

Kingston Heading Service Counter Punch

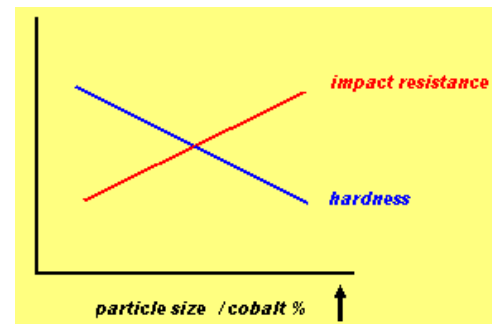


A Tougher Carbide May Be The Right Solution For High Wear Rate Tooling

Cemented Tungsten Carbide is produced by mixing tungsten metal carbide particles with a metallic binder material, usually Cobalt. Produced at high temperature, and in a vacuum, the result is a ceramic-metal composite. Typically, cold heading applications use tooling with Cemented Tungsten Carbide inserts composed of 25% Cobalt binder, and a Tungsten particle size between 3 and 6 microns.

However, in certain situations where the tooling will experience a high wear rate, the cobalt binder content of the Tungsten Carbide insert can be reduced to 20%, or even as low as 12%, of the total mass. Decreasing the cobalt binder content of Tungsten Carbide increases the toughness and abrasion resistance of the material, but at the cost of ductility and workability.

Similarly, smaller tungsten carbide grain sizes have similar effects as reducing cobalt content. The correct balance between grain size, cobalt content, and the presence of other carbides within the mix (such as Titanium or Tantalum) is crucial to minimizing the tool failure rate at an acceptable cost. Coatings, such as Titanium Nitride, are another factor which can enhance tool life and productivity.



Specifying a lower cobalt content or smaller grain size for the Tungsten Carbide inserts in your tooling, in order to achieve a lower failure rate and higher productivity, could be one method to reduce the total cost of your tooling. At Kingston Heading Service/Counter Punch, we have the experience to know what materials will work with your applications, and the capability to machine them into the tooling you need. Call us today.

Comparison of Physical characteristics of 20% v 25% cobalt binder in TC

Binder %cobalt	Grain Size Av	Hardness RA	Density g/cm ³	Trans. Rupture Strength N/mm ² minimum	Comp. Strength N/mm ²	Modulus of Elasticity x10 psi
20.0	4.0	83.0-84.5	13.4-13.6	2600	3400	68.9
25.0	4.0	81.5-83.0	13.2-13.4	2550	3200	64.5

Contact Us Today For A Quote On Your Tooling Requirements!

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