

## New Chipbreaker

# ZF/ZM Chipbreaker

Expanded Product: Improved chip control



# ZF/ZM Chipbreaker

## ZF/ZM

For Finishing

For Medium Cutting

Incredibly improved chip control in steels



Sharp edge

Chipbreaker for finishing

Deep and wide pocket for low cutting forces

ZF

Positive strong cutting edge

Chipbreaker for medium cutting

ZM

### Application

#### General Steel

ZF

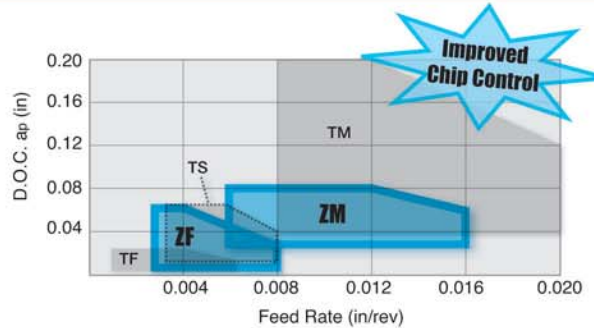
D.O.C. 0.008~0.06 in

Feed Rate 0.003~0.008 in/rev

ZM

D.O.C. 0.028~0.079 in

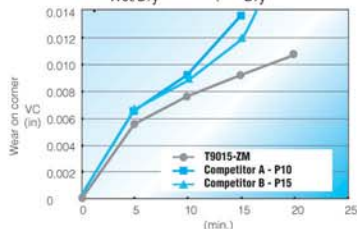
Feed Rate 0.006~0.016 in/rev



### Cutting Performance

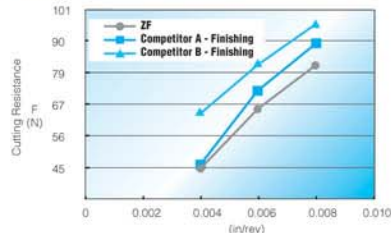
Wear Resistance Comparison

Insert : CNMG 431-\*\*  
 Work Material : 5120  
 Cutting Speed : 660 sfm  
 D.O.C. : ap=0.039"  
 Feed Rate : f=0.016in/rev  
 Wet/Dry : Dry



Cutting Resistance Comparison

Insert : CNMG 431-\*\*  
 Work Material : 1045  
 Cutting Speed : 660 sfm  
 D.O.C. : ap=0.020"  
 Wet/Dry : Dry



## ZF Chipbreaker

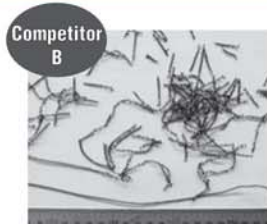
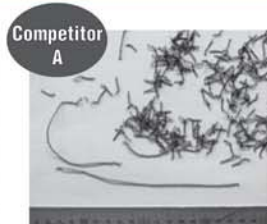
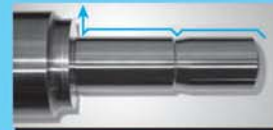
Shape	Catalog Number	Dimension (in)				Stock		
		I.C.	Thickness	Hole Diameter	Corner Radius	Coating		Cermet
						T9015	T9025	GT530
	CNMG 431 ZF	0.5	0.187	0.203	0.016	●	●	●
	CNMG 432 ZF				0.031	●	●	●
	<b>New</b> CNMG 433 ZF				0.047	○	○	
	DNMG 431 ZF	0.5	0.187	0.203	0.016	●	●	●
	DNMG 432 ZF				0.031	●	●	●
	<b>New</b> DNMG 433 ZF				0.047	○	○	○
	DNMG 441 ZF	0.25	0.016	○	○	○		
	DNMG 442 ZF		0.031	○	○			
	<b>New</b> DNMG 443 ZF		0.047	○	○			
	SNMG 431 ZF	0.5	0.187	0.203	0.016	○	○	
	SNMG 432 ZF				0.031	○	○	
	SNMG 433 ZF				0.047	○	○	
	TNMG 331 ZF	0.375	0.187	0.15	0.016	○	○	
	TNMG 332 ZF				0.031	○	○	
	TNMG 333 ZF				0.047	○	○	
	<b>New</b> WNMG 331 ZF	0.375	0.187	0.15	0.016	●	●	
	<b>New</b> WNMG 332 ZF				0.031	●	●	
	WNMG 431 ZF	0.5	0.203	0.203	0.016	●	●	●
	WNMG 432 ZF				0.031	●	●	●
	<b>New</b> WNMG 433 ZF				0.047	●	●	
	VNMG 331 ZF	0.375	0.187	0.15	0.016	○	○	
	VNMG 332 ZF				0.031	○	○	
	VNMG 333 ZF				0.047	●	○	

● : Stocked Standard  
○ : Non-Stocked Standard

## Chip Control for Finishing






### Cutting Conditions

Insert : VNMG 332-\*\*      D.O.C. :  $a_p=0.02''$   
 Work Material : 1045      Feed Rate :  $f=0.01$  in/rev  
 Cutting Speed : 820 sfm      Wet/Dry : Dry



# ZF/ZM Chipbreaker

## ZM Chipbreaker

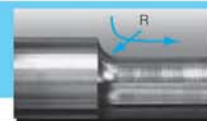
Shape	Catalog Number	Dimension (in)				Stock		
		I.C.	Thickness	Hole Diameter	Corner Radius	Coating		Cermet
						T9015	T9025	GT530
	CNMG 432 ZM	0.5	0.187	0.203	0.031	●	●	●
	CNMG 433 ZM				0.047	●	●	●
	<b>New</b> CNMG 434 ZM				0.062	○	○	
	DNMG 432 ZM	0.5	0.187	0.203	0.031	●	●	●
	DNMG 433 ZM				0.047	●	●	●
	<b>New</b> DNMG 434 ZM				0.062	○	○	
	DNMG 442 ZM	0.25	0.031	○	○	○		
	DNMG 443 ZM		0.047	○	○	○		
	<b>New</b> DNMG 444 ZM		0.062	○	○			
	SNMG 432 ZM	0.5	0.187	0.203	0.031	○	○	
	SNMG 433 ZM				0.047	○	○	
	SNMG 434 ZM				0.062	○	○	
	TNMG 331 ZM	0.375	0.187	0.15	0.016	○	○	
	TNMG 332 ZM				0.031	○	○	
	TNMG 333 ZM				0.047	○	○	
	TNMG 432 ZM	0.5	0.203	0.031	○	○		
	TNMG 433 ZM			0.047	○	○		
	<b>New</b> WNMG 332 ZM	0.375	0.187	0.15	0.031	●	●	
	<b>New</b> WNMG 333 ZM				0.047	●	●	
	WNMG 432 ZM	0.5	0.203	0.031	●	●	●	
	WNMG 433 ZM			0.047	●	●	●	
	<b>New</b> WNMG 434 ZM			0.062	●	●		
	VNMG 332 ZM	0.375	0.187	0.15	0.031	○	●	
	VNMG 333 ZM				0.047	○	○	

● : Stocked Standard  
○ : Non-Stocked Standard

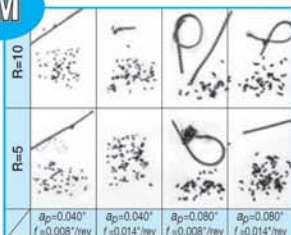
## Chip Control for Semi-Finishing

### Cutting Conditions

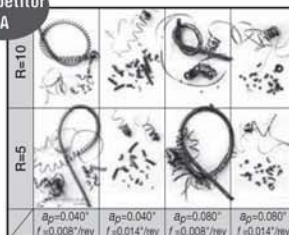
Insert : CNMG 431-\*\*      Cutting Speed : 660 sfm  
Work Material : 5120      Wet/Dry : Dry



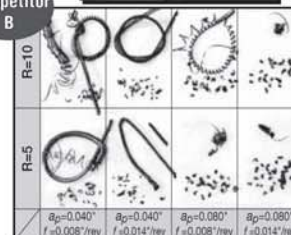
ZM



Competitor A

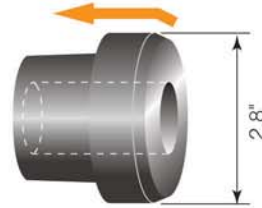


Competitor B



## Example 1

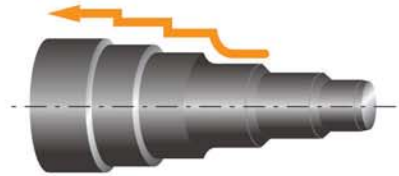
Work Material	1037
Insert	DNMG 431 ZF T9025
Cutting Speed	1150 sfm
D.O.C.	$a_p=0.012''$
Feed Rate	$f=0.02\sim 0.04$ in/rev
Wet/Dry	Wet



**Result** Length of chip was reduced to less than half. Tool life was increased by 4 times.

## Example 2

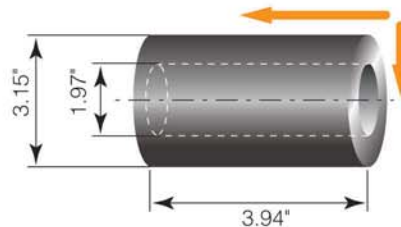
Work Material	1050
Insert	CNMG 432 ZM T9015
Cutting Speed	650 sfm
D.O.C.	$a_p=0.012\sim 0.02$ in/rev
Feed Rate	$f=0.008\sim 0.079$ in/rev
Wet/Dry	Wet



**Result** Improved chip control prevents chip from winding around the work material.

## Example 3

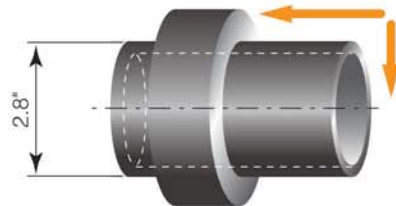
Work Material	1045
Insert	CNMG 431 ZM T9025
Cutting Speed	490 sfm
D.O.C.	$a_p=0.016''$
Feed Rate	$f=0.079$ in/rev
Wet/Dry	Wet



**Result** Interference between chip and work piece has improved in facing and turning. Reduced amount of scratches on work material.

## Example 4

Work Material	1035
Insert	DNMG 433 ZF T9015
Cutting Speed	850 sfm
D.O.C.	$a_p=0.008''$
Feed Rate	$f=0.008\sim 0.012$ in/rev
Wet/Dry	Wet



**Result** Chips break down in small pieces. 50% less wear on cutting edge when compared to competitor insert in same cutting operation.

# Tungaloy

## Keeping the Customer First

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At Tungaloy the customer is at the center of everything we do.

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