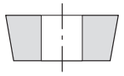
74

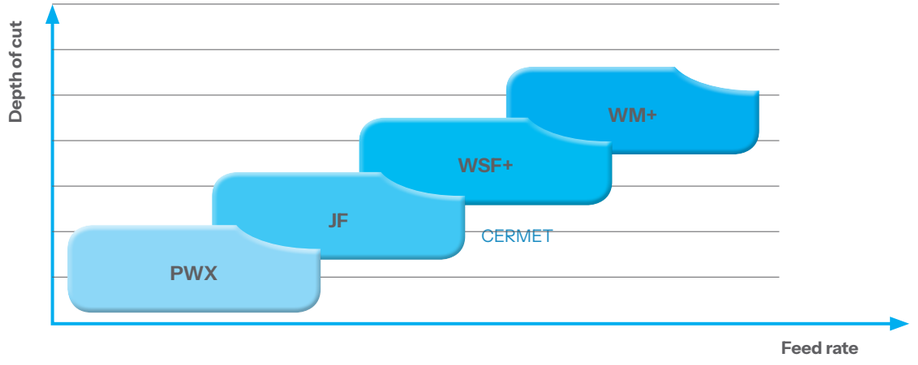
DYNAMICS

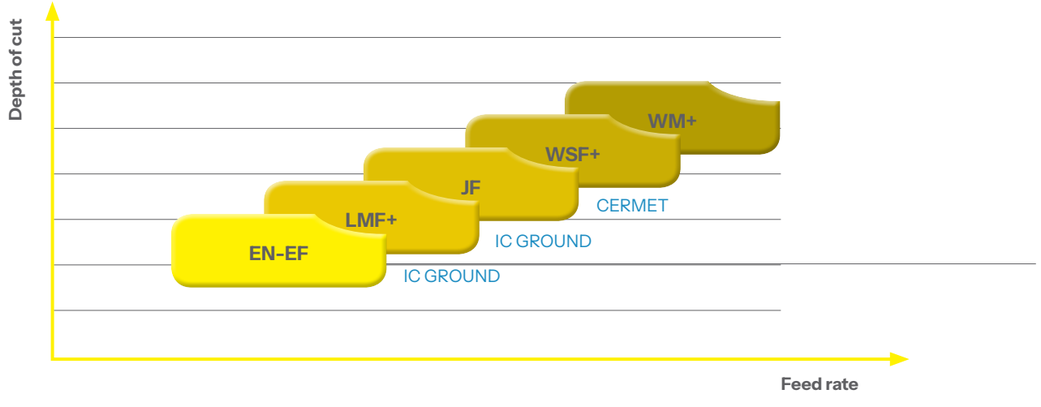
Inserts for turning

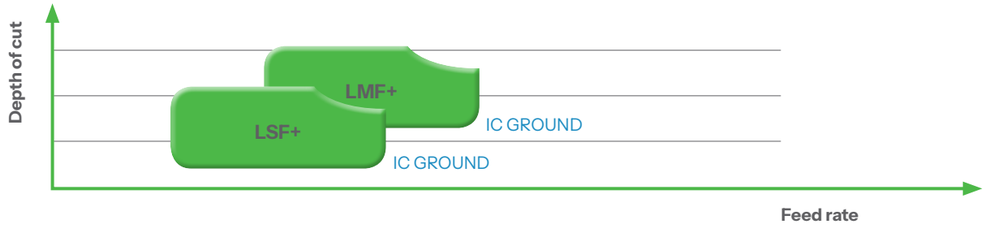
Inch

PST – Positive Size Turning

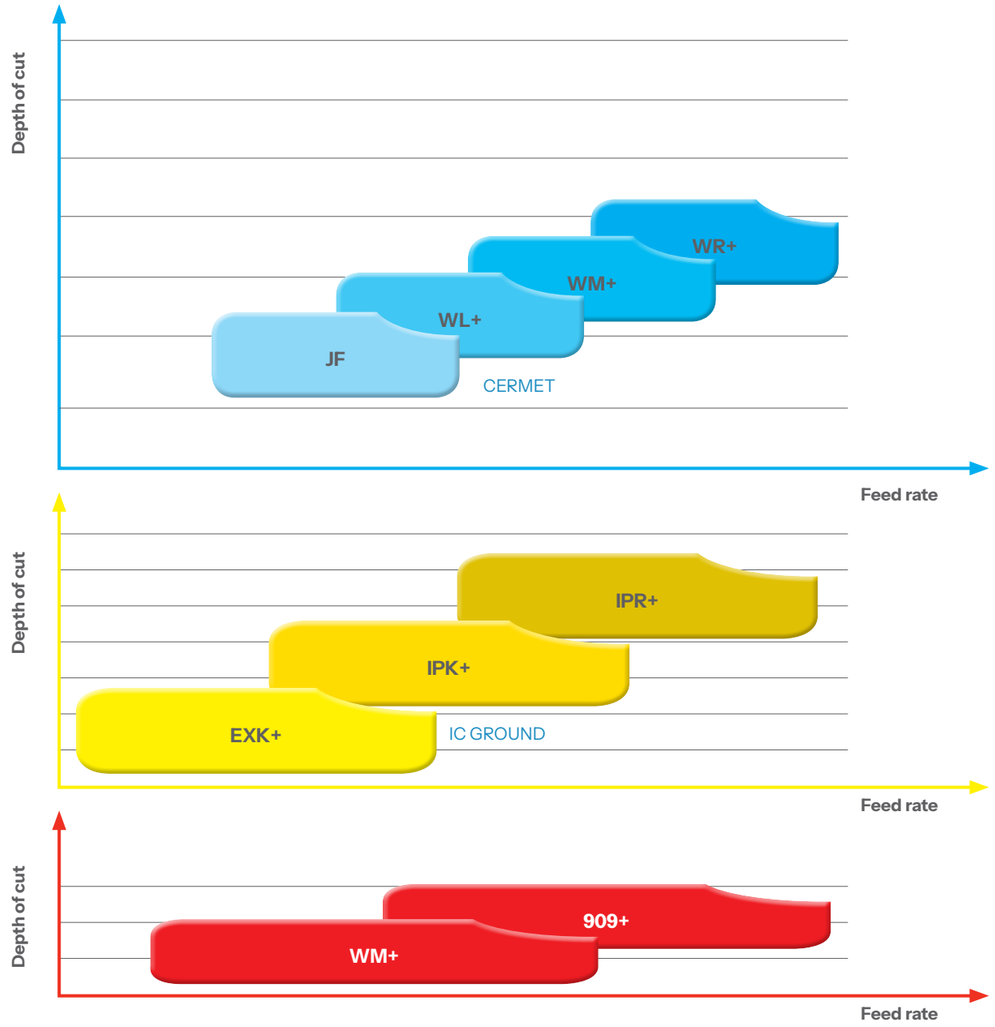




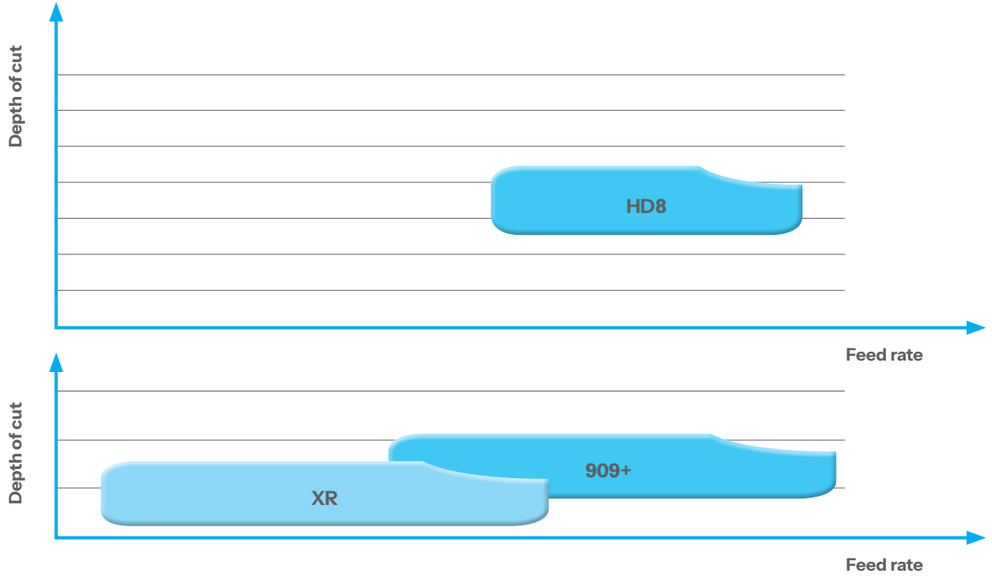




NST – Negative Size Turning



HDT – Heavy Duty Turning



NEW P25
WDCP125HP2

NEW

Applications

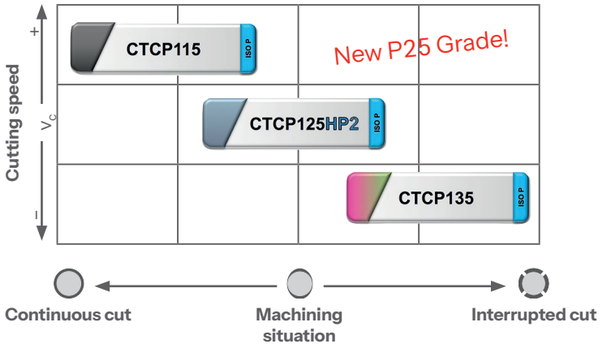
- New PREMIUM choice for the universal turning of steels
- Highly wear-resistant grade
- Designed for maximum cutting parameters / high productivity, long tool life, dry machining

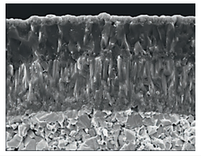
Your advantages

- Available from standard range
- Easy wear detection with special top layer on coating

Your benefits

- High productivity
- Increased tool life



WDCP125HP2	HC-P25 | HC-K30 | HC-K20
	**Specification:** Composition: Co 7.3%; mixed carbides 7.0%; others 0.4%; WC balance | Grain size: 1-2□m | Hardness: HV_{30} 1530 | Coating specification: CVD TiCN-Al_2O_3 Top layer **Recommended application:** The first and premium choice for the universal machining of steel

Positive Size Turning

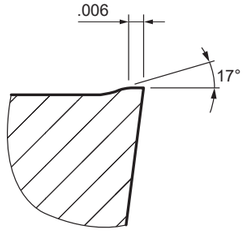
PST

New chipbreaker

Optimised by FEM:

- Positive Masterfinish geometry
- High surface quality

Example: CCMX 32.52-PWX



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	558 – 787
		Low-alloyed steel	250 – 300	328 – 623
		High-alloyed steel	200	427 – 589
		Corrosion-resistant steel	200	427 – 689
M	Stainless steel	Ferritic	200	459 – 689
		Austenitic	180	328 – 689
		Duplex	230 – 260	–
		Martensitic	330	230 – 328
K	Cast iron	Grey cast iron	180	427 – 689
		Spheroidal cast iron	160	394 – 787
		Malleable/tempered iron	130	429 – 820

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
PWX	.039 to .138	.012 to .006

Ex: CCMX 32.52-PWX for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range

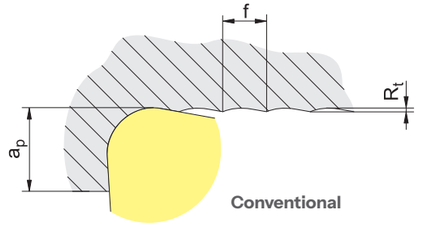
Steel extreme finishing – Masterfinish

Insert	Designation		Chipbreaker	Material number	Available
	CCMX 32.51-PWX	WDCP125HP2	...-PWX	25979856	●
	CCMX 32.52-PWX	WDCP125HP2		25979849	●
	DCMX 21.51-PWX	WDCP125HP2		25979855	●
	DCMX 32.51-PWX	WDCP125HP2		25979840	○
	DCMX 32.52-PWX	WDCP125HP2		25979857	○

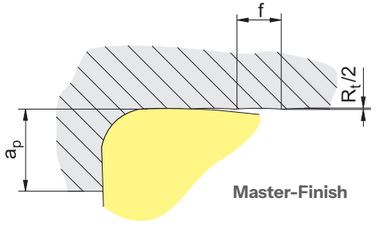
Operating principle

Improved surface finish

With the same feed rate an insert with Masterfinish cutting edge reaches a roughness value R_a which is many times higher than the one of a conventional insert.



Conventional



Master-Finish

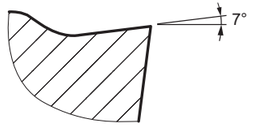
● available from stock, ○ available upon request

New chipbreaker

Optimised by FEM:

- Increase life time
- Reduce temperature and stress

Example: DCMT 32.51-JF



Cutting data

General cutting parameters depending on the application

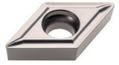
Work piece material		Type of treatment / alloy	Hardness HB	Cermet TCM10 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	755 – 886
		Low-alloyed steel	250 – 300	591 – 755
		High-alloyed steel	200	525 – 656
		Corrosion-resistant steel	200	755 – 886
M	Stainless steel	Ferritic	200	558 – 787
		Austenitic	180	656 – 787
		Duplex	230 – 260	–
		Martensitic	330	427 – 525
K	Cast iron	Grey cast iron	180	–
		Spheroidal cast iron	160	
		Malleable/tempered iron	130	820 – 1148

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
JF	.004 to .065	.008 to .002

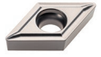
Ex: CCMT 32.51-JF
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	X	X

Available range



Turning steel pos finishing "P15"

Insert	Designation	Chipbreaker	Material number	Available
	CCMT 21.51-JF TCM10	... -JF	22720253	●
	CCMT 32.51-JF TCM10		22720243	●
	DCMT 21.51-JF TCM10		22720238	○
	DCMT 32.51-JF TCM10		22720242	●
	TCGT 21.5.5-JF TCM10		22733374	●
	TCMT 21.51-JF TCM10		22720237	●
	WCGT 020102-JF TCM10 (ISO metric)		22720251	●

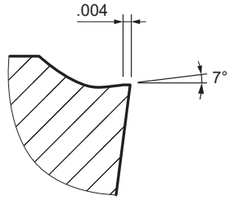
● available from stock, ○ available upon request

New chipbreaker

WSF+:

- To optimise chip control

Example: CCMT 32.52-WSF+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	722 – 1312	560 – 890	558 – 623
		Low-alloyed steel	250 – 300	656 – 1050	330 – 690	295 – 492
		High-alloyed steel	200	591 – 1050	430 – 750	394 – 656
		Corrosion-resistant steel	200	656 – 1050	430 – 750	459 – 591
M	Stainless steel	Ferritic	200	722 – 1050	460 – 690	459 – 656
		Austenitic	180	–	330 – 690	361 – 623
		Duplex	230 – 260	–	–	262 – 492
		Martensitic	330	–	230 – 330	180 – 246
K	Cast iron	Grey cast iron	180	459 – 1214	430 – 690	–
		Spheroidal cast iron	160	623 – 1411	390 – 790	–
		Malleable/tempered iron	130	591 – 1706	490 – 820	–

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
WSF+	.02 to .089	.006 to .003

Ex: CCMT 32.51-WSF+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Inter-rupted cut
X	o	X

Available range

Turning steel pos finishing "P15"

Insert	Designation	Chipbreaker	Material number	Available
	CCMT 21.51-WSF+ WDCP115		23141581	●
	CCMT 32.51-WSF+ WDCP115		23141622	●
	CCMT 32.52-WSF+ WDCP115		23141678	○
	CCMT 431-WSF+ WDCP115	...-WSF+	23141679	●
	DCMT 21.51-WSF+ WDCP115		23141703	●
	DCMT 32.51-WSF+ WDCP115		23278972	●

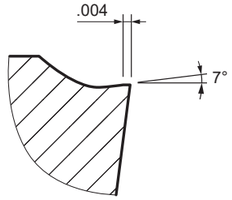
● available from stock, ○ available upon request

New chipbreaker

WSF+:

- To optimise chip control

Example: CCMT 32.52-WSF+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	722 – 1312	560 – 890	558 – 623
		Low-alloyed steel	250 – 300	656 – 1050	330 – 690	295 – 492
		High-alloyed steel	200	591 – 1050	430 – 750	394 – 656
		Corrosion-resistant steel	200	656 – 1050	430 – 750	459 – 591
M	Stainless steel	Ferritic	200	722 – 1050	460 – 690	459 – 656
		Austenitic	180	–	330 – 690	361 – 623
		Duplex	230 – 260	–	–	262 – 492
		Martensitic	330	–	230 – 330	180 – 246
K	Cast iron	Grey cast iron	180	459 – 1214	430 – 690	–
		Spheroidal cast iron	160	623 – 1411	390 – 790	–
		Malleable/tempered iron	130	591 – 1706	490 – 820	–

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
WSF+	.02 to .089	.006 to .003

Ex: CCMT 32.51-WSF+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Inter-rupted cut
X	o	X

Available range

Turning steel pos finishing "P25"

Insert	Designation	Chipbreaker	Material number	Available
	CCMT 21.5.5-WSF+ WDCP125HP2	...-WSF+	25979166	●
	CCMT 21.51-WSF+ WDCP125HP2		25979778	●
	CCMT 32.5.5-WSF+ WDCP125HP2		25979779	●
	CCMT 32.51-WSF+ WDCP125HP2		25979770	●
	CCMT 32.52-WSF+ WDCP125HP2		25979781	●
	DCMT 21.5.5-WSF+ WDCP125HP2		25754479	●
	DCMT 21.51-WSF+ WDCP125HP2		25979782	●
	DCMT 32.5.5-WSF+ WDCP125HP2		25979783	●
	DCMT 32.51-WSF+ WDCP125HP2		25758405	●
	DCMT 32.52-WSF+ WDCP125HP2		25979784	●
	VCMT 22.5-WSF+ WDCP125HP2		25979871	●
	VCMT 221-WSF+ WDCP125HP2		25979894	●
	VCMT 331-WSF+ WDCP125HP2		25979826	●
	VCMT 332-WSF+ WDCP125HP2		25979848	●

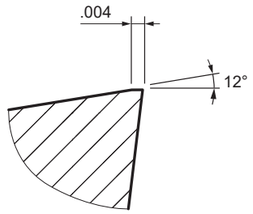
● available from stock, O available upon request

New chipbreaker

Optimised by FEM:

- Increase life time
- Reduce temperature and stress
- Universal application

Example: CCMT 32.52-WM+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	Coated carbide WDCP125HP2 v_c [sfm]	Coated carbide WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	722 – 1312	560 – 890	558 – 623
		Low-alloyed steel	250 – 300	656 – 1050	330 – 690	295 – 492
		High-alloyed steel	200	591 – 1050	430 – 750	394 – 656
		Corrosion-resistant steel	200	656 – 1050	430 – 750	459 – 591
M	Stainless steel	Ferritic	200	722 – 1050	460 – 690	459 – 656
		Austenitic	180	–	330 – 690	361 – 623
		Duplex	230 – 260	–	–	262 – 492
		Martensitic	330	–	230 – 330	180 – 246
K	Cast iron	Grey cast iron	180	459 – 1214	430 – 690	–
		Spheroidal cast iron	160	623 – 1411	390 – 790	–
		Malleable/tempered iron	130	591 – 1706	490 – 820	–

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
WM+	.02 to .118	.008 to .005

Ex: CCMT 32.51-WM+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Inter-rupted cut
●	○	X

Available range

Turning steel pos semi finishing "P15"

Insert	Designation	Chipbreaker	Material number	Available
	CCMT 21.51-WM+ WDCP115		22976736	●
	CCMT 32.51-WM+ WDCP115		22999091	●
	CCMT 32.52-WM+ WDCP115		22999093	●
	DCMT 32.51-WM+ WDCP115	...-WM+	22976739	●
	DCMT 32.52-WM+ WDCP115		22976741	●
	TCMT 21.51-WM+ WDCP115		23141608	●
	VBMT 331-XM1+ WDCP115	...-XM1+	23168083	●

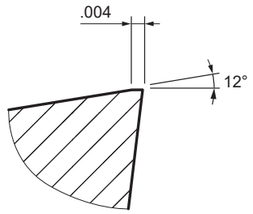
● available from stock, ○ available upon request

New chipbreaker

Optimised by FEM:

- Increase life time
- Reduce temperature and stress
- Universal application

Example: CCMT 32.52-WM+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	Coated carbide WDCP125HP2 v_c [sfm]	Coated carbide WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	722 – 1312	560 – 890	558 – 623
		Low-alloyed steel	250 – 300	656 – 1050	330 – 690	295 – 492
		High-alloyed steel	200	591 – 1050	430 – 750	394 – 656
		Corrosion-resistant steel	200	656 – 1050	430 – 750	459 – 591
M	Stainless steel	Ferritic	200	722 – 1050	460 – 690	459 – 656
		Austenitic	180	–	330 – 690	361 – 623
		Duplex	230 – 260	–	–	262 – 492
		Martensitic	330	–	230 – 330	180 – 246
K	Cast iron	Grey cast iron	180	459 – 1214	430 – 690	–
		Spheroidal cast iron	160	623 – 1411	390 – 790	–
		Malleable/tempered iron	130	591 – 1706	490 – 820	–

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
WM+	.02 to .118	.008 to .005

Ex: CCMT 32.51-WM+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Inter-rupted cut
●	○	X

Available range

Turning steel pos medium "P25"

Insert	Designation		Chipbreaker	Material number	Available
	CCMT 21.51-WM+	WDCP125HP2	...-WM+	25979773	●
	CCMT 21.52-WM+	WDCP125HP2		25979812	●
	CCMT 32.51-WM+	WDCP125HP2		25979768	●
	CCMT 32.52-WM+	WDCP125HP2		25849776	●
	CCMT 431-WM+	WDCP125HP2		25979774	●
	CCMT 432-WM+	WDCP125HP2		25979753	●
	CCMT 433-WM+	WDCP125HP2		25979776	●
	DCMT 21.51-WM+	WDCP125HP2		25753796	●
	DCMT 21.52-WM+	WDCP125HP2		25979814	●
	DCMT 32.51-WM+	WDCP125HP2		25754486	●
	DCMT 32.52-WM+	WDCP125HP2		25979777	●
	SCMT 32.51-WM+	WDCP125HP2		25979815	●
	SCMT 32.52-WM+	WDCP125HP2		25979760	●
	SCMT 431-WM+	WDCP125HP2		25979816	●
	SCMT 432-WM+	WDCP125HP2		25979817	●
	SCMT 433-WM+	WDCP125HP2		25979819	●
	TCMT 1.81.51-WM+	WDCP125HP2		25979810	●
	TCMT 21.51-WM+	WDCP125HP2		25979821	●
	TCMT 21.52-WM+	WDCP125HP2		25979822	●
	TCMT 32.51-WM+	WDCP125HP2		25979823	●
	TCMT 32.52-WM+	WDCP125HP2		25979824	●
	TCMT 32.53-WM+	WDCP125HP2		25979825	●
	VCMT 221-WM+	WDCP125HP2		25979858	●
	VCMT 222-WM+	WDCP125HP2		25979859	●
	VCMT 331-WM+	WDCP125HP2		25979709	●
	VCMT 332-WM+	WDCP125HP2		25979811	●
	VBMT 331-XM1+	WDCP125HP2	...-XM1+	25979707	●
	VBMT 332-XM1+	WDCP125HP2		25979708	●
	WCMT 32.51-WM+	WDCP125HP2		25979863	●
	WCMT 32.52-WM+	WDCP125HP2		25979865	●
	WCMT 431-WM+	WDCP125HP2		25979866	●

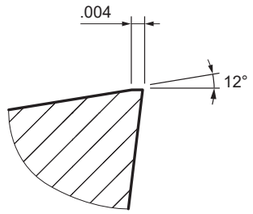
● available from stock, ○ available upon request

New chipbreaker

Optimised by FEM:

- Increase life time
- Reduce temperature and stress
- Universal application

Example: CCMT 32.52-WM+



Cutting data

General cutting parameters depending on the application

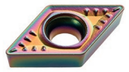
Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	722 – 1312	560 – 890	558 – 623
		Low-alloyed steel	250 – 300	656 – 1050	330 – 690	295 – 492
		High-alloyed steel	200	591 – 1050	430 – 750	394 – 656
		Corrosion-resistant steel	200	656 – 1050	430 – 750	459 – 591
M	Stainless steel	Ferritic	200	722 – 1050	460 – 690	459 – 656
		Austenitic	180	–	330 – 690	361 – 623
		Duplex	230 – 260	–	–	262 – 492
		Martensitic	330	–	230 – 330	180 – 246
K	Cast iron	Grey cast iron	180	459 – 1214	430 – 690	–
		Spheroidal cast iron	160	623 – 1411	390 – 790	–
		Malleable/tempered iron	130	591 – 1706	490 – 820	–

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
WM+	.02 to .118	.008 to .005

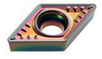
Ex: CCMT 32.51-WM+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Inter-rupted cut
●	●	○

Available range



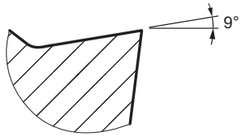
Turning steel pos medium "P35"

Insert	Designation	Chipbreaker	Material number	Available
	CCMT 21.51-WM+ WDCP135		22965414	●
	CCMT 21.52-WM+ WDCP135		22965418	●
	CCMT 32.51-WM+ WDCP135		22965426	●
	CCMT 32.52-WM+ WDCP135		22965433	●
	DCMT 21.51-WM+ WDCP135		22965915	○
	DCMT 32.51-WM+ WDCP135		22965961	●
	DCMT 32.52-WM+ WDCP135		22965974	●
	RCMT 0803MO-WM+ WDCP135 (ISO metric)		22993032	●
	RCMT 1003MO-WM+ WDCP135 (ISO metric)		22993031	●
	RCMT 1204MO-WM+ WDCP135 (ISO metric)	...-WM+	22966188	●
	SCMT 32.52-WM+ WDCP135		22966199	●
	SCMT 432-WM+ WDCP135		22966101	●
	SCMT 433-WM+ WDCP135		22966100	●
	TCMT 21.51-WM+ WDCP135		22984395	●
	TCMT 21.52-WM+ WDCP135		22984392	○
	TCMT 32.51-WM+ WDCP135		22966236	●
	TCMT 32.52-WM+ WDCP135		22966237	●
	VCMT 221-WM+ WDCP135		22984391	●
	VCMT 331-WM+ WDCP135		22966247	●
	VCMT 332-WM+ WDCP135		22966248	●

● available from stock, ○ available upon request

Cutting data

Example: CCGT 32.50EN-EF



General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDP2120 v_c [sfm]
M	Stainless steel	Ferritic	200	492 – 656
		Austenitic	180	394 – 656
		Duplex	230 – 260	295 – 525
		Martensitic	330	197 – 262
K	Cast iron	Grey cast iron	180	394 – 525
		Spheroidal cast iron	160	394 – 525
		Malleable/tempered iron	130	459 – 722
N	Non Ferrous		100	328 – 1312
			130	328 – 1312
			90	328 – 1969
			100	328 – 1312
S	Exotic materials	Fe base	200	66 – 164
		Nickel or cobalt base	280	66 – 164
		Nickel or cobalt base	250	49 – 131
		Nickel or cobalt base		66 – 115
		Titanium	Rm 440*	262 – 459

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
EN-EF	.002 to .053	.001 to .004

Ex: CCGT 32.503EN-EF for 304
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	X	X

Available range

Turning stainless steel pos "Extreme finishing"

Insert	Designation	Chipbreaker	Material number	Available
	CCGT 21.5X0EN-EF WDP2120	...EN-EF	22315130	●
	CCGT 21.50EN-EF WDP2120		22314135	●
	CCGT 32.5X0EN-EF WDP2120		22315141	●
	CCGT 32.50EN-EF WDP2120		22314138	●
	DCGT 21.5X0EN-EF WDP2120		22315142	●
	DCGT 21.50EN-EF WDP2120		22314139	●
	DCGT 32.5X0EN-EF WDP2120		22315146	●
	DCGT 32.50EN-EF WDP2120		22314141	●
	VCGT 22X0EN-EF WDP2120		22315147	●
	VCGT 220EN-EF WDP2120		22314144	●
	VCGT 33X0EN-EF WDP2120		22315148	●
	VCGT 330EN-EF WDP2120		22314145	●

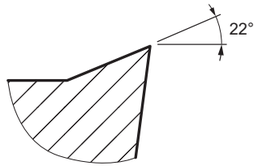
● available from stock, O available upon request

New chipbreaker

Optimised by FEM:

- Increased tool life
- Small feed rate when bar turning

Example: CCGT 432FN-LMF+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide 1279 v_c [sfm]
K	Cast iron	Grey cast iron	180	–
		Spheroidal cast iron	160	–
		Malleable/tempered iron	130	–
N	Non Ferrous		100	328 – 6562
			130	328 – 2625
			90	328 – 1969
			100	328 – 984
S	Exotic materials	Fe base	200	98 – 148
		Nickel or cobalt base	280	66 – 115
		Nickel or cobalt base	250	66 – 115
		Nickel or cobalt base		59 – 98
		Titanium	Rm 440*	197 – 394

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
LMF+	.002 to .053	.001 to .004

Ex: CCGT 432FN-LMF+ for 304
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	●	○

Available range

Turning stainless steel pos finishing "M15"

Insert	Designation	Chipbreaker	Material number	Available
	CCGT 21.50FN-LMF+ 1279		22084616	●
	CCGT 21.5.5FN-LMF+ 1279		22070717	●
	CCGT 21.51FN-LMF+ 1279		22070716	●
	CCGT 32.5.5FN-LMF+ 1279		22070718	●
	CCGT 32.51FN-LMF+ 1279		22070715	●
	CCGT 32.52FN-LMF+ 1279		22070711	●
	CCGT 431FN-LMF+ 1279		22070609	○
	CCGT 432FN-LMF+ 1279		22070607	●
	DCGT 21.50FN-LMF+ 1279		22070600	○
	DCGT 21.5.5FN-LMF+ 1279		22070608	●
	DCGT 21.51FN-LMF+ 1279		22070606	●
	DCGT 32.5.5FN-LMF+ 1279	...-LMF+	22070602	●
	DCGT 32.51FN-LMF+ 1279		22070696	●
	DCGT 32.52FN-LMF+ 1279		22070680	●
	SCGT 32.51FN-LMF+ 1279		22070689	●
	SCGT 432FN-LMF+ 1279		23150352	●
	VCGT 22.5FN-LMF+ 1279		22070688	●
	VCGT 221FN-LMF+ 1279		22070686	●
	VCGT 130302FN-LMF+ 1279 (ISO metric)		22070679	●
	VCGT 130304FN-LMF+ 1279 (ISO metric)		22070677	●
	VCGT 331FN-LMF+ 1279		22070646	●
	VCGT 332FN-LMF+ 1279		22070630	●

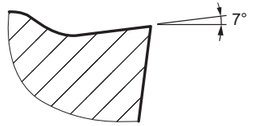
● available from stock, ○ available upon request

New chipbreaker

Optimised by FEM:

- Increased tool life
- Small feed rate when bar turning

Example: DCMT 32.51-JF



Cutting data

General cutting parameters depending on the application

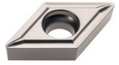
Work piece material		Type of treatment / alloy	Hardness HB	Cermet TCM10 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	755 – 886
		Low-alloyed steel	250 – 300	591 – 755
		High-alloyed steel	200	525 – 656
		Corrosion-resistant steel	200	755 – 886
M	Stainless steel	Ferritic	200	558 – 787
		Austenitic	180	656 – 787
		Duplex	230 – 260	–
		Martensitic	330	427 – 525
K	Cast iron	Grey cast iron	180	–
		Spheroidal cast iron	160	
		Malleable/tempered iron	130	820 – 1148

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
JF	.004 to .065	.008 to .002

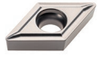
Ex: CCMT 32.51-JF
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	X	X

Available range



Turning stainless steel pos finishing "CERMET"

Insert	Designation	Chipbreaker	Material number	Available
	CCMT 21.51-JF TCM10	... -JF	22720253	●
	CCMT 32.51-JF TCM10		22720243	●
	DCMT 21.51-JF TCM10		22720238	○
	DCMT 32.51-JF TCM10		22720242	●
	TCGT 21.5.5-JF TCM10		22733374	●
	TCMT 21.51-JF TCM10		22720237	●
	WCGT 020102-JF TCM10 (ISO metric)		22720251	●

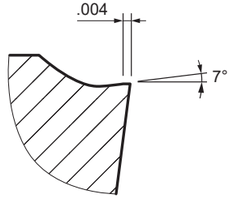
● available from stock, ○ available upon request

New chipbreaker

WSF+:

- To optimise chip control

Example: CCMT 32.52-WSF+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	non-alloyed steel 0 – 0.45% C	150 – 250	430 – 820	427 – 820	558 – 623
		low-alloyed steel	250 – 300	200 – 260	197 – 591	295 – 492
		high-alloyed steel	200	260 – 660	262 – 656	394 – 656
		corrosion-resistant steel	200	330 – 660	328 – 656	459 – 591
M	Stainless steel	Ferritic	200	390 – 820	394 – 820	459 – 656
		Austenitic	180	390 – 720	328 – 722	361 – 623
		Duplex	230 – 260	–	197 – 252	262 – 492
		Martensitic	330	–	131 – 328	180 – 246

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
WSF+	.006 to .089	.008 to .003

Ex: CCMT 32.51-WSF+
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range

Turning steel pos finishing "M20"

Insert	Designation	Chipbreaker	Material number	Available
	CCMT 21.5.5-WSF+ WDCM120HP	...-WSF+	25684578	●
	CCMT 21.51-WSF+ WDCM120HP		25684570	●
	CCMT 32.5.5-WSF+ WDCM120HP		25684584	●
	CCMT 32.51-WSF+ WDCM120HP		25684588	●
	DCMT 21.5.5-WSF+ WDCM120HP		25684589	●
	DCMT 21.51-WSF+ WDCM120HP		25684593	●
	DCMT 32.5.5-WSF+ WDCM120HP		25684594	●
	DCMT 32.51-WSF+ WDCM120HP		25684597	●
	VCMT 22.5-WSF+ WDCM120HP		25684502	●
	VCMT 221-WSF+ WDCM120HP		25684505	●
	VCMT 331-WSF+ WDCM120HP		25684506	●
	VCMT 332-WSF+ WDCM120HP		25684508	●

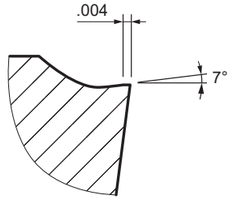
● available from stock, ○ available upon request

New chipbreaker

WSF+:

- To optimise chip control

Example: CCMT 32.52-WSF+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	non-alloyed steel 0 – 0.45% C	150 – 250	430 – 820	427 – 820	558 – 623
		low-alloyed steel	250 – 300	200 – 260	197 – 591	295 – 492
		high-alloyed steel	200	260 – 660	262 – 656	394 – 656
		corrosion-resistant steel	200	330 – 660	328 – 656	459 – 591
M	Stainless steel	Ferritic	200	390 – 820	394 – 820	459 – 656
		Austenitic	180	390 – 720	328 – 722	361 – 623
		Duplex	230 – 260	–	197 – 252	262 – 492
		Martensitic	330	–	131 – 328	180 – 246

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
WSF+	.006 to .089	.008 to .003

Ex: CCMT 32.51-WSF+
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range

Turning steel pos finishing "M25"

Insert	Designation	Chipbreaker	Material number	Available
	CCMT 21.5.5-WSF+ WDPM125		22893146	●
	CCMT 21.51-WSF+ WDPM125		22893148	●
	CCMT 32.5.5-WSF+ WDPM125		22893162	●
	CCMT 32.51-WSF+ WDPM125		22893163	●
	CCMT 32.52-WSF+ WDPM125		22893165	●
	DCMT 21.5.5-WSF+ WDPM125		22893166	●
	DCMT 21.51-WSF+ WDPM125		22893167	●
	DCMT 32.5.5-WSF+ WDPM125		22923789	●
	DCMT 32.51-WSF+ WDPM125	...-WSF+	22893169	●
	DCMT 32.52-WSF+ WDPM125		22893160	●
	TCMT 21.5.5-WSF+ WDPM125		22017522	●
	VCMT 22.5-WSF+ WDPM125		22923793	●
	VCMT 221-WSF+ WDPM125		22966245	●
	VCMT 331-WSF+ WDPM125		22923795	●

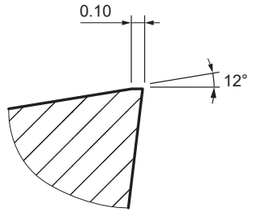
● available from stock, ○ available upon request

New chipbreaker

Optimised by FEM:

- Increase life time
- Reduce temperature and stress
- Universal application

Example: CCMT 32.52-WM+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	non-alloyed steel 0 – 0.45% C	150 – 250		427 – 820	558 – 623
		low-alloyed steel	250 – 300		197 – 591	295 – 492
		high-alloyed steel	200		262 – 656	394 – 656
		corrosion-resistant steel	200		328 – 656	459 – 591
M	Stainless steel	Ferritic	200		394 – 820	459 – 656
		Austenitic	180		328 – 722	361 – 623
		Duplex	230 – 260		197 – 252	262 – 492
		Martensitic	330		131 – 328	180 – 246

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
WSF+	.006 to .089	.008 to .003

Ex: CCMT 32.51-WSF+
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range

Turning stainless steel pos "M20"

Insert	Designation	Chipbreaker	Material number	Available
	CCMT 21.51-WM+ WDCM120HP		25711679	●
	CCMT 21.52-WM+ WDCM120HP		25711685	●
	CCMT 32.51-WM+ WDCM120HP		25711670	●
	CCMT 32.52-WM+ WDCM120HP		25711688	●
	CCMT 431-WM+ WDCM120HP		25711689	●
	CCMT 432-WM+ WDCM120HP		25711692	●
	DCMT 21.51-WM+ WDCM120HP		25711682	●
	DCMT 21.52-WM+ WDCM120HP		25731661	●
	DCMT 32.51-WM+ WDCM120HP		25711695	●
	DCMT 32.52-WM+ WDCM120HP		25711697	●
	SCMT 32.51-WM+ WDCM120HP	...-WM+	25711698	●
	SCMT 32.52-WM+ WDCM120HP		23551490	●
	SCMT 431-WM+ WDCM120HP		25731663	●
	SCMT 432-WM+ WDCM120HP		25711699	●
	TCMT 1.81.51-WM+ WDCM120HP		25580147	●
	TCMT 32.51-WM+ WDCM120HP		25711601	●
	TCMT 32.52-WM+ WDCM120HP		25580148	●
	VCMT 221-WM+ WDCM120HP		25711602	●
	VCMT 222-WM+ WDCM120HP		25731664	●
	VCMT 331-WM+ WDCM120HP		25711605	●
	VCMT 332-WM+ WDCM120HP		25711683	●

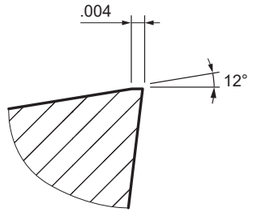
● available from stock, ○ available upon request

New chipbreaker

Optimised by FEM:

- Increase life time
- Reduce temperature and stress
- Universal application

Example: CCMT 32.52-WM+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	non-alloyed steel 0 – 0.45% C	150 – 250	430 – 820	427 – 820	558 – 623
		low-alloyed steel	250 – 300	200 – 260	197 – 591	295 – 492
		high-alloyed steel	200	260 – 660	262 – 656	394 – 656
		corrosion-resistant steel	200	330 – 660	328 – 656	459 – 591
M	Stainless steel	Ferritic	200	390 – 820	394 – 820	459 – 656
		Austenitic	180	390 – 720	328 – 722	361 – 623
		Duplex	230 – 260	–	197 – 252	262 – 492
		Martensitic	330	–	131 – 328	180 – 246

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
WSF+	.006 to .089	.008 to .003

Ex: CCMT 32.51-WSF+
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range

Turning stainless steel pos "M25"

Insert	Designation	Chipbreaker	Material number	Available
	CCMT 21.51-WM+ WDPM125		22859210	●
	CCMT 21.52-WM+ WDPM125		22859222	●
	CCMT 32.51-WM+ WDPM125		22859224	●
	CCMT 32.52-WM+ WDPM125		22859226	●
	CCMT 431-WM+ WDPM125		22859228	●
	CCMT 432-WM+ WDPM125		22859220	●
	CCMT 433-WM+ WDPM125		22859232	●
	DCMT 21.51-WM+ WDPM125		22859237	●
	DCMT 21.52-WM+ WDPM125		22859239	●
	DCMT 32.51-WM+ WDPM125		22859241	●
	DCMT 32.52-WM+ WDPM125		22859243	●
	SCMT 32.51-WM+ WDPM125		22859659	●
	SCMT 32.52-WM+ WDPM125		22859660	●
	SCMT 431-WM+ WDPM125		22859675	●
	SCMT 432-WM+ WDPM125		22859679	●
	SCMT 433-WM+ WDPM125	...-WM+	22859603	●
	TCMT 1.81.51-WM+ WDPM125		22859717	○
	TCMT 21.51-WM+ WDPM125		22859719	●
	TCMT 21.52-WM+ WDPM125		22859729	○
	TCMT 32.51-WM+ WDPM125		22859732	●
	TCMT 32.52-WM+ WDPM125		22859735	●
	TCMT 32.53-WM+ WDPM125		22859737	●
	VCMT 221-WM+ WDPM125		22850388	●
	VCMT 222-WM+ WDPM125		22850305	●
	VCMT 331-WM+ WDPM125		22850306	●
	VCMT 332-WM+ WDPM125		22850307	●
	WCMT 32.51-WM+ WDPM125		22850425	●
	WCMT 32.52-WM+ WDPM125		22850442	●
	WCMT 431-WM+ WDPM125		22850446	○
	WCMT 432-WM+ WDPM125		22850448	●

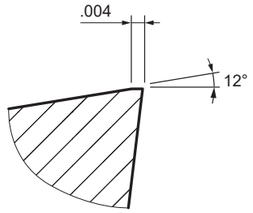
● available from stock, ○ available upon request

New chipbreaker

Optimised by FEM:

- Increase life time
- Reduce temperature and stress
- Universal application

Example: CCMT 32.52-WM+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	non-alloyed steel 0 – 0.45% C	150 – 250	430 – 820	427 – 820	558 – 623
		low-alloyed steel	250 – 300	200 – 260	197 – 591	295 – 492
		high-alloyed steel	200	260 – 660	262 – 656	394 – 656
		corrosion-resistant steel	200	330 – 660	328 – 656	459 – 591
M	Stainless steel	Ferritic	200	390 – 820	394 – 820	459 – 656
		Austenitic	180	390 – 720	328 – 722	361 – 623
		Duplex	230 – 260	–	197 – 252	262 – 492
		Martensitic	330	–	131 – 328	180 – 246

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
WSF+	.006 to .089	.008 to .003

Ex: CCMT 32.51-WSF+
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range

Turning stainless steel pos "M35"

Insert	Designation		Chipbreaker	Material number	Available
	CCMT 32.51-WM+	WDPM135M	...-WM+	22965420	○
	CCMT 32.52-WM+	WDPM135M		22965437	□
	DCMT 32.51-WM+	WDPM135M		22965964	●
	DCMT 32.52-WM+	WDPM135M		22965909	●
	TCMT 21.52-WM+	WDPM135M		22966233	○
	VCMT 221-WM+	WDPM135M		22966242	●
	VCMT 222-WM+	WDPM135M		22966246	●

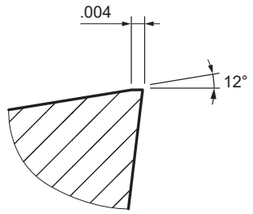
● available from stock, ○ available upon request

New chipbreaker

Optimised by FEM:

- Increase life time
- Reduce temperature and stress
- Universal application

Example: CCMT 32.52-WM+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCK120 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	656 – 1116
		Low-alloyed steel	250 – 300	492 – 951
		High-alloyed steel	200	492 – 951
		Corrosion-resistant steel	200	525 – 951
K	Cast iron	Grey cast iron	180	492 – 1312
		Spheroidal cast iron	160	656 – 1476
		Malleable/tempered iron	130	656 – 1805

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
WM+	.039 to .118	.016 to .009

Ex: CCMT 32.52-WM+ for GG25
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	●	X

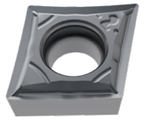
Available range

Turning cast iron pos "K20"

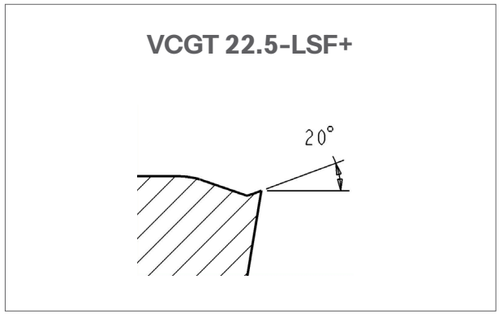
Insert	Designation	Chipbreaker	Material number	Available
	CCMT 21.51-WM+ WDCK120		22976737	●
	CCMT 32.51-WM+ WDCK120		22932956	●
	CCMT 32.52-WM+ WDCK120		22932958	●
	CCMT 432-WM+ WDCK120		22976738	●
	DCMT 32.51-WM+ WDCK120		22932950	●
	DCMT 32.52-WM+ WDCK120		22932968	●
		...-WM+		
	SCMT 32.52-WM+ WDCK120		22966197	●
	SCMT 432-WM+ WDCK120		22966190	●
	TCMT 21.51-WM+ WDCK120		22016569	●
	TCMT 32.51-WM+ WDCK120		22932969	●
	TCMT 32.52-WM+ WDCK120		22891953	●

● available from stock, O available upon request

Cutting data



NEW



General cutting parameters depending on the application

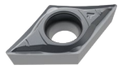
Work piece material		Type of treatment / alloy	Hardness HB	Uncoated carbide WDWN710 v_c [sfm]
K	Cast iron	Grey cast iron	180	390 – 520
		Spheroidal cast iron	160	430 – 560
		Malleable/tempered iron	130	460 – 660
N	Non Ferrous	Aluminium wrought alloys	100	330 – 6560
		Aluminium	130	330 – 2620
		Copper and copper alloys	90	330 – 1970
		Non-metall materials	100	330 – 980
S	Exotic materials	Fe base	200	100 – 150
		Nickel or cobalt base	280	70 – 110
		Nickel or cobalt base	250	70 – 110
		Nickel or cobalt base	–	60 – 100
		Titanium	Rm 440*	200 – 390

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
LSF+	.008 to .160	.0020 to .012

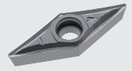
Ex: CCGT 432FN-LSF+ for AlMg 1
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	●	X

Available range

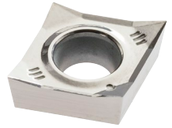


Turning non-ferrous pos "N15"

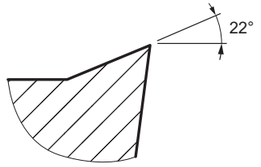
Insert	Designation	Chipbreaker	Material number	Available
	CCGT 21.5.5-LSF+ WDWN710	...-LSF+	23489474	●
	CCGT 32.5.5-LSF+ WDWN710		25052672	●
	CCGT 32.51-LSF+ WDWN710		23416425	●
	DCGT 32.5.5-LSF+ WDWN710		25052686	●
	DCGT 32.51-LSF+ WDWN710		25052687	●
	VCGT 22.5-LSF+ WDWN710		25052678	●
	VCGT 221-LSF+ WDWN710		23489473	●
	VCGT 331-LSF+ WDWN710		23416423	●
	VCGT 332-LSF+ WDWN710		23416424	●

● available from stock, O available upon request

Cutting data



Example: CCGT 432FN-LMF+



General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Uncoated carbide WDWN715 v_c [sfm]
K	Cast iron	Grey cast iron	180	394 – 525
		Spheroidal cast iron	160	427 – 558
		Malleable/tempered iron	130	459 – 656
N	Non Ferrous	Aluminium wrought alloys	100	328 – 6562
		Aluminium	130	328 – 2625
		Copper and copper alloys	90	328 – 1969
		Non-metall materials	100	328 – 984
S	Exotic materials	Fe base	200	98 – 148
		Nickel or cobalt base	280	66 – 115
		Nickel or cobalt base	250	66 – 115
		Nickel or cobalt base	–	59 – 98
		Titanium	Rm 440*	197 – 394

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
LMF+	.059 to .256	.02 to .008

Ex: CCGT 432FN-LMF+ for AlMg 1
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	●	○

Available range

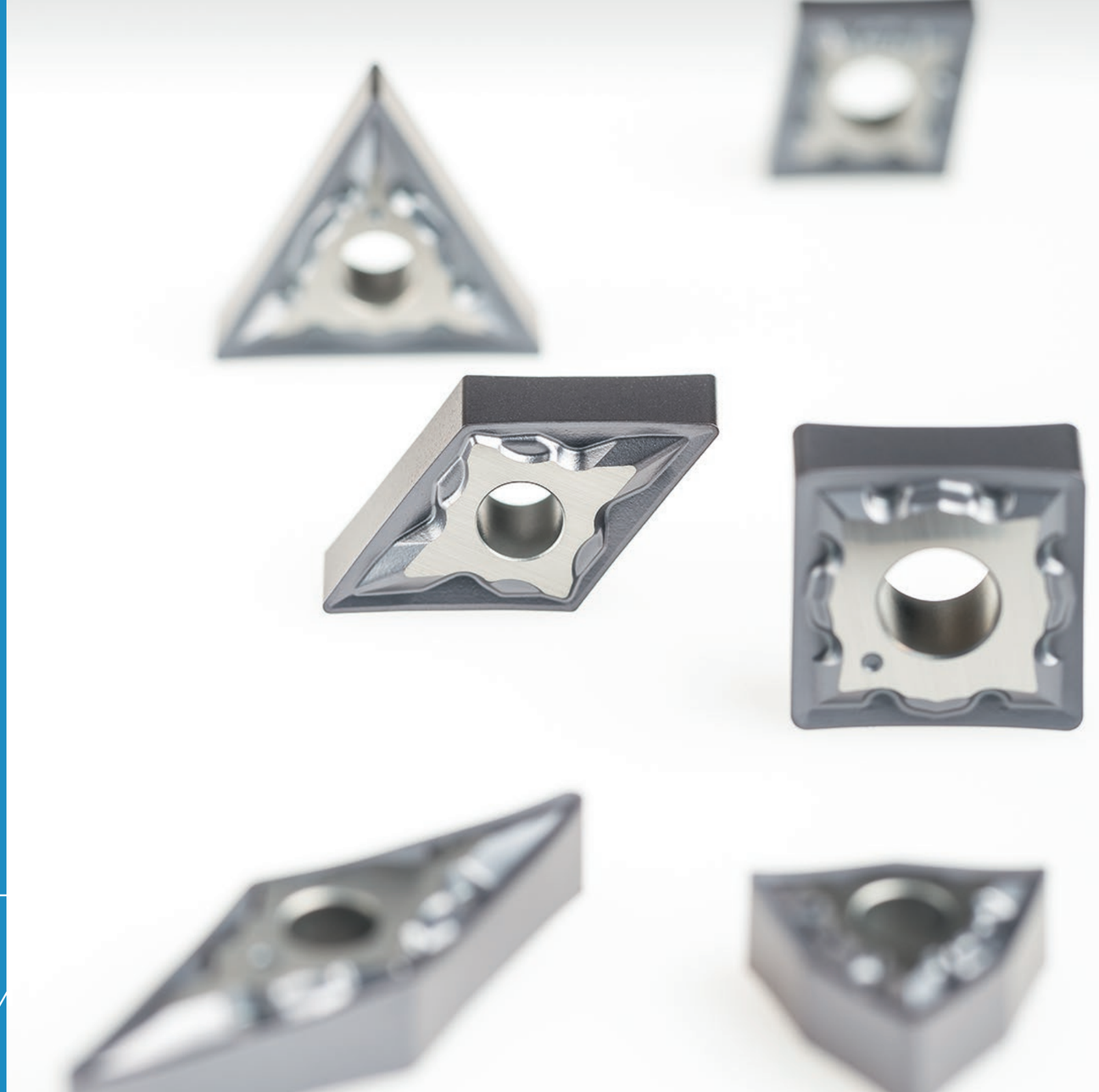
Turning non-ferrous pos "N15"

Insert	Designation	Chipbreaker	Material number	Available
	CCGT 21.50FN-LMF+ WDWN715		22929006	○
	CCGT 21.5.5FN-LMF+ WDWN715		22923797	●
	CCGT 21.51FN-LMF+ WDWN715		22807750	●
	CCGT 32.5.5FN-LMF+ WDWN715		22923798	●
	CCGT 32.51FN-LMF+ WDWN715		22660401	●
	CCGT 32.52FN-LMF+ WDWN715		22698019	●
	CCGT 431FN-LMF+ WDWN715		22679718	●
	CCGT 432FN-LMF+ WDWN715		22807758	●
	DCGT 21.50FN-LMF+ WDWN715		22927553	○
	DCGT 21.5.5FN-LMF+ WDWN715		22891971	●
	DCGT 21.51FN-LMF+ WDWN715		22891972	●
	DCGT 32.5.5FN-LMF+ WDWN715		22929726	●
	DCGT 32.51FN-LMF+ WDWN715		22679713	●
	DCGT 32.52FN-LMF+ WDWN715	...-LMF+	22891960	●
	SCGT 32.51FN-LMF+ WDWN715		22980156	●
	SCGT 32.52FN-LMF+ WDWN715		23153333	○
	TCGT 21.51FN-LMF+ WDWN715		23155484	●
	TCGT 32.51FN-LMF+ WDWN715		23148438	●
	TCGT 32.52FN-LMF+ WDWN715		23148437	●
	VCGT 22.5FN-LMF+ WDWN715		22926007	●
	VCGT 221FN-LMF+ WDWN715		22929728	●
	VCGT 130302FN-LMF+ WDWN715 (ISO metric)		22927699	●
	VCGT 331FN-LMF+ WDWN715		22667525	●
	VCGT 332FN-LMF+ WDWN715		22667527	●
	VCGT 333FN-LMF+ WDWN715		22667528	●
	VCGT 43.57.5FN-LMF+ WDWN715		23155568	●

● available from stock, ○ available upon request

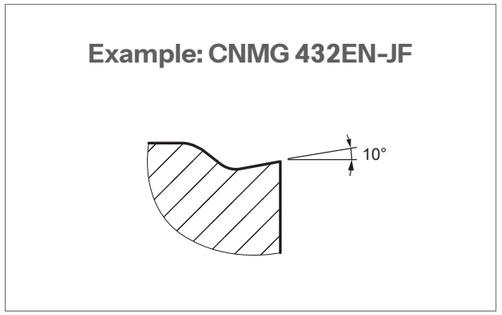
Negative Size Turning

NST



Cutting data

LDR-T / Shouldering 3 x 90°



General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Cermet TCM10 vc [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	755 – 886
		Low-alloyed steel	250 – 300	591 – 755
		High-alloyed steel	200	525 – 656
		Corrosion-resistant steel	200	755 – 886
M	Stainless steel	Ferritic	200	558 – 787
		Austenitic	180	656 – 787
		Duplex	230 – 260	–
		Martensitic	330	427 – 525
K	Cast iron	Grey cast iron	180	–
		Spheroidal cast iron	160	722 – 984
		Malleable/tempered iron	130	820 – 1148

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
JF	.004 to .079	.008 to .002

Ex: CNMG 431EN-JF for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	X	X

Available range

Turning steel neg finishing CERMET

Insert	Designation	Chipbreaker	Material number	Available
	CNMG 431EN-JF TCM10	...-JF	22993905	○
	CNMG 432EN-JF TCM10		22993906	○
	DNMG 331EN-JF TCM10		22993819	○
	DNMG 331EN-JF TCM10		22993709	○

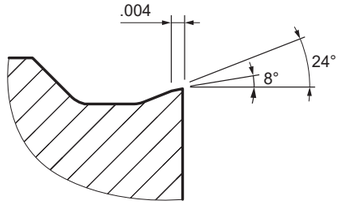
● available from stock, ○ available upon request

New chipbreaker

Optimised by FEM:

- Increase life time
- Reduce temperature and stress

Example: CNMG 432EN-WL+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	Coated carbide WDCP125HP2 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	722 – 1312	558 – 787
		Low-alloyed steel	250 – 300	656 – 1050	328 – 623
		High-alloyed steel	200	591 – 1050	427 – 689
		Corrosion-resistant steel	200	656 – 1050	427 – 689
M	Stainless steel	Ferritic	200	722 – 1050	459 – 689
		Austenitic	180	–	328 – 689
		Duplex	230 – 260	–	–
		Martensitic	330	–	230 – 328
K	Cast iron	Grey cast iron	180	–	–
		Spheroidal cast iron	160	–	–
		Malleable/tempered iron	130	–	–

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
WL+	.02 to .179	.008 to .004

Ex: CNMX 432-WL+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range

Heavy turning steel neg "P15"

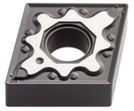
Insert	Designation		Chipbreaker	Material number	Available
	CNMG 431EN-WL+	WDCP115	...-WL+	23155555	○
	DNMG 331EN-WL+	WDCP115		23152500	○
	DNMG 441EN-WL+	WDCP115		23152616	○
	DNMG 442EN-WL+	WDCP115		23178344	●
	VNMG 331EN-WL+	WDCP115		23157325	●
	WNMG 431EN-WL+	WDCP115		23157327	○

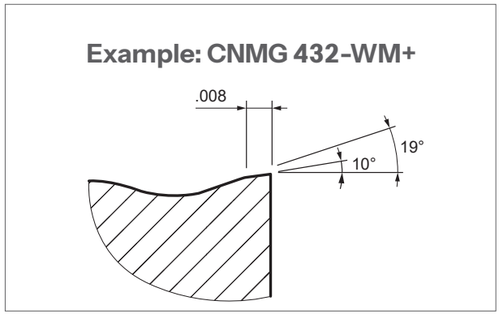
Heavy turning steel neg "P25"

Insert	Designation		Chipbreaker	Material number	Available
	CNMG 431EN-WL+	WDCP125HP2	...-WL+	25979846	●
	CNMG 432EN-WL+	WDCP125HP2		25979847	●
	DNMG 331EN-WL+	WDCP125HP2		25979845	●

● available from stock, ○ available upon request

Cutting data





General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	722 – 1312	560 – 890	558 – 623
		Low-alloyed steel	250 – 300	656 – 1050	330 – 690	295 – 492
		High-alloyed steel	200	591 – 1050	430 – 750	394 – 656
		Corrosion-resistant steel	200	656 – 1050	430 – 750	459 – 591
M	Stainless steel	Ferritic	200	722 – 1050	460 – 690	459 – 656
		Austenitic	180	–	330 – 690	361 – 623
		Duplex	230 – 260	–	–	262 – 492
		Martensitic	330	–	230 – 330	180 – 246
K	Cast iron	Grey cast iron	180	459 – 1214	430 – 690	–
		Spheroidal cast iron	160	623 – 1411	390 – 790	–
		Malleable/tempered iron	130	591 – 1706	490 – 820	–

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
WM+	.039 to .157	.017 to .009

Ex: CNMG 432-WM+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Inter-rupted cut
●	●	○

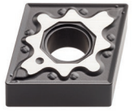
Available range

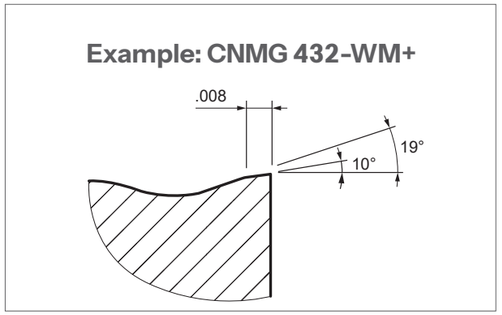
Turning steel neg semi finishing "P15"

Insert	Designation		Chipbreaker	Material number	Available
	CNMG 431-WM+	WDCP115	...-WM+	22965442	●
	CNMG 432-WM+	WDCP115		22965449	●
	CNMG 433-WM+	WDCP115		22972055	●
	DNMG 441-WM+	WDCP115		22966141	●
	DNMG 442-WM+	WDCP115		22966181	●
	SNMG 432-WM+	WDCP115		22972043	○
	TNMG 331-WM+	WDCP115		22972026	○
	TNMG 332-WM+	WDCP115		22972900	○
	TNMG 333-WM+	WDCP115		22972024	○
	VNMG 331-WM+	WDCP115		22972044	●
	VNMG 332-WM+	WDCP115		22972046	●
	WNMG 331-WM+	WDCP115		22972040	○
	WNMG 332-WM+	WDCP115		22972053	○
	WNMG 431-WM+	WDCP115		22966240	●
	WNMG 432-WM+	WDCP115		22966252	●
	WNMG 433-WM+	WDCP115		22972028	●

● available from stock, ○ available upon request

Cutting data





General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	722 – 1312	560 – 890	558 – 623
		Low-alloyed steel	250 – 300	656 – 1050	330 – 690	295 – 492
		High-alloyed steel	200	591 – 1050	430 – 750	394 – 656
		Corrosion-resistant steel	200	656 – 1050	430 – 750	459 – 591
M	Stainless steel	Ferritic	200	722 – 1050	460 – 690	459 – 656
		Austenitic	180	–	330 – 690	361 – 623
		Duplex	230 – 260	–	–	262 – 492
		Martensitic	330	–	230 – 330	180 – 246
K	Cast iron	Grey cast iron	180	459 – 1214	430 – 690	–
		Spheroidal cast iron	160	623 – 1411	390 – 790	–
		Malleable/tempered iron	130	591 – 1706	490 – 820	–

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
WM+	.039 to .157	.017 to .009

Ex: CNMG 432-WM+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Inter-rupted cut
●	●	○

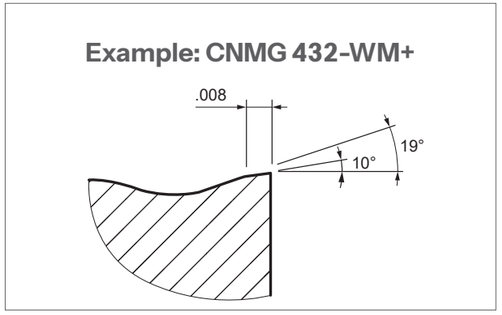
Available range

Turning steel neg medium "P25"

Insert	Designation	Chipbreaker	Material number	Available
	CNMG 431-WM+ WDCP125HP2		25979785	●
	CNMG 432-WM+ WDCP125HP2		25755832	●
	CNMG 433-WM+ WDCP125HP2		25979750	●
	DNMG 331-WM+ WDCP125HP2		25979796	●
	DNMG 332-WM+ WDCP125HP2		25979786	●
	DNMG 431-WM+ WDCP125HP2		25979787	●
	DNMG 432-WM+ WDCP125HP2		25979788	●
	DNMG 441-WM+ WDCP125HP2		25979792	●
	DNMG 442-WM+ WDCP125HP2		25758553	●
	SNMG 432-WM+ WDCP125HP2		25979734	●
	SNMG 433-WM+ WDCP125HP2		25979703	●
	TNMG 331-WM+ WDCP125HP2	...-WM+	25979797	●
	TNMG 332-WM+ WDCP125HP2		25979761	●
	TNMG 333-WM+ WDCP125HP2		25979704	●
	TNMG 431-WM+ WDCP125HP2		25979798	●
	TNMG 432-WM+ WDCP125HP2		25979799	●
	VNMG 331-WM+ WDCP125HP2		25979790	●
	VNMG 332-WM+ WDCP125HP2		25979795	●
	WNMG 331-WM+ WDCP125HP2		25979701	●
	WNMG 332-WM+ WDCP125HP2		25979702	●
	WNMG 431-WM+ WDCP125HP2		25979794	●
	WNMG 432-WM+ WDCP125HP2		25979759	●
	WNMG 433-WM+ WDCP125HP2		25792183	●

● available from stock, ○ available upon request

Cutting data



General cutting parameters depending on the application

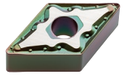
Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	722 – 1312	560 – 890	558 – 623
		Low-alloyed steel	250 – 300	656 – 1050	330 – 690	295 – 492
		High-alloyed steel	200	591 – 1050	430 – 750	394 – 656
		Corrosion-resistant steel	200	656 – 1050	430 – 750	459 – 591
M	Stainless steel	Ferritic	200	722 – 1050	460 – 690	459 – 656
		Austenitic	180	–	330 – 690	361 – 623
		Duplex	230 – 260	–	–	262 – 492
		Martensitic	330	–	230 – 330	180 – 246
K	Cast iron	Grey cast iron	180	459 – 1214	430 – 690	–
		Spheroidal cast iron	160	623 – 1411	390 – 790	–
		Malleable/tempered iron	130	591 – 1706	490 – 820	–

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
WM+	.039 to .157	.017 to .009

Ex: CNMG 432-WM+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Inter-rupted cut
●	●	○

Available range



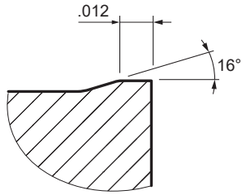
Turning steel neg medium roughing "P35"

Insert	Designation	Chipbreaker	Material number	Available
	CNMG 432-WM+ WDCP135		22965452	●
	CNMG 433-WM+ WDCP135		22965456	●
	DNMG 442-WM+ WDCP135		22966185	●
	DNMG 443-WM+ WDCP135		22966187	●
	SNMG 432-WM+ WDCP135		22966211	●
	SNMG 433-WM+ WDCP135	...-WM+	22966214	○
	TNMG 332-WM+ WDCP135		22966239	●
	WNMG 432-WM+ WDCP135		22966254	●
	WNMG 433-WM+ WDCP135		22966256	●

● available from stock, ○ available upon request

Cutting data

Example: CNMG 432EN-WR+



General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	722 – 1312	558 – 787	558 – 623
		Low-alloyed steel	250 – 300	656 – 1050	328 – 623	295 – 492
		High-alloyed steel	200	591 – 1050	427 – 689	394 – 656
		Corrosion-resistant steel	200	656 – 1050	427 – 689	459 – 591
M	Stainless steel	Ferritic	200	722 – 1050	459 – 689	459 – 656
		Austenitic	180	–	328 – 689	361 – 623
		Duplex	230 – 260	–	–	262 – 492
		Martensitic	330	–	230 – 328	180 – 246
K	Cast iron	Grey cast iron	180	459 – 1214	427 – 689	–
		Spheroidal cast iron	160	623 – 1411	394 – 787	–
		Malleable/tempered iron	130	591 – 1706	492 – 820	–

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
WR+	.059 to .197	.02 to .012

Ex: CNMG 432-WR+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	●	○

Available range

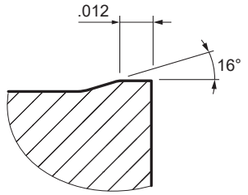
Turning steel neg roughing "P15"

Insert	Designation		Chipbreaker	Material number	Available
	CNMG 432EN-WR+	WDCP115	...-WR+	22094195	●
	DNMG 442EN-WR+	WDCP115		23148432	●
	DNMG 443EN-WR+	WDCP115		23159030	●

● available from stock, ○ available upon request

Cutting data

Example: CNMG 432EN-WR+



General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	722 – 1312	558 – 787	558 – 623
		Low-alloyed steel	250 – 300	656 – 1050	328 – 623	295 – 492
		High-alloyed steel	200	591 – 1050	427 – 689	394 – 656
		Corrosion-resistant steel	200	656 – 1050	427 – 689	459 – 591
M	Stainless steel	Ferritic	200	722 – 1050	459 – 689	459 – 656
		Austenitic	180	–	328 – 689	361 – 623
		Duplex	230 – 260	–	–	262 – 492
		Martensitic	330	–	230 – 328	180 – 246
K	Cast iron	Grey cast iron	180	459 – 1214	427 – 689	–
		Spheroidal cast iron	160	623 – 1411	394 – 787	–
		Malleable/tempered iron	130	591 – 1706	492 – 820	–

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
WR+	.059 to .197	.02 to .012

Ex: CNMG 432-WR+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	●	○

Available range

Turning steel neg roughing "P25"

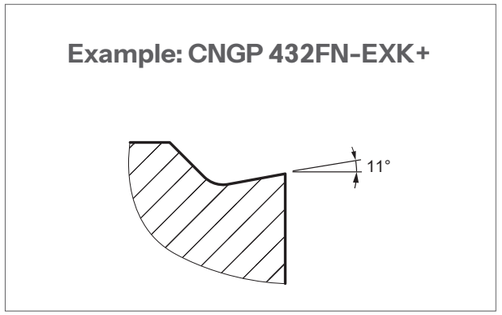
Insert	Designation	Chipbreaker	Material number	Available
	CNMG 432EN-WR+ WDCP125HP2		25979842	●
	CNMG 432EN-WR+ WDCP125HP2		25979841	●
	DNMG 432EN-WR+ WDCP125HP2		25979789	●
	DNMG 432EN-WR+ WDCP125HP2		25979802	●
	SNMG 432EN-WR+ WDCP125HP2		25979839	●
	SNMG 432EN-WR+ WDCP125HP2	...-WR+	25979838	●
	TNMG 432EN-WR+ WDCP125HP2		25979833	●
	TCNMG 432EN-WR+ WDCP125HP2		25979832	●
	WNMG 432EN-WR+ WDCP125HP2		25979831	●
	WNMG 432EN-WR+ WDCP125HP2		25792176	●

Turning steel neg roughing "P35"

Insert	Designation	Chipbreaker	Material number	Available
	DNMG 442EN-WR+ WDCP135		23148420	○
	DNMG 443EN-WR+ WDCP135	...-WR+	23150351	○

● available from stock, ○ available upon request

Cutting data



General cutting parameters depending on the application

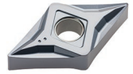
Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDP2120 v_c [sfm]
M	Stainless steel	Ferritic	200	492 – 656
		Austenitic	180	394 – 656
		Duplex	230 – 260	295 – 525
		Martensitic	330	197 – 262
K	Cast iron	Grey cast iron	180	394 – 525
		Spheroidal cast iron	160	394 – 525
		Malleable/tempered iron	130	459 – 722
	Non-ferrous		100	328 – 1312
			130	328 – 1312
			90	328 – 1969
			100	328 – 1312
	Exotic materials	Fe base	200	66 – 164
		Nickel or cobalt base	280	66 – 164
		Nickel or cobalt base	250	49 – 131
		Nickel or cobalt base		66 – 115
		Titanium	Rm 440*	262 – 459

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
EXK+	.02 to .098	.01 to .004

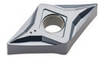
Ex: CNGP 432-EXK+ for 304
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range



Turning stainless steel neg finishing "M25"

Insert	Designation	Chipbreaker	Material number	Available
	CNGP 43.5FN-EXK+ WDP2120		22334038	●
	CNGP 431FN-EXK+ WDP2120		22320362	●
	CNGP 432FN-EXK+ WDP2120		22320365	●
	DNGP 431FN-EXK+ WDP2120		22320371	●
	DNGP 44.5FN-EXK+ WDP2120		22352022	●
	DNGP 441FN-EXK+ WDP2120		22352023	●
	DNGP 442FN-EXK+ WDP2120	...-EXK+	22337291	●
	VNGP 33.5FN-EXK+ WDP2120		22326637	●
	VNGP 331FN-EXK+ WDP2120		22337293	●
	WNGP 431FN-EXK+ WDP2120		22336133	●
	WNGP 432FN-EXK+ WDP2120		22331474	●

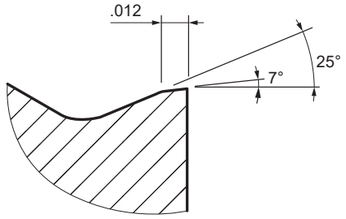
● available from stock, ○ available upon request

New chipbreaker

Optimised by FEM:

- Reduced formation of burrs
- Good surface finish
- Low cutting forces

Example: CNMG 432-IPK+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCP115 v_c [sfm]	WDPM125 v_c [sfm]	WDPM135M v_c [sfm]
P	Steel	non-alloyed steel 0 – 0.45% C	150 – 250	430 – 820	427 – 820	558 – 623
		low-alloyed steel	250 – 300	200 – 260	197 – 591	295 – 492
		high-alloyed steel	200	260 – 660	262 – 656	394 – 656
		corrosion-resistant steel	200	330 – 660	328 – 656	459 – 591
M	Stainless steel	Ferritic	200	390 – 820	394 – 820	459 – 656
		Austenitic	180	390 – 720	328 – 722	361 – 623
		Duplex	230 – 260	–	197 – 252	262 – 492
		Martensitic	330	–	131 – 328	180 – 246

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
IPK+	.039 to .165	.016 to .009

Ex: CNMG 432-IPK+ for 304
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range

Turning stainless steel neg "M20"

Insert	Designation	Chipbreaker	Material number	Available
	CNMG 321-IPK+ WDCM120HP		25731669	●
	CNMG 322-IPK+ WDCM120HP		23674764	●
	CNMG 431-IPK+ WDCM120HP		23344977	●
	CNMG 432-IPK+ WDCM120HP		23344978	●
	CNMG 433-IPK+ WDCM120HP		25731671	●
	DNMG 331-IPK+ WDCM120HP		25711653	●
	DNMG 332-IPK+ WDCM120HP		25711655	●
	DNMG 431-IPK+ WDCM120HP		25711657	●
	DNMG 432-IPK+ WDCM120HP		25792188	●
	DNMG 441-IPK+ WDCM120HP		23344970	●
	DNMG 442-IPK+ WDCM120HP	...-IPK+	23344979	●
	SNMG 432-IPK+ WDCM120HP		25711663	●
	TNMG 331-IPK+ WDCM120HP		25711667	●
	TNMG 332-IPK+ WDCM120HP		25711677	●
	VNMG 332-IPK+ WDCM120HP		25711678	●
	WNMG 331-IPK+ WDCM120HP		25731672	●
	WNMG 332-IPK+ WDCM120HP		25731658	●
	WNMG 431-IPK+ WDCM120HP		23344983	●
	WNMG 432-IPK+ WDCM120HP		23344981	●

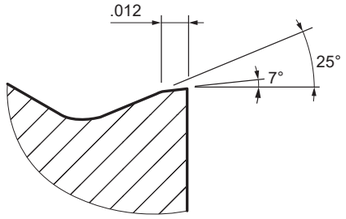
● available from stock, O available upon request

New chipbreaker

Optimised by FEM:

- Reduced formation of burrs
- Good surface finish
- Low cutting forces

Example: CNMG 432-IPK+



Cutting data

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDPM125 v_c [sfm]	Coated carbide WDPM135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	427 – 620	558 – 623
		Low-alloyed steel	250 – 300	197 – 591	295 – 492
		High-alloyed steel	200	262 – 656	394 – 656
		Corrosion-resistant steel	200	328 – 656	459 – 591
M	Stainless steel	Ferritic	200	394 – 820	459 – 656
		Austenitic	180	328 – 722	361 – 623
		Duplex	230 – 260	197 – 525	262 – 492
		Martensitic	330	131 – 328	180 – 246

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
IPK+	.039 to .165	.016 to .009

Ex: CNMG 432-IPK+ for 304
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range

Turning stainless steel neg medium "M25"

Insert	Designation	Chipbreaker	Material number	Available
	CNMG 321-IPK+ WDPM125		22923079	●
	CNMG 322-IPK+ WDPM125		22923322	●
	CNMG 431-IPK+ WDPM125		22859233	●
	CNMG 432-IPK+ WDPM125		22859234	●
	DNMG 331-IPK+ WDPM125		22919113	●
	DNMG 332-IPK+ WDPM125		22918004	●
	DNMG 431-IPK+ WDPM125		22864033	●
	DNMG 432-IPK+ WDPM125		22864032	●
	DNMG 441-IPK+ WDPM125		22859244	●
	DNMG 442-IPK+ WDPM125		22859245	●
	SNMG 432-IPK+ WDPM125	...-IPK+	22915593	●
	TNMG 331-IPK+ WDPM125		22859739	●
	TNMG 332-IPK+ WDPM125		22859743	●
	VNMG 332-IPK+ WDPM125		22865901	●
	WNMG 331-IPK+ WDPM125		22919599	●
	WNMG 332-IPK+ WDPM125		22919590	●
	WNMG 431-IPK+ WDPM125		22850452	●
	WNMG 432-IPK+ WDPM125		22850454	●
	WNMG 433-IPK+ WDPM125		22919501	○

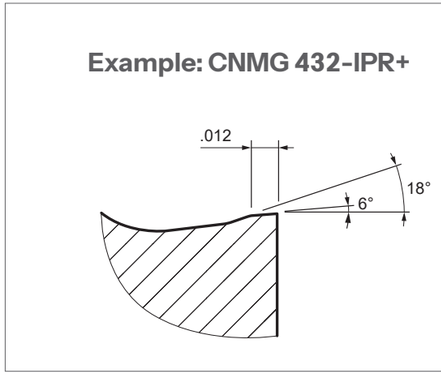
● available from stock, ○ available upon request

New chipbreaker

Sharp positive cutting edges:

- Reduced formation of burrs
- Good surface finish
- Low cutting forces

Medium machining and light roughing



Cutting data

General cutting parameters depending on the application

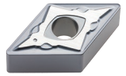
Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDPM125 v_c [sfm]	Coated carbide WDPM135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	427 – 620	558 – 623
		Low-alloyed steel	250 – 300	197 – 591	295 – 492
		High-alloyed steel	200	262 – 656	394 – 656
		Corrosion-resistant steel	200	328 – 656	459 – 591
M	Stainless steel	Ferritic	200	394 – 820	459 – 656
		Austenitic	180	328 – 722	361 – 623
		Duplex	230 – 260	197 – 525	262 – 492
		Martensitic	330	131 – 328	180 – 246

Application Chip groove	Depth of cut / feed rate a_p [inch]	f [inch]
IPR+	.059 to .236	.02 to .01

Ex: CNMG 432-IPR+ for 304
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	●	○

Available range

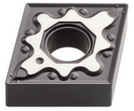


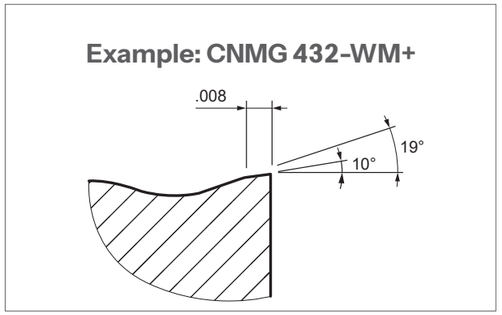
Turning stainless steel neg roughing "M25"

Insert	Designation	Chipbreaker	Material number	Available
	CNMG 432-IPR+ WDPM125	...-IPR+	22863708	●
	CNMG 433-IPR+ WDPM125		22863709	●
	DNMG 442-IPR+ WDPM125		22863704	●
	DNMG 443-IPR+ WDPM125		22863702	●
	TNMG 332-IPR+ WDPM125		22863701	●
	TNMG 333-IPR+ WDPM125		22863799	●
	WNMG 432-IPR+ WDPM125		22863798	●
	WNMG 433-IPR+ WDPM125		22863796	●

● available from stock, ○ available upon request

Cutting data





General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCK120 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	656 – 1116
		Low-alloyed steel	250 – 300	492 – 951
		High-alloyed steel	200	492 – 951
		Corrosion-resistant steel	200	525 – 951
K	Cast iron	Grey cast iron	180	492 – 1312
		Spheroidal cast iron	160	656 – 1476
		Malleable/tempered iron	130	656 – 1805

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
WM+	.039 to.157	.017 to .009

Ex: CCM. 432-WM+ for GC25
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range

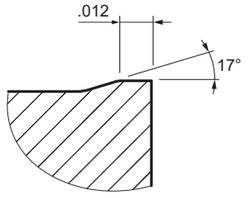
Turning cast iron neg "K20"

Insert	Designation	Chipbreaker	Material number	Available
	CNMG 432-WM+ WDCK120		22891632	●
	CNMG 433-WM+ WDCK120		22976734	○
	DNMG 442-WM+ WDCK120		22891620	●
	DNMG 443-WM+ WDCK120		22891629	○
	TNMG 332-WM+ WDCK120	...-WM+	22891949	○
	TNMG 333-WM+ WDCK120		22976745	○
	TNMG 432-WM+ WDCK120		22891947	●
	WNMG 432-WM+ WDCK120		22891940	●
	WNMG 433-WM+ WDCK120		22891952	○

● available from stock, ○ available upon request

Cutting data

Example: CNMG 432-909+



General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCK120 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	656 – 1116
		Low-alloyed steel	250 – 300	492 – 951
		High-alloyed steel	200	492 – 951
		Corrosion-resistant steel	200	525 – 951
K	Cast iron	Grey cast iron	180	492 – 1312
		Spheroidal cast iron	160	656 – 1476
		Malleable/tempered iron	130	656 – 1805

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
909+	.079 to .189	.019 to .012

Ex: CNM. 432-909+ for GC25
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut	Interrupted cut
●	●	X	○ Only .NMA

Available range

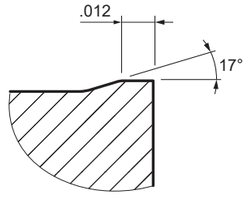
Turning cast iron neg "K20"

Insert	Designation	Chipbreaker	Material number	Available
	CNMG 432-909+ WDCK120		22932930	●
	CNMG 433-909+ WDCK120		22932942	●
	CNMG 543-909+ WDCK120		22892551	○
	SNMG 432-909+ WDCK120		22932945	●
		...-909+		
	WNMG 432-909+ WDCK120		22986338	●
	WNMG 433-909+ WDCK120		22986330	●
	CNMA 432EN WDCK120		22932948	○
	CNMA 433EN WDCK120		22042187	●
	SNMA 432EN WDCK120		22932949	○
		...-EN		
	TNMA 332EN WDCK120		22932940	○
	WNMA 432EN WDCK120		22932951	●

● available from stock, ○ available upon request

Cutting data

Example: CNMG 432-909+



NEW

General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCK110HP v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	720 – 1310
		Low-alloyed steel	250 – 300	560 – 1120
		High-alloyed steel	200	560 – 1120
		Corrosion-resistant steel	200	660 – 980
K	Cast iron	Grey cast iron	180	560 – 1480
		Spheroidal cast iron	160	720 – 1410
		Malleable/tempered iron	130	720 – 1310

Application	Depth of cut / feed rate			
Chip groove	a_p [inch]	f [inch]		
909+	.79 to .189	.019 to .012		

Ex: CNM. 432-909+ for GC25
Different in each application

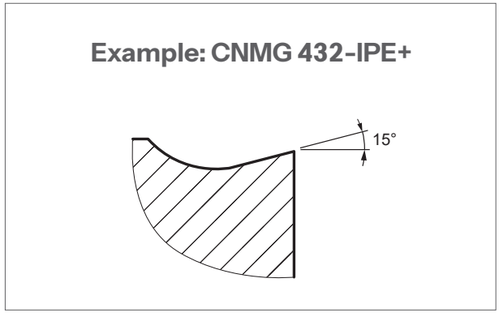
Consistent cutting depth	Inconsistent cutting depth	Interrupted cut	Interrupted cut
●	●	X	○ Only .NMA

Available range

Insert	Designation	Chipbreaker	Material number	Available
	CNMG 432-909+ WDCK110HP		23250821	●
	CNMG 433-909+ WDCK110HP		23311067	●
	CNMG 543-909+ WDCK110HP		23311069	○
	SNMG 433-909+ WDCK110HP	...-909+	23311060	●
	WNMG 432-909+ WDCK110HP		23311071	○
	WNMG 433-909+ WDCK110HP		23311065	○
	CNMA 432EN WDCK110HP	...-EN	23345438	○
	WNMA 433EN WDCK110HP		23345439	●

● available from stock, ○ available upon request

Cutting data



General cutting parameters depending on the application

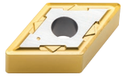
Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDP5115 v_c [sfm]
M	Stainless steel	Ferritic	200	427 – 722
		Austenitic	180	394 – 591
		Duplex	230 – 260	164 – 295
		Martensitic	330	–
	Exotic materials	Fe base	200	262 – 394
		Nickel or cobalt base	280	197 – 328
		Nickel or cobalt base	250	115 – 295
		Nickel or cobalt base		98 – 164
		Titanium	Rm 440*	230 – 394

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
IPE+	.031 to .118	.012 to .004

Ex: CNMG 432-IPE+ for Super Alliage
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range



Turning titanium "S15"

Insert	Designation		Chipbreaker	Material number	Available
	CNMG 431-IPE+	WDP5115	...-IPE+	22861301	●
	CNMG 432-IPE+	WDP5115		22679226	●
	DNMG 442-IPE+	WDP5115		22679228	●
	SNMG 432-IPE+	WDP5115		22679231	●
	TNMG 332-IPE+	WDP5115		22679232	●
	VNMG 332-IPE+	WDP5115		22679233	●
	WNMG 432-IPE+	WDP5115		22679234	●

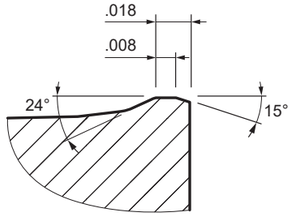
● available from stock, O available upon request

Heavy Duty Turning

HDT

Cutting data

Example: CNMM 644SN-HD8



General cutting parameters depending on the application

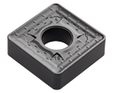
Work piece material		Type of treatment / alloy	Hardness HB	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	656 – 886	558 – 623
		Low-alloyed steel	250 – 300	377 – 689	295 – 492
		High-alloyed steel	200	492 – 787	394 – 656
		Corrosion-resistant steel	200	492 – 787	459 – 591
M	Stainless steel	Ferritic	200	525 – 787	459 – 656
		Austenitic	180	377 – 787	361 – 623
		Duplex	230 – 260	–	262 – 492
		Martensitic	330	262 – 377	180 – 246
K	Cast iron	Grey cast iron	180	492 – 787	–
		Spheroidal cast iron	160	459 – 886	–
		Malleable/tempered iron	130	558 – 952	–

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
HD8	.098 to .472	.047 to .014

Ex: CNMM 644-HD8 for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range



Heavy turning steel neg "P25"

Insert	Designation		Chipbreaker	Material number	Available
	CNMM 644SN-HD8	WDCP125HP2	...-HD8	25979873	●
	CNMM 646SN-HD8	WDCP125HP2		25979875	●
	CNMM 866SN-HD8	WDCP125HP2		25979877	●
	CNMM 868SN-HD8	WDCP125HP2		25979878	●
	SNMM 644SN-HD8	WDCP125HP2		25979881	●
	SNMM 646SN-HD8	WDCP125HP2		25979882	●
	SNMM 866SN-HD8	WDCP125HP2		25979885	●
	SNMM 868SN-HD8	WDCP125HP2		25979886	●

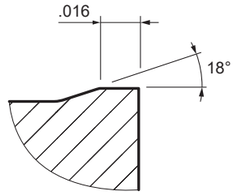
Heavy turning steel neg "P35"

Insert	Designation		Chipbreaker	Material number	Available
	CNMM 250924SN-HD8	WDCP135	...-HD8	23429384	●
	SNMM 250924SN-HD8	WDCP135		23417379	●

● available from stock, O available upon request

Cutting data

Example: CNMG 543-909+



General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	558 – 787	558 – 623
		Low-alloyed steel	250 – 300	328 – 623	295 – 492
		High-alloyed steel	200	427 – 689	394 – 656
		Corrosion-resistant steel	200	427 – 689	459 – 591
M	Stainless steel	Ferritic	200	459 – 689	459 – 656
		Austenitic	180	328 – 689	361 – 623
		Duplex	230 – 260	–	262 – 492
		Martensitic	330	230 – 328	180 – 246
K	Cast iron	Grey cast iron	180	427 – 689	–
		Spheroidal cast iron	160	394 – 787	–
		Malleable/tempered iron	130	492 – 820	–

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
909+	.126 to .299	.039 to .024

Ex: CNMM 644-909+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

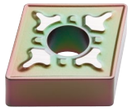
Available range

Medium and roughing turning steel

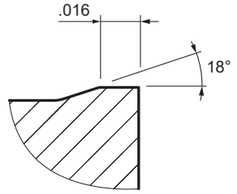
Insert	Designation		Chipbreaker	Material number	Available
	CNMG 543-909+	WDCP125HP2	...-909+	25979827	●
				25979844	●
	CNMG 643-909+	WDCP125HP2		25979771	●
	CNMG 644-909+	WDCP125HP2		25979705	●
	SNMG 543-909+	WDCP125HP2		25979828	●
	SNMG 643-909+	WDCP125HP2		25979893	●
	TNMG 433-909+	WDCP125HP2		25979829	●
	RCMT 1606MOSN-XR	WDCP125HP2 (ISO metric)	...-XR	25979780	●
	RCMT 2006MOSN-XR	WDCP125HP2 (ISO metric)		25979892	●

● available from stock, ○ available upon request

Cutting data



Example: CNMG 543-909+



General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	WDCP125HP2 v_c [sfm]	WDCP135 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	558 – 787	558 – 623
		Low-alloyed steel	250 – 300	328 – 623	295 – 492
		High-alloyed steel	200	427 – 689	394 – 656
		Corrosion-resistant steel	200	427 – 689	459 – 591
M	Stainless steel	Ferritic	200	459 – 689	459 – 656
		Austenitic	180	328 – 689	361 – 623
		Duplex	230 – 260	–	262 – 492
		Martensitic	330	230 – 328	180 – 246
K	Cast iron	Grey cast iron	180	427 – 689	–
		Spheroidal cast iron	160	394 – 787	–
		Malleable/tempered iron	130	492 – 820	–

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
909+	.126 to .299	.039 to .024

Ex: CNMM 644-909+ for CK60
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

Available range

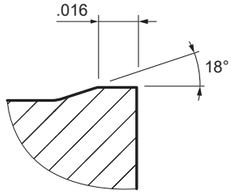
Medium and roughing turning steel

Insert	Designation		Chipbreaker	Material number	Available
	CNMG 542-909+	WDCP135	...-909+	22965457	●
	CNMG 543-909+	WDCP135		22965459	●
	CNMG 643-909+	WDCP135		22965869	●
	CNMG 644-909+	WDCP135		22972048	●
	SNMG 643-909+	WDCP135		22966227	●
	RCMT 1606MOSN-XR	WDCP135 (ISO metric)	...-XR	22966180	●
	RCMT 2006MOSN-XR	WDCP135 (ISO metric)		22966193	●

● available from stock, ○ available upon request

Cutting data

Example: CNMG 543-909+



General cutting parameters depending on the application

Work piece material		Type of treatment / alloy	Hardness HB	Coated carbide WDCK120 v_c [sfm]
P	Steel	Non-alloyed steel 0 – 0.45% C	150 – 250	656 – 1116
		Low-alloyed steel	250 – 300	492 – 951
		High-alloyed steel	200	492 – 951
		Corrosion-resistant steel	200	525 – 951
K	Cast iron	Grey cast iron	180	492 – 1312
		Spheroidal cast iron	160	656 – 1476
		Malleable/tempered iron	130	656 – 1805

Application	Depth of cut / feed rate	
Chip groove	a_p [inch]	f [inch]
909+	.126 to .22	.024 to .015

Ex: CNMG 543-909+ for GC25
Different in each application

Consistent cutting depth	Inconsistent cutting depth	Interrupted cut
●	○	X

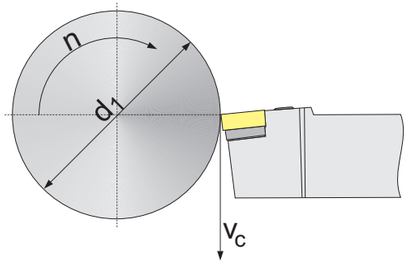
Available range

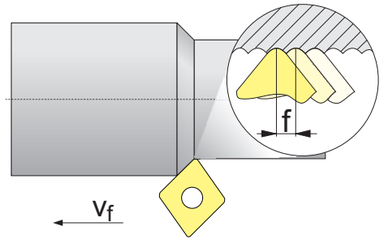
Turning cast iron neg "K20"

Insert	Designation		Chipbreaker	Material number	Available
	CNMG 542-909+	WDCK120	...-909+	22892553	○
	CNMG 543-909+	WDCK120		22892551	○
	CNMG 643-909+	WDCK120		22932943	●

● available from stock, ○ available upon request

Technical Data





Cutting speed (v_c)

$$v_c = \frac{d_1 \cdot \pi \cdot n}{1000} \quad [m/min]$$

Revolutions per minute (n)

$$n = \frac{v_c \cdot 1000}{d_1 \cdot \pi} \quad [rev./min]$$

Feed rate (v_f)

$$v_f = f \cdot n \quad [mm/min]$$

Type of problem

	Type of wear						Work piece problems				Chip control	
Corrective measures	Flank wear	Cratering	Edge chipping	Plastic deformation	Insert breakage	Built-up edge	Vibration	Formation of pips and burrs	Chattered surface	Surface quality	Chip too long (tangled swarf)	Chip too short (fragmented chip)
Cutting speed	▯					▯	⇩			⇧	⇩	
Feed rate	≈		▯	⇩	▯		⇧		▯		▯	▯
Feed - centre area		▯					⇩	▯	⇩			
Chip groove (-R, -M, -F)			▯	≈		▯	≈	▯		⇩	▯	▯
Corner radius (larger / smaller)	▯		▯	▯			⇩	▯	⇩	⇧		
Cutting material (wear resistance / toughness)	▯	▯	▯	▯	▯							
Clamping of tool			≈		≈		≈		≈	≈		
Clamping of work piece			≈		≈		≈		≈	≈		
Overhang			≈		≈		≈			⇩		
Tip height	≈		≈				≈	≈		≈		
Cooling lubricant	▯	≈		▯		▯		▯		▯	▯	

Cutting values: Cutting speed, Feed rate, Feed - centre area

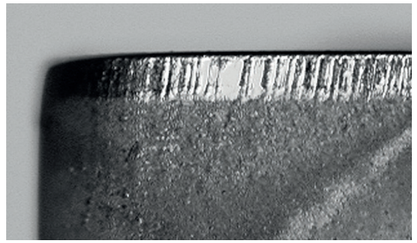
Selection of inserts: Chip groove, Corner radius, Cutting material

General criteria: Clamping of tool, Clamping of work piece, Overhang, Tip height, Cooling lubricant

▯ raise, increase, large influence
⇧ raise, increase low influence

▯ avoid, reduce large influence
⇩ avoid, reduce low influence

≈ check, optimise
▯ use

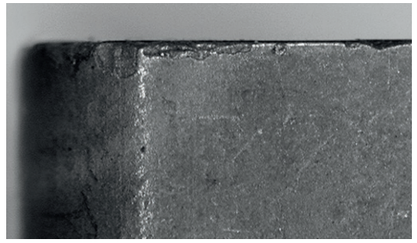


Abrasion on flank, normal wear after a certain machining time.

Flank wear

Reasons
- Cutting speed too high
- Carbide grade with insufficient wear resistance
- Incorrect feed rate

Remedies
- Reduce cutting speed
- Select more wear resistant carbide grade
- Adapt feed rate to cutting speed and cutting depth (increase feed rate)



Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Edge chipping

Reasons
- Grade with too high wear resistance
- Vibration
- Feed rate too high or excessive cutting depth
- Interrupted cut
- Swarf damage

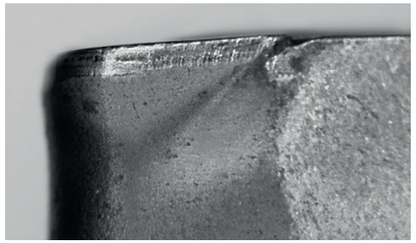
Remedies
- Use tougher grade
- Use negative cutting edge geometry with chip groove
- Increase stability (tool, work piece)

The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

Cratering

Reasons
- Cutting speed and / or feed rate too high
- Rake angle too shallow
- Grade with low wear resistance
- Insufficient coolant supply

Remedies
- Reduce cutting speed and / or feed rate
- Increase coolant quantity and / or pressure, optimise coolant supply
- Use grade with higher resistance to cratering

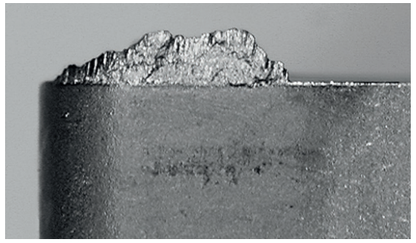


High machining temperature and simultaneous mechanical stress can lead to plastic deformation.

Plastic deformation

Reasons
- Too high machining temperature, resulting in softening of substrate
- Damaged coatings
- Chip groove too narrow

Remedies
- Reduce cutting speed
- Choose carbide grade with higher wear resistance
- Provide cooling

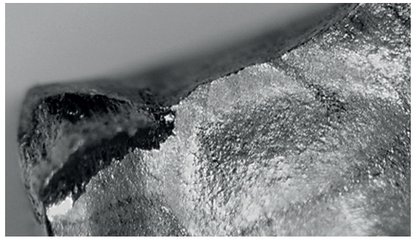


Built-up edge occurs when the chip is not evacuated properly due to insufficient cutting temperature.

Built-up edge

Reasons
- Cutting speed too low
- Rake angle too small
- Wrong cutting material
- Lack of cooling / lubrication

Remedies
- Increase cutting speed
- Increase rake angle
- Apply TiN-coating
- Use emulsion with higher concentration



Excessive stress of the insert causes breakage.

Insert breakage

Reasons
- Excessive stress of cutting material
- Lack of stability
- Corner angle too small
- Excessive notching

Remedies
- Use tougher cutting material
- Use protective edge chamfer
- Increase honing of edge
- Use more stable geometry

Designation system

1	Steel
2	Stainless steel
3	Cast iron
4	Light and non-ferrous metals. non metals
5	Heat resistant alloys. titanium
6	Hard materials
7	Universal grade for a variety of applications

Main application (material) Variant 1: number

P	Steel
M	Stainless steel
K	Cast iron
N	Light and non-ferrous metals. non metals
S	Heat resistant alloys. titanium
H	Hard materials
X	Universal grade for a variety of applications

Main application (material) Variant 2: ISO letter

P 2	P 3	2 4	35 5

Cutting material

W	Uncoated carbide
C	CVD coated carbide
P	PVD coated carbide
T	Uncoated cermet
E	Coated cermet
N	Uncoated silicon nitride
M	Coated silicon nitride
S	Mixed ceramic
I	Sialon
D	PCD
B	CBN
L	CBN coated
H	Sintered HSS

Main application (machining method)

1	Turning
2	Milling
3	Parting and grooving
4	Drilling
5	Threading
6	Others
7	Universal grade for a variety of applications

ISO 513 Application range

For example:
05
10
15
25
35 ISO P35
...

Grade Overview

Grade overview

Grade designation	Standard designation ISO	Standard designation ANSI	Toughness of cutting material	Application range 01 05 10 15 20 25 30 35 40 45 50	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat resitant	H Hard materials
TCM10	HC-P15	C7	T		●					
	HC-M10	–	T			●				
	HC-K10	C3	T				○			
WDCP115	HC-P15	C7	C		●					
	HC-K25	C2	C				●			
	HC-M10	–	C			○				
WDCP125HP2	HC-P25	–	C		●					
	HC-K30	–	C			○				
		–	C							○
WDCP135	HC-P35	C5	C		●					
	HC-M25	–	C			○				
	HC-S25	–	C						○	

● Main application
○ Extended application

Grade designation	Standard designation ISO	Standard designation ANSI	Toughness of cutting material	Application range 01 05 10 15 20 25 30 35 40 45 50	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat resitant	H Hard materials
WDCM120HP		–	C			●				
	HC-P25	–	C		○					
WDPM125	HC-M25	–	P			●				
	HC-P35	C7	P		●					
	HC-S25	–	P						○	
WDP2120		C3	P			●				
	HC-K20	C2	P				○	○		
WDPM135M	HC-M35	C5	P			●				
	HC-P35	–	P		○					
1279	HC-M15	–	P			●				
	HC-S15	–	P						○	
WDCK110HP	HC-K10	–	C				●			
	HC-P05	–	C		○					
WDCK120	HC-K20	C2	C				●			
	HC-P10	C8	C		○					

● Main application
○ Extended application

Grade overview

Grade designation	Standard designation ISO	Standard designation ANSI	Toughness of cutting material	Application range 01 05 10 15 20 25 30 35 40 45 50	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat resitant	H Hard materials
WDWN710 NEW	HW-N15	C3	W					●		
	HW-K15	C3	W				●			
WDWN715	HW-N15	C3	W					●		
	HW-K15	C3	W				●			
WDP5115	HC-S15	–	P						●	
	HC-M15	–	P			○				

● Main application

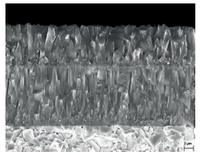
○ Extended application

TCM10 — **HT-P15 | HT-M10 | HT-K10**

Specification:
Composition: cermet Co/Ni 12.2%; WC 15.0%; TaNbC 10.0%; TiCN balance | Hardness: HV_{30} 1620

Recommended application:
The uncoated cermet grade for the finishing of hardened steel

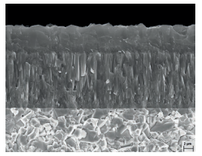
WDCP115 — **HC-P15 | HC-K25 | HC-M10**



Specification:
Composition: Co 5.8%; mixed carbides 6.4%; WC balance | Grain size: 1 - 2 □m | Hardness: HV_{30} 1550 | Coating specification: CVD TiCN-Al_2O_3

Recommended application:
The wear-resistant high-performance grade for steel machining

WDCP125HP2 — **HC-P25 | HC-K30 | HC-M20**

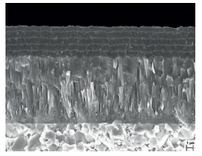


Specification:
Composition: Co 7.0%; mixed carbides 8.0%; WC balance | Grain size: 1 - 2 □m | Hardness: HV_{30} 1450 | Coating specification: CVD TiCN-Al_2O_3

Recommended application:
The first choice for the universal machining of steel

NEW

WDCP135 — **HC-P35 | HC-M25 | HC-S25**

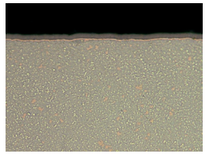


Specification:
Composition: Co 9.6%; mixed carbides 6.7%; WC balance | Grain size: 1 - 2 □m | Hardness: HV_{30} 1460 | Coating specification: CVD TiCN-Al_2O3 multi-layer

Recommended application:
The tough alternative for heavily interrupted cutting action

WDP2120

HC-M20 | HC-K20

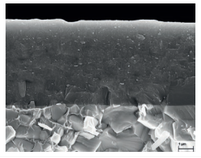


Specification:
Composition: Co 10.5%; mixed carbides 2.0%; WC balance | Grain size: 1-2mm | Hardness: HV_{30} 1400 | Coating specification: PVD TiAlTaN

Recommended application:
Particularly suitable for the wet machining of steels

WDPM125

HC-M25 | HC-P35 | HC-S25

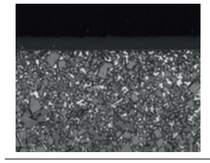


Specification:
Composition: Co 9.6%; mixed carbides 7.8%; others 0.4%; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1460 | Coating specification: PVD TiAlTaN

Recommended application:
The first choice for the machining of austenitic steels

WDPM135M

HC-M35 | HC-P35

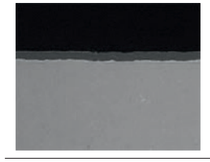


Specification:
Composition: Co 8.0%; WC balance; mixed carbides 4.2% | Grain size: 1.5 - 3.0 µm | Hardness: HV_{30} 1330

Recommended application:
Universal stainless steel turning grade, best grade in difficult conditions

1279

HC-M15 | HC-S15

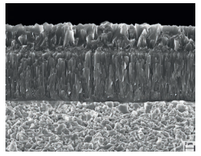


Specification:
Composition: Co 6.0%; WC balance | Grain size: 0.8 - 1,3 µm | Hardness: HV_{30} 1630 | Coating specification: PVD TiAlN

Recommended application:
The first choice for the machining of stainless steels and exotic materials

WDCK120

HC-K20 | HC-P10

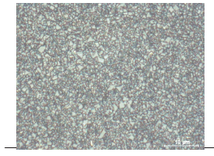


Specification:
Composition: Co 6.0%; TaC 2.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630 | Coating specification: CVD TiCN-Al_2O_3

Recommended application:
The grade for cast iron machining with high toughness reserves for difficult conditions and interrupted cut

WDWN710

HW-N15 | HW-K15



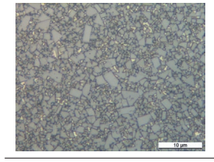
Specification:
Composition: Co 6.0 % | others 0.8 % | WC balance | Grain size 0.8 µm | Hardness HV_{30} 1820

NEW

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

WDWN715

HW-N15 | HW-K15

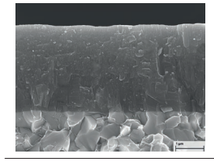


Specification:
Composition: Co 6.0%; WC balance | Grain size: 1 µm | Hardness: HV_{30} 1630

Recommended application:
The uncoated carbide grade for the machining of aluminium and other non-ferrous metals

WDP5115

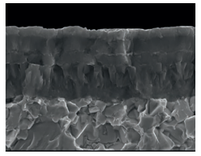
HC-S15 | HC-M15



Specification:
Composition: Co 6.0%; WC balance | Grain size: 0.8 µm | Hardness: HV_{30} 1820 | Coating specification: PVD TiAlN-TiN

Recommended application:
The first choice for the machining of heat-resistant materials

WDCM120HP | **HC-M20 | HC-P30**

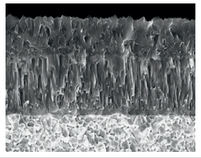


Specification:
Composition: Co 7.6%; mixed carbides 7.0%; others 0.4%; WC balance | Grain size: 1-2□m | Hardness: HV_{30} 1470 | Coating specification: CVD TiCN-Al_2O_3-Top layer.

NEW

Recommended application:
It brings advantages to dry machining, at even higher cutting speeds, and makes long tool life possible.

WDCK110HP | **HC-K10 | HC-P05**



Specification:
Composition: Co 5.0%; mixed carbides 2.0%; WC balance | Grain size: submicron | Hardness: HV_{30} 1810 | Coating specification: CVD TiCN-Al_2O_3

Recommended application:
The wear-resistant grade for the machining of cast iron at high cutting speed with continuous cut

Contact W Dynamics

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DYNAMICS

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In an industry defined by microns and milliseconds, W Dynamics stands for the pursuit of better — not just in what we make, but in how we think.

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