TURNING INSERTS · NEGATIVE INSERTS · VNMG - 35° RHOMBIC

VNMG-ZR

35° negative rhombic insert for turning ductile cast iron, with ZR chipbreaker and CVD grade IT6215.

KEY DATA	
Product type	Turning Inserts
ISO materials	K cast iron
Operation	Finishing · Semi-finishing · Roughing
Chipbreaker	**ZR**
INNOT grades	**IT6215** ★ ★ recommended
Nose radii	R0.4 · R0.8
Online page	innot-it.com/en/prodotto/vnmg-zr

ISO specifications

ISO	RADIUS (RE)	AVAILABLE GRADES	CHIPBREAKER
VNMG1604	0.4 - 0.8	IT6215	ZR

ZR chipbreaker data sheet

Operation	Finishing – roughing
ISO material	K (ductile cast iron, also suitable for grey cast iron)
Tolerance	M
Features	Rompitruciolo sviluppato per la ghisa sferoidale: bilancia affilatura e robustezza dello spigolo, con basse forze di taglio e alta qualità. Garantisce ottima sicurezza anche con forti urti ed è adatto anche alla tornitura della ghisa grigia, con grande versatilità e resistenza all'usura. Forma rombica 35°: la punta più sottile della gamma, per copiatura e profilatura di gole, raggi e spallamenti dove le altre forme non arrivano.

Available INNOT grades

Grade	ISO	Coating	Composition	Application
IT6215 ★	**K**	**CVD**	TiN + MT-TiCN + Al_2O_3	First-choice grade for ductile cast iron. Second-generation CVD coating with greater cohesion between layers, preventing flaking; the post-coating treatment increases impact resistance. Particularly suitable for interrupted cuts.

★ Recommended grade for this chipbreaker. CVD = chemical vapour deposition coating. ISO K = cast irons.

Recommended cutting data

External turning of ductile cast iron (ISO K) – ZR chipbreaker

Recommended cutting data by material and cutting condition.

Material	Condition	Vc (m/min) by grade	fn (mm/rev)	ap (mm)
Ductile cast iron ≤ 450 MPa (GGG40, GGG50 – EN-GJS-400, EN-GJS-500)	Stable	IT6215: 145 – 285	0.15 – 0.50	0.50 – 5.00
Ductile cast iron ≤ 450 MPa (GGG40, GGG50 – EN-GJS-400, EN-GJS-500)	Average	IT6215: 145 – 285	0.15 – 0.50	0.50 – 5.00
Ductile cast iron ≤ 450 MPa (GGG40, GGG50 – EN-GJS-400, EN-GJS-500)	Difficult	IT6215: 145 – 285	0.15 – 0.50	0.50 – 5.00

Guide values. The ZR chipbreaker is also suitable for grey cast iron.

Internal turning (boring) of ductile cast iron (ISO K) – ZR 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)
Ductile cast iron ≤ 450 MPa (GGG40, GGG50 – EN-GJS-400, EN-GJS-500)	Stable	IT6215: 125 – 240	0.12 – 0.40	0.50 – 3.00
Ductile cast iron ≤ 450 MPa (GGG40, GGG50 – EN-GJS-400, EN-GJS-500)	Average	IT6215: 125 – 240	0.12 – 0.40	0.50 – 3.00
Ductile cast iron ≤ 450 MPa (GGG40, GGG50 – EN-GJS-400, EN-GJS-500)	Difficult	IT6215: 125 – 240	0.12 – 0.40	0.50 – 3.00

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.

Cutting data on ductile cast iron EN-GJS-600 (GGG60) – IT6215

Guide values by type of operation.

Condition	Operation	Vc (m/min)	fn (mm/rev)	ap (mm)
Stable	Finishing	230 – 365	0.10 – 0.30	0.2 – 1.0
Stable	Semi-finishing	210 – 335	0.20 – 0.35	0.5 – 1.5
Stable	Roughing	195 – 315	0.25 – 0.40	1.0 – 3.0
Average / Difficult	Finishing	205 – 335	0.10 – 0.30	0.2 – 1.0
Average / Difficult	Semi-finishing	190 – 305	0.20 – 0.35	0.5 – 1.5
Average / Difficult	Roughing	180 – 285	0.25 – 0.40	1.0 – 3.0

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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.