

# New Product Information

## CTCS245 – New grade for milling heat-resistant nickel-based alloys

2018-02

### An additional grade for the ISO S range

Components of the aerospace industry were made because of their extraordinary burden out the most modern materials.

Especially materials like nickel-based alloys are considered to be difficult to machine.

Thanks to the innovative high performance insert grade CTCS245, this challenges can be accomplished process reliable.

### General information:

- CVD-coated carbide grade
- For milling applications in nickel-based alloys like: Inconel, Nimonic, Rene,...
- CTCS245 won't replace any existing grade
- Standard grade for the Aerospace industry
- The prototype name during the field tests has been 1336

### Advantages:

- Process reliable and tough high performance grade
- Tremendously increased tool life in milling heat resistant super alloys (HRSA)
- Additional grade for the ISO S range



CTCS245

HC-S40 / HC-S45

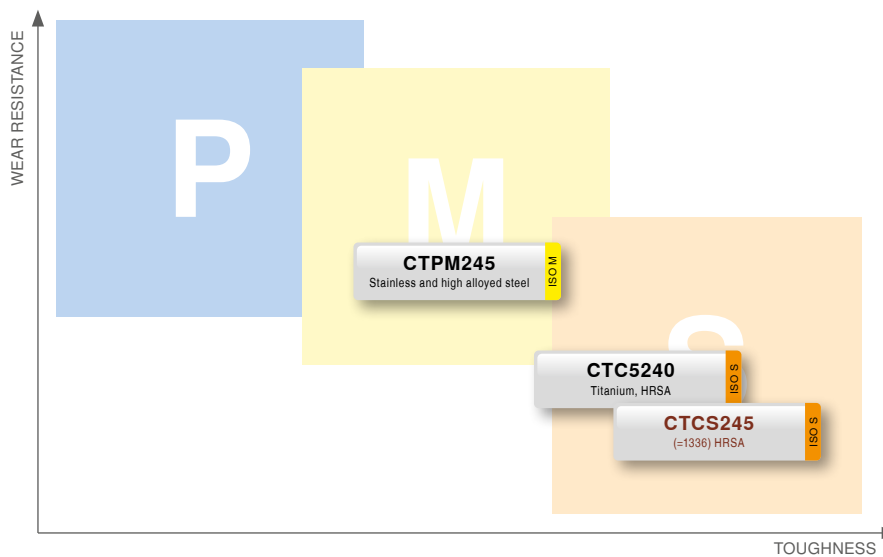
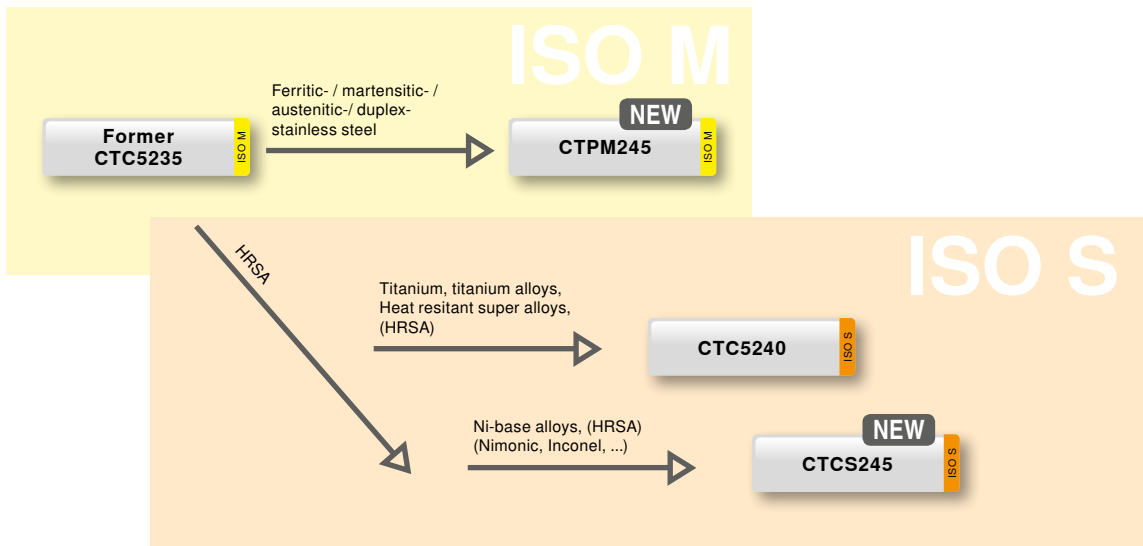


Composition: 12,0 % binder; WC balance | Grain size: 2  $\mu\text{m}$  |  
Hardness 1330 HV<sub>30</sub> | Coating specification: CVD TiN-TiB<sub>2</sub>

## Application:

Grade designation	Standard designation:		Cutting material	Application:	P	M	K	N	S	H
	ISO	ANSI			Steel	Stainless	Cast iron	Non-ferrous metals	Heat-resistant	Hardened materials
CTCS245	HC-S45	-	C	01 05 10 15 20 25 30 35 40 45 50	●				●	
					● Main application ○ Extended application					

Customer who used CTC5235 in the past for machining HRSA, have now beneath the titanium milling grade CTC5240 a further solution with the new CTCS245 grade.



Material	First choice grade/ Main Application	Second choice/ Alternative
Ferritic-/ martensitic- stainless steel	CTPM245	CTPP235 / CTCM235
Austenitic-/ duplex- stainless steel	CTPM245	CTPP235 / CTPM225
Titanium, titanium alloys	CTC5240	-
HRSA (Ni-base alloys), Inconel, Rene, Nimonic, ...	CTCS245 (=1336)	CTC5240

## Price Positioning:

The following applies to articles in the new CTCS245 grade:

- the list prices are the same as CTC5240
- the discount group is also D4

## Product range:

The current standard range for the aerospace industry contains the following items.  
Further items on demand.

Overview of standard articles in the new grade CTCS245:

Material no.	Designation	Dispo. Indicator	available from stock
12273304	RDHX 0802MOEN-F50 CTCS245	ZNEU	✓
12241481	RPHX 10T3M4SN-F50 CTCS245	ZNEU	✓
12273305	RPHX 10T3M8SN-F50 CTCS245	ZNEU	- March 2018
12241461	RPHX 1204M4SN-F50 CTCS245	ZNEU	✓
12270087	RPHX 1204M8SN-F50 CTCS245	ZNEU	✓
12280702	XDKT 070308ER-F40 CTCS245	ZNEU	✓
12241487	XDKT 11T308ER-F40 CTCS245	ZNEU	✓
12280699	XDKT 11T312ER-F40 CTCS245	ZNEU	- February 2018
12241466	XDKT 11T316ER-F40 CTCS245	ZNEU	✓
12280178	XDKT 11T320ER-F40 CTCS245	ZNEU	- February 2018
12247042	XDKT 11T332ER-F40 CTCS245	ZNEU	- February 2018
12241492	XDKT 150508ER-F40 CTCS245	ZNEU	✓
12294550	XDLX 09T308ER-F40 CTCS245	ZNEU	- March 2018
12241500	XOLX 120410ER-F40 CTCS245	ZNEU	✓
12298734	SAKU 1706ABSR-F50 CTCS245	ZNEU	- March 2018
12241497	OFHT 040305SN-F50 CTCS245	ZNEU	✓
12241472	RPNX 2006M8SN-F50 CTCS245	ZNEU	✓

Inserts which will be handled as special items in grade CTCS245:

Material no.	Designation	Dispo. Indicator	available from stock
12261922	@RPHX 10T3M6SN-F50 CTCS245	Z0	-
12280170	XDHT 150560ER-F40 CTCS245	Z0	- March 2018
12261924	@RNHU 1004M4ER-M31 CTCS245	Z0	-

## Cutting data:

The following chart includes rough guidelines for milling nickel-based alloys.

Depending on application, work piece, clamping, machine conditions and further influence factors they can vary and should be adapted.

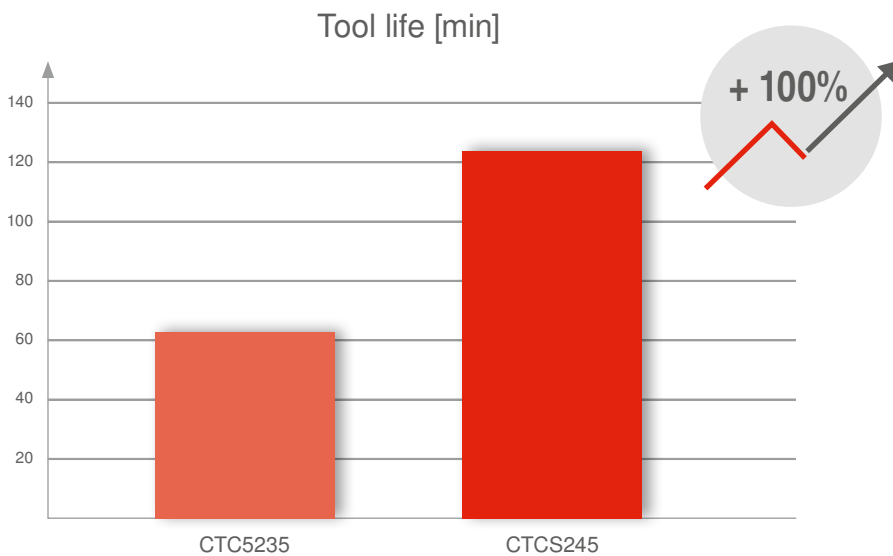
Material no.	Designation	$V_c$ [sfm]	d.o.c. min [inch]	d.o.c. max [inch]	f min [ipt]	f max [ipt]
12273304	RDHX 0802MOEN-F50 CTCS245	100 - 165	.020	.051	.002	.006
12241481	RPHX 10T3M4SN-F50 CTCS245	100 - 165	.020	.098	.003	.010
12273305	RPHX 10T3M8SN-F50 CTCS245	100 - 165	.020	.098	.003	.010
12241461	RPHX 1204M4SN-F50 CTCS245	100 - 165	.020	.118	.004	.012
12270087	RPHX 1204M8SN-F50 CTCS245	100 - 165	.020	.118	.004	.012
12280702	XDKT 070308ER-F40 CTCS245	100 - 165	.031	.157	.001	.003
12241487	XDKT 11T308ER-F40 CTCS245	100 - 165	.031	.236	.003	.006
12280699	XDKT 11T312ER-F40 CTCS245	100 - 165	.047	.236	.003	.006
12241466	XDKT 11T316ER-F40 CTCS245	100 - 165	.063	.236	.003	.006
12280178	XDKT 11T320ER-F40 CTCS245	100 - 165	.079	.236	.003	.006
12247042	XDKT 11T332ER-F40 CTCS245	100 - 165	.126	.236	.003	.006
12241492	XDKT 150508ER-F40 CTCS245	100 - 165	.031	.394	.004	.010
12294550	XDLX 09T308ER-F40 CTCS245	100 - 165	.010	.039	.010	.045
12241500	XOLX 120410ER-F40 CTCS245	100 - 165	.010	.079	.010	.047
12280170	XDHT 150560ER-F40 CTCS245	100 - 165	.236	.394	.004	.010
12241497	OFHT 040305SN-F50 CTCS245	100 - 165	.010	.098	.004	.007
12241472	RPNX 2006M8SN-F50 CTCS245	100 - 165	.020	.197	.006	.020

## Success stories:

### 1. Turbine blade machining

Customer: Machine laboratory (University)  
Material: Nimonic 80A  
Tool: A251.40.R.04-12-RS  
Test 1: RPHX 1204M4SN-F50 CTC5235  
Test 2: RPHX 1204M4SN-F50 CTCS245

Cutting data:  
 $V_c = 148$  [sfm]  
 $f = .010$  [ipt]  
d.o.c. = .079"  
w.o.c. = .945"

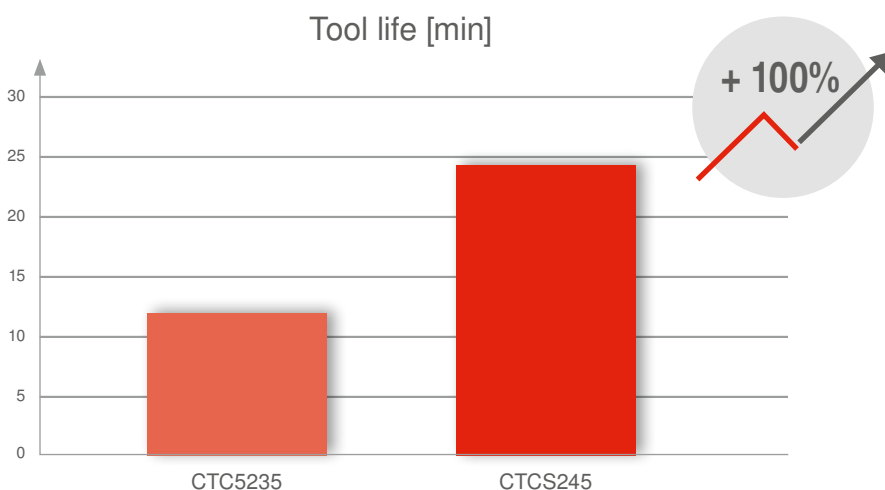


With the new CTCS245 grade the tool life could be doubled from 62 up to 124 minutes.

### 2. Engine Component Manufacturer

Customer: Engine Component Manufacturer  
Material: Rene 44  
Workpiece: Bolt cover  
Tool: C211.25.R.04-11  
Test 1: XDKT 11T332EN-F40 CTC5235  
Test 2: XDKT 11T332EN-F40 CTCS245

Cutting data:  
 $V_c = 72$  [sfm]  
 $f = .003$  [ipt]  
d.o.c. = .079"  
w.o.c. = .787"



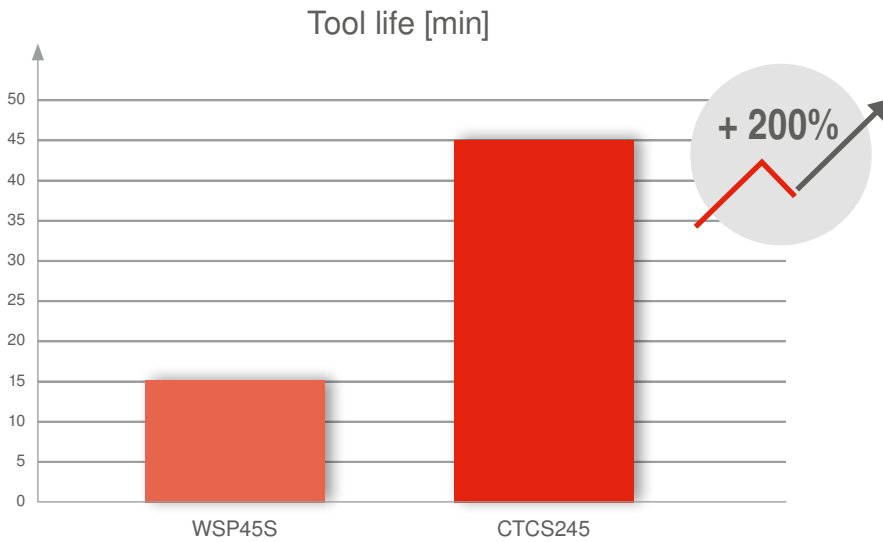
By using grade CTCS245, it was possible to double the tool life from 2 to 4 parts.

Note: Due to the labil work piece clamping an increase of the parameter was not possible.

### 3. Turbine blade machining

Customer: Blade manufacturer  
Material: Inconel 625  
Tool: A251.66.R.07-12-RS  
Test 1: RPHX 1204M8SN-F50 CTCS245  
Test 2: RPMX 1204MO-F67 WSP45S

Cutting data:  
 $V_c = 141$  [sfm]  
 $f = .011$  [ipt]  
d.o.c.= .079"  
w.o.c.= < 1.575"



3-times more tool life from 15 to 45 minutes at 38% higher cutting data compared to the competitor!