#### Easing damage when EDM.

Easing damage when EDM with high hardness. Crack reduction when EDM.

Explanation

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Applications

Outstanding wear and chipping resistance by ultrafine grain cemented carbide.
This material prevents chipping, corrosion and crack extension when EDM because coarse grain WC
are dispersed in the main field of fine grain WC.
This material has alteration layer thickness thinning on the surface of cemented carbide for when
EDM because of low cobalt content material.
Precision molas (Snapping, Bending, Spinning and Powder compacting), Molas produced when
EDM, etc.

### The relation between generality WEDM and cemented carbide

These figures show the relation between the WEDM process and the WC grain size of cemented carbide. It is revealed that the smaller the WC grain size becomes, the lower TRS after WEDM results. This is probably because the finer the alloy grains become the thicker the layer deteriorates after the WEDM process gets and more microscopic cracks are produced.

■ The relation between WC grain size and TRS (Transverse Rupture Stength) after SGM (Surface Grinding Machining) or WEDM (Wire Electric Dischage Machining) of the first cut.





The relation between WC grain size and a number of

microscopic crack in 500 µm distance of a thickness of

# Cemented carbide for EDM - A10W

Physical property of A10W							
WC grain size [µm]	Co content [%]	Density [×10 <sup>3</sup> kg/m <sup>3</sup> ] {g/cm <sup>3</sup> }	Hardness HRA	TRS [GPa]			
1.0 - 2.5	9	14.5	91.0	3.7			
1.0 (less than)	10	14.5	91.0	3.4			
1.0 (less than)	13	14.2	91.0	3.7			
	ical propert WC grain size [μm] 1.0 - 2.5 1.0 (less than) 1.0 (less than)	ical property of A WC grain size [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [ [	Co content [x10 <sup>3</sup> kg/m <sup>3</sup> ]         WC grain size [µm]       Co content [x10 <sup>3</sup> kg/m <sup>3</sup> ]       Density [x10 <sup>3</sup> kg/m <sup>3</sup> ]         1.0 - 2.5       9       14.5         1.0 (less than)       10       14.5         1.0 (less than)       13       14.2	Co content [x10 <sup>3</sup> kg/m <sup>3</sup> ]       Hardness Hardness HRA         WC grain size [µm]       Co content [x10 <sup>3</sup> kg/m <sup>3</sup> ]       Hardness HRA         1.0 - 2.5       9       14.5       91.0         1.0 (less than)       10       14.5       91.0         1.0 (less than)       13       14.2       91.0			

(Typical figures)

## Comparison of crack extension between A10W and KD10



## Micrographs of A10W grade



By metallurgical microscope (×1000)

