TURNING INSERTS · NEGATIVE INSERTS · SNMG - 90° SQUARE

SNMG-GQ

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

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

ISO specifications

ISO	RADIUS (RE)	AVAILABLE GRADES	CHIPBREAKER
SNMG1204	1.2	IT8105 - IT8115 - IT8125 - IT8225	GQ

GQ chipbreaker data sheet

Operation	Semi-finishing
ISO material	P (non-alloy, alloy and tool steels)
Tolerance	M
Features	Chipbreaker for semi-finishing ISO P materials, suitable from finishing to semi-finishing. Excellent chip evacuation and high versatility: one solution for several passes on the same part. 90° square shape: the strongest of the negative inserts, with 8 usable cutting edges (4 per side); ideal for roughing, facing and 45° chamfers.

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) – GQ 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	0.14 – 0.50	1.00 – 5.00
Structural steels ≤ 180 HB (S235, C45...)	Average	IT8105: 230 – 400 IT8115: 215 – 360 IT8125: 190 – 355 IT8225: 205 – 375	0.14 – 0.45	1.00 – 5.00
Structural steels ≤ 180 HB (S235, C45...)	Difficult	IT8125: 190 – 355 IT8225: 205 – 375	0.14 – 0.40	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	0.14 – 0.50	1.00 – 5.00
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Average	IT8105: 230 – 400 IT8115: 215 – 360 IT8125: 190 – 355 IT8225: 205 – 375	0.14 – 0.45	1.00 – 5.00
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Difficult	IT8125: 190 – 355 IT8225: 205 – 375	0.14 – 0.40	1.00 – 5.00
Quenched and tempered steels ≥ 280 HB	Stable	IT8105: 220 – 400 IT8115: 205 – 380	0.20 – 0.60	0.90 – 4.00
Quenched and tempered steels ≥ 280 HB	Average	IT8105: 220 – 380 IT8115: 205 – 360	0.20 – 0.55	0.90 – 4.00

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

Internal turning (boring) of steels (ISO P) – GQ 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	0.11 – 0.40	1.00 – 3.00
Structural steels ≤ 180 HB (S235, C45...)	Average	IT8105: 195 – 340 IT8115: 185 – 305 IT8125: 160 – 300 IT8225: 175 – 320	0.11 – 0.36	1.00 – 3.00
Structural steels ≤ 180 HB (S235, C45...)	Difficult	IT8125: 160 – 300 IT8225: 175 – 320	0.11 – 0.32	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	0.11 – 0.40	1.00 – 3.00
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Average	IT8105: 195 – 340 IT8115: 185 – 305 IT8125: 160 – 300 IT8225: 175 – 320	0.11 – 0.36	1.00 – 3.00
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Difficult	IT8125: 160 – 300 IT8225: 175 – 320	0.11 – 0.32	1.00 – 3.00
Quenched and tempered steels ≥ 280 HB	Stable	IT8105: 185 – 340 IT8115: 175 – 325	0.16 – 0.48	0.90 – 2.40

Material	Condition	Vc (m/min) by grade	fn (mm/rev)	ap (mm)
Quenched and tempered steels ≥ 280 HB	Average	IT8105: 185 – 325 IT8115: 175 – 305	0.16 – 0.44	0.90 – 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.