HARTMETALL ESTECH AG
has developed new

Cemented Carbide Grades with an Alternative Binder

Iron / Nickel / Cobalt Alloy

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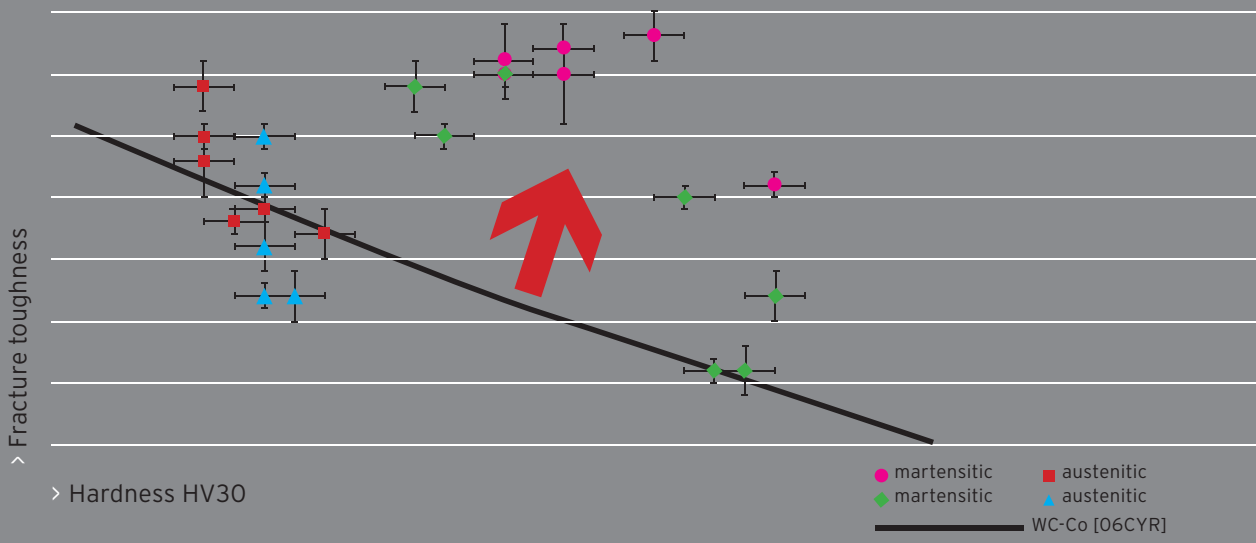
› Increased fracture toughness at a hardness comparable to a cemented carbide grade with cobalt binder



Reference: S. Wagner, cemended carbide with alternative binders: structure and properties, dissertation, TU Wien, 2011

Cemented carbide grade	WC grain size	Binder content %w/w	Applications
› RXE 20	0.8 µm	10 % (Fe/Ni/Co)	Wood– and paper machining › knives, end mills, drills wear protection cutting and punching dies maximum operation temperature 500°C (martensitic)
› RXE40	0.8 µm	20 % (Fe / Ni / Co)	Wood– and paper machining › knives, end mills, drills wear protection maximum operation temperature 500°C (martensitic)

		RXE20	RXE40
› Density	g/cm³	14.1	13.1
› Hardness HV30		1600	1250
› Fracture toughness	N/mm².mm$^{1/2}$	10.8	18.5
› Transverse rupture strength	N/mm²	3200	3600
› Suitability for EDM process		Good	Medium
› Resistance against corrosion		Medium	Fair

Attention:
Due to the conversion from the martensitic structure to the austenitic structure above 500°C, we strongly recommend to fix the cemented carbide parts made of the grades RXE20 and RXE40 either by gluing or by mechanical means instead of by brazing and soldering.

› Typical microstructure of our cemented carbide grade RXE40 with iron binder: