WIDIA VICTORY

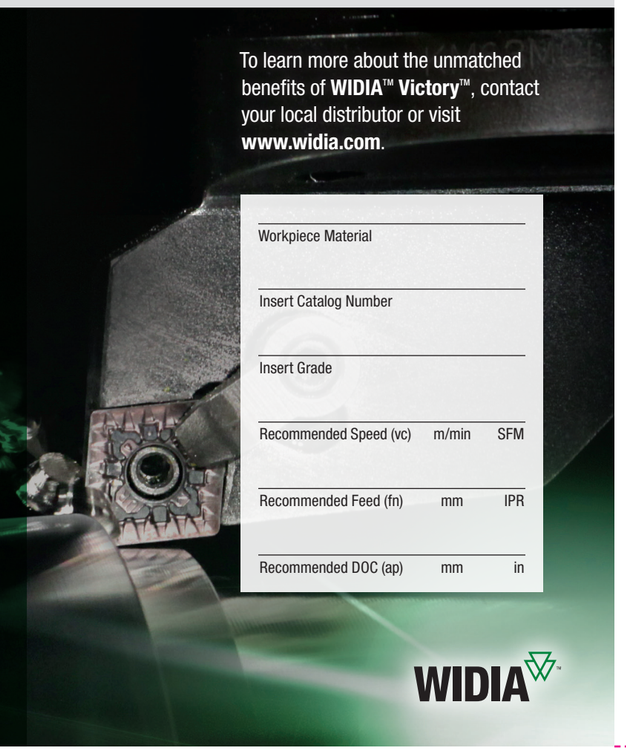
VICTORY™ GRADE NAMING SYSTEM

WIDIA VICTORY

WIDIA™ Victory™ turning grades and new geometries deliver higher productivity through reduced cycle time, long tool life, and improved chip control.

W	P	15	C	T
Brand	**Workpiece Material**	**Application Range**	**Insert Material**	**Application**
W = WIDIA™	P = Steel	05 = Fine Finishing	H = Carbide (blank)	T = Turning
	M = Stainless Steel	10 = Finishing	C = Carbide + CVD	M = Milling
	K = Cast Iron	15, 20 = Medium to Roughing	P = Carbide + PVD	H = Holemaking
	N = Non Ferrous	25, 30, 35 = Roughing	T = Cermet	D = Solid Drills
	S = High-Temp Alloys	40, 45, 50 = Heavy Roughing	Y = Ceramics	E = Solid End Mills
	H = Hardened Materials		D = Diamond	G = Taps
	U = Universal Application		B = PCBN	R = Reamers
			S = HSS	V = Thread Mills
			E = HSS-E	
			M = HSS-E-PM	

To learn more about the unmatched benefits of **WIDIA™ Victory™**, contact your local distributor or visit **www.widia.com**.



Workpiece Material

Insert Catalog Number

Insert Grade

Recommended Speed (vc) m/min SFM

Recommended Feed (fn) mm IPR

Recommended DOC (ap) mm in

WIDIA

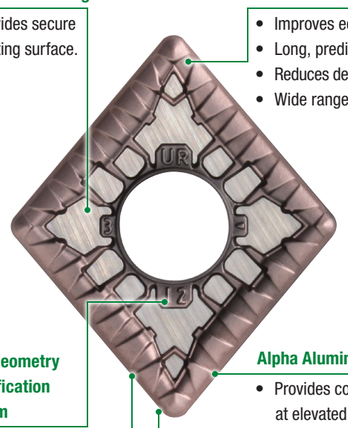
WIDIA™ Victory™ Turning Grades and New Geometries

Reduce cycle times — high speed and feed capability. / Long tool life — new multilayer coating provides better wear resistance. / Proven seating — smooth and secure seating surface. / Outer layer is bronze-colored for easier wear detection.

VICTORY ANATOMY

Post-Coat Grinding
- Provides secure seating surface.

Post-Coat Treatment
- Improves edge toughness.
- Long, predictable tool life.
- Reduces depth-of-cut notching.
- Wide range of applications.

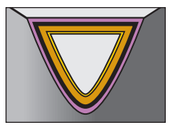


New Geometry Identification System

Alpha Alumina Layer
- Provides coating integrity at elevated speeds.
- Higher productivity and dependability at high cutting temperatures.

Improved Edge Toughness
- Provides smooth outer surface to reduce forces, friction, and workpiece sticking.

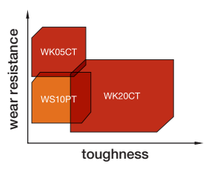
MT-CVD/CVD–TiN-TiCN-Al_2O_3-ZrCN



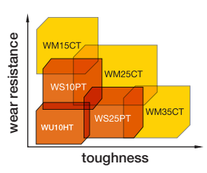
VICTORY TOUGHNESS / WEAR RESISTANCE

WP GRADES FOR STEEL
- Three grades and seven primary geometries for use in roughing to finishing operations.
- Increase cutting speed and/or feed rate to gain productivity.

WM GRADES FOR STAINLESS STEEL
- Three grades across 12 geometries for use in roughing to finishing operations.
- Very good balance of wear resistance and toughness for long predictable tool life.



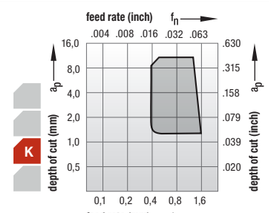
WK GRADES FOR CAST IRON
- Two grades to cover all of your cast iron turning operations.
- Increase cutting speed and/or feed rate by up to 30% over similar competitive grades.



WS GRADES FOR HIGH-TEMP ALLOYS
- Two grades for use in roughing to finishing operations.
- Very good wear resistance for longer tool life.

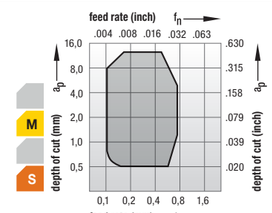
VICTORY INSERT GEOMETRIES

Negative Inserts



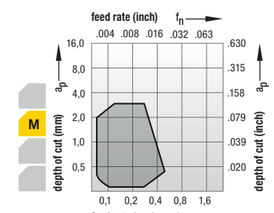
..MA

Flat top geometry for machining cast iron. For finishing to roughing applications.



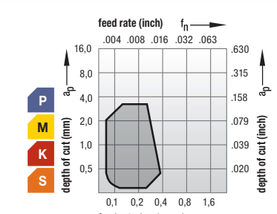
.NMP

For medium-duty machining of tough work materials, such as chrome- and nickel-based alloys. Minimizes tendency for materials to adhere to insert.



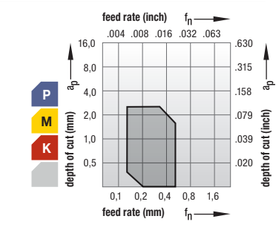
CT

Designed for outward copy turning. Where other geometries produce long chips, the unique distribution of the cut results in good chip control.



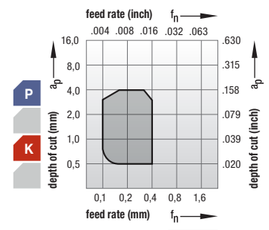
FF

For finish turning, producing smooth, accurate surfaces. Very good chip control, especially at low depths of cut.



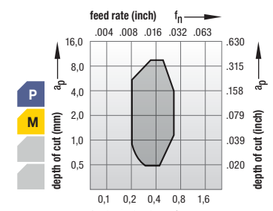
FW

Wiper geometry for finishing when good surface finish is needed using high feed rates. First choice for high-performance finishing.



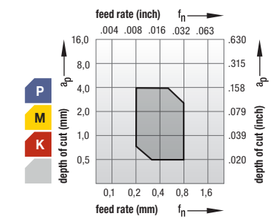
ML

For finishing to medium machining with a negative, stable cutting edge.



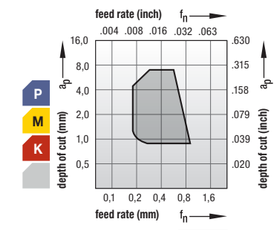
MR

For medium to light roughing of steels, difficult-to-machine high-alloy titanium, and aluminum materials. High strength to deal with heavy chip deformation.



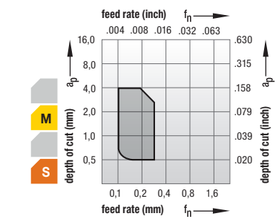
MW

Wiper geometry for light to medium turning with high feed rates. Feed twice as high as with edges with full corner radii to produce same surface finish.



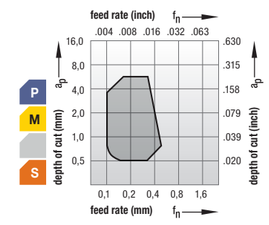
RH

For medium-duty to roughing. Outstanding chip control. High edge strength for interrupted cuts, forging skin, or scale. Preferred for all cast iron, such as gray, malleable, and nodular.



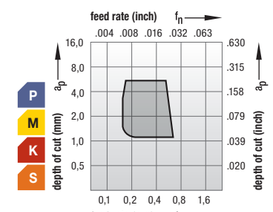
UF

For finishing with a positive cutting edge for reduced cutting forces and superior surface quality.



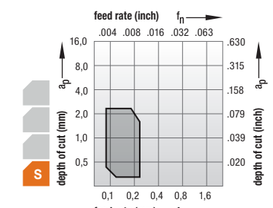
UM

For medium-duty turning operations. Soft-cutting chipbreaker. Used in applications producing varying chip sections, such as profile or copy turning. Good dimensional accuracy. For soft steel materials and stainless steels.



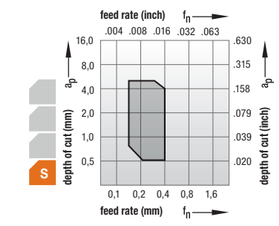
UR

Roughing geometry with smooth chip forming and improved coolant flow for increased tool life. Positive geometry reduces cutting forces and improves depth-of-cut notching resistance. Ideally suitable for stainless steel applications and for smooth machining of steel.



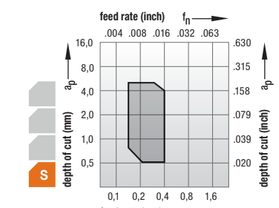
FS

For finishing applications. Ground periphery with positive cutting edge ideally suited for high temp alloys Micro finished edge on the ground periphery adds just a slight hone for improved edge integrity and reliability.



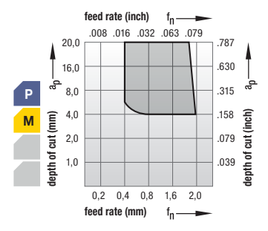
MS

For medium machining in high-temp materials. Utilizes a micro-finished edge preparation to increase edge toughness.



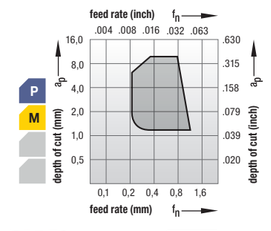
.NGP

For medium-duty machining of tough work materials, such as chrome- and nickel-based alloys. Minimizes tendency for materials to adhere to insert.



SR

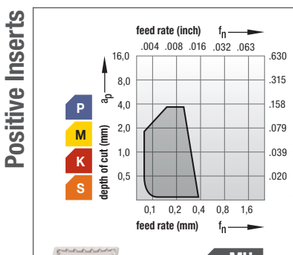
A Super Roughing geometry. The –SR has a strong cutting edge to support high cutting loads in roughing applications. Can produce high metal removal rates.



65

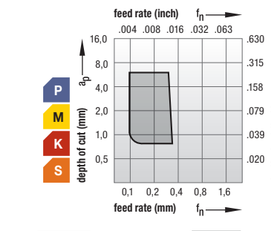
Rough-turning geometry with chip control extending to the medium-duty range. Positive rake angle lowers cutting forces, reducing power requirements. Used on low-tensile and stainless steels.

Positive Inserts



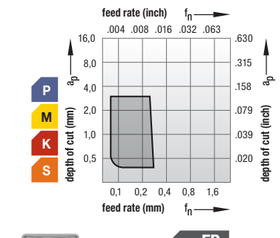
MU

A Medium Universal geometry with a soft cutting action due to its positive geometry. Has a versatile application range and is suited for turning unstable components and for boring applications.



MP

For medium to rough turning with reduced cutting forces and improved chip control for high feed rates. Suitable for high metal removal rates and spindling applications.



FP

For finishing to medium turning operations with optimal chip control over a wide range of cutting conditions and workpiece materials.

WIDIA VICTORY

EXTREME CHALLENGES. EXTREME RESULTS.

VICTORY

WIDIA™ Victory™ Turning Grades and New Geometries • SPEED AND FEED CHARTS

Low-Carbon (<0.3% C) and Free-Machining Steel — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	135 (450)	180 (600)	225 (800)	275 (900)	320 (1050)	360 (1200)	410 (1350)	455 (1500)	495 (1650)	m/min	SFM
P0/P1	WP15CT							◁▷			395	1320
	WP25CT				◁▷						275	925
	WP35CT			◁▷							210	700
	WS10PT			◁▷							280	925

Medium- and High-Carbon Steels (>0.3% C) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	135 (450)	180 (600)	225 (800)	275 (900)	320 (1050)	360 (1200)	410 (1350)	455 (1500)	495 (1650)	m/min	SFM
P2	WP15CT			◁▷							265	880
	WP25CT		◁▷								195	650
	WP35CT	◁▷									150	500
	WS10PT		◁▷								200	650

Alloy Steels and Tool Steels (≤330 HB) (≤35 HRC) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	135 (450)	180 (600)	225 (800)	275 (900)	320 (1050)	360 (1200)	410 (1350)	455 (1500)	495 (1650)	m/min	SFM
P3	WP15CT		◁▷								190	630
	WP25CT		◁▷								155	510
	WP35CT	◁▷									120	400
	WS10PT		◁▷								155	510

Alloy Steels and Tool Steels (340–450 HB) (36–48 HRC) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	60 (200)	90 (300)	120 (400)	150 (500)	180 (600)	210 (700)	240 (800)	270 (900)	300 (1000)	m/min	SFM
P4	WP15CT				◁▷						145	480
	WP25CT			◁▷							105	360
	WP35CT		◁▷								95	325
	WS10PT			◁▷							110	360

Ferritic, Martensitic, and PH Stainless Steels (≤330 HB) (≤35 HRC) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	120 (400)	150 (500)	180 (600)	210 (700)	240 (800)	270 (900)	300 (1000)	330 (1100)	360 (1200)	m/min	SFM
P5	WP15CT				◁▷						215	720
	WP25CT				◁▷						195	650
	WP35CT		◁▷								135	450
	WS10PT				◁▷						200	660

Ferritic, Martensitic, and PH Stainless Steels (340–450 HB) (36–48 HRC) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	105 (350)	135 (450)	165 (550)	195 (650)	225 (750)	255 (850)	285 (950)	315 (1050)	345 (1150)	m/min	SFM
P6	WP15CT			◁▷							180	600
	WP25CT		◁▷								150	500
	WP35CT	◁▷									105	350
	WS10PT		◁▷								150	500

Gray Cast Iron — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	60 (200)	180 (600)	305 (1000)	430 (1400)	550 (1800)	675 (2200)	800 (2600)	920 (3000)	1040 (3400)	1160 (3800)	m/min	SFM
K1	WK05CT				◁▷							450	1500
	WK20CT			◁▷								300	1000

Ductile, Compacted Graphite, and Malleable Cast Irons (<600 MPa tensile strength) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	90 (300)	135 (450)	180 (600)	225 (750)	275 (900)	320 (1050)	360 (1200)	410 (1350)	460 (1500)	500 (1650)	m/min	SFM
K2	WS10PT			◁▷								200	650
	WK05CT						◁▷					360	1200
	WK20CT				◁▷							240	800

Ductile, Malleable, and Austempered Cast Irons (>600 MPa tensile strength) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	90 (300)	135 (450)	180 (600)	225 (750)	275 (900)	320 (1050)	360 (1200)	410 (1350)	460 (1500)	500 (1650)	m/min	SFM
K3	WS10PT			◁▷								150	500
	WK05CT				◁▷							240	800
	WK20CT		◁▷									210	700

Austenitic Stainless Steel — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	90 (300)	135 (450)	180 (600)	225 (800)	270 (900)	315 (1050)	200 (650)	360 (1200)	405 (1350)	450 (1500)	m/min	SFM
M1	WM15CT			◁▷								180	600
	WM25CT		◁▷									150	500
	WM35CT	◁▷										120	400
	WS10PT				◁▷							215	700
	WS25PT		◁▷									180	550

Austenitic Stainless Steel — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	90 (300)	135 (450)	180 (600)	225 (800)	270 (900)	315 (1050)	200 (650)	360 (1200)	405 (1350)	450 (1500)	m/min	SFM
M2	WM15CT			◁▷								165	550
	WM25CT		◁▷									140	450
	WM35CT											105	350
	WS10PT				◁▷							200	650
	WS25PT			◁▷								165	500

Austenitic Stainless Steel: Duplex (Ferritic and Austenitic Mixture) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	90 (300)	135 (450)	180 (600)	225 (800)	270 (900)	315 (1050)	200 (650)	360 (1200)	405 (1350)	450 (1500)	m/min	SFM
M3	WM15CT			◁▷								150	500
	WM25CT		◁▷									120	400
	WM35CT	◁▷										90	300
	WS10PT			◁▷								185	600
	WS25PT			◁▷								150	450

Iron-Based, Heat-Resistant Alloys (135–320 HB) (≤34 HRC) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	15 (50)	45 (150)	75 (250)	105 (350)	140 (450)	170 (550)	200 (650)	230 (750)	290 (950)	310 (1050)	m/min	SFM
S1	WU10HT		◁▷									30	100
	WS10PT			◁▷								55	180
	WS25PT		◁▷									40	125
	WM15CT			◁▷								55	180
	WM25CT/WM35CT		◁▷									40	125

Cobalt-Based, Heat-Resistant Alloys (150–425 HB) (≤45 HRC) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	15 (50)	45 (150)	75 (250)	105 (350)	140 (450)	170 (550)	200 (650)	230 (750)	290 (950)	310 (1050)	m/min	SFM
S2	WU10HT		◁▷									35	110
	WS10PT			◁▷								60	195
	WS25PT		◁▷									30	100
	WM15CT			◁▷								60	195
	WM25CT/WM35CT		◁▷									30	100

Nickel-Based, Heat-Resistant Alloys (140–475 HB) (≤48 HRC) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	15 (50)	45 (150)	75 (250)	105 (350)	140 (450)	170 (550)	200 (650)	230 (750)	290 (950)	310 (1050)	m/min	SFM
S3	WU10HT		◁▷									40	125
	WS10PT			◁▷								70	225
	WS25PT		◁▷									40	125
	WM15CT			◁▷								70	225
	WM25CT/WM35CT		◁▷									40	125

Titanium and Titanium Alloys (110–450 HB) (≤48 HRC) — speed — m/min (SFM) — Starting Conditions ◁▷

material group	grade	15 (50)	45 (150)	75 (250)	105 (350)	140 (450)	170 (550)	200 (650)	230 (750)	290 (950)	310 (1050)	m/min	SFM
S4	WU10HT		◁▷									45	150
	WM15CT			◁▷								70	225
	WM25CT/WM35CT		◁▷									55	175

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