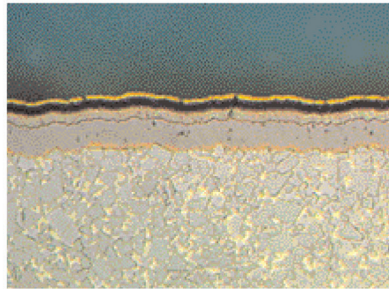


TECHNICAL OVERVIEW OF GRADES

MEDA Coated Grades

- 1) The film's crystalline structure provides excellent wear and impact resistance.
- 2) High bonding strength between film and substrate from utilization of new coating technologies.



TiN Reduces Friction
Al₂O₃ Wear Resistant, Prevents Built-up-edge
TiC Wear Resistant
TiCN Enhances Wear Resistance and Toughness by adopting new coating technologies.
 Cross-section of CVD coating

Grade Selection

Turning

Material	Cutting conditions	Grade	cutting speed (sfm)	ISO	Application Range
Steel	Continuous	NC310	925(725 ~ 1150)	P01	
		NC3015	825(650 ~ 1050)	P10	
		NC3020	725(600 ~ 975)	P20	
	Interrupted	NC3020	600(500 ~ 650)	P30	
		NC330	500(400 ~ 650)	P40	
Cast Iron	Continuous	NC305K	825(500 ~ 975)	K01	
		NC315K	725(500 ~ 875)	K10	
	Interrupted	NC315K	600(500 ~ 825)	K20	
			600(500 ~ 825)	K30	
Stainless Steel	Continuous	NC9020	550(400 ~ 725)	M01	
			550(400 ~ 725)	M10	
	Interrupted	NC330	325(250 ~ 400)	M20	
				M30	

Milling

Material	Grade	cutting speed (sfm)	ISO	Application Range
Steel	NCM325	825(500 ~ 975)	P20	
			M20	
	NCM335	650(500 ~ 825)	P30	
			M30	
Cast Iron	NCM310K	825(650 ~ 975)	P40	
			M40	
	NCM320K	650(500 ~ 825)	K10	
			K20	
		K30		

TECHNICAL OVERVIEW OF GRADES

MEDA PVD Coated Grades

TMX Grade	ISO	Special Features	Use
NC310	P05 - P15	<ul style="list-style-type: none"> For turning of steel at high cutting speeds Optimal for high speed machining of steel due to the combination of hard substrate and CVD Al₂O₃ film MT-TiCN + Al₂O₃ + TiN 	Turning
NEW NC3015	P10 - P20	<ul style="list-style-type: none"> For turning of steel and cast iron at medium cutting speeds. Consistent tool life due to the combination of tough substrate and CVD film New MT-TiCN + Al₂O₃ + TiN 	Turning
NEW NC3020	P15 - P30	<ul style="list-style-type: none"> For turning of steel at medium cutting speeds Excellent combination of tough substrate and coating with superior chipping resistance provides stable and consistent cutting performance. MT-TiCN + Al₂O₃ + TiN 	Turning
NC330	P25 - P35 M15 - M25	<ul style="list-style-type: none"> For roughing and interrupted cutting of carbon, alloy, and stainless steels at medium cutting speeds. Tough substrate provides wide range of applications. MT-TiCN + Al₂O₃ + TiN 	Turning
NC305K	K05 - K15	<ul style="list-style-type: none"> For cast iron turning at high cutting speeds. Hard substrate and thick CVD Al₂O₃ coating provides excellent wear resistance. MT-TiCN + Al₂O₃ + TiN 	Turning
NC315K	K10 - K25	<ul style="list-style-type: none"> For general turning of cast iron. Special substrate suitable for fast feed and large depths of cut. Thick CVD Al₂O₃ coating provides stable and consistent cutting performance. MT-TiCN + Al₂O₃ + TiN 	Turning
NEW NC9020	M10 - M20	<ul style="list-style-type: none"> For stainless steel turning at high cutting speeds. Substrate has excellent thermal properties and CVD coating with excellent chipping resistance provides longer tool life. MT-TiCN + Al₂O₃ + TiN 	Turning
NCM325	P20 - P30 M20 - M30	<ul style="list-style-type: none"> For carbon, alloy, and stainless steel milling applications at high cutting speeds Substrate and coating combination delivers wear resistance and toughness to provide consistent tool life. MT-TiCN + Al₂O₃ + TiN 	Milling
NCM335	P30 - P40 M30 - M40	<ul style="list-style-type: none"> For interrupted and rough milling of carbon, alloy, and stainless steels. Tough substrate provides stable tool life in severe interrupted cutting conditions. MT-TiCN + Al₂O₃ + TiN 	Milling
NCM310K	K05 - K15	<ul style="list-style-type: none"> For cast iron milling at high cutting speeds. Hard substrate and fine grain size. Al₂O₃ coating provides excellent wear resistance at high cutting speeds. MT-TiCN + Al₂O₃ 	Milling
NCM320K	K15 - K25	<ul style="list-style-type: none"> For general milling of cast iron Tough substrate and fine grain size Al₂O₃ coating provide wide available cutting range for both dry and wet cutting. MT-TiCN + Al₂O₃ 	Milling

CARBIDE INSERTS

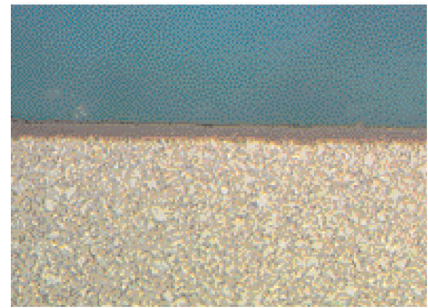
TECHNICAL OVERVIEW OF GRADES

GUIDE TO GRADE SELECTION

MEDA PVD Coated Grades

Special Features

- 1) PVD is a thin coating applied at a low temperature. The lower application temperatures make for greater edge strength when compared to other processes. The thin coating also helps maintain cutting edge sharpness.
- 2) PVD coated carbide typically last 2~4 times longer than uncoated carbide cutting tools.
- 3) The titanium base can machine excellent surface finishes and hold close tolerances due to the low affinity to the work piece materials.



Cross-section view of PVD coating

The MEDA PVD Trio

PC3530 : Steel milling grade consisting of a tough carbide based substrate and a nanotechnology TiAlN coating. PC3530 also works very well in most stainless steels.
 PC9030 : Exclusively for turning stainless steels. Comprised of a tough substrate and TiAlN coating.
 PC9530 : Grade for milling stainless steels. Consisting of an ultra fine grain substrate and TiAlN coating.

Grade Selection

■ Turning

Material	Coating	Grade	cutting speed (sfm)	ISO	Application Range
Stainless steel	TiAlN	PC9030	420(160 ~ 260)	M20	PC9030
				M30	
				M40	

■ Milling

Material	Coating	Grade	cutting speed (sfm)	ISO	Application Range
Steel	TiAlN	PC3530	650(500 ~ 825)	P10	PC3530
				P20	
Stainless steel	TiAlN	PC9530	420(160 ~ 260)	M20	PC9030
				M30	
				M40	

MEDA Grade	ISO	Features	Use
PC3530	P10 - P25	<ul style="list-style-type: none"> · For milling of steel · Tough substrate with Nano-TiAlN coating provides excellent wear resistance and toughness. · Nano-TiAlN coating 	Milling
PC9030	M20 - M35	<ul style="list-style-type: none"> · For medium, rough and interrupted turning of stainless steel. · Tough sub-micron substrate with PVD TiAlN coating. Has a low coefficient of friction to prevent built-up-edge resulting in extended and consistent tool life. · TiAlN coating 	Turning Threading
PC9530	M35 - M45	<ul style="list-style-type: none"> · For medium to rough stainless steel milling · Tough sub-micron substrate provides excellent high speed cutting performance. · TiAlN coating 	Milling

CARBIDE INSERTS



COATINGS

Alumina layer (Al₂O₃)

- Outstanding wear resistance in high speed cutting
- High hardness at high temperatures through superior resistance to diffusion and oxidation

Titanium Carbide layer (TiC)

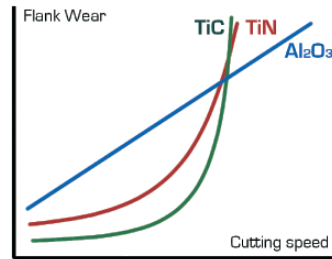
- Excellent wear resistance in low speed cutting
- Superb adhesion to base material

Titanium Aluminum Nitride layer (TiAlN)

- New coating technique applied which ensures excellent heat and wear resistance
- Ideal performance in roughing and interrupted cutting of general and stainless steels
- Perfect for general cutting applications

Titanium Nitride layer (TiN)

- Excellent resistance to oxidization in high temperatures
- Outstanding thermal diffusion characteristics guard against thermal shock during milling operations



COMPARISON OF CHIPBREAKERS

Applications		MEDA		Sumitomo	Sandvik	Kennametal	Mitsubishi	Iscar	Seco	Widia
		Main	Sub							
NEGATIVE TYPE	Extreme Finishing	DO2		FA	QF		FS, FH, F		FF1	
	Finishing	HF	GF	MF, PF SU, SK SJ	PF MF	MG-UF MP-K	SH	NF	MF2	WF-2 -3 -4 M2
	Medium Finishing	HC	GK	SM, SX UP	SM	MG-LF GG-LF MG-K	MZ	PP, TF	M7	WMF-41
	Medium Roughing	HM	GK GM	PM QM	PM QM	MG-P GG-P MG-MG	MA	GN	M5	WM-48 -6
	Roughing	HR	GR B25	PR MU	PR	MM-MR MM	GH	NM	R4, R6 R8	WMR -65 -5, 93
	Heavy Roughing	GH	B40	QR, MP HR, HP	QR HR	MH	HH	NM, TNM	RR9	WR-8 -7, 9
	General	B25	GR		23	MG	MT	NP, GN		
	Stainless Steel	GS	HC B25 X38	MF, SU, MM MU, MR	MF, MM MR	P, K	MS	PP	MR5	WMF-41
	Cast Iron	GR	B20	QM, UZ, MR KM, KR	QM, MR KM, KR			GN		-65
	POSITIVE TYPE	Finishing	HFP	C05	FX FP	UF UM	MT-UF MT-LF GT-LF	SQ	HQ, 14, 17	F1
Medium Roughing		HMP	C25	UR	UM					
Semi-Roughing		HRP	C25	SC SK	UR	MT-MF GM	MQ	DT, 19	F2	
Aluminum & Alloy		AK			AL	HP		PP		UA
Stainless Steel		HMP	AK	56						
Indexable Drill		C20			56			GF, GG		

CARBIDE INSERTS

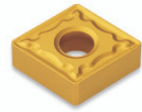
TURNING CHIPBREAKERS



GF

for Finishing

- Low cutting resistance and fine surface quality
- Excellent chip control in slight depth of cut and high feed cutting
- Suitable for aluminum cutting
Recommended application range
d=0.02" - 0.08" (0.5 - 2.0mm)
f=0.002 - 0.012 IPR (0.05 - 0.3mm/rev)



GM

for Medium cutting

- Excellent chip control even in slight depth of cut
- Strong cutting edge for high feed and interrupted cut
Recommended application range
d=0.03" - 0.16" (0.7 - 4.0mm)
f=0.004 - 0.02 IPR (0.1 - 0.5mm/rev)



GR

for Medium and heavy duty cutting

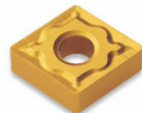
- Suitable for high feed and large depth of cut in steel and cast iron
- Suitable to intermittent cutting
Recommended application range
d=0.12" - 0.3" (3.0 - 8.0mm)
f=0.012 - 0.03 IPR (0.3 - 0.8mm/rev)



GH

for Heavy Duty Cutting

- Very broad chip breaking area
- Single sided geometry insert
Recommended application range
d=0.12" - 0.47" (3.0 - 12.0mm)
f=0.012 - 0.06 IPR (0.3 - 1.5mm/rev)



GS

for Finishing

- Excellent chip control in extremely small depth of cut and low feed
- Low cutting force and fine surface quality of work piece
- Suitable to internal as well as external processing
Recommended application range
d=0.004" - 0.06" (0.1 - 1.5mm)
f=0.0002 - 0.01 IPR (0.05 - 0.25mm/rev)



B20

for Light and Medium Cutting

- Chipbreaker designed primarily for cutting cast iron
Recommended application range
d=0.06" - 0.16" (1.5 - 4.0mm)
f=0.006" - 0.02 IPR (0.15 - 0.5mm/rev)



B25

for General cutting

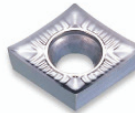
- Suitable for general cutting
- Recommended application range
d=0.08" - 0.24" (2.0 - 6.0mm)
F=0.01 - 0.02 IPR (0.25 - 0.5mm/rev)



C25

for Medium cutting

- Suitable to intermittent cutting and castings processing due to strong edge
- Low cutting force and fine surface finishing
Recommended application range
d=0.004" - 0.012" (0.1 - 0.3mm)
f=0.004 - 0.012 IPR (0.1 - 0.3mm/rev)



AK

for Aluminum cutting operation

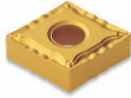
- This highly polished insert is also an excellent choice for copper alloys, plastics, rubber and other non-ferrous materials
- High productivity in Aluminum cutting operation
- New designed geometry for excellent performance
Recommended application range
d=0.004" - 0.2" (0.1 - 5.0mm)
f=0.004 - 0.02 IPR (0.1 - 0.5mm/rev)

Note:
d = depth of cut
f = feed range



TURNING CHIPBREAKERS

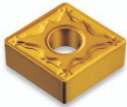
for Finishing



HF

- Low cutting force and fine surface finishing
- Stable chip control in various depths of cut
 Recommended application range
 $d=0.04" - 0.16" [0.8 - 4.0mm]$
 $f=0.003 - 0.016$ IPR [0.08 - 0.4mm/rev]

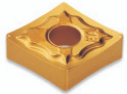
for Medium Cutting



HM

- Low cutting force and fine surface finishing
- Stable chip control in various depths of cut
 Recommended application range
 $d=0.04" - 0.16" [0.8 - 4.0mm]$
 $f=0.003 - 0.016$ IPR [0.08 - 0.4mm/rev]

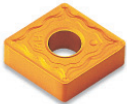
for Medium Cutting



HA

- Stable chip Control
- Ideal for newer CNC machines
- Specifically designed for greater life in stainless steel
- Ideal for medium to long runs
 Recommended application range
 $d=0.02" - 0.16" [0.5 - 4.0mm]$
 $f=0.004 - 0.016$ IPR [0.1 - 0.4mm/rev]

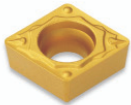
for Medium Cutting



HW

- Wiper design provides superior finish at larger material removal rates
 Recommended application range
 $d=0.004" - 0.02" [0.1 - 0.5mm]$
 $f=0.012 - 0.08$ IPR [0.3 - 2.0mm/rev]

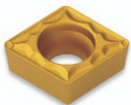
for Finishing



HFP

- Excellent chip control in minimal depth of cut and low feed
- Low cutting force and fine surface quality of work piece
- Suitable for internal as well as external applications
 Recommended application range
 $d=0.004" - 0.06" [0.1 - 1.5mm]$
 $f=0.0002 - 0.01$ IPR [0.05 - 0.25mm/rev]

for Medium Cutting

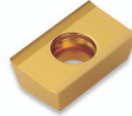


HMP

- Extremely low cutting force and good chip control in various feed rates and depths of cut
- Suitable for stainless steel cutting
 Recommended application range
 $d=0.02" - 0.14" [0.5 - 3.5mm]$
 $f=0.004 - 0.016$ IPR [0.1 - 0.4mm/rev]

MILLING CHIPBREAKERS

for Aluminum Milling



MA

- Excellent for high productivity in Aluminum, Copper Alloy and Plastics milling
- Newly designed geometry for excellent performance in Aluminum & other non-ferrous materials

for Medium Cutting & Finishing



MF

- Good chipbreaker for a wide range of machining, from semi-finishing to semi-roughing
- Excellent tool life for CNC machining

for Medium Cutting



MM

- Good chipbreaker for a wide range of machining, from semi-finishing to semi-roughing
- Excellent tool life for CNC machining

for General Milling



MX

- Excellent productivity in steel, cast iron and stainless steel milling as well as high speed and feed milling
- Outstanding heat resistance

for Heavy Duty Milling



KH

- Heavy duty chipbreaker and strong cutting edge.
- Ideal for very tough, heavy cuts

CARBIDE INSERTS

SERIES 156: "A" SHAPES

CUTTING TOOLS - CARBIDE INSERTS

ADKT 85 DEG., PARALLELOGRAM, POSITIVE RAKE WITH MM CHIPBREAKER

ADKT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
ADKT-1505PDSR-MM	.586" (15)	.3/8"	1/8" (3.18)	1/32"	NCM325 PC9530 PC3530	CVD	0120351 0120361 0120371	

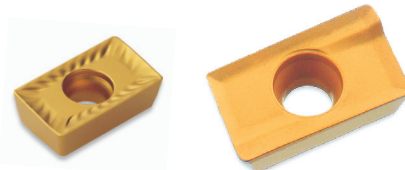


- Fits many popular cutter bodies
- Good general purpose insert

APKT 85 DEG., PARALLELOGRAM, POSITIVE RAKE WITH KH HEAVY DUTY CHIPBREAKER

APKT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
APKT-1604PDSR-KH	.645" (16.5)	3/8" (9.525)	3/16" (4.76)	1/32" 0.8	PC3525	CVD	0650371	

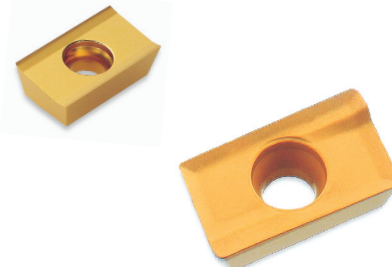


- Heavy duty chipbreaker and strong cutting edge
- Ideal for very tough, heavy cuts

APKT 85 DEG., PARALLELOGRAM, POSITIVE RAKE WITH MA CHIPBREAKER

APKT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
APKT-160402PDFR-MA	.645" (16.5)	3/8" (9.525)	3/16" (4.76)	1/128" (0.2)	HO1		0350300	
APKT-160404PDFR-MA				1/64 (0.4)			0350330	
APKT-160432PDFR-MA				1/8 (3.2)			0350380	

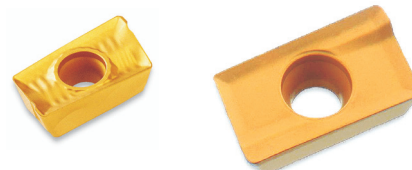


- Ideal for aluminum, plastic and other non-ferrous materials

APKT 85 DEG., PARALLELOGRAM, POSITIVE RAKE WITH MM CHIPBREAKER

APKT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
APKT-1604PDSR-MM	.645 (16.5)	3/8 (9.525)	3/16 (4.76)	1/32 0.8	NCM325 PC9530 PC3530	CVD PVD PVD	0450351 0450361 0450371	

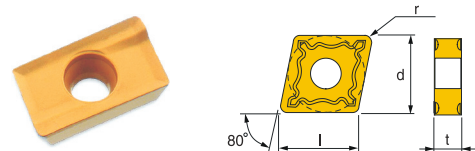


- Helical Edge for good shear
- Wiper technology for improved finish

APKT 85 DEG., PARALLELOGRAM, POSITIVE RAKE WITH MF FINISHING CHIPBREAKER

APKT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
APKT-1604PDSR-MF	.645" (16.5)	3/8" (9.52)	3/16" (4.76)	1/32" (0.8)	NCM325 PC9530 PC3530	CVD	0550351 0550361 0550371	



- Good chipbreaker for a wide range of machining
- An ideal choice for cast iron

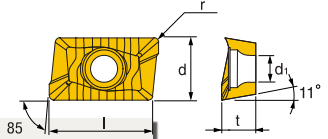
CARBIDE INSERTS

SERIES 156: "A" SHAPES,
SERIES 157: "C" SHAPES

APXT 85 DEG., PARALLELOGRAM, POSITIVE RAKE WITH MM MEDIUM CHIPBREAKER

APXT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO	l	d	t				
APXT-1604PDSR-MM					1/32 (0.8)	NCM325 CVD	0750351	
APXT-160416R-MM	.645 (16.5)	.376 (9.56)	.225 (5.76)	1/16 (1.6)	1/16 (1.6)	NCM325 CVD PC3530 PVD	0750451 0750401	
APXT-160432R-MM				1/8 (3.2)	1/8 (3.2)	NCM325 CVD	0750851	



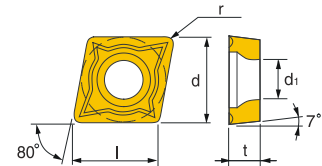
- Good choice for high alloy steels
- Helical Edge for good shear
- Wiper technology for improved finish
- Slightly thicker than most APKT inserts-dissipates heat better
- Very high leading edge leaves a very square shoulder

* Note: When machining very hard material, utilize the APKT-MM

CCMT 80 DEG., DIAMOND, POSITIVE RAKE WITH C25 MEDIUM CHIPBREAKER

CCMT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
CCMT-060204-C25 CCMT-21.51-C25	.256" (6.5)	1/4" (6.35)	3/32" (2.38)	1/64" (0.4)	NC330	CVD	0921551	
CCMT-080308-C25 CCMT-2.522-C25	.319 (8.1)	5/16 (7.94)	1/8 (3.18)	1/32 (0.8)	NC330	CVD	0925251	
CCMT-09T304-C25 CCMT-32.51-C25	.382 (9.7)	3/8 (9.52)	5/32 (3.97)	1/64 (0.4)	NC330	CVD	0932151	
CCMT-09T308-C25 CCMT-32.52-C25	.382 (9.7)	3/8 (9.52)	5/32 (3.97)	1/32 (0.8)	NC320 NC330 ST30	CVD CVD -	0932561 0932551 0932550	
CCMT-120408-C25 CCMT-432-C25	.508 (12.9)	1/2 (12.7)	3/16 (4.76)	1/32 (0.8)	NC330	CVD	0943251	

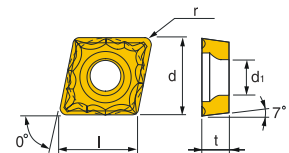
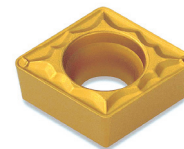


- Medium chipbreaker
- Strong cutting edge
- For medium to medium-roughing applications

CCMT 80 DEG., DIAMOND, POSITIVE RAKE WITH HMP MEDIUM CHIPBREAKER

CCMT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
CCMT-060202-HMP CCMT-21.50.5-HMP	0.254" (6.5)	1/4" (6.35)	3/32" (2.38)	1/128" (0.2)	NC330	CVD	6721051	
CCMT-060204-HMP CCMT-21.51-HMP				1/64 (1.2)	NC330	CVD	6721151	
CCMT-09T304-HMP CCMT-32.51-HMP				1/64 (0.4)	NC330 PC9030	CVD PVD	6732151 6732131	
CCMT-09T308-HMP CCMT-32.52-HMP	.379 (9.7)	3/8 (9.525)	5/32 (3.97)	1/32 (0.8)	NC320 NC330 PC9030	CVD CVD PVD	6732261 6632251 6632231	
CCMT-120408-HMP CCMT-432-HMP	0.504 (12.9)	1/2 (12.7)	3/16 (4.76)	1/32 (0.8)	NC320	CVD	6743261	



- Chip control design is more suited to newer CNC machines
- Medium chipbreaker
- For medium-finishing to medium applications
- Good choice for stainless steel

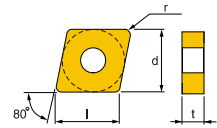
CARBIDE INSERTS

SERIES 157: "C" SHAPES

CUTTING TOOLS - CARBIDE INSERTS

CNMA 80 DEG., DIAMOND, NEGATIVE RAKE DOUBLE SIDED

CNMA

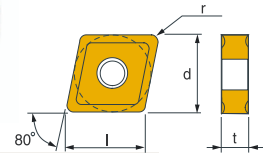


Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO/ASA	l	d	t				
CNMA-120408 CNMA-432	.504" (12.9)	1/2" (12.7)	3/16" (4.76)	1/32" (0.8)	NC315K	CVD	6843281	

- Good choice for Cast Iron

CNMG 80 DEG., DIAMOND, NEGATIVE RAKE DOUBLE SIDED WITH B25 GENERAL CHIPBREAKER

CNMG

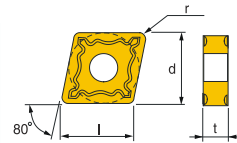


Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO/ASA	l	d	t				
CNMG-120408-B25 CNMG-432-B25				1/32" (0.8)	NC330 ST20	CVD -	1043251 1043260 1043220	
CNMG-120412-B25 CNMG-433-B25	0.504" (12.9)	1/2" (12.7)	3/16" (4.76)	3/64 (1.2)	NC330 G10	CVD -	1043351 1043320	
CNMG-190612-B25 CNMG-643-B25	0.76 (19.3)	3/4 (19.05)	1/4 (6.35)	3/64 (1.2)	NC330 G10	CVD -	1064351 1064320	

- Chip gullet design
- Good choice for manual machines
- Good for most steel applications

CNMG 80 DEG., DIAMOND, NEGATIVE RAKE WITH GM MEDIUM CHIPBREAKER

CNMG

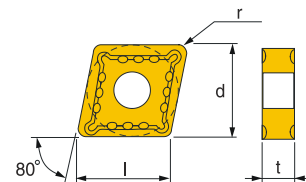
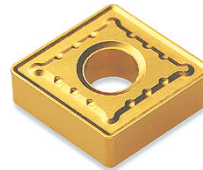


Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO/ASA	l	d	t				
CNMG-120404-GM CNMG-431-GM				1/64" (0.4)	NC330	CVD	1143151	
CNMG-120408-GM CNMG-432-GM	0.504" (12.9)	1/2" (12.7)	3/16" (4.76)	1/32" (0.8)	NC320 NC330	CVD CVD	1143261 1143251	

- General purpose medium chipbreaker design
- Strong cutting edge makes it a great choice for high feeds and interrupted cuts

CNMG 80 DEG., DIAMOND, NEGATIVE RAKE WITH GR ROUGHING CHIPBREAKER

CNMG



Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO/ASA	l	d	t				
CNMG-120408-GR CNMG-432-GR				1/32" (0.8)	NC320 NC330	CVD CVD	1243261 1243251	
CNMG-120412-GR CNMG-433-GR	0.504 (12.9)	1/2 (12.7)	3/16 (4.76)	3/64 (1.2)	NC310 NC320 NC330	CVD CVD CVD	1243341 1243361 1243351	
CNMG-160608-GR CNMG-542-GR	0.634 (16.1)	5/8 (15.8)	1/4 (6.35)	1/32 (0.8)	NC320	CVD	1254261	
CNMG-160612-GR CNMG-543-GR				3/64 (1.2)	NC320	CVD	1254361	
CNMG-190608-GR CNMG-642-GR				1/32 (0.8)	NC330	CVD	1264251	
CNMG-190612-GR CNMG-643-GR	0.76 (19.3)	3/4 (19.05)	1/4 (6.35)	3/64 (1.2)	NC320 NC330	CVD CVD	1264361 1264351	
CNMG-190616-GR CNMG-644-GR				1/16 (1.6)	NC320	CVD	1264461	

- General purpose roughing chipbreaker design
- Strong cutting edge makes it a great choice for high feeds and large depths of cut in steel and cast iron
- Suitable for interrupted cuts

CARBIDE INSERTS

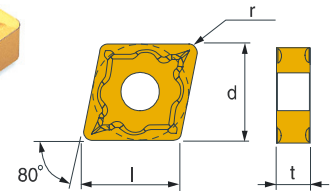
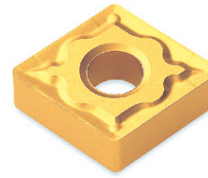
SERIES 157: "C SHAPES"



CNMG 80 DEG., DIAMOND, NEGATIVE RAKE WITH GS FINISHING CHIPBREAKER

CNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
CNMG-120404-GS CNMG-431-GS				1/64" (0.4)	NC325S	CVD	5143101	
CNMG-120408-GS CNMG-432-GS	0.504" (12.9)	1/2" (12.7)	3/16" (4.76)	1/32 (0.8)	NC325S	CVD	5143201	
CNMG-120412-GS CNMG-433-GS				3/64 (1.2)	NC325S	CVD	5143301	
CNMG-190612-GS CNMG-643-GS	0.76 (19.3)	3/4 (19.05)	1/4 (6.35)	3/64 (1.2)	NC325S	CVD	9164301	

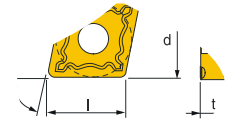
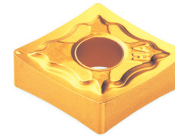


- Great choice for stainless steel and other exotic gummy materials
- Good shear capability
- Suitable for interrupted cuts

CNMG 80 DEG., DIAMOND, POSITIVE RAKE WITH HA MEDIUM CHIPBREAKER

CNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
CNMG-120404-HA CNMG-431-HA				1/64" (0.4)	NC320	CVD	5243161	
CNMG-120408-HA CNMG-432-HA	.504" (12.9)	1/2" (12.7)	3/16" (4.76)	1/32 (0.8)	NC320 PC9030	CVD PVD	5243251 5243231	

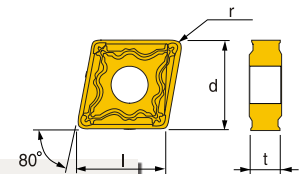
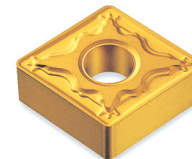


- Chip Control Design
- Ideal for newer CNC machines
- Specifically designed for greater life in stainless steel and other gummy steels
- Ideal for medium to long runs

CNMG 80 DEG., DIAMOND, POSITIVE RAKE WITH HM CHIPBREAKER

CNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
CNMG-120404-HM CNMG-431-HM				1/64 (0.4)	NC320 NC330	CVD CVD	5443161 5443151	
CNMG-120408-HM CNMG-432-HM	0.504 (12.9)	1/2 (12.7)	3/16 (4.76)	1/32 (0.8)	NC310 NC320 NC330	CVD CVD CVD	5443241 5443261 5443251	
CNMG-120412-HM CNMG-433-HM				3/64 (1.2)	NC320	CVD	5443361	
CNMG-160608-HM CNMG-542-HM	0.634 (16.1)	5/8 (15.8)	1/4 (6.35)	1/32 (0.8)	NC320	CVD	5454261	

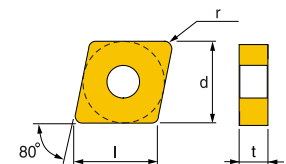
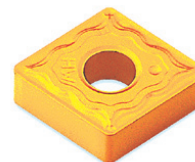


- Medium chipbreaker
- Chip control design
- Ideal for newer CNC machines
- Good choice for medium to long runs
- Suitable for interrupted cuts

CNMG 80 DEG., DIAMOND, POSITIVE RAKE WITH HW FINISHING CHIPBREAKER

CNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
CNMG-120404-HW CNMG-431-HW				1/64" (0.4)	NC310 NC320	CVD CVD	5543141 5543161	
CNMG-120408-HW CNMG-432-HW	0.504" (12.9)	1/2" (12.7)	3/16" (4.76)	1/32 (0.8)	NC310	CVD	5543241	
CNMG-120412-HW CNMG-433-HW				3/64 (1.2)	NC310	CVD	5543341	



- Wiper design allows for greater material removal while maintaining finish
- Suitable for high feeds and low depths of cut

CARBIDE INSERTS

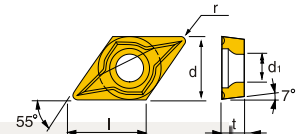
SERIES 158: "D" SHAPES

CUTTING TOOLS - CARBIDE INSERTS

DCMT 55 DEG., DIAMOND, POSITIVE RAKE WITH C25 MEDIUM CHIPBREAKER

DCMT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO/ASA	l	d	t				
DCMT-060204-C25 DCMT-21.51-C25	0.305" (7.8)	1/4" (6.35)	3/32" (2.38)	1/64" (0.4)	NC330	CVD	1321551	
DCMT-09T304-C25 DCMT-32.51	.453 (11.6)	3/8 (9.52)	5/32 (3.97)	1/64 (0.4)	NC330	CVD	1332151	
DCMT-09T308-C25 DCMT-32.52				1/32 (0.8)	NC330	CVD	1332251	

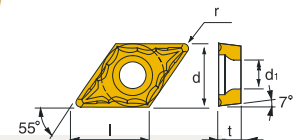
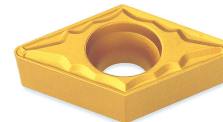


- Medium chipbreaker
- Strong cutting edge
- For medium to medium-roughing applications

DCMT 55 DEG., DIAMOND, POSITIVE RAKE WITH HMP MEDIUM CHIPBREAKER

DCMT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO/ASA	l	d	t				
DCMT-070204-HMP DCMT-21.51-HMP	0.305" (7.8)	1/4" (6.35)	3/32" (2.38)	1/64" (0.4)	NC320	CVD	5621561	
DCMT-11T302-HMP DCMT-32.50.5-HMP				1/128 (0.2)	NC320	CVD	5632561	
DCMT-11T304-HMP DCMT-32.51-HMP	0.453 (7.8)	3/8 (9.5)	5/32 (3.97)	1/64 (0.4)	NC320	CVD	5632661	
DCMT-11T308-HMP DCMT-32.52-HMP				1/32 (0.8)	NC320	CVD	5632761	

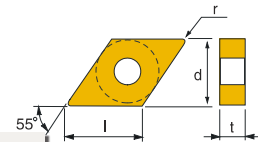
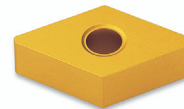


- Good choice for stainless steel
- Chip control design is more suited to newer CNC machines
- Medium chipbreaker
- For medium-finish to medium applications

DNMA 55 DEG., DIAMOND, NEGATIVE RAKE DOUBLE SIDED

DNMA

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO/ASA	l	d	t				
DNMA-150408 DNMA-432	0.504" (12.9)	1/2" (12.7)	3/16" (4.76)	1/32" (0.8)	NC315K	CVD	9743220	

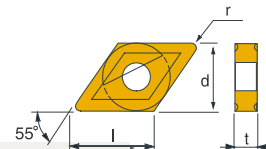
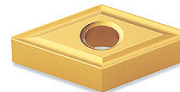


- Good choice for Cast iron

DNMG 55 DEG., DIAMOND, NEGATIVE RAKE WITH B25 CHIPBREAKER

DNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
DNMG-150404-B25 DNMG-431-B25	.605" (15.5)	1/2" (12.7)	3/16" (4.76)	1/64" (0.4)	NC320	CVD	1443161	

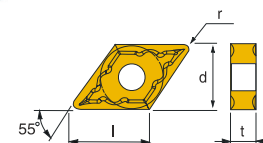
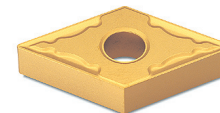


- Chip gullet design
- Good choice for manual machines
- Good for most steel applications

DNMG 55 DEG., DIAMOND, NEGATIVE RAKE WITH GM CHIPBREAKER

DNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO	l	d	t				
DNMG-110408-GM DNMG-332-GM	0.453" (11.6)	3/8" (9.5)	3/16" (4.76)	1/32 (0.8)	NC320	CVD	1633261	
DNMG-150404-GM DNMG-431-GM				1/64 (0.4)	NC320 NC330 PC230	CVD CVD PVD	1643161 1643151 1643100	
DNMG-150408-GM DNMG-432-GM	.610 (15.5)	1/2 (12.7)	3/16 (4.76)	1/32 (0.8)	NC320 NC330 PC230	CVD CVD PVD	1643261 1643251 1643200	



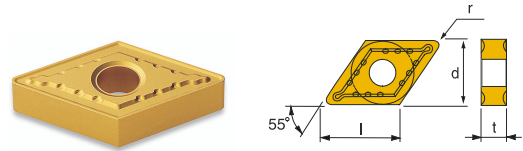
- General purpose medium chipbreaker design
- Strong cutting edge makes it a great choice for manual and older CNC machines
- Suitable for high feeds and interrupted cuts

CARBIDE INSERTS

SERIES 158: "D" SHAPES,
SERIES 156: "K" SHAPE

DNMG 55 DEG., DIAMOND, NEGATIVE RAKE WITH GR CHIPBREAKER

DNMG

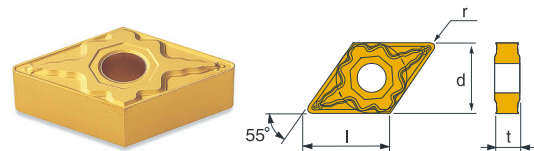


- General purpose roughing chipbreaker design
- Strong cutting edge makes it a great choice for high feeds and large depths of cut in steel and cast iron
- Suitable for interrupted cuts

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
DNMG-150408-GR DNMG-432-GR	.605" (15.5)	1/2" (12.7)	3/16" (4.76)	1/32" (0.8)	NC320 NC330	CVD CVD	5843261 5843251	

DNMG 55 DEG., DIAMOND, NEGATIVE RAKE WITH HM CHIPBREAKER

DNMG

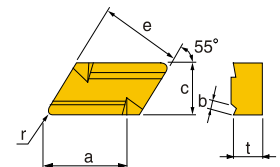


- Medium chipbreaker
- Chip control design
- Ideal for newer CNC machines
- Good choice for medium to long runs
- Suitable for interrupted cuts

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
DNMG-110408-HM DNMG-332-HM	.453" (11.6)	3/8" (9.5)	3/16" (4.76)	1/32" (0.8)	NC320	CVD	6233261	
DNMG-150408-HM DNMG-432-HM	.605" (15.5)	1/2" (12.7)	3/16" (4.76)	1/32" (0.8)	NC320 NC330	CVD CVD	6243261 6243251	

KNUX 80 DEG.

KNUX



Insert Style	Dimensions in inches and (mm)						Grade	Coating	Order No.	Price
	a	e	t	r	c	b				
KNUX-160405R11							NC330	CVD	6316151	
KNUX-160405L11				0.02" (0.5)		.086" (2.2)	NC330	CVD	6316251	
KNUX-160405R12	.625" (16)	.631" (16.15)	3/16" (4.76)		3/8" (9.5)	1/8" (3.2)	NC330	CVD	6316351	
KNUX-160410R11				0.039 (1)		.086 (2.2)	NC330	CVD	6316451	

INSERT DISPENSERS

SERIES 569:

Model No.	Description	Shipping Weight	Order No.	Price
318	For square, triangular, round and diamond inserts	46 Lbs	5613600	
418	For smaller insert inventories	13 Lbs	5613650	



CARBIDE INSERTS

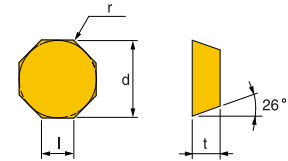
SERIES 160: "O" SHAPES
SERIES 162: "S" SHAPES

CUTTING TOOLS - CARBIDE INSERTS

OFCN OCTAGONAL

OFCN

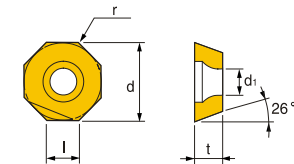
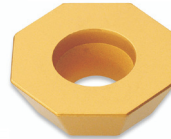
Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
OFCN-070408-SN	0.289" (7.4)	0.703" (18)	3/16" (4.76)	1/32" (0.8)	NCM325	CVD	1707051	



OFCW OCTAGONAL WITH MM CHIPBREAKER

OFCW

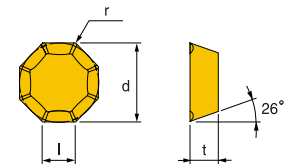
Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
OFCW-05T3SN	0.203" (5.2)	1/2" (12.7)	5/32" (3.97)	0.02" (0.5)	NCM325	CVD	1800551	



OFKR OCTAGONAL WITH MM CHIPBREAKER

OFKR

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
OFKR-070408SN-MM	0.289" (7.4)	0.703" (18)	3/16" (4.76)	1/32" (0.8)	NCM325	CVD	1907051	

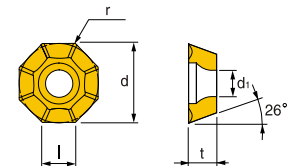


- Good chipbreaking for machining from semi-finishing to semi-rough cutting
- Excellent tool life for CNC machining

OFKT OCTAGONAL WITH MM CHIPBREAKER

OFKT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
OFKT-05T3SN-MM	0.203" (5.2)	1/2" (12.7)	5/32" (3.97)	0.02" (0.5)	NCM325	CVD	2000551	

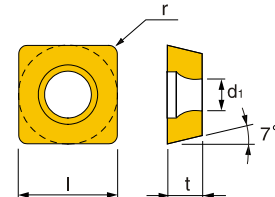


- Good chipbreaking for machining from semi-finishing to semi-rough cutting
- Excellent tool life for CNC machining

SCMT SQUARE, POSITIVE RAKE, UTILITY GROUND WITH C25 CHIPBREAKER

SCMT

Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	l	t	r				
SCMT-060204-C25 SCMT-21.51-C25	.244" (6.25)	3/32" (2.38)	1/64" (0.4)	NC330	CVD	2421551	
SCMT-09T308-C25 SCMT-32.52-C25	3/8 (9.52)	5/32 (3.97)	1/32 (0.8)	NC330	CVD	2432551	

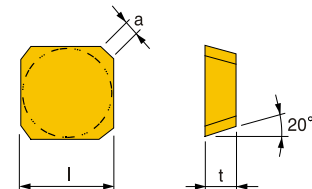


- Strong cutting edge makes this suitable for interrupted cuts and castings
- Low cutting force and excellent surface finish

SEAN SQUARE, POSITIVE RAKE FOR MAXIMIZERS

SEAN

Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	l	t	a				
SEAN-1203AFN SEAN-42AFN	1/2" (12.70)	1/8" (3.18)	0.09" (2.3)	G10 ST20	-	4342020 4342060	

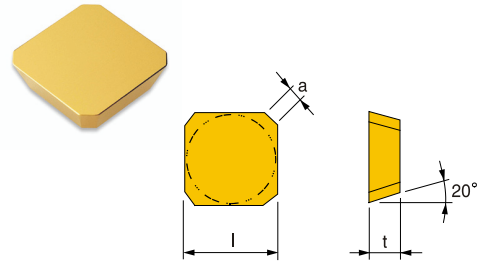


CARBIDE INSERTS

SERIES 162: "S" SHAPES

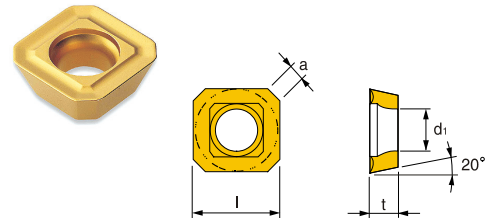
SECN SQUARE, POSITIVE RAKE WITH CHAMFERED CORNERS, FOR MAXIMIZERS SECN

Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	l	t	a				
SECN-1203AFN SECN-42AFN	1/2" (12.70)	1/8" (3.18)	0.09" (2.3)	NCM325	CVD	4442051	
SECN-1504AFN SECN-53AFN	5/8 (15.87)	3/16 (4.76)	.094 (2.4)				



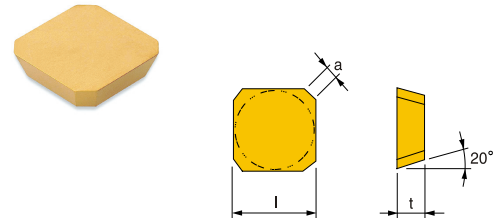
SEHT SQUARE, POSITIVE RAKE WITH 45 CHIPBREAKER SEHT

Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	l	t	a				
SEHT-1204AFN-45 SEHT-43AFN-45	1/2" (12.7)	3/16" (4.76)	.082" (2.1)	NCM325 ST30	CVD -	4542051 4542050	



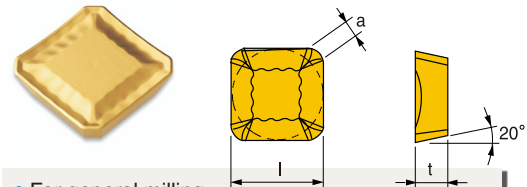
SEKN SQUARE, POSITIVE RAKE FOR MAXIMIZERS SEKN

Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	l	t	a				
SEKN-1203AFN SEKN-42AFN	1/2" (12.70)	1/8" (3.18)	0.09" (2.3)	G10 ST20	- -	4642020 4642060	



SEKR SQUARE, POSITIVE RAKE WITH MX CHIPBREAKER FOR MAXIMIZERS SEKR

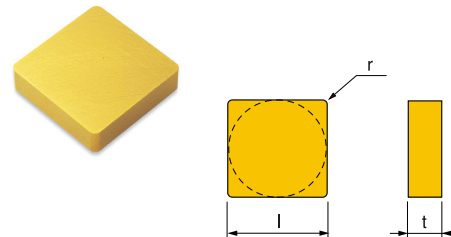
Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	l	t	a				
SEKR-1203AFSN-MX SEKR-42AFSN-MX	1/2" (12.70)	1/8" (3.18)	0.09" (2.3)	NCM325 PC3530 PC9530	CVD PVD PVD	4652051 4652071 4652061	
SEKR-1504AFSN-MX SEKR-53AFSN-MX	5/8 (15.875)	3/16 (4.76)	0.09 (2.3)	NCM325	CVD	4653061	



- For general milling
- Excellent productivity in steel, cast iron and stainless steel milling as well as high speed and feed milling
- Outstanding heat resistance

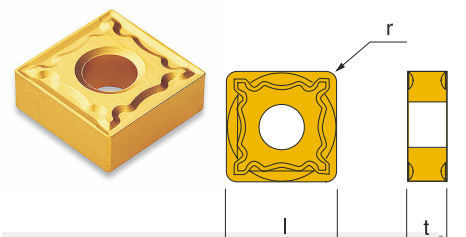
SNG SQUARE, NEGATIVE RAKE SNG / SNGN

Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	l=d	t	r				
SNGN-190412 SNG-633	3/4 (19.05)	3/16 (4.76)	3/64 (1.2)	ST30 G10	- -	2563350 2563320	



SNMG SQUARE, NEGATIVE, DOUBLE SIDED, WITH B25 GENERAL CHIPBREAKER SNMG

Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	l=d	t	r				
SNMG-120408-B25 SNMG-432-B25	1/2 (12.7)	3/16 (4.76)	1/32 (0.8)	NC330	CVD	2643251	
SNMG-190612-B25 SNMG-643-B25	3/4 (19.05)	1/4 (6.35)	3/64 (1.2)				
SNMG-190616-B25 SNMG-644-B25	3/4 (19.05)	1/4 (6.35)	1/16 (1.6)				



- Chip gullet design
- Good choice for manual machines
- Good for most steel applications

CARBIDE INSERTS

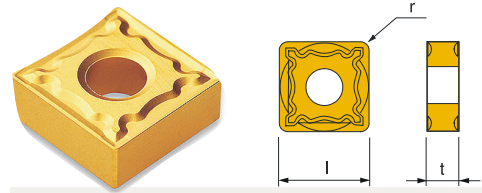
SERIES 162: "S" SHAPES

CUTTING TOOLS - CARBIDE INSERTS

SNMG SQUARE, NEGATIVE, DOUBLE SIDED, WITH GM CHIPBREAKER

SNMG

Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	ISO / ASA	l=d	t				
SNMG-120408-GM SNMG-432-GM	1/2 (12.7)	3/16 (4.76)	1/32 (0.8)	NC330 PC230	CVD PVD	6443251 6443201	

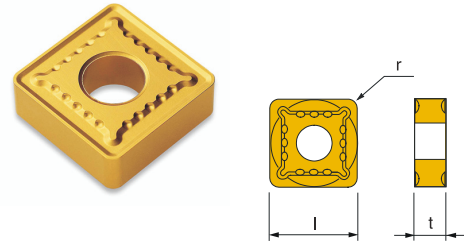


- General purpose medium chipbreaker design
- Strong cutting edge makes it a great choice for high feeds and interrupted cuts

SNMG SQUARE, NEGATIVE, DOUBLE SIDED, WITH GR CHIPBREAKER CONTROL

SNMG

Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	ISO / ASA	l=d	t				
SNMG-120408-GR SNMG-432-GR	1/2" (12.7)	3/16" (4.76)	1/32" (0.8)	NC320	CVD	6543251	
SNMG-150612-GR SNMG-543-GR	5/8 (15.8)	1/4 (6.35)	3/64 (1.2)	NC330	CVD	6554351	
SNMG-190612-GR SNMG-643-GR	3/4 (19.05)	1/4 (6.35)	3/64 (1.2)	NC320	CVD	6564351	
SNMG-190616-GR SNMG-644-GR	3/4 (19.05)	1/4 6.35	1/16 (1.6)	NC320	CVD	6564451	

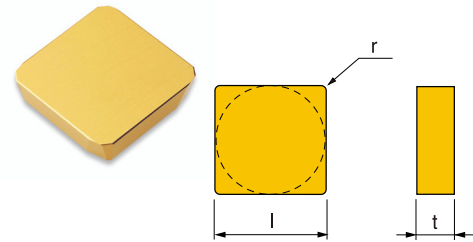


- General purpose roughing chipbreaker design
- Strong cutting edge makes it a great choice for high feeds and large depths of cut in steel and cast iron
- Suitable for interrupted cuts

SNU SQUARE, NEGATIVE RAKE, UTILITY GROUND

SNU

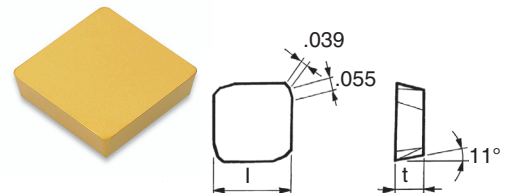
Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	ISO / ASA	l	t				
SNUN-120412 SNU-433	1/2 (12.7)	3/16 (4.76)	3/64 (1.2)	G10 ST30	- -	2743360 2743350	



SPC SQUARE, POSITIVE RAKE, UTILITY GROUND

SPC/SPKN

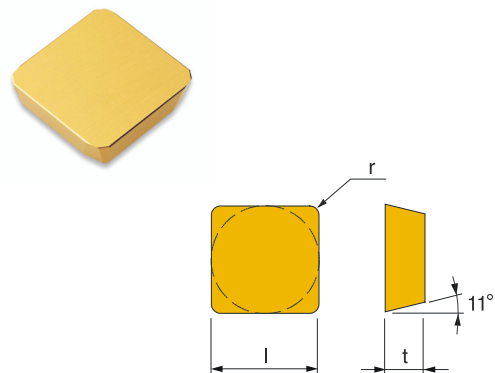
Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	ISO / ASA	l=d	t				
SPKN-1504EDR SPC-53ER	5/8 (15.87)	3/16 (4.76)	.055x15°	NCM325 ST20	CVD -	2953061 2953060	



SPG SQUARE, POSITIVE RAKE, PRECISION GROUND

SPG/SPGN

Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	ISO / ASA	l	t				
SPGN 120308 SPG-422	1/2 (12.7)	1/8 (3.18)	1/32 (0.8)	NC330 ST20	CVD -	2842251 2842260	
SPGN 120316 SPG-424	1/2 (12.7)	1/8 (3.18)	1/16 (1.6)	ST30	-	2842450	
SPGN 190412 SPG-633	3/4 (19.05)	3/16 (4.76)	3/64 (1.2)	ST30	-	2863350	



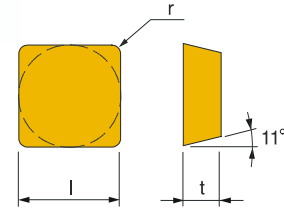
CARBIDE INSERTS

SERIES 162: "S" SHAPES
SERIES 155: "T" SHAPES

SPU SQUARE, POSITIVE RAKE, UTILITY GROUND

SPU/SPUN

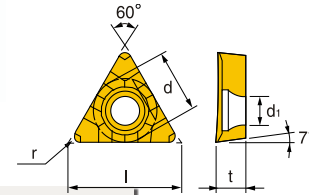
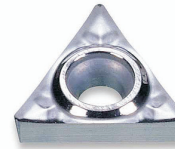
Insert Style	Dimensions in inches and (mm)			Grade	Coating	Order No.	Price
	ISO / ASA	l	t				
SPUN 120308 SPU-422	1/2 (12.7)	1/8 (3.18)	1/32 (0.8)	NC335 G10	CVD -	3042251 3042220	
SPUN 150412 SPU-533	5/8 (15.875)	3/16 (4.76)	3/64 (1.2)	ST30	-	3043350	
SPUN 190412 SPU-633	3/4 (19.05)	3/16 (4.76)	3/64 (1.2)	NC325 ST30	CVD -	3053361 3063350	



TCGT TRIANGULAR, POSITIVE RAKE, WITH AK CHIPBREAKER

TCGT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO	l	d	t				
TCGT-110204-AK TCGT-21.51-AK	0.43" (11)	1/4" (6.35)	3/32" (2.38)	1/64" (0.4)	H01	-	6621520	
TCGT-16T304-AK TCGT-32.51-AK	.650 (16.5)	3/8" (9.52)	5/32" (3.97)	1/64" (0.4)	H01	-	6632510	
TCGT-16T308-AK TCGT-32.52-AK				1/32" (0.8)	H01	-	6632520	

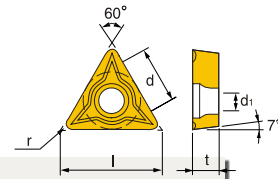


- Ideal for aluminum, plastic and other non-ferrous materials

TCMT TRIANGULAR, POSITIVE RAKE, UTILITY GROUND WITH C25 CHIPBREAKER

TCMT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
TCMT-16T308-C25 TCMT-32.52-C25	.645" (16.5)	3/8" (9.52)	5/32" (3.97)	1/32" (0.8)	NC330	CVD	3132551	

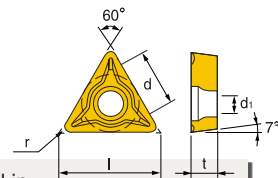


- Strong cutting edge makes this suitable for interrupted cuts and castings
- Low cutting force and excellent surface finish

TCMT TRIANGULAR, POSITIVE RAKE, UTILITY GROUND WITH C05 CHIPBREAKER

TCMT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
TCMT-16T308-C05 TCMT-32.52-C05	.645" (16.5)	3/8" (9.52)	5/32" (3.97)	1/32" (0.8)	NC320	CVD	3232561	

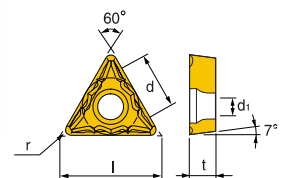


- Excellent chip control in slight depth of cut and low feed rates
- Low cutting force and excellent surface finish

TCMT TRIANGULAR, POSITIVE RAKE, UTILITY GROUND, DOUBLE SIDED WITH HMP MEDIUM CHIPBREAKER

TCMT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
TCMT-110204-HMP TCMT-21.51-HMP	.43" (11.0)	1/4" (6.35)	3/32" (2.38)	1/64" (0.4)	NC320	CVD	7021161	
TCMT-16T304-HMP TCMT-32.51-HMP	.645 (16.5)	3/8 (9.52)	5/32 (3.97)	1/64 (0.4)	NC320	CVD	7032161	
TCMT-16T308-HMP TCMT-32.52-HMP				1/32 (0.8)	NC320 ST30	CVD -	7032261 7032250	



- Chip control design is more suited to newer CNC machines
- Medium chipbreaker
- For medium-finishing to medium applications
- Good choice for stainless steel

CARBIDE INSERTS

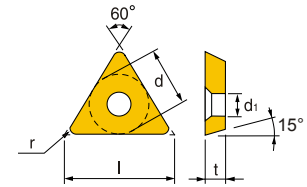
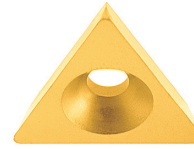
SERIES 155: "T" SHAPES

CUTTING TOOLS - CARBIDE INSERTS

TDGW TRIANGULAR, POSITIVE RAKE, GROUND ALL OVER

TDGW

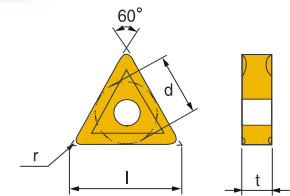
Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
TDGW-110204 TDGW-21.51	.43" (11.0)	1/4" (6.35)	.3/32" (2.38)	1/64" (0.4)	NCM325	CVD	3321561	
TDGW-160304 TDGW-321	.645 (16.5)	3/8 (9.52)	1/8 (3.18)	1/64 (0.4)	NCM325	CVD	3332161	
TDGW-220408 TDGW-432	.859 (22.0)	1/2 (12.70)	3/16 (4.76)	1/32 (0.8)	NCM325	CVD	3343261	



TNMG TRIANGULAR, NEGATIVE RAKE, DOUBLE SIDED WITH B25 GENERAL CHIPBREAKER

TNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
TNMG-160308-B25 TNMG-322-B25	.645" (16.5)	3/8" (9.52)	1/8" (3.18)	1/32 (0.8)	NC330 G10	CVD -	3432251 3432220	
TNMG-160404-B25 TNMG-331-B25	.645 (16.5)	3/8 (9.52)	1/8 (3.18)	1/64 (0.4)	NC330	CVD	3433151	
TNMG-160408-B25 TNMG-332-B25	.645 (16.5)	3/8 (9.52)	1/8 (3.18)	1/32 (0.8)	NC330	CVD	3433251	
TNMG-220408-B25 TNMG-432-B25	.859 (22.0)	1/2 (12.7)	3/16 (4.76)	1/32 (0.8)	NC330	CVD	3443251	
TNMG-220412-B25 TNMG-433-B25	.859 (22.0)	1/2 (12.7)	3/16 (4.76)	3/64 (1.2)	NC330	CVD	3443351	
TNMG-220416-B25 TNMG-434-B25	.859 (22.0)	1/2 (12.7)	3/16 (4.76)	1/16 (1.6)	NC330	CVD	3443451	

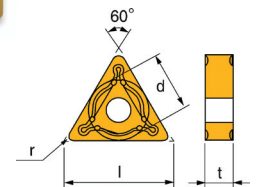


- Chip gullet design
- Good choice for manual machines
- Good for mosts steel applications

TNMG TRIANGULAR, NEGATIVE RAKE, DOUBLE SIDED WITH GM MEDIUM CHIPBREAKER

TNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
TNMG-160304-GM TNMG-321-GM	.645" (16.5)	3/8" (9.52)	1/8" (3.18)	1/64" (0.4)	NC330	CVD	7032151	
TNMG-160404-GM TNMG-331-GM	.645 (16.5)	3/8 (9.52)	3/16 (4.76)	1/64 (0.4)	NC330	CVD	7033151	
TNMG-160408-GM TNMG-332-GM	.645 (16.5)	3/8 (9.52)	3/16 (4.76)	1/32 (0.8)	NC330	CVD	7033251	
TNMG-220404-GM TNMG-431-GM	.859 (22.0)	1/2 (12.7)	3/16 (4.76)	1/64 (0.4)	NC330 NC320 ST30A	CVD CVD -	7043151 7043161 7043160	
TNMG-220408-GM TNMG-432-GM	.859 (22.0)	1/2 (12.7)	3/16 (4.76)	1/32 (0.8)	NC330 NC320	CVD CVD	7043251 7043261 7043260	

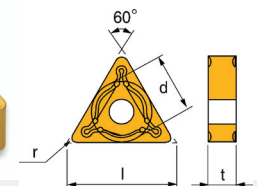


- General purpose medium chipbreaker design
- Strong cutting edge makes it suitable for high feeds and interrupted cuts

TNMG TRIANGULAR, NEGATIVE RAKE, DOUBLE SIDED WITH GR ROUGHING CHIPBREAKER

TNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
TNMG-160408-GR TNMG-332-GR	.645 (16.5)	3/8 (9.525)	3/16 (4.76)	1/32 (0.8)	NC330	CVD	7133251	
TNMG-220408-GR TNMG-432-GR	0.859 (22)	1/2 (12.7)	3/16 (4.76)	1/32 (0.8)	NC330 NC320	CVD CVD	7143251 7143261	
TNMG-270612-GR TNMG-543-GR	1.074 (27.5)	5/8 (15.87)	1/4 (6.35)	3/64 (1.2)	NC330 NC320	CVD CVD	7154351 7154361	



- General purpose roughing chipbreaker design
- Strong cutting edge makes it a great choice for high feeds and large depths of cut in steel and cast iron
- Suitable for interrupted cuts

CARBIDE INSERTS

SERIES 155: "T" SHAPES



TNMG TRIANGULAR, NEGATIVE RAKE, DOUBLE SIDED WITH HA CHIPBREAKER

TNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
TNMG-160404-HA	.645"	3/8"	3/16"	1/64"	NC320	CVD	7333161	
TNMG-331-HA	(16.5)	(9.525)	(4.76)	(0.4)	PC9030	PVD	7333131	
TNMG-160408-HA	.0866	1/2	3/16	1/32	PC9030	PVD	7333231	
TNMG-332-HA	(22.0)	(12.7)	(4.76)	(0.8)				

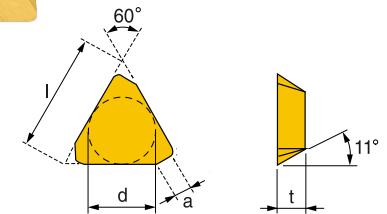


- Chip control design
- Ideal for newer CNC machines
- Specifically designed for greater life in stainless steel and other gummy materials
- Ideal for medium to long runs

TPC TRIANGULAR, POSITIVE RAKE

TPC / TPKN

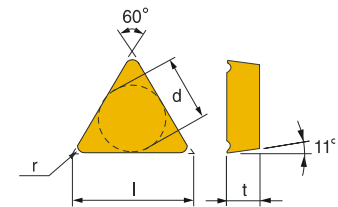
Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	a				
TPKN-1603-PPR	.645"	3/8"	1/8"	3/64"	NCM325	CVD	3732061	
TPC-32YR	(16.5)	(9.525)	(3.18)	(1.2)	ST20	-	3732060	
TPKN-2204-PPR	.0866	1/2	3/16	(.05-.055)	NCM325	CVD	3743061	
TPC-43YR	(22.0)	(12.7)	(4.76)	(1.27-1.4)	ST30A	-	3743050	



TPG TRIANGULAR, POSITIVE RAKE, PRECISION GROUND

TPG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
TPGN 110304 TPG-221	0.433 (11.00)	1/4 (6.35)	1/8 (3.18)	1/64 (0.4)	NC320	CVD	3922161	
TPGN 110308 TPG-222	0.433 (11.00)	1/4 (6.35)	1/8 (3.18)	1/32 (0.8)	ST30	-	3922250	
TPGN 160304 TPG-321	0.645 (16.50)	3/8 (9.52)	1/8 (3.18)	1/64 (0.4)	NC320	CVD	3932161	
					NC330	CVD	3932151	
					ST20	-	3932160	
					ST30	-	3932150	
					G10	-	3932120	
TPGN 160308 TPG-322	0.645 (16.50)	3/8 (9.52)	1/8 (3.18)	1/32 (0.8)	NC320	CVD	3932261	
					NC330	CVD	3932251	
					ST20	-	3932260	
					ST30	-	3932250	
					G10	-	3932220	
TPGN 160312 TPG-323	0.645 (16.50)	3/8 (9.52)	1/8 (3.18)	3/64 (1.2)	NC330	CVD	3932351	
TPGN 160316 TPG-324	0.645 (16.50)	3/8 (9.52)	1/8 (3.18)	1/16 (1.6)	NC320	CVD	3932461	
					NC330	CVD	3932451	
					ST20	-	3932460	
TPGN-220404 TPG-431	0.859 (22.0)	1/2 (12.7)	3/16 (4.76)	1/64 (0.4)	NC330	CVD	3943151	
TPGN-220408 TPG-432	0.859 (22.0)	1/2 (12.7)	3/16 (4.76)	1/32 (0.8)	NC330	-	3943251	



INSERT DISPENSERS

SERIES 569:



Model No.	Description	Shipping Weight	Order No.	Price
318	For square, triangular, round and diamond inserts	46 Lbs	5613600	
418	For smaller insert inventories	13 Lbs	5613650	





CARBIDE INSERTS

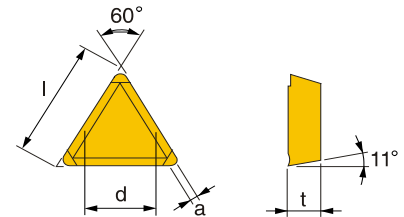
SERIES 155: "T" SHAPES
SERIES 156: "V" SHAPES

CUTTING TOOLS - CARBIDE INSERTS

TPMR TRIANGULAR POSITIVE RAKE, WITH M REGULAR SINGLE CHIPBREAKER

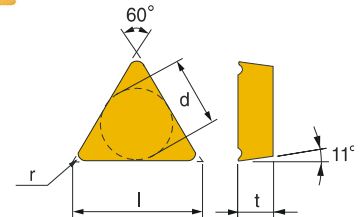
TPMR

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
TPMR-110304-M TPMR-221-M	0.43" (11.0)	1/4" (6.35)	1/8" (3.18)	1/64" (0.4)	NC330	CVD	3622151	
TPMR-160304-M TPMR-321-M				1/64 (0.4)	NC330	CVD	3632151	
TPMR-160308-M TPMR-322-M	0.645 (16.5)	3/8 (9.52)	1/8 (3.18)	1/32 (0.8)	NC330 ST10 ST20 G10	CVD - - -	3632251 3632270 3632260 3632220	



TPU TRIANGULAR, POSITIVE RAKE, UTILITY GROUND TPU

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
TPUN-110208 TPU-212	0.43" (11.0)	1/4" (6.35)	3/32" (2.38)	1/32" (0.8)	ST30	-	3821250	
TPUN-160304 TPU-321				1/64 (0.4)	NC320 NC330 ST30	CVD CVD	3832161 3832151 3832150	
TPUN-160308 TPU-322	0.645 (16.5)	3/8 (9.525)	1/8 (3.18)	1/32 (0.8)	NC320 NC330 ST20 ST30	- CVD CVD -	3832261 3832251 3832260 3832250	
TPUN-160312 TPU-323				3/64 (1.2)	ST30A	- -	3832350	
TPUN-220408 TPU-432				1/32 (.8)	NC320 NC330 ST20 ST30 G10	CVD CVD - -	3843261 3843251 3843260 3843250 3843220	
TPUN-220412 TPU-433	0.859 (22.0)	1/2 (12.7)	3/16 (4.76)	3/64 (1.2)	NC330	CVD	3843361	
TPUN-220416 TPU-434				1/16 (1.6)	ST30 G10	- -	3843450 3843420	

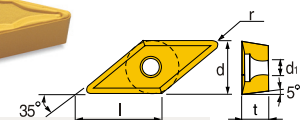
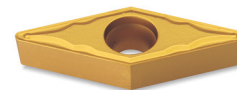


- Fits many cutter bodies
- Good general purpose insert

VBMT 35 DEG., DIAMOND, NEGATIVE RAKE, DOUBLE SIDED WITH HMP CHIPBREAKER

VBMT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
VBMT-160404-HMP VBMT-331-HMP	.648" (16.6)	3/8" (9.525)	3/16" (4.76)	1/64" (0.4)	NC320	CVD	7443161	
VBMT-160408-HMP VBMT-332-HMP				1/32 (0.8)	NC320	CVD	7443262	



- Chip control design is more suited to newer CNC machines
- Medium chipbreaker
- Good choice for stainless steel

CARBIDE INSERTS

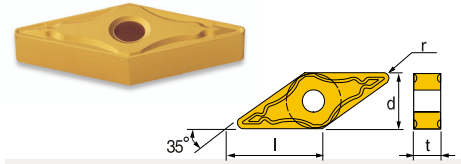
SERIES 156: "V" SHAPE
SERIES 156: "W" SHAPES



VNMG 35 DEG., DIAMOND, NEGATIVE, DOUBLE SIDED WITH GM CHIPBREAKER

VNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
VNMG-160404-GM VNMG-331-GM	.648" (16.6)	3/8" (9.525)	3/16" (4.7)	1/64" (0.4)	PC230	PVD	4033101	
VNMG-160408-GM VNMG-332-GM				1/32 (0.8)	NC320	CVD	4033261	
					NC330	CVD	4033251	

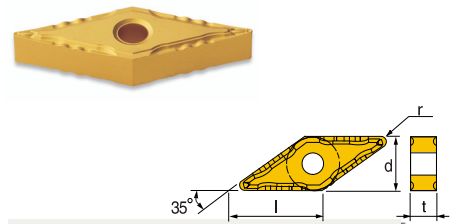


- General purpose medium chipbreaker design
- Strong cutting edge makes it suitable for high feeds and interrupted cuts

VNMG 35 DEG., DIAMOND, NEGATIVE, DOUBLE SIDED WITH HM CHIPBREAKER

VNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
VNMG-160404-HM VNMG-331-HM	0.648" (16.6)	3/8" (9.525)	3/16 (4.76)	1/64" (0.4)	NC320	-	7933161	
VNMG-160408-HM VNMG-332-HM				1/32 (0.8)	NC320	-	7933261	
VNMG-220404-HM VNMG-431-HM	0.863 (22.1)	1/2 (12.7)	3/16 (4.76)	1/64 (0.4)	NC320	-	7943161	
VNMG-220408-HM VNMG-432-HM				1/32 (0.8)	NC320	-	7943261	

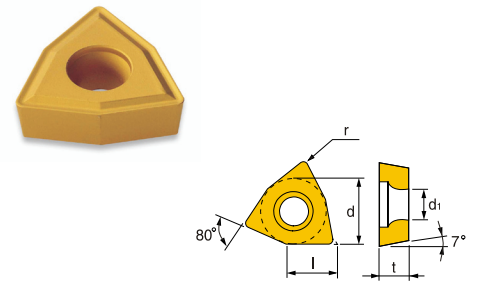


- Medium Chipbreaker
- Chip control design
- Ideal for newer CNC machines
- Good choice for medium to long runs
- Suitable for interrupted cuts

WCMT TRIGON, NEGATIVE RAKE, DOUBLE SIDED WITH C20 CHIPBREAKER

WCMT

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO / ASA	l	d	t				
WCMT-040208-C20 WCMT-21.52-C20	0.168 (4.3)	1/4 (6.35)	3/32 (2.38)	1/32 (0.8)	NCM325	CVD	8021151	
WCMT-050308-C20 WCMT-2.522-C20				1/8 (3.18)	NCM325	CVD	8022151	
WCMT-06T308-C20 WCMT-32.52-C20	.254 (6.5)	3/8 (9.525)	5/32 (3.97)	1/32 (0.8)	NCM325	CVD	8032151	

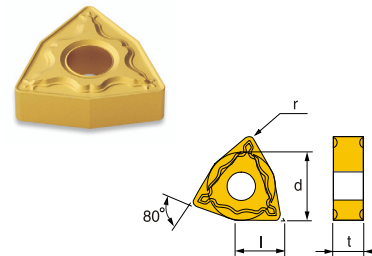


- Good general purpose insert for indexable drills

WNMG 80 DEG., TRIGON, NEGATIVE RAKE, UTILITY GROUND WITH GM CHIPBREAKER

WNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	ISO	l	d	t				
WNMG-060404-GM WNMG-331-GM	0.254" (6.5)	3/8" (9.52)	3/16" (4.76)	1/64" (0.4)	NC320	CVD	4133161	
WNMG-060408-GM WNMG-332-GM				1/32 (0.8)	NC330	CVD	4143251	
WNMG-080404-GM WNMG-431-GM	0.34 (8.7)	1/2 (12.7)	3/16 (4.76)	1/64 (0.4)	NC330	CVD	4143151	
WNMG-080408-GM WNMG-432-GM				1/32 (0.8)	NC320	CVD	4143261	
					NC330	CVD	4143251	



- General purpose medium chipbreaker design
- Strong cutting edge makes it suitable for high feeds and interrupted cuts

CARBIDE INSERTS

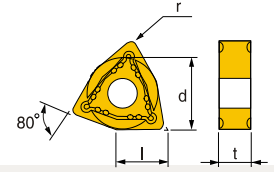
SERIES 156: "W" SHAPES

CUTTING TOOLS - CARBIDE INSERTS

WNMG 80 DEG., TRIGON, NEGATIVE RAKE, UTILITY GROUND WITH GR CHIPBREAKER

WNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
WNMG-080408-GR WNMG-432-GR	0.34 (8.7)	1/2" (12.7)	3/16" (4.76)	1/32" (0.8)	NC320	CVD	4243261	
NC330				CVD	4243251			
WNMG-080412-GR WNMG-433-GR				3/64 (1.2)	NC310	CVD	4243341	
				NC330	CVD	4243351		

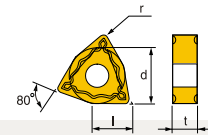
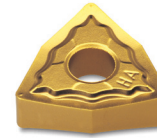


- General purpose roughing chipbreaker design
- Strong cutting edge makes it a great choice for high feeds and large depths of cut in steel and cast iron
- Suitable for interrupted cuts

WNMG TRIGON, NEGATIVE RAKE, DOUBLE SIDED WITH HA CHIPBREAKER

WNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
WNMG-080404-HA WNMG-431-HA	0.34" (8.7)	1/2" (12.7)	3/16" (4.76)	1/64" (0.4)	NC320	CVD	8343161	
PC9030				PVD	8343131			
WNMG-080408-HA WNMG-432-HA				1/32" (0.8)	NC320	CVD	8343261	
				PC9030	PVD	8343231		

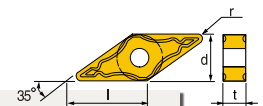


- Chip control design
- Ideal for newer CNC machines
- Specifically designed for greater life in stainless steel and other gummy materials
- Ideal for medium to long runs

WNMG TRIGON, NEGATIVE RAKE, DOUBLE SIDED WITH HM CHIPBREAKER

WNMG

Insert Style	Dimensions in inches and (mm)				Grade	Coating	Order No.	Price
	l	d	t	r				
WNMG-060404-HM WNMG-331-HM	.254" (6.5)	3/8" (9.52)	3/16" (4.76)	1/64" (0.4)	NC320	CVD	8533161	
WNMG-060408-HM WNMG-332-HM				1/32" (0.8)	NC320	CVD	8533261	
WNMG-080408-HM WNMG-432-HM				1/32" (0.8)	NC320	CVD	8543261	
				NC330	CVD	8543251		



- Medium chipbreaker
- Chip control design
- Ideal for newer CNC machines
- Good choice for medium to long runs
- Suitable for interrupted cuts

The Choice Is Yours!!!



CARBIDE INSERTS

SERIES 978:

Please order in package quantity, 10 inserts in a package.
TiN Coated is C5/C6 grade unless otherwise specified.



CUTTING TOOLS - CARBIDE INSERTS

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
TPG-220	1/4	1/8	0	9785585		9785586		9785884	
TPG-221	1/4	1/8	1/64	9784820		9784821		9784822	
TPG-222	1/4	1/8	1/32	9785589		9785590		9785838	
TPG-223	1/4	1/8	3/64	9785591		9785592		9785839	
TPG-320	3/8	1/8	0	9785887		9785888		9785046	
TPG-321	3/8	1/8	1/64	9784823		9784824		9784826	
TPG-322	3/8	1/8	1/32	9784925		9784926		9784927	
TPG-323	3/8	1/8	3/64	9784929		9784930		9784931	
TPG-324	3/8	1/8	1/16	9784933		9784934		9784935	
TPG-430	1/2	3/16	0	9785608		9785609		9785845	
TPG-431	1/2	3/16	1/64	9785610		9785611		9785846	
TPG-432	1/2	3/16	1/32	9785612		9785613		9785847	
TPG-433	1/2	3/16	3/64	9785614		9785615		9785848	
TPG-434	1/2	3/16	1/16	9785616		9785617		9785849	
TPG-542	5/8	1/4	1/32	9785618		9785619		9785885	
TPG-543	5/8	1/4	3/64	9785620		9785621		9785850	
TPG-544	5/8	1/4	1/16	9785622		9785623		9785851	



TRIANGLE — POSITIVE RAKE
GROUND ALL OVER

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
TNG-221	1/4	1/8	1/64	9785467		9785468		9785777	
TNG-222	1/4	1/8	1/32	9785469		9785470		9785778	
TNG-321	3/8	1/8	1/64	9785471		9785472		9785779	
TNG-322	3/8	1/8	1/32	9785473		9785474		9785780	
TNG-323	3/8	1/8	3/64	9785475		9785476		9785781	
TNG-324	3/8	1/8	1/16	9785477		9785478		9785782	
TNG-332	3/8	3/16	1/32	9785479		9785480		9785783	
TNG-333	3/8	3/16	3/64	9785481		9785482		9785784	
TNG-432	1/2	3/16	1/32	9785483		9785484		9785785	
TNG-433	1/2	3/16	3/64	9785485		9785486		9785786	
TNG-434	1/2	3/16	1/16	9785487		9785488		9785787	
TNG-544	5/8	1/4	1/16	9785489		9785490		9785788	



TRIANGLE — NEGATIVE RAKE
GROUND ALL OVER

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
TPU-222	1/4	1/8	1/32	9785642		9785643		9785861	
TPU-321	3/8	1/8	1/64	9785644		9785645		9785862	
TPU-322	3/8	1/8	1/32	9785646		9785647		9785863	
TPU-323	3/8	1/8	3/64	9785648		9785649		9785864	
TPU-431	1/2	3/16	1/64	9785650		9785651		9785865	
TPU-432	1/2	3/16	1/32	9785652		9785653		9785866	
TPU-433	1/2	3/16	3/64	9785654		9785655		9785867	
TPU-434	1/2	3/16	1/16	9785656		9785657		9785868	
TPU-543	5/8	1/4	3/64	9785658		9785659		-	
TPU-544	5/8	1/4	1/16	9785660		9785661		9785869	



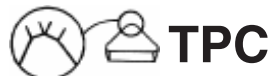
TRIANGLE — POSITIVE RAKE
GROUND TOP AND BOTTOM

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
TNU-222	1/4	1/8	1/32	9785563		9785564		9785828	
TNU-322	3/8	1/8	1/32	9785565		9785566		9785829	
TNU-323	3/8	1/8	3/64	9785567		9785568		9785830	
TNU-332	3/8	3/16	1/32	9785569		9785570		-	
TNU-333	3/8	3/16	3/64	9785571		9785572		9785831	
TNU-432	1/2	3/16	1/32	9785573		9785574		9785832	
TNU-433	1/2	3/16	3/64	9785575		9785576		9785833	
TNU-434	1/2	3/16	1/16	9785577		9785578		9785834	
TNU-544	5/8	1/4	1/16	9785579		9785580		9785835	



TRIANGLE — NEGATIVE RAKE
GROUND TOP AND BOTTOM

Insert Number	I.C.	Thickness	Grade					
			C-2		C-5 & C-6		TiN Coated	
			Order No.	Price	Order No.	Price	Order No.	Price
TPC-32ZR	3/8	1/8	9784937		9784938		9784939	



TRIANGLE — POSITIVE RAKE
GROUND ALL OVER WITH
WIPING FLATS ON THREE
CORNERS



CARBIDE INSERTS

SERIES 978:

Please order in package quantity, 10 inserts in a package.
TiN Coated is C5/C6 grade unless otherwise specified.



CUTTING TOOLS - CARBIDE INSERTS

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
TNMG-221	1/4	1/8	1/64	9785519		9785520		9785803	
TNMG-222	1/4	1/8	1/32	9785521		9785522		9785804	
TNMG-321	3/8	1/8	1/64	9785523		9785524		9785805	
TNMG-322	3/8	1/8	1/32	9785525		9785526		9785806	
TNMG-323	3/8	1/8	3/64	9785527		9785528		9785807	
TNMG-324	3/8	1/8	1/16	9785529		9785530		9785808	
TNMG-331	3/8	3/16	1/64	9785531		9785532		9785809	
TNMG-332	3/8	3/16	1/32	9785533		9785534		9785810	
TNMG-333	3/8	3/16	3/64	9785535		9785536		9785811	
TNMG-431	1/2	3/16	1/64	9785021		9785022		9785023	
TNMG-432	1/2	3/16	1/32	9785024		9785025		9785026	
TNMG-433	1/2	3/16	3/64	9785027		9785028		9785029	
TNMG-434	1/2	3/16	1/16	9785030		9785031		9785032	
TNMG-438	1/2	3/16	1/8	9785033		9785034		9785035	
TNMG-542	5/8	1/4	1/32	9785547		9785548		9785816	
TNMG-543	5/8	1/4	3/64	9785549		9785550		9785817	
TNMG-544	5/8	1/4	1/16	9785551		9785552		9785818	
TNMG-666*	3/4	3/8	3/32	9785553		9785554		9785819	



TNMG
TRIANGLE — NEGATIVE RAKE
WITH CHIP CONTROL

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
TNMA-222	1/4	1/8	1/32	9785491		9785492		9785789	
TNMA-322	3/8	1/8	1/32	9785493		9785494		9785790	
TNMA-323	3/8	1/8	3/64	9785495		9785496		9785791	
TNMA-432	1/2	3/16	1/32	9785499		9785500		9785793	
TNMA-433	1/2	3/16	3/64	9785501		9785502		9785794	
TNMA-434	1/2	3/16	1/16	9785503		9785504		9785795	
TNMA-438	1/2	3/16	1/8	9785505		9785506		9785796	
TNMA-542	5/8	1/4	1/32	9785509		9785510		9785798	
TNMA-544	5/8	1/4	1/16	9785511		9785512		9785799	
TNMA-666*	3/4	3/8	3/32	9785513		9785514		9785800	



TNMA
*5pcs per pkg
TRIANGLE — NEGATIVE RAKE
LAPPED TOP AND BOTTOM
WITH HOLE

Insert Number	I.C.	Thickness	Radius	Grade			
				C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price
TNMP-321	3/8	1/8	1/64	9785555		9785820	
TNMP-322	3/8	1/8	1/32	9785556		9785821	
TNMP-323	3/8	1/8	3/64	9785557		9785822	
TNMP-331	3/8	3/16	1/64	9785558		9785823	
TNMP-332	3/8	3/16	1/32	9785559		9785824	
TNMP-333	3/8	3/16	3/64	9785560		9785825	
TNMP-431	1/2	3/16	1/64	9785561		9785826	
TNMP-432	1/2	3/16	1/32	9785562		9785827	



TNMP
*5pc per pkg
TRIANGLE — NEGATIVE RAKE
5° POSITIVE

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
TPGH-21.50	1/4	3/32	0	9785624		9785625		9785852	
TPGH-21.51	1/4	3/32	1/64	9785626		9785627		9785853	
TPGH-21.52	1/4	3/32	1/32	9785628		9785629		9785854	
TPGH-321	3/8	1/8	1/64	9785630		9785631		9785855	
TPGH-322	3/8	1/8	1/32	9785632		9785633		9785856	



TPGH
TRIANGLE — POSITIVE RAKE
GROUND ALL OVER WITH
CHIP GROOVE ON ONE SIDE

Insert Number	I.C.	Thickness	Radius	Hole	Grade	
					C-2	
					Order No.	Price
TNUC-21.52	1/4	3/32	1/32	.136	9785581	
TNUC-222	1/4	1/8	1/32	.136	9785582	



TNUC
TRIANGLE — NEGATIVE RAKE
BRAKE TURNING INSERT



CARBIDE INSERTS

SERIES 978:

Please order in package quantity. 10 inserts in a package.
TiN Coated is C5/C6 grade unless otherwise specified.



CUTTING TOOLS - CARBIDE INSERTS

Insert Number	I.C.	Thickness	Hole Size	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
TPMA-32NV	3/8	.125	.150	9785634		9785635		9785857	
TPMA-43NV	1/2	.188	.203	9785636		9785637		9785858	



TPMA-NV

TRIANGLE— POSITIVE RAKE
60° V-THREAD

Insert Number	I.C.	Thickness	Hole Size	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
TPMC-32NV	3/8	.125	.150	9785638		9785639		9785859	
TPMC-43NV	1/2	.188	.203	9785640		9785641		9785860	



TPMC-NV

TRIANGLE— POSITIVE RAKE
60° V-THREAD

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
SPG-321	3/8	1/8	1/64	9785423		9785424		9785754	
SPG-322	3/8	1/8	1/32	9785425		9785426		9785755	
SPG-323	3/8	1/8	3/64	9785427		9785428		9785756	
SPG-420	1/2	1/8	0	9785429		9785430		9785889	
SPG-421	1/2	1/8	1/64	9785431		9785432		9785881	
SPG-422	1/2	1/8	1/32	9785433		9785434		9785757	
SPG-423	1/2	1/8	3/64	9785435		9785436		9785758	
SPG-424	1/2	1/8	1/16	9785437		9785438		9785759	
SPG-432	1/2	3/16	1/32	9785439		9785440		9785760	
SPG-433	1/2	3/16	3/64	9785441		9785442		9785761	
SPG-632	3/4	3/16	1/32	9785443		9785444		9785762	
SPG-633	3/4	3/16	3/64	9785445		9785446		9785763	
SPG-634	3/4	3/16	1/16	9785447		9785448		9785764	



SPG

SQUARE — POSITIVE RAKE
GROUND ALL OVER

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
SPU-322	3/8	1/8	1/32	9785453		9785454		9785767	
SPU-421	1/2	1/8	1/64	9785455		9785456		9785768	
SPU-422	1/2	1/8	1/32	9785457		9785458		9785769	
SPU-423	1/2	1/8	3/64	9785459		9785460		9785770	
SPU-632	3/4	3/16	1/32	9785461		9785462		9785771	
SPU-633	3/4	3/16	3/64	9785463		9785464		9785772	
SPU-634	3/4	3/16	1/16	9785465		9785466		9785773	



SPU

SQUARE — POSITIVE RAKE
GROUND TOP AND BOTTOM

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
SNMA-322	3/8	1/8	1/32	9785367		9785368		9785726	
SNMA-432	1/2	3/16	1/32	9785369		9785370		9785727	
SNMA-433	1/2	3/16	3/64	9785371		9785372		9785728	
SNMA-543	5/8	1/4	3/64	9785373		9785374		9785729	
SNMA-633	3/4	1/4	3/64	9785375		9785376		9785730	
SNMA-643	3/4	1/4	3/64	9785377		9785378		9785731	
SNMA-644	3/4	1/4	1/16	9785379		9785380		9785732	
SNMA-866	1	3/8	3/32	9785381		9785382		9785733	



SNMA

SQUARE — NEGATIVE RAKE
LAPPED TOP AND BOTTOM
WITH HOLE

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
SNMG-322	3/8	1/8	1/32	9785383		9785384		9785734	
SNMG-323	3/8	1/8	3/64	9785385		9785386		9785735	
SNMG-432	1/2	3/16	1/32	9785387		9785388		9785736	
SNMG-433	1/2	3/16	3/64	9785389		9785390		9785737	
SNMG-434	1/2	3/16	1/16	9785391		9785392		9785738	
SNMG-543	5/8	1/4	3/64	9785393		9785394		9785739	
SNMG-642	3/4	1/4	1/32	9785395		9785396		9785740	
SNMG-643	3/4	1/4	3/64	9785397		9785398		9785741	
SNMG-644	3/4	1/4	1/16	9785399		9785400		9785742	
SNMG-866	1	3/8	3/32	9785401		9785402		9785743	



SNMG

SQUARE — NEGATIVE RAKE
WITH CHIP CONTROL

*C-5 & C-6 Grade TiN Coated



CARBIDE INSERTS

SERIES 978:

Please order in package quantity. 10 inserts in a package.
TiN Coated is C5/C6 grade unless otherwise specified.



Insert Number	I.C.	Thickness	Hole Size	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
TNMA-32NV	3/8	.125	.150	9785497		9785498		9785792	
TNMA-43NV	1/2	.188	.203	9785507		9785508		9785797	

TNMA-NV
TRIANGLE— NEUTRAL RAKE
60° V-THREAD

Insert Number	I.C.	Thickness	Hole Size	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
TNMC-32NV	3/8	.125	.150	9785515		9785516		9785801	
TNMC-43NV	1/2	.188	.203	9785517		9785518		9785802	

TNMC-NV
TRIANGLE— NEUTRAL RAKE
60° V-THREAD

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
SNG-321	3/8	1/8	1/64	9785342		9785343		9785713	
SNG-322	3/8	1/8	1/32	9785344		9785345		9785714	
SNG-323	3/8	1/8	3/64	9785346		9785347		9785715	
SNG-332	1/8	3/16	1/32	-		9785348		9785716	
SNG-422	1/2	1/8	1/32	9785349		9785350		9785717	
SNG-423	1/2	1/8	3/64	9785351		9785352		9785718	
SNG-424	1/2	1/8	1/16	9785353		9785354		9785719	
SNG-432	1/2	3/16	1/32	9785355		9785356		9785720	
SNG-433	1/2	3/16	3/64	9785357		9785358		9785721	
SNG-434	1/2	3/16	1/16	9785359		9785360		9785722	
SNG-632	3/4	3/16	1/32	9785361		9785362		9785723	
SNG-633	3/4	3/16	3/64	9785363		9785364		9785724	
SNG-634	3/4	3/16	1/16	9785365		9785366		9785725	

SNG
SQUARE — NEGATIVE RAKE
GROUND ALL OVER

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
SNU-422	3/8	1/8	1/32	9785403		9785404		9785744	
SNU-422	1/2	1/8	1/32	9785405		9785406		9785745	
SNU-423	1/2	1/8	3/64	9785407		9785408		9785746	
SNU-424	1/2	1/8	1/16	9785409		9785410		9785747	
SNU-432	1/2	3/16	1/32	9785411		9785412		9785748	
SNU-433	1/2	3/16	3/64	9785413		9785414		9785749	
SNU-434	1/2	3/16	1/16	9785415		9785416		9785750	
SNU-633	3/4	3/16	3/64	9785417		9785418		9785751	
SNU-634	3/4	3/16	1/16	9785419		9785420		9785752	

SNU
SQUARE — NEGATIVE RAKE
GROUND TOP AND BOTTOM

Insert Number	I.C.	Thickness	Grade					
			C-2		C-5 & C-6		TiN Coated	
			Order No.	Price	Order No.	Price	Order No.	Price
SPC-42ZR	1/2	1/8	9785008		9785009		9785010	

SPC
SQUARE — POSITIVE RAKE
GROUND ALL OVER W/ WIPING
FLATS ON FOUR CORNERS

Insert Number	I.C.	Thickness	Grade					
			C-2		C-5 & C-6		TiN Coated	
			Order No.	Price	Order No.	Price	Order No.	Price
SEC-422	1/2	1/8	9785338		9785339		9785711	
SEC-422J	1/2	1/8	9785340		9785341		9785712	

SEC
SQUARE — 20° POSITIVE RAKE
GROUND ALL OVER

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
SPGH-432	1/2	1/32	3/64	9785449		9785450		9785765	
SPGH-433	1/2	3/16	3/64	9785451		9785452		9785766	

SPGH
SQUARE — POSITIVE RAKE
GROUND ALL OVER
CHIP GROOVE ONE SIDE



CARBIDE INSERTS

SERIES 978:

Please order in package quantity. 10 inserts in a package.
TiN Coated is C5/C6 grade unless otherwise specified.



CUTTING TOOLS - CARBIDE INSERTS

Insert Number	Dia. ± .001	Thickness	Grade					
			C-2		C-5 & C-6		TiN Coated	
			Order No.	Price	Order No.	Price	Order No.	Price
RNG-32	3/8	1/8	9785310		9785311		9785694	
RNG-42	1/2	1/8	9785312		9785313		9785695	
RNG-43	1/2	3/16	9785314		9785315		9785696	



RNG
ROUND — NEGATIVE RAKE
GROUND ALL OVER

Insert Number	Dia. ± .001	Thickness	Grade					
			C-2		C-5 & C-6		TiN Coated	
			Order No.	Price	Order No.	Price	Order No.	Price
RNMA-32	3/8	1/8	9785318		9785319		9785698	
RNMA-43	1/2	3/16	9785320		9785321		9785699	
RNMA-64	3/4	1/4	9785322		9785323		9785700	
RNMA-86*	1	3/8	9785324		9785325		9785701	
RNMA-106*	1-1/4	3/8	9785316		9785317		9785702	



RNMA
ROUND — NEGATIVE RAKE
LAPPED TOP AND BOTTOM
WITH HOLE

*5pcsper pkg

Insert Number	I.C.	Thickness	Radius	Grade			
				C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price
DNMG-431	1/2	3/16	1/64	9785953		9785686	
DNMG-432	1/2	3/16	1/32	9785954		9785687	
DNMG-532	5/8	3/16	1/32	9785305		9785688	
DNMG-533	5/8	3/16	3/64	9785307		9785689	
DNMG-542	5/8	1/4	1/32	9785308		9785690	
DNMG-543	5/8	1/4	3/64	9785309		9785691	



DNMG
55° DIAMOND — NEGATIVE RAKE
WITH CHIP CONTROL

Insert Number	I.C.	Thickness	Radius	Grade					
				C-2		C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price	Order No.	Price
CNMG-431	1/2	3/16	1/64	9785955		9785959		9785672	
CNMG-432	1/2	3/16	1/32	9785956		9785960		9785673	
CNMG-433	1/2	3/16	3/64	9785957		9785961		9785674	
CNMG-542	5/8	1/4	1/32	-		9785962		9785675	
CNMG-543	5/8	1/4	3/64	-		9785963		9785676	
CNMG-643	3/4	1/4	3/64	9785958		9785964		9785677	
CNMG-644	3/4	1/4	1/16	-		9785965		9785678	



CNMG
80° DIAMOND — NEGATIVE
LAPPED WITH HOLE AND
CAST CHIPBREAKER

Insert Number	Dia. ± .001	Thickness	Grade					
			C-2		C-5 & C-6		TiN Coated*	
			Order No.	Price	Order No.	Price	Order No.	Price
RPG-42	1/2	1/8	9785336		9785337		9785708	



RPG
ROUND — POSITIVE RAKE
GROUND ALL OVER

Insert Number	Dia. ± .001	Thickness	Grade					
			C-2		C-5 & C-6		TiN Coated*	
			Order No.	Price	Order No.	Price	Order No.	Price
RNMG-32	3/8	1/8	9785328		9785329		9785703	
RNMG-43	1/2	3/16	9785330		9785331		9785704	
RNMG-64	3/4	1/4	9785332		9785333		9785705	
RNMG-86*	1	3/8	9785334		9785335		9785706	



RNMG
ROUND — NEGATIVE RAKE
WITH CHIP CONTROL

*5pcsper pkg

Insert Number	I.C.	Thickness	Radius	Grade			
				C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price
VNMG-331	3/8	3/16	1/64	9785663		9785872	
VNMG-332	3/8	3/16	1/32	9785665		9785966	
VNMG-333	3/8	3/16	3/64	9785666		9785774	
VNMG-431	1/2	3/16	1/64	9785667		9785775	
VNMG-432	1/2	3/16	1/32	9785668		9785776	



VNMG
35° DIAMOND — NEGATIVE RAKE
WITH CHIP CONTROL

Insert Number	I.C.	Thickness	Radius	Grade			
				C-5 & C-6		TiN Coated	
				Order No.	Price	Order No.	Price
CNMP-431	1/2	3/16	1/64	9785967		9785679	
CNMP-432	1/2	3/16	1/32	9785968		9785680	
CNMP-642	3/4	1/4	1/32	9785969		9785681	
CNMP-643	3/4	1/4	3/64	9785970		9785682	



CNMP
80° DIAMOND — 5° POSITIVE
LAPPED WITH HOLE
AND CAST CHIPBREAKER



THREADING INSERTS

SERIES 915:



TURN MACHINING INTO PROFIT

TNMA-NV "V" Thread Inserts (Neg. Rake)

Description	Order No.	Price
TNMA-32NV-DVK10	6172529	
TNMA-32NV-DVP656	6172528	

TNMA-NV "V" Thread Inserts (Neg. Rake)

Description	Order No.	Price
TNMA-54NV-DVK10	6172557	
TNMA-54NV-DVP656	6172556	

TNMA-NV "V" Thread Inserts (Neg. Rake)

Description	Order No.	Price
TNMA-43NV-DVK10	6172536	
TNMA-43NV-DVP656	6172535	

NT- 60° "V" Thread Inserts (Left Hand)

Description	Order No.	Price
NT-2L-DVK10	6182905	
NT-2L-DVP656	6182904	

NT- 60° "V" Thread Inserts (Right Hand)

Description	Order No.	Price
NT-2R-DVK10	6182901	
NT-2R-DVP656	6182900	

NT- 60° "V" Thread Inserts (Left Hand)

Description	Order No.	Price
NT-3L-DVK10	6182913	
NT-3L-DVP656	6182912	

NT- 60° "V" Thread Inserts (Right Hand)

Description	Order No.	Price
NT-3R-DVK10	6182909	
NT-3R-DVP656	6182908	

THREADING INSERT GRADE SPECIFICATION CHART

Insert Grade	ANSI	ISO	Coating	Grade Description	First Choice
DK10	C3-4	K05-15	Uncoated	Uncoated fine micro-grained grade, with an exceptional edge wear resistance and high strength, provides a good edge sharpness.	For high speed machining & precision finishing.
DVP656	C6 C2	P15-35	PVD-TIN	Well balanced thermal deformation resistant substrate with cobalt enriched periphery.	Threading carbon steel materials.



MILLING INSERTS

SERIES 915:



TURN MACHINING INTO PROFIT

SD Square Convex Milling Insert (RAD 0.0781)

Description	Order No.	Price
SDGX-19C05-E-DVK25M	6195250	
SDGX-19C05-E-DVP56M	6195248	

SD Square Convex Milling Insert (RAD 0.1719)

Description	Order No.	Price
SDGX-19C11-E-DVK25M	6195274	
SDGX-19C11-E-DVP56M	6195272	

SD Square Convex Milling Insert (RAD 0.0937)

Description	Order No.	Price
SDGX-19C06-E-DVK25M	6195254	
SDGX-19C06-E-DVP56M	6195252	

SD Square Convex Milling Insert (RAD 0.1875)

Description	Order No.	Price
SDGX-19C12-E-DVK25M	6195278	
SDGX-19C12-E-DVP56M	6195276	

SD Square Convex Milling Insert (RAD 0.1094)

Description	Order No.	Price
SDGX-19C07-E-DVK25M	6195258	
SDGX-19C07-E-DVP56M	6195256	

SD Square Convex Milling Insert (RAD 0.2031)

Description	Order No.	Price
SDGX-19C13-E-DVK25M	6195282	
SDGX-19C13-E-DVP56M	6195280	

SD Square Convex Milling Insert (RAD 0.1250)

Description	Order No.	Price
SDGX-19C08-E-DVK25M	6195262	
SDGX-19C08-E-DVP56M	6195260	

SD Square Convex Milling Insert (RAD 0.2187)

Description	Order No.	Price
SDGX-19C14-E-DVK25M	6195286	
SDGX-19C14-E-DVP56M	6195284	

SD Square Convex Milling Insert (RAD 0.1406)

Description	Order No.	Price
SDGX-19C09-E-DVK25M	6195266	
SDGX-19C09-E-DVP56M	6195264	

SD Square Convex Milling Insert (RAD 0.2344)

Description	Order No.	Price
SDGX-19C15-E-DVK25M	6195290	
SDGX-19C15-E-DVP56M	6195288	

SD Square Convex Milling Insert (RAD 0.1562)

Description	Order No.	Price
SDGX-19C10-E-DVK25M	6195270	
SDGX-19C10-E-DVP56M	6195268	

SD Square Convex Milling Insert (RAD 0.2500)

Description	Order No.	Price
SDGX-19C16-E-DVK25M	6195294	
SDGX-19C16-E-DVP56M	6195292	



MILLING INSERTS
SERIES 915:



TURN MACHINING INTO PROFIT

TDEX 60° Triangle Milling Inserts



Description	Order No.	Price
TDEX-090202-EN-DVP56M	6195495	
TDEX-090202-EN-DHP435M	6195496	
TDEX-090202-EN-DASK25M	6195492	

TDEX 60° Triangle Milling Inserts



Description	Order No.	Price
TDEX-110204-EN-DHP435M	6195426	
TDEX-110204-EN-DASK25M	6195422	

TDEX 60° Triangle Milling Inserts



Description	Order No.	Price
TDEX-17T304-EN-DVP56M	6195515	
TDEX-17T304-EN-DHP435M	6195516	
TDEX-17T304-EN-DASK25M	6195512	

TDEX 60° Triangle Milling Inserts



Description	Order No.	Price
TDEX-160308-EN-DHP435M	6195456	
TDEX-160308-EN-DASK25M	6195452	

TDEX 60° Triangle Milling Inserts



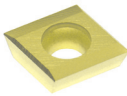
Description	Order No.	Price
TDEX-250404-EN-DVP56M	6195535	
TDEX-250404-EN-DHP435M	6195538	
TDEX-250404-EN-DASK25M	6195532	

TDEX 60° Triangle Milling Inserts



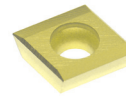
Description	Order No.	Price
TDEX-220408-EN-DHP435M	6195476	
TDEX-220408-EN-DASK25M	6195472	

CEHW Slot Milling Inserts (Left Hand)



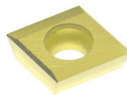
Description	Order No.	Price
CEHW-0602-AEEL-DVP56M	6195575	
CEHW-0602-AEEL-DHP435M	6195576	
CEHW-0602-AEEL-DASK25M	6195573	

CEHW Slot Milling Inserts (Right Hand)



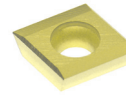
Description	Order No.	Price
CEHW-0602-AEER-DVP56M	6195555	
CEHW-0602-AEER-DHP435M	6195556	
CEHW-0602-AEER-DASK25M	6195553	

CEHW Slot Milling Inserts (Left Hand)



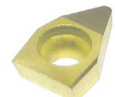
Description	Order No.	Price
CEHW-1204-AEEL-DVP56M	6195585	
CEHW-1204-AEEL-DHP435M	6195586	
CEHW-1204-AEEL-DASK25M	6195583	

CEHW Slot Milling Inserts (Right Hand)



Description	Order No.	Price
CEHW-1204-AEER-DVP56M	6195565	
CEHW-1204-AEER-DHP435M	6195566	
CEHW-1204-AEER-DASK25M	6195563	

TEHW Slot Milling Inserts



Description	Order No.	Price
TEHW-0602-AEEN-DVP56M	6195595	
TEHW-0602-AEEN-DHP435M	6195596	
TEHW-0602-AEEN-DASK25M	6195593	

While we show only the most popular items we can supply their entire of products. See our website or inquire.

CUTTING TOOLS - CARBIDE INSERTS

MILLING INSERTS
SERIES 915:

TURN MACHINING INTO PROFIT

MILLING INSERT GRADE SPECIFICATION CHART

Insert Grade	ANSI	ISO	Coating	Grade Description	First Choice
DVK25M [®]	C2	M15-30 K15-30 K15-35 K15-30	PVD-TIN	Ultra-fine and tough micrograin substrate, excellent resistance to mechanical and thermal shock.	For medium speed milling operations.
DVP56M [®]	C2	M15-25	CVD-TIN-TICN-AL ₂ O ₃ -TIN	Well balanced thermal deformation resistant substrate with cobalt enriched periphery.	Threading carbon steel materials.
DHP435M [®]	C5	P30-50	PVD-TIAlN-Heat Resistant	Extra strong and tough thermal shock resistant substrate.	For roughing operations in dry or wet conditions.
DASK425M [®]	C2	M15-30 K15-30 K15-30 K15-30	PVD-TIAlN-Multi Layer	Fine and tough micrograined substrate, excellent resistance to mechanical and thermal shock.	For medium to difficult milling operations in dry or wet conditions