

TURNING INSERTS · POSITIVE INSERTS · RCMX - ROUND

RCMX

Positive round insert (RCMX) for profiling and roughing of steel profiles, with INNOT CVD grades.



KEY DATA

Product type	Turning Inserts
ISO materials	P steel
Operation	Roughing · Special
Chipbreaker	Universale (MO)
INNOT grades	IT8105 · IT8115 ★ · IT8125 · IT8225 ★ ★ recommended
Online page	innot-it.com/en/prodotto/rcmx

ISO specifications

ISO	DIAMETER (IC)	AVAILABLE GRADES	CHIPBREAKER
RCMX1003MO	Ø10	IT8105 - IT8115 - IT8125 - IT8225	Universal (MO)
RCMX1204MO	Ø12	IT8105 - IT8115 - IT8125 - IT8225	Universal (MO)
RCMX1606MO	Ø16	IT8105 - IT8115 - IT8125 - IT8225	Universal (MO)
RCMX2006MO	Ø20	IT8105 - IT8115 - IT8125 - IT8225	Universal (MO)
RCMX2507MO	Ø25	IT8105 - IT8115 - IT8125 - IT8225	Universal (MO)
RCMX3209MO	Ø32	IT8105 - IT8115 - IT8125 - IT8225	Universal (MO)

Universal (MO) chipbreaker data sheet

Operation	Profiling
ISO material	P (non-alloy, alloy and tool steels)
Tolerance	M
Features	Universal chipbreaker for profiling: the high-strength cutting edge ensures great reliability and is the first choice for roughing profiles. 7° positive round insert (RCMX) with cylindrical hole: very strong circular cutting edge, for profiling, copying of radii and roughing of profiles; it is the typical choice for turning railway wheels. MRGC and MRDC type toolholders.

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.

Grade	ISO	Coating	Composition	Application
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) - round insert

Cutting speed by grade: values of the INNOT CVD grades on steels. Feed and depth of cut depend on the insert diameter: see the table below.

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

Starting values for profiling and roughing. Conditions not listed are not recommended for that material.

Internal turning (boring) of steels (ISO P) - round insert

Starting values for internal turning with a boring bar, derived from this insert's external turning data: cutting speed –15%, feed –20%.

Material	Condition	Vc (m/min) by grade
Structural steels ≤ 180 HB (S235, C45...)	Stable	IT8105: 195 - 340 IT8115: 185 - 305 IT8125: 160 - 300 IT8225: 175 - 320
Structural steels ≤ 180 HB (S235, C45...)	Average	IT8105: 190 - 325 IT8115: 170 - 325 IT8125: 155 - 300 IT8225: 165 - 305
Structural steels ≤ 180 HB (S235, C45...)	Difficult	IT8125: 155 - 270 IT8225: 165 - 305

Material	Condition	Vc (m/min) by grade
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Stable	IT8105: 195 – 340 IT8115: 185 – 305 IT8125: 160 – 300 IT8225: 175 – 320
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Average	IT8105: 190 – 365 IT8115: 170 – 345 IT8125: 155 – 300 IT8225: 165 – 305
Carbon and alloy steels 180 – 280 HB (41Cr4, 42CrMo4...)	Difficult	IT8125: 155 – 300 IT8225: 165 – 305
Quenched and tempered steels $\geq$ 280 HB	Stable	IT8105: 185 – 340 IT8115: 175 – 325
Quenched and tempered steels $\geq$ 280 HB	Average	IT8105: 185 – 325 IT8115: 175 – 305

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.

External turning: feed and depth of cut by insert diameter

With round inserts the chip thickness decreases with the depth of cut: with light cuts you can use the upper part of the feed range.

Insert diameter (IC)	ap (mm)	fn (mm/rev)
Ø10	0.50 – 2.50	0.15 – 0.35
Ø12	0.60 – 3.00	0.15 – 0.40
Ø16	0.80 – 4.00	0.20 – 0.50
Ø20	1.00 – 5.00	0.25 – 0.60
Ø25	1.30 – 6.30	0.30 – 0.70
Ø32	1.60 – 8.00	0.35 – 0.80

Reduce the feed in fillets and copying sections. Maximum depth of cut about one quarter of the diameter (IC).

Internal turning (boring): feed and depth of cut by insert diameter

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%.

Insert diameter (IC)	ap (mm)	fn (mm/rev)
Ø10	0.50 – 1.50	0.12 – 0.28
Ø12	0.60 – 1.80	0.12 – 0.32
Ø16	0.80 – 2.40	0.16 – 0.40
Ø20	1.00 – 3.00	0.20 – 0.48
Ø25	1.30 – 3.80	0.24 – 0.56
Ø32	1.60 – 4.80	0.28 – 0.64

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.

For complex profiles or materials other than steel, send us the material, hardness and part drawing: we will send you starting values for your case.

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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.