NEW CERATIZIT 3x3 STEEL TURNING SOLUTIONS

The Perfect Combination

CUTTING SOLUTIONS BY
CERATIZIT

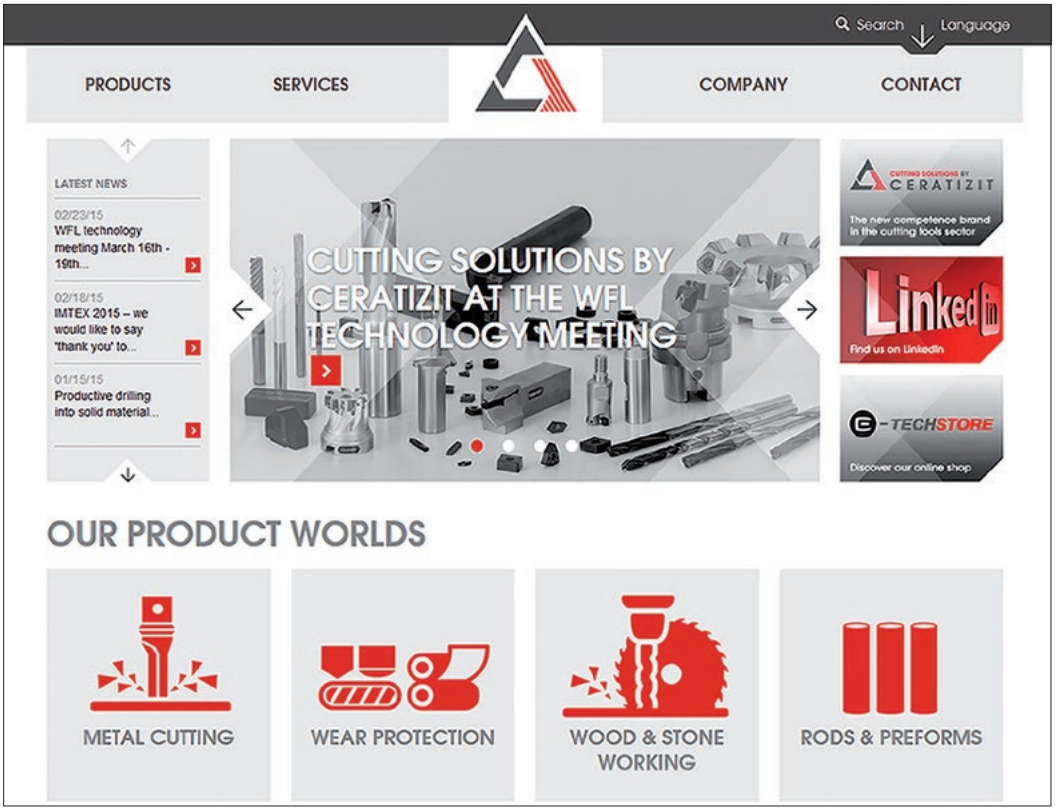
Online service

Of course we are also available for you online – around the clock! On the new CERATIZIT website you will not only find details about our innovative products, but you can also order them.

Orders can be placed in our new and improved E-TECH-STORE. With the CONFIGURATE service you can even order customised semi-standard tools.

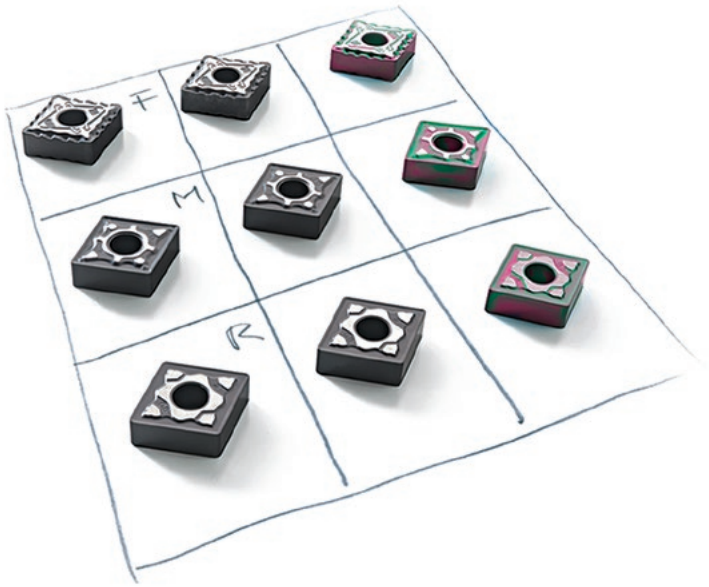
The new CERATIZIT website

CERATIZIT's website combines a modern design with increased user-friendliness making it easy and intuitive to use on mobile devices.



CERATIZIT 3x3 - the complete package for the turning of steel

Turning of steel is one of the most frequent machining operations. To meet the many requirements in this field, a wide range of grades, geometries and tools is necessary. Finding an optimal solution can be a challenge here.



An intelligent combination - this is how you achieve maximum productivity

Discover our new CERATIZIT 3x3. From now on we offer you an innovative total package for the turning of steel. Choose the most economical solution from an extremely well-structured product portfolio.

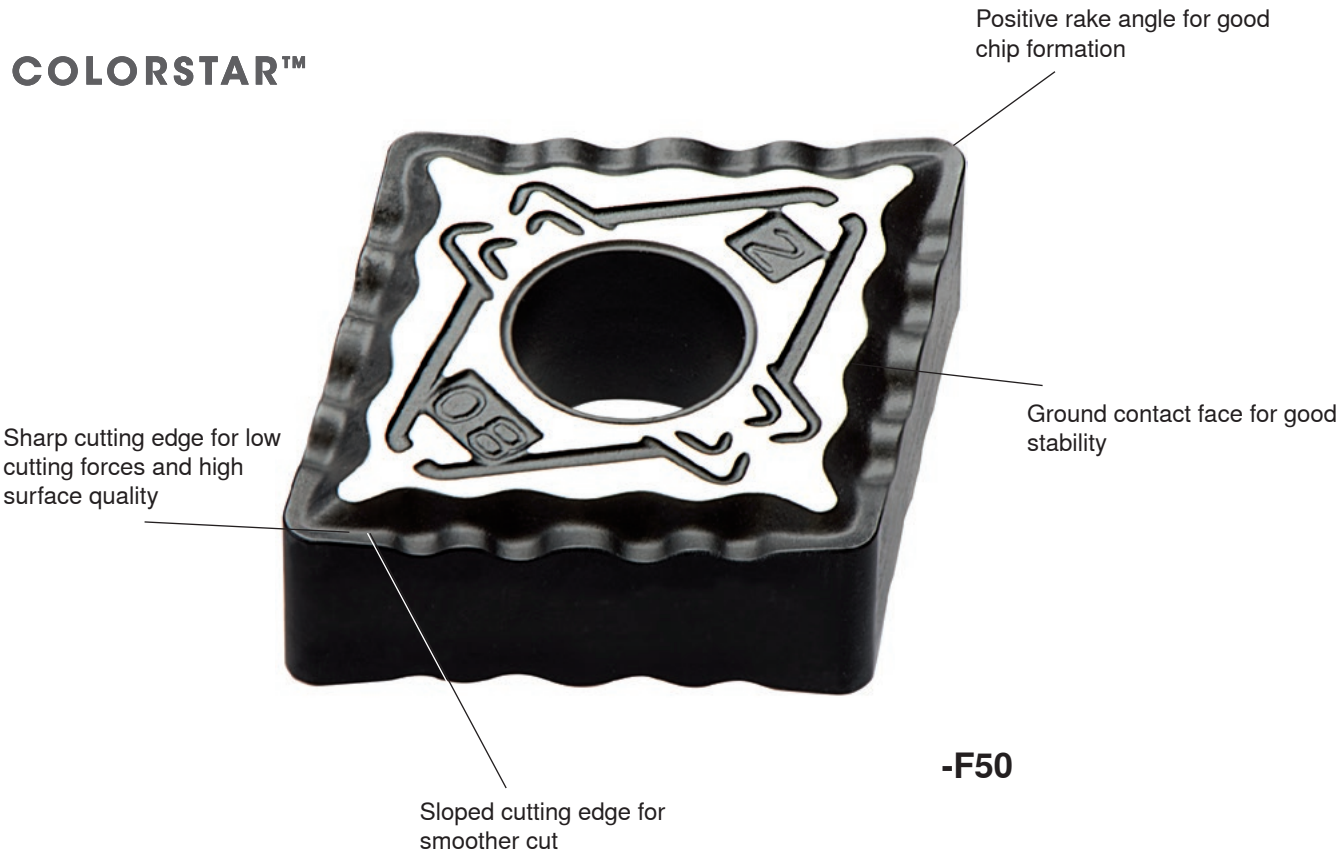
For every requirements profile our 3x3 will reliably and quickly tell you the intelligent combination of grade, chip groove and machining parameters. In this way you always receive the best suited tool for achieving maximum productivity. From roughing to finishing you will come a very big step closer to the optimum. Try for yourself! All important information can be found on the following pages...

The new -F50

The finishing geometry -F50 for steel and stainless steel is new in the range and completes CERATIZIT 3x3. It offers excellent chip control together with a high surface quality. The ground contact face increases stability. The sharp cutting edge guarantees a smooth cut and low cutting forces.

BLACKSTAR™

COLORSTAR™



-F50

A practical example

Work piece: bearing / 100Cr6

Cutting data	Competitor	CERATIZIT
Geometry	–	-F50
Grade	–	CTCP125
v_c (m/min)	750	900
f (mm/rev)	.008 – .012	.012 – .014
a_p (mm)	.040	.040
Quantity	200	**300**

+50%

CERATIZIT 3x3: 3 grades - 3 chip grooves

With the introduction of the new finishing geometry -F50 the entire steel machining range has been revised. With 3 grades and 3 chip grooves all machining situations for steel are covered.

This user-friendly concept enables quick selection of a suitable combination of grades and geometries for any kind of machining situation.

	P15	P25	P35
F	-F50 CTCP115	-F50 CTCP125	-F50 CTCP135
M	-M50 CTCP115	-M50 CTCP125	-M50 CTCP135
R	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135

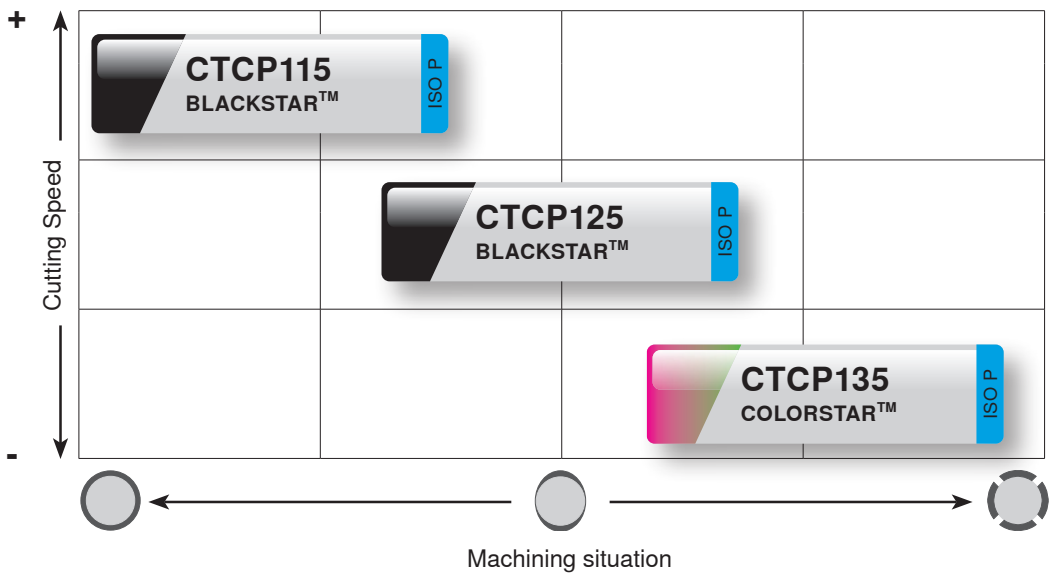
Your advantages

- Three grades cover all steel machining applications
- Complete, well-structured programme
- BLACKSTAR™ CTCP115 – highly wear-resistant grade for high cutting parameters
- BLACKSTAR™ CTCP125 - universal grade for all applications including slightly interrupted cut
- COLORSTAR™ CTCP135 – tough grade for interrupted cut and difficult conditions
- Ground contact face

Your benefits

- Reduced stock inventory, resulting in lower costs
- Easy selection of the correct insert
- For a wide application field in steel machining
- For maximum process security and consistent quality
- Higher mechanical stability of the tool holder ensures process security even under extremely difficult machining conditions

The 3 grades

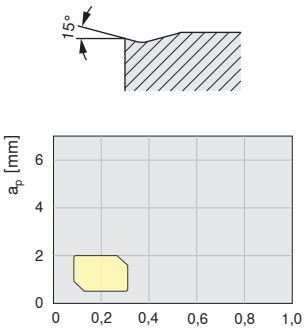


Chip grooves for negative/positive inserts

-F50

- Chip groove for finish machining
- Steel and stainless steel
- Very good chip control
- High surface quality

CNMG 120408..

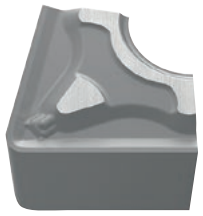


Machining conditions

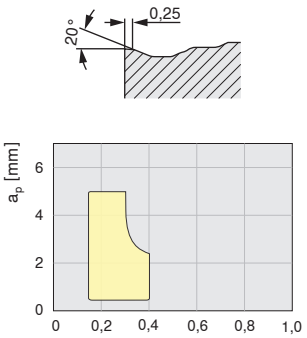
CTCP115	**CTCP125**	**CTCP135**
CTCP115	**CTCP125**	**CTCP135**

-M50

- Medium machining
- First choice for steel machining
- Universal application



CNMG 120408..



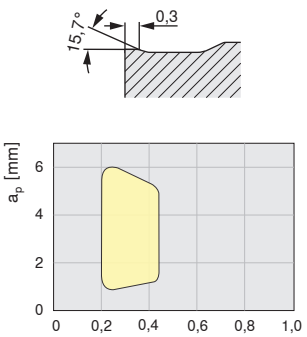
Machining conditions

CTCP115	**CTCP125**	**CTCP135**
CTCP115	CTCP135	CTCP135
CTCK110	**CTCK120**	**CTCK120**

-M70

- Light to medium roughing
- Cast skin and forging skin
- Stable cutting edge
- Interrupted cut
- For blanks and forged parts

CNMG 120408..

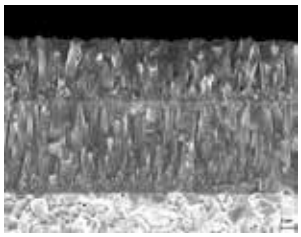


Machining conditions

CTCP115	**CTCP125**	**CTCP135**
CTCP125	**CTC2135**	**CTC2135**
CTCK110 CTCP115	**CTCK120**	**CTCK120**

CTCP115
BLACKSTAR™

HC-P15 | HC-K25 | HC-M10 — ● ● ○

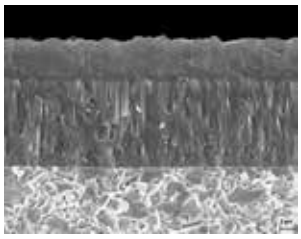


Specification:
Composition: Co 5.8 %; mixed carbides 6.4 %; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1550 | Coating specification: CVD TiCN-Al_2O_3

Recommended application:
Wear-resistant high-performance grade for steel machining

CTCP125
BLACKSTAR™

HC-P25 | HC-K30 | HC-M20 — ● ● ○

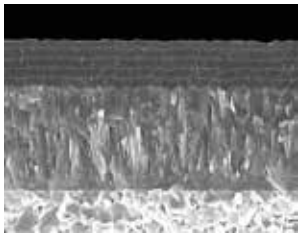


Specification:
Composition: Co 7.0 %; mixed carbides 8.0 %; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1450 | Coating specification: CVD TiCN-Al_2O_3

Recommended application:
The first choice for universal steel machining

CTCP135
COLORSTAR™

HC-P35 | HC-M25 | HC-S25 — ● ○ ○



Specification:
Composition: Co 9.6 %; mixed carbides 6.7 %; WC balance | Grain size: 1 - 2 µm | Hardness: HV_{30} 1460 | Coating specification: CVD TiCN-Al_2O_3 multi-layer

Recommended application:
The tough alternative for heavily interrupted cut

Grade designation	Standard designation		*Type of cutting material	Application range 01 05 10 15 20 25 30 35 40 45 50	P Steel	M Stainless	K Cast iron	N Non-ferrous metals	S Heat-resistant	H Hard materials
	ISO	ANSI								
CTCP115	HC-P15	C7	C		●					
	HC-K25	C2	C				●			
	HC-M10	-	C			○				
CTCP125	HC-P25	C6	C		●					
	HC-K30	C1	C				●			
	HC-M20	-	C			○				
CTCP135	HC-P35	C5	C		●					
	HC-M25	-	C			○				
	HC-S25	-	C						○	

01 05 10 15 20 25 30 35 40 45 50

● Main application

○ Extended application

MaxiLock D/N

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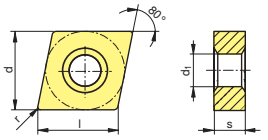
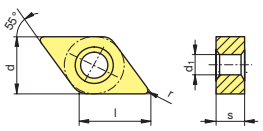
			CTCP115	CTCP125	CTCP135	d [mm]	l [mm]	s [mm]	r [mm]	d_1 [mm]
P			●	●	●					
M			○	○	○					
K			●	●						
N										
S					○					
H										
-F50		CNMG 090304EN-F50	●	●	●	9.52	9.70	3.18	0.40	3.81
		CNMG 090308EN-F50	●	●	●	9.52	9.70	3.18	0.80	3.81
		CNMG 120404EN-F50	●	●	●	12.70	12.90	4.76	0.40	5.16
		CNMG 120408EN-F50	●	●	●	12.70	12.90	4.76	0.80	5.16
		CNMG 120412EN-F50	●	●	●	12.70	12.90	4.76	1.20	5.16
-M50		CNMG 120404EN-M50	●	●	●	12.70	12.90	4.76	0.40	5.16
		CNMG 120408EN-M50	●	●	●	12.70	12.90	4.76	0.80	5.16
		CNMG 120412EN-M50	●	●	●	12.70	12.90	4.76	1.20	5.16
		CNMG 120416EN-M50	●	●	●	12.70	12.90	4.76	1.60	5.16
		CNMG 160608EN-M50	●	●	●	15.88	16.10	6.35	0.80	6.35
		CNMG 160612EN-M50	●	●	●	15.88	16.10	6.35	1.20	6.35
		CNMG 160616EN-M50	●	●	●	15.88	16.10	6.35	1.60	6.35
-M70		CNMG 120408EN-M70	●	●	●	12.70	12.90	4.76	0.80	5.16
		CNMG 120412EN-M70	●	●	●	12.70	12.90	4.76	1.20	5.16
		CNMG 120416EN-M70	●	●	●	12.70	12.90	4.76	1.60	5.16
		CNMG 160608EN-M70	●	●	●	15.88	16.10	6.35	0.80	6.35
		CNMG 160612EN-M70	●	●	●	15.88	16.10	6.35	1.20	6.35
		CNMG 160616EN-M70	●	●	●	15.88	16.10	6.35	1.60	6.35
		CNMG 190612EN-M70	●	●	●	19.05	19.30	6.35	1.20	7.94
		CNMG 190616EN-M70	●	●	●	19.05	19.30	6.35	1.60	7.94
		CNMG 190624EN-M70	●	●	●	19.05	19.30	6.35	2.40	7.94
		CNMG 250924EN-M70		●		25.40	25.80	9.52	2.40	9.12
-F50		DNMG 110404EN-F50	●	●	●	9.52	11.60	4.76	0.40	3.81
		DNMG 110408EN-F50	●	●	●	9.52	11.60	4.76	0.80	3.81
		DNMG 110412EN-F50	●	●	●	9.52	11.60	4.76	1.20	3.81
		DNMG 150404EN-F50	●	●	●	12.70	15.50	4.76	0.40	5.16
		DNMG 150408EN-F50	●	●	●	12.70	15.50	4.76	0.80	5.16
		DNMG 150412EN-F50	●	●	●	12.70	15.50	4.76	1.20	5.16
		DNMG 150604EN-F50	●	●	●	12.70	15.50	6.35	0.40	5.16
		DNMG 150608EN-F50	●	●	●	12.70	15.50	6.35	0.80	5.16
		DNMG 150612EN-F50	●	●	●	12.70	15.50	6.35	1.20	5.16
-M50		DNMG 110404EN-M50	●	●	●	9.52	11.60	4.76	0.40	3.81
		DNMG 110408EN-M50	●	●	●	9.52	11.60	4.76	0.80	3.81
		DNMG 110412EN-M50	●	●	●	9.52	11.60	4.76	1.20	3.81
		DNMG 150404EN-M50	●	●	●	12.70	15.50	4.76	0.40	5.16
		DNMG 150408EN-M50	●	●	●	12.70	15.50	4.76	0.80	5.16
		DNMG 150412EN-M50	●	●	●	12.70	15.50	4.76	1.20	5.16
		DNMG 150416EN-M50	●	●	●	12.70	15.50	4.76	1.60	5.16
		DNMG 150604EN-M50	●	●	●	12.70	15.50	6.35	0.40	5.16
		DNMG 150608EN-M50	●	●	●	12.70	15.50	6.35	0.80	5.16
		DNMG 150612EN-M50	●	●	●	12.70	15.50	6.35	1.20	5.16
		DNMG 150616EN-M50	●	●	●	12.70	15.50	6.35	1.60	5.16
			CTCP115	CTCP125	CTCP135	d	l	s	r	d_1





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MaxiLock D/N

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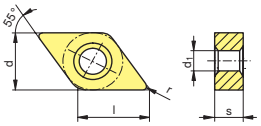
			CTCP115	CTCP125	CTCP135	d [mm]	l [mm]	s [mm]	r [mm]	d_1 [mm]
P			●	●	●					
M			○	○	○					
K			●	●						
N										
S					○					
H										
-M70		DNMG 110408EN-M70	●	●	●	9.52	11.60	4.76	0.80	3.81
		DNMG 110412EN-M70	●	●	●	9.52	11.60	4.76	1.20	3.81
		DNMG 150408EN-M70	●	●	●	12.70	15.50	4.76	0.80	5.16
		DNMG 150412EN-M70	●	●	●	12.70	15.50	4.76	1.20	5.16
		DNMG 150416EN-M70	●	●	●	12.70	15.50	4.76	1.60	5.16
		DNMG 150608EN-M70	●	●	●	12.70	15.50	6.35	0.80	5.16
		DNMG 150612EN-M70	●	●	●	12.70	15.50	6.35	1.20	5.16
		DNMG 150616EN-M70	●	●	●	12.70	15.50	6.35	1.60	5.16
			CTCP115	CTCP125	CTCP135	d	l	s	r	d_1



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MaxiLock D/N

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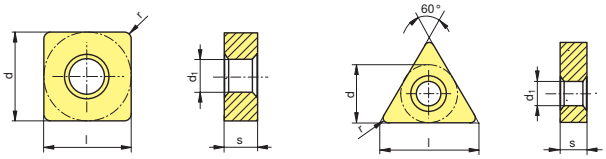
			CTCP115	CTCP125	CTCP135	d [mm]	l [mm]	s [mm]	r [mm]	d_1 [mm]
-F50		SNMG 090308EN-F50	●	●	●	9.52	9.52	3.18	0.80	3.81
		SNMG 120404EN-F50	●	●	●	12.70	12.70	4.76	0.40	5.16
		SNMG 120408EN-F50	●	●	●	12.70	12.70	4.76	0.80	5.16
		SNMG 120412EN-F50	●	●	●	12.70	12.70	4.76	1.20	5.16
-M50		SNMG 120408EN-M50	●	●	●	12.70	12.70	4.76	0.80	5.16
		SNMG 120412EN-M50	●	●	●	12.70	12.70	4.76	1.20	5.16
		SNMG 120416EN-M50	●	●	●	12.70	12.70	4.76	1.60	5.16
		SNMG 150608EN-M50	●	●	●	15.88	15.88	6.35	0.80	6.35
		SNMG 150612EN-M50	●	●	●	15.88	15.88	6.35	1.20	6.35
		SNMG 150616EN-M50	●	●	●	15.88	15.88	6.35	1.60	6.35
-M70		SNMG 120408EN-M70	●	●	●	12.70	12.70	4.76	0.80	5.16
		SNMG 120412EN-M70	●	●	●	12.70	12.70	4.76	1.20	5.16
		SNMG 120416EN-M70	●	●	●	12.70	12.70	4.76	1.60	5.16
		SNMG 150612EN-M70	●	●	●	15.88	15.88	6.35	1.20	6.35
		SNMG 150616EN-M70	●	●	●	15.88	15.88	6.35	1.60	6.35
		SNMG 190612EN-M70	●	●	●	19.05	19.05	6.35	1.20	7.94
		SNMG 190616EN-M70	●	●	●	19.05	19.05	6.35	1.60	7.94
		SNMG 190624EN-M70	●	●	●	19.05	19.05	6.35	2.40	7.94
		SNMG 250924EN-M70		●		25.40	25.40	9.52	2.40	9.12
-F50		TNMG 110304EN-F50	●	●	●	6.35	11.00	3.18	0.40	2.26
		TNMG 160404EN-F50	●	●	●	9.52	16.50	4.76	0.40	3.81
		TNMG 160408EN-F50	●	●	●	9.52	16.50	4.76	0.80	3.81
		TNMG 160412EN-F50	●	●	●	9.52	16.50	4.76	1.20	3.81
-M50		TNMG 160404EN-M50	●	●	●	9.52	16.50	4.76	0.40	3.81
		TNMG 160408EN-M50	●	●	●	9.52	16.50	4.76	0.80	3.81
		TNMG 160412EN-M50	●	●	●	9.52	16.50	4.76	1.20	3.81
		TNMG 220408EN-M50	●	●	●	12.70	22.00	4.76	0.80	5.16
		TNMG 220412EN-M50	●	●	●	12.70	22.00	4.76	1.20	5.16
-M70		TNMG 160408EN-M70	●	●	●	9.52	16.50	4.76	0.80	3.81
		TNMG 160412EN-M70	●	●	●	9.52	16.50	4.76	1.20	3.81
		TNMG 220404EN-M70		●		12.70	22.00	4.76	0.40	5.16
		TNMG 220408EN-M70	●	●	●	12.70	22.00	4.76	0.80	5.16
		TNMG 220412EN-M70	●	●	●	12.70	22.00	4.76	1.20	5.16
		TNMG 220416EN-M70	●	●	●	12.70	22.00	4.76	1.60	5.16
			CTCP115	CTCP125	CTCP135	d	l	s	r	d_1



#R101#

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MaxiLock D/N

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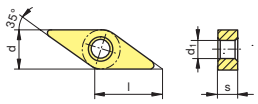
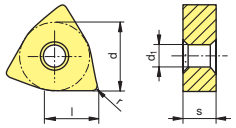
			P	M	K	N	S	H	CTCP115	CTCP125	CTCP135	d [mm]	l [mm]	s [mm]	r [mm]	d_1 [mm]
-F50		VNMG 160404EN-F50	●	○	●				●	●	●	9.52	16.60	4.76	0.40	3.81
		VNMG 160408EN-F50	●	○	●				●	●	●	9.52	16.60	4.76	0.80	3.81
-M50		VNMG 160404EN-M50	●	●					●	●		9.52	16.60	4.76	0.40	3.81
		VNMG 160408EN-M50	●	●					●	●		9.52	16.60	4.76	0.80	3.81
		VNMG 160412EN-M50	●	●					●	●		9.52	16.60	4.76	1.20	3.81
-F50		WNMG 060404EN-F50	●	○	●				●	●	●	9.52	6.50	4.76	0.40	3.81
		WNMG 060408EN-F50	●	○	●				●	●	●	9.52	6.50	4.76	0.80	3.81
		WNMG 080404EN-F50	●	○	●				●	●	●	12.70	8.69	4.76	0.40	5.16
		WNMG 080408EN-F50	●	○	●				●	●	●	12.70	8.69	4.76	0.80	5.16
		WNMG 080412EN-F50	●	○	●				●	●	●	12.70	8.69	4.76	1.20	5.16
-M50		WNMG 060404EN-M50	●	●					●	●	●	9.52	6.50	4.76	0.40	3.81
		WNMG 060408EN-M50	●	●					●	●	●	9.52	6.50	4.76	0.80	3.81
		WNMG 060412EN-M50	●	●					●	●	●	9.52	6.50	4.76	1.20	3.81
		WNMG 080404EN-M50	●	●					●	●	●	12.70	8.69	4.76	0.40	5.16
		WNMG 080408EN-M50	●	●					●	●	●	12.70	8.69	4.76	0.80	5.16
		WNMG 080412EN-M50	●	●					●	●	●	12.70	8.69	4.76	1.20	5.16
		WNMG 080416EN-M50	●	●					●	●	●	12.70	8.69	4.76	1.60	5.16
-M70		WNMG 060408EN-M70	●	●					●	●	●	9.52	6.50	4.76	0.80	3.81
		WNMG 060412EN-M70	●	●					●	●	●	9.52	6.50	4.76	1.20	3.81
		WNMG 080408EN-M70	●	●					●	●	●	12.70	8.69	4.76	0.80	5.16
		WNMG 080412EN-M70	●	●					●	●	●	12.70	8.69	4.76	1.20	5.16
		WNMG 080416EN-M70	●	●					●	●	●	12.70	8.69	4.76	1.60	5.16
									CTCP115	CTCP125	CTCP135	d	l	s	r	d_1





#R101#

#R102#

#R103#

CUTTING SOLUTIONS BY CERATIZIT

Finishing: -F50										
	Designation	f min.	f rec. (in/rev)	f max.	ap min.	ap rec. (inch)	ap max.	CTCP115	CTCP125	CTCP135
	CNMG 090304EN-F50	0.002	**0.006**	0.010	0.008	**0.024**	0.060	●	●	●
	CNMG 090308EN-F50	0.004	**0.008**	0.012	0.016	**0.040**	0.079	●	●	●
	CNMG 120404EN-F50	0.002	**0.006**	0.010	0.008	**0.024**	0.060	●	●	●
	CNMG 120408EN-F50	0.004	**0.008**	0.012	0.016	**0.040**	0.079	●	●	●
	CNMG 120412EN-F50	0.006	**0.010**	0.014	0.024	**0.056**	0.103	●	●	○
	DNMG 110402EN-F50	0.002	**0.004**	0.008	0.004	**0.016**	0.052	●	●	●
	DNMG 110404EN-F50	0.002	**0.006**	0.010	0.008	**0.024**	0.060	●	●	●
	DNMG 110408EN-F50	0.004	**0.008**	0.012	0.016	**0.040**	0.079	●	●	●
	DNMG 110412EN-F50	0.006	**0.010**	0.014	0.024	**0.056**	0.103	○	○	○
	DNMG 150404EN-F50	0.002	**0.006**	0.010	0.008	**0.024**	0.060	●	●	○
	DNMG 150408EN-F50	0.004	**0.008**	0.012	0.016	**0.040**	0.079	●	●	○
	DNMG 150412EN-F50	0.006	**0.010**	0.014	0.024	**0.056**	0.103	○	○	○
	DNMG 150604EN-F50	0.002	**0.006**	0.010	0.008	**0.024**	0.060	●	●	●
	DNMG 150608EN-F50	0.004	**0.008**	0.012	0.016	**0.040**	0.079	●	●	●
	DNMG 150612EN-F50	0.006	**0.010**	0.014	0.024	**0.056**	0.103	●	○	○
	SNMG 090308EN-F50	0.004	**0.008**	0.012	0.016	**0.040**	0.079	●	●	●
	SNMG 120404EN-F50	0.002	**0.006**	0.010	0.008	**0.024**	0.060	●	●	●
	SNMG 120408EN-F50	0.004	**0.008**	0.012	0.016	**0.040**	0.079	●	●	●
	SNMG 120412EN-F50	0.006	**0.010**	0.014	0.024	**0.056**	0.103	●	●	○
	TNMG 110304EN-F50	0.002	**0.006**	0.010	0.008	**0.024**	0.060	●	●	○
	TNMG 110308EN-F50	0.004	**0.008**	0.012	0.016	**0.040**	0.079	●	●	●
	TNMG 160404EN-F50	0.002	**0.006**	0.010	0.008	**0.024**	0.060	●	●	○
	TNMG 160408EN-F50	0.004	**0.008**	0.012	0.016	**0.040**	0.079	●	●	●
	TNMG 160412EN-F50	0.006	**0.010**	0.014	0.024	**0.056**	0.103	○	○	○
	VNMG 160404EN-F50	0.002	**0.006**	0.010	0.008	**0.024**	0.060	●	●	○
	VNMG 160408EN-F50	0.004	**0.008**	0.012	0.016	**0.040**	0.079	●	●	○
	WNMG 060404EN-F50	0.002	**0.006**	0.010	0.008	**0.024**	0.060	●	●	○
	WNMG 060408EN-F50	0.004	**0.008**	0.012	0.016	**0.040**	0.079	●	●	●
	WNMG 080404EN-F50	0.002	**0.006**	0.010	0.008	**0.024**	0.060	●	●	○
	WNMG 080408EN-F50	0.004	**0.008**	0.012	0.016	**0.040**	0.079	●	●	●
	WNMG 080412EN-F50	0.006	**0.010**	0.014	0.024	**0.056**	0.103	○	○	○

The listed cutting data are intended as an approximate reference.
An adjustment to the current conditions is recommended.

○ Limited stock or upon request

Cutting Data

Medium machining: -M50

	Designation	f min.	f rec. (in /rev)	f max.	ap min.	ap rec. (inch)	ap max.	CTCP115	CTCP125	CTCP135
	CNMG 120404EN-M50	0.004	**0.008**	0.012	0.016	**0.079**	0.200	●	●	○
	CNMG 120408EN-M50	0.006	**0.010**	0.016	0.024	**0.079**	0.200	●	●	●
	CNMG 120412EN-M50	0.008	**0.012**	0.020	0.040	**0.079**	0.200	●	●	●
	CNMG 120416EN-M50	0.010	**0.016**	0.024	0.056	**0.079**	0.200	●	●	●
	CNMG 160608EN-M50	0.006	**0.010**	0.016	0.024	**0.119**	0.318	●	●	●
	CNMG 160612EN-M50	0.008	**0.012**	0.020	0.040	**0.119**	0.318	●	●	●
	CNMG 160616EN-M50	0.010	**0.016**	0.024	0.056	**0.119**	0.318	●	●	●
	DNMG 110404EN-M50	0.004	**0.008**	0.012	0.016	**0.060**	0.159	●	●	○
	DNMG 110408EN-M50	0.006	**0.010**	0.016	0.024	**0.060**	0.159	●	●	○
	DNMG 110412EN-M50	0.008	**0.012**	0.020	0.040	**0.060**	0.159	○	○	○
	DNMG 150404EN-M50	0.004	**0.008**	0.012	0.016	**0.079**	0.200	●	●	○
	DNMG 150408EN-M50	0.006	**0.010**	0.016	0.024	**0.079**	0.200	●	●	●
	DNMG 150412EN-M50	0.008	**0.012**	0.020	0.040	**0.079**	0.200	○	●	●
	DNMG 150416EN-M50	0.010	**0.016**	0.024	0.056	**0.079**	0.200	○	●	●
	DNMG 150604EN-M50	0.004	**0.008**	0.012	0.016	**0.079**	0.200	●	●	○
	DNMG 150608EN-M50	0.006	**0.010**	0.016	0.024	**0.079**	0.200	●	●	●
	DNMG 150612EN-M50	0.008	**0.012**	0.020	0.040	**0.079**	0.200	●	●	●
	DNMG 150616EN-M50	0.010	**0.016**	0.024	0.056	**0.079**	0.200	●	●	●
	SNMG 120408EN-M50	0.006	**0.010**	0.016	0.024	**0.079**	0.200	●	●	●
	SNMG 120412EN-M50	0.008	**0.012**	0.020	0.040	**0.079**	0.200	●	●	●
	SNMG 120416EN-M50	0.010	**0.016**	0.024	0.056	**0.079**	0.200	●	●	●
	SNMG 150608EN-M50	0.006	**0.010**	0.016	0.024	**0.119**	0.318	●	●	●
	SNMG 150612EN-M50	0.008	**0.012**	0.020	0.040	**0.119**	0.318	●	●	●
	SNMG 150616EN-M50	0.010	**0.016**	0.024	0.056	**0.119**	0.318	●	●	●
	TNMG 160404EN-M50	0.004	**0.008**	0.012	0.016	**0.079**	0.199	●	●	●
	TNMG 160408EN-M50	0.006	**0.010**	0.016	0.024	**0.079**	0.200	●	●	●
	TNMG 160412EN-M50	0.008	**0.012**	0.020	0.040	**0.079**	0.200	●	●	●
	TNMG 220408EN-M50	0.006	**0.010**	0.016	0.024	**0.119**	0.318	●	○	○
	TNMG 220412EN-M50	0.008	**0.012**	0.020	0.040	**0.119**	0.318	●	●	●
	VNMG 160404EN-M50	0.004	**0.008**	0.012	0.016	**0.040**	0.159	●	●	
	VNMG 160408EN-M50	0.006	**0.010**	0.016	0.024	**0.040**	0.159	●	●	
	VNMG 160412EN-M50	0.008	**0.012**	0.020	0.040	**0.040**	0.159	●	●	
	WNMG 060404EN-M50	0.004	**0.008**	0.012	0.016	**0.040**	0.200	●	●	○
	WNMG 060408EN-M50	0.006	**0.010**	0.016	0.024	**0.040**	0.200	●	●	●
	WNMG 060412EN-M50	0.008	**0.012**	0.020	0.040	**0.040**	0.200	●	●	●
	WNMG 080404EN-M50	0.004	**0.008**	0.012	0.016	**0.060**	0.159	●	●	○
	WNMG 080408EN-M50	0.006	**0.010**	0.016	0.024	**0.060**	0.159	●	●	●
	WNMG 080412EN-M50	0.008	**0.012**	0.020	0.040	**0.060**	0.159	●	●	●
	WNMG 080416EN-M50	0.010	**0.016**	0.024	0.056	**0.060**	0.159	●	●	○

The listed cutting data are intended as an approximate reference.
An adjustment to the current conditions is recommended.

○ Limited stock or upon request

Roughing: -M70

	Designation	f min.	f rec. (in / rev)	f max.	ap min.	ap rec. (inch)	ap max.	CTCP115	CTCP125	CTCP135
	CNMG 120408EN-M70	0.008	**0.012**	0.018	0.032	**0.119**	0.238	●	●	●
	CNMG 120412EN-M70	0.010	**0.016**	0.024	0.048	**0.119**	0.238	●	●	●
	CNMG 120416EN-M70	0.012	**0.018**	0.028	0.064	**0.119**	0.238	●	●	●
	CNMG 160608EN-M70	0.008	**0.012**	0.018	0.032	**0.159**	0.318	●	●	●
	CNMG 160612EN-M70	0.010	**0.016**	0.024	0.048	**0.159**	0.318	●	●	●
	CNMG 160616EN-M70	0.012	**0.018**	0.028	0.064	**0.159**	0.318	●	●	●
	CNMG 160624EN-M70	0.016	**0.028**	0.048	0.095	**0.159**	0.318	○	●	●
	CNMG 190608EN-M70	0.008	**0.012**	0.018	0.032	**0.179**	0.357	○	●	●
	CNMG 190612EN-M70	0.010	**0.016**	0.024	0.048	**0.179**	0.357	●	●	●
	CNMG 190616EN-M70	0.012	**0.018**	0.028	0.064	**0.179**	0.357	●	●	●
	CNMG 190624EN-M70	0.016	**0.028**	0.048	0.095	**0.179**	0.357	●	●	●
	CNMG 250924EN-M70	0.016	**0.028**	0.048	0.095	**0.238**	0.516		●	
	DNMG 110408EN-M70	0.008	**0.010**	0.018	0.032	**0.079**	0.199	●	●	●
	DNMG 110412EN-M70	0.010	**0.014**	0.024	0.048	**0.079**	0.199	●	●	●
	DNMG 150408EN-M70	0.008	**0.010**	0.018	0.032	**0.099**	0.238	○	●	●
	DNMG 150412EN-M70	0.010	**0.014**	0.024	0.048	**0.099**	0.238	○	●	●
	DNMG 150416EN-M70	0.012	**0.016**	0.028	0.064	**0.099**	0.238	○	●	●
	DNMG 150608EN-M70	0.008	**0.010**	0.018	0.032	**0.099**	0.238	●	●	●
	DNMG 150612EN-M70	0.010	**0.014**	0.024	0.048	**0.099**	0.238	●	●	●
	DNMG 150616EN-M70	0.012	**0.016**	0.028	0.064	**0.099**	0.238	●	●	●
	SNMG 120408EN-M70	0.008	**0.012**	0.020	0.032	**0.119**	0.238	●	●	○
	SNMG 120412EN-M70	0.010	**0.016**	0.026	0.048	**0.119**	0.238	●	●	●
	SNMG 120416EN-M70	0.012	**0.018**	0.028	0.064	**0.119**	0.238	●	●	●
	SNMG 150612EN-M70	0.010	**0.016**	0.026	0.048	**0.159**	0.318	●	●	●
	SNMG 150616EN-M70	0.012	**0.018**	0.030	0.064	**0.159**	0.318	●	●	●
	SNMG 190612EN-M70	0.010	**0.016**	0.026	0.048	**0.179**	0.357	●	●	●
	SNMG 190616EN-M70	0.012	**0.018**	0.030	0.064	**0.179**	0.357	●	●	●
	SNMG 190624EN-M70	0.016	**0.028**	0.048	0.095	**0.179**	0.357	●	●	●
	SNMG 250924EN-M70	0.016	**0.028**	0.048	0.095	**0.238**	0.516		●	
	TNMG 160408EN-M70	0.008	**0.010**	0.018	0.032	**0.099**	0.238	●	●	●
	TNMG 160412EN-M70	0.010	**0.014**	0.024	0.048	**0.099**	0.238	●	●	●
	TNMG 220404EN-M70	0.006	**0.008**	0.012	0.016	**0.119**	0.278		●	
	TNMG 220408EN-M70	0.008	**0.010**	0.018	0.032	**0.119**	0.278	●	●	●
	TNMG 220412EN-M70	0.010	**0.014**	0.024	0.048	**0.119**	0.278	●	●	●
	TNMG 220416EN-M70	0.012	**0.016**	0.028	0.064	**0.119**	0.278	○	●	●
	WNMG 060408EN-M70	0.008	**0.012**	0.018	0.032	**0.079**	0.159	●	●	○
	WNMG 060412EN-M70	0.010	**0.016**	0.024	0.048	**0.079**	0.159	●	●	●
	WNMG 080408EN-M70	0.008	**0.012**	0.018	0.032	**0.099**	0.199	●	●	●
	WNMG 080412EN-M70	0.010	**0.016**	0.024	0.048	**0.099**	0.199	●	●	●
	WNMG 080416EN-M70	0.012	**0.018**	0.028	0.064	**0.099**	0.199	●	●	●

The listed cutting data are intended as an approximate reference.
An adjustment to the current conditions is recommended.

○ Limited stock or upon request

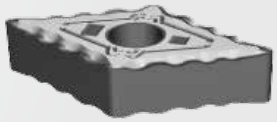
Cutting Data

Work piece / material		Type of treatment / alloy		VDI3323 group	Hard-ness HB	CTCP115 Vc [ft/min]	CTCP125 Vc [ft/min]	CTCP135 Vc [ft/min]
P	Non alloyed steel	annealed	≤ 0.15 % C	1	125	750 - 1500	570 - 870	480 - 630
		annealed	0.15 %–0.45 % C	2	150 - 250	660 - 1200	510 - 720	450 -510
		tempered	≥ 0.45 % C	3	300	570 - 900	390 - 900	330 - 390
	Low alloyed steel	annealed		6	180	750 - 1200	510 - 750	450 - 510
		tempered		7/8	250 - 300	600 - 960	300 - 570	240 - 390
		tempered		9	350	450 -840	240 -510	180 - 330
	High alloyed steel	annealed		10	200	540 - 960	390 - 630	300 - 540
		tempered		11	350	360 - 840	240 - 480	120 - 240
	Stainless steel	annealed	ferritic/martensitic	12	200	600 - 960	390 - 660	360 - 480
		tempered	martensitic	13	325	450 - 840	330 - 570	270 - 420
		heat-treated	ferritic/martensitic	13	200	660 - 900	420 - 630	360 - 540
M	Stainless steel	quenched	austenitic	14	180		300 - 630	270 - 510
		quenched	ferritic/austenitic (duplex)	14	230 - 260			210 - 540
		hardened	austenitic precipitation hardened (PH)	14	330		210 - 300	120 - 180
K	Grey cast iron		pearlitic/ferritic	15	180	420 - 1110	390 - 630	
			pearlitic/martensitic	16	260	420 - 990	360 - 600	
	Spheroidal cast iron		ferritic	17	160	570 - 1320	360 - 720	
			pearlitic	18	–	420 - 810	360 - 600	
	Malleable cast iron		ferritic	19	130	540 - 1560	450 - 750	
			pearlitic	20	230	450 - 990	360 - 600	

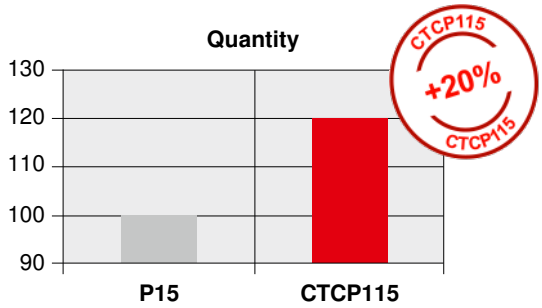
10. Success stories

10.1 Turning of pivot pin

Material: 4140 (1.7223)
Insert: DNMG 110404EN -F50
Chip groove: CTCP115
Grade:

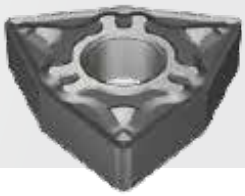


Cutting data	Current situation	CERATIZIT
Chip groove	Finishing	-F50
Grade	P15	CTCP115
V_c (ft/min)	720	780
f (in/rev)	.045	.056
a_p (in)	.016 – .024	.016– .024
Quantity	**100**	**120**

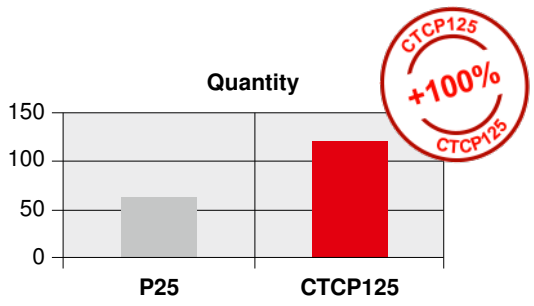


10.2 Turning of bearing rings

Material: **ANSI 5210** (1.3505)
Insert: WNMG 080412EN
Chip groove: -M50
Grade: CTCP125



Cutting data	Current situation	CERATIZIT
Chip groove	Medium machining	-M50
Grade	P25	CTCP125
V_c (m/min)	**750**	**750**
f (mm/rev)	.013	.013
a_p (mm)	.060	.060
Quantity	**60**	**120**



10.3 Shaft turning

Material : SAE 5117 (1.7139)
Insert: WNMG 080412EN -M70
Chip groove: CTCP135
Grade:

Cutting data	Current situation	CERATIZIT
Chip groove	Roughing	-M70
Grade	P35	CTCP135
V_c (ft/min)	975	975
f (in/rev)	.017	.017
a_p (in)	.120	.120
Quantity	**50**	**70**