



**GENERALCARBIDE®**

SHAPING YOUR SUCCESS

**APPLICATION DATA SHEET**

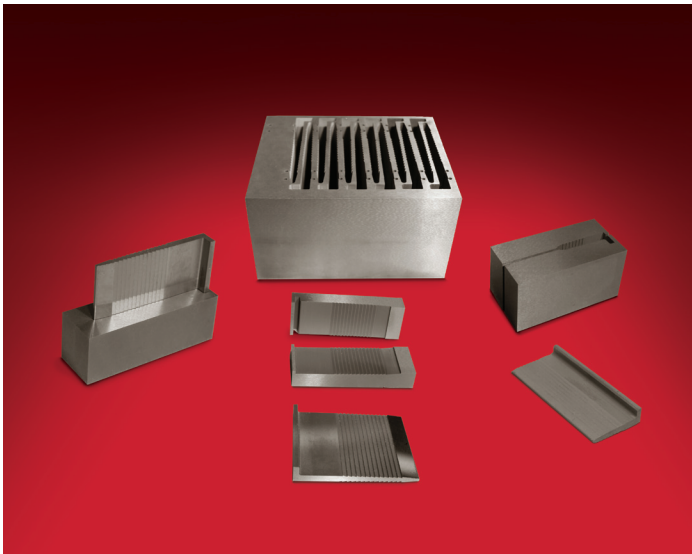
**STAMPING INDUSTRY**

## 4x the Tool Life Achieved with Superior Tooling



### Application Background

Pownail, a Zurich, IL-based manufacturer of hardwood flooring nails was looking to improve the life span of high-speed stamping dies used to stamp 1 billion L-cleats and E-cleats annually from flat .062 steel. By switching to tungsten carbide tooling, Pownail is experiencing **four times the tool life** compared to the dies it used previously. Instead of tooling changes occurring in a matter of hours, they now take place at intervals measured in days.



The solution uses **GC-411CT** for the die sections and **GC-415CT** for the punches. These grades have the ability to withstand wire EDM and is saving Pownail 600 hours a year in grinding work, and hundreds of additional hours annually due to fewer punch and die change-outs. The application has also allowed Pownail to reduce tooling costs by 50%.

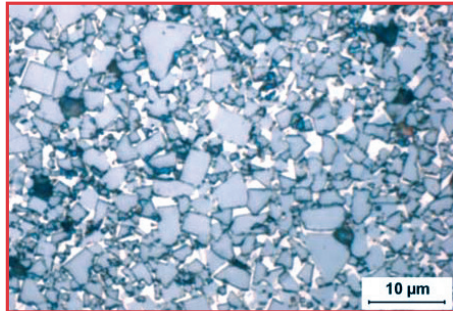
*The "CT" notation in both grades means that they are corrosion-resistant and contain Tantalum Carbide (TaC) for superior lubricity and galling resistance.*

***To ensure the highest metallurgical quality, General Carbide processes all grades in sinter-HIP furnaces.***



### The Die Sections

To produce the die sections, General Carbide used **GC-411CT**, a premium tungsten carbide (WC) material featuring a proprietary crystal structure that has a perfect stoichiometric balance of 6.13% carbon.

**GC-411CT**

Key Properties are:

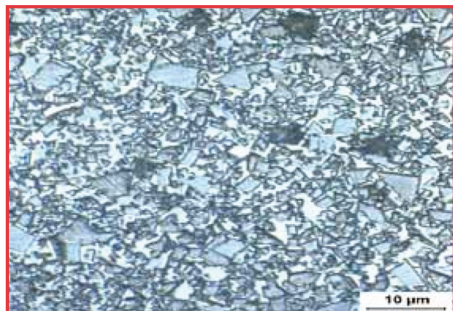
- > 88.0 – 89.0 HRA
- > Average Transverse Rupture Strength – 490,000 psi
- > Average Grain Size – 4.5 micron
- > Excellent Galling Resistance
- > High Corrosion Resistance
- > Excellent Wear Resistance

GC-411CT is ideal for:

- > Medium & Large WEDM Dies
- > Gear Dies & Cores
- > Any application requiring outstanding Wear & Corrosion Resistance properties

### The Punches

To manufacture the punches, General Carbide used **GC-415CT**, a premium WC material that is ideal for high-impact applications.

**GC-415CT**

Key Properties are:

- > 87.4 – 88.4 HRA
- > Average Transverse Rupture Strength – 450,000 psi
- > Average Grain Size – 4.0 micron
- > Excellent Shock & Impact Strength
- > Excellent Fracture Toughness

GC-415CT is ideal for applications involving:

- > Medium & XL WEDM Dies
- > Extreme Toughness
- > Complex Internal Shapes

