Mi-Tech Metals INC
TUNGSTEN

ISO 9001:2000 REGISTERED AS 9100

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Super Chatter Free™

Super Chatter Free has been developed by Mi-Tech Metals to be very close, direct substitute for tungsten carbide boring bars and grinding quills. It can replace tungsten carbide in most boring and grinding applications and in many instances is superior to tungsten carbide. Extension ratios of up to 10-1 are possible depending on the diameter.

Super Chatter Free is used in place of tungsten carbide boring bars because:

- The finishing/machining costs are much less depending on the tool being made. No more EDMing holes, diamond wheel grinding, and EDM tapping of threads. **Super Chatter Free** machines like gray cast iron.
- It is not subject to chipping and breakage as in tungsten carbide.
- Its stiffness/rigidity is close to that of tungsten carbide.
- **Super Chatter Free** is more dense: 17.7 grams/cc (.639 lbs/cubic inch) as compared to tungsten carbide, 15 grams/cc (.542 lbs/cubic inch) which relates to 18% higher density. Because density has a direct relationship to vibration dampening, in many applications this high density solves machining vibration and chatter problems.

While standard **Chatter Free** will solve most machining chatter and vibration problems, there may be some applications where greater density and stiffness/rigidity are needed. For these applications, we recommend **Super Chatter Free.** This is especially true where tungsten carbide boring bars and grinding quills are being used.

Super Chatter Free is somewhat more costly than Chatter Free because the manufacturing costs are slightly higher and its tungsten content is 93% as compared to 90% for **Chatter Free**.

Super Chatter Free is harder, 30 RC as compared to 24 RC for **Chatter Free**; and its modulus is approximately 33% higher which means its 33% more rigid than **Chatter Free** and 100% more rigid than steel. It has less ductility, but higher physical properties.

Chatter Free still sets the standard for trouble-free machining and grinding and **Super Chatter Free** sets that standard for the really tough machining and grinding jobs.

TYPICAL PROPERTIES *

Tungsten Content Density Gms/cc Density Lbs/cu.in	93%W 17.7 0.639	Proportional Elastic Limit (PSI)	60,000
Hardness Rockwell C	30	Modulus of Elasticity (PSI)	53 x 10^6
Ultimate Tensile Strength (PSI)	130,000	Coefficient of Thermal Expansion ($x\ 10^{-6}$/°C at 20° - 400°C)	4.5
Yield Strength .2% offset (PSI)	90,000	Thermal Conductivity (CGS Units)	0.27
Elongation (% in 1")	10	Electrical Conductivity (% IACS)	14

* Properties are typical and may vary slightly according to size and shape of part.