

## 钢件车削刀片系列 INSERTS FOR STEEL

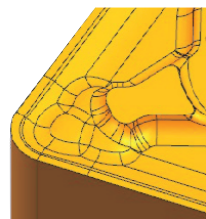


## Introduction of chipbreaker



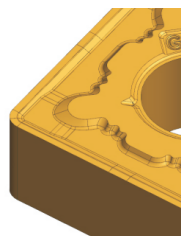
### GF

- ⊙ Used for finishing and semi-finishing;
- ⊙ Large positive rake angle for smaller cutting resistance;
- ⊙ Positive cutting edge inclination design effectively controls the flow of chips, good chip evacuation achieved;
- ⊙ Coating post-treatment technology improves the wear resistance and makes the surface more gloss.



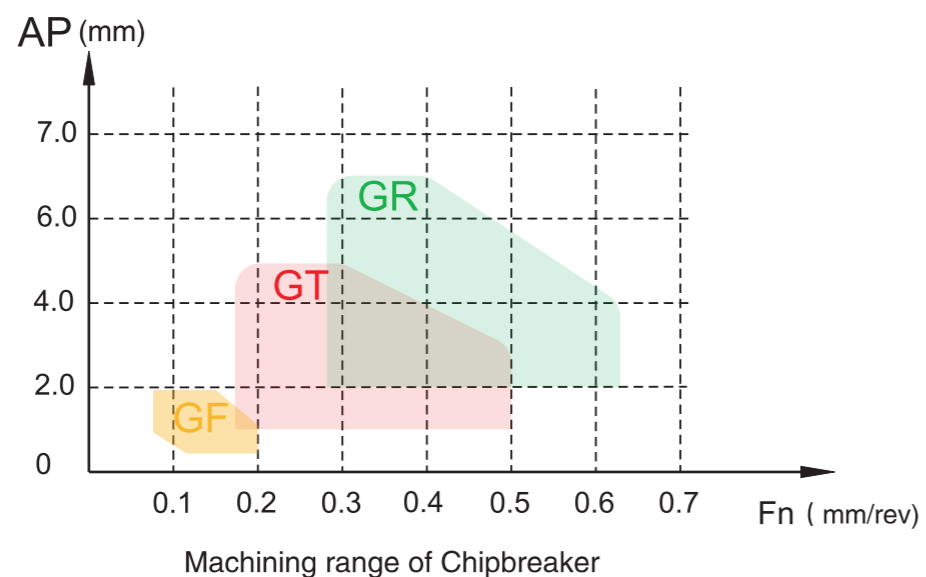
### GT

- ⊙ Used for semi-finishing;
- ⊙ Unique nose design and sharp cutting edge;
- ⊙ Variable rake angle design combined with spherical chipbreaker, suitable for a wider processing range;
- ⊙ Good chip evacuation performance and versatility.



### GR

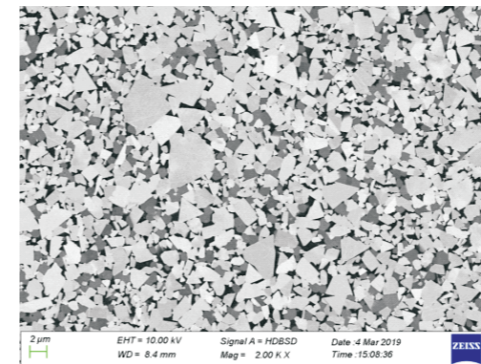
- ⊙ Used for roughing.
- ⊙ Tough cutting land, wide space for chipbreaker, suitable for intermittent turning and other unstable cutting condition.
- ⊙ Optimized design of the chipbreaker is suitable for chip breaking with different cutting depth.



## WS8135



### Introduction of substrate



New substrate acts good performance of strength, wear resistance and toughness.

Effective inhibited high temperature deformation due to strengthen binder phase; High content binder phase of functionally graded layer against coating crack stretching; The even distribution of ultra fine hard phase processes both toughness and wear resistance.

Better toughness and plastic deformation resistance lead to stable performance at intermittent cutting, which can machining well in bad working condition.

The TiN coating of surface provides better lubricity.

1

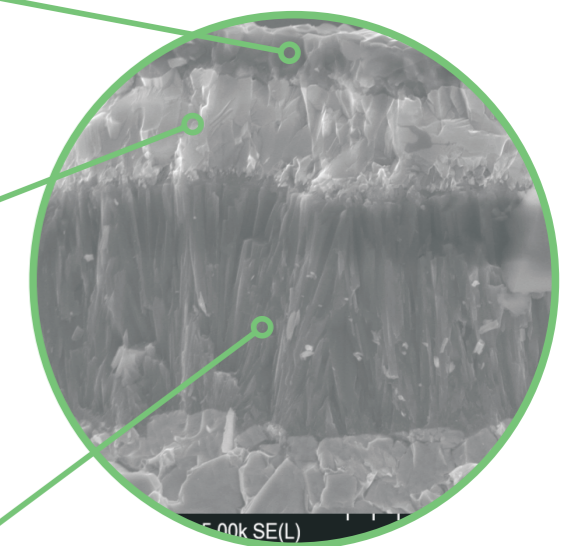
### Introduction of coating

The Ultra-fine and orderly aligned  $Al_2O_3$  grains provide super hardness for the coating, and the strong texture layer of  $Al_2O_3$  acts excellent cutting performance.

2

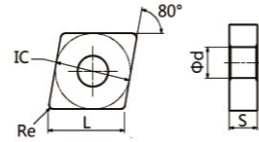
TiCN layer with high hardness leads to the good toughness and also provides a crystallization environment for strong texture layer of  $Al_2O_3$ .

3



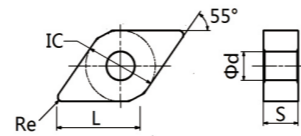
## Type Series

80° CN□□ with hole



Insert Shape	Designation	Specification (mm)					Grade	
		L	IC	S	ød	Re	CVD coating	
							WS8125	WS8135
	CNMG120404-GF	12.9	12.7	4.76	5.16	0.4	●	
	CNMG120408-GF	12.9	12.7	4.76	5.16	0.8	●	
	CNMG120404-GT	12.9	12.7	4.76	5.16	0.4	●	●
	CNMG120408-GT	12.9	12.7	4.76	5.16	0.8	●	●
	CNMG120412-GT	12.9	12.7	4.76	5.16	1.2	●	●
	CNMG120408-GR	12.9	12.7	4.76	5.16	0.8	●	●
	CNMG120412-GR	12.9	12.7	4.76	5.16	1.2	●	●

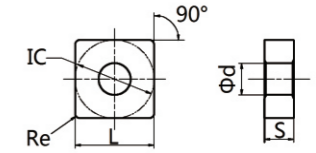
55° DN□□ with hole



Insert Shape	Designation	Specification (mm)					Grade	
		L	IC	S	ød	Re	CVD coating	
							WS8125	WS8135
	DNMG150404-GF	15.5	12.7	4.76	5.16	0.4	●	
	DNMG150408-GF	15.5	12.7	4.76	5.16	0.8	●	
	DNMG150604-GF	15.5	12.7	6.35	5.16	0.4	●	●
	DNMG150608-GF	15.5	12.7	6.35	5.16	0.8	●	●
	DNMG150404-GT	15.5	12.7	4.76	5.16	0.4	●	●
	DNMG150408-GT	15.5	12.7	4.76	5.16	0.8	●	●
	DNMG150412-GT	15.5	12.7	4.76	5.16	1.2	●	●
	DNMG150604-GT	15.5	12.7	6.35	5.16	0.4	●	●
	DNMG150608-GT	15.5	12.7	6.35	5.16	0.8	●	●
	DNMG150612-GT	15.5	12.7	6.35	5.16	1.2	●	●
	DNMG150608-GR	15.5	12.7	6.35	5.16	0.8	●	●
	DNMG150612-GR	15.5	12.7	6.35	5.16	1.2	●	●

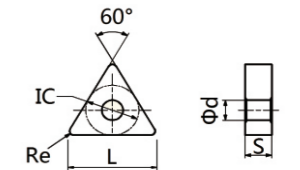
Note : ○ Make to order ● Recommended grade △ Accept reservation

90° SN□□ with hole



Insert Shape	Designation	Specification (mm)					Grade	
		L	IC	S	ød	Re	CVD coating	
							WS8125	WS8135
	SNMG120404-GF	12.7	12.7	4.76	5.16	0.4	●	
	SNMG120408-GF	12.7	12.7	4.76	5.16	0.8	●	
	SNMG120404-GT	12.7	12.7	4.76	5.16	0.4	●	●
	SNMG120408-GT	12.7	12.7	4.76	5.16	0.8	●	●
	SNMG120412-GT	12.7	12.7	4.76	5.16	1.2	●	●
	SNMG120408-GR	12.7	12.7	4.76	5.16	0.8	●	●
	SNMG120412-GR	12.7	12.7	4.76	5.16	1.2	●	●
	SNMG120408R-M	12.7	12.7	4.76	5.16	0.8	●	●
	SNMG120408L-M	12.7	12.7	4.76	5.16	0.8	●	●

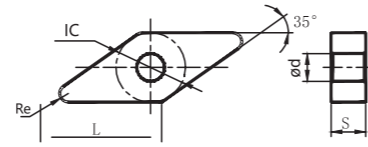
60° TN□□ with hole



Insert Shape	Designation	Specification (mm)					Grade	
		L	IC	S	ød	Re	CVD coating	
							WS8125	WS8135
	TNMG160404-GF	16.5	9.525	4.76	3.81	0.4	●	
	TNMG160408-GF	16.5	9.525	4.76	3.81	0.8	●	
	TNMG160404-GT	16.5	9.525	4.76	3.81	0.4	●	●
	TNMG160408-GT	16.5	9.525	4.76	3.81	0.8	●	●
	TNMG160412-GT	16.5	9.525	4.76	3.81	1.2	●	●
	TNMG160408-GR	16.5	9.525	4.76	3.81	0.8	●	●
	TNMG160412-GR	16.5	9.525	4.76	3.81	1.2	●	●
	TNMG160404R-M	16.5	9.525	4.76	3.81	0.4	●	●
	TNMG160404L-M	16.5	9.525	4.76	3.81	0.4	●	●
	TNMG160408R-M	16.5	9.525	4.76	3.81	0.8	●	●
	TNMG160408L-M	16.5	9.525	4.76	3.81	0.8	●	●

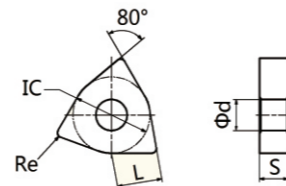
Note : ○ Make to order ● Recommended grade △ Accept reservation

35° VN□□ with hole



Insert Shape	Designation	Specification (mm)					Grade	
		L	IC	S	ød	Re	CVD coating	WS8125   WS8135
	VNMG160404-GF	16.6	9.525	4.76	3.81	0.4	●	
	VNMG160408-GF	16.6	9.525	4.76	3.81	0.8	●	
	VNMG160404-GT	16.6	9.525	4.76	3.81	0.4	●	●
	VNMG160408-GT	16.6	9.525	4.76	3.81	0.8	●	●
	VNMG160412-GT	16.6	9.525	4.76	3.81	1.2	●	●

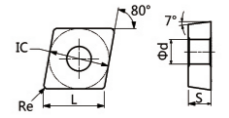
80° WN□□ with hole



Insert Shape	Designation	Specification (mm)					Grade	
		L	IC	S	ød	Re	CVD coating	WS8125   WS8135
	WNMG080404-GF	8.7	12.7	4.76	5.16	0.4	●	
	WNMG080408-GF	8.7	12.7	4.76	5.16	0.8	●	
	WNMG080404-GT	8.7	12.7	4.76	5.16	0.4	●	●
	WNMG080408-GT	8.7	12.7	4.76	5.16	0.8	●	●
	WNMG080412-GT	8.7	12.7	4.76	5.16	1.2	●	●
	WNMG080408-GR	8.7	12.7	4.76	5.16	0.8	●	●
	WNMG080412-GR	8.7	12.7	4.76	5.16	1.2	●	●
	WNMG080408R-M	8.7	12.7	4.76	5.16	0.8	●	●
	WNMG080408L-M	8.7	12.7	4.76	5.16	0.8	●	●

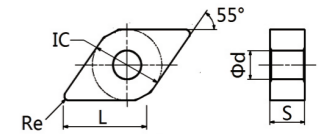
Note : ○ Make to order ● Recommended grade △ Accept reservation

80° CC□□ with hole



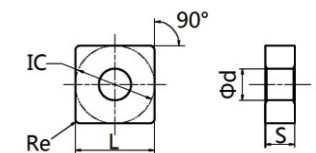
Insert Shape	Designation	Specification (mm)					Grade	
		L	IC	S	ød	Re	CVD coating	WS8125
	CCMT060204-TM	6.40	6.35	2.38	2.8	0.4	●	
	CCMT060208-TM	6.40	6.35	2.38	2.8	0.8	●	
	CCMT09T304-TM	9.70	9.525	3.97	4.4	0.4	●	
	CCMT09T308-TM	9.70	9.525	3.97	4.4	0.8	●	
	CCMT120404-TM	12.90	12.7	4.76	5.56	0.4	●	
	CCMT120408-TM	12.90	12.7	4.76	5.56	0.8	●	
	CCMT120412-TM	12.90	12.7	4.76	5.56	1.2	●	

55° DC□□ with hole



Insert Shape	Designation	Specification (mm)					Grade	
		L	IC	S	ød	Re	CVD coating	WS8125
	DCMT070204-TM	7.80	6.35	2.38	2.8	0.4	●	
	DCMT070208-TM	7.80	6.35	2.38	2.8	0.8	●	
	DCMT11T304-TM	11.60	9.525	3.97	4.4	0.4	●	
	DCMT11T308-TM	11.60	9.525	3.97	4.4	0.8	●	
	DCMT11T312-TM	11.60	9.525	3.97	4.4	1.2	●	

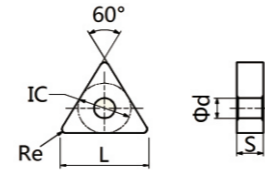
90° SC□□ with hole



Insert Shape	Designation	Specification (mm)					Grade	
		L	IC	S	ød	Re	CVD coating	WS8125
	SCMT09T304-TM	9.53	9.525	3.97	4.4	0.4	●	
	SCMT09T308-TM	9.53	9.525	3.97	4.4	0.8	●	
	SCMT120404-TM	12.70	12.7	4.76	5.56	0.4	●	
	SCMT120408-TM	12.70	12.7	4.76	5.56	0.8	●	
	SCMT120412-TM	12.70	12.7	4.76	5.56	1.2	●	

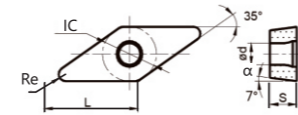
Note : ○ Make to order ● Recommended grade △ Accept reservation

60° TC□□with hole



Insert Shape	Designation	Specification (mm)					Grade	
		L	IC	S	ød	Re	CVD coating	WS8125
	TCMT110204-TM	11.00	6.35	2.38	2.8	0.4	●	●
	TCMT110208-TM	11.00	6.35	2.38	2.8	0.8	●	●
	TCMT16T304-TM	16.50	9.525	4.76	4.4	0.4	●	●
	TCMT16T308-TM	16.50	9.525	4.76	4.4	0.8	●	●
	TCMT16T312-TM	16.50	9.525	4.76	4.4	1.2	●	●

35° V□□□with hole



Insert Shape	Designation	Specification (mm)						Grade	
		L	IC	S	ød	Re	α	CVD coating	WS8125
	VBMT110304-TM	11.10	6.35	3.18	2.8	0.4	5	●	●
	VBMT110308-TM	11.10	6.35	3.18	2.8	0.8	5	●	●
	VBMT160404-TM	16.60	9.525	4.76	3.81	0.4	5	●	●
	VBMT160408-TM	16.60	9.525	4.76	3.81	0.8	5	●	●
	VBMT160412-TM	16.60	9.525	4.76	3.81	1.2	5	●	●
	VCMT110304-TM	11.10	6.35	3.18	2.8	0.4	7	●	●
	VCMT110308-TM	11.10	6.35	3.18	2.8	0.8	7	●	●
	VCMT160404-TM	16.60	9.525	4.76	3.81	0.4	7	●	●
	VCMT160408-TM	16.60	9.525	4.76	3.81	0.8	7	●	●
	VCMT160412-TM	16.60	9.525	4.76	3.81	1.2	7	●	●

Note : ○ Make to order ● Recommended grade △ Accept reservation

## Application case

- Workpiece: Automobile Hub unit 55# steel
- Processing methods: Wet continuous of top circle, strong intermittent of end face semi-finish machining
- Cutting condition:  $V_c=253\text{m/min}$ ,  $f=0.24\text{mm/r}$ ,  $a_p=0.8\text{mm}$
- Insert type: WNMG080408-GT WS8135



WS8135 with GT chipbreaker is suitable for continuous / intermittent machining.

Cutting property	
WNMG080408-GT WS8135	70~80pcs/edge
Brand A	60~70pcs/edge

Increase 20%

- Workpiece: Automobile Hub unit 55# steel
- Processing methods: Wet continuous of top circle, strong intermittent of end face finish machining
- Cutting condition:  $V_c=251\text{m/min}$ ,  $f=0.22\text{mm/r}$ ,  $a_p=0.6\text{mm}$
- Insert type: WNMG080408-GT WS8135



WS8135 with GT chipbreaker is suitable for both continuous and intermittent finish machining, and also good for surface quality of workpiece.

Cutting property	
WNMG080408-GT WS8135	80pcs/edge
Brand A	40~50pcs/edge

Increase 40%

- Workpiece: 55# steel
- Processing methods: The intrados of CV JOINT continuous finish/rough machining
- Cutting condition:  $V_c=320\text{m/min}$ ,  $f=0.24\sim 0.27\text{mm/r}$ ,  $a_p=0.5\sim 1.5\text{mm}$
- Insert type: TNMG160408-GF WS8125



GF chipbreaker has good performance of chip breaking and flowing ensures improved surface quality of workpiece especially in finish machining.

Cutting property	
TNMG160408-GF WS8125	130pcs/edge
Brand A	120pcs/edge

- Workpiece: Hub&outer rings component 65Mn steel
- Processing methods: Wet continuous of top circle and end face semi-finish/finish machining
- Cutting condition:  $V_c=259\text{m/min}$ ,  $f=0.29\text{mm/r}$ ,  $a_p=0.8\text{mm}$
- Insert type: WNMG080412-GT WS8125



WS8125 with GT chipbreaker is suitable for both continuous and intermittent semi-finish machining under medium-high speed cutting conditions, which effectively reduces vibration of the body and improves the tool life.

Cutting property	
WNMG080412-GT WS8125	89pcs/edge
Brand A	17~50pcs/edge

- Workpiece: GCr15 bearing
- Processing methods: Wet rough/finish machining for facing A of top circle and chamfer machining
- Cutting condition:  $V_c=380\text{m/min}$ ,  $f=0.18\sim 0.33\text{mm/r}$ ,  $a_p=1\text{mm}$
- Insert type: WNMG080408-GT WS8125



WS8125 with GT chipbreaker is good for controlling chip breaking and greatly improves wear resistance of inserts under high-speed cutting conditions.

Cutting property	
WNMG080408-GT WS8125	150pcs/edge
Brand A	120pcs/edge

- Workpiece: Hub&outer rings component 55# steel
- Processing methods: Wet continuous of top circle, intermittent of end face semi-finish/finish machining
- Cutting condition:  $V_c=245\text{m/min}$ ,  $f=0.2\sim 0.3\text{mm/r}$ ,  $a_p=0.5\sim 8\text{mm}$
- Insert type: WNMG080408-GT WS8135



New grade WS8135 has excellent performance compared with previous grade.

Cutting property	
WNMG080408-GT WS8135	105pcs/edge
Brand A	78pcs/edge

- Workpiece:CF53
- Processing methods:Wet continuous of top circle , intermittent semi-finish machining
- Cutting condition: $V_c=354\text{m/min}$  ,  $f=0.345\text{mm/r}$  ,  $a_p=0.5\text{mm}$
- Insert type:DNMG150408-GT WS8135



WS8135 with GT chipbreaker is suitable for both continuous and intermittent semi-finish machining under high-speed and finishing cutting conditions, which has great universal.

Cutting property	
DNMG150408-GT WS8135	40~50pcs/edge
Brand A	40~50pcs/edge

Increase 10%

- Workpiece:42CrMo tempering to HRC38
- Processing methods:Continuous of end face and top circle machining with with emulsion
- Cutting condition: $V_c=125\text{m/min}$  ,  $f=0.25\text{mm/r}$  ,  $a_p=1.0\sim 2.5\text{mm}$
- Insert type:WNMG080408-GF WS8125

GF chipbreaker with sharp cutting edge effectively reduces vibration of the tool holder and cut lightly at low speed.

Cutting property	
WNMG080408-GF WS8125	134+pcs/edge
Brand A	76pcs/edge

Increase 40%

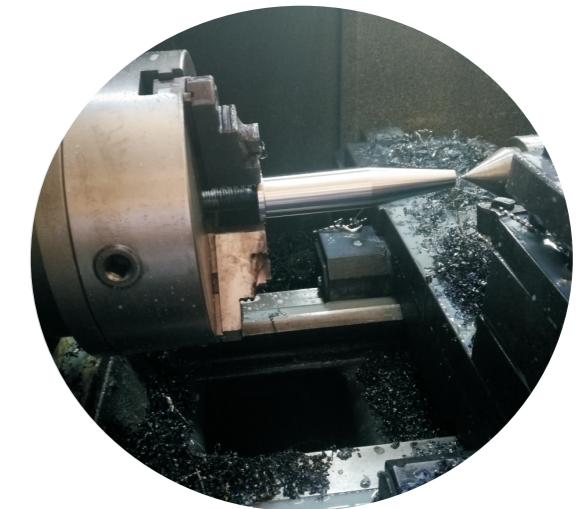
- Workpiece:45# steel
- Processing methods:Continuous of top circle machining with with emulsion
- Cutting condition: $V_c=175\text{m/min}$  ,  $f=0.2\sim 0.35\text{mm/r}$  ,  $a_p=2.0\text{mm}$
- Insert type:TNMG160408-GT WS8135



WS8135 has good surface quality of workpiece and high stability of dimensional accuracy, which enhances the inserts life.

Cutting property	
TNMG160408-GT WS8135	150pcs/edge
Brand A	100pcs/edge

Increase 30%



- Workpiece: 27SiMn
- Processing methods: Dry rough machining
- Cutting condition:  $V_c=100m/min$ ,  $f=0.4mm/r$ ,  $a_p=2.5mm$
- Insert type: TNMG160408R-M WS8125



M chipbreaker with large rake angle and wide chipbreaker reduce cutting resistance and has effective chip control which is suitable for high cutting depth and high feed rate under low-speed and roughing cutting condition.

Cutting property	
TNMG160408R-M WS8125	50~60pcs/edge
Brand A	20pcs/edge

Increase 40%

- Workpiece: 45# steel
- Processing methods: Wet continuous of inner hole rough machining
- Cutting condition:  $V_c=238m/min$ ,  $f=0.14\sim0.26mm/r$ ,  $a_p=1mm$
- Insert type: CCMT09T308-TM WS8125



WS8125 with TM positive chipbreaker is suitable for continuous of inner hole rough/semi-finish machining, which has effective chip control and stable tool life, reliable quality.

Cutting property	
CCMT09T308-TM WS8125	882、908pcs/edge
Brand A	600~850pcs/edge

Increase 30%

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---

---