TURNING INSERTS · PARTING AND GROOVING

HCMA-ST

Single-ended insert for parting, grooving and side turning, with ST chipbreaker and INNOT PVD grades.

KEY DATA	
Product type	Turning Inserts
ISO materials	M stainless S superalloys
Operation	Parting and grooving
Chipbreaker	**ST**
INNOT grades	IT7125 · **IT7225** ★ · IT9205 · **IT9215** ★ ★ recommended
Nose radii	R0.4 · R0.6 · R0.8
Online page	innot-it.com/en/prodotto/hcma-st

Specifications

Code	Width CW	Corner radius RE	INSL	Available grades
HCMA3004-ST	3.0 mm (±0.025)	0.4	15.3	IT7125 - IT7225 - IT9205 - IT9215
HCMA4006-ST	4.0 mm (±0.025)	0.6	15.3	IT7125 - IT7225 - IT9205 - IT9215
HCMA5006-ST	5.0 mm (±0.025)	0.6	15.3	IT7125 - IT7225 - IT9205 - IT9215
HCMA6008-ST	6.0 mm (±0.025)	0.8	15.3	IT7125 - IT7225 - IT9205 - IT9215

CW = cutting width, RE = corner radius, INSL = insert length (mm).

ST chipbreaker data sheet

Operation	Parting, external grooving and side turning
ISO material	M (stainless steels), S (superalloys and titanium)
Type	One cutting edge, optimised locating seat
Tolerance	M
Features	Angolo di spoglia, larghezza e curvatura del tagliente variabili per migliorare la finitura delle gole. Tagliente rinforzato per una troncatura più sicura; la geometria del petto garantisce un'ottima rottura del truciolo.
Compatible toolholders	Toolholders for parting and external grooving, parting blades

Available INNOT grades

Grade	ISO	Coating	Composition	Application
IT7125	**M**	**PVD**	AlTiN	Universal grade for turning stainless steel in continuous and interrupted cuts. Smooth, low-friction coating, high nano-hardness and excellent oxidation resistance.
IT7225 ★	**M**	**PVD**	AlTiSiN + TiSiN	First-choice grade for turning stainless steel. Nano-gradient coating on a sub-micron grain substrate: excellent wear resistance and toughness.

Grade	ISO	Coating	Composition	Application
IT9205	S	PVD	AlTiN + TiSiN + AlCrN	Highly wear-resistant grade for superalloys. Uniform sub-micron hard phase and alloying elements for greater reliability; excellent thermal stability and oxidation resistance.
IT9215 ★	S	PVD	AlTiN + TiSiN + AlCrN	Universal grade for turning superalloys. Greater toughness and reliability; the multilayer structure limits cracks and protects the coating from flaking and chipping.

★ Recommended grade for this insert. CVD = chemical vapour deposition coating, PVD = physical vapour deposition coating.

Recommended cutting data

Parting and grooving – cutting speed

Velocità di taglio Vc (m/min) in funzione dell'avanzamento fn (mm/giro)

Material	HB	Rm (N/mm²)	IT7225			IT9205			IT9215		
			fn 0.1	fn 0.3	fn 0.5	fn 0.1	fn 0.2	fn 0.3	fn 0.1	fn 0.2	fn 0.3
NON-ALLOY STEELS											
C≤0.25% – Annealed	125	428	260	180	120	–	–	–	–	–	–
0.25<C≤0.55% – Annealed	190	639	200	140	105	–	–	–	–	–	–
0.25<C≤0.55% – Quenched and tempered	210	708	120	110	100	–	–	–	–	–	–
C>0.55% – Annealed	190	639	130	120	110	–	–	–	–	–	–
C>0.55% – Quenched and tempered	300	1013	110	95	70	–	–	–	–	–	–
Short-chipping – Annealed	220	745	120	105	90	–	–	–	–	–	–
LOW-ALLOY STEELS											
Annealed	175	591	170	135	120	–	–	–	–	–	–
Quenched and tempered	300	1013	105	90	70	–	–	–	–	–	–
Quenched and tempered	380	1282	160	80	60	–	–	–	–	–	–
STAINLESS STEELS											
Ferritic / martensitic – Annealed	200	675	200	150	105	–	–	–	–	–	–
Martensitic – Quenched and tempered	330	1114	150	115	70	–	–	–	–	–	–
Austenitic – Solution annealed	200	675	185	155	125	–	–	–	–	–	–
Precipitation-hardening austenitic (PH)	300	1013	165	135	95	–	–	–	–	–	–
Austenitic-ferritic (duplex)	230	778	145	110	85	–	–	–	–	–	–
SUPERALLOYS AND TITANIUM											
Iron-based – Annealed	200	680	–	–	–	70	50	–	60	40	–
Iron-based – Aged	280	940	–	–	–	50	40	–	40	30	–
Nickel / cobalt-based – Annealed	250	840	–	–	–	50	40	–	40	30	–
Nickel / cobalt-based – Aged	350	1180	–	–	–	40	30	–	35	25	–
Nickel / cobalt-based – Cast	320	1080	–	–	–	30	25	–	25	20	–
Aged α+β titanium alloys	375	1260	–	–	–	50	40	30	40	30	20
β titanium alloys	410	1400	–	–	–	40	35	30	30	25	20

Valori indicativi per lavorazione con refrigerante. In troncatura e nelle gole interne ridurre la velocità del 30–50%. In troncatura, avvicinandosi al centro del pezzo, ridurre l'avanzamento del 30%.

Consigli d'uso

- Parting off: when approaching the centre reduce the feed by 30% for longer life and a better finish; keep the tool overhang to a minimum.
- External grooving and side turning: with depths over 0.5 mm work in radial passes (up to 0.75 × insert width), retract 0.1 mm, then an axial pass.

- Wide grooves: make side-by-side stepped plunges, then finish the bottom and the flanks.
- Face grooves: start from the largest diameter and move inwards; for finishing machine the bottom and the outer diameter first, then the inner one.
- Internal grooves: work from the inside outwards to help the chip out.

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Cutting data are indicative starting values: adjust them to machine, clamping, tool overhang and workpiece material. Data and images may change without notice.