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电泳涂料

Electrophoretic Coating

高泳透力解决方案

HIGH THROWING POWER SOLUTIONS



应对您在材料端的挑战

DEAL WITH YOUR CHALLENGES IN MATERIAL ASPECT.



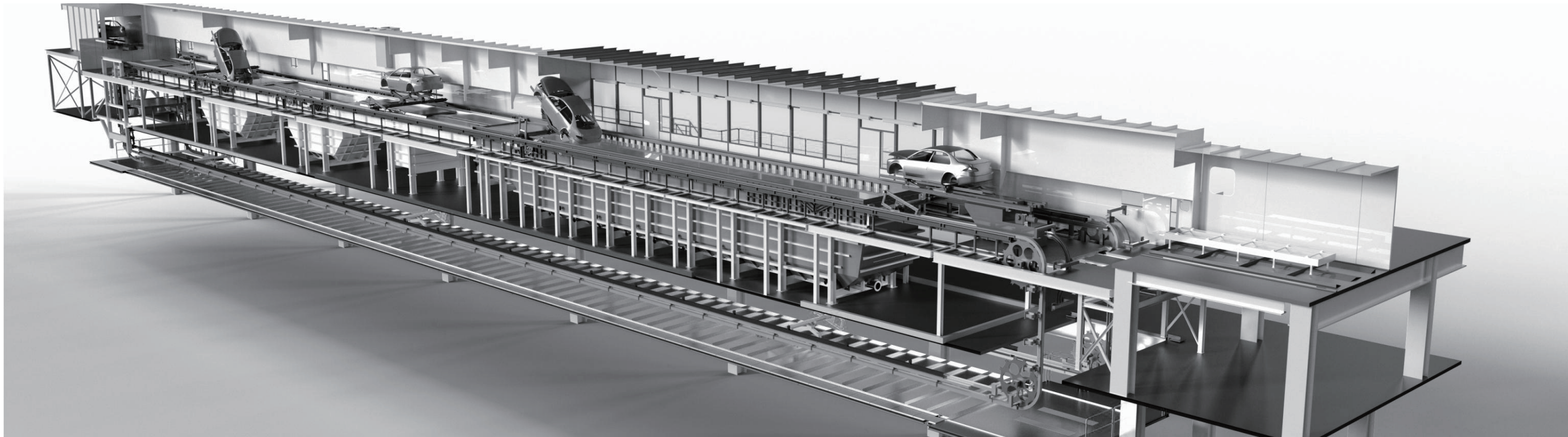
浩力森

品质无坚不摧

INDESTRUCTIBLE QUALITY

穿越阻隔，直击内心

THROUGH THE BARRIER, HIT THE MIND DIRECTLY



E-coating Introduction

电泳涂装概况

电泳涂装（ED）是由电泳涂料通过电化学反应在金属材料表面形成涂膜，比普通喷涂更致密附着力更强，并且具有超强的耐盐雾、耐湿热性能，其防腐能力也远高于其他类型的防腐底漆。操作安全、简单、高效、节能。

Electrophoresis coating (ED) is an electrophoretic coating by electrochemical reaction on the surface of metal materials to form a coating film, more dense and has more adhesion than ordinary spraying, as well as super salt spray resistance, moisture and heat resistance performance, its corrosion resistance is much higher than other types of anti-corrosion primer. Operation safe, simple, efficient and energy saving.

浩力森阴极电泳涂装工艺经过近 20 年的发展，以其优异的理化性能被应用到各种涂装领域中，已经成为底漆涂装的先进成熟技术厂家之一。能适应防腐、环保、节能和顾客的多样化性能要求，阴极电泳涂料的开发也取得了快速发展，阴极电泳涂料给整个涂装行业呈现出：较低的溶剂含量；较低的烘烤固化温度；不含铅、镉、汞等有害重金属；较低的涂膜密度和加热减量；高泳透力性能；耐候性、平滑性及高边缘防腐性等特殊产品要求。

HLS cathode electrophoresis coating process, with its excellent physical and chemical performance is applied to a variety of coating fields, has become one of the advanced mature technology manufacturers of primer coating after 20 years of development. We can adapt to anti-corrosion, environmental protection, energy saving and customer's diverse performance requirements, cathode electrophoresis coating development has also made rapid development, it presents these specification to the entire coating industry: lower solvent content; lower curing temperature; no lead, no cadmium, no mercury and other harmful heavy metals, lower coating density and heating reduction, high throwing power; weather resistance; high leveling and edge corrosion resistance etc. special requirements.

DEAL WITH YOUR CHALLENGES IN MATERIAL ASPECT

应对您在材料端的挑战

Product Introduction

Product Introduction

产品介绍

电泳涂料能够在复杂工件表面形成均匀的涂膜。但在一些工件内腔，由于电场受金属屏蔽的作用，内腔内壁的电场较弱，电沉积上的涂膜较外部表面要薄得多，影响了电泳涂料对内腔的防腐蚀性能。因此泳透力的高低是衡量一种电泳涂料好坏的重要指标。泳透力是指电泳涂料工作液在规定的电泳条件下，深入被屏蔽电极（即工件内腔）进行电沉积的能力。浩力森 HTP 系列产品是由浩力森自主研发的新一代高泳透力高性能阴极电泳涂料。针对汽车车身涂装行业的特点，能够有效浸涂于复杂车身工件的内外表面及凹穴处，且形成遮盖良好、膜厚均匀、盐雾性能优异的涂膜。

E-coatings can form uniform coatings on the surface of complex workpieces. However, in some workpiece's inner cavities, due to electric field is effected by metal shield, the electric field of the inner cavity is weak, the coating film on the electro-deposition is much thinner than the external surface, which affects the corrosion resistance of the inner cavity of the electrophoresis coating. Therefore, the level of throwing power is an important index to measure the quality of electrophoresis paint. Throwing power refers to the ability of electrophoresis coating fluid make electrical deposition in the shielded electrode (i.e. the inner cavity of the workpiece) under the prescribed electrophoresis conditions. HLS HTP series products are a new generation of high throwing power high-performance cathode electrophoresis coatings developed by HLS. Based on the characteristics of the automotive body coating industry, it can be effectively immersed in the inner and outer surfaces and cavities of complex bodywork, and form a coating film with good cover, uniform film thickness and excellent salt spray performance.

1.
Advantage

超高泳透力
ULTRA-HIGH THROWING POWER

2.
Advantage

优异的外观
EXCELLENT APPEARANCE

3.
Advantage

超低固化温度
ULTRA-LOW CURING TEMPERATURE

4.
Advantage

较好的匹配性
BETTER MATCHING

5.
Advantage

优异的防腐性能
EXCELLENT CORROSION RESISTANCE

1 Advantage

超高泳透力
ULTRA-HIGH THROWING POWER

四枚盒泳透力
By 4 BOX Test

65%

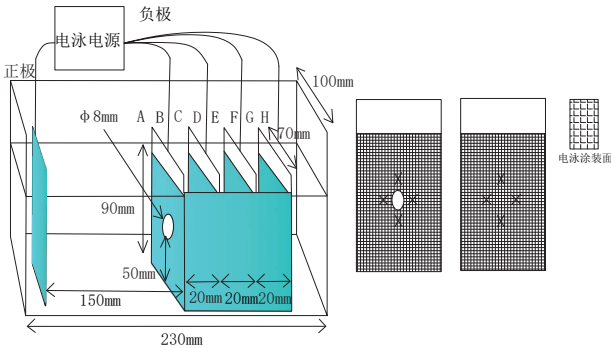
SERIES PRODUCTS

HTP 系列产品的超高泳透力是实现整车车身内表面涂装安全的关键，四枚盒法实验泳透力可达 65% 不仅能确保车身涂膜达到标准厚度，还能提高涂料的利用率和生产效率。

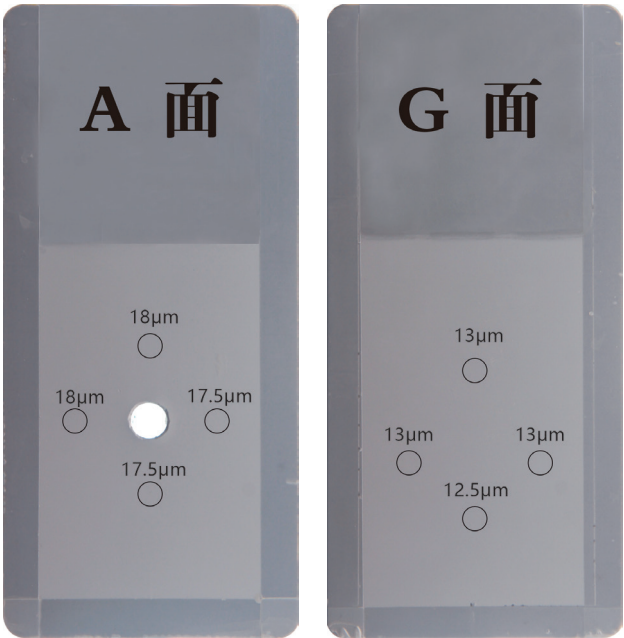
Ultra-high throwing power of HTP products is key to achieving safety in the interior surface of the vehicle body, four box methods experimental indicates that throwing power up to 65% not only ensuring that the body coating is up to standard thickness, but also improving coating utilization and productivity.

四枚盒泳透力测试 By 4 BOX Test

SERIES PRODUCTS

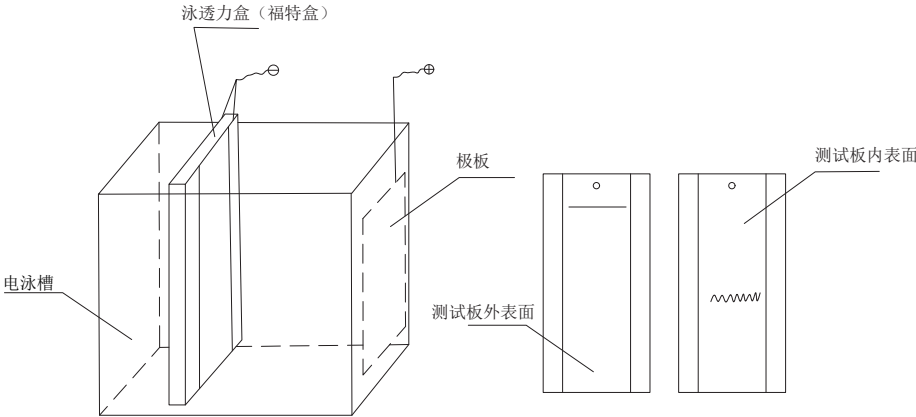


HTP 系列泳透力四枚盒法可达到 65%
HTP series through power reach 65% by 4 BOX method



福特盒法泳透力测试 By Ford Method

SERIES PRODUCTS



HTP 系列泳透力福特盒法达到 22 cm 以上
HTP series through power reach over 22cm by Ford method



SERIES PRODUCTS

HTP 系列产品的通过福特盒法的泳透力测试，由 300*105*0.8mm 的两块板形成左右两边 4mm 的夹缝上下相同的福特盒，福特盒入槽高度 24cm，距离阳极 15cm，在商定工艺条件下测试内板的上膜总高度及膜厚分布情况。

HTP series products passed the Ford box method of the throwing power test, by 300 x 105 x 0.8mm two plates to form the left and right side of the 4mm clamping up and down the same Ford box, Ford box slot height of 24cm, 15cm from the anode, test the total upper film height and film thickness distribution of the inner plate under the agreed process conditions

2
Advantage

优异的外观
EXCELLENT APPEARANCE

SERIES PRODUCTS

电泳涂装时，保证优异的外观，无水迹、无缩孔、无针孔、无橘皮等弊病；涂膜流平好，粗糙度值低于 0.3μm。

When E-coating, to ensure excellent appearance, no water traces, no shrink holes, no pinholes, no orange peel and etc. Coating film high levelling. Roughness lower than 0.3μm.

样板展示 Sample display

SERIES PRODUCTS



粗糙度测试仪测量 0.272μm
The roughness tester measures 0.272μm



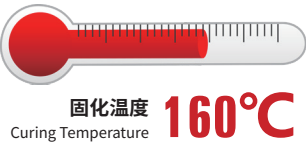
3
Advantage

低固化温度
LOW CURING TEMPERATURE

SERIES PRODUCTS

电泳涂装时，涂膜烘干环节确保了涂膜固化后的最佳性能，同时也是高能耗与高排放的主要环节。据相关统计，烘干固化温度从 180℃减低至 160℃，能耗减少 20%。HTP 系列固化窗口宽，即可满足固化温度 160℃ /15min 的低温烘烤，也可以适应 190℃ /15min 的高温烘烤，烘干规范在整车车身涂装行业领先。

When E-coating, the coating drying link ensures the best performance after coating curing, but also the main link of high energy consumption and high emissions. According to statistics, the drying curing temperature reduced from 180℃ to 160℃ , save energy 20%. The HTP series curing window is wide enough to meet the low temperature drying of 160℃ / 15min, or to accommodate high temperature baking at 190℃ / 15 min, and the drying specification is leading the entire body coating industry.



4

Advantage

较好的匹配性

BETTER MATCHING



SERIES PRODUCTS

HTP 系列产品作为车身底漆，与上涂层的密封胶、原子灰、中涂漆、面漆和清漆具有良好的匹配性，具有优异的层间附着力，优异的涂膜外观以及更便捷的可施工性。

The HTP series of products, as body primers, have a good match with coated sealants, atomic ash, medium paint, finish and varnish , excellent interlayer adhesion , excellent appearance and easier construction.

匹配性测试 Match test

SERIES PRODUCTS



密封胶抗流挂和附着力测试优良
Sealant anti-flow hanging and adhesion testing is excellent



原子灰附着力优良
Atomic ash adhesion is excellent



面漆匹配性良好
Topcoat match is good

5

Advantage

优异的防腐性能

EXCELLENT CORROSION RESISTANCE



SERIES PRODUCTS

HTP 系列产品，开创性的引入新型石墨烯技术。由于石墨烯本身独特的单层片状二维结构，在涂层中能形成迷宫式的物理隔绝层，阻隔氧气和水，再加上自身优异的化学稳定性，故在超高泳透力电泳涂料中引入石墨烯后，相对膜厚更薄涂膜情况下，抗腐蚀性能得到极大的提升。同时，其他各项物理及化学性能指标都位于行业前列。HTP series, pioneering introduction of new graphene technologies. Because graphene itself unique single-layer flaky two-dimensional structure, can form a maze of physical isolation layer, blocking oxygen and water, coupled with its own excellent chemical stability, so introducing graphene in high throwing power E-coating, relative to the film thickness thinner coating situation, corrosion resistance has been greatly improved. At the same time, other physical and chemical performance indicators are in the forefront of the industry.

标准磷化板 1000h 耐中性盐雾测试
Standard Phosphating Plate 1000h Resistant to neutral Salt Spray test



单边腐蚀
Single side corrosion
1.2mm

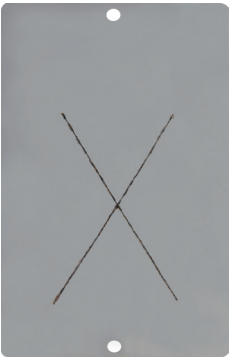


单边腐蚀
Single side corrosion
1.3mm

标准硅烷板 1000h 耐中性盐雾测试
Standard Silane Plate 1000h Resistant to neutral Salt Spray test



单边腐蚀
Single side corrosion
1.6mm



单边腐蚀
Single side corrosion
1.7mm

Experimental Data

实验数据

涂膜性能指标 FILM PERFORMANCE INDEX

项目 PROJECT		指标 INDICATOR
外观 Appearance	正常 / 异常 Normal / abnormal	正常 Normal
耐水性 Water resistance	h, (23±2)°C , ≥	480
耐酸性 Acid resistance	h, (0.1N H ₂ SO ₄), ≥	72
耐碱性 Alkali resistance	h, (0.1N NaOH), ≥	72
耐汽油性 Gasoline resistance	92#, 24h	不起泡、不起皱、不生锈、不脱落 No bubbles, no wrinkles, no rust, no shedding
抗石击 Anti-stoning	level 级 , ≤	2.0
耐湿热性 Moist heat resistance	40°C ×98 %, 480 h	膨胀不明显、无剥离 Expansion is not obvious, no peeling
耐溶剂擦拭 Solvent wipe resistance	丙酮 30 次 Acetone 30 times	无砂质无明显掉色 No falling off no obvious lose colour

Application Area

应用领域

浩力森 HTP 系列产品广泛应用于高端乘用车、商用车及其他类型的车身涂装。同时适合于追求极高泳透力的工业产品。

HTP series products are widely used in high-end passenger cars, commercial vehicles, passenger cars and other card body, construction machinery cab and other large containers or special-shaped workpieces of electrophoretic primer coating; or other industrial product which pursue high throwing power.



Customer Service
服务顾客

浩力森是国内率先进入尖端环保表面材料应用领域的自主品牌之一。目前，电泳涂料、水性涂料、低碳涂料、粉末涂料、新材料等各类产品，广泛应用于汽车及汽车零部件行业，工程机械行业，轨道交通行业，航天海运行业，摩电行业，电梯行业，集装箱行业，家电家居行业，3C 电子行业，重防腐行业等众多领域。

HLS is one of the first domestic brands who is first to enter the field of cutting-edge environmentally friendly surface materials applications. At present, E-coating, water-based coating, low-carbon coating, powder coating, new material etc. products' applications cover automobile and auto parts industry, construction machinery industry, rail transit industry, air and sea transportation, motorcycle and electric vehicle industry, elevator industry, container industry, home appliances industry, home furnishing industry, 3C electronics industry and heavy duty etc.



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All of cooperative customers, in no particular order.

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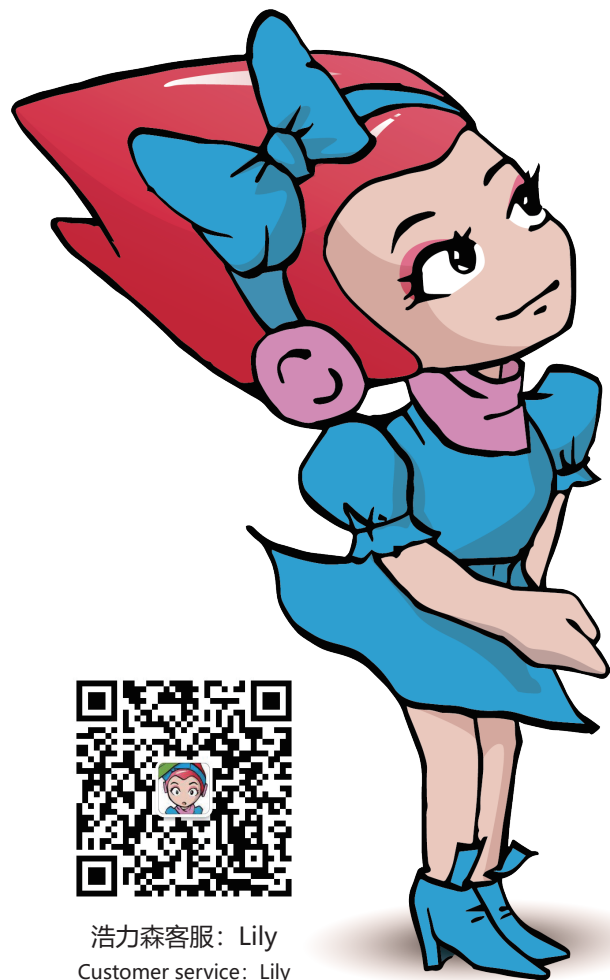
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扫描客服二维码添加微信即可在线与客服人员沟通。
更可参加浩力森不定期推出的各类活动。

Consultation method:

Scan customer service QR code to add WeChat to communicate
with customer service staff online.
Can participate in a variety of activities from time to time HLS.



浩力森客服：Lily
Customer service: Lily