oerlikon
balzers

METAPLAS.DOMINO

THE FLEXIBLE PVD PLATFORM FOR YOUR NEEDS

满足您需求的灵活PVD平台

Coating Equipment

METAPLAS.DOMINO PLATFORM
DOMINO平台

Our market knowledge:
我们的市场

More than 30 years of experience and know-how in coating combined with the highly innovative technology portfolio of the METAPLAS.DOMINO platform is the key for customised coatings.
30多年的涂层经验和专业知识与METAPLAS.DOMINO的创新技术相结合是定制涂层的关键。

Automotive components 汽车零部件

Whether engines or drive trains, oil pumps or brakes, headlights or rims, body-work or interior: in modern cars, motorbikes, trucks, ships and trains there is hardly anything, in manufacture or in operation, where Oerlikon Balzers coatings are not involved.

无论是发动机或传动系统、油泵或制动器、前灯或轮辋、车身或内饰，在现代汽车、摩托车、卡车、轮船和火车中，几乎没有任何东西在制造过程中或运作过程中不应用欧瑞康巴尔查斯涂层。

Consumer goods and decorative parts 消费品和装饰件

Whether household appliances, consumer electronics or sports equipment - most things we use today are made of metal or plastic. Decorative coatings from Oerlikon Balzers improve the design, performance and service life of modern consumer goods, and make their production more efficient.

无论是家用电器、电子产品或运动器材---我们今天使用的大多数东西都是由金属或塑料制成的。欧瑞康巴尔查斯的装饰涂层改善了现代产品的设计、性能和使用寿命。

Aircraft parts 航空航天零部件

Aerospace components must withstand extremely demanding conditions and comply with strict safety and environmental regulations. Oerlikon Balzers coatings are designed to meet these challenges - during the production of components and tools and throughout their service life.

航空航天部件必须能承受及其严苛的条件，并符合严格的安全和环境法规。欧瑞康巴尔查斯涂层旨在应对这些挑战--在部件和工具的生产过程中以及整个使用寿命期间。

Medical components 医疗器械

Coatings provide a unique combination of extreme surface hardness, low friction coefficient and anti-corrosion properties. In addition to uncompromising quality, the medical industry requires equipment that complies with biocompatibility regulations.

欧瑞康巴尔查斯的涂层结合了极高的表面硬度、低摩擦系数和抗腐蚀特性。除了不妥协的高质量，医疗行业的设备还需要符合生物相容性法规。

Energy Industry 能源行业

Continuous operation and extreme environments place extremely high demands on the individual parts of windmills and turbines, on components used in oil & gas exploration, and on the processes used to manufacture these parts and components. Oerlikon Balzers can provide the optimum solution in each case.

长时间运行和极端的环境对风车和涡轮机的各个部件、石油、天然气勘探中使用的部件以及用于制造这些部件的部件和工艺提出了极高的要求。欧瑞康巴尔查斯可以在每种情况下提供优化的解决方案。

ALMOST UNLIMITED COATING PORTFOLIO FOR YOUR APPLICATIONS
适用您应用的无限涂层组合

Metaplas coatings improve how components behave in a wide range of applications. They can increase abrasive and/or adhesive wear resistance, reduce friction or sticking behaviour and increase erosion and corrosion resistance. The oxidation resistance of surfaces can be improved, electrical conductivity can be enhanced, and an attractive, decorative appearance can be designed.

Metaplas涂层改善了组件在广泛应用中的表现。它们可以提高耐磨性和/或粘着磨损性，减少摩擦或粘附行为，并提高抗侵蚀性和抗腐蚀性。同时还可以提高表面的抗氧化性，增强导电性，并可以设计出具有吸引力的装饰外观。

Cutting tools 切削刀具

Whether through higher productivity, more reliable production or increased efficiency – wear protection coatings offer huge potential savings. We offer the ideal coating for your application, depending on the material to be machined and the processing involved. So if it's turning, milling, drilling, reaming, threading or gear cutting - our high-quality coatings will make your production faster, more efficient and more reliable. 无论是通过更高的生产力、更可靠的生产过程还是提高生产效率，都为保护涂层都提供了巨大的节省潜力。我们为您的应用提供理想的涂层，具体取决于要加工的材料和所涉及的加工。因此，如果是车削、铣削、钻孔、铰孔、螺纹加工或齿轮切削，我们的优质涂层将使您的生产更快、更高效、更可靠。

Engineering 机械

Oerlikon Balzers offers a broad range of surface solutions that significantly improve the performance and durability of parts, manufacturing tools and precision components used in a wide range of engineering applications.

欧瑞康巴尔查斯提供范围广泛的表面解决方案，可显著提高广泛工程应用中使用的零件、制造工具和精密部件的性能和耐用性。

Metal forming 金属成型

Metal forming tools require long-lasting, high-quality, reliable and robust surface solutions to ensure high productivity in the stamping press. Oerlikon Balzers solutions are essential for applications such as deep drawing, blanking, trimming or punching and are used in special tooling and small or large batch production.

金属成型工具需要持久、高质量、可靠和坚固的表面解决方案，以确保冲压机的高生产率。欧瑞康巴尔查斯的解决方案对于深冲、下料、修边或冲压等应用至关重要，并用于特殊工具和小批量或大批量生产。

Die casting 压铸

The die casting industry is constantly facing new challenges in terms of die-cast part tolerances and cycle times. The exceptionally hard, extremely erosion and wear-resistant coatings from Oerlikon Balzers are a significant factor when it comes to protecting the mould from soldering and premature fire cracks.

压铸行业在压铸零件公差和周期方面不断面临新的挑战。欧瑞康 巴尔查斯的异常坚硬、极耐腐蚀和耐磨的涂层是保护模具免受焊接和过早火裂缝的重要因素

Packaging and plastic processing industries 包装和塑料加工行业

Hygiene and safety are of the utmost importance for the food processing industries. Uncompromising high quality, extreme cleanliness, compliance with bio-compatibility regulations and easy-to-clean components are crucial.

卫生和安全对于食品加工行业至关重要。不妥协的高质量、极高的清洁度、符合生物相容性法规和易于清洁的组件至关重要。

BENEFIT FROM THE FLEXIBILITY 从灵活性中受益

One technology platform – a wide range of possibilities
一个技术平台 – 更广泛的可能性

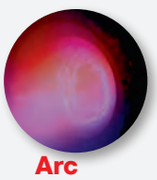
Designing modules and creating the perfect system to meet your individual needs is the basis of the METAPLAS.DOMINO ThinFilm equipment for production and R&D. Our state-of-the-art ThinFilm equipment has been developed using the expertise that comes from nearly 30 years' industrial experience. For Oerlikon Balzers, this means offering efficient system solutions and even setting trends in surface treatment.
Our METAPLAS.DOMINO platform offers different technology modules as well as individual solutions based on our know-how and expertise. This platform is highly flexible to meet your requirements - today and tomorrow. The modular and flexible concept of our ThinFilm equipment allows further expansions and upgrades.

设计模块和创建系统以满足您的个性化生产和研发需求是METAPLAS.DOMINO薄膜设备的基础。我们先进的薄膜设备是利用来自近30年的工业经验的专业知识开发的。对于欧瑞康巴尔查斯来说，这意味着提供高效的系统解决方案，甚至引领表面处理技术的趋势。

我们的 METAPLAS.DOMINO设备提供不同的技术模块以及基于我们的专有技术和专业知识的个性化解决方案。该设备高度灵活，可满足您现在和未来的要求。我们的薄膜设备的模块化和灵活概念允许进一步扩展和升级。

Technologies 技术

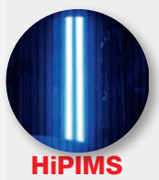
Our coating technologies offer a wide range of possibilities
我们的涂层技术提供了更广泛的可能性



Arc

The innovative APA Arc evaporator technology (Advanced Plasma Assisted) is based on our vacuum arc technology.
创新的 APA电弧蒸发器技术(先进等离子辅助)基于我们的真空电弧技术。

- High target utilisation results in low target costs
  高靶材利用率使靶材成本低
- High deposition rates 高沉积率
- Excellent coating adhesion优异的涂层附着力
- Reduced droplet evaporation减少液滴蒸发



HiPIMS

HiPIMS stands for our High Power Impulse Magnetron Sputtering technology.
HiPIMS代表着我们高功率脉冲磁控溅射技术。

- High ionisation rate (similar to Arc) 高电离率（类似Arc）
- Variable frequency and reverse pulsing 变频和反向脉冲
- Deposition of extremely dense and smooth coatings
  沉积极其致密和光滑的涂层
- Syncronisation with bias and arc management
  与偏压和电弧管理同步
- Excellent coating adhesion
  优异的涂层附着力

HI3 – High Ionisation Triple
HI3-三重高电离

- Combined strength of 3 processes in one PVD system
  在一个PVD系统中结合3 种工艺
- Excellent adhesion, high deposition rate, smooth coatings, economical production
  优异的附着率、高沉积率、光洁的涂层、经济的生产
- Innovative approach to the next generation of PVD coatings for various applications
  用于各种应用的新一代 PVD涂层的创新方法
- HI3 technology allows coatings to be adapted with a wide range of materials, with micro alloying, with doping, and with layer architecture design – with economical production!
  HI3技术允许涂层适用于多种材料、 微合金化、 掺杂和层结构的设计 – 经济生产!

Technical features 技术特点

APA Arc, steered Arc, filtered Arc
APA电弧，导向弧、滤波弧

- Allows various types of arc setups in combination with different power supplies.
  允许结合不同的电源进行各种类型的电弧设置
- Manual or automatic magnetic field setup for arc control (steered arc).
  用于电弧控制（ 导向电弧 ）的手动或自动磁场设置

Sputtering (DC, HiPIMS, MF, RF, superposition etc.)
溅射（直流，高能脉冲磁控溅射，中频，射频等）

- Various magnetron setups with individual power supplies and pulsing units up to 2 MW.
  具有独立电源和高达 2MW的脉冲单元的磁控管设置
- HiPIMS with synchronised bias and reverse pulsing.
  具有同步偏压和反向脉冲的HiPIMS
- Sputter magnetrons with variable and adjustable magnetic fields.
  具有可变和可调节磁场的溅射磁控管
- Superposition of different sputter modes in order to increase coating rate.不同溅射模式的叠加，提高镀膜速率

Bias 偏压

- Individual bias setup. DC / Pulsed / MF / RF
  单独偏压设置：直流/脉冲/中频/射频
- Bipolar pulsed
  双极脉冲
- Arc management
  电弧管理

PACVD (等离子体辅助化学气相沉积)

- DLC (Diamond-Like Carbon) coatings
  类金刚石涂层
- Use of precursors such as HMDSO, etc.
  使用新物质如HMDSO等

AEGD / advanced AEGD (Arc Enhanced Glow Discharge)
AEGD/先进AEGD (先进电弧增强辉光放电)

- Excellent uniformity by adjustable etching technology
  通过可调蚀刻技术实现出色的均匀性
- Powerful etching rates up to 2000 nm/h
  强大的蚀刻率高达 2000nm/h

Combination of plasma nitriding and PVD
等离子渗氮和PVD的结合

- Within one cycle
  一个炉次内

Temperature control 温度控制

- Various options with multiple thermocouples and / or pyrometer as well as direct temperature measurement at substrate.
  具有多个热电偶和/或高温计的各种选项以及基材上的直接温度测量。

Automation (2-door chamber) 自动化（两门室）

- Automatic door operation, substrate holder loading and unloading
  自动门操作，基材夹具装载和卸载
- Reduced maintenance in automatic mode
  在自动模式下减少维护
- Easy to maintain
  易于维护

YOUR THINFILM EQUIPMENT
您的薄膜设备
Versions and features of METAPLAS.DOMINO equipment
METAPLAS.DOMINO设备的版本和功能

Equipment with integrated chamber
带集成室的设备

Compact equipment in different sizes for all production needs.
不同尺寸的紧凑型设备，可满足所有生产需求

Properties 特性	**METAPLAS.DOMINO** pica	**METAPLAS.DOMINO** micra	**METAPLAS.DOMINO** kila
Usable coating volume 可用涂层体积	Ø 330 mm x 300 mm	Ø 450 mm x 500 mm	Ø 620 mm x 700 mm
APA arc evaporators APA电弧蒸发器	2 to 6 2到6	3 to 12 3到12	4 to 16 4到16
Magnetron sputter sources 磁控溅射源	1 to 3 1到3	1 to 4 1到4	1 to 4 1到4
Standard substrate table (others upon request) 标准基材台（其他按需求提供）	5 shafts 5个轴	6 shafts 6个轴	9 shafts 9个轴

Equipment with free chamber and two doors
带自由室和两门的设备

The flex versions are perfectly designed for future integration of newly developed technology and for potential incorporation into automated production processes.
flex版本经过完美设计，可用于未来新开发技术的集成以及潜在的集成到自动化生产流程中。

FLEX

Propertie 特性	**METAPLAS.DOMINO** kila flex	**METAPLAS.DOMINO** giga flex
Usable coating volume 可用涂层体积	Ø 620 mm x 700 mm	Ø 1,200 mm x 1,500 mm
APA arc evaporators APA电弧蒸发器	4 to 16 4到16	8 to 32 8到32
Magnetron sputter sources 磁控溅射源	1 to 6 1到6	1 to 4 1到4
Standard substrate table (others upon request) 标准基材台（其他按需求提供）	9 shafts 9个轴	Up to 32 shafts 增加至32个轴

Available for all sizes
适用于所有尺寸

Available coating modules可用的涂层模块**:** Arc, Sputter, HiPIMS, HI3, Nitriding, DLC, ta-C
Available power supplies 可用电源**:** DC, DC pulse, HiPIMS, bipolar pulse, MF, RF (upon request)
Plasma cleaning 等离子清洗**:** All systems equipped with AEGD

HIGH CAPACITY AND PRODUCTIVITY
高产能和高生产力

The costs per piece of a coating process are mainly determined by the loading capacity of the equipment. A high loading capacity also influences the plasma conditions, which in turn affects the quality of the coatings. 涂层的单件成本主要取决于设备的装载能力。高装炉能力也会影响等离子体状态，进而影响涂层质量。

We offer a wide range of standard substrate holder solutions to increase loading capacity and ensure high-quality coatings. The table below shows some examples of different tools with 3-fold rotation on a standard substrate holder. We also offer customised substrate holders for optimised loading capacities. 我们提供范广泛的标准基体夹具解决方案，以提高装载能力并保证高质量的涂层。下表显示了不同工具在标准三维旋转夹具上的一些示例。我们还提供定制的基体夹具，以优化装载能力。

Tool dimension 刀具尺寸	**METAPLAS.DOMINO** pica	**METAPLAS.DOMINO** micra	**METAPLAS.DOMINO** kila
End mill Ø 6 x 55 mm	> 400	> 720	> 1296
End mill Ø 10 x 70 mm	> 240	> 480	> 900
End mill Ø 14 x 100 mm	> 120	> 384	> 720
End mill Ø 20 x 120 mm	> 90	> 180	> 360
Hob Ø 100 x 100 mm	> 15	> 30	> 63

Additional factors in high-efficiency production
高效生产的附加因素

- High target utilisation – up to 60% 高靶材利用率 – 高达60%
- High deposition rates 高沉积率
- Systems are designed for high temperature processes up to 650°C and low temperature processes less than 150°C
  系统专为高达650°C的生产过程和低于150°C的低温生产过程而设计
- Low maintenance costs (e.g. long term maintenance free turbo pumps and quick-change parts)
  低维护成本（例如长期免维护涡轮泵和快速更换部件）
- Easy access to all equipment areas
  轻松进入所有设备区域
- 2-door model for kila flex and giga flex
  kila flex和giga flex采用的两门模型

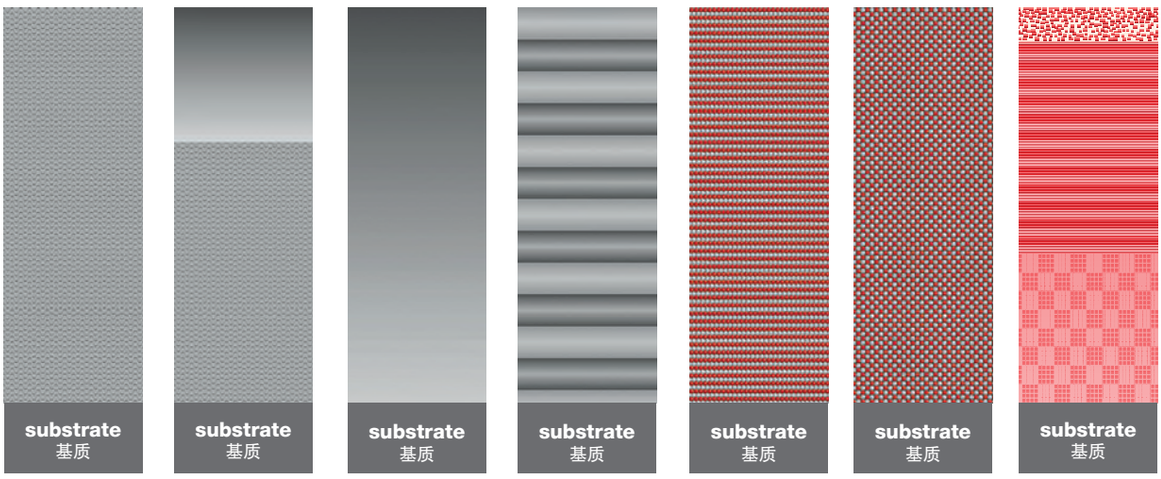
METAPLAS.DOMINO COATINGS
METAPLAS.DOMINO 涂层

A wide variety of solutions
多种解决方案

Coating types, architectures and designs
涂层类型、结构和设计

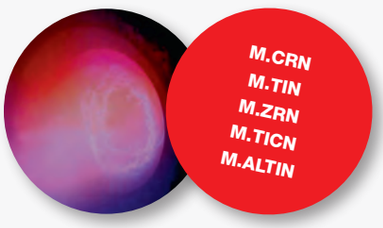
Different combinations of materials, technologies and modules allow a wide range of coating architectures. 材料、技术和模块的不同组合可生产广泛的涂层结构

With METAPLAS.DOMINO equipment, you can adjust and enhance the coating properties to meet your needs and to suit the application. 使用METAPLAS.DOMINO涂层设备，您可以调整和增强涂层性能以满足您的需求和应用。



monolayer 单层 | hard/soft combination 软硬结合 | gradient 坡度 | multilayer 多层 | nanolayer 纳米层 | nano composite 纳米复合材料 | designed layer 设计层

Basic Arc coatings
基础电弧涂层



Arc coatings offer highly economical deposition of a variety of materials combined with high coating density, hardness and excellent adhesion. They are typically used in metal processing for machining, forming and stamping, in plastic processing, in decorative and medical applications and in various component applications. Typical coatings in these applications are metal nitrides and carbonitrides. 电弧涂层可非常经济地沉积各种材料，同时具有高涂层密度、硬度和出色的附力。它们通常用于机械加工、成型和冲压的金属加工、塑料加工、装饰和医疗应用以及各种零部件应用。这些应用中的典型涂层是金属氮化物和碳氮化物。

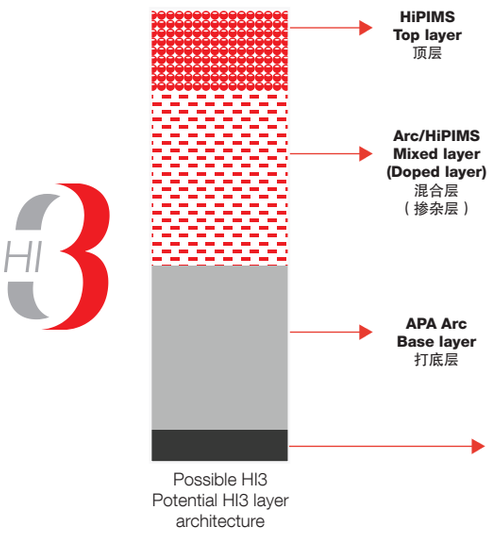
Sputter / HiPIMS coatings
HiPIMS/溅射涂层

Sputter coatings are typically used for deposition of very smooth coatings and for materials which cannot be evaporated with Arc technology. Sputtering technology is particularly useful when working with highly polished surfaces and basic metal carbon coatings. 溅射镀膜常用于沉积非常光滑的镀膜以及不能用电弧技术蒸发的材料。溅射技术在处理高度抛光的表面和基本金属碳涂层时非常有用。

HI3 coatings HI3涂层

Pioneering PVD technology is pointing the way towards innovative new coating solutions. 开创性的PVD技术为创新的新涂层解决方案指明了道路

The latest innovation HI3 (High Ionisation Triple) combines 3 highly ionised processes within one PVD system 最新的创新 HI3(三重高电离)在一个PVD系统中结合了3个高电离过程:



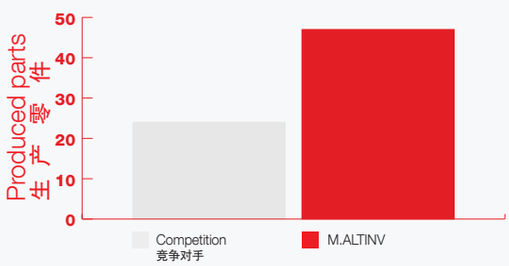
Possible HI3
Potential HI3 layer architecture

HiPIMS + APA Arc + AEGD plasma etching
HiPIMS+APA Arc+AEGD 等离子蚀刻

- Excellent adhesion 优异的附着力
- High deposition rates 高沉积率
- High ionisation rates 高电离率
- Smooth coatings 光滑涂层
- Very dense coatings 非常致密的涂层
- Economic production 经济的生产
- Doping and micro alloying of coatings 涂层的掺杂和微合金化
- Design of layer architectures 层结构的设计

HI3 technology allows coatings to be adapted with a wide range of materials, with micro alloying, with doping, and with layer architecture design – with economical production! HI3技术允许涂层适用于多种材料、微合金化、掺杂和层结构设计–在经济生产的情况下!

Outstanding initial results with HI3 technology
HI3技术出色的初步结果

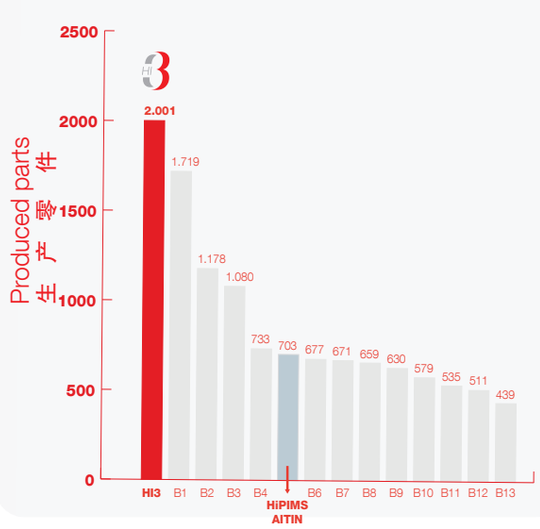


Benchmark test for M8 tap drills with 15 m/min in C45 steel carried out by a large tool manufacturer
大型工具制造商在C45钢中以15米/分的速度对 M8攻丝钻进行基准测试

Application 应用
Grooving operation
压槽操作

Workpiece 工件
42CrMo4
toughness 700 MPa
韧性700兆帕

Cutting data 切削数据
V = 200 blanc m/min
f = 0.075 mm
a = 9 mm
a = 10mm

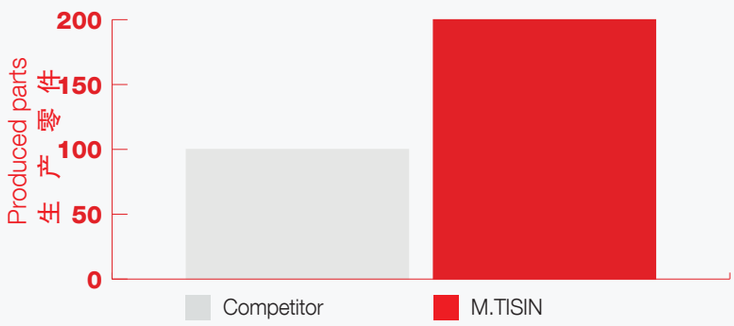


METAPLAS.DOMINO coatings
METAPLAS.DOMINO 涂层
For high performance 高性能

High-performance coatings
高性能涂层

In contrast to general-purpose coatings, high-performance coatings are developed with special applications or coating properties in mind. For example, coatings with very high oxidation resistance and/or high hot hardness are needed for high-speed or dry machining and for machining special alloys in the aerospace industry. In other applications the focus is more on the elastic properties or friction behaviour.
For high-performance coatings the parameters such as composition, atomic structure, crystallinity and morphology are designed at nano level. So the METAPLAS.DOMINO platform gives you the advanced, pioneering coating designs you need.

与通用涂层相比，高性能涂层的开发考虑了特殊应用或涂层特性。例如，高速或干式加工以及航空航天工业中的特殊合金加工需要具有非常高的抗氧化性和/或高热硬度的涂层。在其他应用中，重点更多地放在弹性特性或摩擦行为上。对于高性能涂层，其成分、原子结构、结晶度和形态等参数都是纳米级设计。因此，METAPLAS.DOMINO平台可为您提供所需的先进的、开创性的涂层设计。



Source: German tool manufacturer
来源：德国工具制造商

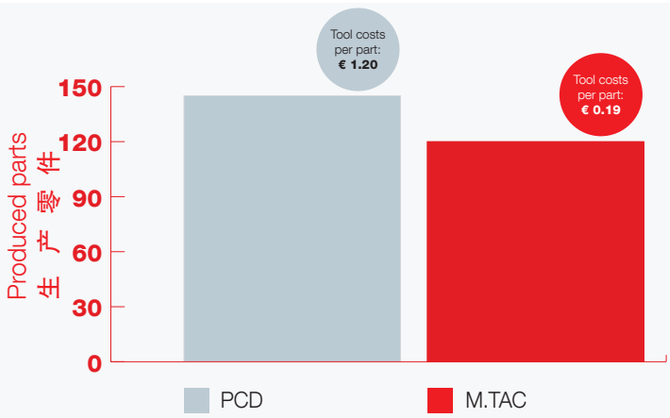
Dry cutting（干式切削）
of 1.2343 ESU
(X38CrMoV51), 58 HRC

Vc = 226 m/min, vf = 1920 mm/min
Fz = 0.08 mm, ap = 0.25 mm
ae = 0.15 mm, n = 12 000 U/min,
Service life criteria: surface quality/wear
使用寿命标准：表面质量/磨损

DLC/carbon coatingsDLC
碳涂层

The METAPLAS.DOMINO platform allows you to produce various DLC (diamond-like carbon) coatings and combine PVD and PACVD processes.
DLC coatings are mainly used for components to reduce friction and wear, e.g. on engine components, but they are also the ideal solution for special tool applications such as machining aluminium alloys, non-ferrous metals and composites like FRPs and CFRPs. Hydrogen-free tetrahedral amorphous carbon (ta-C) coatings offer exceptional performance in high-temperature environments and with extremely high hardnesses in particular.

METAPLAS.DOMINO可以生产各种DLC（类金刚石碳）涂层并结合PVD和PACVD工艺。DLC涂层主要用于部件以减少摩擦和磨损，例如在发动机部件上，但它们也是特殊刀具应用的理想解决方案，例如加工铝合金、有色金属和复合材料，如FRP和CFRP。无氢四面体无定性碳（ta-C)涂层在高温环境中具有出色的性能，尤其是具有极高的硬度。



Total cost Savings 总成本节约 85%

Source: German tool manufacturer
来源：德国工具制造商

Tool 工具
Carbide end mill
硬质合金立铣刀
Ø 8 blanc mm

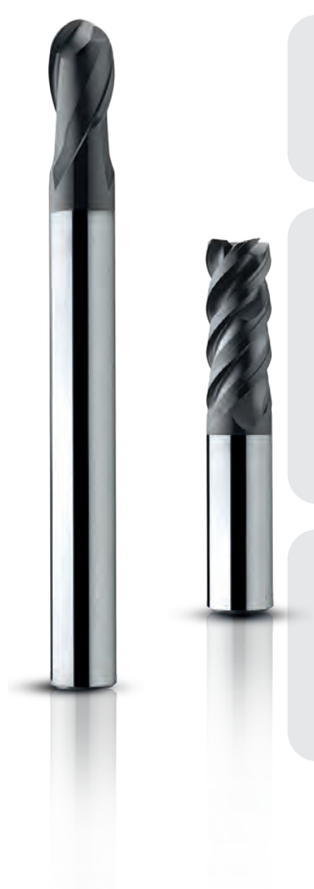
Workpiece 工件
High-end car interior
高档车内饰
AI-ABS-Pc
GF 20 Sandwich

Cutting 切削
n=40,000 U/min
v=2.5 blanc m/min

Benefit 优点
Significantly reduced tool cost
显著降低工具成本
PCD end mill: € 180
M.TAC: € 23

METAPLAS.DOMINO coatings

Properties for your success 您成功的特性



	Our coating portfolio 我们涂层的组合 Product name 产品名称	*Former name 曾用名	Recommended applications 推荐应用
APA Arc	**M.TIN**	M.TIN	Standard applications in machining, forming, components, deco 机械加工、成型、部件 、装饰中的标准应用
	M.TICN	M.TICN	Cutting, threading, stamping, deco 切割、冲压、螺纹加工、装饰
	M.CRN	M.CRN	Forming, plastic processing, hot forging, components 成型、塑料加工、热锻、零部件
	M.CRON	M.CRN/CRON	Plastic processing, cutting Cu/Al alloys 塑料加工、铜/铝合金切割
	M.ALTIN	M.TEC	General cutting applications (milling, drilling, reaming, sawing) 一般切削应用（ 铣削、钻孔、铰孔、锯切 ）
	M.ZRN	M.ZRN	Cutting non-ferrous metals, deco 切割有色金属、装饰
	M.ALTISIN	M.POWER	(Dry) cutting, milling steel 45-60 HRc, stainless steel, Ti alloys; drilling, gear cutting （ 干式 ）切削、 铣削45–60HRc钢、不锈钢、钛合金；钻孔切齿
	M.TISIN	M.POWER nano	(Dry) hard cutting, milling steel 60-70 HRc, stainless steel, Ti alloys; drilling （ 干式 ）硬切削、铣削60–70HRc钢、不锈钢，钛合金；钻孔
	M.ALCRN	M.FORCE	Cutting steel <45 HRc, (exhaust) valves, components 切割<45HRc的钢、（ 排气 ）阀、零部件
	M.CRALSIN	M.FLEX	Cutting steel <45 HRc, (exhaust) valves, components 切割<45HRc的钢、（ 排气 ）阀、零部件
	M.VN	M.FUSION	Aluminum die casting, forming at elevated temperature 铝压铸、高温成型
	M.MON	M.MON	Precision components, automotive applications at elevated temperature 精密零部件、高温下的汽车应用
	M.TAC	M.TAC	Cutting non-ferrous metals, wood-based and fibre-reinforced materials; forming; automotive components 切割有色金属、木基和纤维增强材料；模具；汽车零部件
Sputter/ PACVD	**M.DLC**	M.DLC	Components, automotive, forming, plastic processing 零部件、汽车、模具、塑料加工
	M.WCH	M.WCH	Precision components 精密零部件
	M.CRN	M.CRN	Precision components, automotive application 精密零部件、汽车应用
HiPIMS	**M.CRN**	M.CRN	Minting dies, forming and plastic processing tools for mirror-polished surfaces 造币模具、镜面成型和塑料模具的加工工具
	M.ALTIN	M.ALTIN	Turning, minting dies 车削、造币模具
	M.TIN	M.TIN	Minting dies, threading 造币模具、螺纹加工
	M.TISIN	M.TiSiN	Micro stamping, cutting 微冲压、切割
	M.TIB	M.TIB	Cutting AlSi alloys, non-ferrous metals, fibre-reinforced materials 切割铝硅合金、有色金属、纤维增强材料
HI3	**M.ALTINV**	M.MOTION	Stamping, cutting, metal forming, die casting, threading 冲压、切割、金属成型、 压铸、螺纹加工
	M.ALTINSIB	M.SIBONICA	High oxidation resistance applications 高抗氧化性应用
	M.TISINTIB	–	Cutting 切削
	M.ALTINSI	–	Cutting 切削

* We have simplified the naming of our METAPLAS.DOMINO coating portfolio. It consists of four main coating families based on
The individual coating names are defined by their main composition. If you, as a long-standing customer, are familiar with the pr
METAPLAS.DOMINO涂层产品组合的命名。它由基于应用的涂层工艺的主要的涂层系列组成，各个涂层的名称由其主要成分定

Upon your request we develop modifications of existing M. Coatings, and individual new solutions for you.
Please contact us for more details.
根据您的要求我们开发现有的M. 涂料为您提供个性化的新解决方案。

Basic coating composition 基本涂层成分	Coating architecture 涂层结构	Hardness 硬度 (HV0.05)	Max. working temp. (C°) 最高工作温度	Colour 颜色
TiN	Monolayer 单层	2500 ± 200	600 C°	Gold 金色
TiCN	Multilayer 多层	3500 ± 300	500 C°	Red Brown 红棕色
CrN	Mono-/Multilayer 单/多层	2200 ± 200	700 C°	Chromium 铬
CrN/CrON	Multilayer 多层	2400 ± 200	700 C°	Rainbow 彩虹色
AlTiN	Mono-/Multi-/ Nanolayer 单/多/纳米层	3200 ± 300	900 C°	Anthracite 烟灰色
ZrN	Monolayer 单层	2300 ± 300	700 C°	Light Gold 浅金色
TiAlSiXN	Mono-/Multilayer 单/多层	3500 ± 300	1100 C°	Copper 铜色
TiSiXN	Nanolayer 纳米层	3500 ± 300	1100 C°	Copper 铜色
AlCrXN	Multilayer 多层	3300 ± 300	1100 C°	Light Grey 浅灰色
CrXAlSiN	Multilayer 多层	2500 ± 250	900 C°	Silver Grey 银灰色
VXN	Monolayer 单层	2400 ± 300	600 C°	Light Brass 浅黄铜色
MoN	Monolayer 单层	2400 ± 250	800 C°	Silver steel 不锈钢色
ta-C	Monolayer 单层	4000 - 5000	400 - 500 C°	Anthracite 烟灰色
Cr/a:C-H (-Si)	Multilayer 多层	1500 - 2500	300 C°	Anthracite 烟灰色
Cr/a:C-H-W	Multilayer 多层	800 - 1800	300 C°	Anthracite 烟灰色
CrN	Monolayer 单层	2000 ± 200	700 C°	Silver Grey 银灰色
CrN	Monolayer 单层	2300 ± 200	700 C°	Silver Grey 银灰色
AlTiN	Monolayer 单层	3200 ± 300	900 C°	Anthracite 烟灰色
TiN	Monolayer 单层	2400 ± 250	600 C°	Gold 金色
TiSiN	Monolayer 单层	3700 ± 300	1100 C°	Copper 铜色
TiB2	Monolayer 单层	4500 ± 300	900 C°	Silver Grey 银灰色
AlTiN/VXN	Multilayer 多层	2800 ± 250	600 C°	Light Brass 浅黄铜色
AlTiN/SiBNC	Multilayer 多层	2000 ± 250	1200 C°	Red Green 红绿色
TiSiXN/TiB2	Multilayer 多层	3800 ± 200	900 C°	Silver 银色
AlTiN/AlTiSiN	Multilayer 多层	3200 ± 200	900 C°	Anthracite 烟灰色

Create your individual portfolio
创建您个人的涂层集合

Stand out from the competition: we can work with you to develop customised coatings for your specific applications.
从竞争中脱颖而出：我们可以与您合作，为您的特定应用开发定制涂层。

ed on the applied coating process.
the previous coating names, for now you will find them right next to the new names.我们简化了成分定义。如果您作为长期客户，熟悉以前的涂层名称，现在您会在新名称旁边找到它们。

THE TOTAL COATING SOLUTION 整体涂层解决方案

Oerlikon Balzers ThinFilm Equipment 欧瑞康巴尔查斯的薄膜设备

Oerlikon Balzers is more than just coatings: as “Surface Engineers” the company views coating as a continuous, integrated process combining systems engineering, pre- and post-treatment of tools and advanced coating technology. The only way to achieve optimum results and maximise tool performance is to take an all-round approach, and as a solution provider Oerlikon Balzers offers state-of-the-art technologies for every step in the process and consultation and support with project planning and implementation.

欧瑞康巴尔查斯不仅仅是涂层：作为“表面处理工程师”，公司将涂层视为一个连续的、集成的过程，结合了 系统设计、工具的前处理和后处理以及先进的涂层技术，实现最佳结果和最大化工具性能的唯一方法是采用全方位的方法，作为解决方案供应商，欧瑞康巴尔查斯为流程的每一步提供最先进的技术，作为项目规划和支持提供咨询和支持和执行。

1 Cleaning 清洗

Clean surfaces are essential for coating adhesion. So Oerlikon Balzers invests a great deal of effort in surface preparation for PVD and offers multi-stage ultrasonic cleaning lines using aqueous alkaline baths with no environmentally harmful additives.
清洁的表面对于涂层的附着力至关重要。因此，欧瑞康巴尔查斯为PVD的表面准备方面投入了大量精力，并提供碱性水溶液的多级超声波清洗线，不含对环境有害的添加剂。

START

2 Pre-treatment 预处理

If additional pre-treatment is required, Oerlikon Balzers always uses the right technology. We offer various edge preparation and surface treatment technologies depending on your needs.
如果需要额外的预处理，欧瑞康巴尔查斯始终使用正确的技术。我们根据您的需要提供各种刃口准备和表面处理技术。

oerli
balzers

3 Coating 涂层

A broad range of coating technologies is available for almost unlimited cutting, forming, punching, metal die casting or plastics processing applications. Working in close collaboration with our customers around the world, our specialists are continuously opening up new applications. Customised coatings are available on request.
广泛的涂层技术可用于几乎无限的切割、成型、冲压、金属压铸和塑料加工应用。我们的专家与世界各地的客户密切合作，不断开发新的应用，可根据客户的要求提供定制涂层。

PARTNERSHIPS & SERVICES 合作伙伴&服务

From our After Sales bases in Europe, America and Asia, we give you the products and services you need. Our service and application engineers around the world help you keep your equipment up and running, and our parts warehouses in Germany, Japan, China and the USA are committed to maintaining the productivity of your equipment. 您可以分别从我们在欧洲、美洲、亚洲的服务中心得到您需要的产品和服务。我们在世界各地的服务和应用工程师将帮助您保证您设备的正常运行，我们在德国、日本、中国和美国的零件仓库致力于保证您设备的生产力。

Consistently High Quality 始终如一的高品质

Our After Sales team is committed to providing consistently high-quality support around the world. 我们的售后团队致力于在全球范围内提供始终如一的高质量支持

6 After Sales 售后

Technical support and advice via telephone, service hotline and email. Remote diagnostics and control for even faster troubleshooting. Professional on-site support for installations, upgrades, repairs and maintenance. Engineer dispatch within 24 hours. Service agreements. New and second-hand parts, as well as consumables. Upgrades, including the latest technologies and coatings. Standard and customer-specific graphite parts. 通过电话、服务热线和电子邮件提供技术支持和建议；远程诊断和控制，可加快故障排除速度；专业的现场安装、升级、维护和维修支持；24小时内工程师派遣；服务协议；新零件和二手零件，以及消耗品；最新的技术和涂层升级；标准的和客户定制的石墨部件。

END

ikon

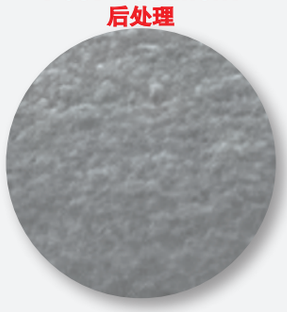
'S

5 Quality control 品质保证

The success of a coating also hinges directly on the condition and quality of the tool. We use visual and mechanical methods to assess the coating compatibility and to determine coating quality. As our technologies are used in a wide range of industries, we are in the perfect position to offer consultation on which quality control resources you need. 涂层的成功还直接取决于工具的状况和质量 。我们使用视觉和机械方法来评估涂层兼容性并确定涂层质量。由于我们的技术广泛的用于各个行业，因此我们可以完美地为您提供有关您需要的品质控制的咨询。

4 Post-treatment 后处理

Numerous methods are applied to give tools the finishing touches. Over the years, Oerlikon Balzers has gained the extensive experience needed to come up with the best solutions and equipment to meet your needs. 应用了许多方法来为工具做最后的润色。多年来，欧瑞康巴尔查斯获得了提供最佳解决方案和设备以满足您的需求的丰富经验。



BENEFIT FROM OUR GLOBAL EQUIPMENT SALES AND AFTER SALES ORGANISATION
受益于我们的全球设备销售和售后服务组织

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