

**Strictly Confidential**



CNMG432 (120408) YG3020

**4140 Chip chart**

# Understanding YG-1 Chip breaker geometries

P	M	K	N			Feed										
						0	0.1	0.2	0.3	0.4	0.5	0.6				
P				UF	Finishing		Fn 0.05-0.2									
P				UL	Semi Finishing and sticky materials		Fn 0.05-0.3									
P				UM	For Medium & Unstable conditions		Fn 0.15-0.35									
P				UG	First Choice for Medium (Stable application)		Fn 0.25-0.4									
P		K		UC	Medium Roughing and First choice for Cast Iron		Fn 0.25-0.5									
P		K		UR	Roughing and Heavy Interrupted cut		Fn 0.3-0.6									



# || Hands-on in Charlotte Tech Center

- Develop a deep understand the relationships between our geometries and how the chip area impacts chip control
- Show difference in chip breaking at same cutting data for UM, UG & UC
- Material: 4140, ~32Hrc
- Same speed for all passes
  - Vc 750/228m
- CNMG432/120408 for all geometries
- Same grade, YG3020, for all geometries
- Same holder, MCLNL164D

# || Hands-on in Charlotte Tech Center

	Ap	Fn	Fn	Fn
<b>CNMG432-UF</b>	0.005"	0.002"	0.004"	0.008"
	0.010"	0.002"	0.004"	0.008"
	0.020"	0.002"	0.004"	0.008"
<b>CNMG432-UL</b>	0.005"	0.002"	0.004"	0.008"
	0.020"	0.002"	0.004"	0.008"
	0.050"	0.002"	0.004"	0.008"
<b>CNMG432-UM</b>	0.020"	0.004"	0.008"	0.012"
	<b>0.050"</b>	0.004"	0.008"	<b>0.012"</b>
	<b>0.100"</b>	0.004"	0.008"	<b>0.012"</b>
<b>CNMG432-UG</b>	0.020"	0.008"	0.012"	0.016"
	<b>0.050"</b>	0.008"	<b>0.012"</b>	0.016"
	<b>0.100"</b>	0.008"	<b>0.012"</b>	0.016"
<b>CNMG432-UC</b>	<b>0.050"</b>	0.008"	<b>0.012"</b>	0.016"
	<b>0.100"</b>	0.008"	<b>0.012"</b>	0.016"
	0.150"	0.008"	0.012"	0.016"
<b>CNMG432-UR</b>	0.050"	0.012"	0.016"	0.022"
	0.100"	0.012"	0.016"	0.022"
	0.150"	0.012"	0.016"	0.022"

	Ap	Fn	Fn	Fn
<b>CNMG120408-UF</b>	0.125mm	0.05mm	0.1mm	0.2mm
	0.25mm	0.05mm	0.1mm	0.2mm
	0.5mm	0.05mm	0.1mm	0.2mm
<b>CNMG120408-UL</b>	0.125mm	0.05mm	0.1mm	0.2mm
	0.5mm	0.05mm	0.1mm	0.2mm
	1.25mm	0.05mm	0.1mm	0.2mm
<b>CNMG120408-UM</b>	0.5mm	0.1mm	0.2mm	0.3mm
	<b>1.25mm</b>	0.1mm	0.2mm	<b>0.3mm</b>
	<b>2.5mm</b>	0.1mm	0.2mm	<b>0.3mm</b>
<b>CNMG120408-UG</b>	0.5mm	0.2mm	0.3mm	0.4mm
	<b>1.25mm</b>	0.2mm	<b>0.3mm</b>	0.4mm
	<b>2.5mm</b>	0.2mm	<b>0.3mm</b>	0.4mm
<b>CNMG120408-UC</b>	<b>1.25mm</b>	0.2mm	<b>0.3mm</b>	0.4mm
	<b>2.5mm</b>	0.2mm	<b>0.3mm</b>	0.4mm
	3.8mm	0.2mm	0.3mm	0.4mm
<b>CNMG120408-UR</b>	1.25mm	0.3mm	0.4mm	0.55mm
	2.5mm	0.3mm	0.4mm	0.55mm
	3.8mm	0.3mm	0.4mm	0.55mm



$f_n$  0.002"/0.05mm

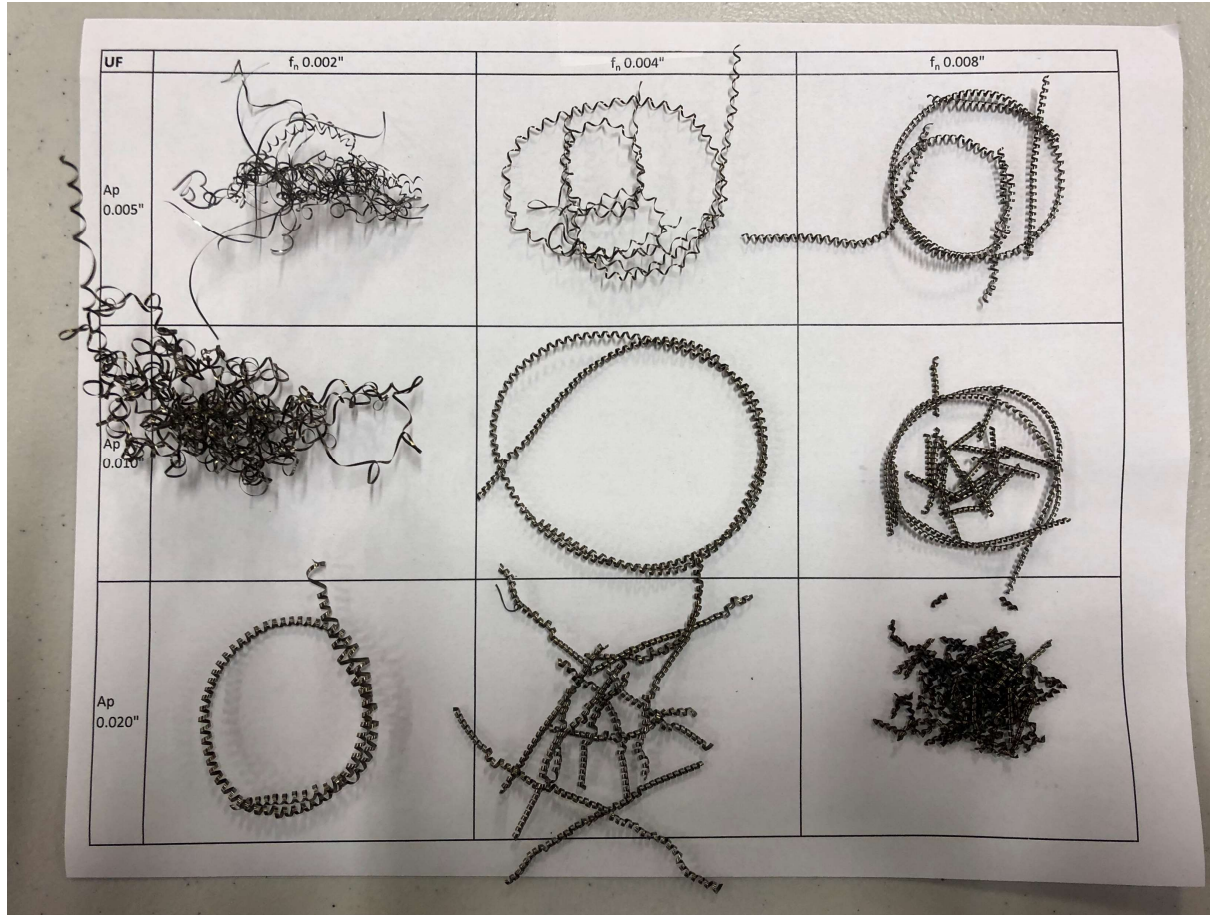
$f_n$  0.004"/0.1mm

$f_n$  0.008"/0.2mm

$A_p$   
0.005"/  
0.125mm

$A_p$   
0.010"/  
0.25mm

$A_p$   
0.020"/  
0.5mm







$f_n$  0.002"/0.05mm

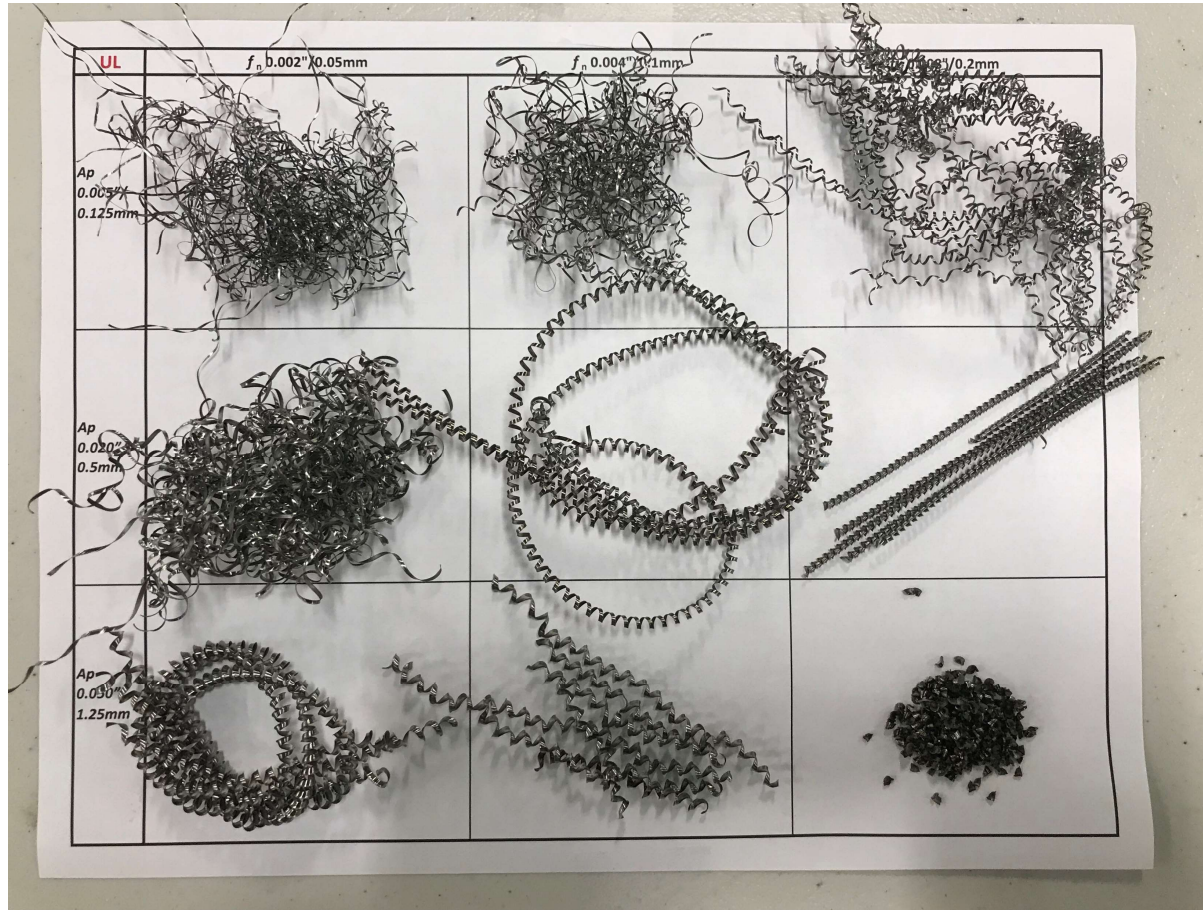
$f_n$  0.004"/0.1mm

$f_n$  0.008"/0.2mm

$A_p$   
0.005"/  
0.125mm

$A_p$   
0.020"/  
0.5mm

$A_p$   
0.050"/  
1.25mm





$f_n$  0.004"/0.1mm

$f_n$  0.008"/0.2mm

$f_n$  0.012"/0.3mm

$A_p$   
0.020"/  
0.5mm

$A_p$   
0.050"/  
1.25mm

$A_p$   
0.100"/  
2.5mm





$f_n$  0.008"/0.2mm

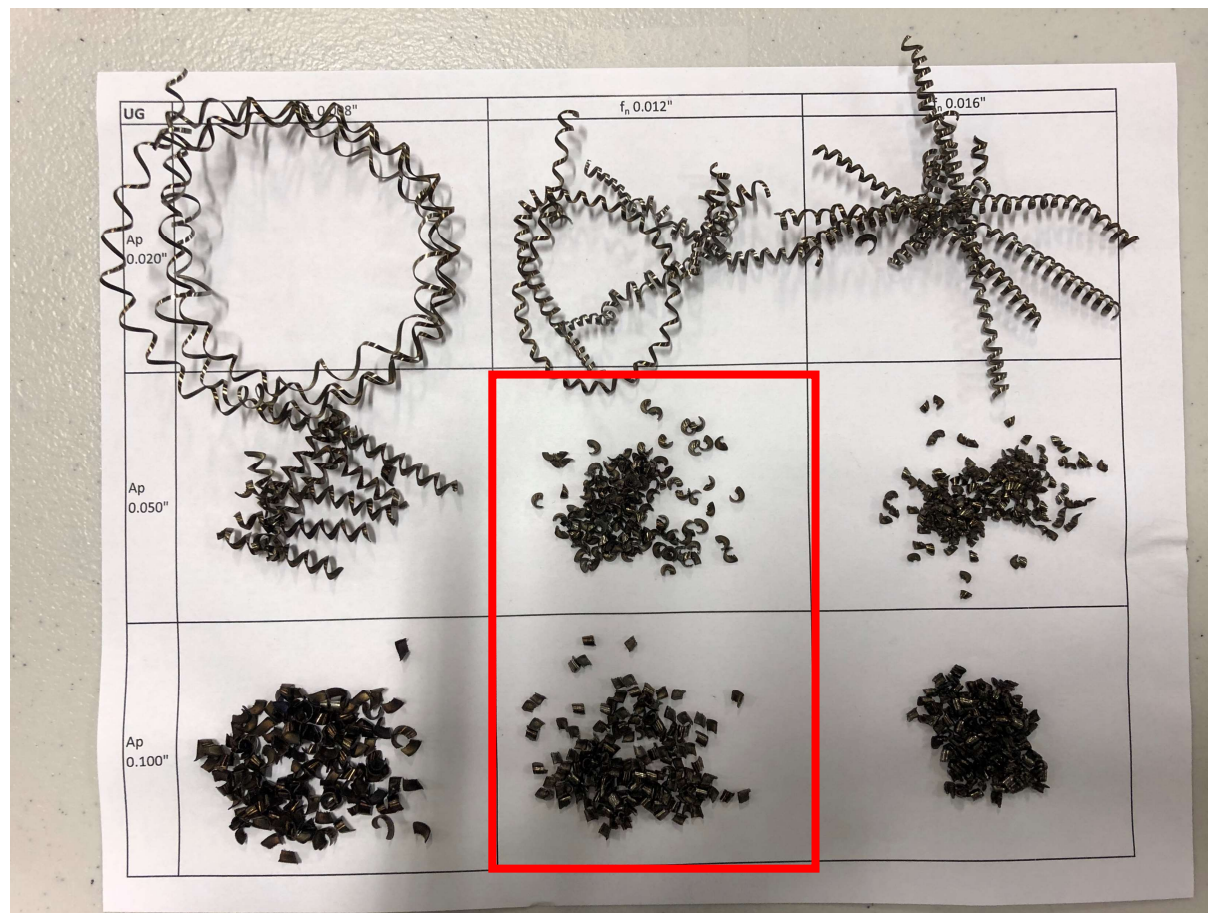
$f_n$  0.012"/0.3mm

$f_n$  0.016"/0.4mm

$A_p$   
0.020"/  
0.5mm

$A_p$   
0.050"/  
1.25mm

$A_p$   
0.100"/  
2.5mm







$f_n$  0.008"/0.2mm

$f_n$  0.012"/0.3mm

$f_n$  0.016"/0.4mm

$A_p$   
0.050"/  
1.25mm

$A_p$   
0.100"/  
2.5mm

$A_p$   
0.150"/  
3.8mm



$f_n$  0.012"/0.3mm

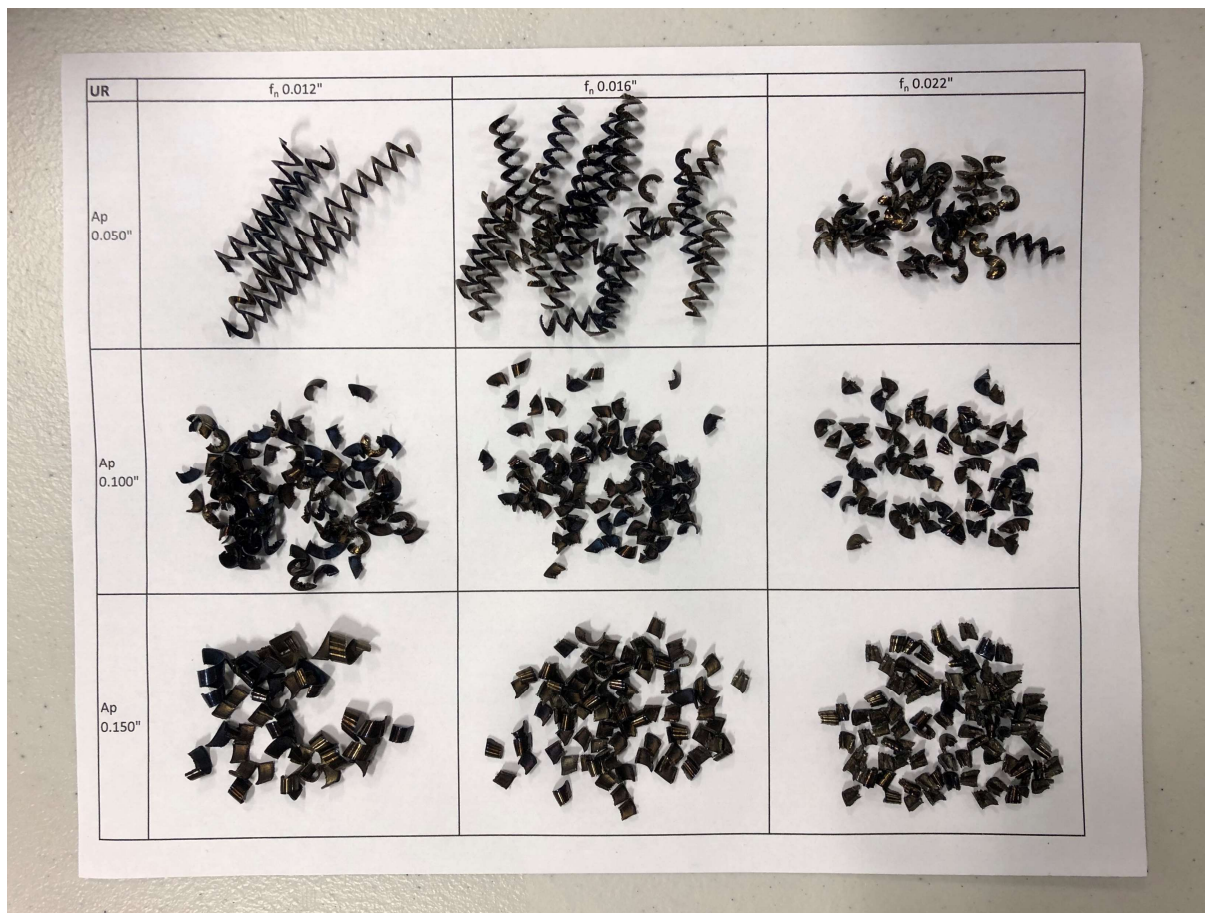
$f_n$  0.016"/0.4mm

$f_n$  0.022"/0.55mm

$A_p$   
0.050"/  
1.25mm

$A_p$   
0.100"/  
2.5mm

$A_p$   
0.150"/  
3.8mm





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