

放电加工用超硬合金A10W

CEMENTED CARBIDE FOR EDM - A10W

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抑制放电加工时的损坏。

缓和了放电线切割时的损伤，同时具备高硬度。
减少了放电线切割时的裂纹。

Easing damage when EDM.

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

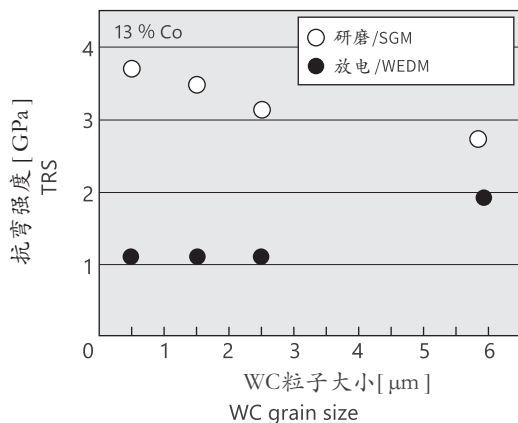
<p> 产品说明 Explanation</p>	<p>由于是微粒子合金，具有良好地耐磨损性和耐剥落性。 通过在微粒WC中添加适量分散的粗粒WC的粒子设计和耐腐蚀成分，有效阻止放电加工时的龟裂传播，抑制了材料的剥落及电解腐蚀。 因为钴含量低，降低了放电加工时发生的变质层厚度。</p> <p>Outstanding wear and chipping resistance by ultrafine grain cemented carbide. This material prevents chipping, corrosion and crack extension when EDM because 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.</p>
<p> 用途/实例 Applications</p>	<p>精密模具（冲裁·弯曲·拉伸·粉末成形）放电加工模具等其它超硬合金制品。 Precision molds (Snapping, Bending, Spinning and Powder compacting), Molds produced when EDM, etc.</p>

一般放电加工与超硬合金之相关性

The relation between generality WEDM and cemented carbide

于不同WC粒子大小下之平面研磨和放电加工后抗弯强度比较

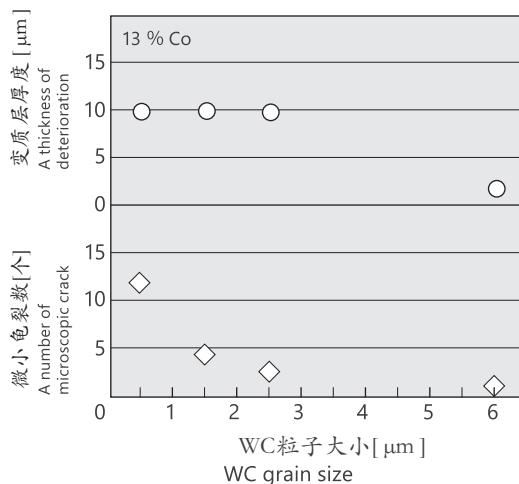
The relation between WC grain size and TRS (Transverse Rupture Strength) after SGM (Surface Grinding Machining) or WEDM (Wire Electric Discharge Machining) of the first cut.



此图表代表放电加工与超硬合金 WC 粒子大小的相关性。WC 粒子越小，放电加工后的抗弯强度就会呈现降低的趋势。这是因为微粒类合金中的微粒越小，放电加工后所产生的加工变质层越厚、微小龟裂也较多的缘故。

于不同WC粒子大小下之放电加工后（第一割）于500μm距离中的微小龟裂数及变质层厚度比较

The relation between WC grain size and a number of microscopic crack in 500 μm distance of a thickness of deterioration layer after WEDM of the first cut.



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.

A10W之物理特性

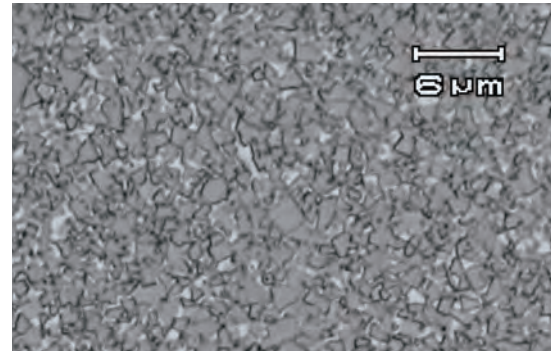
Physical property of A10W

本公司产品代号 Our grade	密度 Density [$\times 10^3 \text{ kg/m}^3$] {g/cm ³ }	硬度 Hardness HRA	抗弯强度 TRS [GPa]
A10W	14.5	91.0	3.7

(代表值 / Typical figures)

A10W组织照片

Micrographs of A10W grade



金属显微镜 (X1000)

By metallurgical microscope (x1000)

A10W与KD10之龟裂进展比较

Comparison of crack extension between A10W and KD10

A10W HV(98N)1700	KD10 HV(98N)1700
<p style="text-align: right;">10 μm</p> <p style="text-align: right;">A</p> <p style="text-align: right;">x400</p>	<p style="text-align: right;">10 μm</p> <p style="text-align: right;">B</p> <p style="text-align: right;">x400</p>
<p style="text-align: right;">10 μm</p> <p style="text-align: right;">← 龟裂 Crack</p> <p style="text-align: center;">A部放大 x1000 "A" part expansion</p>	<p style="text-align: right;">10 μm</p> <p style="text-align: right;">← 龟裂 Crack</p> <p style="text-align: center;">B部放大 x1000 "B" part expansion</p>
<p>微粒子WC Fine grain WC</p> <p>粗粒子WC Coarse grain WC</p> <p>龟裂 Crack</p>	<p>微粒子WC Fine grain WC</p> <p>粗粒子WC Coarse grain WC</p> <p>龟裂 Crack</p>