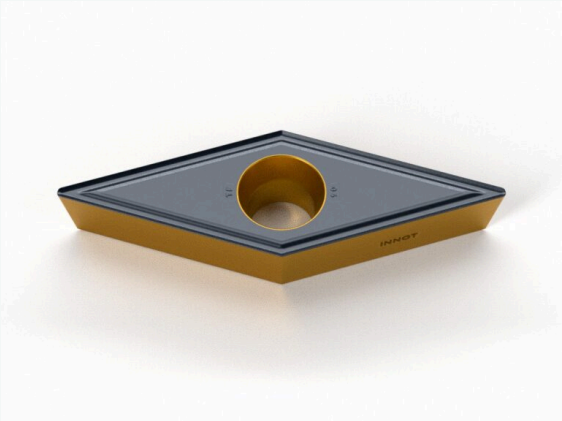
TURNING INSERTS · POSITIVE INSERTS · VBMT / VCMT - 35° RHOMBIC

VCMT-TF

35° positive rhombic insert (VCMT) for finishing steels, stainless steels and superalloys, with TF chipbreaker and INNOT CVD and PVD grades.



KEY DATA	
Product type	Turning Inserts
ISO materials	P steel M stainless S superalloys
Operation	Finishing
Chipbreaker	**TF**
INNOT grades	IT7125 · **IT7225** ★ · **IT8115** ★ · IT8125 · **IT8225** ★ · **IT9205** ★ · IT9215 ★ recommended
Nose radii	R0.4 · R0.8
Online page	innot-it.com/en/prodotto/vcmt-tf

ISO specifications

ISO	RADIUS (RE)	AVAILABLE GRADES	CHIPBREAKER
VCMT1103	0.4 - 0.8	IT8115 - IT8125 - IT8225 - IT7125 - IT7225 - IT9205 - IT9215	TF
VCMT1604	0.4 - 0.8	IT8115 - IT8125 - IT8225 - IT7125 - IT7225 - IT9205 - IT9215	TF

TF chipbreaker data sheet

Operation	Finishing
ISO material	P (steels), M (stainless steels), S (superalloys and titanium)
Tolerance	M
Features	Rompitruciolo per la finitura. Il tagliente inclinato riduce le forze di taglio e le vibrazioni e garantisce una buona qualità superficiale. Molto versatile, con un ampio campo di impiego: l'inclinazione e il rilievo rompitruciolo assicurano un ottimo controllo del truciolo. Inserto positivo a 7° (forma V, rombica 35°) con fissaggio a vite: la punta più sottile della gamma, per copiatura e profilatura di gole e raggi. Portautensili tipo SVQC (107,5°) e SVUC (93°).

Available INNOT grades

Grade	ISO	Coating	Composition	Application
IT8115 ★	**P**	**CVD**	TiN + MT-TiCN + Al_2O_3	Continuous and lightly interrupted cuts. Finishing and semi-finishing of carbon and alloy steels.
IT8125	**P**	**CVD**	TiN + MT-TiCN + Al_2O_3	Interrupted and continuous cuts on steel. The reinforced substrate limits plastic deformation at high temperature.
IT8225 ★	**P**	**CVD**	TiN + MT-TiCN + Al_2O_3	First-choice grade for steel, very versatile. Multilayer coating with excellent wear resistance and toughness.
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.

Grade	ISO	Coating	Composition	Application
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.
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 chipbreaker. CVD and PVD = vapour deposition coatings (chemical and physical). ISO P = steels, ISO M = stainless steels, ISO S = superalloys and titanium.

Recommended cutting data

External turning of steels (ISO P) – TF chipbreaker

Material	Condition	Vc (m/min) by grade	fn (mm/rev)	ap (mm)
Structural steels ≤ 180 HB (S235, C45...)	Stable	IT8115: 230 – 355 IT8125: 225 – 320 IT8225: 220 – 310	0.10 – 0.30	0.30 – 2.00
Structural steels ≤ 180 HB (S235, C45...)	Average	IT8115: 230 – 355 IT8125: 225 – 320 IT8225: 220 – 310	0.10 – 0.25	0.30 – 2.00
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Stable	IT8115: 230 – 440 IT8125: 215 – 415 IT8225: 225 – 410	0.10 – 0.30	0.30 – 2.00
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Average	IT8115: 230 – 440 IT8125: 215 – 415 IT8225: 225 – 410	0.10 – 0.25	0.30 – 2.00
Quenched and tempered steels ≥ 280 HB	Stable	IT8115: 230 – 460 IT8225: 210 – 420	0.10 – 0.30	0.30 – 2.00
Quenched and tempered steels ≥ 280 HB	Average	IT8115: 230 – 460 IT8225: 210 – 420	0.10 – 0.25	0.30 – 2.00

Guide values for the TF chipbreaker (positive inserts), given only for the grades available in this product.

External turning of stainless steel (ISO M) – TF chipbreaker

Material	Condition	Vc (m/min) by grade	fn (mm/rev)	ap (mm)
Austenitic stainless steel ≤ 200 HB (AISI 304, 316...)	Stable	IT7125: 95 – 185 IT7225: 95 – 185	0.10 – 0.30	0.30 – 2.00
Austenitic stainless steel ≤ 200 HB (AISI 304, 316...)	Average	IT7125: 95 – 185 IT7225: 95 – 185	0.10 – 0.25	0.30 – 2.00
Martensitic stainless steel > 200 HB (AISI 431, 420...)	Stable	IT7125: 85 – 175 IT7225: 85 – 175	0.10 – 0.30	0.30 – 2.00
Martensitic stainless steel > 200 HB (AISI 431, 420...)	Average	IT7125: 85 – 175 IT7225: 85 – 175	0.10 – 0.25	0.30 – 2.00

Guide values for the TF chipbreaker (positive inserts), given only for the grades available in this product.

External turning of superalloys (ISO S) – TF chipbreaker

Material	Condition	Vc (m/min) by grade	fn (mm/rev)	ap (mm)
Heat-resistant superalloys (Inconel 718...)	Stable	IT9205: 40 – 80 IT9215: 30 – 70	0.05 – 0.20	0.30 – 1.50
Heat-resistant superalloys (Inconel 718...)	Average	IT9205: 40 – 80 IT9215: 30 – 70	0.05 – 0.20	0.30 – 1.50

Guide values for the TF chipbreaker (positive inserts), given only for the grades available in this product.

Internal turning / boring (ISO P)

Material	Operation	Cut	RE	Vc (m/min) min – recomm. – max	ap (mm) min – recomm. – max	fn (mm/rev) min – recomm. – max
Low carbon / low alloy ≤ 300 HB	Precision finishing	Continuous	0.4	250 – 300 – 350	0.05 – 0.3 – 0.5	0.03 – 0.1 – 0.15
		Interrupted		120 – 170 – 220	0.05 – 0.3 – 0.5	0.03 – 0.1 – 0.15
	Finishing	Continuous	0.4 – 0.8	200 – 250 – 300	0.2 – 0.5 – 1.0	0.05 – 0.1 – 0.2
		Interrupted		150 – 200 – 250	0.2 – 0.5 – 1.0	0.05 – 0.1 – 0.2
	Finishing – semi-roughing	Continuous	0.4 – 0.8	150 – 200 – 250	0.5 – 1.0 – 2.0	0.1 – 0.15 – 0.25
		Interrupted		100 – 150 – 200	0.5 – 1.0 – 1.5	0.1 – 0.15 – 0.2
	Semi-roughing	Continuous	0.4 – 0.8	100 – 150 – 200	1.0 – 1.5 – 2.5	0.1 – 0.15 – 0.3
		Interrupted		80 – 120 – 150	1.0 – 1.5 – 2.0	0.1 – 0.15 – 0.2
Medium carbon / medium alloy ≤ 300 HB	Precision finishing	Continuous	0.4	150 – 200 – 250	0.05 – 0.3 – 0.5	0.03 – 0.1 – 0.15
		Interrupted		120 – 140 – 170	0.05 – 0.3 – 0.5	0.03 – 0.1 – 0.15
	Finishing	Continuous	0.4 – 0.8	150 – 200 – 250	0.2 – 0.5 – 1.0	0.05 – 0.1 – 0.2
		Interrupted		120 – 180 – 200	0.2 – 0.5 – 1.0	0.05 – 0.1 – 0.2
	Finishing – semi-roughing	Continuous	0.4 – 0.8	120 – 180 – 220	0.5 – 1.0 – 2.0	0.1 – 0.15 – 0.25
		Interrupted		100 – 150 – 200	0.5 – 1.0 – 1.5	0.1 – 0.15 – 0.2
	Semi-roughing	Continuous	0.4 – 0.8	100 – 150 – 200	1.0 – 1.5 – 2.5	0.1 – 0.15 – 0.3
		Interrupted		80 – 120 – 150	1.0 – 1.5 – 2.0	0.1 – 0.15 – 0.2
High carbon / alloy ≤ 280 HB	Precision finishing	Continuous	0.4	120 – 150 – 180	0.05 – 0.3 – 0.5	0.03 – 0.1 – 0.15
		Interrupted		110 – 130 – 160	0.05 – 0.3 – 0.5	0.03 – 0.1 – 0.15
	Finishing	Continuous	0.4 – 0.8	120 – 150 – 180	0.2 – 0.5 – 1.0	0.05 – 0.1 – 0.2
		Interrupted		100 – 120 – 150	0.2 – 0.5 – 1.0	0.05 – 0.1 – 0.2
	Finishing – semi-roughing	Continuous	0.4 – 0.8	120 – 150 – 180	0.5 – 1.0 – 2.0	0.1 – 0.15 – 0.25
		Interrupted		100 – 120 – 150	0.5 – 1.0 – 1.5	0.1 – 0.15 – 0.2
	Semi-roughing	Continuous	0.4 – 0.8	100 – 120 – 150	1.0 – 1.5 – 2.5	0.1 – 0.15 – 0.3
		Interrupted		80 – 100 – 120	1.0 – 1.5 – 2.0	0.1 – 0.15 – 0.2

Recommended grades: IT8115 – IT8225. Minimum machining diameter: Ø10 mm. ap = radial depth of cut.

Internal turning / boring (ISO M)

Material	Operation	Cut	RE	Vc (m/min) min – recomm. – max	ap (mm) min – recomm. – max	fn (mm/rev) min – recomm. – max
Austenitic stainless steel ≤ 220 HB	Finishing	Continuous	0.4 – 0.8	120 – 150 – 180	0.2 – 0.5 – 0.8	0.05 – 0.08 – 0.1
		Interrupted		100 – 120 – 150	0.2 – 0.5 – 0.8	0.05 – 0.08 – 0.1
	Semi-finishing	Continuous	0.4 – 0.8	120 – 150 – 180	0.5 – 1.0 – 1.5	0.05 – 0.1 – 0.2
		Interrupted		100 – 120 – 150	0.5 – 1.0 – 1.5	0.05 – 0.1 – 0.2

Precipitation-hardening stainless steel ≤ 300 HB	Finishing	Continuous	0.4 – 0.8	80 – 100 – 120	0.2 – 0.7 – 1.0	0.05 – 0.1 – 0.15
		Interrupted		60 – 80 – 100	0.2 – 0.7 – 1.0	0.05 – 0.1 – 0.15
	Semi-finishing	Continuous	0.4 – 0.8	80 – 100 – 120	0.5 – 1.0 – 1.5	0.05 – 0.1 – 0.2
		Interrupted		60 – 80 – 100	0.5 – 1.0 – 1.5	0.05 – 0.1 – 0.2

Recommended grades: IT7125 – IT7225. Guide values for positive inserts, machining diameter over Ø10 mm. ap = radial depth of cut.

Internal turning / boring (ISO S)

Material	Operation	Cut	RE	Vc (m/min) min – recomm. – max	ap (mm) min – recomm. – max	fn (mm/rev) min – recomm. – max
Titanium alloys ≤ 400 HB	High-speed finishing (bright surface)	Continuous	0.4 – 0.8	100 – 120 – 150	0.05 – 0.1 – 0.3	0.03 – 0.07 – 0.1
		Interrupted		70 – 100 – 120	0.05 – 0.1 – 0.3	0.03 – 0.07 – 0.1
	Finishing	Continuous	0.4 – 0.8	30 – 50 – 70	0.05 – 0.5 – 1.0	0.03 – 0.1 – 0.2
		Interrupted		30 – 50 – 70	0.05 – 0.5 – 1.0	0.03 – 0.1 – 0.2
Heat-resistant superalloys ≤ 350 HB	Finishing (range 1)	Continuous	0.4 – 0.8	10 – 30 – 50	0.05 – 0.5 – 1.0	0.03 – 0.1 – 0.2
		Interrupted		10 – 30 – 50	0.05 – 0.5 – 1.0	0.03 – 0.1 – 0.2
	Finishing (range 2)	Continuous	0.4 – 0.8	40 – 60 – 80	0.1 – 0.3 – 0.5	0.03 – 0.05 – 0.1
		Interrupted		40 – 60 – 80	0.1 – 0.3 – 0.5	0.03 – 0.05 – 0.1

Recommended grades: IT9205 – IT9215. Guide values for positive inserts, machining diameter over Ø10 mm. ap = radial depth of cut.

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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.