DAYTON

Dayton Progress Corporation

Press Die Components Catalog 2012

Asia Pacific Version

DAYTON®

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Coatings for the Punch

1. TiN : Titanium Nitride

For press dies, resin dies, cutting tools, machine parts, TiN coating is high versatility such as abrasion-resistant, corrosion resistance, prevention of firing.

2. TiCN : Titanium Carbonitride

For stamping dies, cold forming dies. With superior cold welding resistance and wear resistance, TiCN is characterized by the high hardness and high tenacity. Suitable for forming process and piercing process.

3. XNA : Aluminium Chromnitride

At even high temperature (maximum temperature 1100℃), XNA is stable and can maintain the high hardness with prominent oxidation characteristic-resistant.

TiN, TiCN, XNA coating of Dayton is treated by the ion plating method which is one of the PVD processing. Because PVD coating is treated at the low temperature (200-500℃) that is lower than tempered temperature of the material, PVD does not need processing (quenching, temper). Therefore, deterioration, transformation, and distortion of the material do not occur.
In addition, TiN, TiCN, XNA coating keep the hardness of 2300HV, 3000HV, 3200HV which is harder than the cemented carbide. This high hardness maintains wear resistance of the cutting edge of the punch.

	TiN	TiCN	XNA, XNAP
Hardness(HV)	2300	3000	3200
Coefficient of friction	0.40	0.40	0.35
Coating layer (μ m)	4 - 5	4 - 5	4 - 5
Maximum temperature (℃)	600	400	1100
Color	Gold	Blue gray	Bright gray

4. WPC : "Wide Peening Cleaning" : Strengthen the surface with precision shot peening

By injecting very small metal particles at high speed, raising the temperature up to the recrystallization temperature of the punch surface, and the surface enhancement effect or heat treatment. The finer surface texture. Fixing properties of the coating increases the post-processing. In addition, it is also high internal compressive residual stress, increase the durability of the site of repeated load-consuming. Japan in Dayton is done to pre-treatment of coating the WPC. We offer to work with the following coating.

WPC+XNA : Precision shot peening & Aluminum chromnitride coating.

5. XN : Nitride (DayTride®)

Nitriding processing is surface treatment not coating.
Product is treated in a nitrogen gas furnace to form the nitriding layer of the high hardness (68-72HRC) (about 20 μ m in depth) by a chemical change on the surface of the steel. XN surface treatment shows the best effect preventing damage on the side of the shaving punch.

For Aluminum Stamping

6. DLC : DLC coating suitable for aluminum processing

We are preparing the DLC coating suitable for the aluminum piercing in all punches.
We recommend our DLC coating which prevent aluminum adhesion to the punch, and to enable high precision.

WPC+DLC : Precision shot peening & Diamond-like carbon coating.