hard material matters

CERATIZIT

hard material matters

HyperCoat-P milling inserts

CERATIZIT HyperCoat

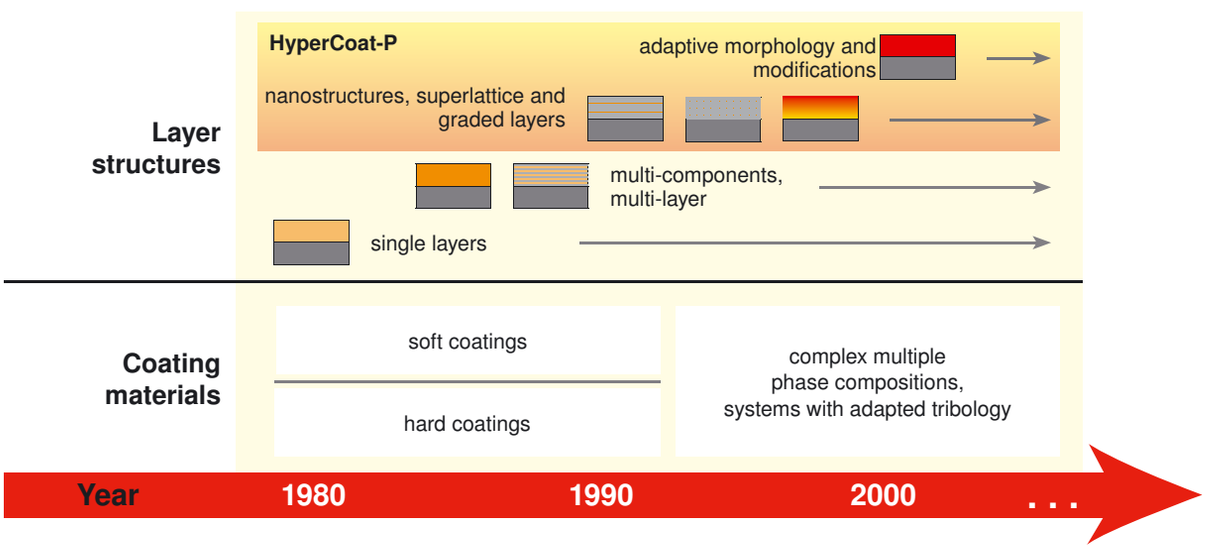
CERATIZIT HyperCoat is synonymous with the extraordinary and particular. HyperCoat is a milestone in coating technology. Based on more than 25 years of know-how, the CERATIZIT coating systems meet maximum requirements in terms of extraordinary cutting performance.

The **HyperCoat-P** coatings are deposited utilizing up-to-the-minute PVD technology. We offer the entire process chain from the raw material to the application at the customer's. Furthermore nanotechnology is part of the coating process, enabling optimisation and adaptation of the various coatings for the respective machining operation.

CERATIZIT **HyperCoat-P** coatings are custom-made in every respect:

- extra-long service life
- particularly high heat resistance
- low tendency to stick
- more reliability
- more productivity

In other words, custom-made for top performance!



Situation with regard to wear / criteria for coatings

HyperCoat-P. World innovation for custom-made coatings of carbide.
For more information visit us at www. ceratizit.com/hypercoat

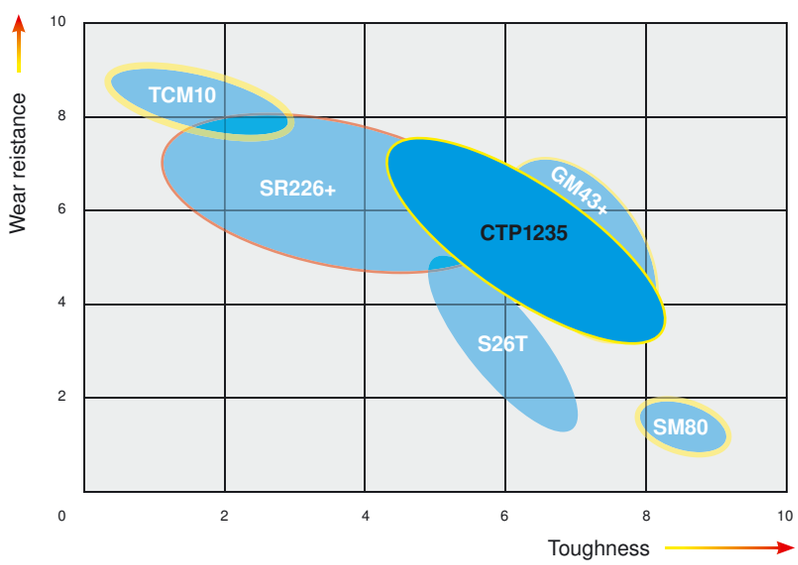
hard material matters

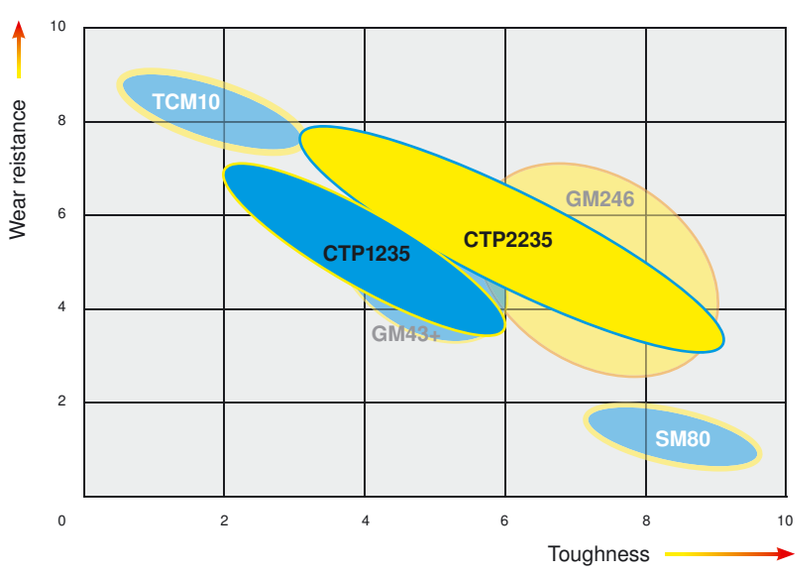
Grade overview / grades

Grade description	Standard designation	Application range (01 05 10 15 20 25 30 35 40 45 50)	Material group A Steel	R Stainless	F Cast iron	N Non ferrous metals	S Heat resistant materials	H Hard materials
CTP1235	HC-P35		●					
	HC-M30			○			○	
CTP2235	HC-P40		○					
	HC-M40			●			○	

● Main application
○ Extended application

Wear resistance / toughness





Grade description / application

CTP1235
(P35, M30)

Steel

Composition:
Co 9%; mixed carbides 4%; WC rest

Grain size: medium, 1 - 1.5 µm

Hardness: HV 1510

Coating specification: PVD, TiAlN, 3 - 4 µm

Toughness:

Wear resistance:

CTP2235
(P40, M40)

Stainless

Composition:
Co 12.5%; mixed carbides 2%; WC rest

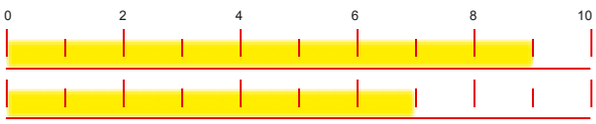
Grain size: fine, 1 µm

Hardness: HV 1380

Coating specification: PVD, TiAlN, 3 - 4 µm

Toughness:

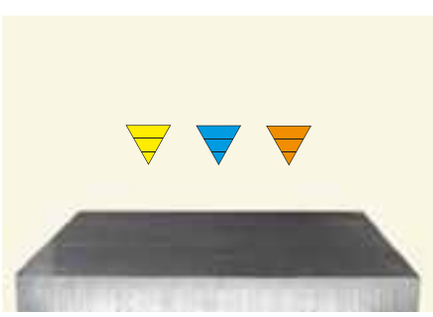
Wear resistance:



Suitable for demanding applications, e.g.

- Severely interrupted cut

- Workpieces with long overhang, unstable systems



- Small series with a changing combination of materials

Know-how matters

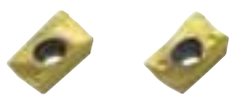
Process know-how

- From the raw material to the application, everything from one source!
- Substrate, geometry, coating, innovative tooling systems and on-site application advice. Quality is in the detail.

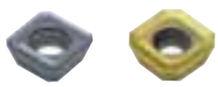
Coating know-how

- CERATIZIT HyperCoat, a benchmark in up-to-date coating technology
- HyperCoat-P, PVD nanotechnology for longer tool life, more reliability, more productivity
- Customised hard materials for coating, state-of-the-art plant and process technology guarantee top performance in every respect.
- Advantages and benefits of low temperature coatings are particularly convincing when referring to CERATIZIT HyperCoat-P coatings.
  - The substrate shows no reduction in toughness, in addition, compressive strain increases toughness.
  - The low coating thickness ensures limited honing of the cutting edge. Geometries that cut easily maintain their sharp cutting edges.
  - Thanks to tailored modifications in the lattice structure, nanotechnology provides particularly good resistance to thermal and abrasive wear. Reduced tendency to adhesion is an additional advantage.

Inserts



APKT



SD..09

SD..12

LDFT

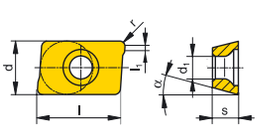
	Coated	
Chip groove	☒	☒
✗	☐	☐

☒ Recommended application
☐ Possible application

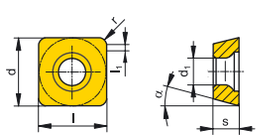
Size	Type, description	Chip groove	CTP1235	CTP2235	d	l	s	l_1	r	d_1
					mm					
10	APKT 1003PDSR-29M	-29M	●		6,65	9,80	3,50	1,60	0,50	2,80
10	APKT 1003PDSR-29	-29	●		6,65	9,80	3,50	1,00	0,50	2,80
09	SDNT 0903AESN-29	-29	●		9,52	9,52	3,20	1,68	1,00	3,40
09	SDHT 0903AESN-33	-33		●	9,52	9,52	3,20	1,68	1,00	3,40
09	SDNT 09T308ER		●		9,52	9,52	3,97	2,50	0,80	4,40
09	SDNT 09T308SR-29	-29	●		9,52	9,52	3,97	2,50	0,80	4,40
09	SDNT 09T308SR-33	-33		●	9,52	9,52	3,97	2,50	0,80	4,40
12	SDMT 1204AESN-29R	-29R	●		12,70	12,70	4,76	1,74	1,00	5,50
12	SDHT 1204AESN-33	-33		●	12,70	12,70	4,76	1,74	1,00	5,50
12	SDMT 1205ZZSN-29	-29	●		12,70	12,70	5,00	0,95	0,80	5,00
12	SDHT 120512SR-33	-33		●	12,70	12,70	5,50	1,80	1,20	5,00
15	LDFT 1504PDSR-29	-29	●		9,52	15,00	4,76	1,20	0,80	4,40
15	LDFT 1504PDSR-33	-33		●	9,52	15,00	4,76	0,80	1,20	4,40

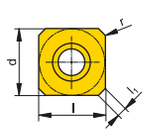
	CTP1235	CTP2235
Steel	●	○
Stainless	○	●
Cast iron		
Non ferrous metals		
Heat resistant	○	○
Hard materials		

α AP.. = 11°

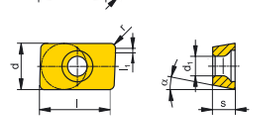


α SD.. = 15°



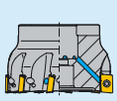
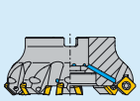
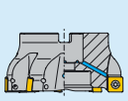
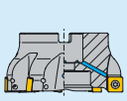
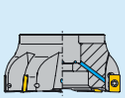


α LD.. = 15°



● = main application
○ = extended application
● = international CERATIZIT range, for present availability see price list

Ordering example: 10 pieces APKT 1003PDSR-29M CTP1235

Page	A/C/G210	A/C270	A/C/G490-09	A490-12	A241/C141	
						See catalogue no. 126 'Tools and inserts for milling'

Inserts

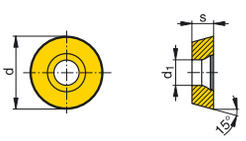
RDHX08 RPHX10 RPHX12 RPHX16

	Coated	
	CTP1235	CTP2235
☒ Recommended application	☒	☒
☐ Possible application	☐	☐

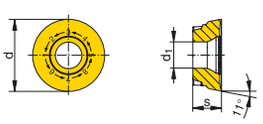
Size	Type, description	Chip groove	CTP1235	CTP2235	mm d	l	s	l_1	r	d_1
08	RDHX 0802MOSN	-	●		8,00	-	2,38	-	-	2,80
10	RPHX 10T3MOSN	-	●		10,00	-	3,97	-	-	3,40
10	RPHX 10T3MOSN-33	-33		●	10,00	-	3,97	-	-	3,40
12	RPHX 1204MOSN	-	●		12,00	-	4,76	-	-	4,40
12	RPHX 1204MOSN-33	-33		●	12,00	-	4,76	-	-	4,40
16	RPHX 1605MOSN	-	●		16,00	-	5,56	-	-	5,50
16	RPHX 1605MOSN-33	-33		●	16,00	-	5,56	-	-	5,50

	CTP1235	CTP2235
Steel	●	○
Stainless	○	●
Cast iron		
Non ferrous metals		
Heat resistant	○	○
Hard materials		

α RD.. = 15°

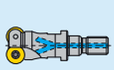
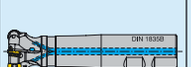
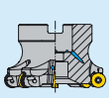
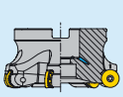


α RP.. = 11°



● = main application
○ = extended application
● = international CERATIZIT range, for present availability see price list

Ordering example: 10 pieces RDHX 0802MOSN CTP1235

Page	C/G251-08	A/C/G251-10	A251-12	A251-16	
					See catalogue no. 126 'Tools and inserts for milling'

Cutting data
Grades / material

	Workpiece material	Type of treatment / alloy		VDI 3323 group	Harness HB
A	Non alloyed steel	annealed	≤ 0,15% C	1	125
		annealed	0,15% - 0,45% C	2	150 - 250
		tempered	≥ 0,45% C	3	300
	Low alloyed steel	annealed		6	180
		tempered		7 / 8	250 - 300
		tempered		9	350
	High alloyed steel	annealed		10	200
		tempered		11	350
	Corrosion resistant steel	annealed	ferritic	12	200
		tempered	martensitic	13	325
R	Stainless steel	annealed	ferritic / martensitic	14	200
		quenched	austenitic	14	180
		quenched	duplex	14	230 - 260
		hardened	martensitic / austenitic	14	330
F	Grey cast iron		pearlitic / ferritic	15	180
			pearlitic / martensitic	16	260
	Spheroidal cast iron		ferritic	17	160
			pearlitic	18	–
	Malleable cast iron		ferritic	19	130
			pearlitic	20	230
N	Aluminium wrought alloys	non hardened		21	60
		hardened		22	100
	Aluminium cast alloys	non hardened	< 12% Si	23	80
		hardened	< 12% Si	24	90
		non hardened	> 12% Si	25	130
	Copper and copper alloys (bronze, brass)		machining alloy stock (1% Pb)	26	–
			brass, red bronze	27	–
			bronze	28	90
			lead-free copper and electrolytic copper	29	100
	Non-metallic materials		thermosetting plastics	29	100
			fibre-reinforced plastics	29	–
			hard rubber	30	–
S	Heat resistant alloys	annealed	Fe-base	31	200
		hardened	Fe-base	32	280
		annealed	Ni or Co-base	33	250
		hardened	Ni or Co-base 30 - 58 HRC	34	–
		cast	Ni or Co-base 1500 - 2200 Nmm^2	35	–
	Titanium alloys		pure titanium	36	R_m 440*
			alpha + beta alloys	37	R_m 1050*
H	Tempered steel	hardened and tempered		38	55 HRC
		hardened and tempered		39	60 HRC
	Chilled castings	cast		40	400
	Tempered cast iron	hardened and tempered		40	55 HRC

* Rm = ultimate tensile strength, measured in MPa

Cutting data
Grades / material

CTP1235		CTP2235	
v_c [m/min]		v_c [m/min]	
100-220	70-180	150-260	90-180
100-220	70-180	150-260	90-180
100-220	70-180	150-260	90-180
80-220	70-170	80-220	70-160
80-220	70-170	80-220	70-160
80-220	70-170	80-220	70-160
80-180	60-140	90-180	70-140
80-180	60-140	90-180	70-140
70-180	60-140	70-180	60-140
70-180	60-140	70-180	60-140
60-200	40-140	60-200	60-140
60-200	40-140	60-200	60-140
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319/1

7000807

hard material matters

319 EN 11.05

We reserve the right to make technical changes for improvement of the product.