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# 普拉帝涂层

PRADE COATING

**做中国最具品牌价值的PVD涂层供应商**

为您提供环保、高效的表面解决方案

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## 序言

十多年前，我第一次接触“PVD涂层”这个概念，认为就是跟生活中常见的“涂装涂料”相关。面视官只是莞尔，当他把PVD涂层的市场应用及形成原理告诉我的时候，真是感到惊讶！

之前我在从事PMC工作的时候，深知工模、工具对机械加工行业的重要性及成本之高,而当下竟然有这样一种方式能够大幅提高工模及工具的耐磨性，增长使用寿命。在生产应用过程中,能够大大提高工作率，降低生产成本。我认为这是整个机械加工行业的革命性进步。后来在PVD涂层的市场推广及应用的过程中，更加深刻的感受到这种工艺的神奇之处，厚度大多在5个微米之内,对产品的精度要求可忽略不计。而正是因为这一层薄薄的薄膜让机械加工应用提高了很多档次,解决了很多厂家在生产过程中遇到的困惑。

当时，PVD功能性涂层在国内是个小行业，受众群体比较小。并且中高端工艺及装备市场几乎被国外企业垄断。但谁都知道，PVD功能性涂层在中国绝对是一个发展前景良好的产业,很多人想涉足其中，基本都受到资金、装备、技术壁垒的困扰。作为行业的从业人员，更是时于困惑。虽铭于心，因壁垒太深而常嗟叹。

2012年5月，无意中跟我的客户力锋精密董事长邵建地先生谈起当时PVD功能性涂层市场状况。他是一个低调而且很有民族气节的企业家。因为力锋精密是一家从事合金工具研发、生产及销售于一体的企业，所以邵建地先生能够深刻地体会到涂层在机械加工行业的生产过程中起到的巨大作用。这无疑也决定了他对这个行业发展的支持和对后辈的提携。还记得他当时说过的一句话：“中国实体经济企业在未来发展中，必需要走掌握核心技术、发展自主品牌的道路。只有这样，这个民族经济发展才有希望。”话虽简单，却意味深长。因为有这样的精神和决心，力锋精密在邵建地先生的带领下所创立的“**DESKAR**”系列合金工具品牌，在国内外各大品牌的环伺之下,突出重围,在中国合金工具应用市场中独树一帜。也是在这种精神力量的感召下，于2013年5月，由邵建地先生牵头，伙同我与当时中国涂层界营销精英吴风伟先生共同创办了“普拉帝涂层有限公司”。后来随着中国涂层设备技术专家马成智先生的加入，使我们的团队更加强大。

在公司创办之初，我们着力寻找市场差异，摒弃眼前利益。在当时还是以“TIN”黄色涂层为主流市场的时候，我们通过一年的时间，研发出比TIN耐磨性更久、润滑性更高、抗热疲劳更好、应用稳定性更长的新型复合涂层应用到紧固件模具（冲棒、精冲）上,取得良好市场效应。迄今为止，随着我们第三、四代涂层的推广，在紧固件模具涂层市场上，在全国一直处于领先地位。

时至今日，普拉帝涂层已经走过六年的时光。我们一直秉承“做中国最具品牌价值的PVD涂层供应商”的理念。扬长避短，市场定位清晰。引进世界先进涂层装备，跟各大院校材料学专家及欧洲涂层专家展开深度合作，自主研发符合不同市场需求的涂层，为广大客户提供满意的终极服务。主要涉足硬质合金工具、传动齿轮工具、立杆攻钻工具、各类五金塑胶模具的涂层服务。

六年，我们砥砺前行，历经风雨，跨越坎坷，攻克难关，让普拉帝涂层从最初的一台设备到今天的十多台设备，一举成为国内最大的单一涂层厂家。

2018年，是普拉帝涂层发展的新纪元，是普拉帝涂层具有历史转折性的一年。我们不光是台州总公司取得了长足的进步与发展，同时也为在全国重要的工业集散地开设分厂迈开了重要一步。受杭州湾新区管委会的邀请，同年九月，在杭州湾新区成立了“宁波普拉帝纳米新材料有限公司”，预计在2019年5月份正式投产。我相信这也只是万水千山的第一步，在未来的十年，在全国甚至国外的一些重要的工业重镇，都会看到“普拉帝”的身影。

路虽远，行则必至；事虽难，做则必成！

是的，未来的路很长且艰，但我相信，有我们优秀的管理团队、致诚的合作伙伴、坚守与长久支持的你们，普拉帝的路会越走越远，越走越好！

是为序。

普拉帝涂层销售总监：梅先锋

# COMPANY PROFILE

## 企业简介

台州普拉帝涂层有限公司成立于2013年，是一家源自欧洲、日本设备及工艺的大型PVD涂层企业。我们自主研发最先进的环保纳米涂层，让中国的客户在产业升级中拥有世界级的竞争力。我们的纳米涂层技术是将高强度、高硬度、低摩擦系数、低热传导系数、耐腐蚀、绝缘等复杂多元的各种材料特性合成在涂层技术里，是材料世界的新革命。

普拉帝涂层拥有优秀的技术团队，已获得多项核心技术。我们的技术及生产团队长期不停的为合作伙伴开发最先进环保的涂层来满足客户的各种需求以及创造竞争差异。技术服务业的基石就是让客户满意与长久的伙伴关系。普拉帝涂层随时随刻为广大客户提供高品质、高性价比、高效率的涂层服务。

TAIZHOU PRADE COATING CO., LTD., founded in 2013, is a large PVD coating company with equipment and processes from Europe and Japan. We independently research and develop the most advanced environmental protection nano-coating, so that Chinese customers have world-class competitiveness in industrial upgrading. Our nano-coating technology is a new revolution in the world of materials by synthesizing various complex and diverse material characteristics, such as high strength, high hardness, low friction coefficient, low thermal conductivity, corrosion resistance, insulation, etc., into the coating technology.

PRADE COATINGS has an excellent technical team and has acquired a number of core technologies. Our technical and production teams have long been developing the most advanced environmentally friendly coatings for our partners to meet customer needs and create competitive differentials. The cornerstone of the technology services industry is customer satisfaction and long-term partnerships. Prat coating is ready to provide customers with high quality, cost-effective and efficient coating services.




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专注行业 / Focus on industry  
 专业涂层 / Professional coating  
 纳米技术 / Nano technology  
 无边界服务 / No border service  
 无极限沟通 / Unlimited communication

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# PRADE COATING Enterprise culture idea

## 普拉帝涂层/企业文化理念

### Values 公司价值观

服务至上，以人为本，科技创新，创造卓越。

Service-oriented, people-oriented, technological innovation,  
and create excellence.

### Vision 我们的愿景

环保、科技、创新，打造全中国最具核心竞争力和创造力涂层企业。

Environmental protection, science and technology, innovation,  
and build the whole of China's most core competitiveness and  
creativity coating business.

### Mission 我们的使命

开发出最先进的纳米涂层技术，长期为客户提供最有效的解决方案。  
应用最新的纳米涂层技术大幅减少制造中的浪费，节约成本。

Develop the most advanced nano-coating technology to provide  
customers with the most effective solutions for a long time.  
The application of the latest nano-coating technology greatly  
reduces manufacturing waste and costs.





普拉帝涂层  
PRACE COATING



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# contents

## 目录

# 01

Technical  
Introduction

# 02

Coating product  
introduction

# 03

Carbide Cutting  
Tools

# 04

Drive Cutting  
Tool

# 05

Standard die

# 06

High Speed  
Steel Rod Tool

# 07

Stamping, Drawing,  
Die Casting  
Hardware Die

# 08

Plastic Mold

# 09

Matters needing  
attention before  
coating

技术介绍

涂层产品介绍

硬质合金切削工具

传动切削工具

标准件模具



P01



P02



P03-04



P05-06



P07-08



P09-10



P11-12



P13



P14-15

Technical Introduction  
技术介绍

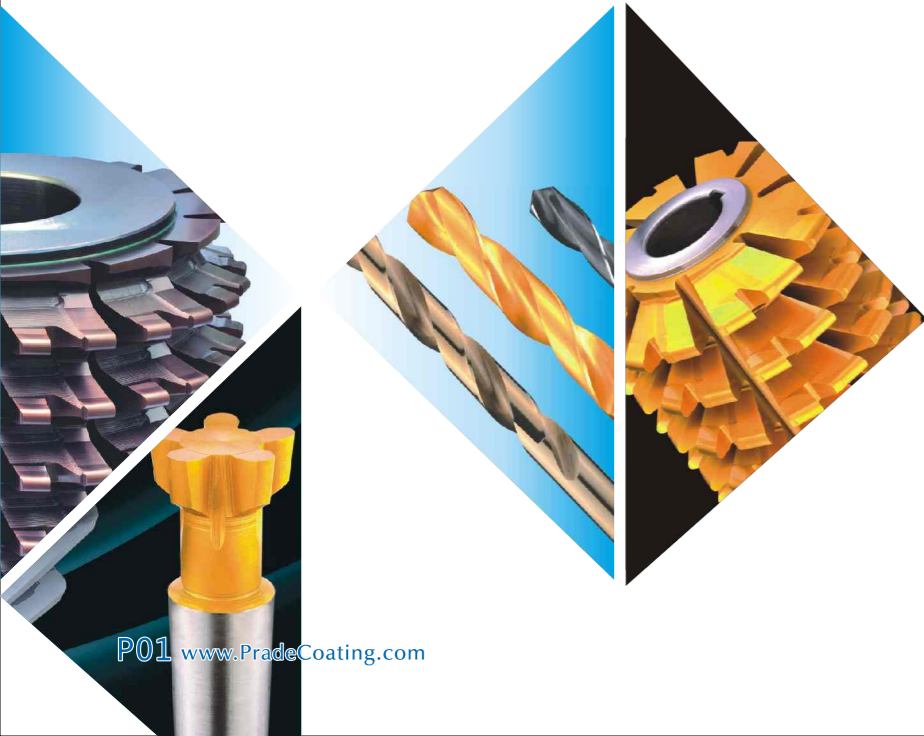
Prade涂层公司采用的是使用欧洲及日本先进涂层设备与工艺，为金属工模具表面提供PVD涂层加工的涂层服务。现有的涂层品种包括：TiN、TiCN、CrN(高温)、CrN（低温）、AlTiN、CrAlTiN、CrAlTiSiN等。Prade涂层为刀具及模具工业提供高标准的现代化涂层工艺，适用于冷作/热作钢，高速钢，硬质合金等材料的工模具。涂层后刀具、模具的耐磨性、硬度、抗热稳定性、脱模性等使用性能都有大幅度的提高，并可极大地延长其寿命,大大降低客户的生产成本，提高生产效率。

本公司主要采用的是电弧蒸发与物理气相沉积的技术，将被蒸发的合金靶材置于真空腔室内，产生弧光放电后,电弧的运动是由磁场所控制，在靶材表面运行，蒸发出的金属离子形成的等离子体与通入的反应气体化合，涂镀在被涂层工件表面。

- 电弧技术的优点：
- 高沉积速率(3 μm/h)
  - 高离化率，形成结合力好，致密的涂层
  - 靶材冷却，涂层工件受热较少，这样可以在低于100℃以下沉积
  - 可以蒸发多种成分的金属，剩余固态靶材成分不变
  - 阴极可以放置在任何位置（水平、垂直、上部和下部），设备设计灵活

Prade coating company USES advanced coating equipment and technology from Europe and Japan to provide PVD coating processing service for metal mold surface. Existing coating varieties include: TiN, TiCN, CrN(high temperature), CrN(low temperature), AlTiN, CrAlTiN, CrAlTiSiN, etc. Prade coating provides the cutting tool and die industry with a high standard of modern coating technology, suitable for cold/hot working steel, high-speed steel, hard alloy and other materials die. After coating tool, mold wear resistance, hardness, thermal stability, demolding and other performance has been greatly improved, and can greatly extend its life, greatly reduce the customer's production costs, improve production efficiency. The company mainly USES is arc evaporation and physical vapor deposition technology, will evaporate alloy material in the vacuum cavity indoor, produce arc discharge, arc movement is controlled by magnetic field, run in the surface of target, the evaporation of metal ions, formation of the plasma combined with the pass into the reaction gas, plating on the coating surface.

- Arc technology advantages:
- High deposition rate (3μm / h)
  - High ionization rate, forming a cohesive good, dense coating
  - Target cooling, less heat coating the workpiece, so that below 100 °C in order to deposit
  - Can evaporate various components of the metal, and the remaining solid component of the same target
  - Cathode can be placed in any position (horizontal, vertical, upper and lower), the device design flexibility...



Coating product introduction  
涂层产品介绍

涂层种类	TiN				TiCN			CrN		CrAlTiN		CrAlN加硅
颜色	金黄色				蓝灰色	玫瑰金	灰白色	银灰色	灰黑色	淡灰色	淡灰色	黑灰色
工艺编号	1#	2#	3#	4#	5#	6#	7#	8#	9#	10#	11#	12#
维氏硬度	2300±300	2300±300	2300±300	2300±300	2800±200	2800±200	3500±500	1800±200	2600±200	2800±200	3200±200	3500
摩擦系数	0.5	0.5	0.5	0.5	0.4	0.4	0.2	0.3-0.4	0.3-0.4	0.5	0.5	0.5
膜层厚度	2±0.5	3±0.5	3.5±0.5	3.5±0.5	2-4	2-4	2-4	1-5	1-5	1-5	1-5	1-5
氧化温度	500℃	500℃	600℃	600℃	400℃	400℃	400℃	700℃	1000℃	900℃	1000℃	1000℃
材料回火温度	250℃	350℃	500℃	600℃	500℃	500℃	500℃	500℃	500℃	500℃	500℃	500℃
应用范围	热流道等低温铜件	中温模具材料	高速钢，模具钢	合金类刀具	一般耐磨性机械加工；冲压拉升模具；丝锥，铝合金加工，不锈钢加工；有良好的润滑性及低摩擦力			模具；铜切削；摩擦原件	铜切削	冲压模具、丝锥	滚铣刀湿式重力切削	冷冲模具

涂层种类	CrAlN加X	CrAlN加XX	CrAlN加硅XXX	TiAlN	TiAlN多层	TiAlN加硅	TiAlN加硅多层	AlTiN	AlTiN多层	AlTiN加硅	AlTiN加硅多层	TiCrAlN	TiCrAlN多层
颜色	黑灰色	黑灰色	黑灰色	紫色	黑色	古铜色	紫黑色	黑蓝色	黑蓝色	紫黑色	紫黑色	灰黑色	灰黑色
工艺编号	13#	14#	15#	16#	17#	18#	19#	20#	21#	22#	23#	24#	25
维氏硬度	3500	3500	3600	2800	3000	3200	3500	2800	3000	3000	3300	3500	3500
摩擦系数	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.4	0.4
膜层厚度	1-5	1-5	1-5	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4	1-4
氧化温度	1000℃	1000℃	1000℃	800℃	800℃	900℃	950℃	900℃	900℃	950℃	950℃	1000℃	1100℃
材料回火温度	500℃	500℃	500℃	500℃	500℃	500℃	500℃	500℃	500℃	500℃	500℃	500℃	500℃
应用范围	热锻模具	滚铣刀高速湿式切削	滚铣刀干式高速切削	一般干式切削、刀片	模具刀片	一般干式切削、刀片	不锈钢加工刀片	一般干式切削刀片	一般干式切削刀片	一般干式切削刀片	不锈钢加工刀片	冲压模具，热锻模具；干式，湿式铣削	冲压模具，热锻模具；干式，湿式铣削；不锈钢加工

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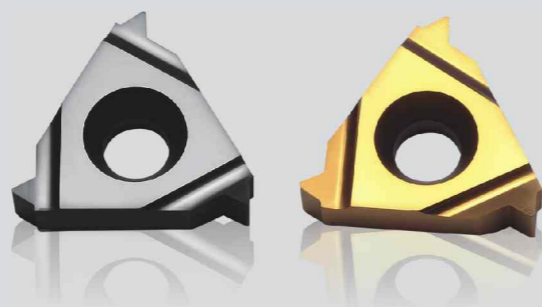
## Carbide cutting tools 硬质合金切削工具

硬质合金工具不仅是对材质本身的要求极高，同时对刃磨精度、耐磨性能、高温工作的稳定性、低摩擦系数的要求也非常严格。普拉帝PVD涂层可有效的解决在生产过程中积屑瘤、刃口微崩以及螺纹表面加工质量等问题，从而提升相应工具使用寿命3-5倍，大大的提高工作效率、改善了产品的外观性、节约了生产成本。

普拉帝涂层采用日本“COBELCO”最先进的PVD涂层设备及精细工艺、专业碳氢清洗线为广大客户提供了符合各类生产要求、质量稳定、性价比高的系列硬质合金涂层产品。现年生产车刀片、铣刀片、螺纹刀片1200万片，立铣刀500万支。

Hard alloy tools not only have high requirements on the material itself, but also have strict requirements on cutting accuracy, wear resistance, stability at high temperature and low friction coefficient. Prade PVD coating can effectively solve the problems such as chip nodules, edge microchip and thread surface processing quality in the production process, so as to improve the service life of corresponding tools by 3-5 times, greatly improve the work efficiency, improve the appearance of products, and save the production cost.

PRADE coating USES the most advanced PVD coating equipment and fine process of Japanese "COBELCO", and professional hydrocarbon cleaning line to provide customers with a series of cemented carbide coating products that meet all kinds of production requirements, with stable quality and high cost performance. The company now produces 12 million turning blades, milling blades, thread blades and 5 million end mills.

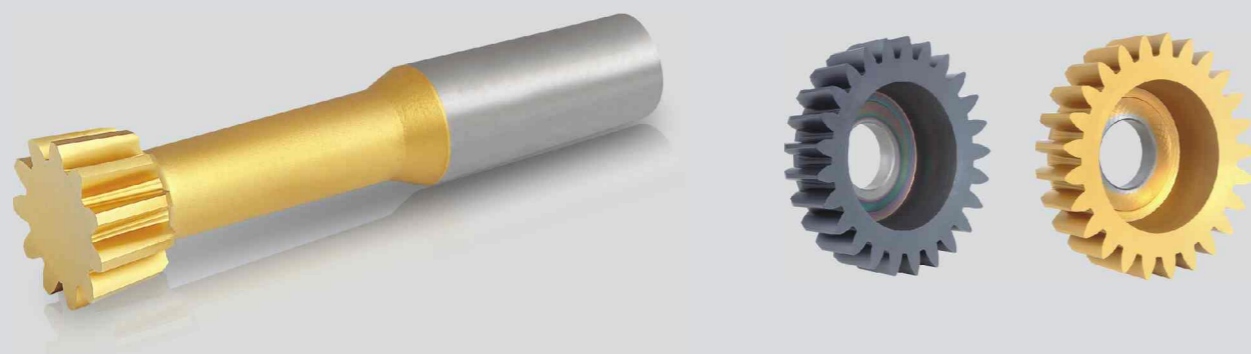


## Drive Cutting Tool 传动切削工具

随着中国的汽车工业及机械加工业的不断壮大，齿轮加工行业对制造精度、生产效率及清洁能源生产提出了更高的市场要求。一些大的齿轮加工企业为了提升自身在行业中的竞争力，越来越多的企业将原有的低速、湿式切削生产线转换成干式高速切削生产线。高速、干式切削加工对齿轮刀具的使用性能提出了更高的要求，需要刀具具有更优异的耐高温性能、尽量低的表面摩擦系数、更高强度的抗冲击韧性。

普拉帝涂层采用欧洲、日本先进的PVD涂层设备，针对不同加工环境要求的齿轮工具，自主研发不同的涂层工艺，给广大客户提供了高质量、高性价比的齿轮工具涂层服务。尤其近两年开发的硬质合金齿轮刀具的涂层服务，取得了方向性的突破，市场反响良好。

With the continuous growth of China's automobile industry and mechanical processing industry, gear processing industry has put forward higher market requirements for manufacturing accuracy, production efficiency and clean energy production. In order to improve the competitiveness of some large gear processing enterprises in the industry, more and more enterprises have converted the traditional low-speed, wet cutting production line into the dry high-speed cutting production line. High speed, dry cutting on the gear tool performance put forward higher requirements, the tool needs to have better high temperature resistance performance, as low as possible surface friction coefficient, higher strength of impact toughness. PRADI coating adopts advanced PVD coating equipment from Europe and Japan, and independently develops different coating processes for gear tools required by different processing environments, thus providing customers with high-quality and cost-effective coating services for gear tools. Especially in the past two years the development of cemented carbide gear tool coating services, has made a directional breakthrough, the market response is good.



## Standard die 标准件模具

紧固件作为产品供应链使用最多的零部件，随着社会不断的发展，产品的应用要求日益精良，对紧固件的材质及精密度提出了更高的要求。同时针对紧固件模具在用料、精度、设计方面也相应地提出了更高的要求。

普拉蒂涂层自主研发的涂层工艺针对冲棒、精冲涂层在加工不锈钢、硬料方面的质量稳定性、耐磨性要领先于国内同行水平。

Fasteners are the most used parts in the product supply chain. With the continuous development of the society, the application requirements of the products are becoming more and more sophisticated. At the same time, higher requirements are put forward for the material, precision and design of the fastener mould.

PRADE coating independent research and development of coating technology for rods, fine blanking coating in the processing of stainless steel, hard material aspects of the quality stability, abrasion resistance level ahead of the domestic counterparts.



## Standard die 标准件模具



## High Speed Steel Rod Tool 高速钢杆装工具

丝攻在攻丝和钻头在钻孔的时候，由于磨损快、易折断，通常显得工作效率低下。

普拉帝涂层自主研发的TICN\TIN涂层工艺能够让丝攻、钻头、倒角刀在使用的过程中提高本体寿命5倍以上，使产品的丝口、孔口及表面均匀光洁、加工更加顺畅。

Tapping in tapping and drilling in the drilling, due to wear fast, easy to break, usually appears to be inefficient. PRADI independent research and development of TICN coating \ TIN coating technology can make silk attack, drill bits, chamfering knives in the process of using ontology life 5 times above, make the product of silk mouth, orifice and uniform surface bright and clean, and processing more smoothly.



## High Speed Steel Rod Tool 高速钢杆装工具

## Stamping, Drawing, Die Casting Hardware Die

### 冲压、拉伸、压铸五金模具

现代工业中，钢板的硬度、强度都越来越高，让各种模具出现严重磨损、拉伤、粘料等问题。同时，客户还要求更高的产品精度与更长的模具寿命。传统表面处理工艺TD，虽然硬度够高，但由于处理温度太高，模具常会变形，甚至开裂报废。所以，普拉帝提供的超强复合涂层，以其耐高温性、抗冲蚀性、高润滑性，不但不会让模具变形，还大大降低了模具在使用过程中的修模次数，使用寿命可提高5~10倍。产品的表面质量也得到了很大的保障。从而降低了生产成本。

提高生产力是现代压铸产业永无止境的诉求，那么对压铸模具的工艺环境在更高温、高压、高速的环境里面面临新的挑战。就在原本恶劣的工艺环境之下产业还要求压铸的产品要达到更高精度，甚至一次成型，不做任何二次加工。针对现代压铸模具的挑战，普拉帝开发出超强复合涂层，由其低热传导速率，可有效减缓压铸模具上冷热变化的幅度，延迟模具因快速冷热所产生的热冲击疲劳，同时能够承受压铸中的高压并减少表面磨损，保持精度。从而大大降低了模具在使用过程中的修模次数，产品的表面质量也得到了很大的保障。降低了生产成本。提高压铸模具的抗冲蚀、腐蚀的性能，抗热熔损性能，显著提高合金压铸模的抗粘着性，减少拉伤工件，显著提高合金压铸模的使用寿命。

In modern industry, the hardness and strength of steel plates are getting higher and higher, which causes serious problems such as severe wear, strain, and sticking of various molds. At the same time, customers also demand higher product accuracy and longer die life. The traditional surface treatment process TD, although the hardness is high enough, but because the processing temperature is too high, the mold often deforms, and even cracks and scraps. Therefore, the super-composite coating provided by PRAD, not only does it not deform the mold, but also has high temperature resistance, erosion resistance and high lubricity.

The number of mold repairs during the use of the mold is greatly reduced, and the service life can be increased by 5 to 10 times. The surface quality of the product is also greatly guaranteed. Thereby reducing production costs.

Increasing productivity is the endless appeal of the modern die-casting industry, so the process environment of die-casting molds faces new challenges in a higher temperature, high pressure and high-speed environment. In the original harsh process environment, the industry also requires that the die-casting products should achieve higher precision, even one molding, without any secondary processing. In response to the challenges of modern die-casting molds, PRAD has developed a super-composite coating that, by its low heat transfer rate, can effectively slow down the range of cold and heat changes on the die-casting mold, delaying the thermal shock fatigue of the mold due to rapid hot and cold, and at the same time withstanding High pressure in die casting reduces surface wear and maintains accuracy. Thereby, the number of times of repairing the mold during use is greatly reduced, and the surface quality of the product is also greatly guaranteed. Reduced production costs. Improve the erosion resistance and corrosion resistance of the die-casting mold, and resist the heat-melting loss performance, significantly improve the anti-adhesion of the alloy die-casting mold, reduce the strain on the workpiece, and significantly improve the service life of the alloy die-casting mold.

## Stamping, Drawing, Die Casting Hardware Die

### 冲压、拉伸、压铸五金模具

## Matters needing attention before coating

### 涂层前注意事项

普拉帝涂层工艺是在450~500℃高真空的环境下进行的，所以对需要涂层的工件材料和表面预处理有一定的要求。为了更有效的发挥PVD涂层性能，将我们的指导意见说明如下：

Prade coating process is in the 450~500°C, high vacuum environment, so the workpiece material and surface pre coating required treatment have certain requirements. In order to play a more effective performance of PVD coating, the guidance we are described as follows:

#### 可涂层材质：

- 1.高合金工具钢、高速钢、不锈钢；
- 2.硬质合金（没有热处理问题）；
- 3.钛合金、合金；
- 4.镀镍件等。

Prade涂层工艺是在450~500，高真空的环境下进行的工具钢必须经过500以上的高温回火处理，并保持可以满足使用需求硬度，比如冷作模具钢Cr12MoV需经过3次高温回火以确保材料的尺寸和硬度等特性的稳定。需涂层工件必须是导电的。因PVD过程是将整个工件装入炉内进行的，所以无论是否需要涂层的部分，都须符合以上条件。

Prade coating process is performed at 450 to 500, under the environment of high vacuum tool steel must be tempered at high temperature above 500 and used to meet the requirements to maintain the hardness, for example, cold work tool steel Cr12MoV need tempering after 3 to ensure that the size of the material stability and hardness characteristics. The workpiece to be coated must be conductive. PVD process because the entire workpiece is carried into the furnace, so no matter whether the coating part, are subject to the above conditions.

#### May Coating Material:

- 1.High alloy tool steel, high speed steel, stainless steel;
- 2.Carbide (no heat problem);
- 3.Titanium alloy;
- 4.Nickel-plated parts.

#### 可涂覆范围：

因涂层的工件需要有可以装夹的部位，不太可能实现全部涂覆。如果有特殊部位不能涂层，需要提前告知我们，建议您在工件上明确标识出以下部位：

- 1.必须涂层的功能部位
- 2.不能涂层的部位
- 3.可涂可不涂的部位
- 4.PVD涂层可以涂覆具有复杂形状的工件，但可以涂覆的内孔的径深比（直径与孔深的比值）需大于1:1，且涂层的厚度随孔或槽加深，涂层厚度变薄。

#### Can be coated range:

Coating of the workpiece due to a clamping position can be unlikely to achieve full coating. If there are special parts not coated, you need to inform us in advance, we recommend that you work Clearly identified on the following areas:

- 1.One must be coated functional sites
- 2.Can not be part of the coating
- 3.Can be applied to the site from time to time to paint
- 4.PVD coatings may be applied to the workpiece having a complicated shape, but the inner bore diameter of the coating depth ratio (the ratio of the diameter of the hole depth) to be greater than 1:1, and the thickness of the coating with holes or slots deepen, coating thickness thinning.

#### 尺寸精度影响：

- 1.普拉帝PVD厚度范围2~5um,且可以通过工艺精确控制涂层厚度，通常不会影响尺寸公差大于5um的工件精度。
- 2.如果您的产品尺寸精度要求更高，请预留余量，并事先沟通说明。

#### Size precision effects:

- 1.PRADA Emperor PVD thickness range 2 ~ 5um, and can be precisely controlled through process coating thickness, usually does not affect dimensional tolerances than 5um workpiece accuracy.
- 2.If your product dimensional accuracy requirements are higher, please reserve margin, and prior communication instructions.

## Plastic Mold 塑料模具

大部分塑料射出产品都是外观件，对产品表面质量有最严苛的要求，任何模具表面的问题与缺陷都会完全反映在射出产品上，塑料模具除了有表面刮花、磨损等表面硬度不够的问题，还同时有腐蚀的问题。而市面上的耐磨涂层大都不耐腐蚀。塑料模具表面常会做各种蚀纹、咬花、镜面抛光等处理，市面上大部分的涂层技术颗粒过大，会影响塑料模具原来处理好的各种花纹与镜面，塑料模具需要一个更精密的涂层。针对现代塑料模具的挑战，普拉帝提供的同时耐腐蚀又耐高温的超硬涂层，可完全保持塑料模具各种表面精密的蚀纹与高镜面，同时还可以改善塑料流动性，提高充型能力，使脱模更容易。

Most plastic injection products are exterior parts, the surface quality of the product with the most stringent requirements of any problems with the mold surface defects will be fully reflected in the injection products, plastic In addition to the mold surface scratches, surface hardness and wear enough problems, but also corrosion problems simultaneously. While most of the market's impatience corrosion resistant coating. Plastic mold surface often do all kinds of texturing, etching, mirror polishing process, the majority of the market is too large particle coating technology, will affect the original deal with a good variety of plastic mold pattern and mirror, plastic a need for a more sophisticated coating. The challenge for the modern plastic mold, PRADA emperor, while the supply of corrosion resistant and high temperature super-hard coating, which can remain completely various plastic mold Etch the surface with high precision mirror, but also can improve the plastic flow, improve filling capacity, making it easier stripping

# Matters needing attention before coating

## 涂层前注意事项

### 最大工件尺寸：

普拉帝可为最大尺寸不超过900\*450\*300mm的工件涂层。

### Maximum workpiece size:

PRADE Emperor maximum size can not exceed 900 \* 450 \* 300mm workpiece coating.

### 表面要求：

工件表面限制

- 1.工件表面不能做其他的表面改性处理，如电镀、渗氮、渗碳、磷化、氧化发黑、TD或CVD等；
- 2.工件表面不能有锈蚀、腐蚀、油漆、胶水等；
- 3.表面粗糙度要求：一般的刀具、模具和零配件在满足使用需求的前提下越光滑越好，成型面Ra<0.2um为宜；对于镜面塑胶模具、蚀纹模具等，则完全以产品需求为准（客户自行处理）；
- 4.组合模具或镶嵌工具，能够拆开的必须拆为单独零件；
- 5.焊接工件表面需彻底清洁，本能有氧化层或埋孔。

### Surface requirements:

Surface limits

- 1.Workpiece surface can not do other surface modification treatment, such as plating, nitriding, carburizing, phosphate, black oxide, TD, or CVD, etc.;
- 2.The surface can not have rust, corrosion, paint, glue, etc.;
- 3.Surface roughness: General tools, molds and spare parts used to meet the needs of the premise, the smoother the better, molding surface Ra <0.2um appropriate; For mirror plastic mold texturing molds, etc., is entirely in product demand prevail (customers handle their own);
- 4.Combination molds or mosaic tools to disassemble the must split into separate parts;
- 5.Workpiece surface should be thoroughly cleaned, instinct oxide layer or buried vias.

### 运输包装：

- 1.高速钢、工具钢等工件在发给普拉帝前需涂轻质防锈油，以防工件锈蚀。WC系硬质合金产品不需要。
- 2.工件需要小心独立包装，以免运输途中损伤，尤其是刀具和表面要求高的工件。
- 3.高速钢、工具钢等工件在涂层后，我们也会涂防锈油（有特殊要求的除外）。

### The maximum size of workpiece

- 1.A high-speed steel, tool steel and other parts of the former emperor sent PRADE to be painted light rust oil to prevent Workpiece corrosion. WC series carbide products do not.
- 2.Separate parts require careful packaging to avoid damage in transit, especially knives and demanding surface of the workpiece.
- 3.High-speed steel, tool steel and other parts of the coating, we also oiled (with special Except for the requirements).

### 重复涂层限制：

可以提供在钢材工件的退镀重镀服务，  
硬质合金材料不能重复退镀后再涂层。

### Repeat coating restrictions:

May be provided on the steel plate workpiece weight stripping service, Carbide materials can not be repeated stripping before coating.

### 客户需提供资料

- 1.待涂层的材料及牌号；
- 2.回火温度和硬度
- 3.标识（或说明）涂层的功能面（即涂层的重点面）；
- 4.尺寸精度要求特别高的工件，需要说明具体精度要求和预留尺寸；
- 5.使用条件，如被加工材料、加工速度等主要参数，以便于我们推荐最适合的涂层。

### Customers are required to provide information

- 1.And grade of the material to be coated;
- 2.Tempering temperature and hardness
- 3.Logo (or description) functional surface coatings (ie, the focus of the coating surface);
- 4.Requirements are particularly high dimensional accuracy of the workpiece, a description of the specific accuracy requirements and reserved dimensions;
- 5.Using conditions such as material to be processed, the processing speed of the main parameters so we recommend the most suitable coating.