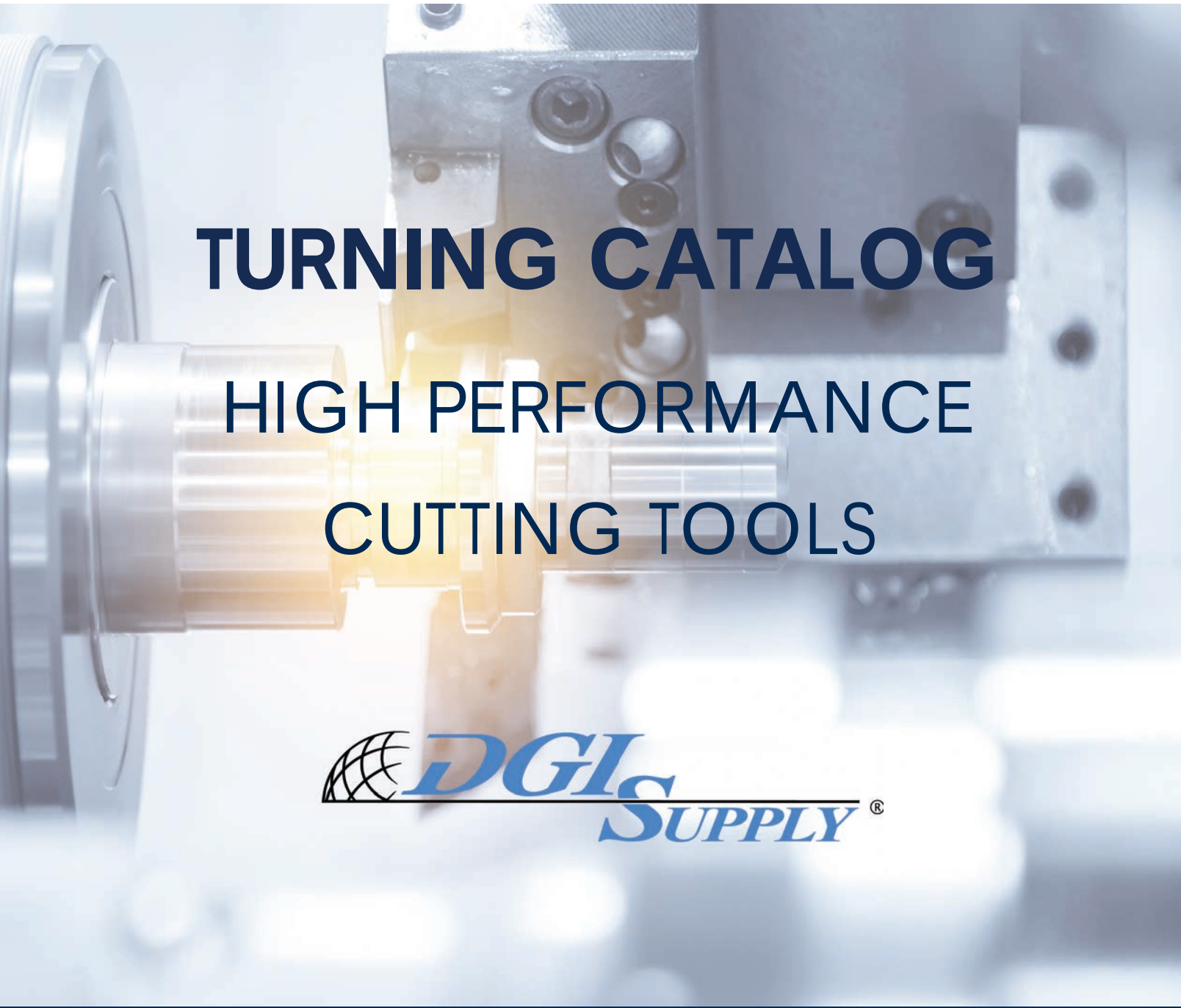
G-Alloy



TURNING CATALOG

HIGH PERFORMANCE CUTTING TOOLS

DGI SUPPLY®

WWW.DGISUPPLY.COM

1-800-923-6255

CONTENTS

RECOMMENDED STARTING CUTTING SPEEDS | TURNING

ISO	Material Group	Workpiece Material	Tensile Strength MPa	Recommended Starting Speeds v_c (ft/min)														
				P105			P115			P125			P135			G625		
				f_n (inch/rev)			f_n (inch/rev)			f_n (inch/rev)			f_n (inch/rev)			f_n (inch/rev)		
				.004	.008	.012	.004	.008	.012	.004	.008	.016	.004	.016	.024	.004	.008	.012
P Steel	P0	Low-Carbon Steels, Long Chipping (C < .25%) Ex. A36, 1008, 1010, 1018, 1108, 1117 Brinell Hardness HB <125	<530	1760	1550	1370	1640	1445	1280	1400	1245	855	1215	790	655	655	525	400
	P1	Low-Carbon Steels, Short Chipping, Free Machining (C < .25%) Ex. 10L18, 1200 Series, 1213, 12L14 Brinell Hardness HB <125	<530	1500	1330	1120	1400	1245	1050	1180	1015	655	1015	590	525	600	475	360
	P2	Medium- and High-Carbon Steels (C > .25%) Ex. 1035, 1045, 10L45, 1080, 1137, 1144, 1525, 1572 Rockwell Hardness HRC <25	>530	1120	1050	950	1050	985	885	920	820	590	855	540	460	525	445	345
	P3	Alloy Steels and Tool Steels (C > .25%) Ex. P20, 1300, 2000, 3000, 4000, 5000, 8000, SAE A, D, H, O, S, M, T Rockwell Hardness HRC <35	600-850	1020	850	700	950	790	655	790	720	490	625	445	330	400	300	245
	P4	High-Strength Alloy Steels and Tool Steels (C > .25%) Ex. P20, 1300, 2000, 3000, 4000, 5000, 8000, SAE A, D, H, O, S, M, T Rockwell Hardness HRC 35 - 48	850-1400	850	700	560	790	655	525	590	525	330	460	300	230	310	245	180
	P5	Ferritic, Martensitic and PH Stainless Steels Ex. 13-8 PH, 15-5 PH, 17-4 PH, 400 and 500 Series Rockwell Hardness HRC <35	600-900	1050	880	700	985	820	655	855	720	560	625	460	330	420	320	260
	P6	High-Strength Ferritic, Martensitic and PH Stainless Steels Ex. 13-8 PH, 15-5 PH, 17-4 PH, 400 and 500 Series Rockwell Hardness HRC 35 - 48	900-1350	630	530	350	590	490	330	425	360	300	360	260	230	230	190	135

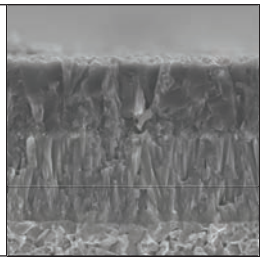
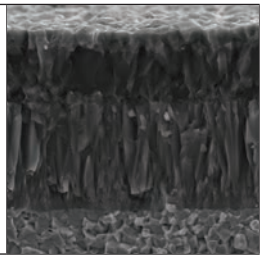
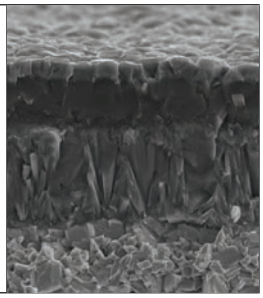
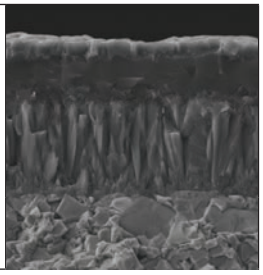
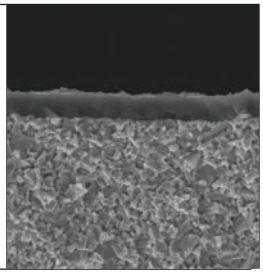
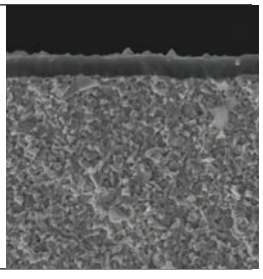
ISO	Material Group	Workpiece Material	Brinell Hardness HB	Rockwell Hardness HRC	Tensile Strength MPa	Recommended Starting Speeds v_c (ft/min)											
						S515			M225			S525			G625		
						f_n (inch/rev)			f_n (inch/rev)			f_n (inch/rev)			f_n (inch/rev)		
						.004	.008	.012	.004	.008	.012	.004	.008	.012	.004	.008	.012
M Stainless Steel	M1	Austenitic Stainless Steels Ex. 200 Series, 301, 302, 304, 304L, 309	130-200		<600	770	625	490	790	655	525	755	600	475	470	380	300
	M2	High-Strength Austenitic Stainless and Cast Stainless Steels Ex. 310, 316, 316L, 321, 347, 384	150-230	<25	600-800	525	460	330	460	400	300	510	380	280	290	235	180
	M3	Duplex Stainless Steels Ex. 323, 329, F55, 2205	135-275	<30	<800	590	525	400	510	445	330	540	400	300	320	250	190

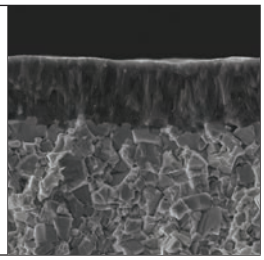
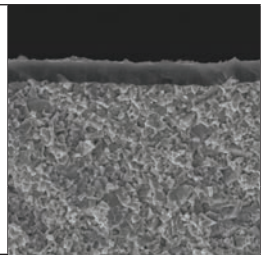
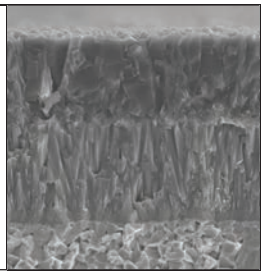
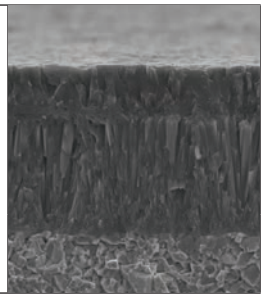
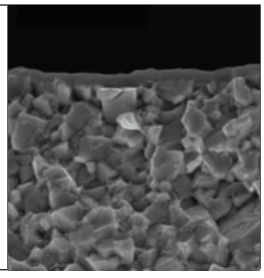
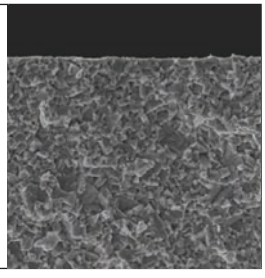
ISO	Material Group	Workpiece Material	Brinell Hardness HB	Rockwell Hardness HRC	Tensile Strength MPa	Recommended Starting Speeds v_c (ft/min)											
						K315			K325			G625					
						f_n (inch/rev)			f_n (inch/rev)			f_n (inch/rev)					
						.004	.008	.016	.004	.012	.020	.004	.008	.012			
K Cast Iron	K1	Gray Cast Iron Ex. Class 20, 25, 30, 35, 40, 45, 50, 55, 60, G1800, G3000, G3500, G4000	120-290	<32	125-500	1800	1180	885	1540	885	655	625	425	360			
	K2	Ductile Cast Irons (Nodular Irons) and Compacted Graphite Irons (CGI) Ex. 60-40-18, 65-45-12, 80-55-06, SAE J434: D4018, D4512, D5506	130-260	<28	<600	1215	885	690	885	655	490	525	380	330			
	K3	High-Strength Ductile Irons and Austempered Ductile Irons (ADI) Ex. ASTM A536: 100-70-03, 120-90-02, SAE J434: D7003	180-350	<43	>600	885	690	560	655	490	400	425	360	300			

ISO	Material Group	Workpiece Material	Brinell Hardness HB	Rockwell Hardness HRC	Tensile Strength MPa	Recommended Starting Speeds v_c (ft/min)											
						N425			NA425								
						f_n (inch/rev)			f_n (inch/rev)								
						.004	.008	.016	.004	.008	.016						
N Non-Ferrous	N1	Wrought Aluminum Ex. 1000, 2017, 2025, 5050, 7050	60-90		<520	6900	5400	3600	6900	5400	3600						
	N2	Low-Silicon Aluminum Alloys (Si < 12.2%) Ex. 2024, 6061, 7075	70-100		<350	1640	985	655	1640	985	655						
	N3	High-Silicon Aluminum Alloys (Si > 12.2%)	60-120		200-320	985	655	400	985	655	400						
	N4	Copper and Copper Alloys Ex. C81500	60-200		200-650	1280	1050	885	1280	1050	885						

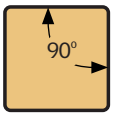
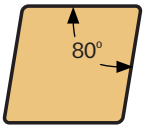
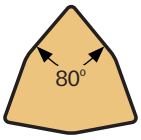
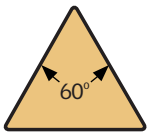
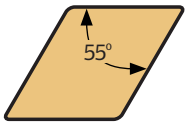
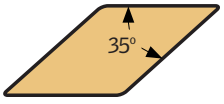
ISO	Material Group	Workpiece Material	Brinell Hardness HB	Rockwell Hardness HRC	Tensile Strength MPa	Recommended Starting Speeds v_c (ft/min)											
						S515											
						f_n (inch/rev)											
						.004	.008	.012									
S High Temp Alloys	S1	Iron-Based Heat-Resistant Alloys Ex. A286, A608, INCOLOY 800 Series, N-155, Haynes 556, Discaloy	160-260	25-48	500-1200	330	280	230									
	S2	Cobalt-Based Heat-Resistant Alloys Ex. Haynes 25 (L605), Haynes 188, Stellite, MAR-M302, MAR-M509	250-450	25-48	1000-1450	260	215	165									
	S3	Nickel-Based Heat-Resistant Alloys Ex. Astroloy, Hastelloy X, INCONEL 600 and 700 Series, Waspalloy	160-450	<48	600-1700	200	150	115									
	S4	Titanium and Titanium Alloys Ex. Commercially Pure Ti, Ti-5Al-2.5Sn, Ti-6Al-4V, Ti-3Al-8V-6Cr-4Zr-4Mo	300-400	33-48	900-1600	-	-	-									

GRADES FOR GENERAL TURNING

Grade / Application Area	Description	Microstructure
P105 **Super-Finishing to Finishing** **P STEEL**	"First Choice" for **Super-Finishing** Applications in Steel (ISO P Materials). Outstanding combination of deformation-resistance and insert edge strength. Gradient-sintered high-performance cemented carbide substrate with unsurpassed wear resistance. Double-Coated MT-CVD Grade with TiCN and Al_2O_3 layers. Exceptional coating adhesion properties. Withstands elevated operating temperatures.	
P115 **Finishing and Semi-finishing** **P STEEL**	*"First Choice"* for **Finishing** Applications in Steel (ISO P Materials). Triple-Coated MT-CVD Grade with Superfine TiCN, Thick Al_2O_3, and Ultra-Smooth TiN. Gradient-sintered high performance cemented carbide substrate with very high wear resistance. Performs extremely well in continuous cutting conditions and stable set-ups.	
P125 **Semi-finishing to Light Roughing** **P STEEL**	*"First Choice"* for **Medium** Turning Applications in Steel w(ISO P Materials). Triple-Coated MT-CVD Grade with Superthick TiCN, Optimized Al_2O_3, and Ultra-Smooth TiN. Gradient-sintered all-round performance cemented carbide substrate with excellent balance of wear resistance and toughness. Covers a wide application range, from semi-finishing to light roughing of Steels and continuous cutting to moderate interruptions. Also recommended for workpieces with scale.	
P135 **Medium Machining to Roughing** **P STEEL**	*"First Choice"* for difficult **Roughing** Applications in Steel (ISO P Materials). Superior fracture toughness and wear resistance. MT-CVD Triple-Layer Coating with smooth surface and excellent fracture resistance. Gradient-sintered high performance cemented carbide substrate with exceptional toughness properties. Well suited for medium to heavy interrupted cuts and other unstable application conditions.	
G625 **Finishing to Light Roughing** **P M K**	Universal Turning Grade. Primary application in Steel, with wide performance range in multiple materials. TiAlN Nano-Structure PVD Coated grade. Sub-Micron carbide substrate with outstanding combination of wear resistance and toughness behavior. Excellent Choice for All-Round grade that performs in an extremely wide variety of workpiece materials.	
S515 **Super-Finishing to Finishing** **M S**	*"First Choice"* Grade for **Finishing** Applications in Stainless Steel (ISO M Materials). Also suitable for finish turning iron-based, cobalt-based and nickel-based Heat Resistant Super Alloys. PVD Advanced TiAlN Coated Grade with superior heat-resistance and oxidation-resistance properties. Extremely hard deformation-resistant micro-grain cemented carbide substrate with exceptional wear resistance characteristics.	

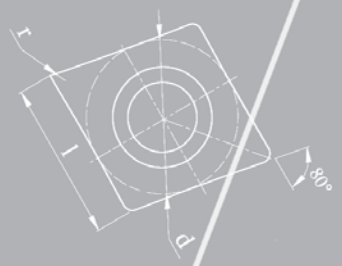
Grade / Application Area	Description	Microstructure
M225 **Finishing to Medium Machining** **M STAINLESS STEEL**	*"First Choice"* Grade for Stainless Steel (ISO M Materials). Double-Coated MT-CVD Grade with outstanding adhesion of Superthick TiCN and Ultra-Smooth TiN. Gradient-sintered tough cemented carbide substrate with excellent wear resistance - even at elevated cutting speeds. Optimized for Stainless Steel machining including light interruptions.	
S525 **Semi-finishing to Roughing** **M STAINLESS STEEL**	TiAlN Nano-Structure PVD Coated grade on Superfine Sub-Micron carbide substrate - exceptional resistance to thermal and mechanical shock with very good wear resistance. Excellent Choice for Stainless Steel applications at moderate cutting speeds, continuous cutting to moderate interruptions.	
K315 **Finishing and Semi-finishing** **K CAST IRON**	*"First Choice"* for **Finishing** Applications in Cast Iron (ISO K Materials). Double-Coated MT-CVD Grade, Thick TiCN and Superthick Al_2O_3 on gradient-sintered high performance cemented carbide substrate. Unique "post-coating treatment" provides smoother cutting zone interface for extremely high wear resistance. Performs very well in continuous cutting conditions and stable set-ups.	
K325 **Semi-finishing to Roughing** **K CAST IRON**	*"First Choice"* for **Medium** Turning Applications in Cast Iron (ISO K Materials). Double-Coated MT-CVD Grade, Superthick TiCN and Thick Al_2O_3 . Gradient-sintered cemented carbide substrate with high wear resistance and superior toughness behavior. Covers a wide application range, from semi-finishing to roughing of Cast Iron - and continuous cutting to heavy interruptions. Performs well in poor machining conditions / on demanding castings.	
N425 **Semi-finishing to Roughing** **N NON-FERROUS**	PVD TiBC Coating paired with High Hardness and Wear Resistant Sub-Micron cemented carbide substrate developed specifically for Aluminum Alloys and other non-ferrous materials within the ISO N Material range. Extremely smooth top coating layer results in reduced surface friction and smooth chip flow. Also suitable for non-metallics.	
NA425 **Semi-finishing to Roughing** **N NON-FERROUS**	Uncoated Sub-Micron cemented carbide grade. High Hardness and Wear Resistance grade developed specifically for Aluminum Alloys and other non-ferrous materials within the ISO N Material range. Also suitable for non-metallics.	

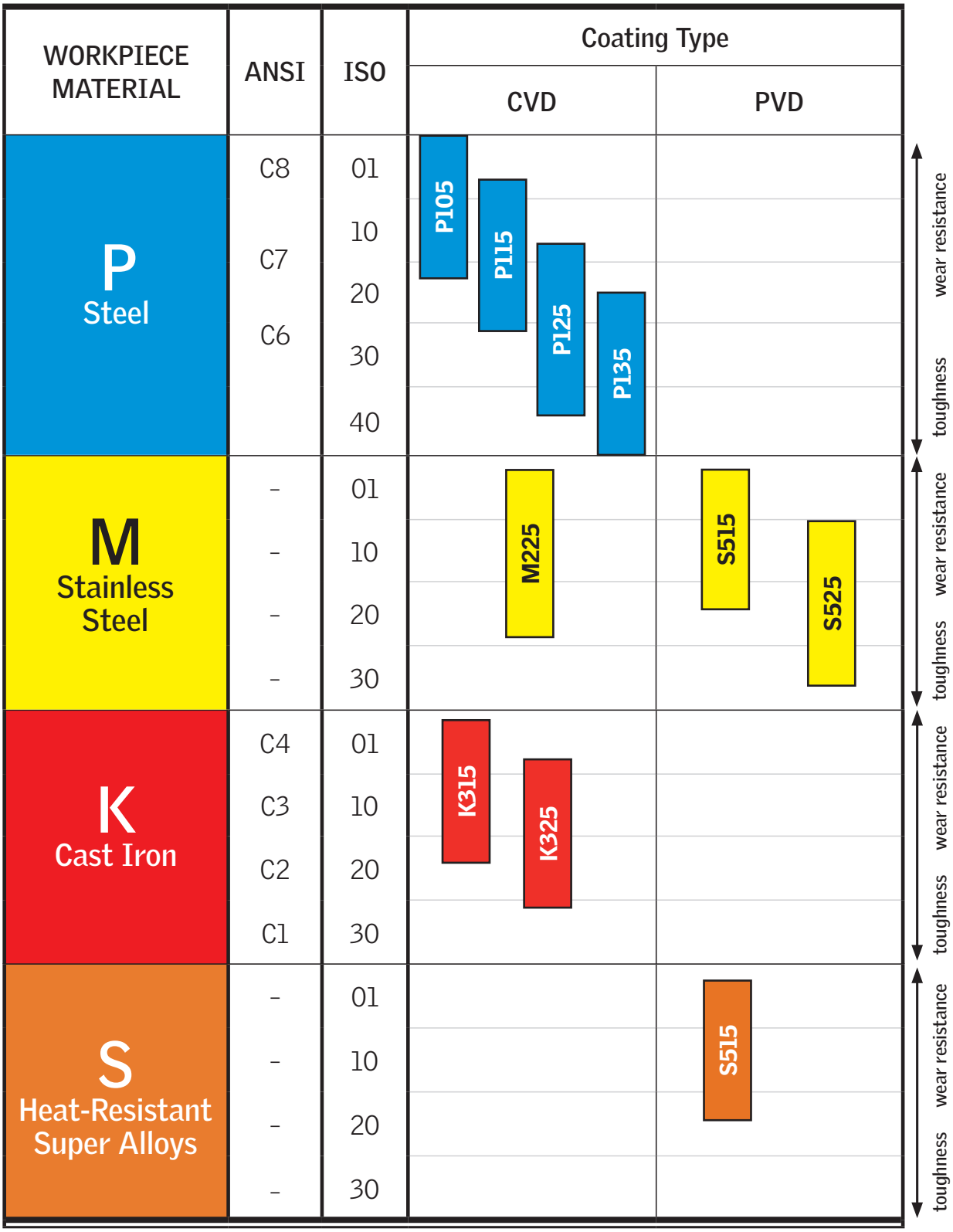
INSERT SELECTION GUIDE

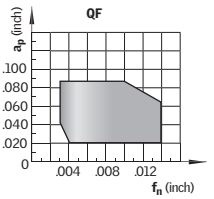
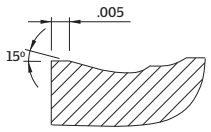
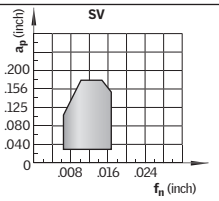
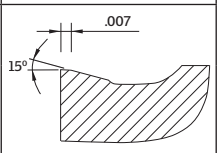
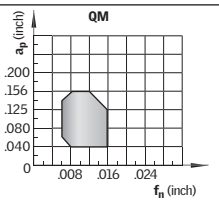
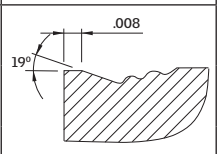
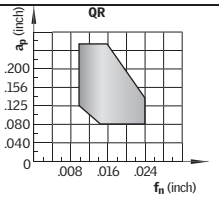
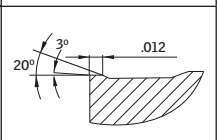
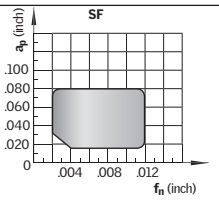
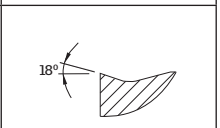
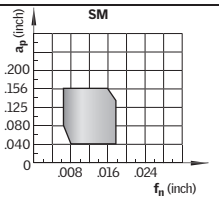
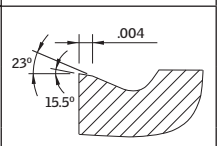
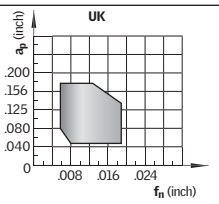
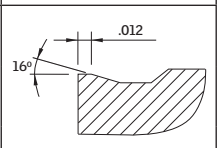
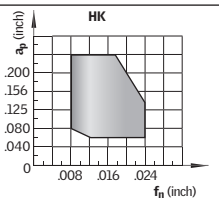
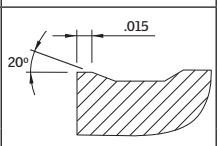
Insert Shape	Application Conditions (+)	Considerations (-)
 **S** - Square	• Very strong 90° corner with excellent economy (8 edges on double-sided inserts). • Most often used for rough facing operations – especially on castings, forgings and rough-sawed blanks.	• Unable to turn or face up to a shoulder (must be used in a toolholder with minimum 5° lead angle). • High radial forces push against the workpiece when used for turning. • Should always be used in a stable set-up.
 **C** - 80° Diamond	• The most popular insert shape due to high versatility. • Strong cutting edge with secure seating in the insert pocket. • 80° corner can be used for both turning and facing operations. • Opposite 100° corners can be used for general roughing applications (especially facing), providing maximum economy of 8 total cutting edges.	• With only 5° of clearance between the trailing side of the insert and the workpiece, chip jamming can occur when boring.
 **W** - 80° Corner Trigon	• Six-corner 80° diamond shape that can increase economy compared to CNMG-style inserts. • Generally used on more moderate depths of cut and feedrates than CNMG-style inserts.	• Seating of insert in pocket is not as stable as CNMG-style inserts. • Cannot take as deep a depth of cut as similar sized CNMG-type inserts.
 **T** - Triangle	• Very versatile insert shape – can be used for turning, facing, boring, copy turning and basic profiling. • Good economy with up to 6 cutting edges. • Excellent choice for general boring due to very stable seating of the insert in the boring bar pocket, and extra side clearance between the insert and the workpiece bore (greatly reducing the risk of chip jamming).	• Edge is measurably weaker than 80° diamond shaped inserts. • Be sure not to use a triangle insert that is "too large" for the application, as the cost per edge can increase. For example, a 3/8" iC (Inscribed Circle) triangle insert (TNMG-33x) can manage up to .375" depth of cut in most situations with nearly the same insert strength – but a much lower cost - than a 1/2" iC triangle insert (TNMG-43x).
 **D** - 55° Diamond	• Generally the first choice for profile / copy turning applications. • Able to "In-Copy" (plunge turn into a smaller diameter) at an angle of 30°. • Commonly used when machining close to the tailstock / live center.	• Somewhat weaker edge strength than a triangle insert. • Cost per edge is higher than most other turning inserts (except 35° diamond shape).
 **V** - 35° Diamond	• First choice for intricate shape copy turning. • Can "In-Copy" (plunge turn into a smaller diameter) at an angle up to 49°. • Can work extremely close to the tailstock / live center.	• The weakest turning insert shape / corner – depths of cut and feedrates must be lighter. • Highest cost per edge. • Negative style (VNMG) should mainly be used for external applications. • Positive style (VCMT) can be used for external and internal applications, and in many cases improved performance outweighs the increased cost per edge (2 edges vs. the 4 edges of a negative 35° diamond VNMG).

TURNING INSERTS | NEGATIVE RAKE

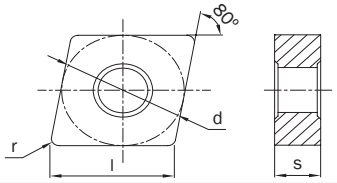
ANSI / ISO STANDARD INSERTS
FOR MOST EXTERNAL TURNING AND
INTERNAL MACHINING OPERATIONS




WORKPIECE MATERIAL
ANSI
ISO
Coating Type
CVD
PVD
P
Steel
C8
C7
C6
01
10
20
30
40
P105
P115
P125
P135
M
Stainless Steel
-
01
10
20
30
M225
S515
S525
K
Cast Iron
C4
C3
C2
C1
K315
K325
S
Heat-Resistant Super Alloys
S515
wear resistance
toughness

Chipbreaker	Description	Chipbreaker Range	Design
QF P STEEL	• Butterfly geometry directs chip flow • Variable Rake Angle • Curved Edgeline • Excellent chip control at small depths of cut • High quality surface finish		
SV P STEEL	• Super-wide Chipgroove • High positive cutting action • Unique cutting edge treatment • Extremely long edgeline • Good for unstable set-ups • Able to handle varying depths of cut		
QM P STEEL	• Smooth chip formation • Variable Land balances sharpness & strength • Strengthening ribs extend tool life • Wide application range • Low cutting forces with high edge strength • Excellent all-around performance		
QR P STEEL	• High performance steel roughing chipbreaker • Strong cutting edge • Well suited for unstable application conditions • First choice for medium to heavy interruptions • Excellent chip evacuation and chip control • Smooth chip removal throughout feed range		
SF M S	• Ultra-sharp cutting edge • Low cutting forces • Excellent chip control at small depths of cut • Top land design protects against edge hammering • Smooth cutting action without burrs • Excellent workpiece surface finish		
SM M STAINLESS STEEL	• Double-positive chipbreaker design • Strengthened positive land • Micro-edge geometry for Stainless Steel • Reduced workhardening effect • Wide application range / medium turning		
UK K CAST IRON	• Lower cutting force geometry for Cast Iron • Strengthened edgeline with open chipformer • Designed for light to moderate applications • Good choice in unstable set-ups • Problem solver for boring Cast Iron		
HK K CAST IRON	• Outstanding performance in Cast Iron • Strong edge with free cutting action • Extremely broad application range • Replaces traditional – NMA flat-top inserts • Precision lapped support surface		

CNMG-QF



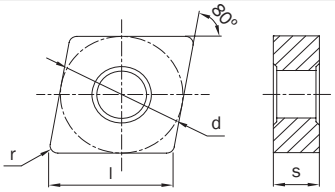
Most popular shape / style of insert. All-purpose turning, facing and boring.

QF: First Choice Geometry for finishing and semi-finishing applications in all types of Steel.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
CNMG 321-QF	CNMG090304-QF	3/8	.381	1/8	1/64	.010 - .062	.003 - .010	-	DPL100073	DPL100074
CNMG 322-QF	CNMG090308-QF	3/8	.381	1/8	1/32	.016 - .080	.004 - .014	-	DPL100079	DPL100080
CNMG 431-QF	CNMG120404-QF	1/2	.508	3/16	1/64	.010 - .062	.003 - .010	DPL100085	DPL100086	DPL100087
CNMG 432-QF	CNMG120408-QF	1/2	.508	3/16	1/32	.016 - .080	.004 - .014	DPL100099	DPL100100	DPL100101

Ordering Example: 20 pcs CNMG 432-QF P125; DPL100101

CNMG-SV



Most popular shape / style of insert. All-purpose turning, facing and boring.

SV: Sharp Edge Geometry for shaft turning, boring and unstable workpieces. Performs well in a wide range of depths of cut.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125
CNMG 432R-SV	CNMG 120408R-SV	1/2	.508	3/16	1/32	.031 - .187	.004 - .018	DPL100109
CNMG 432L-SV	CNMG 120408L-SV	1/2	.508	3/16	1/32	.031 - .187	.004 - .018	DPL100098

Ordering Example: 20 pcs CNMG 432L-SV P125; DPL100098

NOTE: SV geometry inserts are available in both R (Right-hand) and L (Left-hand) styles. Right-hand style is shown above.
Normal External Turning applications require Right-hand (R) inserts in Right-hand holders, and Left-hand (L) inserts in Left-hand holders.
For Internal / Boring applications, Left-hand (L) inserts are used in Right-hand bars, and Right-hand (R) inserts are used in Left-hand bars.

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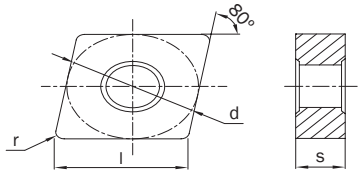
CNMG-QM



Most popular shape / style of insert. All-purpose turning, facing and boring.

QM: First Choice Geometry for medium to semi-roughing applications in all types of Steel.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
CNMG 321-QM	CNMG090304-QM	3/8	.381	1/8	1/64	.016 - .141	.004 - .012	-	DPL100075	DPL100076
CNMG 322-QM	CNMG090304-QM	3/8	.381	1/8	1/32	.020 - .141	.005 - .016	-	DPL100081	DPL100082
CNMG 431-QM	CNMG 120404-QM	1/2	.508	3/16	1/64	.016 - .187	.004 - .012	DPL100088	DPL100089	DPL100090
CNMG 432-QM	CNMG 120408-QM	1/2	.508	3/16	1/32	.020 - .187	.005 - .016	DPL100102	DPL100103	DPL100104
CNMG 433-QM	CNMG 120412-QM	1/2	.508	3/16	3/64	.031 - .187	.006 - .020	DPL100117	DPL100118	DPL100119
CNMG 434-QM	CNMG 120416-QM	1/2	.508	3/16	1/16	.040 - .187	.007 - .024	-	-	DPL100126
CNMG 542-QM	CNMG 160608-QM	5/8	.635	1/4	1/32	.020 - .219	.005 - .016	DPL100129	DPL100130	DPL100131
CNMG 543-QM	CNMG 160612-QM	5/8	.635	1/4	3/64	.031 - .219	.006 - .020	DPL100136	DPL100137	DPL100138
CNMG 642-QM	CNMG 190608-QM	3/4	.762	1/4	1/32	.020 - .266	.005 - .016	-	DPL100151	DPL100152
CNMG 643-QM	CNMG 190612-QM	3/4	.762	1/4	3/64	.031 - .266	.006 - .020	DPL100157	DPL100158	DPL100159
CNMG 644-QM	CNMG 190616-QM	3/4	.762	1/4	1/16	.040 - .266	.007 - .024			DPL100167

Ordering Example: 20 pcs CNMG 644-QM P125; DPL100167

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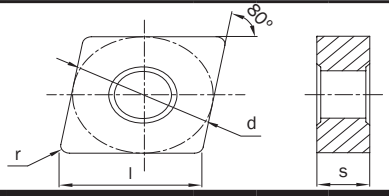
CNMG-QR



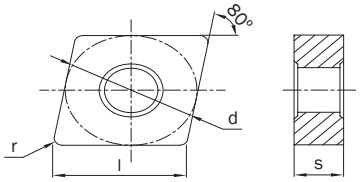
Most popular shape / style of insert. All-purpose turning, facing and boring.

QR: Strong cutting edge geometry for roughing applications in all types of Steel. Well suited for unstable conditions and interrupted cuts.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL			
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125	P135
CNMG 432-QR	CNMG 120408-QR	1/2	.508	3/16	1/32	.028 - .219	.007 - .020	DPL100105	DPL100106	DPL100108	DPL100107
CNMG 433-QR	CNMG 120412-QR	1/2	.508	3/16	3/64	.040 - .219	.008 - .022	DPL100120	DPL100121	DPL100123	DPL100122
CNMG 543-QR	CNMG 160612-QR	5/8	.635	1/4	3/64	.040 - .266	.008 - .022	DPL100139	DPL100140	DPL100142	DPL100141
CNMG 544-QR	CNMG 160616-QR	5/8	.635	1/4	1/16	.055 - .266	.009 - .026	DPL100146	DPL100147	-	DPL100148
CNMG 643-QR	CNMG 190612-QR	3/4	.762	1/4	3/64	.040 - .328	.008 - .022	DPL100160	DPL100161	DPL100163	DPL100162
CNMG 644-QR	CNMG 190616-QR	3/4	.762	1/4	1/16	.055 - .328	.009 - .026	DPL100168	DPL100169	-	DPL100170

Ordering Example: 20 pcs CNMG 644-QR P135; DPL100170

CNMG-SF



Most popular shape / style of insert. All-purpose turning, facing and boring.

SF: Ultra-sharp cutting edge geometry for finishing in Stainless Steels. Low cutting forces and superior workpiece surface finish without burrs.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		M	S
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	MULTI-MATERIAL S515	
CNMG 431-SF	CNMG 120404-SF	1/2	.508	3/16	1/64	.004 - .062	.003 - .012	DPL100091	
CNMG 432-SF	CNMG 120408-SF	1/2	.508	3/16	1/32	.004 - .062	.004 - .016	DPL100110	

Ordering Example: 20 pcs CNMG 432-SF S515; DPL100110

NOTE: The primary application area for grade S515 is in stainless steel workpiece materials. S515 is also suitable for use with iron-based, cobalt-based and nickel-based Heat Resistant Super Alloys.

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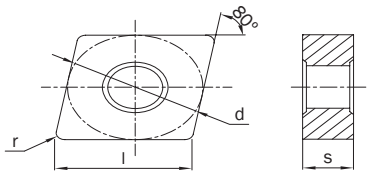
CNMG-SM



Most popular shape / style of insert. All-purpose turning, facing and boring.

SM: Keen edge geometry especially for Stainless Steel. Unique edgeline reduces work hardening. Semi-finishing to rough machining.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STAINLESS STEEL	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	S525	M225
CNMG 321-SM	CNMG 090304-SM	3/8	.381	1/8	1/64	.016 - .141	.004 - .012	DPL100374	DPL100077
CNMG 322-SM	CNMG 090308-SM	3/8	.381	1/8	1/32	.020 - .141	.005 - .016	DPL100378	DPL100078
CNMG 431-SM	CNMG 120404-SM	1/2	.508	3/16	1/64	.016 - .187	.004 - .012	DPL100379	DPL100083
CNMG 432-SM	CNMG 120408-SM	1/2	.508	3/16	1/32	.020 - .187	.005 - .016	DPL100388	DPL100084
CNMG 433-SM	CNMG 120412-SM	1/2	.508	3/16	3/64	.031 - .187	.006 - .020	DPL100389	DPL100092
CNMG 434-SM	CNMG 120416-SM	1/2	.508	3/16	1/16	.040 - .187	.007 - .024	DPL100393	DPL100093
CNMG 542-SM	CNMG 160608-SM	5/8	.635	1/4	1/32	.020 - .219	.005 - .016	DPL100394	DPL100111
CNMG 543-SM	CNMG 160612-SM	5/8	.635	1/4	3/64	.031 - .219	.006 - .020	DPL100415	DPL100112
CNMG 544-SM	CNMG 160616-SM	5/8	.635	1/4	1/16	.040 - .219	.007 - .024	DPL100423	DPL100124
CNMG 642-SM	CNMG 190608-SM	3/4	.762	1/4	1/32	.020 - .266	.005 - .016	DPL100453	DPL100125
CNMG 643-SM	CNMG 190612-SM	3/4	.762	1/4	3/64	.031 - .266	.006 - .020	DPL100454	DPL100127
CNMG 644-SM	CNMG 190616-SM	3/4	.762	1/4	1/16	.040 - .266	.007 - .024	DPL100468	DPL100128

Ordering Example: 20 pcs CNMG 644-SM S525; DPL100468

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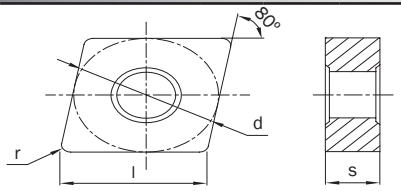
CNMG-UK



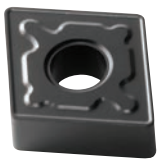
Most popular shape / style of insert. All-purpose turning, facing and boring.

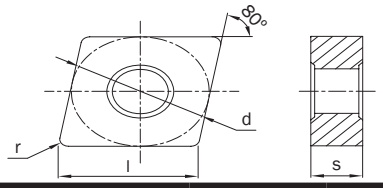
UK: Lower cutting force geometry for Cast Iron. Edge geometry reduces cutting forces in moderate conditions / lighter cuts.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		CAST IRON	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	K315	K325
CNMG 431-UK	CNMG 120404-UK	1/2	.508	3/16	1/64	.012 - .203	.003 - .012	DPL100094	DPL100095
CNMG 432-UK	CNMG 120408-UK	1/2	.508	3/16	1/32	.016 - .203	.004 - .014	DPL100113	DPL100114

Ordering Example: 20 pcs CNMG 432-UK K315; DPL100113

CNMG-HK





Most popular shape / style of insert. All-purpose turning, facing and boring.

HK: Exceptionally broad application range geometry primarily for Cast Iron. Strong cutting edge, excellent durability. Semi-finishing to roughing.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		CAST IRON	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	K315	K325
CNMG 432-HK	CNMG 120408-HK	1/2	.508	3/16	1/32	.020 - .219	.004 - .016	DPL100096	DPL100097
CNMG 433-HK	CNMG 120412-HK	1/2	.508	3/16	3/64	.031 - .219	.006 - .020	DPL100115	DPL100116
CNMG 543-HK	CNMG 160612-HK	5/8	.635	1/4	3/64	.031 - .297	.006 - .020	DPL100134	DPL100135
CNMG 544-HK	CNMG 160616-HK	5/8	.635	1/4	1/16	.040 - .297	.008 - .026	-	DPL100145
CNMG 643-HK	CNMG 190612-HK	3/4	.762	1/4	3/64	.031 - .359	.006 - .020	DPL100155	DPL100156
CNMG 644-HK	CNMG 190616-HK	3/4	.762	1/4	1/16	.040 - .359	.008 - .026	-	DPL100166

Ordering Example: 20 pcs CNMG 644-HK K325; DPL100166

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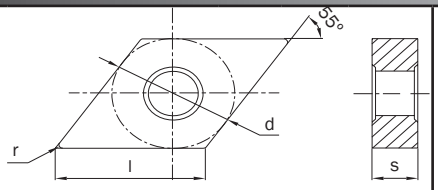
DNMG-QF



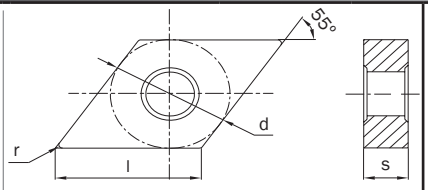
Use for profile turning, copy turning, and semi-finishing. Can turn more complex shapes due to 55° included angle.

QF: First Choice Geometry for finishing and semi-finishing applications in all types of Steel.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
DNMG 331-QF	DNMG 110404-QF	3/8	.458	3/16	1/64	.010 - .062	.003 - .010	-	DPL100241	DPL100242
DNMG 332-QF	DNMG 110408-QF	3/8	.458	3/16	1/32	.016 - .080	.004 - .014	-	DPL100246	DPL100247
DNMG 431-QF	DNMG 150404-QF	1/2	.610	3/16	1/64	.010 - .062	.003 - .010	DPL100256	DPL100257	DPL100258
DNMG 432-QF	DNMG 150408-QF	1/2	.610	3/16	1/32	.016 - .080	.004 - .014	DPL100269	DPL100270	DPL100271

Ordering Example: 20 pcs DNMG 432-QF P115; DPL100270

DNMG-QM



Use for profile turning, copy turning, and semi-finishing. Can turn more complex shapes due to 55° included angle.

QM: First Choice Geometry for medium to semi-roughing applications in all types of Steel.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
DNMG 331-QM	DNMG 110404-QM	3/8	.458	3/16	1/64	.016 - .156	.004 - .012	-	DPL100243	DPL100244
DNMG 332-QM	DNMG 110408-QM	3/8	.458	3/16	1/32	.020 - .156	.005 - .016	-	DPL100248	DPL100249
DNMG 333-QM	DNMG 110412-QM	3/8	.458	3/16	3/64	.031 - .156	.006 - .020	-	DPL100252	DPL100253
DNMG 431-QM	DNMG 150404-QM	1/2	.610	3/16	1/64	.016 - .187	.004 - .012	DPL100259	DPL100260	DPL100261
DNMG 432-QM	DNMG 150408-QM	1/2	.610	3/16	1/32	.020 - .187	.005 - .016	DPL100272	DPL100273	DPL100274
DNMG 433-QM	DNMG 150412-QM	1/2	.610	3/16	3/64	.031 - .187	.006 - .020	-	DPL100282	DPL100283

Ordering Example: 20 pcs DNMG 433-QM P115; DPL100282

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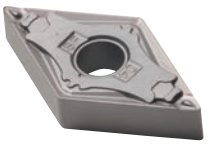
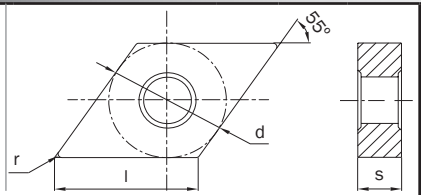
DNMG-SF





Use for profile turning, copy turning, and semi-finishing. Can turn more complex shapes due to 55° included angle.

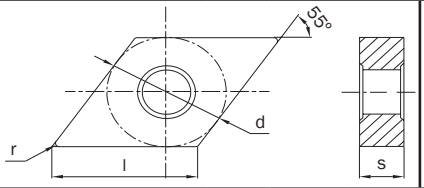
SF: Ultra-sharp cutting edge geometry for finishing in Stainless Steels. Low cutting forces and superior workpiece surface finish without burrs.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		M	S
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	MULTI-MATERIAL S515	
DNMG 431-SF	DNMG 150404-SF	1/2	.610	3/16	1/64	.004 - .062	.003 - .012	DPL100262	
DNMG 432-SF	DNMG 150408-SF	1/2	.610	3/16	1/32	.004 - .062	.004 - .016	DPL100275	

Ordering Example: 20 pcs DNMG 432-SF S515; DPL100275

NOTE: The primary application area for grade S515 is in stainless steel workpiece materials. S515 is also suitable for use with iron-based, cobalt-based and nickel-based Heat Resistant Super Alloys.

DNMG-SM



Use for profile turning, copy turning, and semi-finishing. Can turn more complex shapes due to 55° included angle.

SM: Keen edge geometry especially for Stainless Steel. Unique edgeline reduces work hardening. Semi-finishing to rough machining.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STAINLESS STEEL	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	S525	M225
DNMG 331-SM	DNMG 110404-SM	3/8	.458	3/16	1/64	.016 - .156	.004 - .012	-	DPL100150
DNMG 332-SM	DNMG 110408-SM	3/8	.458	3/16	1/32	.020 - .156	.005 - .016	DPL100469	DPL100153
DNMG 333-SM	DNMG 110412-SM	3/8	.458	3/16	3/64	.031 - .156	.006 - .020	DPL100477	DPL100154
DNMG 431-SM	DNMG 150404-SM	1/2	.610	3/16	1/64	.016 - .187	.004 - .012	DPL100478	DPL100164
DNMG 432-SM	DNMG 150408-SM	1/2	.610	3/16	1/32	.020 - .187	.005 - .016	DPL100487	DPL100165
DNMG 433-SM	DNMG 150412-SM	1/2	.610	3/16	3/64	.031 - .187	.006 - .020	DPL100488	DPL100171

Ordering Example: 20 pcs DNMG 433-SM M225; DPL100171

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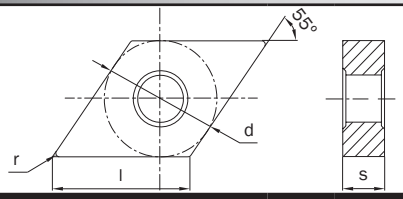
DNMG-UK



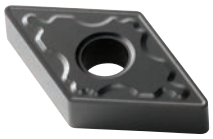
Use for profile turning, copy turning, and semi-finishing. Can turn more complex shapes due to 55° included angle.

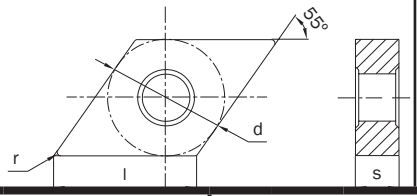
UK: Lower cutting force geometry for Cast Iron. Edge geometry reduces cutting forces in moderate conditions / lighter cuts.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		CAST IRON	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	K315	K325
DNMG 431-UK	DNMG 150404-UK	1/2	.610	3/16	1/64	.012 - .203	.003 - .012	DPL100265	DPL100266
DNMG 432-UK	DNMG 150408-UK	1/2	.610	3/16	1/32	.016 - .203	.004 - .014	DPL100278	DPL100279

Ordering Example: 20 pcs DNMG 432-UK K315; DPL100278

DNMG-HK





Use for profile turning, copy turning, and semi-finishing. Can turn more complex shapes due to 55° included angle.

HK: Exceptionally broad application range geometry primarily for Cast Iron. Strong cutting edge, excellent durability. Semi-finishing to roughing.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		CAST IRON	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	K315	K325
DNMG 432-HK	DNMG 150408-HK	1/2	.610	3/16	1/32	.020 - .219	.004 - .016	DPL100267	DPL100268
DNMG 433-HK	DNMG 150412-HK	1/2	.610	3/16	3/64	.031 - .219	.006 - .020	DPL100280	DPL100281

Ordering Example: 20 pcs DNMG 433-HK K315; DPL100280

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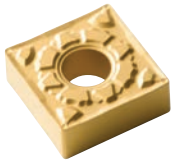
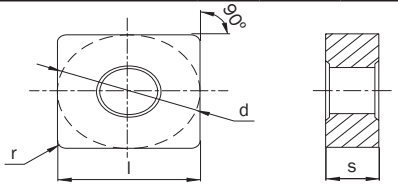
SNMG-QF





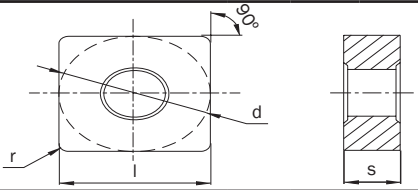
Excellent economy due to 8 cutting edges. Strong insert shape. Mainly for rough facing and chamfering (not turning to a shoulder).

QF: First Choice Geometry for finishing and semi-finishing applications in all types of Steel.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
SNMG 321-QF	SNMG 090304-QF	3/8	.375	1/8	1/64	.010 - .062	.003 - .010	-	DPL100314	DPL100315
SNMG 322-QF	SNMG 090308-QF	3/8	.375	1/8	1/32	.016 - .080	.004 - .014	-	DPL100320	DPL100321
SNMG 431-QF	SNMG 120404-QF	1/2	.500	3/16	1/64	.010 - .062	.003 - .010	DPL100326	DPL100327	DPL100328
SNMG 432-QF	SNMG 120408-QF	1/2	.500	3/16	1/32	.016 - .080	.004 - .014	DPL100336	DPL100337	DPL100338

Ordering Example: 20 pcs SNMG 432-QF P105; DPL100336

SNMG-SV



Excellent economy due to 8 cutting edges. Strong insert shape. Mainly for rough facing and chamfering (not turning to a shoulder).

SV: Sharp Edge Geometry for turning and facing unstable workpieces. Can handle a wide range of depths of cut.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125
SNMG 432R-SV	SNMG 120408R-SV	1/2	.500	3/16	1/32	.031 - .187	.004 - .018	DPL100345
SNMG 432L-SV	SNMG 120408L-SV	1/2	.500	3/16	1/32	.031 - .187	.004 - .018	DPL100335

Ordering Example: 20 pcs SNMG 432L-SV P125; DPL100335

NOTE: SV geometry inserts are available in both R (Right-hand) and L (left-hand) styles. Right-hand style is shown above.
Normal External Turning applications require Right-hand (R) inserts in Right-hand holders, and Left-hand (L) inserts in Left-hand holders.
For Internal / Boring applications, Left-hand (L) inserts are used in Right-hand bars, and Right-hand (R) inserts are used in Left-hand bars.

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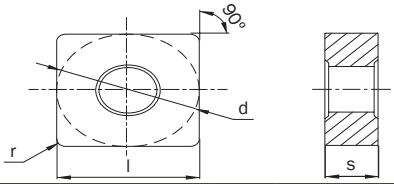
SNMG-QM



Excellent economy due to 8 cutting edges. Strong insert shape. Mainly for rough facing and chamfering (not turning to a shoulder).

QM: First Choice Geometry for medium to semi-roughing applications in all types of Steel.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
SNMG 321-QM	SNMG 090304-QM	3/8	.375	1/8	1/64	.016 - .141	.004 - .012	-	DPL100316	DPL100317
SNMG 322-QM	SNMG 090308-QM	3/8	.375	1/8	1/32	.020 - .141	.005 - .016	-	DPL100322	DPL100323
SNMG 431-QM	SNMG 120404-QM	1/2	.500	3/16	1/64	.016 - .187	.004 - .012	-	DPL100329	DPL100330
SNMG 432-QM	SNMG 120408-QM	1/2	.500	3/16	1/32	.020 - .187	.005 - .016	DPL100339	DPL100340	DPL100341
SNMG 433-QM	SNMG 120412-QM	1/2	.500	3/16	3/64	.031 - .187	.006 - .020	DPL100350	DPL100351	DPL100352
SNMG 434-QM	SNMG 120416-QM	1/2	.500	3/16	1/16	.040 - .187	.007 - .024	-	-	DPL100358
SNMG 542-QM	SNMG 150608-QM	5/8	.625	1/4	1/32	.020 - .219	.005 - .016	-	DPL100361	DPL100362
SNMG 543-QM	SNMG 150612-QM	5/8	.625	1/4	3/64	.031 - .219	.006 - .020	DPL100367	DPL100368	DPL100369
SNMG 643-QM	SNMG 190612-QM	3/4	.750	1/4	3/64	.031 - .266	.006 - .020	DPL100382	DPL100383	DPL100384

Ordering Example: 20 pcs SNMG 643-QM P115; DPL100383

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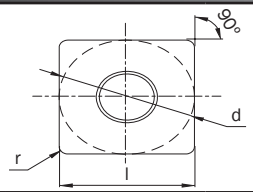
SNMG-QR



Excellent economy due to 8 cutting edges. Strong insert shape. Mainly for rough facing and chamfering (not turning to a shoulder).

QR: Strong cutting edge geometry for roughing applications in all types of Steel. Well suited for unstable conditions and interrupted cuts.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P125	P135
SNMG 432-QR	SNMG 120408-QR	1/2	.500	3/16	1/32	.028 - .219	.007 - .020	DPL100342	DPL100344	DPL100343
SNMG 433-QR	SNMG 120412-QR	1/2	.500	3/16	3/64	.040 - .219	.008 - .022	DPL100353	-	DPL100354
SNMG 543-QR	SNMG 150612-QR	5/8	.625	1/4	3/64	.040 - .266	.008 - .022	DPL100370	DPL100372	DPL100371
SNMG 544-QR	SNMG 150616-QR	5/8	.625	1/4	1/16	.055 - .266	.009 - .026	DPL100376	-	DPL100377
SNMG 643-QR	SNMG 190612-QR	3/4	.750	1/4	3/64	.040 - .328	.008 - .022	DPL100385	DPL100387	DPL100386
SNMG 644-QR	SNMG 190616-QR	3/4	.750	1/4	1/16	.055 - .328	.009 - .026	DPL100391	-	DPL100392

Ordering Example: 20 pcs SNMG 644-QR P135; DPL100392

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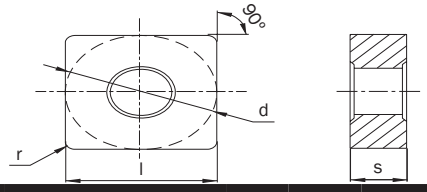
SNMG-SM



Excellent economy due to 8 cutting edges. Strong insert shape. Mainly for rough facing and chamfering (not turning to a shoulder).

SM: Keen edge geometry especially for Stainless Steel. Unique edgeline reduces work hardening. Semi-finishing to rough machining.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STAINLESS STEEL	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	S525	M225
SNMG 321-SM	SNMG 090304-SM	3/8	.375	1/8	1/64	.016 - .141	.004 - .012	DPL100495	DPL100198
SNMG 322-SM	SNMG 090308-SM	3/8	.375	1/8	1/32	.020 - .141	.005 - .016	DPL100496	DPL100204
SNMG 431-SM	SNMG 120404-SM	1/2	.500	3/16	1/64	.016 - .187	.004 - .012	DPL100500	DPL100213
SNMG 432-SM	SNMG 120408-SM	1/2	.500	3/16	1/32	.020 - .187	.005 - .016	DPL100501	DPL100221
SNMG 433-SM	SNMG 120412-SM	1/2	.500	3/16	3/64	.031 - .187	.006 - .020	DPL100512	DPL100230
SNMG 434-SM	SNMG 120416-SM	1/2	.500	3/16	1/16	.040 - .187	.007 - .024	DPL100516	DPL100245
SNMG 542-SM	SNMG 150608-SM	5/8	.625	1/4	1/32	.020 - .219	.005 - .016	DPL100520	DPL100250
SNMG 543-SM	SNMG 150612-SM	5/8	.625	1/4	3/64	.031 - .219	.006 - .020	DPL100526	DPL100251
SNMG 544-SM	SNMG 150616-SM	5/8	.625	1/4	1/16	.040 - .219	.007 - .024	DPL100533	DPL100254
SNMG 643-SM	SNMG 190612-SM	3/4	.750	1/4	3/64	.031 - .266	.006 - .020	DPL100574	DPL100255
SNMG 644-SM	SNMG 190616-SM	3/4	.750	1/4	1/16	.040 - .266	.007 - .024	DPL100575	DPL100263

Ordering Example: 20 pcs SNMG 644-SM M225; DPL100263

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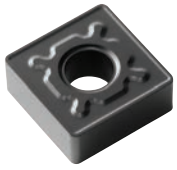
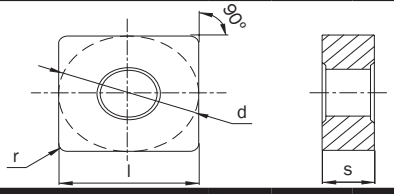
SNMG-HK





Excellent economy due to 8 cutting edges. Strong insert shape. Mainly for rough facing and chamfering (not turning to a shoulder).

HK: Exceptionally broad application range geometry primarily for Cast Iron. Strong cutting edge, excellent durability. Semi-finishing to roughing.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		CAST IRON	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	K315	K325
SNMG 432-HK	SNMG 120408-HK	1/2	.500	3/16	1/32	.020 - .219	.004 - .016	DPL100333	DPL100334
SNMG 433-HK	SNMG 120412-HK	1/2	.500	3/16	3/64	.031 - .219	.006 - .020	DPL100348	DPL100349
SNMG 434-HK	SNMG 120416-HK	1/2	.500	3/16	1/16	.040 - .219	.008 - .026	-	DPL705255
SNMG 543-HK	SNMG 150612-HK	5/8	.625	1/4	3/64	.031 - .297	.006 - .020	DPL100365	DPL100366
SNMG 544-HK	SNMG 150616-HK	5/8	.625	1/4	1/16	.040 - .297	.008 - .026	-	DPL100375
SNMG 643-HK	SNMG 190612-HK	3/4	.750	1/4	3/64	.031 - .359	.006 - .020	DPL100380	DPL100381
SNMG 644-HK	SNMG 190616-HK	3/4	.750	1/4	1/16	.040 - .359	.008 - .026	-	DPL100390

Ordering Example: 20 pcs SNMG 644-HK K325; DPL100390

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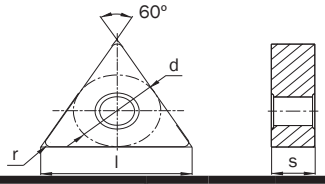
TNMG-QF



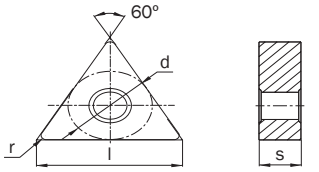
Economical insert, 6 cutting edges. General purpose turning, facing and boring. Extra long cutting edge useful when turning to shoulders

QF: First Choice Geometry for finishing and semi-finishing applications in all types of Steel.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
TNMG 331-QF	TNMG 160404-QF	3/8	.650	3/16	1/64	.010 - .062	.003 - .010	DPL100445	DPL100446	DPL100447
TNMG 332-QF	TNMG 160408-QF	3/8	.650	3/16	1/32	.016 - .080	.004 - .014	DPL100460	DPL100461	DPL100462
TNMG 431-QF	TNMG 220404-QF	1/2	.866	3/16	1/64	.010 - .062	.003 - .010	-	DPL100479	DPL100480
TNMG 432-QF	TNMG 220408-QF	1/2	.866	3/16	1/32	.016 - .080	.004 - .014	-	DPL100483	DPL100484

Ordering Example: 20 pcs TNMG 432-QF P115; DPL100483

TNMG-SV



Economical insert, 6 cutting edges. General purpose turning, facing and boring. Extra long cutting edge useful when turning to shoulders.

SV: Sharp Edge Geometry for shaft turning, boring and unstable workpieces. Can handle a wide range of depths of cut.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125
TNMG 331R-SV	TNMG 160404R-SV	3/8	.650	3/16	1/64	.024 - .187	.004 - .016	DPL100451
TNMG 331L-SV	TNMG 160404L-SV	3/8	.650	3/16	1/64	.024 - .187	.004 - .016	DPL100444
TNMG 332R-SV	TNMG 160408R-SV	3/8	.650	3/16	1/32	.031 - .187	.004 - .018	DPL100466
TNMG 332L-SV	TNMG 160408L-SV	3/8	.650	3/16	1/32	.031 - .187	.004 - .018	DPL100459

Ordering Example: 20 pcs TNMG 332L-SV P125; DPL100459

NOTE: SV geometry inserts are available in both R (Right-hand) and L (left-hand) styles. Right-hand style is shown above.
Normal External Turning applications require Right-hand (R) inserts in Right-hand holders, and Left-hand (L) inserts in Left-hand holders.
For Internal / Boring applications, Left-hand (L) inserts are used in Right-hand bars, and Right-hand (R) inserts are used in Left-hand bars.

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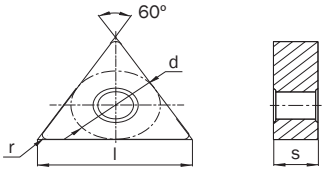
TNMG-QM



Economical insert, 6 cutting edges. General purpose turning, facing and boring. Extra long cutting edge useful when turning to shoulders.

QM: First Choice Geometry for medium to semi-roughing applications in all types of Steel.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
TNMG 221-QM	TNMG 110304-QM	1/4	.433	1/8	1/64	.016 - .109	.004 - .010	-	DPL100440	DPL100441
TNMG 222-QM	TNMG 110308-QM	1/4	.433	1/8	1/32	.020 - .109	.005 - .014	-	DPL100442	DPL100443
TNMG 331-QM	TNMG 160404-QM	3/8	.650	3/16	1/64	.016 - .156	.004 - .012	DPL100448	DPL100449	DPL100450
TNMG 332-QM	TNMG 160408-QM	3/8	.650	3/16	1/32	.020 - .156	.005 - .016	DPL100463	DPL100464	DPL100465
TNMG 333-QM	TNMG 160412-QM	3/8	.650	3/16	3/64	.031 - .156	.006 - .020	DPL100474	DPL100475	DPL100476
TNMG 432-QM	TNMG 220408-QM	1/2	.866	3/16	1/32	.020 - .187	.005 - .016	-	DPL100485	DPL100486
TNMG 433-QM	TNMG 220412-QM	1/2	.866	3/16	3/64	.031 - .187	.006 - .020	-	DPL100491	DPL100492
TNMG 434-QM	TNMG 220416-QM	1/2	.866	3/16	1/16	.040 - .187	.007 - .024	-	-	DPL100498

Ordering Example: 20 pcs TNMG 434-QM P125; DPL100498

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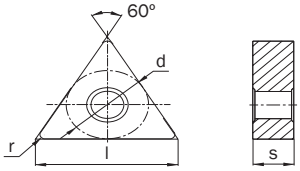
TNMG-QR



Economical insert, 6 cutting edges. General purpose turning, facing and boring. Extra long cutting edge useful when turning to shoulders.

QR: Strong cutting edge geometry for roughing applications in all types of Steel. Well suited for unstable conditions and interrupted cuts.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125	P135
TNMG 433-QR	TNMG 220412-QR	1/2	.866	3/16	3/64	.040 - .219	.008 - .022	DPL100494	DPL100493
TNMG 434-QR	TNMG 220416-QR	1/2	.866	3/16	1/16	.055 - .219	.009 - .026	-	DPL100499
TNMG 543-QR	TNMG 270612-QR	5/8	1083	1/4	3/64	.040 - .328	.008 - .022	DPL100505	DPL100504
TNMG 544-QR	TNMG 270616-QR	5/8	1083	1/4	1/16	.055 - .328	.009 - .026	-	DPL100507

Ordering Example: 20 pcs TNMG 544-QR P135; DPL100507

REFERENCE PAGES					
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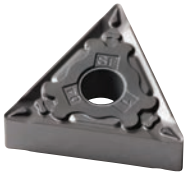
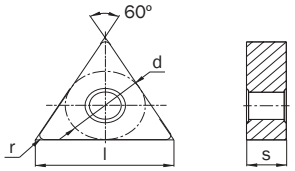
TNMG-SF





Economical insert, 6 cutting edges. General purpose turning, facing and boring. Extra long cutting edge useful when turning to shoulders.

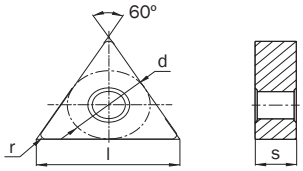
SF: Ultra-sharp cutting edge geometry for finishing in Stainless Steels. Low cutting forces and superior workpiece surface finish without burrs.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		M	S
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	MULTI-MATERIAL	
								S515	
TNMG 331-SF	TNMG 160404-SF	3/8	.650	3/16	1/64	.004 - .062	.003 - .012	DPL100452	
TNMG 332-SF	TNMG 160408-SF	3/8	.650	3/16	1/32	.004 - .062	.004 - .016	DPL100467	

Ordering Example: 20 pcs TNMG 332-SF S515; DPL100467

NOTE: The primary application area for grade S515 is in stainless steel workpiece materials. S515 is also suitable for use with iron-based, cobalt-based and nickel-based Heat Resistant Super Alloys.

TNMG-SM



Economical insert, 6 cutting edges. General purpose turning, facing and boring. Extra long cutting edge useful when turning to shoulders.

SM: Keen edge geometry especially for Stainless Steel. Unique edgeline reduces work hardening. Semi-finishing to rough machining.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STAINLESS STEEL	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	S525	M225
TNMG 331-SM	TNMG 160404-SM	3/8	.650	3/16	1/64	.016 - .156	.004 - .012	DPL100585	DPL100277
TNMG 332-SM	TNMG 160408-SM	3/8	.650	3/16	1/32	.020 - .156	.005 - .016	DPL100586	DPL100284
TNMG 333-SM	TNMG 160412-SM	3/8	.650	3/16	3/64	.031 - .156	.006 - .020	DPL100601	DPL100285
TNMG 432-SM	TNMG 220408-SM	1/2	.866	3/16	1/32	.020 - .187	.005 - .016	DPL100602	DPL100300
TNMG 433-SM	TNMG 220412-SM	1/2	.866	3/16	3/64	.031 - .187	.006 - .020	DPL100607	DPL100318
TNMG 434-SM	TNMG 220416-SM	1/2	.866	3/16	1/16	.040 - .187	.007 - .024	DPL100608	DPL100319

Ordering Example: 20 pcs TNMG 434-SM M225; DPL100319

REFERENCE PAGES					
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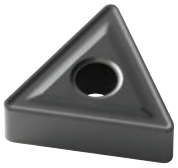
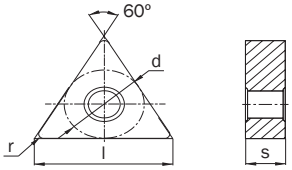
TNMG-UK





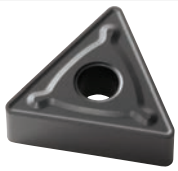
Economical insert, 6 cutting edges. General purpose turning, facing and boring. Extra long cutting edge useful when turning to shoulders.

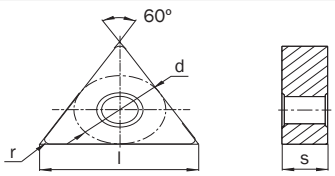
UK: Lower cutting force geometry for Cast Iron. Edge geometry reduces cutting forces in moderate conditions / lighter cuts.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		CAST IRON	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	K315	K325
TNMG 331-UK	TNMG 160404-UK	3/8	.650	3/16	1/64	.012 - .187	.003 - .012	DPL100455	DPL100456
TNMG 332-UK	TNMG 160408-UK	3/8	.650	3/16	1/32	.016 - .187	.004 - .014	DPL100470	DPL100471

Ordering Example: 20 pcs TNMG 332-UK K315; DPL100470

TNMG-HK





Economical insert, 6 cutting edges. General purpose turning, facing and boring. Extra long cutting edge useful when turning to shoulders.

HK: Exceptionally broad application range geometry primarily for Cast Iron. Strong cutting edge, excellent durability. Semi-finishing to roughing.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		CAST IRON	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	K315	K325
TNMG 332-HK	TNMG 160408-HK	3/8	.650	3/16	1/32	.020 - .203	.004 - .016	DPL705436	DPL705661
TNMG 333-HK	TNMG 160412-HK	3/8	.650	3/16	3/64	.031 - .203	.006 - .020	DPL100472	DPL100473
TNMG 432-HK	TNMG 220408-HK	1/2	.866	3/16	1/32	.020 - .219	.004 - .016	DPL100481	DPL100482
TNMG 433-HK	TNMG 220412-HK	1/2	.866	3/16	3/64	.031 - .219	.006 - .020	DPL100489	DPL100490
TNMG 434-HK	TNMG 220416-HK	1/2	.866	3/16	1/16	.040 - .219	.008 - .026	-	DPL100497
TNMG 543-HK	TNMG 270612-HK	5/8	1.083	1/4	3/64	.031 - .297	.006 - .020	DPL100502	DPL100503
TNMG 544-HK	TNMG 270616-HK	5/8	1.083	1/4	1/16	.040 - .297	.008 - .026	-	DPL100506

Ordering Example: 20 pcs TNMG 544-HK K325; DPL100506

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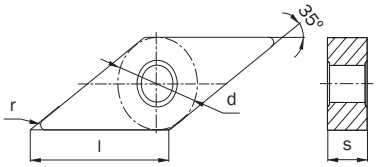
VNMG-QF



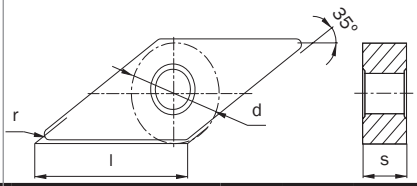
Double-sided 35° diamond. Profiling and copy turning. Not recommended for boring operations due to high negative rake of boring bar pocket.

QF: First Choice Geometry for finishing and semi-finishing applications in all types of Steel.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
VNMG 331-QF	VNMG 160404-QF	3/8	.654	3/16	1/64	.010 - .062	.003 - .010	DPL100578	DPL100579	DPL100580
VNMG 332-QF	VNMG 160408-QF	3/8	.654	3/16	1/32	.016 - .080	.004 - .014	DPL100578	DPL100579	DPL100580
VNMG 431-QF	VNMG 220404-QF	1/2	.872	3/16	1/64	.010 - .062	.003 - .010	-	DPL100591	-
VNMG 432-QF	VNMG 220408-QF	1/2	.872	3/16	1/32	.016 - .080	.004 - .014	-	DPL100592	-

Ordering Example: 20 pcs VNMG 432-QF P115; DPL100592

VNMG-QM



Double-sided 35° diamond. Profiling and copy turning. Not recommended for boring operations due to high negative rake of boring bar pocket.

QM: First Choice Geometry for medium to semi-roughing applications in all types of Steel.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
VNMG 331-QM	VNMG 160404-QM	3/8	.654	3/16	1/64	.016 - .141	.004 - .012	DPL100570	DPL100571	DPL100572
VNMG 332-QM	VNMG 160408-QM	3/8	.654	3/16	1/32	.020 - .141	.005 - .016	DPL100581	DPL100582	DPL100583
VNMG 333-QM	VNMG 160412-QM	3/8	.654	3/16	3/64	.031 - .141	.006 - .020	-	DPL100589	DPL100590

Ordering Example: 20 pcs VNMG 333-QM P115; DPL100589

REFERENCE PAGES					
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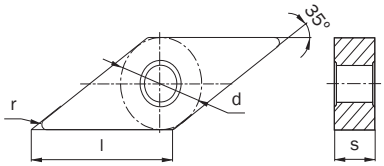
VNMG-SF



Double sided 35° diamond. Profiling and copy turning. Not recommended for boring operations due to high negative rake of boring bar pocket.

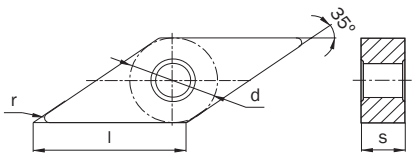
SF: Ultra-sharp cutting edge geometry for finishing in Stainless Steels. Low cutting forces and superior workpiece surface finish without burrs.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		M	S
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	MULTI-MATERIAL S515	
VNMG 331-SF	VNMG 160404-SF	3/8	.654	3/16	1/64	.004 - .062	.003 - .012	DPL705827	
VNMG 332-SF	VNMG 160408-SF	3/8	.654	3/16	1/32	.004 - .062	.004 - .016	DPL100584	

Ordering Example: 20 pcs VNMG 332-SF S515; DPL100584

NOTE: The primary application area for grade S515 is in stainless steel workpiece materials. S515 is also suitable for use with iron-based, cobalt-based and nickel-based Heat Resistant Super Alloys.

VNMG-SM



Double-sided 35° diamond. Profiling and copy turning. Not recommended for boring operations due to high negative rake of boring bar pocket.

SM: Keen edge geometry especially for Stainless Steel. Unique edgeline reduces work hardening. Semi-finishing to rough machining.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STAINLESS STEEL	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	S525	M225
VNMG 331-SM	VNMG 160404-SM	3/8	.654	3/16	1/64	.016 - .141	.004 - .012	DPL100609	DPL100347
VNMG 332-SM	VNMG 160408-SM	3/8	.654	3/16	1/32	.020 - .141	.005 - .016	DPL100610	DPL100355

Ordering Example: 20 pcs VNMG 332-SM M225; DPL100355

REFERENCE PAGES					
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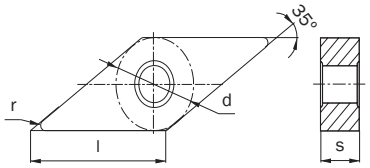
VNMG-UK



Double-sided 35° diamond. Profiling and copy turning. Not recommended for boring operations due to high negative rake of boring bar pocket.

UK: Lower cutting force geometry for Cast Iron.
Edge geometry reduces cutting forces in moderate conditions / lighter cuts.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		CAST IRON	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	K315	K325
VNMG 331-UK	VNMG 160404-UK	3/8	.654	3/16	1/64	.012 - .156	.003 - .012	DPL100576	DPL100577
VNMG 332-UK	VNMG 160408-UK	3/8	.654	3/16	1/32	.016 - .156	.004 - .014	DPL100587	DPL100588

Ordering Example: 20 pcs VNMG 332-UK K315; DPL100587

REFERENCE PAGES					
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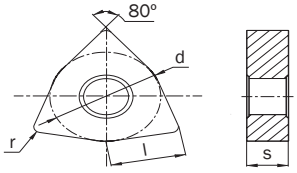
WNMG-QF



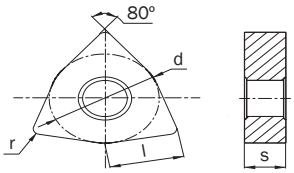
General purpose turning, facing and boring. 80° corner with 6 cutting edges. Maximum economy. Good choice for general turning.

QF: First Choice Geometry for finishing and semi-finishing applications in all types of Steel.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
WNMG 331-QF	WNMG 060404-QF	3/8	.257	3/16	1/64	.010 - .062	.003 - .010	-	DPL100597	DPL100598
WNMG 332-QF	WNMG 060408-QF	3/8	.257	3/16	1/32	.016 - .080	.004 - .014	-	DPL100603	DPL100604
WNMG 431-QF	WNMG 080404-QF	1/2	.342	3/16	1/64	.010 - .062	.003 - .010	DPL100611	DPL100612	DPL100613
WNMG 432-QF	WNMG 080408-QF	1/2	.342	3/16	1/32	.016 - .080	.004 - .014	DPL100624	DPL100625	DPL100626

Ordering Example: 20 pcs WNMG 432-QF P115; DPL100625

WNMG-QM



General purpose turning, facing and boring. 80° corner with 6 cutting edges. Maximum economy. Good choice for general turning.

QM: First Choice Geometry for medium to semi-roughing applications in all types of Steel.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
WNMG 331-QM	WNMG 060404-QM	3/8	.257	3/16	1/64	.016 - .109	.004 - .012	-	DPL100599	DPL100600
WNMG 332-QM	WNMG 060408-QM	3/8	.257	3/16	1/32	.020 - .109	.005 - .016	-	DPL100605	DPL100606
WNMG 431-QM	WNMG 080404-QM	1/2	.342	3/16	1/64	.016 - .141	.004 - .012	DPL100614	DPL100615	DPL100616
WNMG 432-QM	WNMG 080408-QM	1/2	.342	3/16	1/32	.020 - .141	.005 - .016	DPL100627	DPL100628	DPL100629
WNMG 433-QM	WNMG 080412-QM	1/2	.342	3/16	3/64	.031 - .141	.006 - .020	DPL100641	DPL100642	DPL100643
WNMG 434-QM	WNMG 080416-QM	1/2	.342	3/16	1/16	.040 - .141	.007 - .024	-	-	DPL100650

Ordering Example: 20 pcs WNMG 434-QM P125; DPL100650

REFERENCE PAGES					
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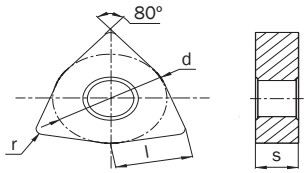
WNMG-QR



General purpose turning, facing and boring. 80° corner with 6 cutting edges. Maximum economy. Good choice for general turning.

QR: Strong cutting edge geometry for roughing applications in all types of Steel. Well suited for unstable conditions and interrupted cuts.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL			
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125	P135
WNMG 432-QR	WNMG 080408-QR	1/2	.342	3/16	1/32	.028 - .172	.007 - .020	DPL100630	DPL100631	DPL100633	DPL100632
WNMG 433-QR	WNMG 080412-QR	1/2	.342	3/16	3/64	.040 - .172	.008 - .022	DPL100644	DPL100645	DPL100647	DPL100646
WNMG 434-QR	WNMG 080416-QR	1/2	.342	3/16	1/16	.055 - .172	.009 - .026	-	DPL100651	-	DPL100652

Ordering Example: 20 pcs WNMG 434-QR P135; DPL100652

REFERENCE PAGES					
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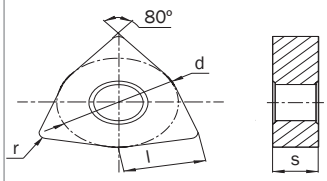
WNMG-SF



General purpose turning, facing and boring. 80° corner with 6 cutting edges. Maximum economy. Good choice for general turning.

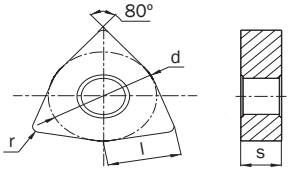
SF: Ultra-sharp cutting edge geometry for finishing in Stainless Steels. Low cutting forces and superior workpiece surface finish without burrs.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		M	S
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	MULTI-MATERIAL S515	
WNMG 431-SF	WNMG 080404-SF	1/2	.342	3/16	1/64	.004 - .062	.003 - .012	DPL100617	
WNMG 432-SF	WNMG 080408-SF	1/2	.342	3/16	1/32	.004 - .062	.004 - .016	DPL100634	

Ordering Example: 20 pcs WNMG 432-SF S515; DPL100634

NOTE: The primary application area for grade S515 is in stainless steel workpiece materials. S515 is also suitable for use with iron-based, cobalt-based and nickel-based Heat Resistant Super Alloys.

WNMG-SM



General purpose turning, facing and boring. 80° corner with 6 cutting edges. Maximum economy. Good choice for general turning.

SM: Keen edge geometry especially for Stainless Steel. Unique edgeline reduces work hardening. Semi-finishing to rough machining.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STAINLESS STEEL	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	S525	M225
WNMG 331-SM	WNMG 060404-SM	3/8	.257	3/16	1/64	.016 - .109	.004 - .012	DPL100618	DPL100356
WNMG 332-SM	WNMG 060408-SM	3/8	.257	3/16	1/32	.020 - .109	.005 - .016	DPL100619	DPL100359
WNMG 333-SM	WNMG 060412-SM	3/8	.257	3/16	3/64	.031 - .109	.006 - .020	DPL100635	DPL100360
WNMG 431-SM	WNMG 080404-SM	1/2	.342	3/16	1/64	.016 - .141	.004 - .012	DPL100636	DPL100363
WNMG 432-SM	WNMG 080408-SM	1/2	.342	3/16	1/32	.020 - .141	.005 - .016	DPL100648	DPL100364
WNMG 433-SM	WNMG 080412-SM	1/2	.342	3/16	3/64	.031 - .141	.006 - .020	DPL100649	DPL100373

Ordering Example: 20 pcs WNMG 433-SM M225; DPL100649

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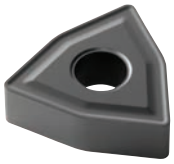
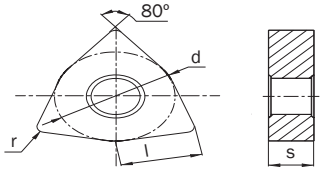
WNMG-UK





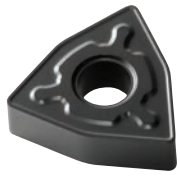
General purpose turning, facing and boring. 80° corner with 6 cutting edges. Maximum economy. Good choice for general turning.

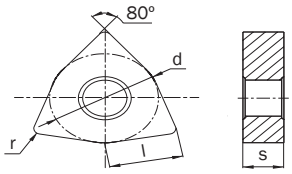
UK: Lower cutting force geometry for Cast Iron. Edge geometry reduces cutting forces in moderate conditions / lighter cuts.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		CAST IRON	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	K315	K325
WNMG 431-UK	WNMG 080404-UK	1/2	.342	3/16	1/64	.012 - .156	.003 - .012	DPL100620	DPL100621
WNMG 432-UK	WNMG 080408-UK	1/2	.342	3/16	1/32	.016 - .156	.004 - .014	DPL100637	DPL100638

Ordering Example: 20 pcs WNMG 432-UK K315; DPL100637

WNMG-HK





General purpose turning, facing and boring. 80° corner with 6 cutting edges. Maximum economy. Good choice for general turning.

HK: Exceptionally broad application range geometry primarily for Cast Iron. Strong cutting edge, excellent durability. Semi-finishing through to roughing.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		CAST IRON	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	K315	K325
WNMG 432-HK	WNMG 080408-HK	1/2	.342	3/16	1/32	.020 - .172	.004 - .016	DPL100622	DPL100623
WNMG 433-HK	WNMG 080412-HK	1/2	.342	3/16	3/64	.031 - .172	.006 - .020	DPL100639	DPL100640

Ordering Example: 20 pcs WNMG 433-HK K315; DPL100639

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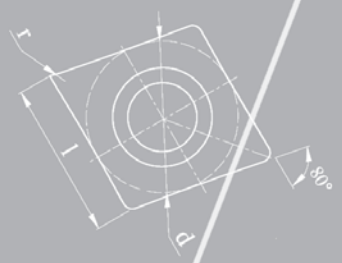
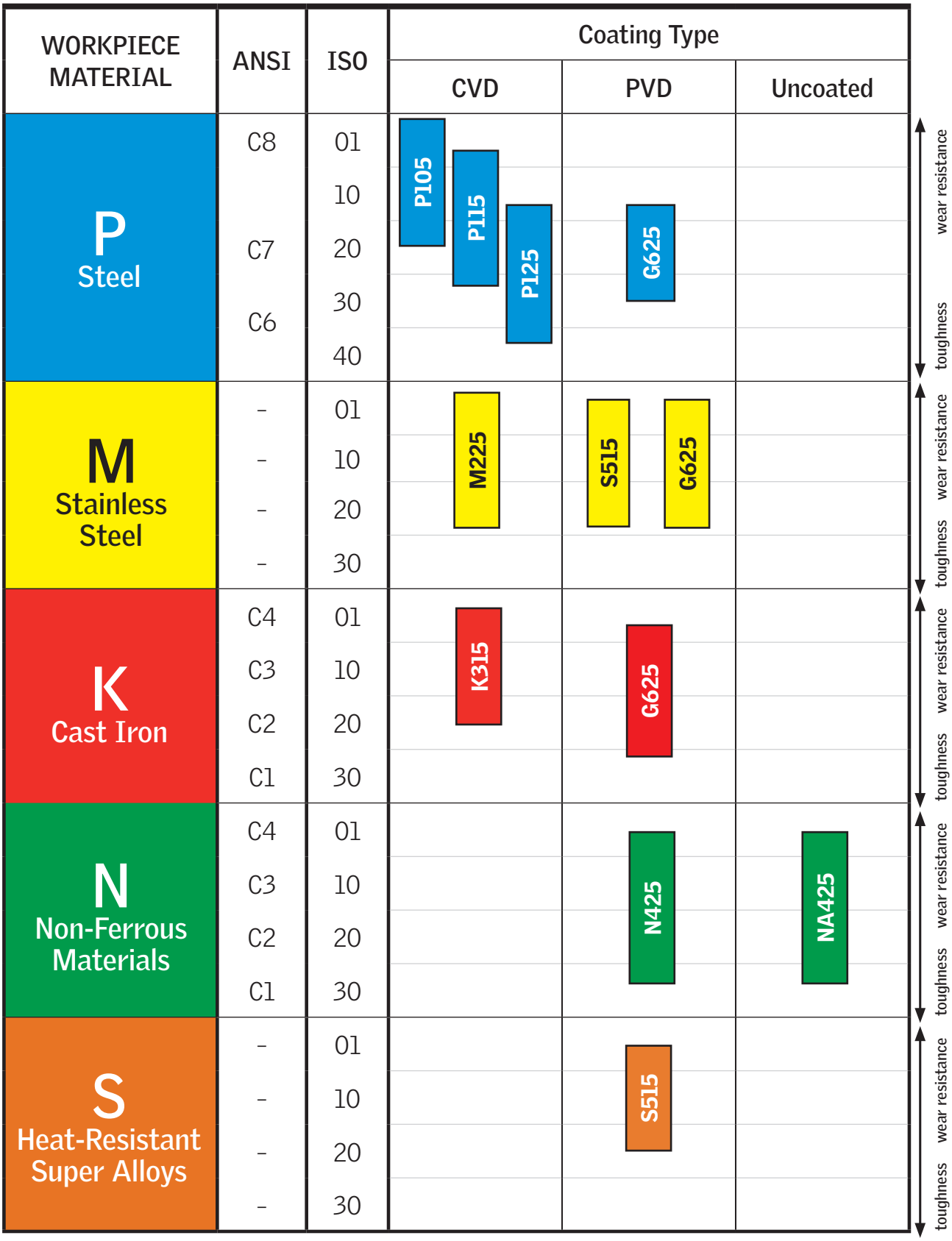
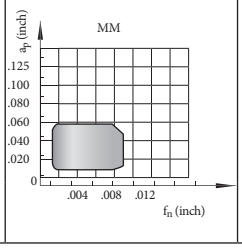
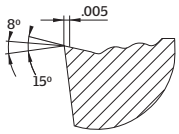
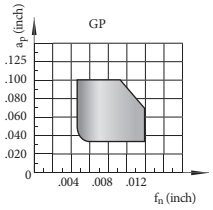
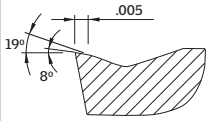
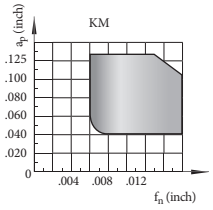
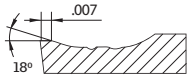
TURNING INSERTS | POSITIVE RAKE

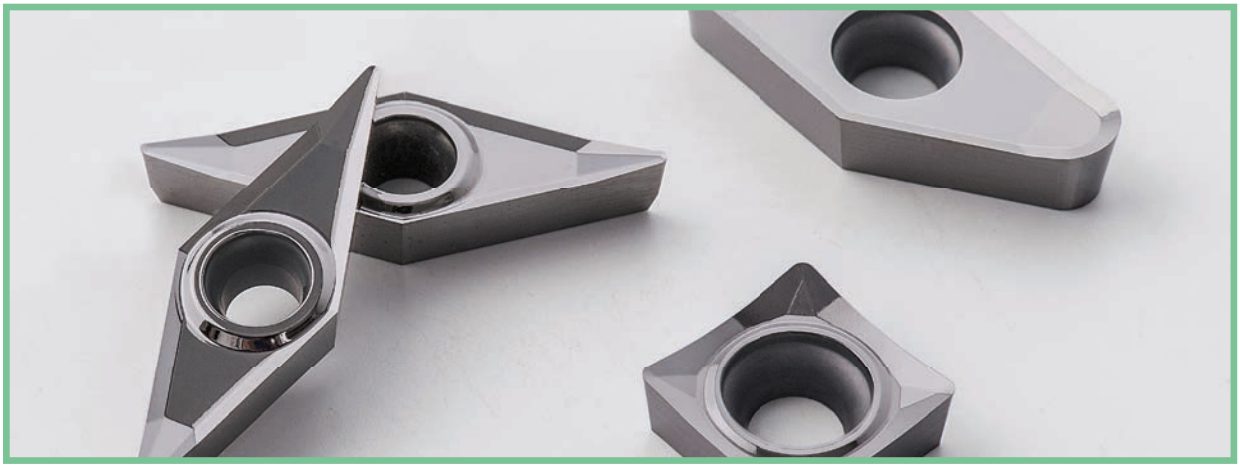
ANSI / ISO STANDARD INSERTS
FOR EXTERNAL TURNING AND
INTERNAL MACHINING OPERATIONS
WITH LOW CUTTING FORCES



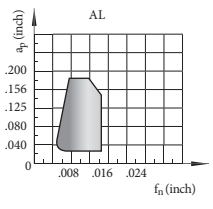
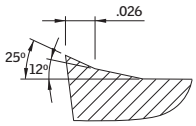
GRADES FOR GENERAL TURNING | POSITIVE RAKE INSERTS



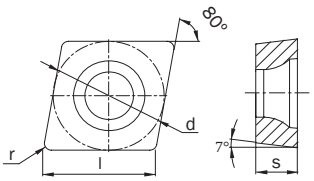
Chipbreaker	Description	Chipbreaker Range	Design
MM P M	• High performance finishing chipbreaker • Double-positive chipformer design • Exceptionally sharp cutting edge • Low cutting forces • Superior workpiece surface finish		
GP P M K	• Good All-Round geometry for Positive Inserts • Works in a broad range of materials • Double-positive chipformer design • Reduced top land for feedrates < .004" • 11º Style inserts primarily used for boring		
KM P K	• Roughing chipbreaker - tough and strong • High fracture resistance • Variable land cutting edge design • Smooth cutting action and chip flow • Exceptional performance in steel and cast iron		



AL chipbreaker inserts, for aluminum and other non-ferrous materials

AL N NON-FERROUS	• Ultra-sharp edge with polished rake face • Super Positive (25º) top rake • Free cutting and smooth chip flow • Ultra-low cutting forces • Resistant to Built-up-Edge		

CCMT-MM



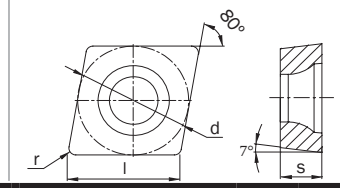
80° diamond inserts for turning and facing or boring and facing. Positive rake, screw-down inserts.

MM: Ultra-sharp cutting edge geometry for finishing and semi-finishing operations. Low cutting forces and superior workpiece surface finish.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
CCMT 2(1.5)0.5-MM	CCMT 060202-MM	1/4	.254	3/32	.008	.004 - .031	.002 - .005	-	DPL100027	DPL100028
CCMT 2(1.5)1-MM	CCMT 060204-MM	1/4	.254	3/32	1/64	.004 - .047	.002 - .006	DPL100033	DPL100034	DPL100035
CCMT 3(2.5)0.5-MM	CCMT 09T302-MM	3/8	.381	5/32	.008	.004 - .031	.002 - .005	-	DPL100042	DPL100043
CCMT 3(2.5)1-MM	CCMT 09T304-MM	3/8	.381	5/32	1/64	.004 - .062	.002 - .006	DPL100050	DPL100051	DPL100052
CCMT 3(2.5)2-MM	CCMT 09T308-MM	3/8	.381	5/32	1/32	.004 - .062	003 - .008	DPL100059	DPL100060	DPL100061

Ordering Example: 20 pcs CCMT 3(2.5)2-MM P125; DPL100061

CCMT-MM



80° diamond inserts for turning and facing or boring and facing. Positive rake, screw-down inserts.

MM: Ultra-sharp cutting edge geometry for finishing and semi-finishing operations. Low cutting forces and superior workpiece surface finish.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		M	S	M
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	MULTI-MATERIAL S515		M225
CCMT 2(1.5)0.5-MM	CCMT 060202-MM	1/4	.254	3/32	.008	.004 - .031	.002 - .005	DPL100029		DPL100026
CCMT 2(1.5)1-MM	CCMT 060204-MM	1/4	.254	3/32	1/64	.004 - .047	.002 - .006	DPL100036		DPL100032
CCMT 3(2.5)0.5-MM	CCMT 09T302-MM	3/8	.381	5/32	.008	.004 - .031	.002 - .005	DPL100044		DPL100041
CCMT 3(2.5)1-MM	CCMT 09T304-MM	3/8	.381	5/32	1/64	.004 - .062	.002 - .006	DPL100053		DPL100049
CCMT 3(2.5)2-MM	CCMT 09T308-MM	3/8	.381	5/32	1/32	.004 - .062	003 - .008	DPL100062		DPL100058

Ordering Example: 20 pcs CCMT 3(2.5)2-MM M225; DPL100058

NOTE: The primary application area for grade S515 is in stainless steel workpiece materials. S515 is also suitable for use with iron-based, cobalt-based and nickel-based Heat Resistant Super Alloys.

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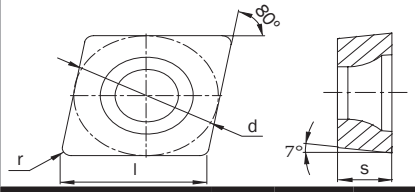
CCMT-GP



80° diamond inserts for turning and facing or boring and facing. Positive rake, screw-down inserts.

GP: All-round positive rake geometry. Wide application area. Excellent for boring in most materials.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL	CAST IRON
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125	K315
CCMT 2(1.5)1-GP	CCMT 060204-GP	1/4	.254	3/32	1/64	.020 - .047	.003 - .008	DPL100031	DPL100030
CCMT 2(1.5)2-GP	CCMT 060208-GP	1/4	.254	3/32	1/32	.031 - .062	.004 - .010	DPL100038	DPL100037
CCMT 3(2.5)0.5-GP	CCMT 09T302-GP	3/8	.381	5/32	.008	.012 - .039	.003 - .006	DPL100040	DPL100039
CCMT 3(2.5)1-GP	CCMT 09T304-GP	3/8	.381	5/32	1/64	.020 - .062	.004 - .008	DPL705437	DPL100045
CCMT 3(2.5)2-GP	CCMT 09T308-GP	3/8	.381	5/32	1/32	.031 - .080	.005 - .010	DPL100055	DPL100054
CCMT 431-GP	CCMT 120404-GP	1/2	.508	3/16	1/64	.020 - .062	.004 - .008	DPL100064	DPL100063
CCMT 432-GP	CCMT 120408-GP	1/2	.508	3/16	1/32	.031 - .080	.005 - .010	DPL100066	DPL100065
CCMT 433-GP	CCMT 120412-GP	1/2	.508	3/16	3/64	.047 - .100	.006 - .012	DPL100070	DPL100069

Ordering Example: 20 pcs CCMT 433-GP P125; DPL100070

REFERENCE PAGES					
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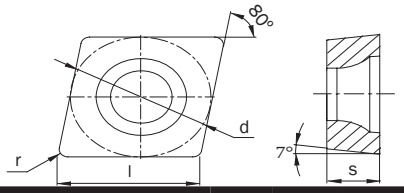
CCGT-GP



80° diamond inserts for turning and facing or boring and facing. Precision tolerance, positive rake screw-down inserts.

GP: All-round positive rake geometry. Wide application area. Excellent for boring in most materials.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	G625
CCGT 2(1.5)0.5-GP	CCGT 060202-GP	1/4	.254	3/32	.008	.008 - .030	.003 - .006	DPL100000
CCGT 2(1.5)1-GP	CCGT 060204-GP	1/4	.254	3/32	1/64	.020 - .047	.003 - .008	DPL705463
CCGT 2(1.5)2-GP	CCGT 060208-GP	1/4	.254	3/32	1/32	.031 - .062	.004 - .010	DPL100002
CCGT 3(2.5)0.5-GP	CCGT 09T302-GP	3/8	.381	5/32	.008	.010 - .031	.003 - .006	DPL100003
CCGT 3(2.5)1-GP	CCGT 09T304-GP	3/8	.381	5/32	1/64	.020 - .062	.004 - .008	DPL100004
CCGT 3(2.5)2-GP	CCGT 09T308-GP	3/8	.381	5/32	1/32	.031 - .080	.005 - .010	DPL100005
CCGT 431-GP	CCGT 120404-GP	1/2	.508	3/16	1/64	.020 - .062	.004 - .008	DPL100006
CCGT 432-GP	CCGT 120408-GP	1/2	.508	3/16	1/32	.031 - .080	.005 - .010	DPL100007

Ordering Example: 20 pcs CCGT 432-GP G625; DPL100007

NOTE: The primary application area for grade G625 is in steel workpiece materials. G625 is also suitable for use with stainless steel and cast iron components.

REFERENCE PAGES					
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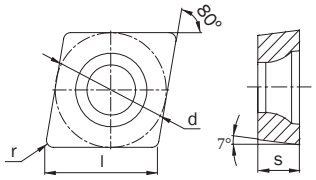
CCMT-KM



80° diamond inserts for turning and facing or boring and facing. Positive rake, screw-down inserts.

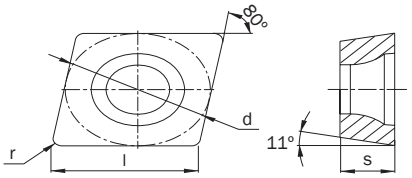
KM: Positive rake roughing geometry. Strong cutting edge with high fracture resistance. Excellent performance in steels and cast iron.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL	CAST IRON
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125	K315
CCMT 3(2.5)1-KM	CCMT 09T304-KM	3/8	.381	5/32	1/64	.040 - .094	.006 - .012	DPL100048	DPL100047
CCMT 3(2.5)2-KM	CCMT 09T308-KM	3/8	.381	5/32	1/32	.040 - .109	.007 - .014	DPL100057	DPL100056
CCMT 432-KM	CCMT 120408-KM	1/2	.508	3/16	1/32	.040 - .109	.007 - .014	DPL100068	DPL100067
CCMT 433-KM	CCMT 120412-KM	1/2	.508	3/16	3/64	.047 - .125	.008 - .016	DPL100072	DPL100071

Ordering Example: 20 pcs CCMT 433-KM P125; DPL100072

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

CPGT-GP



80° diamond inserts for turning and facing or boring and facing. Precision tolerance, positive rake screw-down inserts. 11° side clearance is ideal for boring.

GP: All-round positive rake geometry. Wide application area. Excellent for boring in most materials.

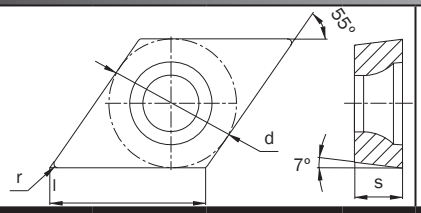
ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	G625
CPGT 2(1.5)1-GP	CPGT 060204-GP	1/4	.254	3/32	1/64	.020 - .047	.003 - .008	DPL100173
CPGT 2(1.5)2-GP	CPGT 060208-GP	1/4	.254	3/32	1/32	.031 - .062	.004 - .010	DPL100174
CPGT 3(2.5)0.5-GP	CPGT 09T302-GP	3/8	.381	5/32	.008	.010 - .031	.003 - .006	DPL100175
CPGT 3(2.5)1-GP	CPGT 09T304-GP	3/8	.381	5/32	1/64	.020 - .062	.004 - .008	DPL100176
CPGT 3(2.5)2-GP	CPGT 09T308-GP	3/8	.381	5/32	1/32	.031 - .080	.005 - .010	DPL100177
CPGT 431-GP	CPGT 120404-GP	1/2	.508	3/16	1/64	.020 - .062	.004 - .008	DPL100178
CPGT 432-GP	CPGT 120408-GP	1/2	.508	3/16	1/32	.031 - .080	.005 - .010	DPL100179

Ordering Example: 20 pcs CPGT 432-GP G625; DPL100179

NOTE: The primary application area for grade G625 is in steel workpiece materials. G625 is also suitable for use with stainless steel and cast iron components.

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

DCMT-MM



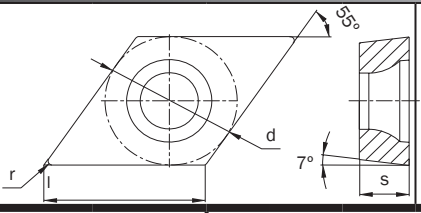
55° diamond inserts for profile turning and finishing. Positive rake screw-down inserts. Good choice for small diameter and slender workpieces.

MM: Ultra-sharp cutting edge geometry for finishing and semi-finishing operations. Low cutting forces and superior workpiece surface finish.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
DCMT 2(1.5)0.5-MM	DCMT 070202 - MM	1/4	.305	3/32	.008	.004 - .031	.002 - .005	-	DPL100199	DPL100200
DCMT 2(1.5)1-MM	DCMT 070204-MM	1/4	.305	3/32	1/64	.004 - .047	.002 - .006	DPL100205	DPL100206	DPL100207
DCMT 3(2.5)0.5-MM	DCMT 11T302-MM	3/8	.458	5/32	.008	.004 - .031	.002 - .005	-	DPL100214	DPL100215
DCMT 3(2.5)1-MM	DCMT 11T304-MM	3/8	.458	5/32	1/64	.004 - .062	.002 - .006	DPL100222	DPL100223	DPL100224
DCMT 3(2.5)2-MM	DCMT 11T308-MM	3/8	.458	5/32	1/32	.004 - .062	.003 - .008	DPL100231	DPL100232	DPL100233

Ordering Example: 20 pcs DCMT 2(1.5)0.5-MM P125; DPL100200

DCMT-MM



55° diamond inserts for profile turning and finishing. Positive rake screw-down inserts. Good choice for small diameter and slender workpieces.

MM: Ultra-sharp cutting edge geometry for finishing and semi-finishing operations. Low cutting forces and superior workpiece surface finish.

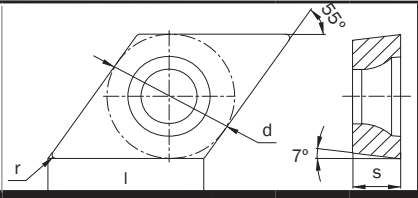
ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		M	S	M
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	MULTI-MATERIAL S515		M225
DCMT 2(1.5)0.5-MM	DCMT 070202 - MM	1/4	.305	3/32	.008	.004 - .031	.002 - .005	DPL100201		DPL100132
DCMT 2(1.5)1-MM	DCMT 070204-MM	1/4	.305	3/32	1/64	.004 - .047	.002 - .006	DPL100208		DPL100133
DCMT 3(2.5)0.5-MM	DCMT 11T302-MM	3/8	.458	5/32	.008	.004 - .031	.002 - .005	DPL100216		DPL100143
DCMT 3(2.5)1-MM	DCMT 11T304-MM	3/8	.458	5/32	1/64	.004 - .062	.002 - .006	DPL100225		DPL100144
DCMT 3(2.5)2-MM	DCMT 11T308-MM	3/8	.458	5/32	1/32	.004 - .062	.003 - .008	DPL100234		DPL100149

Ordering Example: 20 pcs DCMT 3(2.5)2-MM S515; DPL100234

NOTE: The primary application area for grade S515 is in stainless steel workpiece materials. S515 is also suitable for use with iron-based, cobalt-based and nickel-based Heat Resistant Super Alloys.

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

DCMT-GP



55° diamond inserts for profile turning and finishing. Positive rake screw-down inserts. Good choice for small diameter and slender workpieces.

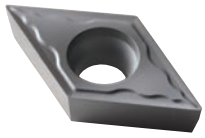
GP: All-round positive rake geometry. Wide application area. Excellent for boring in most materials.

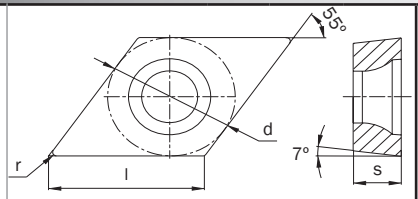
ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL	CAST IRON
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125	K315
DCMT 2(1.5)1-GP	DCMT 070204-GP	1/4	.305	3/32	1/64	.020 - .047	.003 - .008	DPL100203	DPL100202
DCMT 2(1.5)2-GP	DCMT 070208-GP	1/4	.305	3/32	1/32	.031 - .062	.004 - .010	DPL100210	DPL100209
DCMT 3(2.5)0.5-GP	DCMT 11T302-GP	3/8	.458	5/32	.008	.010 - .031	.003 - .006	DPL100212	DPL100211
DCMT 3(2.5)1-GP	DCMT 11T304-GP	3/8	.458	5/32	1/64	.020 - .062	.004 - .008	DPL100218	DPL100217
DCMT 3(2.5)2-GP	DCMT 11T308-GP	3/8	.458	5/32	1/32	.031 - .080	.005 - .010	DPL100227	DPL100226
DCMT 431-GP	DCMT 150404-GP	1/2	.610	3/16	1/64	.020 - .062	.004 - .008	DPL100236	DPL100235
DCMT 432-GP	DCMT 150408-GP	1/2	.610	3/16	1/32	.031 - .080	.005 - .010	DPL100238	DPL100237
DCMT 433-GP	DCMT 150412-GP	1/2	.610	3/16	3/64	.047 - .125	.006 - .010	DPL100240	DPL100239

Ordering Example: 20 pcs DCMT 433-GP P125; DPL100240

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

DCGT-GP





55° diamond inserts for profile turning and finishing. Precision tolerance, positive rake screw-down inserts. Good choice for small diameter and slender workpieces.

GP: All-round positive rake geometry. Wide application area. Excellent for boring in most materials.

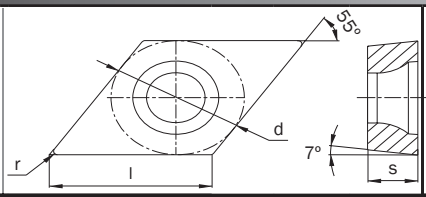
ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	G625
DCGT 2(1.5)0.5-GP	DCGT 070202-GP	1/4	.305	3/32	.008	.010 - .031	.003 - .006	DPL100180
DCGT 2(1.5)1-GP	DCGT 070204-GP	1/4	.305	3/32	1/64	.020 - .047	.003 - .008	DPL100181
DCGT 2(1.5)2-GP	DCGT 070208-GP	1/4	.305	3/32	1/32	.031 - .062	.004 - .010	DPL100182
DCGT 3(2.5)0.5-GP	DCGT 11T302-GP	3/8	.458	5/32	.008	.010 - .031	.003 - .006	DPL100183
DCGT 3(2.5)1-GP	DCGT 11T304-GP	3/8	.458	5/32	1/64	.020 - .062	.004 - .008	DPL100184
DCGT 3(2.5)2-GP	DCGT 11T308-GP	3/8	.458	5/32	1/32	.031 - .080	.005 - .010	DPL100185

Ordering Example: 20 pcs DCGT 3(2.5)2-GP G625; DPL100185

NOTE: The primary application area for grade G625 is in steel workpiece materials. G625 is also suitable for use with stainless steel and cast iron components.

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

DCMT-KM



55° diamond inserts for profile turning and finishing. Positive rake screw-down inserts. Good choice for small diameter and slender workpieces.

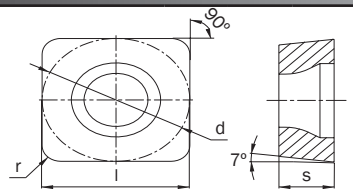
KM: Positive rake roughing geometry. Strong cutting edge with high fracture resistance. Excellent performance in steels and cast iron.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL	CAST IRON
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125	K315
DCMT 3(2.5)1-KM	DCMT 11T304-KM	3/8	.458	5/32	1/64	.040 - .094	.006 - .012	DPL100220	DPL100219
DCMT 3(2.5)2-KM	DCMT 11T308-KM	3/8	.458	5/32	1/32	.040 - .109	.007 - .014	DPL100229	DPL100228

Ordering Example: 20 pcs DCMT 3(2.5)2-KM P125; DPL100229

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

SCMT-MM



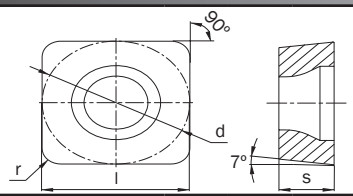
Generally used for semi-finishing operations: turning, facing or boring. Positive rake screw-down style inserts. Good economy with 4 cutting edges.

MM: Ultra-sharp cutting edge geometry for finishing and semi-finishing operations. Low cutting forces and superior workpiece surface finish.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
SCMT 3(2.5)2-MM	SCMT 09T308-MM	3/8	.375	5/32	1/32	.004 - .062	.003 - .008	DPL100301	DPL100302	DPL100303

Ordering Example: 20 pcs SCMT 3(2.5)2-MM P125; DPL100303

SCMT-MM



Generally used for semi-finishing operations: turning, facing or boring. Positive rake screw-down style inserts. Good economy with 4 cutting edges.

MM: Ultra-sharp cutting edge geometry for finishing and semi-finishing operations. Low cutting forces and superior workpiece surface finish.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		M	S	M
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	MULTI-MATERIAL S515		M225
SCMT 3(2.5)2-MM	SCMT 09T308-MM	3/8	.375	5/32	1/32	.004 - .062	.003 - .008	DPL100304		DPL100172

Ordering Example: 20 pcs SCMT 3(2.5)2-MM S515; DPL100304

NOTE: The primary application area for grade S515 is in stainless steel workpiece materials. S515 is also suitable for use with iron-based, cobalt-based and nickel-based Heat Resistant Super Alloys.

REFERENCE PAGES					
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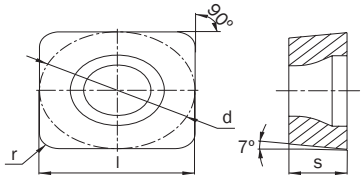
SCMT-GP



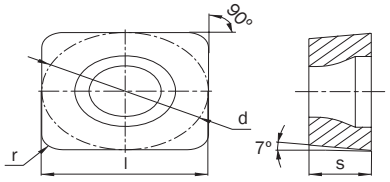
Mainly for roughing operations: turning, facing or boring. Positive rake screw-down style inserts. Good economy with 4 cutting edges.

GP: All-round positive rake geometry. Wide application area. Excellent for boring in most materials.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL	CAST IRON
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125	K315
SCMT 3(2.5)1-GP	SCMT 09T304-GP	3/8	.375	5/32	1/64	.020 - .062	.004 - .008	DPL100295	DPL100294
SCMT 3(2.5)2-GP	SCMT 09T308-GP	3/8	.375	5/32	1/32	.031 - .080	.005 - .010	DPL100297	DPL100296
SCMT 431-GP	SCMT 120404-GP	1/2	.500	3/16	1/64	.020 - .062	.004 - .008	DPL100306	DPL100305
SCMT 432-GP	SCMT 120408-GP	1/2	.500	3/16	1/32	.031 - .080	.006 - .011	DPL100308	DPL100307

Ordering Example: 20 pcs SCMT 432-GP P125; DPL100308

SCMT-KM



Mainly for roughing operations: turning, facing or boring. Positive rake screw down style inserts Good economy with 4 cutting edges.

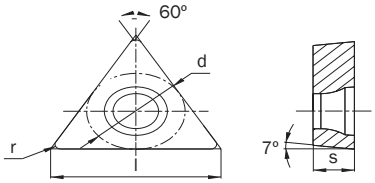
KM: Positive rake roughing geometry. Strong cutting edge with high fracture resistance. Excellent performance in steels and cast iron.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL	CAST IRON
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125	K315
SCMT 3(2.5)2-KM	SCMT 09T308-KM	3/8	.375	5/32	1/32	.040 - .109	.007 - .014	DPL100299	DPL100298
SCMT 432-KM	SCMT 120408-KM	1/2	.500	3/16	1/32	.040 - .109	.007 - .014	DPL100310	DPL100309

Ordering Example: 20 pcs SCMT 432-KM P125; DPL100310

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

TCMT-MM



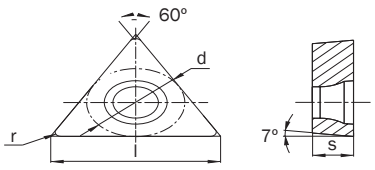
Popular for small diameter boring. Good economy and stable seating of insert. Positive rake screw down inserts.

MM: Ultra-sharp cutting edge geometry for finishing and semi-finishing operations. Low cutting forces and superior workpiece surface finish.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
TCMT 2(1.5)0.5-MM	TCMT 110202-MM	1/4	.433	3/32	.008	.004 - .031	.002 - .005	-	DPL100416	DPL100417
TCMT 2(1.5)1-MM	TCMT 110204-MM	1/4	.433	3/32	1/64	.004 - .047	.002 - .006	DPL100424	DPL100425	DPL100426

Ordering Example: 20 pcs TCMT 2(1.5)0.5-MM P125, DPL100417

TCMT-MM



Popular for small diameter boring. Good economy and stable seating of insert. Positive rake screw down inserts.

MM: Ultra-sharp cutting edge geometry for finishing and semi-finishing operations. Low cutting forces and superior workpiece surface finish.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		M	S	M
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	MULTI-MATERIAL S515		M225
TCMT 2(1.5)0.5-MM	TCMT 110202-MM	1/4	.433	3/32	.008	.004 - .031	.002 - .005	DPL100418		DPL100264
TCMT 2(1.5)1-MM	TCMT 110204-MM	1/4	.433	3/32	1/64	.004 - .047	.002 - .006	DPL100427		DPL100276

Ordering Example: 20 pcs TCMT 2(1.5)1-MM S515; DPL100427

NOTE: The primary application area for grade S515 is in stainless steel workpiece materials. S515 is also suitable for use with iron-based, cobalt-based and nickel-based Heat Resistant Super Alloys.

REFERENCE PAGES					
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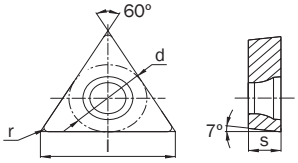
TCMT-GP



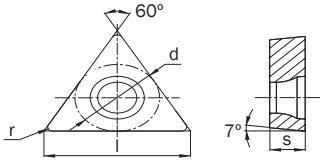
Popular for small diameter boring. Good economy and stable seating of insert. Positive rake screw-down inserts.

GP: All-round positive rake geometry. Wide application area. Excellent for boring in most materials.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL	CAST IRON
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125	K315
TCMT 2(1.5)1-GP	TCMT 110204-GP	1/4	.433	3/32	1/64	.020 - .047	.003 - .008	DPL100420	DPL100419
TCMT 2(1.5)2-GP	TCMT 110208-GP	1/4	.433	3/32	1/32	.031 - .062	.004 - .010	DPL100429	DPL100428
TCMT 3(2.5)1-GP	TCMT 16T304-GP	3/8	.650	5/32	1/64	.020 - .062	.004 - .008	DPL100431	DPL100430
TCMT 3(2.5)2-GP	TCMT 16T308-GP	3/8	.650	5/32	1/32	.031 - .080	.005 - .010	DPL100435	DPL100434
TCMT 432-GP	TCMT 220408-GP	1/2	.866	3/16	1/32	.031 - .094	.006 - .012	DPL100439	DPL100438

Ordering Example: 20 pcs TCMT 432-GP K315; DPL100438

TCMT-KM



Popular for small diameter boring. Good economy and stable seating of insert. Positive rake screw down inserts.

KM: Positive rake roughing geometry. Strong cutting edge with high fracture resistance. Excellent performance in steels and cast iron.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL	CAST IRON
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125	K315
TCMT 2(1.5)1-KM	TCMT 110204-KM	1/4	.433	3/32	1/64	.040 - .080	.006 - .010	DPL100422	DPL100421
TCMT 3(2.5)1-KM	TCMT 16T304-KM	3/8	.650	5/32	1/64	.040 - .094	.006 - .012	DPL100433	DPL100432
TCMT 3(2.5)2-KM	TCMT 16T308-KM	3/8	.650	5/32	1/32	.040 - .109	.007 - .014	DPL100437	DPL100436

Ordering Example: 20 pcs TCMT 3(2.5)2-KM P125; DPL100437

REFERENCE PAGES					
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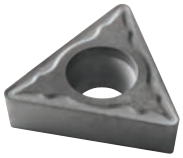
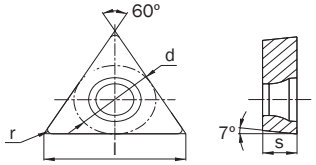
TCGT-GP





Popular for small diameter boring. Good economy and stable seating of insert. Precision tolerance, positive rake screw-down inserts.

GP: All-round positive rake geometry. Wide application area. Excellent for boring in most materials.

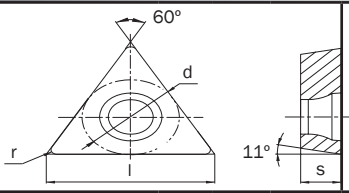
ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	G625
TCGT 1.8(1.5)1-GP	TCGT 090204-GP	7/32	.379	3/32	1/64	.016 - .040	.002 - .005	DPL100395
TCGT 2(1.5)0.5-GP	TCGT 110202-GP	1/4	.433	3/32	.008	.010 - .031	.003 - .006	DPL100396
TCGT 2(1.5)1-GP	TCGT 110204-GP	1/4	.433	3/32	1/64	.020 - .047	.003 - .008	DPL100397
TCGT 2(1.5)2-GP	TCGT 110208-GP	1/4	.433	3/32	1/32	.031 - .062	.004 - .010	DPL100398
TCGT 3(2.5)1-GP	TCGT 16T304-GP	3/8	.650	5/32	1/64	.020 - .062	.004 - .008	DPL100399
TCGT 3(2.5)2-GP	TCGT 16T308-GP	3/8	.650	5/32	1/32	.031 - .080	.005 - .010	DPL100400

Ordering Example: 20 pcs TCGT 3(2.5)2-GP G625; DPL100400

NOTE: The primary application area for grade G625 is in steel workpiece materials. G625 is also suitable for use with stainless steel and cast iron components.

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

TPMT-MM



Popular for small diameter boring. Good economy and stable seating of insert. Positive rake screw-down inserts. 11° side clearance is ideal for boring.

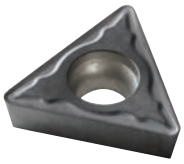
MM: Ultra-sharp cutting edge geometry for finishing and semi-finishing operations. Low cutting forces and superior workpiece surface finish.

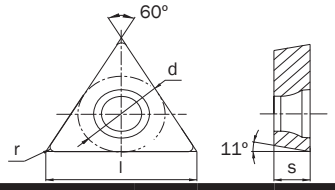
ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		M	S	M
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P115	P125	MULTI-MATERIAL S515		M225
TPMT 2(1.5)0.5-MM	TPMT 110202-MM	1/4	.433	3/32	.008	.004 - .031	.002 - .005	DPL100513	DPL100514	DPL100515		DPL100324
TPMT 2(1.5)1-MM	TPMT 110204-MM	1/4	.433	3/32	1/64	.004 - .047	.002 - .006	DPL100517	DPL100518	DPL100519		DPL100325

Ordering Example: 20 pcs TPMT 2(1.5)1-MM S515; DPL100519

NOTE: The primary application area for grade S515 is in stainless steel workpiece materials. S515 is also suitable for use with iron-based, cobalt-based and nickel-based Heat Resistant Super Alloys.

TPGT-GP





Popular for small diameter boring. Good economy and stable seating of insert. Precision tolerance, positive rake screw-down inserts. 11° side clearance is ideal for boring.

GP: All-round positive rake geometry. Wide application area. Excellent for boring in most materials.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	G625
TPGT 2(1.5)1-GP	TPGT 110204-GP	1/4	.433	3/32	1/64	.020 - .047	.003 - .008	DPL100508
TPGT 2(1.5)2-GP	TPGT 110208-GP	1/4	.433	3/32	1/32	.031 - .062	.004 - .010	DPL100509
TPGT 3(2.5)1-GP	TPGT 16T304-GP	3/8	.650	5/32	1/64	.020 - .062	.004 - .008	DPL100510
TPGT 3(2.5)2-GP	TPGT 16T308-GP	3/8	.650	5/32	1/32	.031 - .080	.005 - .010	DPL100511

Ordering Example: 20 pcs TPGT 3(2.5)2-GP G625; DPL100511

NOTE: The primary application area for grade G625 is in steel workpiece materials. G625 is also suitable for use with stainless steel and cast iron components.

REFERENCE PAGES					
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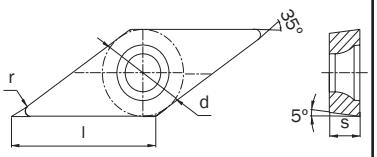
VBMT-MM



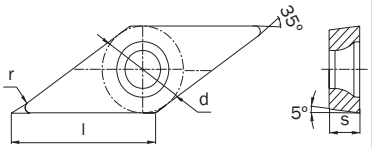
First choice shape for 35° diamond profile turning and boring. Positive rake screw-down inserts with 5° side clearance.

MM: Ultra-sharp cutting edge geometry for finishing and semi-finishing operations. Low cutting forces and superior workpiece surface finish.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL		
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P105	P115	P125
VBMT 221-MM	VBMT 110304-MM	1/4	.436	1/8	1/64	.004 - .047	.002 - .006	-	DPL100521	DPL100522
VBMT 331-MM	VBMT 160404-MM	3/8	.654	3/16	1/64	.004 - .062	.002 - .006	DPL100527	DPL100528	DPL100529
VBMT 332-MM	VBMT 160408-MM	3/8	.654	3/16	1/32	.004 - .062	.003 - .008	DPL100534	DPL100535	DPL100536

Ordering Example: 20 pcs VBMT 221-MM P125, DPL100522

VBMT-MM



First choice shape for 35° diamond profile turning and boring. Positive rake screw-down inserts with 5° side clearance.

MM: Ultra-sharp cutting edge geometry for finishing and semi-finishing operations. Low cutting forces and superior workpiece surface finish.

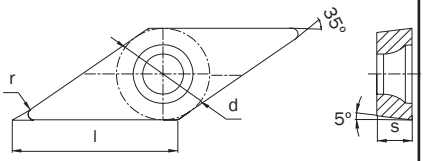
ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		M	S	M
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	MULTI-MATERIAL S515		M225
VBMT 221-MM	VBMT 110304-MM	1/4	.436	1/8	1/64	.004 - .047	.002 - .006	DPL100523		DPL100331
VBMT 331-MM	VBMT 160404-MM	3/8	.654	3/16	1/64	.004 - .062	.002 - .006	DPL100530		DPL100332
VBMT 332-MM	VBMT 160408-MM	3/8	.654	3/16	1/32	.004 - .062	.003 - .008	DPL100537		DPL100346

Ordering Example: 20 pcs VBMT 332-MM S515, DPL100537

NOTE: The primary application area for grade S515 is in stainless steel workpiece materials. S515 is also suitable for use with iron-based, cobalt-based and nickel-based Heat Resistant Super Alloys.

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

VBMT-GP



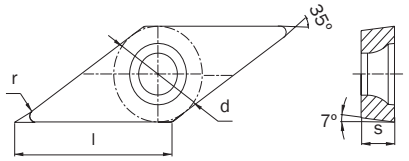
First choice for 35° diamond external profile turning. 5° clearance angle provides more secure insert clamping than VCMT style.

GP: All-round positive rake geometry with wide application area.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL	CAST IRON
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125	K315
VBMT 331-GP	VBMT 160404-GP	3/8	.654	3/16	1/64	.020 - .062	.004 - .008	DPL100525	DPL100524
VBMT 332-GP	VBMT 160408-GP	3/8	.654	3/16	1/32	.031 - .080	.005 - .010	DPL100532	DPL100531

Ordering Example: 20 pcs VBMT 332-GP P125; DPL100532

VCMT-GP



First choice shape for 35° diamond profile turning and boring. Positive cutting action provides for a more secure cutting edge than VNMG style.

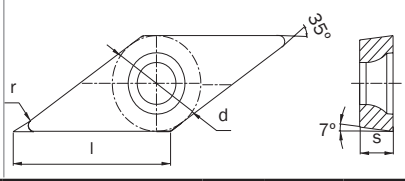
GP: All-round positive rake geometry. Wide application area. Excellent for boring in most materials.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL	CAST IRON
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125	K315
VCMT 221-GP	VCMT 110304-GP	1/4	.436	1/8	1/64	.020 - .047	.003 - .008	DPL100562	DPL100561
VCMT 331-GP	VCMT 160404-GP	3/8	.654	3/16	1/64	.020 - .062	.004 - .008	DPL100564	DPL100563
VCMT 332-GP	VCMT 160408-GP	3/8	.654	3/16	1/32	.031 - .080	.005 - .010	DPL100566	DPL100565

Ordering Example: 20 pcs VCMT 332-GP P125; DPL100566

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

VCGT-GP



First choice shape for 35° diamond profile turning and boring. Precision tolerance. Positive cutting action provides for a more secure cutting edge than VNMG style.

GP: All-round positive rake geometry. Wide application area. Excellent for boring in most materials.

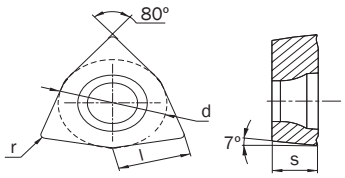
ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	G625
VCGT 221-GP	VCGT 110304-GP	1/4	.436	1/8	1/64	.020 - .047	.003 - .008	DPL100538
VCGT 331-GP	VCGT 160404-GP	3/8	.654	3/16	1/64	.020 - .062	.004 - .008	DPL100539
VCGT 332-GP	VCGT 160408-GP	3/8	.654	3/16	1/32	.031 - .080	.005 - .010	DPL100540

Ordering Example: 20 pcs VCGT 332-GP G625, DPL100540

NOTE: VCMT and VCGT inserts fit into and can be used with toolholders and boring bars made for VBMT-style inserts.

NOTE: The primary application area for grade G625 is in steel workpiece materials. G625 is also suitable for use with stainless steel and cast iron components.

WCMT-GP



80° corner Trigon inserts for turning, facing and boring. Positive rake screw-down inserts. Extra economy due to 3 cutting edges.

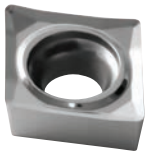
GP: All-round positive rake geometry. Wide application area. Excellent for boring in most materials.

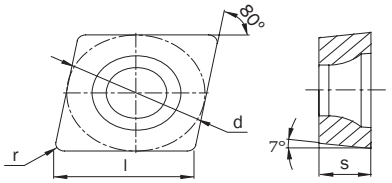
ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		STEEL	CAST IRON
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	P125	K315
WCMT 3(2.5)1-GP	WCMT 06T304-GP	3/8	.257	5/32	1/64	.020 - .062	.003 - .008	DPL100594	DPL100593
WCMT 3(2.5)2-GP	WCMT 06T308-GP	3/8	.257	5/32	1/32	.031 - .080	.005 - .010	DPL100596	DPL100595

Ordering Example: 20 pcs WCMT 3(2.5)2-GP P125; DPL100596

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

CCGX-AL





Precision Ground, High Positive, polished 80° diamond inserts for turning, boring and facing of Aluminum, non-ferrous materials and non-metallics.

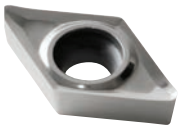
AL: Extremely high 25° positive rake geometry. Super sharp edgeline with polished face for smooth chip flow.

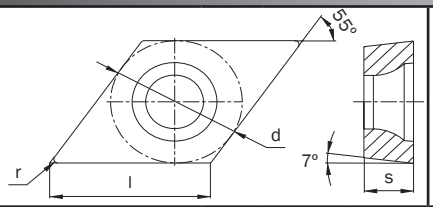
ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		NON-FERROUS	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	N425	NA425
CCGX 2(1.5)0.5-AL	CCGX 060202-AL	1/4	.254	3/32	.008	.010 - .047	.002 - .008	DPL100008	DPL100009
CCGX 2(1.5)1-AL	CCGX 060204-AL	1/4	.254	3/32	1/64	.016 - .062	.004 - .010	DPL100010	DPL100011
CCGX 2(1.5)2-AL	CCGX 060208-AL	1/4	.254	3/32	1/32	.020 - .062	.006 - .020	DPL100012	DPL100013
CCGX 3(2.5)0.5-AL	CCGX 09T302-AL	3/8	.381	5/32	.008	.010 - .094	.002 - .008	DPL100014	DPL100015
CCGX 3(2.5)1-AL	CCGX 09T304-AL	3/8	.381	5/32	1/64	.016 - .125	.004 - .010	DPL100016	DPL100017
CCGX 3(2.5)2-AL	CCGX 09T308-AL	3/8	.381	5/32	1/32	.020 - .125	.006 - .020	DPL100018	DPL100019
CCGX 430.5-AL	CCGX 120402-AL	1/2	.508	3/16	.008	.010 - .125	.002 - .008	DPL100020	DPL100021
CCGX 431-AL	CCGX 120404-AL	1/2	.508	3/16	1/64	.016 - .187	.004 - .010	DPL100022	DPL100023
CCGX 432-AL	CCGX 120408-AL	1/2	.508	3/16	1/32	.020 - .187	.006 - .020	DPL100024	DPL100025

Ordering Example: 20 pcs CCGX 432-AL N425; DPL100024

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

DCGX-AL





Precision Ground, High Positive, polished 55° diamond inserts for profiling of Aluminum, non-ferrous materials and non-metallics.

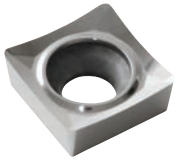
AL: Extremely high 25° positive rake geometry. Super sharp edgeline with polished face for smooth chip flow.

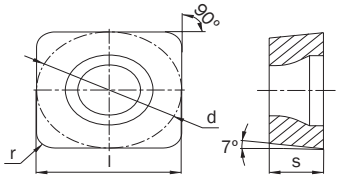
ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		NON-FERROUS	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	N425	NA425
DCGX 2(1.5)0.5-AL	DCGX 070202-AL	1/4	.305	3/32	.008	.010 - .062	.002 - .008	DPL100186	DPL100187
DCGX 2(1.5)1-AL	DCGX 070204-AL	1/4	.305	3/32	1/64	.016 - .094	.004 - .010	DPL100188	DPL100189
DCGX 2(1.5)2-AL	DCGX 070208-AL	1/4	.305	3/32	1/32	.020 - .094	.006 - .020	DPL100190	DPL100191
DCGX 3(2.5)0.5-AL	DCGX 11T302-AL	3/8	.458	5/32	.008	.010 - .094	.002 - .008	DPL100192	DPL100193
DCGX 3(2.5)1-AL	DCGX 11T304-AL	3/8	.458	5/32	1/64	.016 - .125	.004 - .010	DPL100194	DPL100195
DCGX 3(2.5)2-AL	DCGX 11T308-AL	3/8	.458	5/32	1/32	.020 - .125	.006 - .020	DPL100196	DPL100197

Ordering Example: 20 pcs DCGX 3(2.5)2-AL N425; DPL100196

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

SCGX-AL





Precision Ground, High Positive, polished square inserts for turning, facing and boring of Aluminum, non-ferrous materials and non-metallics.

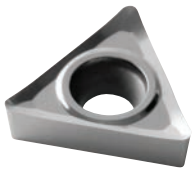
AL: Extremely high 25° positive rake geometry. Super sharp edgeline with polished face for smooth chip flow.

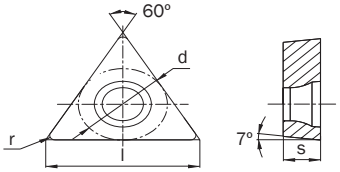
ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		NON-FERROUS	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	N425	NA425
SCGX 3(2.5)1-AL	SCGX 09T304-AL	3/8	.375	5/32	1/64	.016 - .125	.004 - .010	DPL100286	DPL100287
SCGX 3(2.5)2-AL	SCGX 09T308-AL	3/8	.375	5/32	1/32	.020 - .125	.006 - .020	DPL100288	DPL100289
SCGX 431-AL	SCGX 120404-AL	1/2	.500	3/16	1/64	.016 - .156	.004 - .010	DPL100290	DPL100291
SCGX 432-AL	SCGX 120408-AL	1/2	.500	3/16	1/32	.020 - .156	.006 - .020	DPL100292	DPL100293

Ordering Example: 20 pcs SCGX 432-AL N425; DPL100292

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

TCGX-AL





Precision Ground, High Positive, polished triangular inserts for turning and boring of Aluminum, non-ferrous materials and non-metallics.

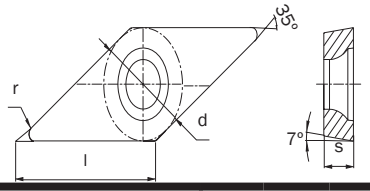
AL: Extremely high 25° positive rake geometry. Super sharp edgeline with polished face for smooth chip flow.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		NON-FERROUS	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	N425	NA425
TCGX 1.8(1.5)1-AL	TCGX 090204-AL	7/32	.379	3/32	1/64	.016 - .094	.004 - .008	DPL100401	DPL100402
TCGX 2(1.5)0.5-AL	TCGX 110202-AL	1/4	.433	3/32	.008	.010 - .094	.002 - .008	DPL100403	DPL100404
TCGX 2(1.5)1-AL	TCGX 110204-AL	1/4	.433	3/32	1/64	.016 - .125	.004 - .010	DPL100405	DPL100406
TCGX 2(1.5)2-AL	TCGX 110208-AL	1/4	.433	3/32	1/32	.020 - .125	.006 - .020	DPL100407	DPL100408
TCGX 3(2.5)0.5-AL	TCGX 16T302-AL	3/8	.650	5/32	.008	.010 - .125	.002 - .008	DPL100409	DPL100410
TCGX 3(2.5)1-AL	TCGX 16T304-AL	3/8	.650	5/32	1/64	.016 - .156	.004 - .010	DPL100411	DPL100412
TCGX 3(2.5)2-AL	TCGX 16T308-AL	3/8	.650	5/32	1/32	.020 - .156	.006 - .020	DPL100413	DPL100414

Ordering Example: 20 pcs TCGX 3(2.5)2-AL N425; DPL100413

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

VCGX-AL



Precision Ground, High Positive, polished 35° diamond inserts for intricate profiling of Aluminum, non-ferrous materials and non-metallics.

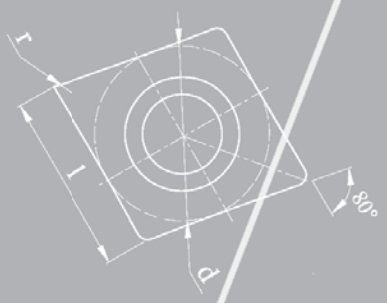
AL: Extremely high 25° positive rake geometry. Super sharp edgeline with polished face for smooth chip flow.

ANSI DESIGNATION	ISO DESIGNATION	DIMENSIONS (INCH)				CUTTING DATA (INCH)		NON-FERROUS	
		d	l	s	r	depth of cut, a_p	feed per rev, f_n	N425	NA425
VCGX 220.5-AL	VCGX 110302-AL	1/4	.436	1/8	.008	.010 - .062	.002 - .008	DPL100541	DPL100542
VCGX 221-AL	VCGX 110304-AL	1/4	.436	1/8	1/64	.016 - .087	.004 - .010	DPL100543	DPL100544
VCGX 222-AL	VCGX 110308-AL	1/4	.436	1/8	1/32	.020 - .087	.006 - .020	DPL100545	DPL100546
VCGX 330.5-AL	VCGX 160402-AL	3/8	.654	3/16	.008	.010 - .125	.002 - .008	DPL100547	DPL100548
VCGX 331-AL	VCGX 160404-AL	3/8	.654	3/16	1/64	.016 - .156	.004 - .010	DPL100549	DPL100550
VCGX 332-AL	VCGX 160408-AL	3/8	.654	3/16	1/32	.020 - .156	.006 - .020	DPL100551	DPL100552
VCGX 333-AL	VCGX 160412-AL	3/8	.654	3/16	3/64	.020 - .156	.006 - .031	DPL100553	DPL100554
VCGX 220512-AL	VCGX 220512-AL	1/2	.872	7/32	3/64	.020 - .187	.006 - .031	DPL100555	DPL100556
VCGX 220516-AL	VCGX 220516-AL	1/2	.872	7/32	1/16	.020 - .187	.006 - .031	DPL100557	DPL100558
VCGX 220530-AL	VCGX 220530-AL	1/2	.872	7/32	.118	.020 - .187	.010 - .040	DPL100559	DPL100560

Ordering Example: 20 pcs VCGX 220530-AL N425; DPL100559

REFERENCE PAGES					
CUTTING SPEED RECOMMENDATIONS	4	GRADE SELECTION	38	TECHNICAL INFORMATION	63

TECHNICAL INFORMATION
TURNING

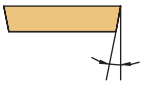


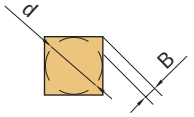
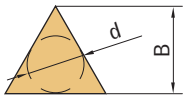
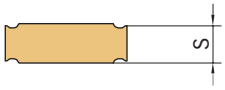
TURNING INSERTS CODE KEY | ANSI DESIGNATION

EXAMPLE 1

C	N	M	G	4	3	2		-	QM
1	2	3	4	5	6	7	8		9

1	
Insert Shape	
C	80⁰ Diamond
D	55⁰ Diamond
S	Square
T	Triangle
V	35⁰ Diamond
W	80⁰ Corner Trigon

2	
Clearance Angle	
	
B	5⁰ Positive Rake
C	7⁰ Positive Rake
N	0⁰ Negative Rake
P	11⁰ Positive Rake

3			
Tolerances, inch			
			
Tolerance Class	tolerance on 'd'	tolerance on 'B'	tolerance on 's'
G	± .001	± .001	± .005
M	see table below	see table below	± .005

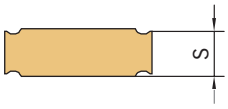
Tolerance Class M, inch				
d	**tolerance on 'd'**	**tolerance on 'B'**		
	All Shapes	C, S, T, W Shapes	D Shape	V Shape
7/32	± .002	± .003	± .004	N/A
1/4	± .002	± .003	± .004	± .007
3/8	± .002	± .003	± .004	± .007
1/2	± .003	± .005	± .006	± .010
5/8	± .004	± .006	± .007	N/A
3/4	± .004	± .006	± .007	N/A

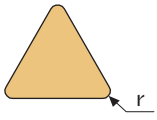
EXAMPLE 2

V	C	G	T	3	3	1		-	GP
1	2	3	4	5	6	7	8		9

4		
Insert Type		
G	With hole, Pin / Top Clamp Double-sided	
T	With hole, Screw-down Clamping Single-sided	
X	Manufacturer-Specific Design	—

5	
Insert Size	
Inscribed Circle, d, inch	
	
Symbol indicates number of 1/8ths of an inch	
Symbol	d
1.8	7/32
2	1/4
3	3/8
4	1/2
5	5/8
6	3/4

6	
Thickness, inch	
	
Symbol indicates number of 1/16ths of an inch	
Symbol	s
1.5	3/32
2	1/8
2.5	5/32
3	3/16
4	1/4

7	
Nose Radius, inch	
	
Symbol indicates number of 1/64ths of an inch	
Symbol	r
0.5	.008
1	1/64
2	1/32
3	3/64
4	1/16

8	
Hand of Insert (optional)	
R	Right-hand
L	Left-hand

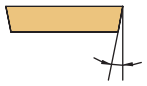
9
Chipbreaker Designation
Indicates the machining properties or chipbreaker features Manufacturer-specific

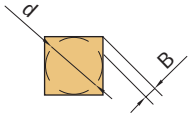
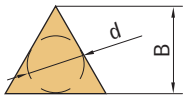
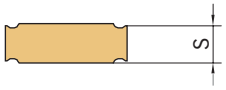
TURNING INSERTS CODE KEY | ISO DESIGNATION

EXAMPLE 1

C	N	M	G	12	04	08		-	QM
1	2	3	4	5	6	7	8		9

1		
Insert Shape		
C	80⁰ Diamond	
D	55⁰ Diamond	
S	Square	
T	Triangle	
V	35⁰ Diamond	
W	80⁰ Corner Trigon	

2	
Clearance Angle	
	
B	5⁰ Positive Rake
C	7⁰ Positive Rake
N	0⁰ Negative Rake
P	11⁰ Positive Rake

3			
Tolerances, mm			
			
Tolerance Class	tolerance on 'd'	tolerance on 'B'	tolerance on 's'
G	± 0.025	± 0.025	± 0.13
M	see table below	see table below	± 0.13

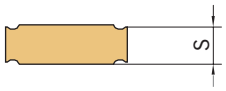
Tolerance Class M, mm				
d	**tolerance on 'd'**	**tolerance on 'B'**		
	All Shapes	C, S, T, W Shapes	D Shape	V Shape
5.556	± 0.05	± 0.08	± 0.10	N/A
6.350	± 0.05	± 0.08	± 0.10	± 0.18
9.525	± 0.05	± 0.08	± 0.10	± 0.18
12.700	± 0.08	± 0.13	± 0.15	± 0.25
15.875	± 0.10	± 0.15	± 0.18	N/A
19.050	± 0.10	± 0.15	± 0.18	N/A

EXAMPLE 2

V	C	G	T	16	04	04		-	GP
1	2	3	4	5	6	7	8		9

4		
Insert Type		
G	With hole, Pin / Top Clamp Double-sided	
T	With hole, Screw-down Clamping Single-sided	
X	Manufacturer-Specific Design	—

5						
Insert Size						
Cutting Edge Length, mm						
Symbol	C	D	S	T	V	W
06	6.5					6.5
07		7.8				
08						8.7
09	9.7		9.5	9.6		
11		11.6		11.0	11.1	
12	12.9		12.7			
15		15.5	15.9			
16	16.1			16.5	16.6	
19	19.4		19.1			
22				22.0	22.2	
27				27.5		

6	
Thickness, mm	
	
Symbol	s
02	2.38
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35

7	
Nose Radius, mm	
	
Symbol	r
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
30	3.0

8	
Hand of Insert (optional)	
R	Right-hand
L	Left-hand

9
Chipbreaker Designation
Indicates the machining properties or chipbreaker features Manufacturer-specific

TURNING FORMULAS AND NOMENCLATURE

Spindle speed, n (rpm)

$$n = \frac{3.82 \times v_c}{D}$$

Cutting speed, v_c (ft / min)

$$v_c = .262 \times D \times n$$

Feed rate, v_f (in / min)

$$v_f = n \times f_n$$

Machining time, t (min)

$$t = \frac{l_m}{v_f}$$

Metal removal rate, Q (in^3 / min)

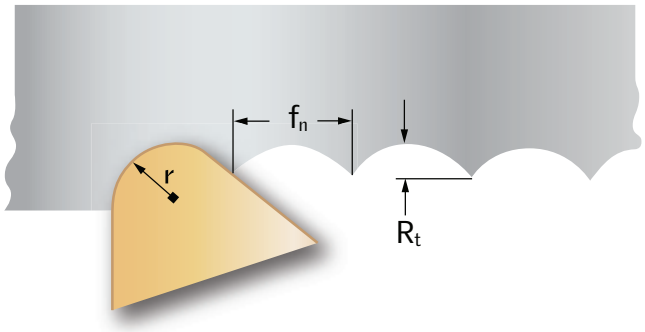
$$Q = v_c \times a_p \times f_n \times 12$$

a_p	depth of cut	inches
D	workpiece diameter	inches
f_n	feed per revolution	inches
l_m	machined length	inches
n	spindle speed	rev/min
Q	metal removal rate	$inches^3$/min
t	machining time	minutes
v_c	cutting speed	feet/min
v_f	feed rate	inches/min

The machined surface and tolerances achieved on components are directly affected by both the insert nose radius and the feed rate.

From a strictly theoretical perspective, surface roughness can be calculated from the following formula:

$$R_t = \frac{f_n^2 \times 10^6}{8 \times r}$$



Where R_t = Theoretical Profile Depth, minches
f_n = feed / rev, inches
r = insert nose radius, inches

The following table presents feed values for common insert nose radius sizes and surface roughness requirements:

R_t, minch	feed f_n, inches / rev				
	r = 1/64"	r = 1/32"	r = 3/64"	r = 1/16"	r = 3/32"
16	.0015	.002	.0025	.003	.0035
32	.002	.003	.0035	.004	.005
63	.003	.004	.005	.0055	.007
125	.004	.0055	.007	.008	.010
250	.0055	.008	.010	.011	.014
500	.008	.011	.014	.016	.019

The maximum feed per rev can be determined from the table by selecting the nose radius and specified surface roughness requirement.

For example, **Surface roughness requirement R_t = 63 minches**

Insert nose radius r = 1/32"

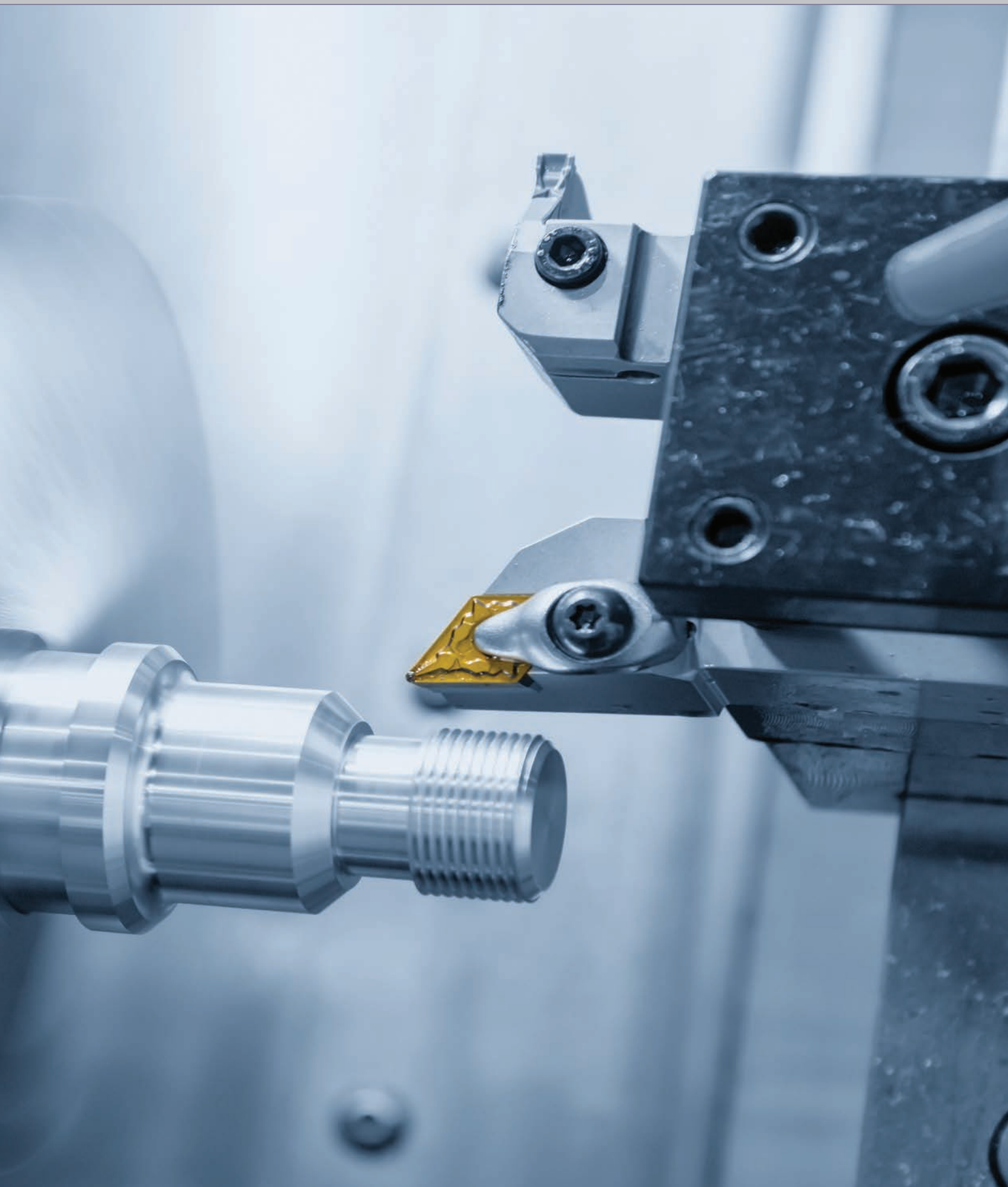
Theoretical starting point for feed f_n => .004 inches / rev

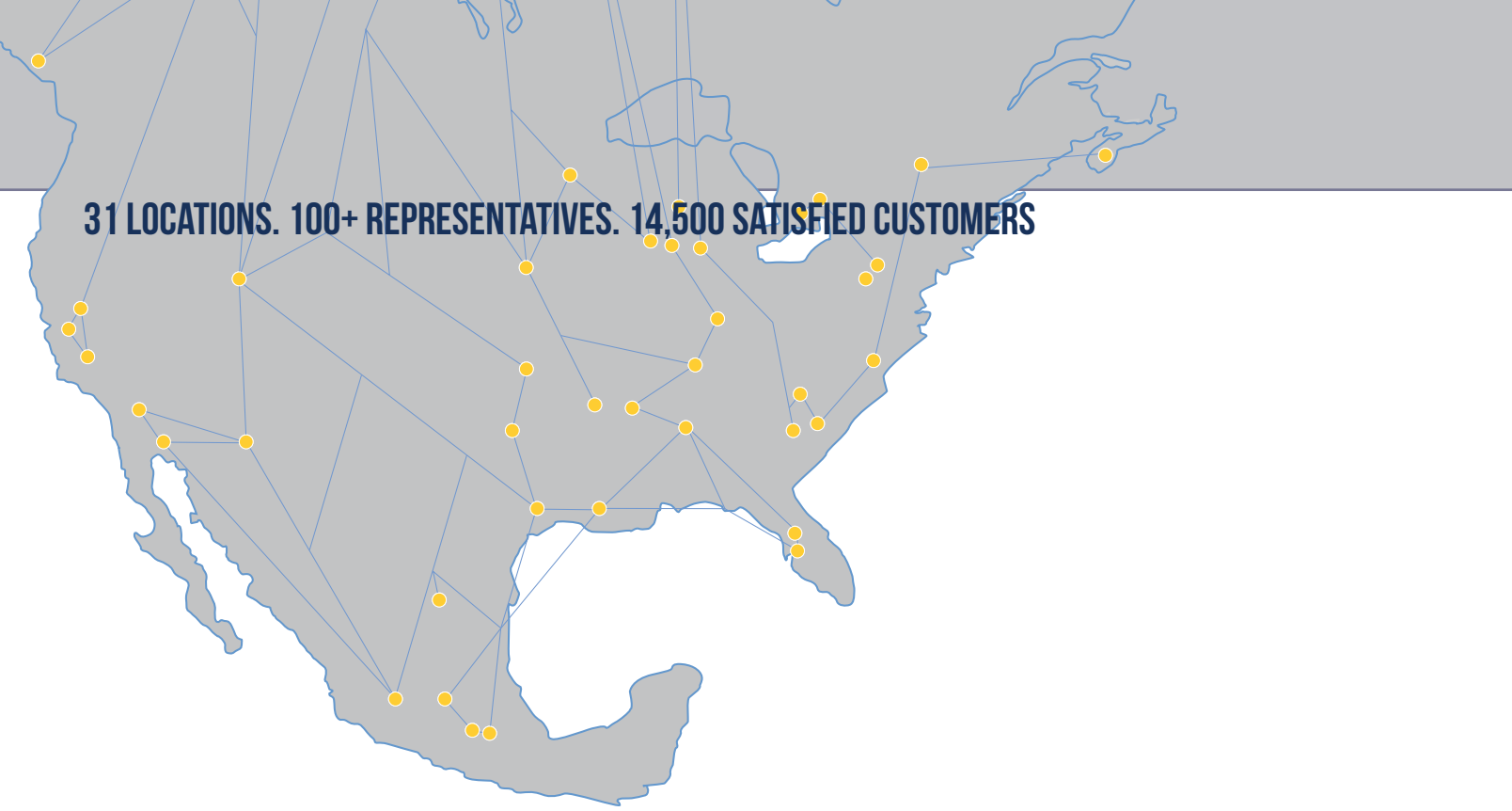
When selecting the feed for finishing to a specified level of surface roughness, the feed values provided in the table should not be exceeded. In general the feed in a finishing operation should be kept low in order to produce an acceptable component finish.

WEAR MECHANISM / PROBLEM	REMEDY										
	Increase the cutting speed	Reduce the cutting speed	Increase the feed	Reduce the feed	Increase the depth of cut	Reduce the depth of cut	Ensure adequate coolant flow	Choose a tougher grade	Select a more wear resistant grade	Choose a positive geometry	Use a smaller nose radius
Excessive flank wear		X	X				X		X		
Chipping				X				X			
Plastic deformation		X		X		X	X		X		
Crater wear		X		X			X		X	X	
Built-up-edge (BUE)	X			X			X			X	
Thermal cracks	X			X				X			
Notch wear		X					X		X		
Insert Breakage				X		X		X			
Vibrations		X	X			X				X	X
Chip control / long, unbroken chips			X		X						X

Increase the cutting speed | Reduce the cutting speed | Increase the feed | Reduce the feed | Increase the depth of cut | Reduce the depth of cut | Ensure adequate coolant flow | Choose a tougher grade | Select a more wear resistant grade | Choose a positive geometry | Use a smaller nose radius

REMEDY





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