

[PRODUCTS DATA] COATING PUNCHES—TiCN—

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MISUMI's coating punch is the TiCN coating by ion plating, one of the PVD methods. TiCN coating has many strong points such as high hardness and low friction coefficient. It will improve the abrasion resistance of punches and contribute to raise the productivity and quality of products. Also, it is treated at 500°C or lower in high vacuum condition so that it enables the base materials, which have the tempering temperature of 500°C or higher, to be coated without hardness degradation or thermal deformation.

Technical data of TiCN coating

Hardness (HV)	3000
Coat thickness (μm)	3~5
Friction coefficient (to steel, dry)	0.3
Heat resistance (°C)	~400
Color	Blue gray

Because MISUMI's coating punch is guaranteed its dimension and accuracy after coating, there is no need to control sizes with consideration of the thickness of coated layer.

Features of COATING PUNCHES —TiCN—

1. High hardness

This hardness protects the cutting edges from abrasion well enough to bring a longer life, max. 10 times, till regrinding.

2. Low friction coefficient

TiCN coating has the low friction coefficient to steel and is chemically inert, enabling to avoid surface fatigue which causes crack. This coating treatment enables to keep the punch surface away from the worked material surface, therefore the lubrication still works even if the cutting fluid lost its activity. Also TiCN has superior slide characteristic, it enables to press with high speed stroking. More effective in the worked materials which have much tackiness like light metal, nonferrous metal, stainless steel, etc.

3. Products quality improvement

TiCN coating enables to manufacture products with less fin and longer life, and work cutting surface with less streak and much smoothness.

Notes for users

Please pay attention to the notice below at using coating punches TiCN.

- Effective coating punch length is the dimension B (point length) but there is a continuous faint coating layer about 10mm of 0.5 μ or thinner.
- There is a slight dispersion of the thickness of coating layer on the corner part of the edge.
- Do not grind too much at regrinding to prevent coating layer from exfoliation.

Table of comparison of cemented carbide tools for wear resistance

The data below show that the durability is improved with TiCN. However, the results will not be the same according to the condition in practical use.

