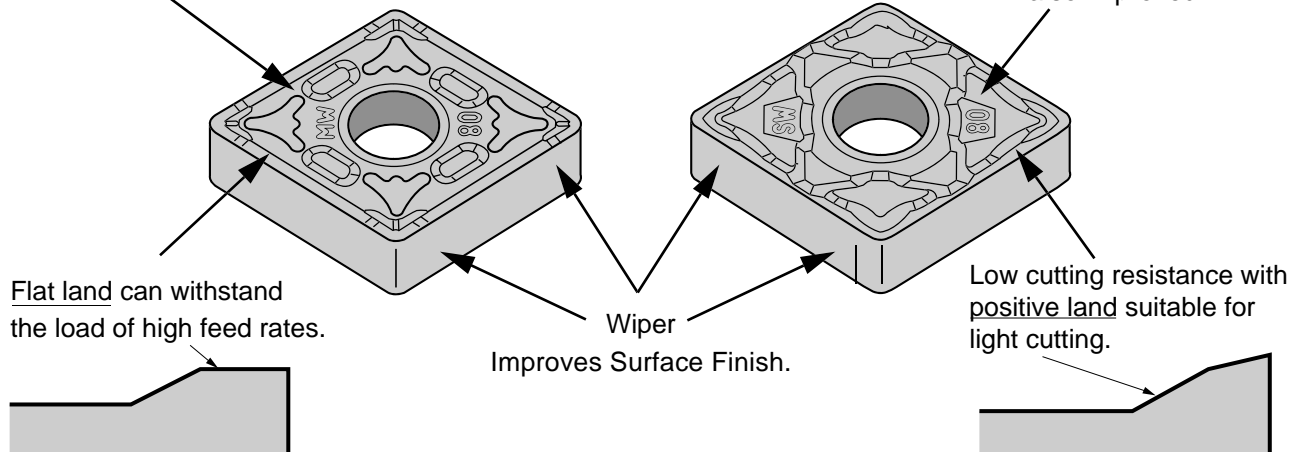
Highly efficient Wiper Turning Inserts provide Superior Surface Finishes in Light, Medium and Roughing applications at increased feed rates. Wiper geometries improve surface finishes at current machining conditions. Double your feed rate and maintain your existing surface finish. Either way you optimize Productivity.

Wide chip pocket prevents clogging of chips even at high feed rate.

Medium cutting
MWbreaker

Light cutting
SWbreaker

Increased contact area tightly clamped to wide seat; Surface finish is also improved.



Wiper edge geometry is employed by modifying the insert where the straight edge meets the corner radius. Even when feed rates are doubled the surface area does not deteriorate.

<Cutting conditions>

Insert : CNMG432-

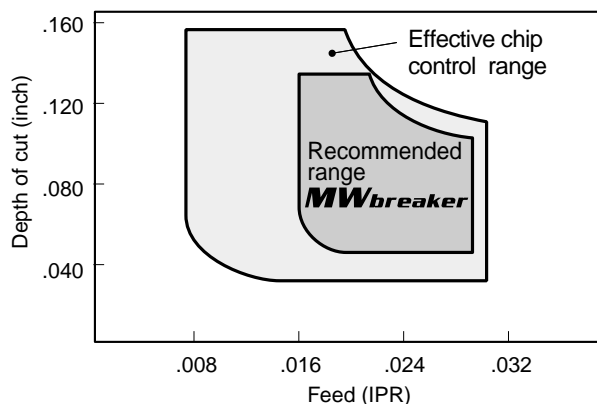
Workpiece : Carbon steel (ANSI 1045)

Cutting speed : 660 SFM

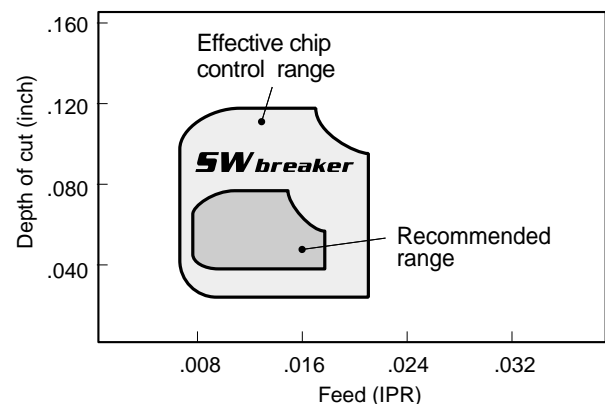
Coolant : Wet cutting

Effective Chip control range of *MW breaker* and *SW breaker*

Effective chip control range of MW breaker



Effective chip control range of SW breaker



<Cutting conditions>

Insert : CNMG432-

Workpiece : Carbon steel (ANSI 1045)

Cutting speed : 660 SFM

Coolant : wet cutting

Using *MW breaker* and *SW breaker* effectively

Replacing a conventional indexable insert with a *MW breaker* or *SW breaker* has the following advantages.

Even under the same machining conditions with an increased feed rate the Surface Finish of the workpiece can be improved.

Surface machined by the insert with wiper Surface machined by a conventional insert

1 IMPROVING SURFACE FINISH

When changing to high feed conditions the chips become thicker and are easier to control.

Chips under a conventional feed condition Chips under the high feed condition

2 DIVIDING CHIPS

When the feed is increased the time to produce one part is decreased, therefore more parts per corner can be machined. In addition the high feed rate prevents edge buildup and increases tool life even further.

Pieces per hour

High feed condition
Machining time cut in half

Conventional cycle time

3 INCREASED TOOL LIFE

The high feed rate not only shortens the machining time, but even makes it possible to eliminate the finishing operation !

(Roughing)

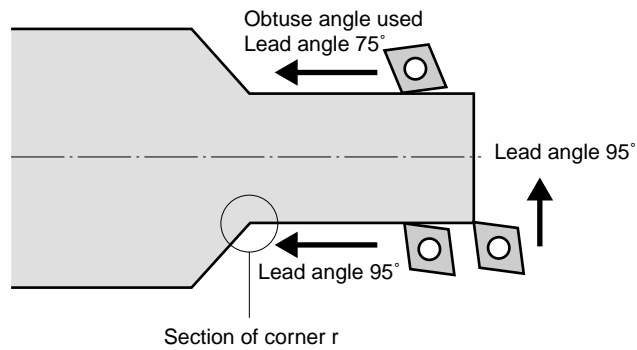
(Finishing)

Separate roughing and finishing steps Single-step machining

4 IMPROVING EFFICIENCY

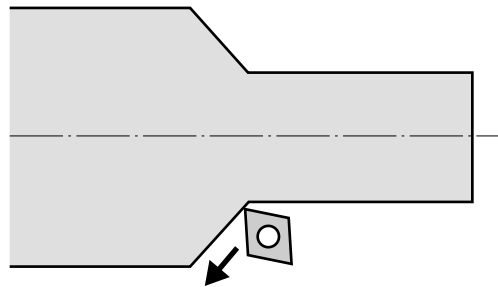
Precautions in Using *MW breaker* and *SW breaker*

Effective uses of a wiper chipbreaker



The wiper is designed to match the outer diameter and the cutting edge lead angle for facing. Dimensional correction of the section of angle r is unnecessary.

Non effective uses of a wiper chipbreaker



The wiper does not function in the direction of cutting shown. (The surface finish is the same as that of an insert without a wiper.)

Standard inserts of *MW* breaker and *SW* breaker

Geometry	Class	Order Number	Coated					Cermet		Dimensions		
			UC5005	UC5015	UE6005	UC6010	UE6020	US7020	VP25N		I.C.	T
CCMT MW 	M	CCMT21.51MW					+	+	+	1/4	3/32	1/64
		CCMT21.52MW					+	+	+			1/32
		CCMT32.51MW					+	+	+	3/8	5/32	1/64
		CCMT32.52MW					+	+	+			1/32
		CCMT431MW					+	+	+	1/2	3/16	1/64
		CCMT432MW					+	+	+			1/32
CNMG MW 	M	CNMG432MW	+	+	+	+			1/2	3/16	1/32	
		CNMG433MW	+	+	+	+					3/64	
WNMG MW 	M	WNMG432MW	+	+	+	+			1/2	3/16	1/32	
		WNMG433MW	+	+	+	+					3/64	

Geometry	Class	Order Number	Coated			Cermet		Dimensions			
			UE6005	UE6020	US7020	VP25N	AP25N		I.C.	T	R
CCMT SW 	M	CCMT21.50.5SW		+	+	+			1/4	3/32	.008
		CCMT21.51SW		+	+	+					1/64
		CCMT32.50.5SW		+	+	+			3/8	5/32	.008
		CCMT32.51SW		+	+	+					1/64
CNMG SW 	M	CNMG431SW	+		+		+	1/2	3/16	1/64	
		CNMG432SW	+		+		+			1/32	
WNMG SW 	M	WNMG431SW	+		+		+	1/2	3/16	1/64	
		WNMG432SW	+		+		+			1/32	

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