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## TUNGSTEN-CARBIDE SCRAPER BLADE SELECTION GUIDELINES

### INTRODUCTION TO SUCCESSFUL GRADE SELECTION

Ultramat SA is able to supply extruded carbide conveyor-belt scraper blades made from any of the more than 30 standard-production hardmetal grades produced by its suppliers. In the experience of its principal supplier, who exports in excess of 5000 tons per year of tungsten carbide products worldwide, by far the great majority of scraper applications throughout the world can be successfully covered by one of a short list of standard grades, detailed below.

### OPERATING CONDITIONS and WEAR MECHANISM

The key to successful selection of an appropriate carbide hardmetal grade is accurate identification of the actual mechanism of wear or failure of existing material. Broadly, failure types can be classified into three types, namely fracture, wear and corrosion. Wear (erosion/abrasion) and corrosion often occurs hand-in-hand in damp or wet environments, typical of conveyor applications.

Ultramat® Grade	ISO grade (or equiv)	WC size (µm)	Binder Type	Fracture (High impact)	Dry Erosion/Abrasion		Wet Erosion/Corrosion		
					Grain fracture	Binder extrusion	Neutral pH	Mildly acidic	Strongly acidic
UK20R (economy)	K20/ K30	0.8-4	Co (+TiC TaC NbC VC)	☺	☺	☺☺☺	☺	☹	☹
UK20	K20/ K30	1-4	Co	☺☺	☺	☺☺☺	☺	☹	☹
UU20	K20	0.7-0.9	Co (+VC/ Cr <sub>2</sub> C <sub>3</sub> )	☺☺	☺☺	☺☺☺	☺☺	☺	☹
UU12M	DZ10	0.7-0.9	Co+Cr+Ni	☺	☺	☺☺	☺☺☺	☺	☹
UF10N		0.7-0.9	Ni	☺	☺	☺	☺☺	☺☺☺	☺

### TECHNICAL SUPPORT

It is Ultramat SA's intention to provide the highest level of specialised technical support to its customers at all times. Ultramat SA partners with experienced and capable organisations in order to ensure that the customer benefits from our comprehensive cost-effective solutions to scraper blade applications. Please contact UMSA directly or its partners for laboratory analysis or technical guidance on any material/process-related issues.

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