

TURNING INSERTS · NEGATIVE INSERTS · TNMG - 60° TRIANGULAR

TNMG-GR

60° negative triangular insert for roughing steels, with GR chipbreaker and INNOT CVD grades.



KEY DATA

Product type	Turning Inserts
ISO materials	P steel
Operation	Roughing
Chipbreaker	GR
INNOT grades	IT8105 · IT8115 ★ · IT8125 · IT8225 ★ ★ recommended
Nose radii	R0.8 · R1.2
Online page	innot-it.com/en/prodotto/tnmg-gr

ISO specifications

ISO	RADIUS (RE)	AVAILABLE GRADES	CHIPBREAKER
TNMG1604	0.8 - 1.2	IT8105 - IT8115 - IT8125 - IT8225	GR

GR chipbreaker data sheet

Operation	Roughing
ISO material	P (non-alloy, alloy and tool steels)
Tolerance	M
Features	Prima scelta per la sgrossatura dei materiali ISO P. La tavola frangitruciolo con angolo rialzato controlla il flusso del truciolo anche a basse profondità di passata. Grande angolo di spoglia e ampio smusso garantiscono tagliente affilato e resistente. La doppia scanalatura migliora l'evacuazione del truciolo e rende l'inserto versatile: adatto a sgrossatura e semi-finitura con carichi elevati. Forma triangolare 60°: 6 taglienti utilizzabili (3 per faccia), molto versatile per tornitura longitudinale e sfacciatura con un'ampia scelta di portautensili.

Available INNOT grades

Grade	ISO	Coating	Composition	Application
IT8105	P	CVD	TiN + MT-TiCN + Al ₂ O 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 ₂ O ₃	Continuous and lightly interrupted cuts. Finishing and semi-finishing of carbon and alloy steels.
IT8125	P	CVD	TiN + MT-TiCN + Al ₂ O ₃	Interrupted and continuous cuts on steel. The reinforced substrate limits plastic deformation at high temperature.
IT8225 ★	P	CVD	TiN + MT-TiCN + Al ₂ O 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) - GR 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	IT8115: 235 - 320 IT8125: 185 - 295 IT8225: 195 - 315	0.25 - 0.60	2.00 - 7.00
Structural steels ≤ 180 HB (S235, C45...)	Average	IT8115: 235 - 320 IT8125: 195 - 315 IT8225: 185 - 295	0.25 - 0.55	2.00 - 7.00
Structural steels ≤ 180 HB (S235, C45...)	Difficult	IT8115: 235 - 320 IT8125: 185 - 295 IT8225: 195 - 315	0.25 - 0.50	2.00 - 7.00
Carbon and alloy steels 180 - 280 HB (41Cr4, 42CrMo4...)	Stable	IT8115: 235 - 320 IT8125: 195 - 315 IT8225: 185 - 295	0.25 - 0.60	2.00 - 7.00
Carbon and alloy steels 180 - 280 HB (41Cr4, 42CrMo4...)	Average	IT8115: 235 - 320 IT8125: 195 - 315 IT8225: 185 - 295	0.25 - 0.55	2.00 - 7.00
Carbon and alloy steels 180 - 280 HB (41Cr4, 42CrMo4...)	Difficult	IT8115: 235 - 320 IT8125: 195 - 315 IT8225: 185 - 295	0.25 - 0.50	2.00 - 7.00
Quenched and tempered steels ≥ 280 HB	Stable	IT8115: 225 - 360	0.25 - 0.60	1.50 - 6.00
Quenched and tempered steels ≥ 280 HB	Average	IT8225: 225 - 340	0.25 - 0.55	1.50 - 6.00

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

Internal turning (boring) of steels (ISO P) - GR 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	IT8115: 200 - 270 IT8125: 155 - 250 IT8225: 165 - 270	0.20 - 0.48	2.00 - 4.20
Structural steels ≤ 180 HB (S235, C45...)	Average	IT8115: 200 - 270 IT8125: 165 - 270 IT8225: 155 - 250	0.20 - 0.44	2.00 - 4.20
Structural steels ≤ 180 HB (S235, C45...)	Difficult	IT8115: 200 - 270 IT8125: 155 - 250 IT8225: 165 - 270	0.20 - 0.40	2.00 - 4.20
Carbon and alloy steels 180 - 280 HB (41Cr4, 42CrMo4...)	Stable	IT8115: 200 - 270 IT8125: 165 - 270 IT8225: 155 - 250	0.20 - 0.48	2.00 - 4.20
Carbon and alloy steels 180 - 280 HB (41Cr4, 42CrMo4...)	Average	IT8115: 200 - 270 IT8125: 165 - 270 IT8225: 155 - 250	0.20 - 0.44	2.00 - 4.20
Carbon and alloy steels 180 - 280 HB (41Cr4, 42CrMo4...)	Difficult	IT8115: 200 - 270 IT8125: 165 - 270 IT8225: 155 - 250	0.20 - 0.40	2.00 - 4.20
Quenched and tempered steels ≥ 280 HB	Stable	IT8115: 190 - 305	0.20 - 0.48	1.50 - 3.60
Quenched and tempered steels ≥ 280 HB	Average	IT8225: 190 - 290	0.20 - 0.44	1.50 - 3.60

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.