



株洲华锐精密工具股份有限公司

Zhuzhou Huarui Precision Cutting Tools Co., Ltd.

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2021-2022 产品样本

COMPREHENSIVE CATALOGUE

株洲华锐精密工具股份有限公司

Zhuzhou Huarui Precision Cutting Tools Co., Ltd.



Company Profile

Zhuzhou Huarui Precision Cutting tools Co., Ltd. (Stock symbol: 688059) was established in March 2007 with a registered capital of 44,008,000 CNY. As an advanced cutting tool manufacturer in China, HUARUI upholding the development strategy of "Independent Research & Development, Continuous Innovation", focus on the R&D, manufacture, sales and application of cemented carbide CNC cutting insert, constantly pursuing the improvement in overall performance and optimization in fabrication technology.

Relying on the multi-year technological accumulation and skilled talents, together with the import, digest assimilate of advanced equipment, HUARUI has formed their own independent core technology in the fields of "Substrate material", "Chip-breaker geometry", "Precision forming" and "Surface coating", and developed "Turning series", "Milling series" and "Drilling series" as the three major product range.

HUARUI is proud of their core product being the domestic leading level for their efficiency, long service life and cutting accuracy, successfully entered the high end markets which long time dominated by Europe, USA, Japan and Korea companies, Especially the milling series, it has formed a significant competitive advantage.

HUARUI has been awarded as the "National High-tech Enterprise", "National Small Giant Enterprise", "Hunan Province Recognized Enterprise Technology Center" and "100 Major Scientific and Technological Innovation Project 2020 Implementation Plan enterprise". Their "HARDSTONE" brand has been selected as the "Customer Satisfaction Brand" in the 4th Cutting Tool User Survey. And the independently developed FM series milling inserts has been awarded the "Golden Edge Awards" and "Ringier Technology Innovation Awards".



HONOR



EQUIPMENT

HUARUI has a full set of process equipment and complete production line for CNC cutting insert manufacturing from powder material preparation, mould making, compression forming, pressure sintering, grinding, coating, post coating treatment, etc. At the meantime, HUARUI adopt the R&D strategy of "Concentrate advantages to breakthrough each single product", focusing on the research and innovation of cemented carbide CNC cutting insert at the areas of substrate materials, chip breaker geometry, precision molding and surface coating, continuously improving the machining accuracy, efficiency and extend the service life. After more than ten years scientific research innovation, HUARUI has mastered lots of independent core technologies, possess strong independent R&D and design capabilities, and the overall technical strength has achieved the national advanced level.



CATALOGUE



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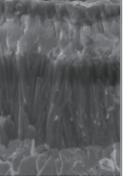
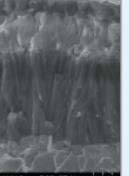
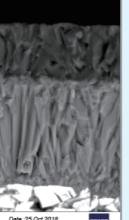
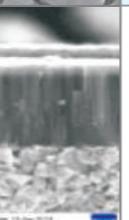
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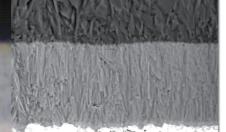
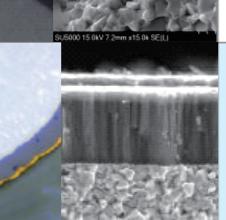
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The instruction of grade

Grade	Coating Composition					Characteristics	Application	ISO	Wear Resistance ← → Toughness									
	Coating Type	Coating Color	Pictures	Component	Range				01	05	10	15	20	25	30	35	40	45
A1	HS8115	CVD	Double color black-yellow		TiN+MT -TiCN+Al2O3 +TiN	Thick	The proprietary substrate of gradient alloy structure formed by special sintering process, together with thick TiCN, thick Al2O3, and sophisticated coating post treatment, not only makes the coating more beautiful, but also greatly improves the wear resistance. It is very suitable for finishing and semi-finishing of carbon steel and alloy steel.	Suitable for stable turning environment pursuit high wear resistance. For ordinary steel processing with good cooling, the linear velocity can be over 350m/min	P10~P20									
	HS8125	CVD	Double color black-yellow		TiN+MT -TiCN+Al2O3 +TiN	Thick	Cemented carbide substrate with rich cobalt surface structure, with uniform particle size and high bending strength. The unique sintering technology create a gradient alloy structure, widely used for various steel machining.	It is a preferred grade for general purpose steel turning, it has strong comprehensive performance no matter from finishing to roughing, or from low speed to high speed machining, it can also used for general-purpose interrupted machining.	P15~P30									
	HS8123	CVD	Golden yellow		TiN+MT -TiCN+Al2O3 +TiN	Thick	Medium-thick TiCN combined with thinner alumina, greatly reduced the processing impact, in the mean time, take both toughness and wear resistance into account.	It is used for high speed parting and grooving of general-purpose steel parts.	P15~P30									
	HS8133	CVD	Golden yellow		TiN+MT -TiCN+Al2O3 +TiN	Thick	It has adopted the strengthen binder phase which can effectively inhibit the high temperature plastic deformation of the substrate; The fabrication of high binder phase content functional gradient layer effectively controlled the crack propagation of the coating; Uniform distributed hard phase particles considered both the toughness and wear resistance of the substrate; The medium thick TiCN coupled with thin alumina coat, provide superior performance for parting and grooving process of steel material.	It is an upgraded grade with better stability, design for high speed parting off and grooving of general-purpose steel parts.	P15-P35									
	HS7120	CVD	yellow		TiN+MT -TiCN+Al2O3 +TiN	Thick	It has adopted the substrate with better high temperature hardness which provide good plastic deformation resistance under high speed cutting process; The compound multi-layer coating effectively blocked the longitudinal expansion of the coating cracks during the cutting process; Coupled with the fine coating post-treatment technology, provide a much more better, delicate and smooth coating surface. Suitable for roughing and semi-finishing of various types of stainless steel.	It is suitable for high speed and high efficiency roughing of stainless steel.	M15-M30									
	HS7125	PVD	Gray black		AlTiN	Thin	The precise and unique coating formulations, together with innovative high-performance coating processes, provide a delicate, smooth and dropletless coating, which has the advantages of low coefficient of friction, high antioxidant temperature, high nano hardness, etc. This coating can match different edge requirements to ensure optimum comprehensive performance for various chip breaker design.	Preferred grade for stainless steel parting off and grooving. It can also meet the requirements of medium and low speed parting and grooving of steel and cast iron.	P15~P30 M15~M30 K15~K30									
	HS7225	PVD	Brass-yellow		TiAlSiN	Thin	The precise and unique coating formulation with Si+ elements added, together with innovative high-performance coating processes, provide a delicate, smooth and dropletless coating, which has the advantages of low coefficient of friction, high antioxidant temperature, high nano hardness, etc. This coating can match different edge requirements to ensure optimum comprehensive performance for various chip breaker design.	It is an exclusive grade for stainless steel turning.	M15-M30									

The instruction of grade

Grade	Coating Composition					Characteristics	Application	ISO	Wear Resistance ← → Toughness									
	Coating Type	Coating Color	Pictures	Component	Range				01	05	10	15	20	25	30	35	40	45
HS6115	CVD	Black		TiN+MT -TiCN+Al2O3	Thick	The thickened CVD black coating with special coating post-treatment, provide excellent wear resistance and toughness. Combined with the corresponding substrate, it has better universality and widely used in all kinds of cast iron machining.	It is a preferred grade for the turning of gray iron and ductile cast iron, with excellent comprehensive performance, it is also suitable for general interrupted machining, and low speed roughing of quenched steel and high strength steel.	K10-K20										
HS6120	CVD	Hole Yellow		TiN+MT -TiCN+Al2O3	Thick	The thick CVD black coating with special coating post-treatment, provide excellent wear resistance and toughness. Combined with the corresponding substrate, it has better universality and widely used in all kinds of cast iron machining.	It is a preferred grade for the turning of gray iron and ductile cast iron, with excellent comprehensive performance, it is also suitable for general interrupted machining, and low speed roughing of quenched steel and high strength steel.	K10-K20										
HS5125	PVD	Gray		AlTiN	Thick	The special proportion of ingredients, with rare metals added, actively improves bending strength and heat-attack resistance of the substrate, together with the highest level cutting nose and cutting edge treatment technology, combined with latest nano coating, greatly ensured the high hardness, wear resistance and sharpness of the cutting insert.	It is an exclusive grade for thread machining of various materials like steel, stainless steel, cast iron, etc.	P10-P25 M10-M25 K10-K25										
HS5131	PVD	Golden yellow		AlTiN+TiN	Thick	The ultra-fine particle substrate material and special ingredient ratio actively improves the bending strength and wear resistance of the substrate, greatly reduced the crack risk of cutting edge. The latest PVD nano coating, present small friction coefficient and strong sticking resistance.	It is a general-purpose grade for drilling.	P20-P35 M20-M35 K20-K35										

A1

Insert identification system

A1



Clearance angle of main cutting edge		Tolerance (mm)								
Code	Clearance angle	Code	Clearance angle	m	m	S				
A	3°	B	5°							
C	7°	D	15°							
E	20°	F	25°							
G	30°	N	0°							
P	11°	O	Others							
				◆ M-level tolerance(Identified by shape) ◆ Tolerance of tool tip height (mm)						
A	±0.005	±0.025	±0.025	Inscribed circle	Regular triangle	Square	Rhombus with 80°	Rhombus with 55°	Rhombus with 35°	Round
F	±0.005	±0.013	±0.025	6.35	±0.08	±0.08	±0.08	±0.11	±0.16	---
C	±0.013	±0.025	±0.025	9.525	±0.08	±0.08	±0.08	±0.11	±0.16	---
H	±0.013	±0.013	±0.025	12.7	±0.13	±0.13	±0.13	±0.15	---	---
E	±0.025	±0.025	±0.025	15.875	±0.15	±0.15	±0.15	±0.18	---	---
G	±0.025	±0.025	±0.13	19.05	±0.15	±0.15	±0.15	±0.18	---	---
J	±0.005	±0.05±0.13	±0.025	25.4	---	±0.18	---	---	---	---
◆ Inscribed circle(ΦD)Tolerance										
K	±0.013	±0.05±0.13	±0.025	Inscribed circle	Regular triangle	Square	Rhombus with 80°	Rhombus with 55°	Rhombus with 35°	Round
L	±0.025	±0.05±0.13	±0.025	6.35	±0.05	±0.05	±0.05	±0.05	±0.05	---
M	±0.08±0.18	±0.05±0.13	±0.13	9.525	±0.05	±0.05	±0.05	±0.05	±0.05	±0.05
N	±0.08±0.18	±0.05±0.13	±0.025	12.7	±0.08	±0.08	±0.08	±0.08	---	±0.08
U	±0.13±0.38	±0.08±0.25	±0.13	15.875	±0.10	±0.10	±0.10	±0.10	---	±0.10
				19.05	±0.10	±0.10	±0.10	±0.10	---	±0.10
				25.4	---	±0.13	---	---	---	±0.13

32.00			32						12	12.70
31.75			31						10	11.11
25.40			25	25					T9	9.72
25.00	25	25	25						09	9.52
20.00			20						07	7.94
19.05	19		19	19	33				T6	6.75
16.00		19	16						06	6.35
15.875	16		15	16	27				T5	5.95
12.70	12	15	12	12	22	22	08		05	5.56
12.00			12						T4	4.96
10.00			10						04	4.76
9.525	09	11	09	09	16	16	06		T3	3.97
8.00			08						03	3.18
6.35	06	07			11	11			T2	2.58
6.00			06						02	2.38
5.56					09				T1	1.98
5.50			05						01	1.59
3.97					06				T0	0.99
									00	0.79
Diameter of IC(mm)	C	D	R	S	T	V	W	K	Code	Thickness(mm)
Insert Shape										

Length of Cutting Edge

12 04 08 - GT (ISO)

4 3 2 (inch)

Inscribed Circle

Thickness

Radius

Code	Diameter of IC(mm)
2	6.35
3	9.525
4	12.7
5	15.875
6	19.05
8	25.4

Node	Thickness (mm)	Comments
2	3.18	
3	4.76	
4	6.35	
5	7.94	
6	9.52	

Nose Radius (mm)	0.2
0.4	0.4
0.8	0.8
1.2	1.2
1.6	1.6
2.0	2.0
2.4	2.4
	Diameter Inserts (mm)

Chip-Breaker Code		
GT	M	MT
		
BR	BM	BF
		
AK	Universal	Non
		

Overview

● Negative insert

A1



CNMG*-MT CMNG*-M CNMG*-GT CNMA* CNMG* CNMG*-GH CNMG*-BF CNMG*-BM CNMG*-S CNMG*-MA CNMG*-MS



DNMG*-MT DNMG*-GT DNMA* DNMG* DNMG*-BF DNMG*-BM DNMG*-S



SNMG*-MT SNMG*-M SNMG*-GT SNMA* SNMG* SNMG*-BF SNMG*-BM SNMG*-S SNMG*-MA SNMG*-MS



TNMG*-MT TNMG*-M TNMG*-GT TNMA* TNMG* TNMG*-BF TNMG*-BM TNMG*-S TNMG*-MA TNMG*-MS



VNMG*-MT VNMG*-GT VNMA* VNMG* VNMG*-BF VNMG*-BM



WNMG*-MT WNMG*-M WNMG*-GT WNMA* WNMG* WNMG*-GH WNMG*-BF WNMG*-BM

● Positive Insert

A1



E-CCMT* E-DCMT-MV E-SCMT E-TCMT E-VBMT-MV

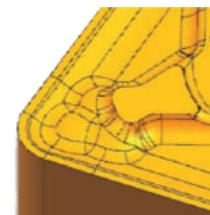
Introduction of chip-breaker

Inserts For Steel Machining

A1

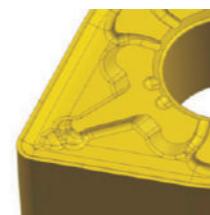
GT

- Used for semi-finishing and roughing
- Cutting edge is designed to combine sharpness and strength.
- Variable rake angles designed with spherical chip-breaker, it is suitable for a wide range of cutting.
- Good chip breaking performance and versatility.



MT

- Smooth connection of +6° rake angles and rake face makes the chip removal fluently.
- High cutting edge strength and good versatility.
- Recommended cutting parameters: ap:1.00-5.00 fn:0.20-0.50



R/L-M

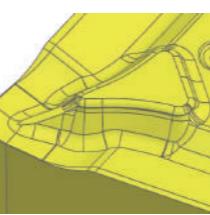
- Used for light-load semi-finishing, enables it to cut lightly and easily and stably, which is suitable for turning of poor rigidity at moderate or low speed.
- Improves edge security and reliability in interrupted and rough machining.
- Good chip breaking performance and versatility.



Stainless Steel Machining

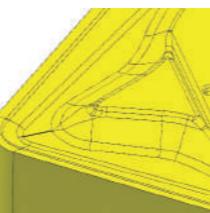
BF

- Used for finishing and semi-finishing.
- Sharp cutting edge, small cutting resistance.
- Good chip breaking performance at small depth of cut.
- Special edge treatment reduce the occurrence of built-up edges.



BM

- Used for semi-finishing and roughing.
- Cutting edge is designed to combine sharpness and strength with a wide range of cutting.
- Good chip breaking performance, small cutting resistance.



Stainless Steel Machining

A1

R/L-S

- Used for semi-finishing and roughing, with M-type materials, double-sided chip-breaker , sharp cutting edge and proper chip-breaker width.
- It is suitable for the adhesive materials such as stainless steel, mild steel, and difficult-to-process materials machining at low speed.
- Recommended cutting parameters: ap:0.8-4.5 fn:0.15-0.35



MA

- Used for semi-finishing and roughing, with M-type materials, double-sided chip-breaker , it is suitable for machining of steel, stainless steel,cast iron, etc.
- aterials with good versatility. Impact resistance of cutting edge is improved in addition to high cutting edge strength.
- Recommended cutting parameters: ap:0.50-4.00 fn:0.20-0.50



MS

- M-type materials, double-sided chip-breaker with good versatility.
- The all round chip-breaker is used for stainless steel, mild steel and difficult-to-machine materials with good versatility.
- Sharp cutting edge, lightly and easily cutting enables it to rough and finish at low speed.
- Recommended cutting parameters: ap:0.20-4.00 fn:0.15-0.40



MV

- The combination of 0.1mm land and large rake angle, with the sharp cutting edge and spherical chip-breaker and good chip breaking performance.
- Used for steel and stainless steel general machining.
- Recommended cutting parameters:ap:0.1~2.0 fn:0.06~2.0



Non

- The combination of 0.1mm land and large rake angle, is designed to combine sharpness and strength. It is suitable for machining of steel, stainless steel,cast iron, etc.
- Recommended cutting parameters ap:0.2~2.0 fn:0.08~2.0



Introduction of chip-breaker

Cast iron machining

A1

All round

- ◆ Double-sided chip-breaker with good versatility for K-type materials.
- ◆ Recommended cutting parameters: ap:0.20-8.00 fn:0.15-0.60

GH

- ◆ The combination of wide land and chip-breaker is suitable for interrupted turning at high feed.
- ◆ Recommended cutting parameters: ap:1.50~ 6.00, fn: 0.24~ 0.6

Without chip-breaker

- ◆ Brittle and high hardness materials with high cutting edge strength ensure a perfect fit of holder.
- It is suitable for machining cast iron under unstable working conditions.

Parting and grooving

M

- ◆ Special designed chip-breaker for parting , makes the chip narrow down and controlling the chipping flow direction valid.

G

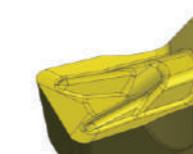
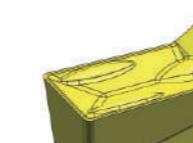
- ◆ Used for parting, grooving and turning etc. Enables it to cut lightly and easily, unobstructed chip flow and improve the surface quality.

T

- ◆ With specially designed flank, the cutting resistance can reduce by 20% and also reduces the vibration in machining and improve the surface quality.
- Specially designed cutting edge provides excellent chip breaking performance and can be transverse cutting feed.

No

- ◆ Without chip-breaker
- ◆ It is suitable for machining of poor rigidity and easy to shake at low speed, with large rake angle, wide chip-breaker , lightly and easily cutting and small vibration.



Negative inser

80° CN** With Hole

● Good working condition ● Normal working condition ■ Bad working condition

Shape	Description	80° CN** With Hole					CVD Coating			PVD Coating			Cutting Parameters							
		L	IC	S	ød	Re	HS8115	HS8125	HS8133	HS6115	HS7120	HS5115	HS5120	HS5130	HS5125	HS7125	HS7225	Ap	Fn	
CNMG120404-MT	12.9 12.7 4.76 5.16 0.4	● ●																0.80-5.0	0.15-0.25	
	CNMG120408-MT	12.9 12.7 4.76 5.16 0.8	● ●																1.00-5.00	0.2-0.4
	CNMG120412-MT	12.9 12.7 4.76 5.16 1.2	● ●																1.00-5.00	0.25-0.5
CNMG120404R-M	12.9 12.7 4.76 5.16 0.4	● ●																	0.80-5.00	0.2-0.5
	CNMG120408R-M	12.9 12.7 4.76 5.16 0.8	● ●																1.00-5.00	0.25-0.5
CNMG120404L-M	12.9 12.7 4.76 5.16 0.4	● ●																	0.80-5.00	0.2-0.5
	CNMG120408L-M	12.9 12.7 4.76 5.16 0.8	● ●																1.00-5.00	0.25-0.5
CNMG120404-GT	12.9 12.7 4.76 5.16 0.4	● ●																	0.80-5.00	0.2-0.25
	CNMG120408-GT	12.9 12.7 4.76 5.16 0.8	● ●																1.00-5.00	0.2-0.4
	CNMG120412-GT	12.9 12.7 4.76 5.16 1.2	● ●																1.00-5.00	0.2-0.5
CNMA120404	12.9 12.7 4.76 5.16 0.4	●																	1.0-4.5	0.15-0.25
	CNMA120408	12.9 12.7 4.76 5.16 0.8	●																1.0-4.5	0.15-0.4
	CNMA120412	12.9 12.7 4.76 5.16 1.2	●																1.0-4.5	0.15-0.55
	CNMA120416	12.9 12.7 4.76 5.16 1.6	●																1.0-4.5	0.15-0.60
	CNMA160608	16.1 15.875 6.35 6.35 0.8	●																2.0-6.0	0.15-0.4
	CNMA160612	16.1 15.875 6.35 6.35 1.2	●																2.0-6.0	0.15-0.55
	CNMA160616	16.1 15.875 6.35 6.35 1.6	●																2.0-6.0	0.15-0.7
	CNMA190612	19.3 19.05 6.35 7.94 1.2	●																3.0-8.0	0.15-0.55
CNMA190616	19.3 19.05 6.35 7.94 1.6	●																	3.0-8.0	0.15-0.8
	CNMG120404	12.9 12.7 4.76 5.16 0.4	●																1.0-4.5	0.15-0.25
	CNMG120408	12.9 12.7 4.76 5.16 0.8	●																1.0-4.5	0.15-0.4
	CNMG120412	12.9 12.7 4.76 5.16 1.2	●																1.0-4.5	0.15-0.55
	CNMG120416	12.9 12.7 4.76 5.16 1.6	●																1.0-4.5	0.15-0.60
	CNMG160608	16.1 15.875 6.35 6.35 0.8	●																2-6.0	0.15-0.4
	CNMG160612	16.1 15.875 6.35 6.35 1.2	●																2-6.0	0.15-0.55
	CNMG160616	16.1 15.875 6.35 6.35 1.6	●																2-6.0	0.15-0.7
CNMG190612	19.3 19.05 6.35 7.94 1.2	●																	3-8.0	0.15-0.55
	CNMG190616	19.3 19.05 6.35 7.94 1.6	●																3-8.0	0.15-0.8
	CNMG120408-GH	12.9 12.7 4.76 5.16 0.4	●																1-4.5	0.15-0.4
	CNMG120412-GH	12.9 12.7 4.76 5.16 0.8	●																1-4.5	0.15-0.55

Negative insert

A1

80° CN** With Hole

- Good working condition
- Normal working condition
- ☒ Bad working condition

Shape	Description						CVD Coating		PVD Coating		Cutting Parameters										
		L	IC	S	ød	Re	HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	HS5115	HS5120	HS5130	HS5131	HS5125	HS7125	HS7225	Ap
	CNMG120404-BF	12.9	12.7	4.76	5.16	0.4													●	0.10-2.00	0.08-0.18
	CNMG120408-BF	12.9	12.7	4.76	5.16	0.8													●	0.10-2.00	0.08-0.18
	CNMG120404-BM	12.9	12.7	4.76	5.16	0.4							●						●	0.40-5.50	0.10-0.25
	CNMG120408-BM	12.9	12.7	4.76	5.16	0.8							●						●	0.50-5.50	0.10-0.40
	CNMG120412-BM	12.9	12.7	4.76	5.16	1.2							●						●	0.80-5.50	0.10-0.55
	CNMG120404R-S	12.9	12.7	4.76	5.16	0.4													●●	0.5~4.0	0.05~0.25
	CNMG120408R-S	12.9	12.7	4.76	5.16	0.8													●●	0.5~4.5	0.05~0.35
	CNMG120404L-S	12.9	12.7	4.76	5.16	0.4													●●	0.5~4.0	0.05~0.25
	CNMG120408L-S	12.9	12.7	4.76	5.16	0.8													●●	0.5~4.5	0.05~0.35
	CNMG120404-MA	12.9	12.7	4.76	5.16	0.4													●	0.80-4.00	0.15-0.25
	CNMG120408-MA	12.9	12.7	4.76	5.16	0.8													●	0.80-5.00	0.20-0.5
	CNMG120404-MS	12.9	12.7	4.76	5.16	0.4													●●	0.50-4.00	0.10-0.25
	CNMG120408-MS	12.9	12.7	4.76	5.16	0.8													●●	0.50-5.00	0.10-0.4

Negative insert

A1

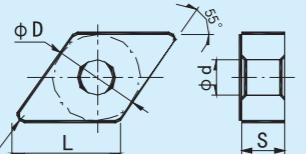
55° DN** With Hole

- Good working condition
- ◆ Normal working condition
- ☒ Bad working condition

Negative insert
A1

55° DN** With Hole

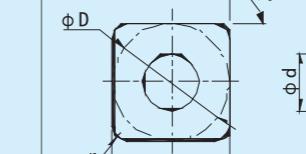
- Good working condition
- Normal working condition
- ✖ Bad working condition

Shape	Description						CVD Coating		PVD Coating		Cutting Parameters	
		L	IC	S	ød	Re	Ap (mm)	Fn (mm/r)				
	DNMG150404-BM	15.5	12.7	4.76	5.16	0.4		●	●	●	0.40-5.50	0.10-0.25
	DNMG150408-BM	15.5	12.7	4.76	5.16	0.8		●	●	●	0.50-5.50	0.10-0.40
	DNMG150412-BM	15.5	12.7	4.76	5.16	1.2		●	●	●	0.80-5.50	0.10-0.55
	DNMG150604-BM	15.5	12.7	6.35	5.16	0.4		●	●	●	0.40-5.50	0.10-0.25
	DNMG150608-BM	15.5	12.7	6.35	5.16	0.8		●	●	●	0.50-5.50	0.10-0.40
	DNMG150612-BM	15.5	12.7	6.35	5.16	1.2		●	●	●	0.80-5.50	0.10-0.55
	DNMG150404L-S	15.5	12.7	4.76	5.16	0.4		●●	0.5~4.0	0.05~0.25		
	DNMG150408L-S	15.5	12.7	4.76	5.16	0.8		●●	0.5~4.0	0.05~0.35		
	DNMG150604L-S	15.5	12.7	6.35	5.16	0.4		●●	0.5~4.0	0.05~0.25		
	DNMG150608L-S	15.5	12.7	6.35	5.16	0.8		●●	0.5~4.0	0.05~0.35		
	DNMG150404R-S	15.5	12.7	4.76	5.16	0.4		●●	0.5~4.0	0.05~0.25		
	DNMG150408R-S	15.5	12.7	4.76	5.16	0.8		●●	0.5~4.0	0.05~0.35		
	DNMG150604R-S	15.5	12.7	6.35	5.16	0.4		●●	0.5~4.0	0.05~0.25		
	DNMG150608R-S	15.5	12.7	6.35	5.16	0.8		●●	0.5~4.0	0.05~0.35		

Negative insert
A1

90° SN** With Hole

- Good working condition
- Normal working condition
- ✖ Bad working condition

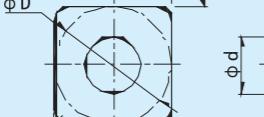
Shape	Description						CVD Coating		PVD Coating		Cutting Parameters		
		L	IC	S	ød	Re	Ap (mm)	Fn (mm/r)					
	SNMG120404-MT	12.7	12.7	4.76	5.16	0.4	●●					0.80-5.0	0.15-0.25
	SNMG120408-MT	12.7	12.7	4.76	5.16	0.8	●●					1.00-5.00	0.2-0.4
	SNMG120404R-M	12.7	12.7	4.76	5.16	0.4	●●					0.80-5.00	0.2-0.5
	SNMG120408R-M	12.7	12.7	4.76	5.16	0.8	●●					1.00-5.00	0.25-0.5
	SNMG120404L-M	12.7	12.7	4.76	5.16	0.4	●●					0.80-5.00	0.2-0.5
	SNMG120408L-M	12.7	12.7	4.76	5.16	0.8	●●					1.00-5.00	0.25-0.5
	SNMG120404-GT	12.7	12.7	4.76	5.16	0.4	●●					0.80-5.00	0.2-0.25
	SNMG120408-GT	12.7	12.7	4.76	5.16	0.8	●●					1.00-5.00	0.2-0.4
	SNMG120412-GT	12.7	12.7	4.76	5.16	1.2	●●	●●				1.00-5.00	0.2-0.5
	SNMA120404	12.7	12.7	4.76	5.16	0.4		●				1-4.5	0.15-0.25
	SNMA120408	12.7	12.7	4.76	5.16	0.8		●				1-4.5	0.15-0.4
	SNMA120412	12.7	12.7	4.76	5.16	1.2		●				1-4.5	0.15-0.55
	SNMA150608	15.875	15.875	6.35	6.35	0.8		●				2-6.0	0.15-0.4
	SNMA150612	15.875	15.875	6.35	6.35	1.2		●				2-6.0	0.15-0.55
	SNMA150616	15.875	15.875	6.35	6.35	1.6		●				2-6.0	0.15-0.7
	SNMA190612	19.05	19.05	6.35	7.94	1.2		●				3-8.0	0.15-0.55
	SNMA190616	19.05	19.05	6.35	7.94	1.6		●				3-8.0	0.15-0.8
	SNMG120404	12.7	12.7	4.76	5.16	0.4		●				1-4.5	0.15-0.25
	SNMG120408	12.7	12.7	4.76	5.16	0.8		●				1-4.5	0.15-0.4
	SNMG120412	12.7	12.7	4.76	5.16	1.2		●				1-4.5	0.15-0.55
	SNMG150608	15.875	15.875	6.35	6.35	0.8		●				2-6.0	0.15-0.4
	SNMG150612	15.875	15.875	6.35	6.35	1.2		●				2-6.0	0.15-0.55
	SNMG150616	15.875	15.875	6.35	6.35	1.6		●				2-6.0	0.15-0.7
	SNMG190612	19.05	19.05	6.35	7.94	1.2		●				3-8.0	0.15-0.55
	SNMG190616	19.05	19.05	6.35	7.94	1.6		●				3-8.0	0.15-0.8
	SNMG120404-BF	12.7	12.7	4.76	5.16	0.4		●	0.10-2.00	0.08-0.18			
	SNMG120408-BF	12.7	12.7	4.76	5.16	0.8		●	0.10-2.00	0.08-0.18			
	SNMG120404-BM	12.7	12.7	4.76	5.16	0.4		●	0.40-5.50	0.10-0.25			
	SNMG120408-BM	12.7	12.7	4.76	5.16	0.8		●	0.50-5.50	0.10-0.40			
	SNMG120412-BM	12.7	12.7	4.76	5.16	1.2		●	0.80-5.50	0.10-0.55			

Negative insert

A1

90° SN** With Hole

- Good working condition
- Normal working condition
- Bad working condition

Shape	Description						CVD Coating	PVD Coating	Cutting Parameters		
		L	IC	S	Ød	Re			Ap	Fn	
	SNMG120404L-S	12.7	12.7	4.76	5.16	0.4			● ●	0.5~4.0	0.05~0.25
	SNMG120408L-S	12.7	12.7	4.76	5.16	0.8			● ●	0.5~4.5	0.05~0.35
	SNMG120404R-S	12.7	12.7	4.76	5.16	0.4			● ●	0.5~4.0	0.05~0.25
	SNMG120408R-S	12.7	12.7	4.76	5.16	0.8			● ●	0.5~4.5	0.05~0.35
	SNMG120404-MA	12.7	12.7	4.76	5.16	0.4			●	0.80~4.00	0.15~0.25
	SNMG120408-MA	12.7	12.7	4.76	5.16	0.8			●	0.80~5.00	0.2~0.5
	SNMG120408-MS	12.7	12.7	4.76	5.16	0.8			● ●	0.50~5.00	0.10~0.4

Negative insert

A1

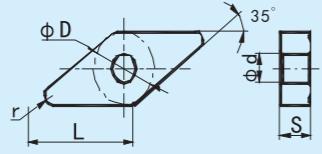
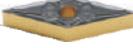
60° TN** With Hole

- Good working condition
- Normal working condition
- ☒ Bad working condition

Negative insert**A1**

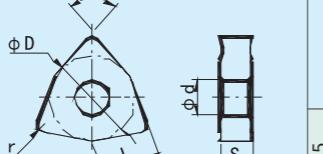
35° VN** With Hole

● Good working condition ● Normal working condition ✕ Bad working condition

Shape	Description						CVD Coating		PVD Coating		Cutting Parameters											
		L	IC	S	ød	Re	HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	HS5115	HS5120	HS5130	HS5131	HS5125	HS7125	HS7225	Ap	Fn
		(mm)					(mm)							(mm)						(mm)	(mm/r)	
	VNMG160404-MT	16.6	9.525	4.76	3.81	0.4	●	●													0.80-3.00	0.15-0.25
	VNMG160408-MT	16.6	9.525	4.76	3.81	0.8	●	●													1.00-3.00	0.2-0.4
	VNMG160412-MT	16.6	9.525	4.76	3.81	1.2	●	●													1.00-3.00	0.25-0.5
	VNMG160404-GT	16.6	9.525	4.76	3.81	0.4	●	●													0.80-4.00	0.2-0.25
	VNMG160408-GT	16.6	9.525	4.76	3.81	0.8	●	●													1.00-4.00	0.2-0.4
	VNMG160412-GT	16.6	9.525	4.76	3.81	1.2	●	●													1.00-4.00	0.2-0.5
	VNMA160404	16.6	9.525	4.76	3.81	0.4				●											1.45	0.15-0.25
	VNMA160408	16.6	9.525	4.76	3.81	0.8			●												1.45	0.15-0.4
	VNMG160404	16.6	9.525	4.76	3.81	0.4			●												1.45	0.15-0.25
	VNMG160408	16.6	9.525	4.76	3.81	0.8			●												1.45	0.15-0.4
	VNMG160404-BF	16.6	9.525	4.76	3.81	0.4						●									0.10-2.00	0.08-0.18
	VNMG160408-BF	16.6	9.525	4.76	3.81	0.8					●										0.10-2.00	0.08-0.18
	VNMG160404-BM	16.6	9.525	4.76	3.81	0.4			●				●								0.40-5.50	0.10-0.25
	VNMG160408-BM	16.6	9.525	4.76	3.81	0.8			●			●									0.50-5.50	0.10-0.40
	VNMG160412-BM	16.6	9.525	4.76	3.81	1.2			●			●									0.80-5.50	0.10-0.55

80° WN** With Hole

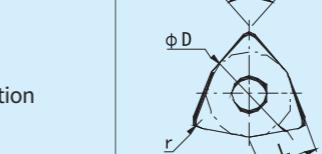
● Good working condition ● Normal working condition ✕ Bad working condition

Shape	Description						CVD Coating		PVD Coating		Cutting Parameters											
		L	IC	S	ød	Re	HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	HS5115	HS5120	HS5130	HS5131	HS5125	HS7125	HS7225	Ap	Fn
		(mm)					(mm)							(mm)						(mm)	(mm/r)	
	WNMG080404-MT	8.7	12.7	4.76	5.16	0.4	●	●													0.80-5.0	0.15-0.25
	WNMG080408-MT	8.7	12.7	4.76	5.16	0.8	●	●													1.00-5.00	0.2-0.4
	WNMG080412-MT	8.7	12.7	4.76	5.16	1.2	●	●													1.00-5.00	0.25-0.5

Negative insert**A1**

80° WN** With Hole

● Good working condition ● Normal working condition ✕ Bad working condition

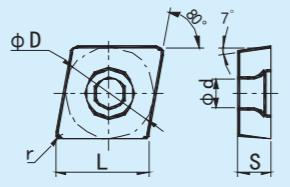
Shape	Description						CVD Coating		PVD Coating		Cutting Parameters											
		L	IC	S	ød	Re	HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	HS5115	HS5120	HS5130	HS5131	HS5125	HS7125	HS7225	Ap	Fn
		(mm)					(mm)							(mm)						(mm)	(mm/r)	
	WNMG080404R-M	8.7	12.7	4.76	5.16	0.4	●	●													0.80-5.00	0.2-0.5
	WNMG080408R-M	8.7	12.7	4.76	5.16	0.8	●	●													1.00-5.00	0.25-0.5
	WNMG080404L-M	8.7	12.7	4.76	5.16	0.4	●	●													0.80-5.00	0.2-0.5
	WNMG080408L-M	8.7	12.7	4.76	5.16	0.8	●	●													1.00-5.00	0.25-0.5
	WNMG060408-GT	6.6	9.525	4.76	3.81	0.8	●	●</														

Positive insert

A1

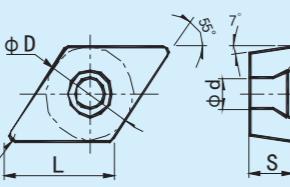
80° CC** Positive Inserts

● Good working condition ● Normal working condition ■ Bad working condition

Shape	Description						CVD Coating		PVD Coating		Cutting Parameters					
		L	IC	S	ød	Re	HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	Ap	Fn	
							(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm/r)	
	CCMT060202	6.4	6.35	2.38	2.8	0.2	●	●			●			●	0.20-2.00	0.05-0.12
	CCMT060204	6.4	6.35	2.38	2.8	0.4	●	●			●			●	0.20-2.00	0.06-0.2
	CCMT060208	6.4	6.35	2.38	2.8	0.8	●	●			●			●	0.20-2.00	0.08-0.3
	CCMT09T304	9.7	9.525	3.97	4.4	0.4	●	●			●			●	0.30-3.00	0.08-0.25
	CCMT09T308	9.7	9.525	3.97	4.4	0.8	●	●			●			●	0.30-3.00	0.10-0.3
	CCMT120404	12.9	12.7	4.76	5.56	0.4	●	●			●			●	0.30-3.50	0.10-0.25
	CCMT120408	12.9	12.7	4.76	5.56	0.8	●	●			●			●	0.80-3.50	0.20-0.4

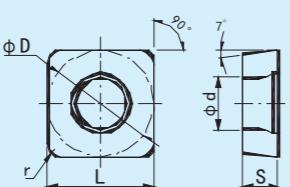
55° DC** Positive Inserts

● Good working condition ● Normal working condition ■ Bad working condition

Shape	Description						CVD Coating		PVD Coating		Cutting Parameters					
		L	IC	S	ød	Re	HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	Ap	Fn	
							(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm/r)	
	DCMT070204-MV	7.8	6.35	2.38	2.8	0.4	●	●			●			●	0.20-2.00	0.06-0.2
	DCMT070208-MV	7.8	6.35	2.38	2.8	0.8	●	●			●			●	0.20-2.00	0.06-0.25
	DCMT11T304	11.6	9.525	3.97	4.4	0.4	●	●			●			●	0.30-3.00	0.08-0.25
	DCMT11T308	11.6	9.525	3.97	4.4	0.8	●	●			●			●	0.30-3.00	0.10-0.3

90° SC** Positive Inserts

● Good working condition ● Normal working condition ■ Bad working condition

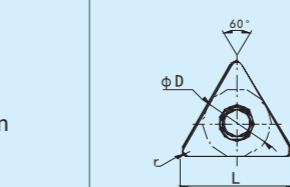
Shape	Description						CVD Coating		PVD Coating		Cutting Parameters					
		L	IC	S	ød	Re	HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	Ap	Fn	
							(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm/r)	
	SCMT09T304	9.525	9.525	3.97	4.4	0.4	●	●			●			●	0.30-3.00	0.08-0.25
	SCMT09T308	9.525	9.525	3.97	4.4	0.8	●	●			●			●	0.30-3.00	0.10-0.3

Positive insert

A1

60° TC** Positive Inserts

● Good working condition ● Normal working condition ■ Bad working condition

Shape	Description						CVD Coating		PVD Coating		Cutting Parameters					
		L	IC	S	ød	Re	HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	Ap	Fn	
							(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm/r)	
	TCMT090204	9.6	5.56	2.38	2.5	0.4	●	●			●			●	0.20-2.00	0.06-0.2
	TCMT110202	11	6.35	2.38	2.8	0.2	●	●			●			●	0.20-2.00	0.06-0.2
	TCMT110204	11	6.35	2.38	2.8	0.4	●	●			●			●	0.20-2.00	0.08-0.25
	TCMT110208	11	6.35	2.38	2.8	0.8	●	●			●			●	0.20-2.00	0.08-0.3
	TCMT16T304	16.5	9.525	3.97	4.4	0.4	●	●			●			●	0.30-3.50	0.10-0.25
	TCMT16T308	16.5	9.525	3.97	4.4	0.8	●	●			●			●	0.80-3.50	0.20-0.4

35° VB/VC** Positive Inserts

● Good working condition ● Normal working condition ■ Bad working condition

Shape	Description						CVD Coating		PVD Coating		Cutting Parameters		
L	IC	S	ød	Re	HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	Ap	Fn
						(mm)	(mm/r)						

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Application Cases

Continuous and interrupted turning - Wheel Hub Bearing Seat

A1

- **Workpiece** 55# Steel, Wheel hub bearing seat
- **Processing Methods** Wet-type semi-finish turning and fine machining on continuous external cylindrical surface & interrupted end face
- **Insert** WNMG080408-GT HS8125
- **Cutting Parameters** $V_c=259\text{m/min}$, $f=0.18\text{--}0.275\text{mm/r}$, $ap=0.5\text{--}1\text{mm}$



Optimized HS8125 with GT chip breaker, provide excellent performance and stability for medium and high speed semi finish turning with both continuous and interrupted machining requirement.

Cutting Life	
HADSTO	78pcs/edge
Brand A	40~50pcs/edge

Inner hole continuous turning - Wheel Hub Unit

A1

- **Workpiece** 65Mn steel, Wheel hub unit
- **Processing Methods** Wet-type continuous semi-finish turning on inner hole
- **Insert** VNMG160408-MT HS8115
- **Cutting Parameters** $V_c=300\text{m/min}$, $f=0.24\text{mm/r}$, $ap=0.5\text{mm}$



HS8115 with MT chip breaker, has good performance for high speed continuous turning of inner hole with poor cooling effect.

Cutting Life	
HADSTO	160~180pcs/edge
Brand A	160~180pcs/edge

Interrupted and continuous turning - Wheel Hub Bearing Seat

- **Workpiece** 65Mn Steel, Wheel hub bearing seat
- **Processing Methods** Wet-type semi-finish turning on continuous external cylindrical surface & interrupted end face
- **Insert** WNMG080408-GT HS8125
- **Cutting Parameters** $V_c=230\text{m/min}$, $f=0.22\text{mm/r}$, $ap=0.8\text{mm}$



HS8125 with GT chip breaker, Provide good performance for medium speed semi-finish turning of workpiece with both interrupted and continuous machining requirement.

Cutting Life	
HADSTO	55~65pcs/edge
Brand A	50~60pcs/edge

End face Interrupted rough turning - Three-column Shell

- **Workpiece** 55# Steel, Three-column shell
- **Processing Methods** Interrupted rough turning on end face
- **Insert** WNMG080408-GT HS8125
- **Cutting Parameters** $V_c=209\text{m/min}$, $f=0.25\text{mm/r}$, $ap=1.8\text{mm}$



HS8125 with GT chip breaker, provide strong versatility for medium speed rough turning of interrupted workpiece.

Cutting Life	
HADSTO	100~130pcs/edge
Brand A	110~140pcs/edge

Application Cases

End face interrupted rough turning - Flange

A1

- **Workpiece** 35# Steel, Flange
- **Processing Methods** Interrupted rough turning on end face
- **Insert** WMG080408-GT HS8125
- **Cutting Parameters** Vc=182-489m/min, f=0.1mm/r, ap=1.0mm



HS8125 with GM chip breaker, provide strong versatility for heavy interrupted rough turning from fixed speed to variable speed.

Cutting Life	
HADSTO	12~16pcs/edge
Brand A	5~10pcs/edge

High speed interrupted/continuous turning - Wheel Hub Unit

A1

- **Workpiece** 55# Steel, Wheel hub unit
- **Processing Methods** Wet-type semi-finish turning on continuous external cylindrical surface / interrupted end face
- **Insert** WNMG080408-MT HS8125
- **Cutting Parameters** Vc=200-300m/min, f=0.15~0.28mm/r, ap=0.8mm



HS8125 with MT chip breaker, provide strong universality for semi-finish turning with both Interrupted and continuous machining requirement

Cutting Life	
HADSTO	80~100pcs/edge
Brand A	70~90pcs/edge

High speed interrupted and continuous turning - Ring Flange

- **Workpiece** 55# steel, Ring flange
- **Processing Methods** Wet-type continuous finish turning on axle journal switching , and interrupted finish turning on end face groove.
- **Insert** VNMG160408-MT HS8115
- **Cutting Parameters** Vc=230~510m/min, f=0.167mm/r, ap=0.45mm



HS8115 with MT chip breaker, provide obvious advantage for super high speed interrupted finish turning of steel material.

Cutting Life	
HADSTO	20~21pcs/edge
Brand A	15~16pcs/edge

Interrupted rough turning - Three-column Shell

- **Workpiece** CF53 Steel, Three-column shell
- **Processing Methods** Wet-type interrupted rough turning on axle journal
- **Insert** CNMG120408-MT HS8125
- **Cutting Parameters** Vc=220m/min, f=0.2mm/r, ap=1.5mm



HS8125 with MT chip breaker, provide strong versatility for medium speed rough turning of interrupted workpiece.

Cutting Life	
HADSTO	40~50pcs/edge
Brand A	30~40pcs/edge

Application Cases

Continuous & interrupted turning - Three-column Shell

A1

- **Workpiece** Cf53, Three-column shell
- **Processing Methods** Wet-type continuous & interrupted semi-finished turning on external cylindrical surface
- **Insert** DNMG150408-GT HS8125
- **Cutting Parameters** Vc=286m/min, f=0.33mm/r, ap=0.2mm



HS8125 with GT chip breaker, provide good applicability for interrupted rough turning from fixed speed to variable speed.

Cutting Life	
HADSTO	48~63pcs/edge
Brand A	40~50pcs/edge

Rough & finish turning - Bearing

- **Workpiece** GCR15, Bearing
- **Processing Methods** Wet-type rough / finish turning of the end face A / chamfer
- **Insert** WNMG080408-MT HS8125
- **Cutting Parameters** Vc=369m/min, f=0.31mm/r, ap=1mm



HS8125 with MT chip breaker, provide very good abrasion resistance for high speed rough turning of continuous workpiece.

Cutting Life	
HADSTO	65~72pcs/edge
Brand A	60~70pcs/edge

External turning - Bearing

- **Workpiece** GCR15, Bearing
- **Processing Methods** Wet-type rough & finish turning on external cylindrical surface of face A, and Chamfer
- **Insert** WNMG080408-GT HS8115
- **Cutting Parameters** Vc=380m/min, f=0.18~0.33mm/r, ap=1mm



HS8115 with GT chip breaker, provide obvious abrasion resistance advantage, good chip evacuation for high speed machining.

Cutting Life	
HADSTO	150pcs/edge
Brand A	120pcs/edge

Rough turning - Piston Rod

- **Workpiece** 27SiMn, Piston rod
- **Processing Methods** Dry-type rough turning
- **Insert** TNMG160408R-M HS8125
- **Cutting Parameters** Vc=100m/min, f=0.4mm/r, ap=2.5mm



Suitable for low speed rough turning with large cutting depth and high feed. typically used to solve the low toughness problem of long slender rod machining, or low speed hard material machining, or soft material with large cutting depth.

Cutting Life	
HADSTO	50~60pcs/edge
Brand A	Too vibrate,to cut properly

Application Cases

Rough and finish turning - Valve Ball

A1

- **Workpiece** SUS304 Stainless steel, Valve ball
- **Processing Methods** Wet-type rough / finish turning
- **Insert** TNMG160408-MS HS7125
- **Cutting Parameters** Vc=188-314m/min, f=0.22-0.13mm/r, ap=2-0.05mm



MS chip breaker, suitable for low feed rate rough & finish turning of hard material, i.e. stainless steel.

Cutting Life	
HADSTO	92pcs/edge
Brand A	96pcs/edge

Finish turning - Sealing Ring

A1

- **Workpiece** SUS304 Stainless steel, Sealing ring
- **Processing Methods** Continuous finish turning on end face & external cylindrical surface
- **Insert** WNMG080408-BF HS7125
- **Cutting Parameters** Vc=210m/min, f=0.1mm/r, ap=0.1mm, (Ra≤0.8)



BF chip breaker, compare with other domestic competitors, provide significantly lower surface roughness for finish turning.

Cutting Life	
HADSTO	740pcs/edge
Brand A	450pcs/edge

Finish turning - Stainless Steel

- **Workpiece** SUS304 Stainless steel,
- **Processing Methods** Continuous finish turning on taper surface & end face
- **Insert** WNMG080408-BF HS7125
- **Cutting Parameters** Vc=220m/min, f=0.14mm/r, ap=0.1mm, (Ra≤0.8)



BF chip breaker, with sharp edge, landless design, big and wide rake angle, provide small chip deformation and small cutting vibration, suitable for fine machining with high surface quality requirement only.

Cutting Life	
HADSTO	242pcs/edge
Brand A	212pcs/edge

Rough turning - Ring Flange

- **Workpiece** SUS201 Stainless steel, Ring flange
- **Processing Methods** Continuous turning on end face & external cylindrical surface
- **Insert** WNMG080408-BM HS7125
- **Cutting Parameters** Vc=273m/min, f=0.3mm/r, ap=1.0mm



BM chip breaker, belongs to general-purpose chip-breaker, provide very good performance under various environment, except for rough turning on oxide coating which has no obvious advantage.

Cutting Life	
HADSTO	37~42pcs/edge
Brand A	38~42pcs/edge

Application Cases

Rough turning - Ring Flange

A1

- **Workpiece** SUS316, Ring flange
- **Processing Methods** Continuous rough turning on end face & external cylindrical surface
- **Insert** WNMG080408-BM HS7125
- **Cutting Parameters** Vc=211m/min, f=0.23~0.35mm/r, ap=1.0~1.2mm



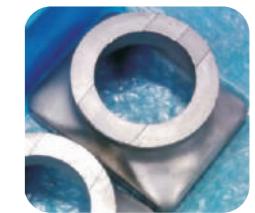
Cutting Life	
HADSTO	18pcs/edge
Brand A	17pcs/edge

BM chip breaker, belongs to general-purpose chip-breaker, provide very good performance under various environment, except for rough turning of oxide coating which has no obvious advantage.

End face rough turning - Shell

A1

- **Workpiece** CF-3M, Shell
- **Processing Methods** Interrupted end face rough / finish turning
- **Insert** WNMG080408-MA HS7125
- **Cutting Parameters** Vc=160m/min, f=0.2mm/r, ap=1-2mm



Cutting Life	
HADSTO	15pcs/edge
Brand A	10pcs/edge

MA chip breaker, provide obvious advantage under the working condition of significant cutting force change.

Rough Turning - Ring Flange

- **Workpiece** SUS316, Ring flange
- **Processing Methods** Continuous rough turning on end face & external cylindrical surface, OD 190, ID 90.5
- **Insert** SNMG120408-BM HS7120
- **Cutting Parameters** Vc=256m/min, f=0.3mm/r, ap=0.8mm



Grade HS7120, provide obvious advantage for high speed and fast feeding rate rough turning of oxide coating.

Cutting Life	
HADSTO	84pcs/edge
Brand A	50~60pcs/edge

End Face rough turning - Shell

A1-32

- **Workpiece** CF-8C, Shell
- **Processing Methods** Interrupted end face turning
- **Insert** WNMG080408-MA HS7125
- **Cutting Parameters** Vc=160m/min, f=0.15mm/r, ap=0.5-1mm



Cutting Life	
HADSTO	14pcs/edge
Brand A	11pcs/edge

MA chip breaker, provide obvious advantage for interrupted turning of soft and sticky material.

Application Cases

Inner hole rough & finish turning - Seat

A1

- **Workpiece** SUS304, Valve stem
- **Processing Methods** Wet-type inner hole turning
- **Insert** CCMT09T308 HS7125
- **Cutting Parameters** Vc=81m/min, f=0.14mm/r, ap=0.5mm



Non-code chip breaker, a sharp and wide chip-breaker, provide strong universality for medium & low speed machining of various material.

Cutting Life	
HADSTO	541pcs/edge
Brand A	367pcs/edge

External cylindrical surface & end face turning - Crankshaft

A1

- **Workpiece** QT600, Crankshaft
- **Processing Methods** Wet-type rough turning on continuous external cylindrical surface & interrupted end face
- **Insert** DNMG150408 HS6120
- **Cutting Parameters** Vc=220m/min, f=0.4mm/r, ap=1.0mm



HS6120 provide long life time and high stability for medium and low speed turning of ductile cast iron.

Cutting Life	
HADSTO	120~130pcs/edge
Brand A	100pcs/edge

External cylindrical surface & end face turning - Belt Pulley

- **Workpiece** HT200, Belt pulley
- **Processing Methods** Dry-type continuous rough turning on external cylindrical surface / end face
- **Insert** CNMG12408 HS6120
- **Cutting Parameters** Vc=438m/min, f=0.3mm/r, ap=1.2mm



For high speed turning of ductile cast iron, it provide equivalent life time and stability compare with overseas high end cutting tools.

Cutting Life	
HADSTO	130~140pcs/edge
Brand A	130~140pcs/edge

B2

Parting and Grooving Insert

● Good working condition ● Normal working condition ■ Bad working condition

Shape	Description					CVD Coating	PVD Coating	Cutting Parameters	
		L	W	S	R			Ap	F _n
		(mm)	(mm/r)						
	MGMN150-G	16	1.5	4	0.15	● ● ●		~14	0.05-0.15
	MGMN200-G	16	2	4	0.2	● ● ●		~14	0.05-0.15
	MGMN250-G	18.5	2.5	4.5	0.2	● ● ●		~16	0.05-0.15
	MGMN300-G	21	3	5.6	0.3	● ● ●		~18	0.05-0.15
	MGMN200-M	16	2	4	0.2	● ● ●		~14	0.05-0.13
	MGMN250-M	18.5	2.5	4.5	0.2	● ● ●		~16	0.05-0.13
	MGMN300-M	21	3	5.6	0.4	● ● ●		~18	0.06-0.13
	MGMN400-M	21	4	5.8	0.4	● ● ●		~18	0.06-0.15
	MGMN500-M	26	5	5.8	0.8	● ● ●		~23	0.07-0.15
	MGMN600-M	26	6	5.9	0.8	● ● ●		~23	0.08-0.18
	MGMN200-T	16	2	3.55	0.2	● ● ●		~14	0.05-0.12
	MGMN250-T	18.5	2.5	4.5	0.2	● ● ●		~16	0.05-0.15
	MGMN300-T	21	3	4.86	0.4	● ● ●		~18	0.07-0.15
	MGMN400-T	21	4	4.86	0.4	● ● ●		~18	0.07-0.18
	MGMN500-T	26	5	5.8	0.8	● ● ●		~23	0.10-0.18
	MGMN200	16	2	3.55	0.2			~14	0.05-0.12
	MGMN300	21	3	4.86	0.4			~18	0.05-0.12
	MGMN400	21	4	4.86	0.4			~18	0.05-0.12
	MGMN500	26	5	5.8	0.8			~23	0.05-0.12
	MRMN200-M	16	2	3.5	1	● ● ●		~14	0.05-0.12
	MRMN300-M	21	3	4.8	1.5	● ● ●		~18	0.07-0.12
	MRMN400-M	21	4	4.8	2	● ● ●		~23	0.07-0.15
	MRMN500-M	26	5	5.8	2.5	● ● ●		~23	0.08-0.15
	MRMN600-M	26	6	5.9	2.5	● ● ●		~23	0.08-0.15
	SP200		2			●			0.05-0.15
	SP300		3			●			0.05-0.20
	SP400		4			●			0.05-0.30
	TDC2	20	2	3.9	0.2			~22	0.05-0.18
	TDC3	20	3	4.2	0.2			~22	0.07-0.25
	TDC4	20	4	4.2	0.3			~22	0.08-0.30
	TDC5	25	5	5	0.3			~25	0.09-0.35

Application Cases

End face grooving

- Workpiece SUS304,Sealing groove
- Processing Methods Continuous end face grooving
- Insert MGMN400-M HS7225
- Cutting Parameters Vc=150m/min, f=0.04mm/r, ap=1.6mm



B2

M chip breaker, provide strong universality, very good chip evacuation effect for various material and different grooving methods.

Cutting Life	
HADSTO	352pcs/edge
Brand A	218pcs/edge

End face grooving

- Workpiece SUS304,Sealing groove
- Processing Methods Continuous end face grooving
- Insert QCMB3004-T HS7225
- Cutting Parameters Vc=130m/min, f=0.05mm/r



T chip breaker provide excellent chip evacuation control for stainless steel machining.

Cutting Life	
HADSTO	1300pcs/edge
Brand A	1100pcs/edge

B Parting and Grooving

Application Cases

Grooving and turning

- Workpiece CF-3M,forged stainless steel
- Processing Methods Continuous grooving and external cylindrical surface turning
- Insert QCMB3004-M HS7225
- Cutting Parameters $V_c=120\text{m/min}$, $f=0.1\text{mm/r}$

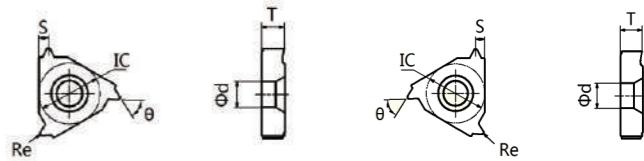


M chip-breaker provide strong universality, very good chip evacuation control for various material and different grooving method.

Cutting Life	
HADSTO	11pcs/edge
Brand A	10pcs/edge

C Threading

Threading



● Good working condition ● Normal working condition ✗ Bad working condition

Shape	Description	Thread Pitch	Specification							Grade
			IC	S	T	Re	ød	θ	HS5125	
	16ER100ISO	1	9.525	0.7	3.52	0.13	4	60°	●	
	16ER125ISO	1.25	9.525	0.9	3.52	0.16	4	60°	●	
	16ER150ISO	1.5	9.525	1	3.52	0.1	4	60°	●	
	16ER175ISO	1.75	9.525	1.2	3.52	0.22	4	60°	●	
	16ER200ISO	2	9.525	1.3	3.52	0.26	4	60°	●	
	16ER250ISO	2.5	9.525	1.5	3.52	0.33	4	60°	●	
	16ER300ISO	3	9.525	1.6	3.52	0.44	4	60°	●	
	11IR100ISO	1	6.35	0.7	3.05	0.06	3.2	60°	●	
	11IR125ISO	1.25	6.35	0.9	3.05	0.08	3.2	60°	●	
	11IR150ISO	1.5	6.35	1	3.05	0.1	3.2	60°	●	
	11IR250ISO	2.5	6.35	1.5	3.05	0.08	3.2	60°	●	
	16IR100ISO	1	9.525	0.7	3.52	0.06	4	60°	●	
	16IR125ISO	1.25	9.525	0.9	3.52	0.08	4	60°	●	
	16IR150ISO	1.5	9.525	1	3.52	0.1	4	60°	●	
	16IR175ISO	1.75	9.525	1.2	3.52	0.11	4	60°	●	
	16IR200ISO	2	9.525	1.3	3.52	0.13	4	60°	●	
	16IR250ISO	2.5	9.525	1.5	3.52	0.17	4	60°	●	
	16IR300ISO	3	9.525	1.5	3.52	0.22	4	60°	●	

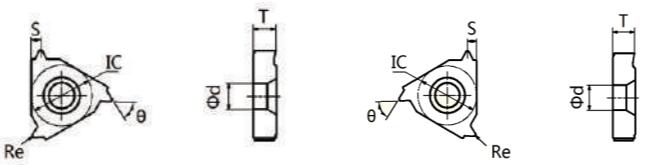
C3

B2

B2-03

C3-01

Threading

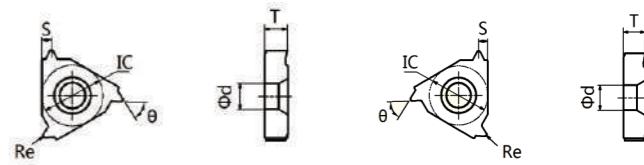


55°Whitworth thread

• Good working condition • Normal working condition ■ Bad working condition

Shape	Description	Thread Pitch	Specification						Grade	
			IC	S	T	Re	ød	θ	HS5125	
	16ER11W	11	9.525	1.5	3.52	0.3	4	55°	●	
	16ER14W	14	9.525	1.2	3.52	0.23	4	55°	●	
	16ER19W	19	9.525	1	3.52	0.17	4	55°	●	
	16IR11W	11	9.525	1.5	3.52	0.3	4	55°	●	
	16IR12W	12	9.525	1.4	3.52	0.296	4	55°	●	
	16IR14W	14	9.525	1.2	3.52	0.23	4	55°	●	
	16IR19W	19	9.525	1	3.52	0.17	4	55°	●	

Threading



British standard taper pipe thread

• Good working condition • Normal working condition ■ Bad working condition

Shape	Description	Thread Pitch	Specification						Grade	
			IC	S	T	Re	ød	θ	HS5125	
	16ER11BSPT	11	9.525	1.5	3.52	0.32	4	55°	●	
	16ER14BSPT	14	9.525	1.2	3.52	0.23	4	55°	●	
	16ER19BSPT	19	9.525	0.9	3.52	0.19	4	55°	●	
	16IR11BSPT	11	9.525	1.5	3.52	0.32	4	55°	●	
	16IR14BSPT	14	9.525	1.2	3.52	0.23	4	55°	●	
	16IR19BSPT	19	9.525	0.9	3.52	0.19	4	55°	●	

General pitch thread

• Good working condition • Normal working condition ■ Bad working condition

Shape	Description	Thread Pitch	Specification						Grade	
			IC	S	T	Re	ød	θ	HS5125	
	16ERAG55	0.5-3.0	9.525	1.7	3.52	0.06	4	55°	●	
	16ERA55	0.5-1.5	9.525	0.9	3.52	0.05	4	55°	●	
	16ERG55	1.75-3.0	9.525	1.7	3.52	0.23	4	55°	●	
	16ERAG60	0.5-3.0	9.525	1.7	3.52	0.07	4	60°	●	
	16ERA60	0.5-1.5	9.525	0.9	3.52	0.06	4	60°	●	
	16ERG60	1.75-3.0	9.525	1.7	3.52	0.18	4	60°	●	
	16IRAG55	0.5-3.0	9.525	1.7	3.52	0.06	4	55°	●	
	16IRA55	0.5-1.5	9.525	0.9	3.52	0.05	4	55°	●	
	16IRG55	1.75-3.0	9.525	1.7	3.52	0.21	4	55°	●	
	16IRAG60	0.5-3.0	9.525	1.7	3.52	0.076	4	60°	●	
	16IRA60	0.5-1.5	9.525	0.9	3.52	0.05	4	60°	●	
	16IRG60	1.75-3.0	9.525	1.7	3.52	0.1	4	60°	●	

American standard taper pipe thread

• Good working condition • Normal working condition ■ Bad working condition

Shape	Description	Thread Pitch	Specification						Grade	
			IC	S	T	Re	ød	θ	HS5125	
	16ER14NPT	14	9.525	1.2	3.52	0.07	4	60°	●	
	16ER115NPT	11.5	9.525	1.5	3.52	0.08	4	60°	●	
	16ER18NPT	18	9.525	1	3.52	0.06	4	60°	●	
	16IR14NPT	14	9.525	1.2	3.52	0.07	4	60°	●	
	16IR115NPT	11.5	9.525	1.5	3.52	0.08	4	60°	●	
	16IR18NPT	18	9.525	1	3.52	0.06	4	60°	●	

C Threading

Application Cases

Internal thread turning - Valve Stem

- Workpiece SUS304, Valve stem
- Processing Methods Internal thread turning, M20
- Insert 16IR14W HS5125
- Cutting Parameters Vc=75m/min, feed time = 12 times



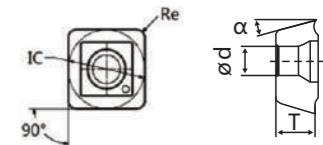
Precision-shaped sharp edge with outstanding edge quality, provide excellent property and performance for small size thread machining.

Cutting Life	
HADSTO	460pcs/edge
Brand A	390pcs/edge

C3

D Drilling

Drilling



● Good working condition ● Normal working condition ✗ Bad working condition

Shape	Description	Specification					CVD Coating	PVD Coating	Cutting Parameters														
		IC	T	r	ød	α			HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	HS5115	HS5120	HS5130	HS5125	HS7125	HS7225	Ap	Fn
	SPMG050204DG	11.5	4.3	0.8	4.5	16.5°																0.04-0.15	
	SPMG060204DG	9.8	4.3	0.8	4.05	17.5°																	0.04-0.16
	SPMG07T308DG	7.94	3.97	0.8	2.85	15.5°																	0.04-0.20
	SPMG090408DG	6	2.38	0.4	2.61	14°																	0.06-0.25
	SPMG110408DG	5	2.38	0.4	2.25	14°																	0.06-0.28

D4

Internal thread turning - Valve Cover

- Workpiece SUS201, Valve cover
- Processing Methods Internal thread turning, M45
- Insert 16IR11W HS5125
- Cutting Parameters Vc=98.9m/min, feed time = 6 times

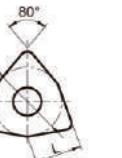
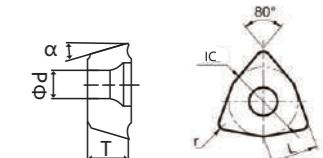


Precision-shaped sharp edge with high property threading material HS5125, provide strong cutting versatility.

Cutting Life	
HADSTO	WS5125 Slight wear(70 pcs)
Brand A	Wear a lot(70pcs)

● Good working condition ● Normal working condition ✗ Bad working condition

Shape	Description	Specification					CVD Coating	PVD Coating	Cutting Parameters													
		IC	T	r	ød	α			HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	HS5115	HS5120	HS5130	HS5125	HS7125	HS7225	Ap
	WCMX030204	5.56	2.38	0.8	2.8	7																0.04-0.15
	WCMX030208	5.56	2.38	0.8	2.8	7																0.04-0.15
	WCMX040204	6.35	2.38	0.8	3	7																0.04-0.16
	WCMX040208	6.35	2.38	0.8	3	7																0.04-0.16
	WCMX050308	7.94	3.18	0.8	3.4	7																0.04-0.20
	WCMX06T308	9.525	3.97	0.8	3.8	7																0.06-0.25
	WCMX080412	12.7	4.76	1.2	4.4	7																0.06-0.28



D Shallow Hole Drilling

Application Cases

Through-hole drilling - Coupling

- **Workpiece** Coupling material
- **Processing Methods** External cooling double head through-hole drilling
- **Insert** WCMX0080412 HS5131
- **Cutting Parameters** Vc=76.3m/min, f=0.133mm/r



D4

HS5131, excellent abrasion resistance, provide very good chip evacuation in low speed and high feed machining. meantime, the low cutting temperature work condition together with our high toughness insert gives full play of our high-property coating.

Cutting Life	
HADSTO	60pcs/edge
Brand A	50pcs/edge

Drilling - Condenser Tubsheet

- **Workpiece** SUS304, Condenser tubsheet
- **Processing Methods** Inner hole drilling, D23.5
- **Insert** SPMG07T308 HS5131
- **Cutting Parameters** Vc=140m/min, fn=0.10mm/r



Cutting Life	
HADSTO	3.0M/edge
Brand A	2.5~3.0M/edge

D4

End face drilling - Ring Flange

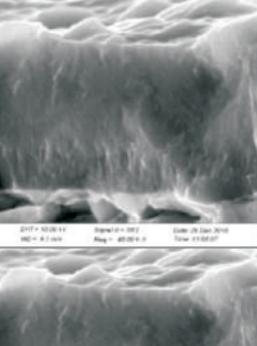
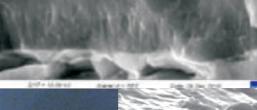
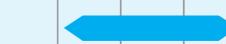
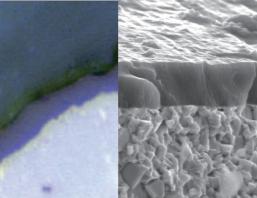
- **Workpiece** SUS304
- **Processing Methods** mate surface pin-hole drilling, D14.5, Depth 25
- **Insert** SPMG050204 HS5131
- **Cutting Parameters** Vc=159.4m/min, f=0.034mm/r, (\leqslant Ra1.6)



SPMG series insert, high forming accuracy, sharp edge, easy and fast cutting, provide high surface quality.

Cutting Life	
HADSTO	240pcs/edge
Brand A	200pcs/edge

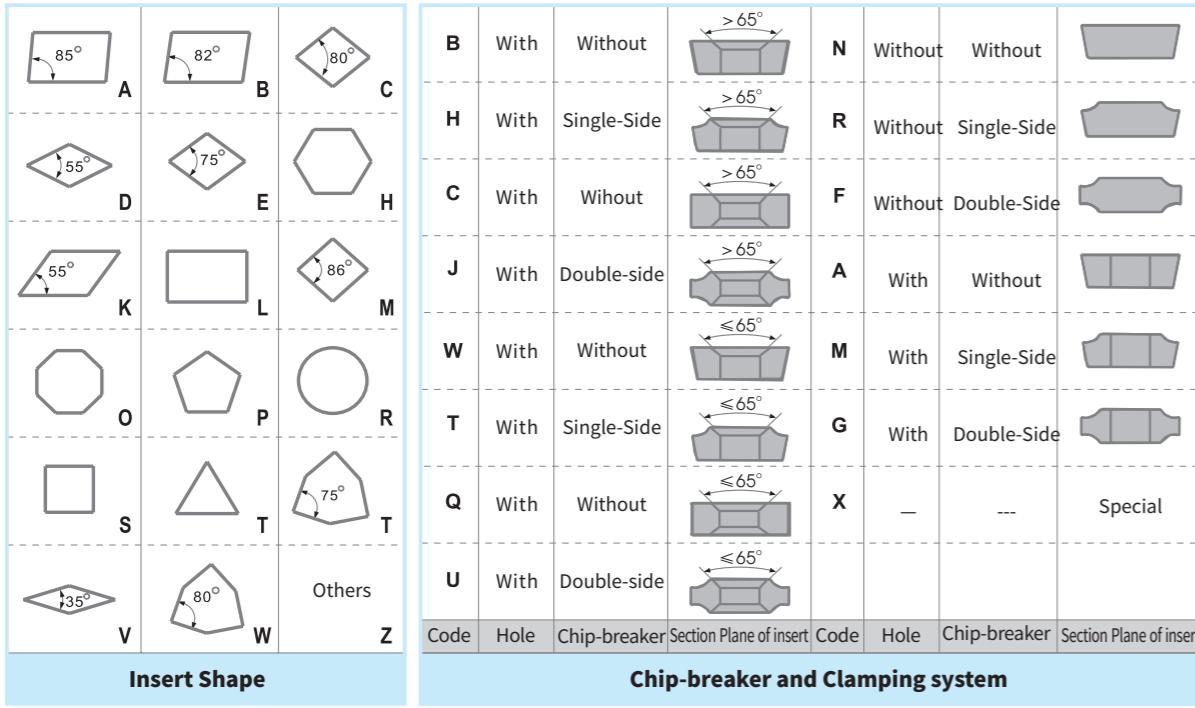
The Instruction Of Grade

Grade	Coating Composition					Characteristics	Application	ISO	Wear Resistance ← → Toughness									
	Coating Type	Coating Color	Pictures	Component	Range				01	05	10	15	20	25	30	35	40	45
HS5115	PVD	Purple Bronze		TiAlN+CrAlN +TiSiN	Thin	The evenly distributed sub-micro WC crystal grain provide a high hardness, and the reasonably adjusted alloy composition enhanced the solution of binder phase which ensured high toughness of the substrate; It has a multi-layer composite coating, the bottom layer TiAlN increased the binding force with substrate, the functional layer AlCrN with superior high temperature performance, while the surface layer TiSiN reduced friction coefficient to the work piece; The elastic modulus of the coating and substrate are well matched and firmly integrated.	Extremely suitable for the milling of hardened steel, excellent in performance, particularly for the machining of hardness range HRC45-HRC62.	P15-P30 M15-M30 K15-K30										
HS5120	PVD	Purple Bronze		TiAlN+CrAlN +TiSiN	Thin	Special designed substrate with better wear resistance and toughness, suitable for the milling process of high hardness materials, Match up with the latest diversified nano-coating, It can provide better high temperature hardness, excellent in the machining of high-hardness material. It's comprehensive performance can be in the leading level for hard-material milling application field.	It is suitable for the general milling of steel, stainless steel and cast iron materials, with outstanding performance, particularly for the machining of hardness range HRC35-HRC50.	P20-P30 M20-M30 K20-K30										
HS5130	PVD	Gray		AlTiN	Thin	Newly developed substrate dedicated for mould milling cutter, the ultra fine particle and special ratio improved the wear resistance and toughness of the substrate, greatly reduced the risk of edge collapse. Match up with the latest nano-coating, it's comprehensive performance can be top No.1 in segmented application field.	It is suitable for the general milling of steel, stainless steel and cast iron materials, with outstanding performance, particularly for the machining of hardness range HRC30-HRC50.	P20-P35 M20-M35 K20-K35										

E5

E5

Insert Identification System



Length of Cutting Edge

32.00	31.75	32						
25.40	25	25						
25.00	25	25						
20.00	20							
19.05	19	19						
16.00	19	16						
15.875	16	15						
12.70	12	12						
12.00	12							
10.00	10							
9.525	09	09						
8.00	08							
6.35	06	07						
6.00	06							
5.56		09						
5.50	05							
3.97		06						
Diameter of IC(mm)	C	D	R	S	T	V	W	K

Insert Thickness

12	12.70
10	11.11
T9	9.72
09	9.52
07	7.94
T6	6.75
06	6.35
T5	5.95
05	5.56
T4	4.96
04	4.76
T3	3.97
03	3.18
T2	2.58
02	2.38
T1	1.98
01	1.59
T0	0.99
00	0.79
Code	Thickness(mm)

E5

A P M T

Clearance angle of main cutting edge

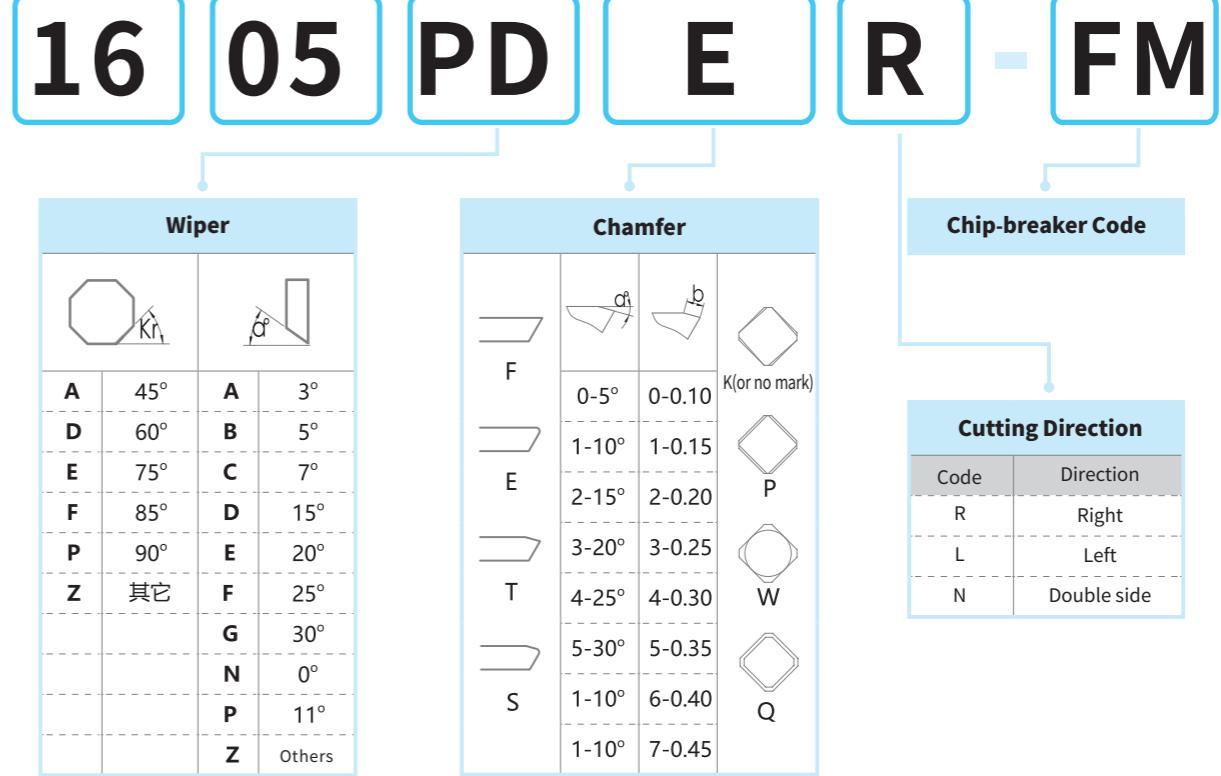
Code	Clearance angle	Code	Clearance angle
A	3°	B	5°
C	7°	D	15°
E	20°	F	25°
G	30°	N	0°
P	11°	O	其他

Tolerance (mm)

		m	m	S
Code	Nose height Tolerance(m)	Inscribed circle(ΦD)	Thickness Tolerance(s)	♦ M-level tolerance (Identified by shape)
A	±0.005	±0.025	±0.025	Inscribed circle Regular triangle Square Rhombus with 80° Rhombus with 55° Rhombus with 35° Round
F	±0.005	±0.013	±0.025	6.35 ±0.08 ±0.08 ±0.08 ±0.11 ±0.16 ---
C	±0.013	±0.025	±0.025	9.525 ±0.08 ±0.08 ±0.08 ±0.11 ±0.16 ---
H	±0.013	±0.013	±0.025	12.7 ±0.13 ±0.13 ±0.13 ±0.15 --- ---
E	±0.025	±0.025	±0.025	15.875 ±0.15 ±0.15 ±0.15 ±0.18 --- ---
G	±0.025	±0.025	±0.13	19.05 ±0.15 ±0.15 ±0.15 ±0.18 --- ---
J	±0.005	±0.05±0.13	±0.025	25.4 --- ±0.18 --- --- --- ---
K	±0.013	±0.05±0.13	±0.025	6.35 ±0.05 ±0.05 ±0.05 ±0.05 ±0.05 ---
L	±0.025	±0.05±0.13	±0.025	9.525 ±0.05 ±0.05 ±0.05 ±0.05 ±0.05 ±0.05
M	±0.08±0.18	±0.05±0.13	±0.13	12.7 ±0.08 ±0.08 ±0.08 ±0.08 --- ±0.08
N	±0.08±0.18	±0.05±0.13	±0.025	15.875 ±0.10 ±0.10 ±0.10 ±0.10 --- ---
U	±0.13±0.38	±0.08±0.25	±0.13	19.05 ±0.10 ±0.10 ±0.10 ±0.10 --- ---
				±0.13

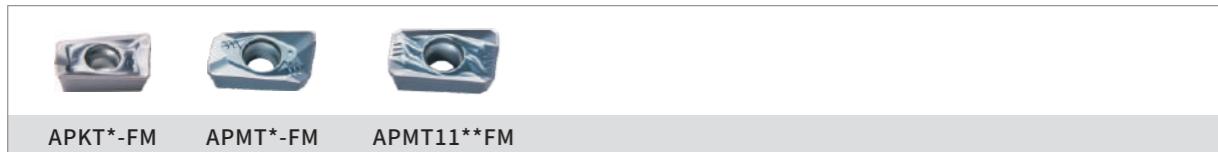
♦ Inscribed circle(ΦD) Tolerance

Inscribed circle	Regular triangle	Square	Rhombus with 80°	Rhombus with 55°	Rhombus with 35°	Round
A	45°	3°				
D	60°	5°				
E	75°	7°				
F	85°	15°				
P	90°	20°				
Z	其它	25°				
J	30°					
N	0°					
P	11°					
S	Others					

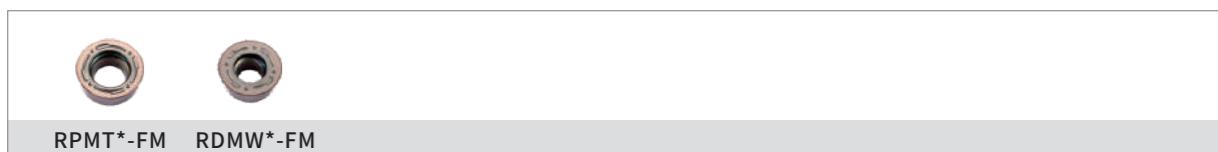


Overview

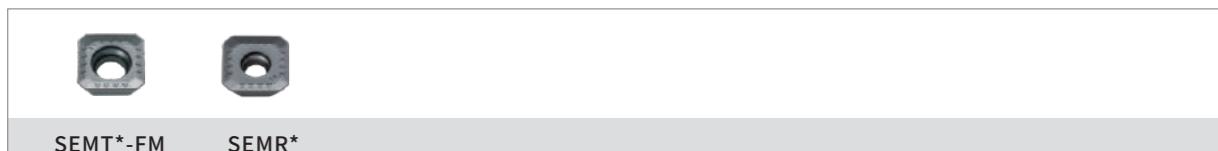
● Square shoulder milling



● Profile milling



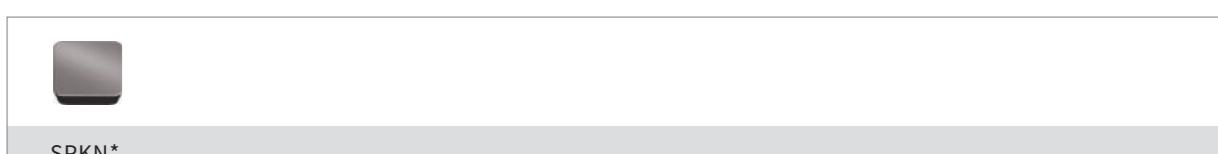
● Face milling



● High-feed milling



● End face milling

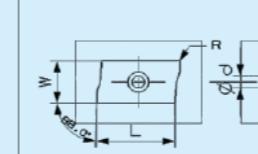


● Double-side chip-breaker milling



Square shoulder milling

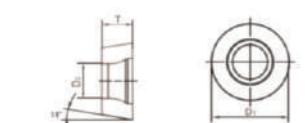
● Good working condition ● Normal working condition ■ Bad working condition

Shape	Description						CVD Coating			PVD Coating			Cutting Parameters								
		L1	L2	Re	φd	S	HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	HS5115	HS5120	HS5130	HS5125	HS7125	HS7225	HS5131	Ap
	APKT113604PEER-FM	11.30	6.25	0.40	2.80	3.60					●	●								0.1~3.0	0.10-0.50
	APKT1136PEER-FM	11.30	6.25	0.80	2.80	3.60					●	●								0.1~3.0	0.10-0.80
	APKT113612PEER-FM	11.30	6.25	1.20	2.80	3.60					●	●								0.1~3.0	0.10-1.00
	APKT113620PEER-FM	11.30	6.25	0.60	2.80	3.60					●	●								0.1~3.0	0.10-1.20
	APKT1605PDER-FM	17.42	9.33	0.80	4.50	5.20					●	●								0.1~5.0	0.10-1.00
	APKT160512PDER-FM	17.42	9.33	1.20	4.50	5.20					●	●								0.1~5.0	0.10-1.10
	APKT160520PDER-FM	17.42	9.33	2.00	4.50	5.20					●	●								0.1~5.0	0.10-1.20
	APMT1135PDER-FM	11.30	6.25	0.80	2.80	3.50					●	●								0.1~3.0	0.10-0.80
	APMT1605PDER-FM	17.25	9.22	0.80	4.40	4.76					●	●								0.1~5.0	0.10-1.00
	APMT1604PDER-FM	17.42	9.33	0.80	4.50	5.22					●	●								0.1~5.0	0.10-1.00

Profile milling

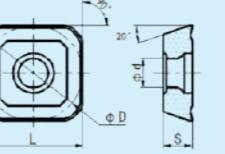
● Good working condition ● Normal working condition ■ Bad working condition

Shape	Description	Specification			CVD Coating			PVD Coating			Cutting Parameters										
		D1	D2	T	HS8115	HS8125	HS8123	HS8133	HS6115	HS6120	HS7120	HS5115	HS5120	HS5130	HS5125	HS7125	HS7225	HS5131	Ap	Fn	
	RPMT1003MO-FM	10.00	4.50	3.18								●	●						0.10~0.5	0.20-0.8	
	RPMW1003MO-FM	10.00	4.50	3.18								●	●						0.10~0.5	0.20-0.8	
	RPMT08T2MO-FM	8.00	3.50	2.78								●	●						0.10~0.5	0.15-0.6	
	RPMT10T3MO-FM	10.00	4.50	3.97								●	●						0.10~1.0	0.15-0.7	
	RPMT1204MO-FM	12.00	5.50	4.76								●	●						0.20~2.0	0.30-0.8	
	RDMW10T3MO-FM	10.00	4.50	3.97								●	●						0.10~0.5	0.20-1.0	
	RDMW1204MO-FM	12.00	5.50	4.76								●	●						0.20~1.0	0.30-1.0	
	RDMW1605MO-FM	16.00	5.50	5.56								●	●						0.50~2.0	0.30-1.2	



Face milling

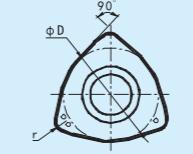
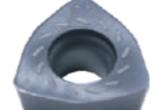
● Good working condition • Normal working condition ✕ Bad working condition

Shape	Description					CVD Coating	PVD Coating	Cutting Parameters	
		L	φD	S	φd			Ap	Fn
		(mm)	(mm)	(mm)	(mm)			(mm)	(mm/r)
	SEMT13T3AGTN-FM	13.40	13.40	3.97	4.10			• •	0.10~3.0 0.10~0.30
	SEMT1204AFTN-FM	12.70	12.70	4.76	5.50			• •	0.10~3.0 0.10~0.30
	SEMR1203AFTN	12.70	12.70	3.18				• •	0.10~3.0 0.10~0.30

E5

High-feed milling

● Good working condition • Normal working condition ✕ Bad working condition

Shape	Description					CVD Coating	PVD Coating	Cutting Parameters	
		φD	s	φd	r			Ap	Fn
		(mm)	(mm)	(mm)	(mm)			(mm)	(mm/r)
	WDMT080520ZTR-GM	13	5.5	5	2			• •	0.50~2.0 0.50~3.0
	WDMW080520ZTR	13	5.5	5	2			• •	0.50~2.0 0.50~3.0
	WPMT080615ZSR	12.85	6.35	5.5	1.5			• •	0.50~2.0 0.50~3.0

E5

High-feed milling

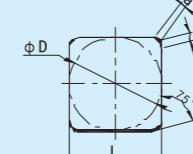
● Good working condition • Normal working condition ✕ Bad working condition

Shape	Description	Specification				CVD Coating	PVD Coating	Cutting Parameters	
		L	S	φd	R			Ap	Fn
		(mm)	(mm)	(mm)	(mm)			(mm)	(mm/r)
	SDMW1205ZTN	12.70	5.56	4.60	3.00			• •	0.50~1.5 0.50~2.5
	SDMW1505ZTN	15.875	5.56	5.50	3.00			• •	0.75~2.0 0.50~3.5
	SDMT1205ZTN-FM	12.70	5.56	4.60	3.00			• •	0.50~1.5 0.50~2.5
	SDMT1505ZTN-FM	15.875	5.56	5.5	3.00			• •	0.75~2.0 0.50~3.5

E5-07

End face milling

● Good working condition • Normal working condition ✕ Bad working condition

Shape	Description						CVD Coating	PVD Coating	Cutting Parameters	
		L1	L2	s	a	b			Ap	Fn
		(mm)	(mm)	(mm)	(mm)	(mm)			(mm)	(mm/r)
	SPKN1504EDTL	15.875	15.875	4.76	1	1.4			• •	0.10~10.0 0.05~0.30
	SPKN1504EDTR	15.875	15.875	4.76	1	1.4			• •	0.10~10.0 0.05~0.30

E5-08

Double-side chip-breaker milling

● Good working condition • Normal working condition # Bad working condition

Shape	Description						CVD Coating	PVD Coating	Cutting Parameters	
		L1	L2	Re	φd	T			Ap	Fn
		(mm)	(mm/r)							
	LNGX120508ER-M	11.10	9.50	0.80	4.50	5.78			~9	0.05~0.25

Double-side chip-breaker milling

● Good working condition • Normal working condition # Bad working condition

Shape	Description						CVD Coating	PVD Coating	Cutting Parameters	
		IC	Re	φd	T	Ap				
		(mm)	(mm/r)							
	HNMX0906ANSN-M	16.50	1.20	4.90	6.34				~5	0.05~0.35

E5

E5

● Good working condition • Normal working condition # Bad working condition

Shape	Description						CVD Coating	PVD Coating	Cutting Parameters	
		IC	Re	φd	T	Ap				
		(mm)	(mm/r)							
	SNMX1205ANN-M	12.70	0.80	6.00	5.51				~6	0.05~0.35

● Good working condition • Normal working condition # Bad working condition

Shape	Description						CVD Coating	PVD Coating	Cutting Parameters	
		IC	Re	φd	T	Ap				
		(mm)	(mm/r)							
	XNGX0705ANN-R	14.5	0.80	4.00	5.02				~4	0.08~0.35

Application Cases

Face milling - Die Blank

- **Workpiece** NAK80 (HRC35), Die blank
- **Processing Methods** Dry-type face milling
- **Insert** SEMR1203AFTN/HS5120
- **Cutting Parameters** Vc=118m/min, N=150r/min, F=200mm/r, Ap=1mm



Cavity rough milling - Bulb Mold

- **Workpiece** 718H (HRC 38-42) , Bulb mold
- **Processing Methods** Dry-type cavity rough milling, D17-Z2-L65, BT40
- **Insert** APMT1135PDER-FM HS5130
- **Cutting Parameters** Vc=160m/min, fz=0.8mm/z, ap=0.25mm, ae=10mm



Cutting Life	
HADSTO	10pcs/edge
Brand A	7 pcs/edge

Cutting Life	
HADSTO	91 min/edge, normal worn
Brand A	80 min/edge, normal worn

Face milling - Die Blank

- **Workpiece** 718H, Die blank
- **Processing Methods** Face milling, Dry-type cutting
- **Insert** SEMR1203AFTN/HS5120
- **Cutting Parameters** N=240r/min, F=100mm/r, Ap=1.5mm



Rough milling - Prehardened Steel 738H

- **Workpiece** 738H (HRC30~5), Prehardened steel
- **Processing Methods** Dry-type rough milling, 35-Z3-L80, BT40
- **Insert** RPMT1003MO-FM HS5130
- **Cutting Parameters** Vc=165m/min, fz=0.67mm/z, ap=0.3mm, ae=22mm



Cutting Life	
HADSTO	30 pcs/edge
Brand A	20 pcs/edge

Cutting Life	
HADSTO	164min/edge, normal worn
Brand A	95min/edge, normal worn

Application Cases

Rough milling - Mirror Polishing Mold steel

- **Workpiece** NAK80 (HRC37~43), Mirror polishing mold steel
- **Processing Methods** Dry-type rough milling,D6-Z2-L60,BT40
- **Insert** APMT1135PDER-FM HS5130
- **Cutting Parameters** Vc=125m/min, fz=0.4mm/z, ap=0.25mm, ae=20mm



Rough milling - S136 Mold Steel

- **Workpiece** S136 corrosion-resistant mold steel
- **Processing Methods** Dry-type rough milling, D17-Z2-L70~105,BT40
- **Insert** APMT1135PDER-FM HS5130
- **Cutting Parameters** Vc=160m/min, fz=0.6mm/z, ap=0.



Cutting Life	
HADSTO	46min/edge, normal wear
Brand A	38min/edge, normal wear

Cutting Life	
HADSTO	287min/edge, normal wear
Brand A	223min/edge, normal wear

Rough milling - Die Casting Mold

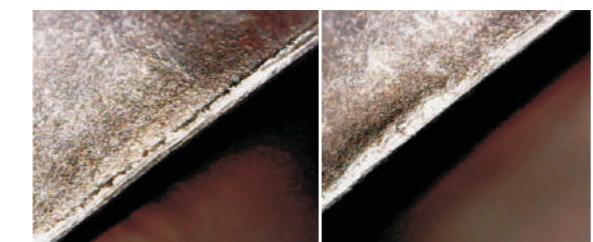
- **Workpiece** H13 hardened steel, Die casting mold
- **Processing Methods** Dry-type rough milling (life time calculate flat surface only), D21-Z2-L60, BT40
- **Insert** APMT1135PDER-FM HS5130
- **Cutting Parameters** Vc=148m/min, fz=0.44mm/z, ap=0.2mm, ae=13mm



Cutting Life	
HADSTO	17min/edge, wear and flaking
Brand A	11min/edge, Severe wear

Rough milling holes - Stamping Die

- **Workpiece** CR12, Stamping die
- **Processing Methods** Dry-type rough milling,D30-Z2-L75,BT40
- **Insert** RPMT1003MO-FM HS5130
- **Cutting Parameters** Vc=170m/min, fz=0.89mm/z, ap=0.3mm



Cutting Life	
HADSTO	58min/edge, slight wear
Brand A	58min/edge, Obvious wear in coating

Application Cases

Hardened steel milling - Punch Die

● **Workpiece** 440C(9Cr18MoVS) hardened steel (HRC56), Cold work die / Punch die

● **Processing Methods** Dry-type interrupted rough milling end faces (W/hole), D21-Z2-L70, BT40

● **Insert** APMT1135PDER-FM HS5115

● **Cutting Parameters** Vc=132m/min, fz=0.7mm/z, ap=0.1mm, ae=5mm

● **Cutting performance** Wear comparison after 13 min: HS5115 still have coating and shows grinding trace only

HS5115 provide high surface quality, uniform wear, stable and reliable life time for hardened steel machining.



HS5115

Overseas Competitor A



E5

Hardened steel milling - Punch Die

● **Workpiece** 440C(9Cr18MoVS) hardened steel (HRC56), Cold work die

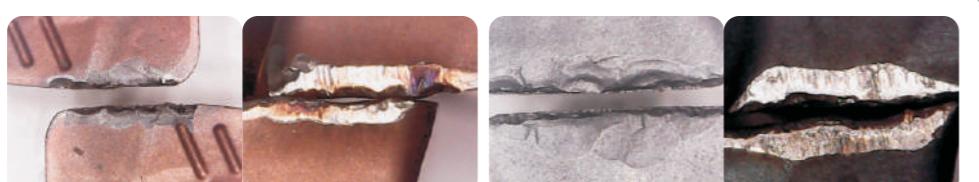
● **Processing Methods** Dry-type medium speed rough milling interrupted faces (W/hole), D21-Z2-L70, BT40

● **Insert** APMT1135PDER-FM HS5115

● **Cutting Parameters** Vc=132m/min, fz=0.7mm/z, ap=0.1mm, ae=5mm

● **Cutting performance** Blade crack after 29 min, Brand A cracks on 22 min

HS5115 provide comparatively longer life time compare other brand with good reputation in the market



HS5115

Overseas Competitor A

Hadsto Efficient Cutting tools

哈德斯通，高效切削刀具

