

_ EXPERTISE IN MACHINING

Walter Perform line – efficient, reliable, versatile.



Versatile – tried-and-tested technology.

THE APPLICATION

- Versatile indexable inserts for an extremely wide range of materials and applications
- Areas of use:
General mechanical engineering, single-part production and other industries

Primary application:

- ISO P (steels)

Secondary application:

- ISO M (stainless steels)
- ISO K (cast iron workpieces)

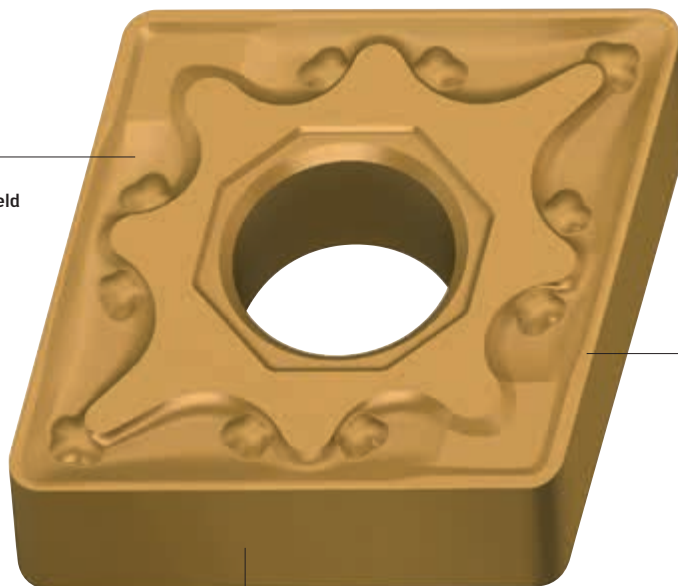
THE GRADES

- Cutting tool materials suitable for universal use
 - WPV10 (ISO P10)
 - WPV20 (ISO P20)

THE GEOMETRIES

- Wide range of applications and simple geometry selection
 - FV5: Finishing
 - MV5: Medium machining
 - RV5: Roughing
- Negative basic shapes:
CNMG, DNMG, SNMG, TNMG, VNMG, WNMG

Extremely wear-resistant
CVD coating with a wide field
of applications



Light-coloured decorative finish
for easy wear detection

Geometries for a diverse range of
applications (FV5, MV5, RV5)

Grades: WPV10, WPV20

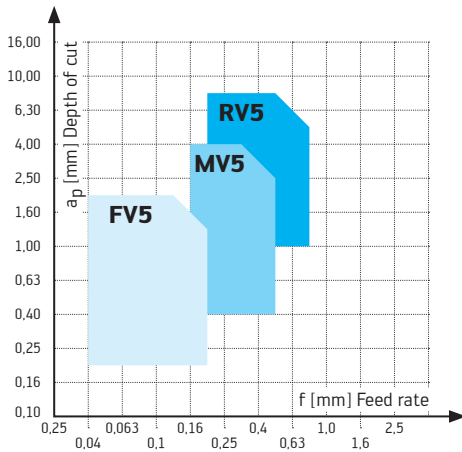
Fig.: MV5 geometry

BENEFITS FOR YOU

- Efficient machining with tried-and-tested technology
- For versatile and reliable use in many different materials
- For a long tool life at cutting speeds up to 250 m/min
- Excellent product quality – Made by Walter

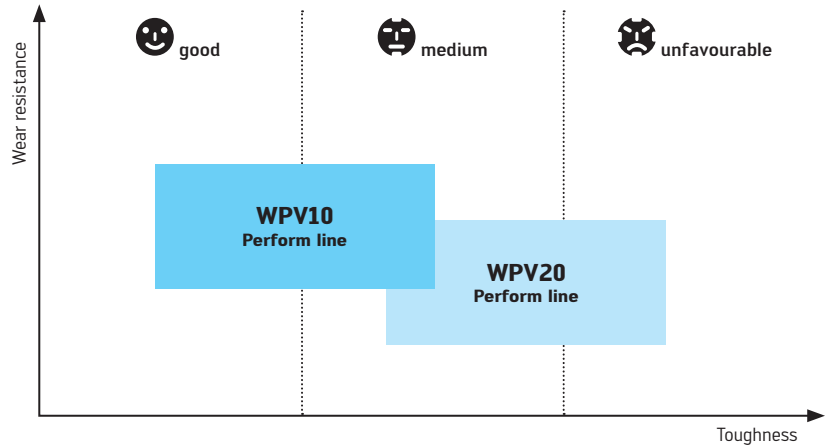
Geometry overview:

 Negative basic shape

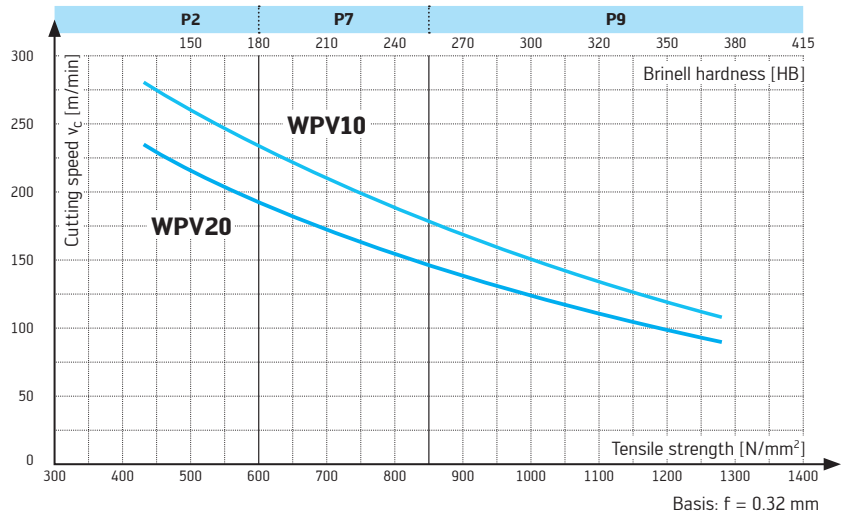


Overview of grades:

ISO P



Cutting speed selection based on tensile strength/hardness:



Cutting speed range for selected materials:

ISO material group	Material	Tensile strength	Brinell hardness	Cutting speed	
				WPV10	WPV20
P2	S235JR (St37), C45	500 N/mm ²	150 HB	200 – 240 – 340 m/min	160 – 200 – 280 m/min
P7	100Cr6, 42CrMo4	800 N/mm ²	240 HB	130 – 180 – 200 m/min	100 – 150 – 180 m/min
P9	56NiCrMoV7	1250 N/mm ²	370 HB	80 – 130 – 140 m/min	70 – 100 – 130 m/min

Efficient, reliable, versatile.

The Walter Perform line for ISO turning inserts stands out primarily thanks to its versatile field of applications. The indexable

inserts of the Walter Perform line are easily identified by the **V** in the designation: It stands for “**versatile**”.

Simple geometry designation:

M	V	5
1	2	3

- 1: Chip breaking range – e.g. M = Medium machining
- 2: Versatile = Materials
- 3: Feed/chip breaking range

Simple grade designation:

W	P	V	20
1	2	3	4

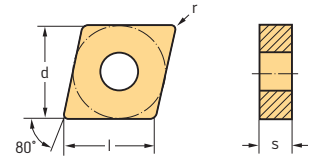
- 1: Walter
- 2: First primary application – e.g. P = ISO P
- 3: Second primary application, “Versatile”
- 4: ISO application range



Example:
WNMG080408-MV5 WPV20

The cutting tool materials are specially developed for use on not only one material, but on multiple materials. For example, the WPV20 cutting tool material can be used on steel, as well as on cast iron and stainless materials.

Negative rhombic 80° CNMG

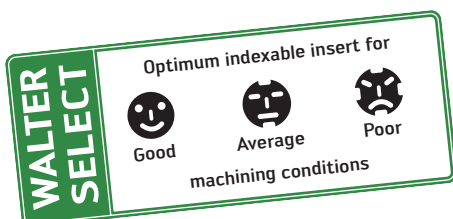


Indexable inserts

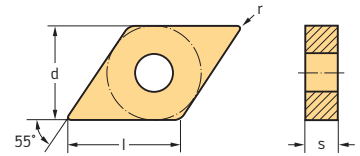
	Designation	r mm	f mm	a _p mm	P	
					WPV10	WPV20
	CNMG120404-FV5	0,4	0,05-0,20	0,2-1,5		
	CNMG120408-FV5	0,8	0,08-0,25	0,4-2,0		
	CNMG120404-MV5	0,4	0,10-0,20	0,5-3,5		
	CNMG120408-MV5	0,8	0,15-0,32	0,8-4,0		
	CNMG120412-MV5	1,2	0,18-0,40	0,8-4,0		
	CNMG160612-MV5	1,2	0,20-0,45	0,8-5,0		
	CNMG120408-RV5	0,8	0,20-0,40	1,0-5,0		
	CNMG120412-RV5	1,2	0,25-0,55	1,0-5,0		
	CNMG160612-RV5	1,2	0,25-0,55	2,0-6,0		
	CNMG160616-RV5	1,6	0,35-0,60	2,0-6,0		

For dimensions, see the ISO 1832 designation key

HC = Coated carbide



Negative rhombic 55° DNMG



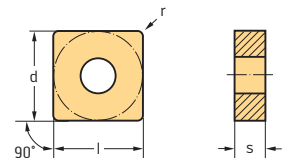
Indexable inserts

	Designation	r mm	f mm	a _p mm	P	
					WPV10	WPV20
	DNMG110404-FV5	0,4	0,05–0,20	0,2–1,5		
	DNMG110408-FV5	0,8	0,08–0,25	0,4–2,0		
	DNMG150408-FV5	0,8	0,08–0,25	0,4–2,0		
	DNMG150604-FV5	0,4	0,05–0,20	0,2–1,5		
	DNMG150608-FV5	0,8	0,08–0,25	0,4–2,0		
	DNMG110408-MV5	0,8	0,15–0,32	0,8–3,0		
	DNMG150408-MV5	0,8	0,15–0,32	0,8–3,5		
	DNMG150608-MV5	0,8	0,15–0,32	0,8–3,5		
	DNMG150608-RV5	0,8	0,15–0,40	1,0–4,5		
	DNMG150612-RV5	1,2	0,20–0,50	1,0–4,5		

For dimensions, see the ISO 1832 designation key

HC = Coated carbide

Negative square SNMG



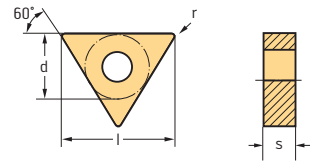
Indexable inserts

	Designation	r mm	f mm	a _p mm	P	
					WPV10	WPV20
	SNMG120408-MV5	0,8	0,15–0,32	0,8–4,0		

For dimensions, see the ISO 1832 designation key

HC = Coated carbide

Negative triangular 60° TNMG



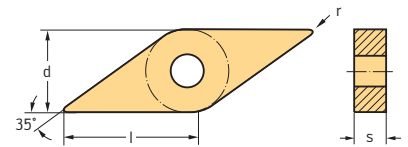
Indexable inserts

	Designation	r mm	f mm	a _p mm	P	
					WPV10	WPV20
	TNMG160404-FV5	0,4	0,05-0,20	0,2-1,5		
	TNMG160408-FV5	0,8	0,08-0,25	0,4-2,0		
	TNMG160404-MV5	0,4	0,10-0,20	0,5-3,5		
	TNMG160408-MV5	0,8	0,15-0,32	0,8-3,5		
	TNMG160408-RV5	0,8	0,15-0,40	1,0-4,5		

For dimensions, see the ISO 1832 designation key

HC = Coated carbide

Negative rhombic 35° VNMG

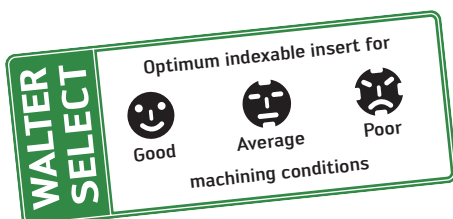


Indexable inserts

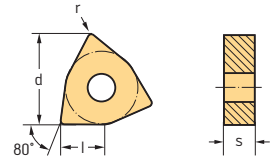
	Designation	r mm	f mm	a _p mm	P	
					WPV10	WPV20
	VNMG160404-FV5	0,4	0,05-0,20	0,2-1,5		
	VNMG160408-FV5	0,8	0,08-0,25	0,4-2,0		

For dimensions, see the ISO 1832 designation key


















HC = Coated carbide



Negative trigon 80° WNMG

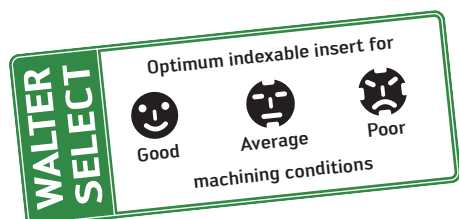


Indexable inserts

Designation	r mm	f mm	a _p mm	P	
				WPV10	WPV20
 WNMG080408-FV5	0,8	0,08-0,25	0,4-2,0		
 WNMG060408-MV5 WNMG080404-MV5 WNMG080408-MV5 WNMG080412-MV5	0,8	0,15-0,32	0,8-3,0		
	0,4	0,10-0,20	0,5-3,5		
	0,8	0,15-0,32	0,8-4,0		
	1,2	0,18-0,40	0,8-4,0		
 WNMG080408-RV5 WNMG080412-RV5	0,8	0,20-0,40	1,0-5,0		
	1,2	0,25-0,55	1,0-5,0		

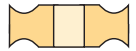
For dimensions, see the ISO 1832 designation key

HC = Coated carbide



Cutting data for turning inserts – Negative basic shape

Carbide grades



The specified cutting data are average recommended values. For specific applications, adjustment is recommended.

Material group	Overview of the main material groups and code letters		Brinell hardness HB	Tensile strength R _m N/mm ²	Machining group ¹		Cutting material grades							
							Starting values for cutting speed v _c [m/min]							
							HC			WPV20				
							WPV10			WPV20				
							f [mm/U]			f [mm/U]				
							0,10	0,40	0,60	0,10	0,40	0,60		
P	Carbon steel	C ≤ 0.25%	Annealed	125	430	P1	●●	●	430	320	250	360	270	220
		C > 0.25 to ≤ 0.55%	Annealed	190	640	P2	●●	●	340	240	200	280	200	160
		C > 0.25 to ≤ 0.55%	Heat-treated	210	710	P3	●●	●	260	200	170	210	170	140
		C > 0.55%	Annealed	190	640	P4	●●	●	280	200	160	240	170	130
		C > 0.55%	Heat-treated	300	1010	P5	●●	●	220	160	160	180	130	120
		Free-machining steel (short-chipping)	Annealed	220	750	P6	●●	●	400	280	230	330	240	180
	Low-alloy steel	Annealed	175	590	P7	●●	●	310	230	200	260	200	160	
		Heat-treated	285	960	P8	●●	●	190	150	130	160	120	100	
		Heat-treated	380	1280	P9	●●	●	140	100	80	120	80	70	
		Heat-treated	430	1480	P10	●●	●	70	50					
High-alloy steel and high-alloy tool steel	Annealed	200	680	P11	●●	●	280	200	130	240	160	100		
	Hardened and tempered	300	1010	P12	●●	●	200	120	100	160	100	80		
	Hardened and tempered	380	1280	P13	●●	●	60	50						
Stainless steel	Ferritic/martensitic, annealed	200	680	P14	●●	●	230	180	160	190	160	120		
	Martensitic, heat-treated	330	1110	P15	●●	●	160	120	100	130	90	70		
M	Stainless steel	Austenitic, quench hardened	200	680	M1	●●	●	250	180	120	200	150	90	
		Austenitic, precipitation hardened (PH)	300	1010	M2	●●	●	150	130		120	100		
		Austenitic/ferritic, duplex	230	780	M3	●●	●	160	130	100	120	110	80	
K	Malleable cast iron	Ferritic	200	400	K1	●●	●	260	170	130	230	180	130	
		Pearlitic	260	700	K2	●●	●	220	140	100	200	150	90	
	Grey cast iron	Low tensile strength	180	200	K3	●●	●	470	280	200	410	210	160	
		High tensile strength/austenitic	245	350	K4	●●	●	260	180	120	200	150	90	
	Cast iron with spheroidal graphite	Ferritic	155	400	K5	●●	●	280	200	150	210	160	120	
		Pearlitic	265	700	K6	●●	●	200	150	120	160	120	90	
CGI		230	400	K7	●●	●	240	160	130					
N	Aluminium wrought alloys	Not hardenable	30	–	N1									
		Hardenable, hardened	100	340	N2									
	Cast aluminium alloys	≤ 12% Si, not hardenable	75	260	N3									
		≤ 12% Si, hardenable, hardened	90	310	N4									
		> 12% Si, not hardenable	130	450	N5									
	Magnesium alloys		70	250	N6									
	Copper and copper alloys (bronze/brass)	Unalloyed, electrolytic copper	100	340	N7									
		Brass, bronze, red brass	90	310	N8									
		Cu alloys, short-chipping	110	380	N9									
		High-strength, Ampco	300	1010	N10									
S	Heat-resistant alloys	Fe-based	Annealed	200	680	S1								
			Hardened	280	940	S2								
		Ni- or Co-based	Annealed	250	840	S3								
			Hardened	350	1180	S4								
			Cast	320	1080	S5								
	Titanium alloys	Pure titanium	200	680	S6									
		α and β alloys, hardened	375	1260	S7									
		β alloys	410	1400	S8									
Tungsten alloys		300	1010	S9										
Molybdenum alloys		300	1010	S10										
H	Hardened steel	Hardened and tempered	50 HRC	–	H1									
		Hardened and tempered	55 HRC	–	H2									
		Hardened and tempered	60 HRC	–	H3									
	Hardened cast iron	Hardened and tempered	55 HRC	–	H4									
O	Thermoplastics	Without abrasive fillers			O1									
	Thermosets	Without abrasive fillers			O2									
	Plastic, glass-fibre-reinforced	GFRP			O3									
	Plastic, carbon-fibre-reinforced	CFRP			O4									
	Plastic, aramid-fibre-reinforced	AFRP			O5									
	Graphite (technical)		80 Shore			O6								

- Recommended application (the specified cutting data is regarded as starting values for the recommended application)
- Possible application

HC = Coated carbide

Note:


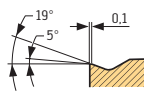
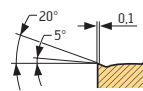

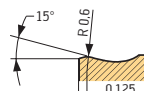
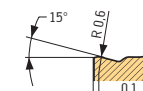

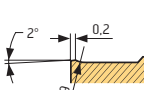
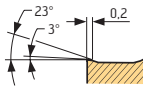
If dry machining is possible, the tool life is reduced by 20–30% on average.

¹ The assignment of the machining groups can be found in the General Catalogue.

Cutting tool material application table

Carbide																			
Walter grade designation	Standard designation	Material groups						Application range						Coating procedure	Coating composition	Example indexable insert			
		P	M	K	N	S	H	O	01	05	10	15	20				25	30	35
		Steel	Stainless steel	Cast iron	NF metals	Difficult-to-machine materials	Hard materials	Other											
WPV10	HC - P 10	●●																	
	HC - M 20	●	●																
	HC - K 20			●															
WPV20	HC - P 20	●●																	
	HC - M 20	●	●																
	HC - K 20			●															

Geometry overview for turning inserts – Negative basic shape

Finishing												
Geometry	Remarks/field of applications	Material groups						Section Main cutting edge	Section Corner radius	a_p [mm]	f [mm]	
		P	M	K	N	S	H					O
		Steel	Stainless steel	Cast iron	NF metals	Difficult-to-machine materials	Hard materials	Other				
	FV5 – Finishing steel materials – Can also be used in semi-finishing	●●	●	●							0,2–2,0	0,05–0,25
Medium machining												
	MV5 – Universal geometry for steel materials – Wide range of applications	●●	●	●							0,5–4,0	0,10–0,45
Roughing												
	RV5 – Roughing steel materials – Roughing ductile cast iron	●●	●	●							1,0–6,0	0,15–0,50

Comment: Sectional views show CNMG120408.

HC = Coated carbide

- Primary application
- Additional application

Walter GPS



The latest generation of tool navigation.

Find the right tool with a click of the mouse

In just four clicks, Walter GPS takes you from the definition of your target to the most cost-efficient tool and machining solution. Walter GPS is surprisingly comprehensive. Whether drilling, threading, turning or milling: All the information about all Walter, Walter Titex and Walter Prototyp tools are instantly there for you to see. Access mandatory usage data, such as accurate cutting data or precise cost-efficiency calculations, on your screen.

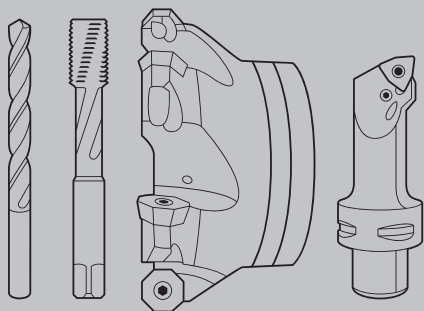
Walter GPS is now also available for smartphones and tablet PCs. This means that you are able to access all the required tool information at any time, wherever you are, even without a PC:

In the workshop, at the machine or on the move.

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