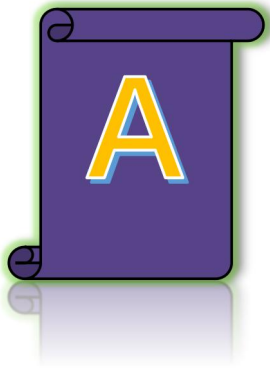


General Turning Insert





General Turning Tools

ISO identification rule for turning insert

Grade identification rule

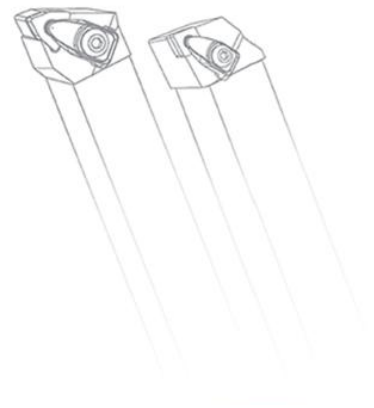
Grade instruction

Grade application summary

Geometry introduction list

Insert specification list

Recommended Cutting Data



ISO identification rules for turning insert

Symbol	Shape	Corner Angle
H	Hexagon	120°
O	Octagon	135°
P	Pentagon	108°
S	Square	90°
T	Triangle	60°
C	Rhombus	80°
D		55°
E		75°
F		50°
M		86°
V		35°
W		Hexagon
L	Rectangle	90°
A	Parallelogram	85°
B		82°
K		55°
R	Round	-

1. Shape Symbol

Symbol	Relief Angle
Other	
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Other

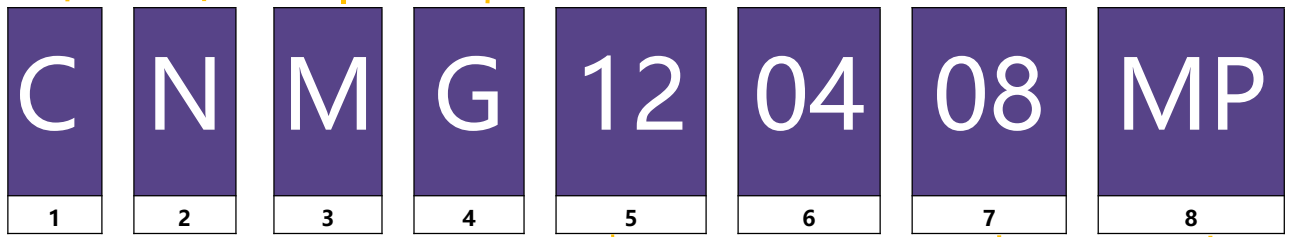
2. Relief Angle Symbol

Symbol	Tolerance (mm)		
	Corner Height	Thickness	I.C.Dia
A	±0.005	±0.025	±0.025
F			±0.013
C	±0.013	±0.025	±0.025
H	±0.025		±0.013
E		±0.13	±0.025
G	±0.005		±0.05
J		±0.013	
K	±0.025		±0.025
L		±0.08	
M	±0.18		±0.025
N		±0.08	
U	±0.18		±0.08

3. Tolerance Symbol

Symbol	Hole	Hole Shape	Chip-breaker	Shape
N	With	-	Without	
R			Single-sided	
F			Double-sided	
A	With Hole	-	Without	
M			Single-sided	
G			Double-sided	
W	Cylindrical hole one side	40~60°	Without	
T			Single-sided	
Q	Cylindrical hole both sides	40~60°	Without	
U			Double-sided	
B	Cylindrical hole one side	70~90°	Without	
H			Single-sided	
C	Cylindrical hole both sides	70~90°	Without	
J			Double-sided	
X	-	-	-	-

4. Hole/Chip-breaker Symbol



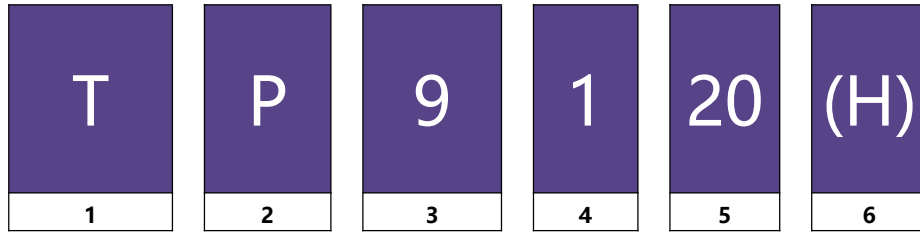
5. ISO Edge Length Symbol (mm)							I.C.Dia. (mm)
03	04		03	06			3.97
04	05		04	08	08		4.76
		05					5
05	06		05	09		03	5.56
		06					6
06	07		06	11	11	04	6.35
08	09		07	13		05	7.94
		08					8
09	11	09	09	16	16	06	9.525
	12	10					10
	12						12
12	15	12	12	22	22	08	12.7
16	19	15	15	27	27	10	15.875
		16					16
19	23	19	19	33	33	13	19.05
		20					20
22	27		22	38			22.225
		25					25
25	31	25	25	44	44	17	25.4
32	38	31	31	54	54	21	31.75
		32					32

6. Corner Height Symbol	
Sym	Corner Height (mm)
01	1.59
T1	1.98
02	2.38
T2	2.78
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35
07	7.94
09	9.525

7. Corner Re Symbol	
Sym	Corner-R (mm)
00	无
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
20	2.0
24	2.4
28	2.8
32	3.2

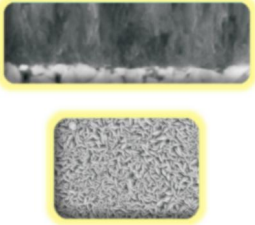
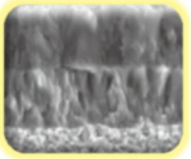
8. Chipbreaker Symbol	
Indicates the cutting properties and chipbreaker	
L: Light-duty Processing	
M: Medium-duty Processing	
H: Heavy-duty Processing	
C: Customization	
P: Steel	
M: Stainless Steel	
K: Cast Iron	
N: Nonferrous Metal	
S: HRSA	
H: Hardened Material	

Grade identification rules

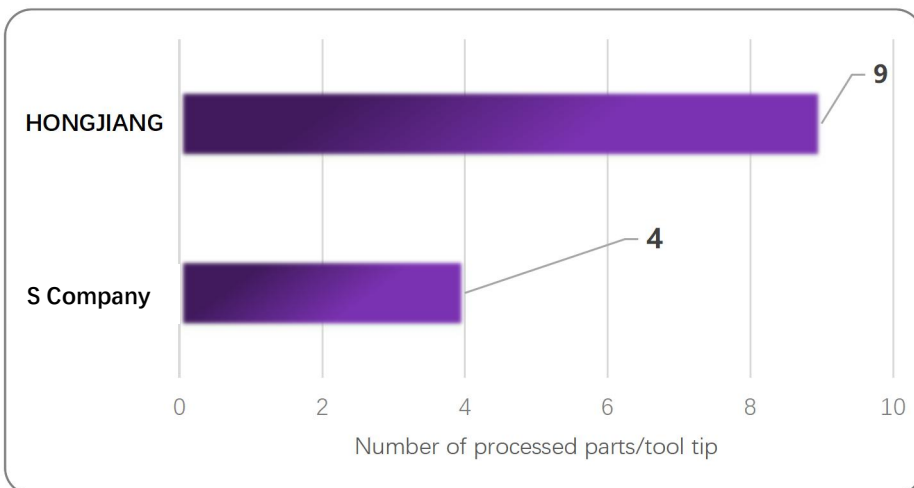
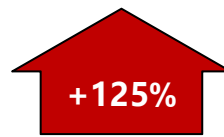


1.Machining way		2.Workpiece		3.Coating		4.Generation		5.Working Condition		6.Special Code	
T	Turning	P	Steel	8	PVD	1	1 st Generation	10	Continuous	H	Heavy machining
M	Milling	M	Stainless Steel	9	CVD	2	2 nd Generation	20	Medium	S	Small parts
D	Drilling	K	Cast Iron			30	Interrupted
U	Universal	N	Nonferrous Metal				
		H	Hardened Material			.					
		S	HRSA								

Grade Instruction

Grade	Processing Type	Coating Structure	Features
TP9110	Super Finishing~Finishing High speed		This grade has excellent high temperature performance, which is especially suitable for high speed and high efficiency finishing turning. As the high cobalt matrix with scientific proportion and gradient coating with precise control make it not only has excellent strength and toughness, but also has excellent wear resistance. And the application of nucleation pre planting technology further improves the uniformity and consistency of ultrafine α -Al ₂ O ₃ coating.
TP9120	Finishing~Roughing General processing		Due to the optimized alloy composition and microstructure, this general processing grade has excellent plastic deformation resistance. The organic combination of MT-TiCN, thick Al ₂ O ₃ and TiN are further optimized by the technology of oxygen gradient transition layer, which not only improves the stress state and interface state of the coating, but also enhances the stability and safety of the tool.

Tool Dia	Φ24
Specification	WNMG080408-MP-TP9120
Workpiece	40Mn (HRC20)
Cutting Data	V _c 128m/min f 0.25mm/rev A _p 1.0mm
Coolant	External
Cutting Result	Compared with S company, increase by 125% (stable performance under severe working conditions)




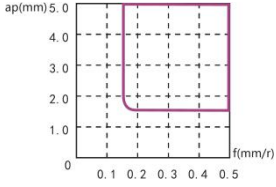

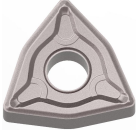
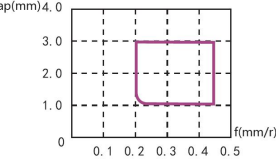
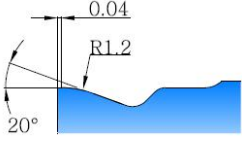
Wear comparison



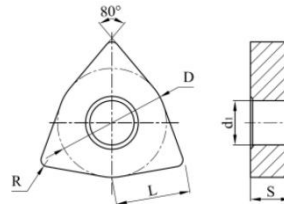
Grades Application Summary of Turning Grades

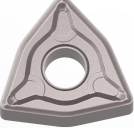

Workpiece	ISO	Coated		Uncoated	Cermet	CBN
		CVD	PVD			
P Steel	01					
	10	TP9110				
	20	NEW				
	30	TP9120				
	40	TP9130				
	50	developing				
M Stainless Steel	01					
	10		TM8110			
	20		developing			
	30		TM8120			
	40		NEW			
	50					
K Cast Iron	01					
	10					
	20	TK9120				
	30					
	40	developing				
N Nonferrous Metal	01					
	10					
	20					
	30					
	40					
S HRSA	01					
	10					
	20					
	30					
	40					
H Hardened Material	01					
	10					
	20					
	30					

Geometry Introduction List

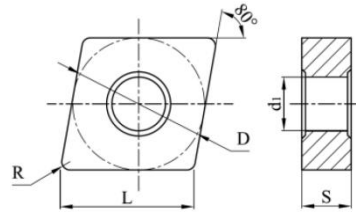
Geometry	Features	Working Area	Geometry Description
 <p>MP</p>	<p>P general processing</p> <p>Variable rake angle design, suitable for various cutting depths, wide chip breaking range</p> <p>Special chip breaking arm and chip breaking table design, good chip control</p> <p>High cutting edge strength and sharpness, low cutting force</p>	 <p>Graph showing ap(mm) vs f(mm/r) for MP geometry. The y-axis (ap) ranges from 0 to 5.0, and the x-axis (f) ranges from 0 to 0.5. A purple square indicates a working area from f=0.2 to 0.4 and ap=1.5 to 4.5.</p>	 <p>Diagram showing a 19° rake angle and a chip breaking arm with a height of 0.2 mm.</p>
 <p>MM</p>	<p>M general processing</p> <p>Two-way guarantee of both sharpness and strength</p> <p>Special spherical chip breaking table, meeting various cutting depths, with good chip breaking effect</p>	 <p>Graph showing ap(mm) vs f(mm/r) for MM geometry. The y-axis (ap) ranges from 0 to 4.0, and the x-axis (f) ranges from 0 to 0.5. A purple square indicates a working area from f=0.2 to 0.4 and ap=1.0 to 3.0.</p>	 <p>Diagram showing a 20° rake angle, a chip breaking arm with a height of 0.04 mm, and a spherical chip breaking table with a radius of R1.2 mm.</p>


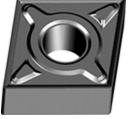
WN** (Negative)



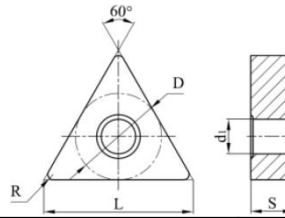
Insert Style	Specification/Item	Dimensions (mm)					Coated					
		L	ϕC	S	d1	R	TP9110	TP9120	TM8110	TM8120	TK9120	U8120
 MM Semi-Finishing Machining	WNMG060404-MM	6.5	9.525	4.76	3.81	0.4				○		
	WNMG060408-MM	6.5	9.525	4.76	3.81	0.8				○		
	WNMG060412-MM	6.5	9.525	4.76	3.81	1.2				○		
	WNMG080404-MM	8.7	12.7	4.76	5.16	0.4				●		
	WNMG080408-MM	8.7	12.7	4.76	5.16	0.8			●	●		
	WNMG080412-MM	8.7	12.7	4.76	5.16	1.2				●		
	WNMG080416-MM	8.7	12.7	4.76	5.16	1.6						
 MP Semi-Finishing Machining	WNMG060404-MP	6.5	9.525	4.76	3.81	0.4		●				
	WNMG060408-MP	6.5	9.525	4.76	3.81	0.8		●				
	WNMG060412-MP	6.5	9.525	4.76	3.81	1.2		○				
	WNMG080404-MP	8.7	12.7	4.76	5.16	0.4	●	●				
	WNMG080408-MP	8.7	12.7	4.76	5.16	0.8	●	●				
	WNMG080412-MP	8.7	12.7	4.76	5.16	1.2	●	●				
	WNMG080416-MP	8.7	12.7	4.76	5.16	1.6	●	●				



CN** (Negative)



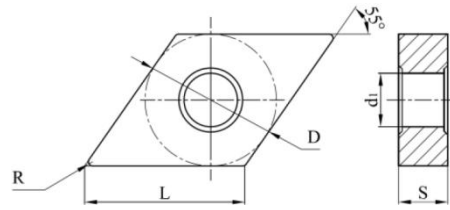
Insert Style	Specification/Item	Dimensions (mm)					Coated					
		L	φC	S	d1	R	TP9110	TP9120	TM8110	TM8120	TK9120	U8120
 MM Semi-Finishing Machining	CNMG120404-MM	12.9	12.7	4.76	5.16	0.4				●		
	CNMG120408-MM	12.9	12.7	4.76	5.16	0.8			●	●		
	CNMG120412-MM	12.9	12.7	4.76	5.16	1.2				●		
	CNMG120416-MM	12.9	12.7	4.76	5.16	1.6				○		
	CNMG160608-MM	16.1	15.875	6.35	6.35	0.8				○		
	CNMG160612-MM	16.1	15.875	6.35	6.35	1.2				○		
 MP Semi-Finishing Machining	CNMG120404-MP	12.9	12.7	4.76	5.16	0.4	●	●				
	CNMG120408-MP	12.9	12.7	4.76	5.16	0.8	●	●				
	CNMG120412-MP	12.9	12.7	4.76	5.16	1.2	●	●				
	CNMG120416-MP	12.9	12.7	4.76	5.16	1.6	●	●				
	CNMG160608-MP	16.1	15.875	6.35	6.35	0.8	●	●				
	CNMG160612-MP	16.1	15.875	6.35	6.35	1.2	●	●				

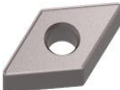

TN** (Negative)



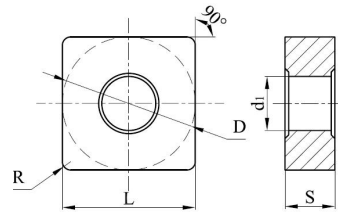
Insert Style	Specification/Item	Dimensions (mm)					Coated					
		L	ϕC	S	d1	R	TP9110	TP9120	TM8110	TM8120	TK9120	U8120
 MM Semi-Finishing Machining	TNMG160404-MM	16.5	9.525	4.76	3.81	0.4			●	●		
	TNMG160408-MM	16.5	9.525	4.76	3.81	0.8			●	●		
	TNMG160412-MM	16.5	9.525	4.76	3.81	1.2			●	●		
 MP Semi-Finishing Machining	TNMG110304-MP	11	6.35	3.18	2.26	0.4	○	○				
	TNMG110308-MP	11	6.35	3.18	2.26	0.8	○	○				
	TNMG160404-MP	16.5	9.525	4.76	3.81	0.4	○	●				
	TNMG160408-MP	16.5	9.525	4.76	3.81	0.8	●	●				
	TNMG160412-MP	16.5	9.525	4.76	3.81	1.2	●	●				
	TNMG220408-MP	22	12.7	4.76	5.16	0.8	●	●				
	TNMG220412-MP	22	12.7	4.76	5.16	1.2	○	●				



DN** (Negative)



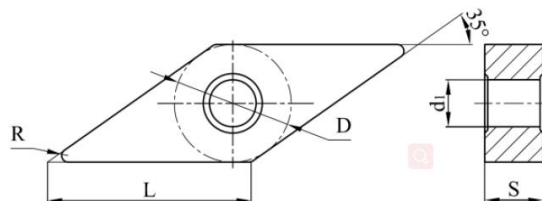
Insert Style	Specification/Item	Dimensions (mm)					Coated					
		L	φC	S	d1	R	TP9110	TP9120	TM8110	TM8120	TK9120	U8120
 MM Semi-Finishing Machining	DNMG110404-MM	11.6	9.525	4.76	3.81	0.4				●		
	DNMG110408-MM	11.6	9.525	4.76	3.81	0.8				●		
	DNMG110412-MM	11.6	9.525	4.76	3.81	1.2				○		
	DNMG150404-MM	15.5	12.7	4.76	5.16	0.4				●		
	DNMG150408-MM	15.5	12.7	4.76	5.16	0.8			●	●		
	DNMG150412-MM	15.5	12.7	4.76	5.16	1.2				○		
 MP Semi-Finishing Machining	DNMG110404-MP	11.6	9.525	4.76	3.81	0.4	○	●				
	DNMG110408-MP	11.6	9.525	4.76	3.81	0.8	○	●				
	DNMG110412-MP	11.6	9.525	4.76	3.81	1.2	○	○				
	DNMG150404-MP	15.5	12.7	4.76	5.16	0.4	○	●				
	DNMG150408-MP	15.5	12.7	4.76	5.16	0.8	●	●				
	DNMG150412-MP	15.5	12.7	4.76	5.16	1.2	○	●				

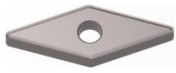

SN** (Negative)



Insert Style	Specification/Item	Dimensions (mm)					Coated					
		L	φC	S	d1	R	TP9110	TP9120	TM8110	TM8120	TK9120	U8120
 MM Semi-Finishing Machining	SNMG120404-MM	12.7	12.7	4.76	5.16	0.4				●		
	SNMG120408-MM	12.7	12.7	4.76	5.16	0.8				●		
	SNMG120412-MM	12.7	12.7	4.76	5.16	1.2				●		
	SNMG120416-MM	12.7	12.7	4.76	5.16	1.6				○		
 MP Semi-Finishing Machining	SNMG120404-MP	12.7	12.7	4.76	5.16	0.4	○	●				
	SNMG120408-MP	12.7	12.7	4.76	5.16	0.8	●	●				
	SNMG120412-MP	12.7	12.7	4.76	5.16	1.2	○	●				
	SNMG120416-MP	12.7	12.7	4.76	5.16	1.6	●	●				
	SNMG150608-MP	15.875	15.875	6.35	6.35	0.8	○	○				
	SNMG150612-MP	15.875	15.875	6.35	6.35	1.2	●	●				

VN** (Negative)



Insert Style	Specification/Item	Dimensions (mm)					Coated					
		L	φC	S	d1	R	TP9110	TP9120	TM8110	TM8120	TK9120	U8120
 MM Semi-Finishing Machining	VNMG160404-MP	16.6	9.525	4.76	3.81	0.4			●	●		
	VNMG160408-MP	16.6	9.525	4.76	3.81	0.8			●	●		
	VNMG160412-MP	16.6	9.525	4.76	3.81	1.2			○	○		
 MP Semi-Finishing Machining	VNMG160404-MP	16.6	9.525	4.76	3.81	0.4	●	●				
	VNMG160408-MP	16.6	9.525	4.76	3.81	0.8	●	●				
	VNMG160412-MP	16.6	9.525	4.76	3.81	1.2	○	●				

Recommended Cutting Data

ISO	Workpiece Material	Hardness	Cutting Range	Purpose	Chipbreaker	Grade	Min-Optimum-Max		
							Cutting Speed(m/min)	Depth of Cutting(mm)	Feed rate(mm/rev)
P	Low Carbon Steel	≤HB180	Finishing	Continual	LP	TP9110	200-260-360	0.4-0.8-2.0	0.08-0.15-0.35
						TP9120	180-240-320	0.4-0.8-2.0	0.08-0.15-0.35
			Semi-finishing	Continual	MP	TP9110	200-260-360	0.8-2.0-4.0	0.10-0.15-0.40
						TP9120	160-210-300	0.8-2.0-4.0	0.10-0.15-0.40
						TP9130	90-150-210	1.5-3.5-6.0	0.20-0.30-0.60
			Roughing	Universal	HP	TP9120	100-170-230	1.5-3.5-6.0	0.20-0.30-0.60
						TP9130	90-150-210	1.5-3.5-6.0	0.20-0.30-0.60
			Carbon Steel & Alloy Steel	HB180-280	Finishing	Continual	LP	TP9110	180-230-320
	TP9120	160-200-300						0.4-0.8-2.0	0.08-0.15-0.35
	Semi-finishing	Continual			MP	TP9110	160-230-320	0.8-2.0-4.0	0.10-0.15-0.40
						TP9120	120-190-280	0.8-2.0-4.0	0.10-0.15-0.40
	Roughing	Universal			HP	TP9130	120-160-240	1.5-3.5-6.0	0.20-0.30-0.60
						TP9120	150-180-250	0.4-0.8-2.0	0.08-0.15-0.35
			Break		HP	TP9130	130-150-230	0.4-0.8-2.0	0.08-0.15-0.35

Recommended Cutting Data

ISO	Workpeice Material	Hardness	Cutting Range	Purpose	Chipbreaker	Grade	Min-Optimum-Max		
							Cutting Speed(m/min)	Depth of Cutting(mm)	Feed rate(mm/rev)
P	Carbon Steel & Alloy Steel	HB280-350	Finishing	Continual	LP	TP9110	150-180-250	0.4-0.8-2.0	0.08-0.15-0.35
						TP9120	130-150-230	0.4-0.8-2.0	0.08-0.15-0.35
			Semi-finishing	Continual	MP	TP9110	120-180-250	0.8-2.0-4.0	0.10-0.15-0.40
						TP9120	100-130-180	0.8-2.0-4.0	0.10-0.15-0.40
						TP9130	80-120-180	2.0-3.5-6.5	0.20-0.30-0.60
			Roughing	Universal	HP	TP9120	70-100-170	3.5-6.0-14	0.35-0.60-1.05
						TP9130	60-90-150	3.5-6.0-14	0.35-0.60-1.05
			M	stainless steel 303,304 and 316, etcl	≤HB300	Finishing	Continual	LM	TM8110
Semi-finishing	Continual	MM				TM8110	100-160-220	1.0-2.5-4.0	0.10-0.20-0.40
						TM8120	100-160-220	1.0-2.5-4.0	0.10-0.20-0.40



HONGJIANG

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