



PRODUCT-HIGHLIGHTS IMTS 2014 — US





Welcome to the world of CERATIZIT cutting solutions ...

We appreciate your interest in our innovative cutting solutions from CERATIZIT. This brochure offers you a summary of the products we are featuring at IMTS 2014. These innovative products will increase your productivity, improve the quality of your products, extend your technical capabilities and enhance your competitive position. The standards we set for ourselves at CERATIZIT include a concentrated focus on providing added value for our business partners, by providing optimal solutions across a variety of cutting tool applications and a broad range of industries.

As an industry leader in cutting tool solutions, we continually seek ways to expand our product offering, in alignment with our goal of maximizing the benefits for our customers. Thanks to our strategic investment into a partnership with Promax, we now can fulfill our customer requirements in the field of solid carbide tooling.

We hope our products will inspire you to consider the realm of application possibilities and to explore specific solutions in collaboration with us! We believe that CERATIZIT cutting solutions can provide the foundation for continued success and sustainable partnerships.

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Aerospace

Roughing of structural aerospace components

In the modern aerospace industry, complex structural assemblies are increasingly being replaced by integral elements. Instead of multiple steel components held together by fasteners, they are machined from a single block of titanium alloy. Integral elements are lighter and have superior mechanical properties. However they have complex geometries and require high metal removal in roughing, up to 90% of the raw material weight. The use of CERATIZIT shoulder milling systems and of porcupine cutters – based on MaxiMill 211 – are on the rise to

achieve high metal removal rates. CERATIZIT has a wide selection of such cutters as standard in the MaxiMill 211 and MaxiMill 211-K family.

In combination with the insert XDKT 15 and XDKT 20 in geometry -F40 and grade CTC5240 we achieve the highest metal removal rates and long reliable tool life at high cutting data.

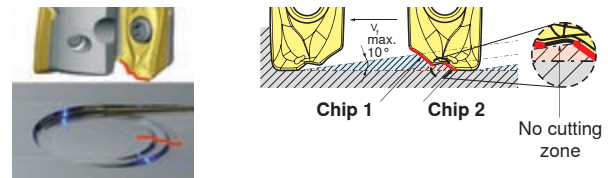


Facts		Data
Material	TiAl6V4	$v_c = 247,7 \text{ sfm}$
Tool	M211.80.R.05K9-15-AD-145	$v_f = 9,4 \text{ ipm}$ $f_z = 0.006 \text{ ipt}$
Insert	XDKT 150508ER-F40	d.o.c. = 4 inch $a_e = 1,4 \text{ inch}$
Grade	CTC5240	= yes

Success factors

- ▲ Grade CTC5240 has extraordinary heat resistance, high wear resistance and tough coating with low friction surface
- ▲ The geometry -F40 was developed to machine difficult materials such as titanium, superalloys and heat resistant stainless steels
- ▲ The positive geometry causes a consistent removal of chips and a reduction in temperature in the tool
- ▲ Very stable with moderate noise and vibration levels compared to competitor

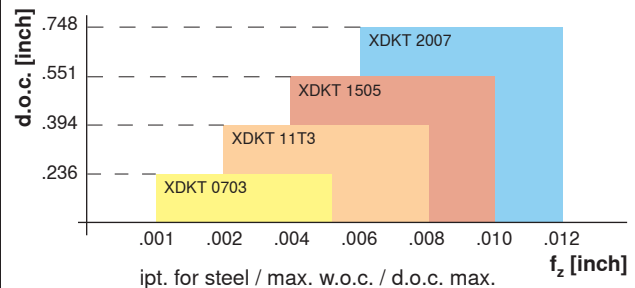
The Notch:



Radial force compensation through „the notch“ at plunging

- ▲ Reduced machining noise without vibrations
- ▲ Additional stability at plunging
- ▲ Increased cutting performance

Overview: Shoulder milling system MM211 d.o.c.



Overview: Application range



- | | |
|------------------------|-----------------------------|
| Peripheral milling (1) | Helical plunging (4) |
| Shoulder milling (2) | Trochoidal slot milling (5) |
| Angled ramping (3) | Slot milling (6) |
| Pocket milling (3) | Shoulder & face milling (7) |
| Axial plunging (4) | |





Aerospace

High performance tools for high performance engines

Difficult to machine materials such as titanium alloys and heat resistant super alloys like nickel based, iron based or cobalt based alloys – are used in jet engines. The good construction characteristics of these alloys make them difficult to machine. These challenging characteristics require high-performance cutting solutions.

The huge CERATIZIT program range of indexable tools combined with high performance grades – CTC5235 and CTC5240 – guarantee the best and most reliable cutting conditions for your machining process.

With the special CERATIZIT solid carbide tools in grade SCPS240 we round off the program for your high-performance process.

1
MaxiMill 251-RS
Button milling cutter for prefinishing of the blade. The compact tool bodies with positive mounting position, in combination with the inserts, for lowest cutting forces and vibrations. Can also be used on machines with low spindle power.



4
MaxiMill 252
Double sided button milling cutter for premilling the rhomboidal blade block. Double the number of cutting edges for double efficiency. Stable and compact milling system with optimized chip space even for long chipping materials.



2
MaxiMill 251 E-Type
For roughing the blade and root. E-Type – the evolution of the button milling cutter for tough and rough machining with high metal removal on stable machine. More clearance for better copying with less heat.



5
MaxiMill 274
45° Milling cutter for Finishing the root. Highly positive mounting position and inserts geometries for the smooth running, lowest cutting forces and best surface quality.



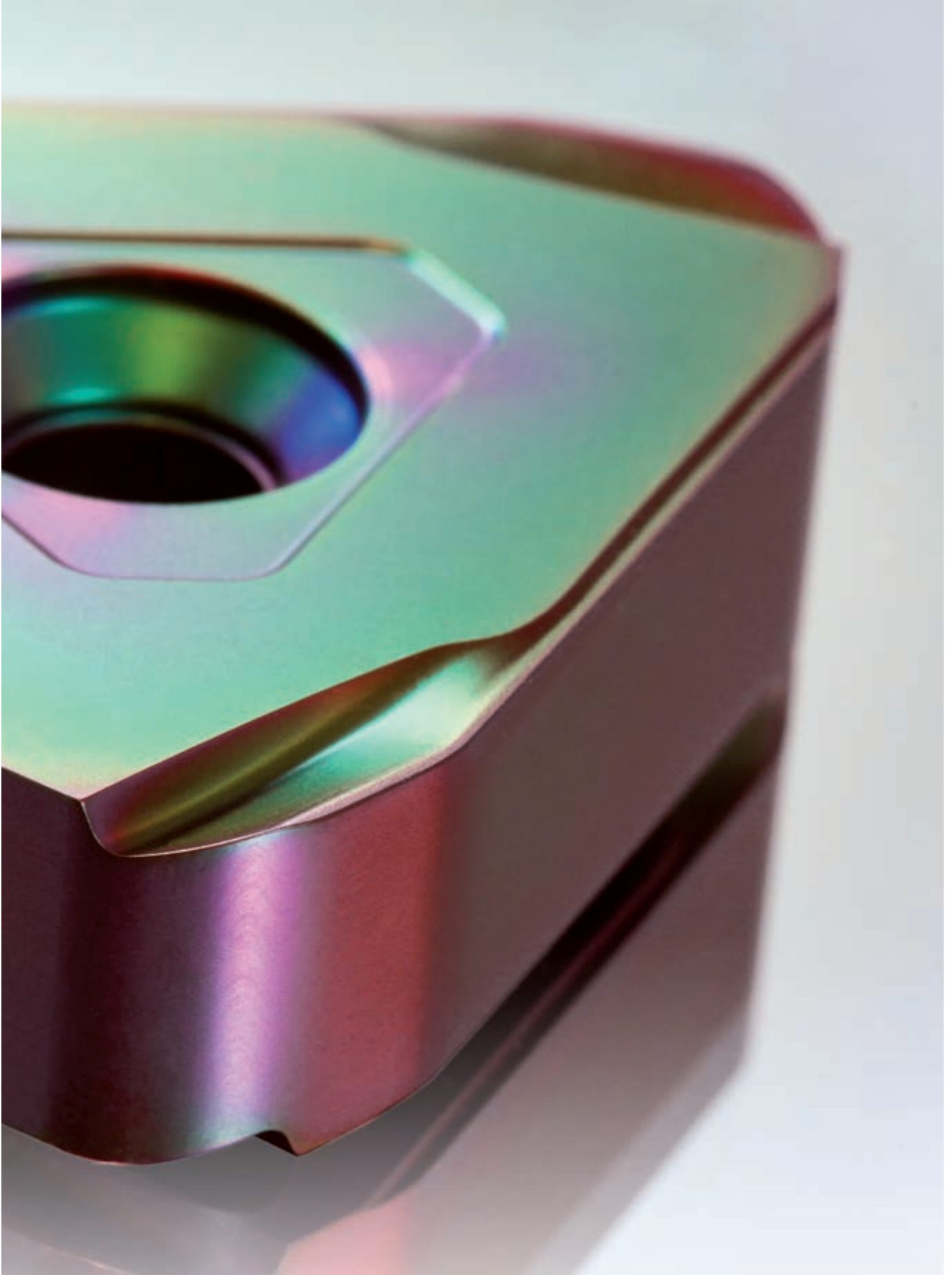
3
W0476
HPC ball nose cutter for roughing the transition areas. Special radius geometry for high metal removals at hard to machine materials.



6
W0456
HPC shank mill for machining connection slots and premilling fir-tree profiles. Special geometry combined extraordinary coating and prefinishing of the chip flutes especially for hard to machine materials.









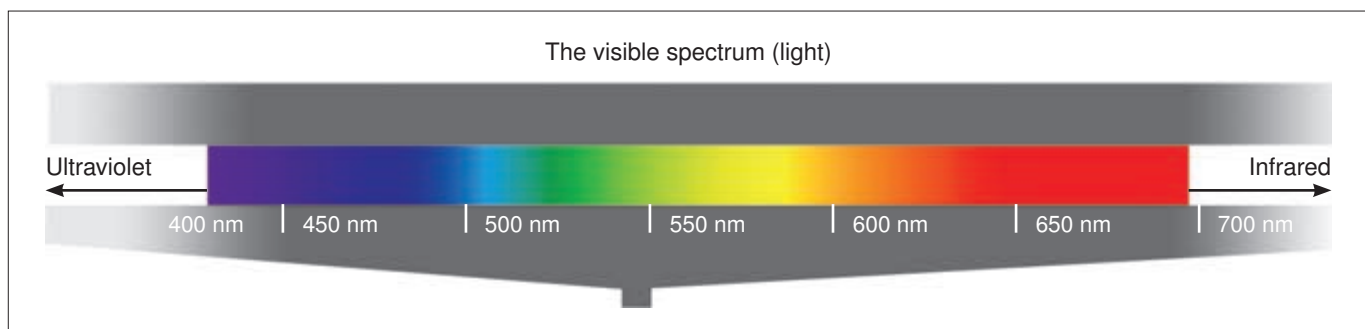
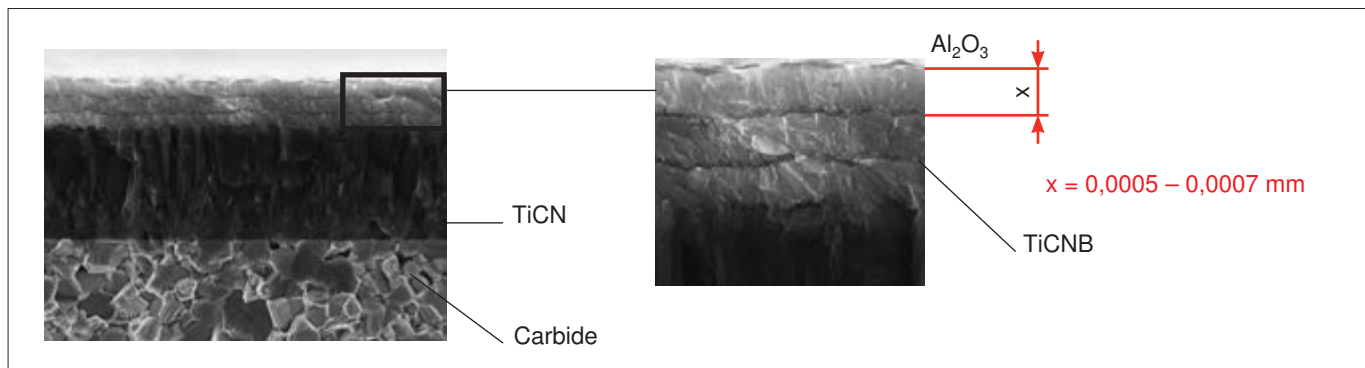
COLORSTAR™

Innovative coating

After successfully introducing COLORSTAR™ for parting and grooving inserts, CERATIZIT now provides other grades with the innovative coating.

Inserts for turning applications, bar peeling, parting and grooving now also feature COLORSTAR™. In addition, you will find the coloured inserts on our redesigned multi-function tool EcoCut.

The innovative coating consists of a fine crystal structure which makes the surface extremely smooth while creating favourable tribological properties that ensure optimal chip evacuation.



The secret of the colours

COLORSTAR™ has a base layer of titanium carbonitride, with a fine columnar structure, and another layer above consisting of several very thin aluminium oxide layers. The individual layers have a thickness of only 500 to 700 nm (nanometres).

With this layer thickness, aluminium oxide, which normally does not reflect light, becomes a light-breaking prism. The insert shimmering in red or green is a visible proof that the coating quality is maintained.

Success factors

- ▲ Edge chipping reduced to a minimum: the tough coating guarantees stable cutting edges without the risk of chipping combined with maximum reliability
- ▲ Tool life increased to a maximum: reduced wear, the smooth surface ensures optimal chip evacuation



PARTING AND GROOVING

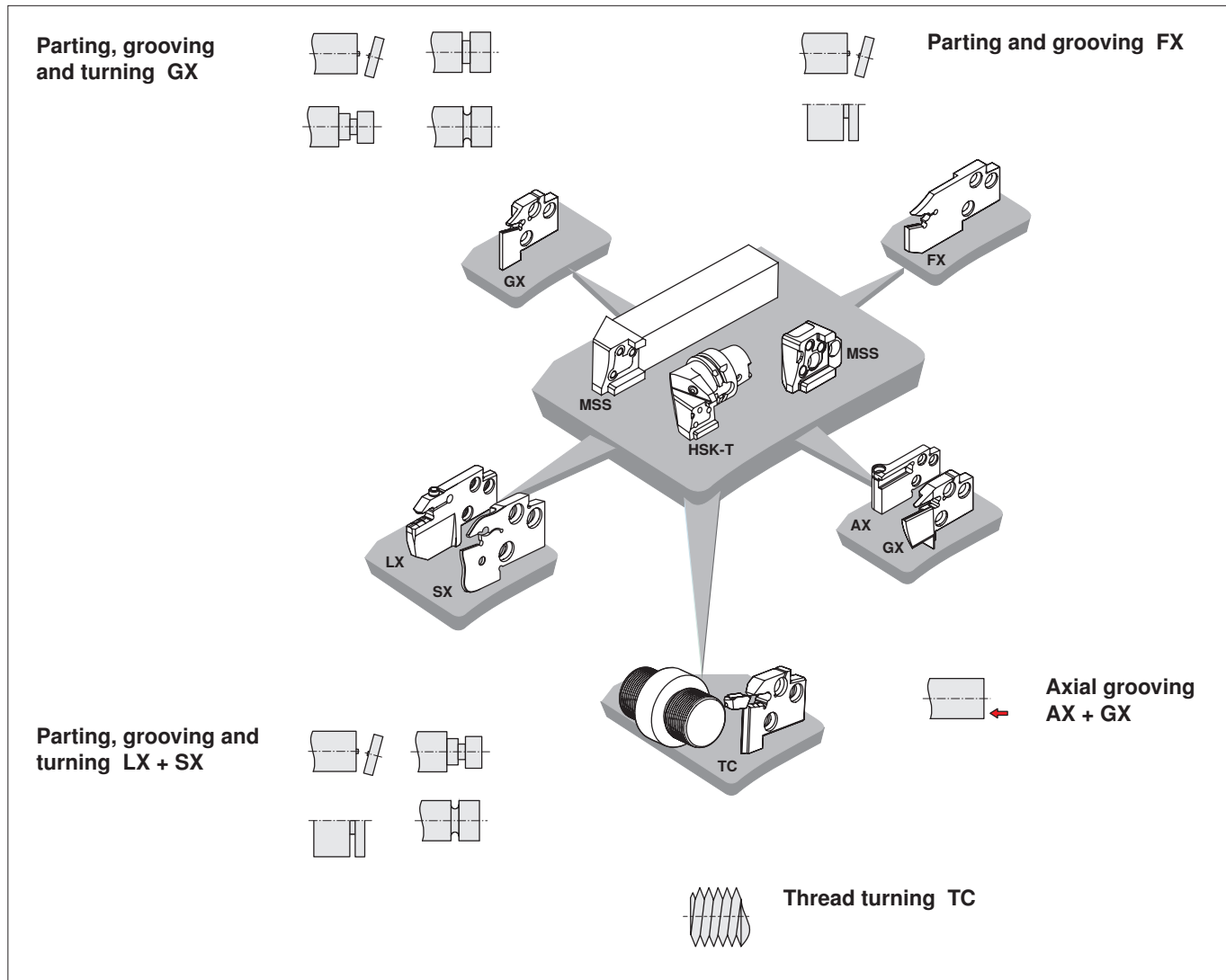
MSS – THE MODULAR SYSTEM





MSS – the modular system

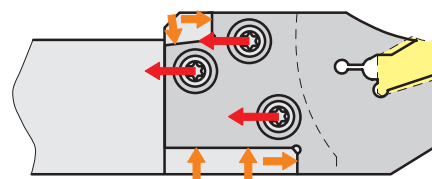
In order to be able to meet all situations, Parting and Grooving by CERATIZIT covers a diverse range of applications and demands, advanced technology and intelligent tool design.



Success factors

- ▲ Flexibility paired with stability: easily adaptable to machining task; parting, grooving and turning possible; application security
- ▲ Precision combined with simplicity: quick and efficient machining: high accuracy and repeatability when changing the module; one system for all parting, grooving and threading operations
- ▲ Economic and efficient: low inventory provides a large variety of combinations; in case of tool breakage simply change out the module

The most precise and strongest connection on the market



- ▲ Axial clamping with location face
Connection without clearance, therefore highest stability



PARTING AND GROOVING – COLORSTAR™

CTCP325 and CTCP335

CTCP325 and CTCP335

PARTING AND GROOVING – COLORSTAR™





△ COLORSTAR™

CTCP325 and CTCP335

The new grades were specially developed for applications in the automotive, bearings and mechanical engineering industry, serial and high volume production.

The recently developed substrates combined with COLORSTAR™ are characterised by optimal heat resistance and stable cutting edges. This makes the machining of high tensile strength steels at high cutting speeds possible.

Success factors

- ▲ Stability combined with consistency: high process security and long tool life
- ▲ Quick and efficient machining: the excellent heat resistance makes high cutting speeds and high feed rates possible
- ▲ Flexible and versatile: wide application range in wet and dry machining minimizes tooling inventory

Grade designation	Standard designation	Cutting material	Application range										P	M	K	N	S	H		
													Steel	Stainless	Cast iron	Non-ferrous metals	Heat-resistant	Hard materials		
			01	05	10	15	20	25	30	35	40	45	50							
CTCP325* ▲ COLORSTAR™	HC-P25	C																		
	HC-M20	C																		
	HC-K30	C																		
CTCP335 ▲ COLORSTAR™	HC-P35	C																		
	HC-M30	C																		
	HC-K35	C																		
CTP1340	HC-P30	P																		
	HC-M25	P																		
	HC-K30	P																		
CTPP345	HC-P45	P																		
	HC-M40	P																		
	HC-S40	P																		
H216T	HW-K15	W																		
			01	05	10	15	20	25	30	35	40	45	50	● Main application						
														○ Extended application						

*Available from November 2014



HEAVY DUTY MACHINING

BAR PEELING – US PROGRAM

BAR PEELING – US PROGRAM

HEAVY DUTY MACHINING





Bar peeling – US program

Ceratizit US made Bar Peeling products are designed to cover a wide range of applications across a broad range of materials. Custom wiper configurations and a variety of chipbreakers allow the user to optimize performance and control chip formation. Our grades are industry proven and compete at the highest level, while maintaining a highly competitive price point, for value conscious customers. In addition, we provide customized solutions for specific applications; from insert design to finished product – we are your one-stop cutting solution provider.



CERATIZIT high-polish insert for machining titanium

Success factors

- ▲ Broad range of designs and wiper configurations to suit your specific application
- ▲ Broad range of grades to precisely match up with your materials and machining conditions
- ▲ Customized solutions
- ▲ Excellent price/performance ratio

Materials	Type, description	CTUW1120	CTUW1125	CTUW3120	CTUW3130	CTUW5120	CTUW5135	CTUA3120	CTUC1125	CTUD3120	CTUD5125	CTUE3110	CTUE5135	CTUE3120	CTUA1125
11800964	ONG-436A CTUA3120														
11402265	ONG-436A CTUW3120														
11402289	ONMF-54A CTUW1125														
11402286	ONMF-54A CTUW3120														
11865375	WMNJ-644N-MA CTUE3120														
11404634	WNGX-180606-MX CTUE3120														
11404638	WNGX-180606-MX CTUD3120														
11553598	WNGX-180606-MX CTUE3110														
11694430	WNMF-764 CTUW3120														
11404659	WNMF-76-15X CTUW3120														
11396629	WNMX-764A CTUE5135														
11396632	WNMX-764B CTUW3120														
11521566	WNMF-96S40APH CTUD5125														
11522587	WNMF-96S40APH CTUE5135														
11892564	WNMF-96P50AP CTUW3130														
11883534	WNMF-96P50AP CTUW5120														
11883533	WNMF-96P50AP CTUW5135														
11404678	WNMF-96-30A CTUC1125														
11798869	WNMF-96-30AQ CTUC1125														
11395618	WNMF-96-30MX CTUE5135														
11404707	WNMF-96-30X CTUD5125														
11404699	WNMF-96-30X CTUW3120														
11533595	WNMF-96-30X CTUW3120														
11397340	WNMF-96EZA CTUD5125														
11906877	WNMF-106-30A CTUW3120														
11404812	XNMX-310712A CTUA1125														
11400931	YNUF-201220A CTUD3120														





△ COLORSTAR™

The new grades for bar peeling CTCP615 / CTCP625 / CTCP635

Particularly for bar peeling processes, CERATIZIT has developed three new carbide grades. For the production of the substrates the latest manufacturing technologies have been applied. In addition, all bar peeling inserts feature COLORSTAR™.

Success factors

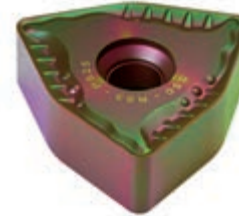
- ▲ Versatility and flexibility: the three carbide grades are suitable for a wide range of applications
- ▲ Robustness and process security: stable protected cutting edges thanks to COLORSTAR™
- ▲ Consistent performance combined with long tool life

Designation system

CT C P 6 XX

1 2 3 4

- 1 C = CVD-coated carbide
- 2 P = steel machining
- 3 6 = bar peeling
- 4 15/25/35 = ISO application field



Grade designation	Standard description	Cutting material	Application range										P	M	K	N	S	H		
			01	05	10	15	20	25	30	35	40	45	50	Steel	Stainless	Cast iron	Non ferrous metals	Heat resistant	Hard materials	
CTCP615 ▲ COLORSTAR™	HC-P15	C																		
	HC-M15	C																		
	HC-K15	C																		
CTCP625 ▲ COLORSTAR™	HC-P25	C																		
	HC-M25	C																		
	HC-K20	C																		
CTCP635 ▲ COLORSTAR™	HC-P35	C																		
	HC-M35	C																		
			01	05	10	15	20	25	30	35	40	45	50	● Main application						
														○ Extended application						





Roll turning – US program

CERATIZIT US made products for Roll Turning offers the user excellent performance at a budget-minded price. Recent innovations include our CTUQ grade, featuring an optimized Hypercoat CVD coating technology for maximum tool life. We also manufacture standard LNU styles with pressed lands to reduce cost, while maintaining performance. In addition, we provide customized solutions for specific applications; from insert design to finished product – we are your one-stop cutting solution provider.

Success factors

- ▲ Advanced coating technology for optimal tool life
- ▲ Economical pressed-land designs for value and performance
- ▲ Customized solutions



Materials	Type, description																
		CTUW1120	CTUW3105	CTUW3120	CTUA1125	CTUC1120	CTUD1120	CTUE1120	CTUF1120	CTUQ1120							
11393305	CDH-33A CTUW3105		●														
11393311	CDH-42 CTUW3120			●													
11393333	CDH-43T13A CTUW3105		●														
11393346	CDH-53T13B CTUW3105		●														
11393349	CDH-53Y1B CTUW1120	●															
11393402	CNMA-644 CTUW3105		●														
11397970	LNU-6688D CTUD1120						●										
11410551	LNU-6688T9A CTUW3105		●														
11862389	LNU-6688T9B CTUQ1120									●							
11398004	LNU-6688T9B CTUF1120								●								
11754995	LNU-68812B-PRESS LAND CTUE1120							●									
11667965	LNU-68812B-PRESS LAND CTUW1120	●															
11398034	LNU-68812T24B CTUW3120			●													
11394044	LNUF-6688A CTUA1125				●												
11394049	LNUF-6688B CTUC1120					●											



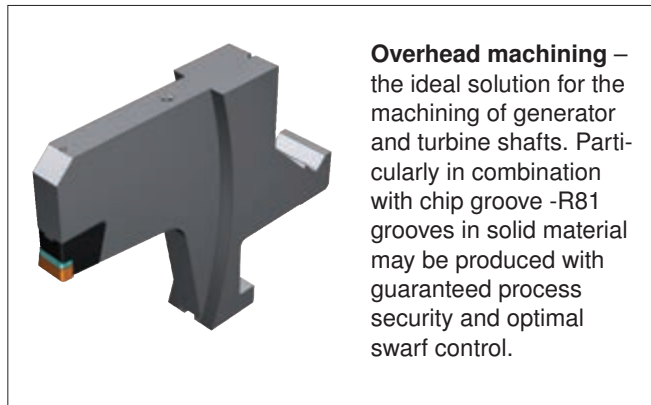


Roll Turning – HX system

HX System is a heavy duty grooving system with a wide product range starting with a width of 5/8" up to over 2" grooving width. Besides easy handling, high process security is a key factor for many customers using the HX-system.

Typical components where the HX parting and grooving system may be applied are turbines and generator shafts, rolls, drive shafts and other large components. The program is designed for steel in general, stainless steel, cast iron and steel castings.

Description of the geometries -R81, -R70, -R71



- ▲ First choice for grooving into solid material
- ▲ Chip divider makes chip evacuation easier
- ▲ Suitable for steel and stainless steel
- ▲ Maximum process security
- ▲ Ideal solutions for overhead machining

The following products are available

Width in [inch]	Description
.63	HX 16.12.60-R71 CTCP125
.63	HX 16.12.60-R81 CTCP125
.79	HX 20.16.60-R71 CTCP125
.79	HX 20.16.60-R81 CTCP125
.98	HX 25.16.90-R71 CTCP125
.98	HX 25.16.90-R71 CTCP125
1.26	HX 32.20.90-R70 CTCP125
1.26	HX 32.20.90-R81 CTCP125
1.57	HX 40.24.90-R70 CTCP125
1.57	HX 40.24.90-R81 CTCP125
1.77	HX 45.24.90-R70 CTCP125
1.77	HX 45.24.90-R81 CTCP125
1.97	HX 50.32.90-R70 CTCP125
1.97	HX 50.32.90-R81 CTCP125
2.36	HX 60.35.90-R70 CTCP125
2.36	HX 60.35.90-R81 CTCP125



- ▲ Very positive rake angle with small negative chamfer
- ▲ Suitable for grooving and profile grooving
- ▲ Suitable for steel, stainless steel and cast iron
- ▲ Minimum cutting forces



Success factors

- ▲ High process security
- ▲ Perfect chip control
- ▲ Easy handling

- ▲ Ideal for high feed rates
- ▲ Stable cutting edge
- ▲ Suitable for interrupted cut
- ▲ Suitable for steel, stainless steel and cast iron
- ▲ Suitable for 'stabbing' and profile grooving operations



PROMAX – SOLID CARBIDE

MILLING

MILLING

PROMAX – SOLID CARBIDE





PROMAX

Promax design criteria includes the use of premium, high strength carbide substrates, eccentric relief geometries, optimized grinding processes, precision honing techniques, and advanced coating technologies.



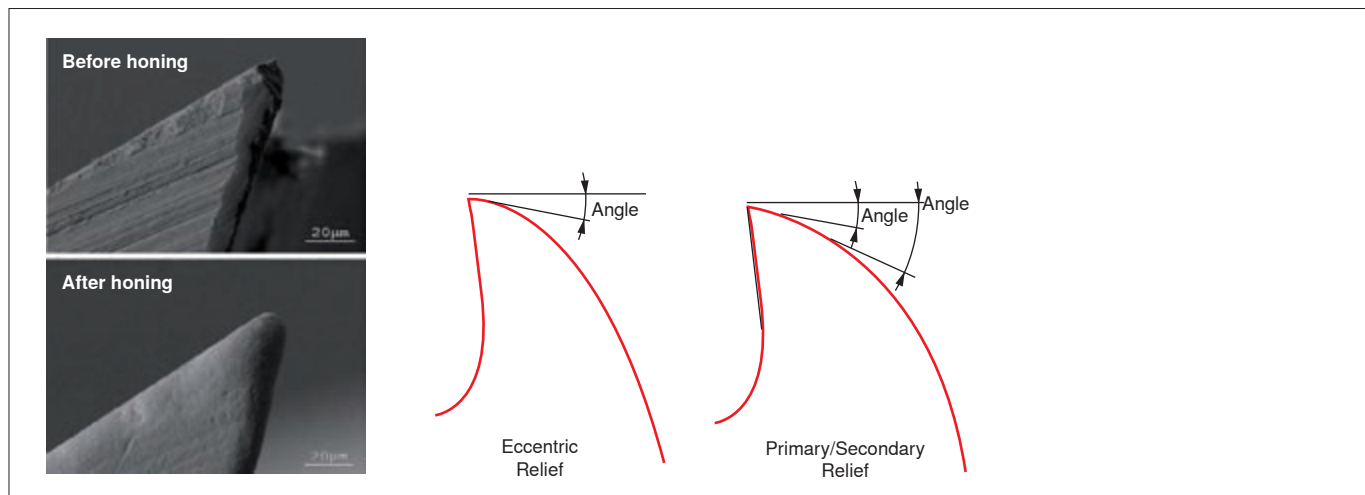
Since 1984, Promax has been manufacturing innovative carbide end mill solutions for customers seeking to maximize their productivity and minimize tooling costs.



Why Profile Relief?

(also known as cam or eccentric relief)

- ▲ Creates a stronger edge
- ▲ Produces a better finish
- ▲ Maintains the original geometry
- ▲ Allows for more resharp
- ▲ Allows for aggressive rake angles
- ▲ Lowers cutting forces
- ▲ Allows for higher speeds and feeds



Success factors

- ▲ Consistent high quality designs offer superior performance
- ▲ Sophisticated grinding methods offer more resharp and higher productivity
- ▲ Proprietary honing and coating technologies create lower cutting forces and better finishes



Commitment to the customer – Over 138.000 items in stock, enhanced specials capability, dedicated machinery for specials, quick turnarounds.



RODS & PREFORMS

PRODUCT PROGRAM

PRODUCT PROGRAM

RODS & PREFORMS





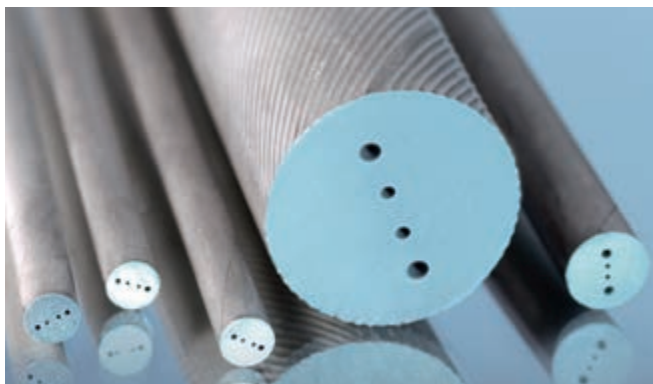
Rods & Preforms

The CERATIZIT USA Headquarters center of excellence provides localized manufacturing support and international warehoused products to the North American market. CERATIZIT supports the industry's requirements for cutting tool products, rods (solid and coolant) along with the capability for complex preforms for rotary cutting tools.



Solid carbide rods

With the new CTS grade line, our range of solid carbide rods has been completely redesigned to offer you a broad selection of dimensions and grades.



Coolant hole rods

We offer a wide range of coolant hole rods manufactured with the greatest precision. Our latest innovations are rods with four helical coolant holes as well as cut-to-length rods with radial coolant exit holes.



Preforms

In addition to our comprehensive selection of rods and strips, we also offer a variety of preforms for rotating cutting tools. The product range includes everything from blanks and semi-finished tools for solid carbide and PCD tools to systems with replaceable heads and tool shanks. Long-standing experience in the machining of blanks, together with state-of-the-art manufacturing facilities, enables us to produce complex geometries near net shape and with minimum lead times.

Catalogue
'Rods & Preforms' – US,
No. 616









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Subject to technical changes and improvements in production.



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