TURNING INSERTS · NEGATIVE INSERTS · SNMG - 90° SQUARE

SNMG-GM

90° negative square insert for semi-finishing steels, with GM chipbreaker and INNOT CVD grades.

KEY DATA	
Product type	Turning Inserts
ISO materials	P steel
Operation	Semi-finishing
Chipbreaker	**GM**
INNOT grades	IT8105 · **IT8115** ★ · IT8125 · **IT8225** ★ ★ recommended
Nose radii	R0.4 · R0.8 · R1.2 · R1.6
Online page	innot-it.com/en/prodotto/snmg-gm

ISO specifications

ISO	RADIUS (RE)	AVAILABLE GRADES	CHIPBREAKER
SNMG1204	0.4 - 0.8 - 1.2	IT8105 - IT8115 - IT8125 - IT8225	GM
SNMG1906	1.2 - 1.6	IT8105 - IT8115 - IT8125 - IT8225	GM

GM chipbreaker data sheet

Operation	Semi-finishing
ISO material	P (non-alloy, alloy and tool steels)
Tolerance	M
Features	Prima scelta per la semi-finitura dei materiali ISO P. Il profilo speciale del tagliente unisce affilatura e robustezza. Il petto curvo, con larghezza del tagliente e angolo di spoglia variabili, garantisce uno scorrimento regolare e un buon controllo del truciolo. Molto versatile e con un ampio campo di impiego: efficiente su gran parte delle lavorazioni di tornitura dell'acciaio. Forma quadrata 90°: la più robusta tra gli inserti negativi, con 8 taglienti utilizzabili (4 per faccia); ideale per sgrossatura, sfacciatura e smussi a 45°.

Available INNOT grades

Grade	ISO	Coating	Composition	Application
IT8105	**P**	**CVD**	TiN + MT-TiCN + Al_2O_3	Tornitura di acciaio in condizioni stabili. Elevata durezza a caldo, resistenza all'usura e alla deformazione plastica.
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.

★ Recommended grade for this chipbreaker. CVD = chemical vapour deposition coating. ISO P = steels.

Recommended cutting data

External turning of steels (ISO P) – GM chipbreaker

Recommended cutting data by material and cutting condition (stable, average, difficult).

Material	Condition	Vc (m/min) by grade	fn (mm/rev)	ap (mm)
Structural steels ≤ 180 HB (S235, C45...)	Stable	IT8105: 230 – 400 IT8115: 215 – 360 IT8125: 190 – 355 IT8225: 205 – 375	0.16 – 0.55	1.00 – 5.00
Structural steels ≤ 180 HB (S235, C45...)	Average	IT8105: 225 – 380 IT8115: 200 – 380 IT8125: 185 – 350 IT8225: 195 – 360	0.16 – 0.50	1.00 – 5.00
Structural steels ≤ 180 HB (S235, C45...)	Difficult	IT8125: 185 – 320 IT8225: 195 – 360	0.16 – 0.45	1.00 – 5.00
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Stable	IT8105: 230 – 400 IT8115: 215 – 360 IT8125: 190 – 355 IT8225: 205 – 375	0.16 – 0.55	1.00 – 5.00
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Average	IT8105: 225 – 430 IT8115: 200 – 405 IT8125: 185 – 350 IT8225: 195 – 360	0.16 – 0.50	1.00 – 5.00
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Difficult	IT8125: 185 – 350 IT8225: 195 – 360	0.16 – 0.45	1.00 – 5.00
Quenched and tempered steels ≥ 280 HB	Stable	IT8105: 220 – 400 IT8115: 205 – 380	0.20 – 0.55	1.00 – 4.00
Quenched and tempered steels ≥ 280 HB	Average	IT8105: 220 – 380 IT8115: 205 – 360	0.20 – 0.50	1.00 – 4.00

Guide values for the GM chipbreaker. Conditions not shown are not recommended for that material.

Internal turning (boring) of steels (ISO P) – GM chipbreaker

Starting values for internal turning with a boring bar, derived from this insert's external turning data: cutting speed −15%, feed −20%, maximum depth of cut −40%. Negative inserts are mounted on boring bars for bores from about Ø 25 mm upwards (Ø 32–40 mm for the larger sizes).

Material	Condition	Vc (m/min) by grade	fn (mm/rev)	ap (mm)
Structural steels ≤ 180 HB (S235, C45...)	Stable	IT8105: 195 – 340 IT8115: 185 – 305 IT8125: 160 – 300 IT8225: 175 – 320	0.13 – 0.44	1.00 – 3.00
Structural steels ≤ 180 HB (S235, C45...)	Average	IT8105: 190 – 325 IT8115: 170 – 325 IT8125: 155 – 300 IT8225: 165 – 305	0.13 – 0.40	1.00 – 3.00
Structural steels ≤ 180 HB (S235, C45...)	Difficult	IT8125: 155 – 270 IT8225: 165 – 305	0.13 – 0.36	1.00 – 3.00
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Stable	IT8105: 195 – 340 IT8115: 185 – 305 IT8125: 160 – 300 IT8225: 175 – 320	0.13 – 0.44	1.00 – 3.00
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Average	IT8105: 190 – 365 IT8115: 170 – 345 IT8125: 155 – 300 IT8225: 165 – 305	0.13 – 0.40	1.00 – 3.00

Material	Condition	Vc (m/min) by grade	fn (mm/rev)	ap (mm)
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Difficult	IT8125: 155 – 300 IT8225: 165 – 305	0.13 – 0.36	1.00 – 3.00
Quenched and tempered steels ≥ 280 HB	Stable	IT8105: 185 – 340 IT8115: 175 – 325	0.16 – 0.44	1.00 – 2.40
Quenched and tempered steels ≥ 280 HB	Average	IT8105: 185 – 325 IT8115: 175 – 305	0.16 – 0.40	1.00 – 2.40

With a boring bar overhang above 3 times the diameter (steel bar) or 5 times (carbide or anti-vibration bar), reduce speed and feed further. Use the bar's internal coolant to clear the chips.

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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.