



# Case Study: Tungsten Carbide

Improving tool life helps reduce costs and increase efficiency. During any deep drawing process, wear is inevitable. Using Tungsten Carbide Coating we were able to dramatically improve the part life of one such tool

## Our Capacity

### CNC Milling

6 Machines

1626mm x 813mm x 1062mm

### CNC Turning

8 Machines

Max Diam 549mm x 1130mm Long

### Grinding

7 Machines

Max Diam 505mm x 1500mm long

### EDM Wire Erosion

860mm x 580mm x 250mm

### Slotting

Burdett Slotter with swivel head 200mm stroke fitted with anilam DRO

### Thermal Spray Coatings

500mm Diam x 1500mm

## Contact Us

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## Problem Solving

The tool consisted of a solid tungsten carbide female ring supported by carbon steel case, with a conventional tool steel top punch at each of the five drawing stages. Typically after 1700 components, scoring and potential cracking would take place and the top punch would need regrinding. To improve the performance and reduce the cost of the female tool it was redesigned so that it was manufactured to incorporate a specially designed recess to support a thermal sprayed coating. Tungsten Carbide was considered to be the best option in place of solid Tungsten Carbide because of its low density (<0.2%) superior hardness up to 1300HRc and 0.1 Ra surface finish. In the case of the top tool, following examination of a failed punch it was decided to manufacture a new tool punch tool from a Powder Metallurgy Tool Steel, something B&B were more than comfortable with.

B&B closely controlled all stages of the manufacturing process and heat treatments to ensure the highest quality with a final super finishing (0.1Ra) of the tool in house before submitting for trial.

**"I was delighted! Our tool life was extended by 30 times and this represents a big saving on both tool cost and raw materials. Couldn't be happier"**

## Result

The results were excellent, B&B Precision were invited into the press shop to witness the first pressings produced. The tool has surpassed all expectations, the tool that usually failed after 1,700 pressings has so far be used for over 50,000 pressings. In addition the thermal sprayed tungsten carbide coating behaved in such a way that the raw material blank size could be reduced. The customer was delighted as he has reduced both his direct product costs and his tooling and maintenance costs.