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电泳涂料

Electrophoretic Coating

# 通用工业(黑/灰色)解决方案

## GENERAL INDUSTRY (BLACK/GREY) 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

优异表现，无所不能

EXCELLENT PERFORMANCE, NOTHING IMPOSSIBLE



## 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导电材料表面形成涂膜，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

中国是一个工业制造大国，在这片辽阔的土地上聚集着不计其数的制造加工企业。这些企业规模大小不一，服务领域众多，各自行业的产品涂装要求也有着相通性和不同处。这些不同群体在对待电泳涂装的要求上，崇尚产品能够带来出色的外观感受、高效的生产效率、很好的环境适应性、优秀的单耗表现。这就需要有针对通用工业品特点的产品解决方案。浩力森旗下的 HL-15 / HL-16 / HS-60 系列电泳涂料，是由双酚 A 环氧树脂与单胺或多胺反应的加成物，引入封闭异氰酸酯固化剂，制成可水溶性的改性环氧树脂。树脂经中和后加入颜料分散制成色浆组分；加入表面活性剂、特殊助剂，经乳化后制成乳液组分。产品性能优异，对不同皮膜前处理、不同基材具有较强的适应性，可满足绝大多数行业的综合需求。是在工业领域中使用最为广泛、受众群体最大的通用型阴极涂料。

China is a big industrial manufacturing country, there gathered countless manufacturing and processing enterprises in this vast land. These enterprises vary in size, service areas, product coating requirements of their industries also have common and different. These different groups in the treatment of the requirements of E-coating is that coating products can bring excellent appearance, production efficiency, good environmental adaptability, excellent saving performance. It requires product can offer solutions which are tailored to the characteristics of general industrial products. HLS black HL-15 series, black HL-16 series, gray HS-60 series E-coating, is an additive from BPA epoxy resin and monoamine or polyamine reaction, leading closed isocyanate curing agent in , made into water-soluble modified epoxy resin. Excellent product performance, different pretreatment of the film, different substrates have a strong adaptability to meet the comprehensive needs of most industries. It is the most widely used and largest audience in the industrial field of general purpose cathode coatings.

1  
Advantage

优异的防腐蚀性能  
EXCELLENT CORROSION RESISTANCE

2  
Advantage

优异的板材适应性  
EXCELLENT SHEET ADAPTABILITY

3  
Advantage

优异的面漆结合力  
NICE BINDING FORCES WITH FINISHING COAT

4  
Advantage

优异的外观  
EXCELLENT APPEARANCE



1

Advantage

优异的防腐蚀性能

EXCELLENT CORROSION RESISTANCE



SERIES PRODUCTS

产品的功能要求需要全方位兼顾，出色的防腐性能可以满足 1000 小时的盐雾实验，并确保合格标准；与此同时，产品可确保涂膜的硬度，对于工业品生产的过程而言，工件之间的碰撞、摩擦在所难免，有效的耐磨性和柔韧性会增强对于工件的保护作用，确保涂膜不易损伤。

The functional requirements of the product require all-round consideration, excellent corrosion resistance can withstand 1,000 hours of salt spray experiments, and ensure qualified standards; At the same time, the product ensures the hardness of the paint film, for the industrial production process, the collision between the workpieces, friction is inevitable , so effective wear resistance and flexibility will enhance the protective effect on the workpiece, and ensure the paint film won’ t be easily damaged.

磷化电泳板耐中性盐雾实验 Phosphating electrophoresis board salt spray test

SERIES PRODUCTS



固化温度 180℃ /20min, 膜厚 20μm,1000h, 黑 / 灰产品划叉处单边腐蚀宽度 ≤ 1.5mm。  
180℃ / 20min Film thickness 20μm 1000h, black/grey fork single side corrosion width ≤ 1.5mm.

2

Advantage

优异的板材适应性

EXCELLENT SHEET ADAPTABILITY



SERIES PRODUCTS

电泳过程中，产品可适应不同基材条件，表现出优异的的涂膜外观、整个涂膜能够呈现平整、细腻、光泽和质感。此外，对于涂膜性能而言，也有出色的表现，不会因为基材的变化影响涂膜的各项理化性能，可更为宽泛地让用户予以选择。

During E-coating, the product can adapt to different substrate conditions, showing excellent coating appearance, the entire paint film can be flat, delicate, shiny and textured. In addition, for the performance of the paint film, there is also excellent performance, won’ t affects the physical and chemical properties of the paint film because of the change in the substrate, so that offering more broadly choices to customers.

板材实验 Plate test

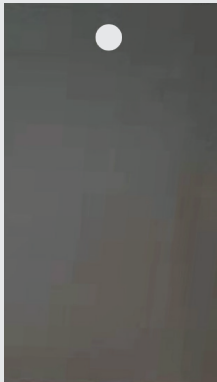
SERIES PRODUCTS

TEST

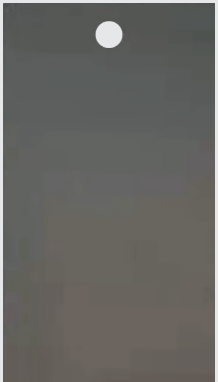
固化温度 180℃ / 20min  
Curing temperature 180℃ / 20min

膜厚 20μm, 1000h  
镀锌板、冷轧板、热轧板流平  
优异，板面无起泡。光泽度优异。

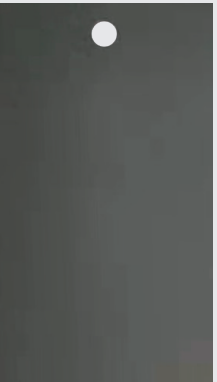
The film thickness was 20μm, 1000h  
Galvanized board, Cold-rolled board,  
Hot-rolled board have excellent  
leveling and no foaming on the  
surface. Excellent gloss.



镀锌板  
Galvanized board



冷轧板  
Cold-rolled board



热轧板  
Hot-rolled board

3  
Advantage

优异的面漆结合力  
NICE BINDING FORCES WITH FINISHING COAT



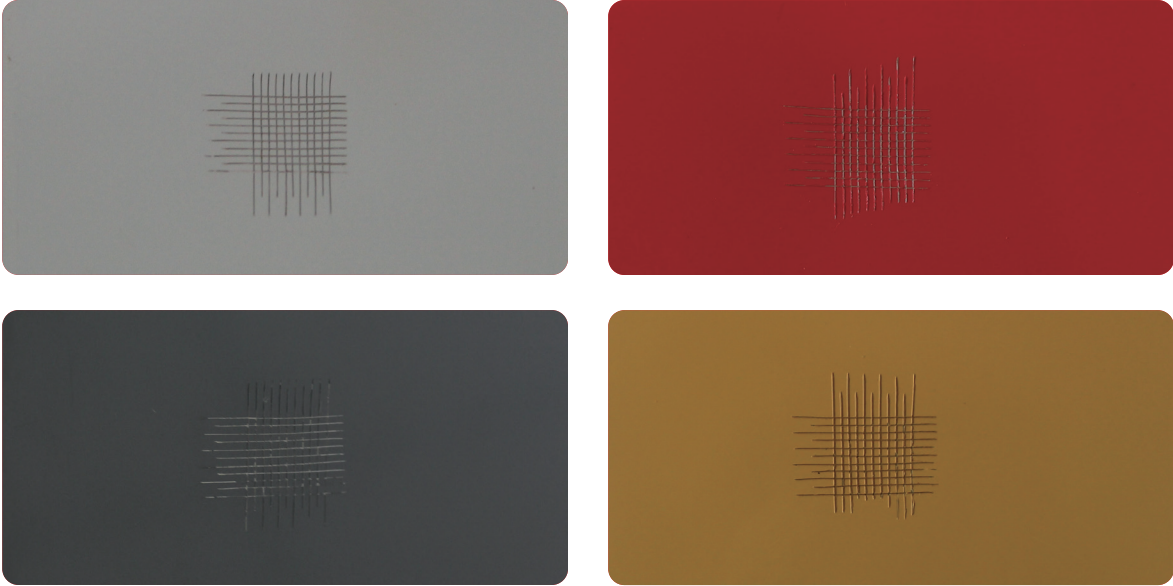
SERIES PRODUCTS

搭配不同型号系列面漆时，表现出优异的结合力效应。通过划格法试验测试，切割边缘完全平滑，面漆无任何剥落，附着力 0 级，为顾客提供了复合涂层施工的质量保证，满足各行业顾客的特殊需要。

When paired with different models of finishing, it shows excellent binding effect. Through the grading test, the cutting edge is completely smooth, the paint does not peel off, adhesion level 0, providing customers with the quality assurance of composite coating construction, to meet the special needs of customers in various industries.

附着力实验 Adhesion test

SERIES PRODUCTS



4  
Advantage

优异的外观  
EXCELLENT APPERANCE

SERIES PRODUCTS

浩力森 HL-15 系列、HL-16 系列、HS-60 系列产品电泳涂装时，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 0.25μm。

HLS HL-15 series, HL-16 series, HS-60 series products E-coating ensure excellent appearance, no water traces, no shrinkage, no pinholes , no orange peel and no cellulite. The film has good leveling , roughness is lower than 0.25μm.

样板外观 Board appearance

SERIES PRODUCTS



粗糙度测试仪测量 0.108μm  
The roughness tester measures 0.108μm



# Experimental Data

## 实验数据

### 涂膜性能指标 FILM PERFORMANCE INDEX

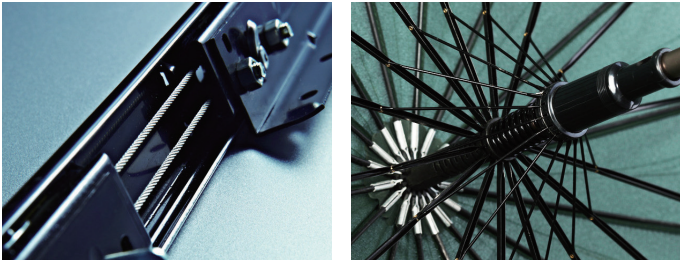
项目 PROJECT		指标 INDICATOR	检验标准 TEST STANDARD
外观 Appearance	正常 / 异常 Normal / abnormal	正常 Normal	目测 Ocular estimate
硬度 Hardness	≥	2H	GB/T 6739
杯突 Cup drawing	mm, ≥	8	GB/T 9753
附着力 Adhesion	Level 级	0	GB/T 9286
柔韧性 Flexibility	mm	1	GB/T 1731
冲击 Impact	kg·cm	50	GB/T 1732
光泽 Gloss	60°	60 - 90	GB/T 9754
耐水性 Water resistance	h, (23±2)°C , ≥	480	GB/T 1733
耐酸性 Acid resistance	h, (0.1N H <sub>2</sub> SO <sub>4</sub> ), ≥	72	GB/T 9274
耐碱性 Alkali resistance	h, (0.1N NaOH), ≥	72	GB/T 9274
耐油性 (汽油、柴油) Oil resistance	h, (23±2)°C , ≥	72	GB/T 1763-79

# Application Area

## 应用领域

黑色通用电泳涂料广泛应用于机械设备及零部件、通用五金、家居等领域；灰色通用电泳涂料广泛应用于工程机械、农用机械、摩托车、电动两轮车、电动三轮车、家电、电梯等行业；产品适合于对于外观、功能、施工环境要求较高的通用型工业。

Black general E-coating is widely used in machinery and equipment and components, general metal, household and etc; Gray general E-coating is widely used in engineering machinery, agricultural machinery, motorcycles, electric two-wheeled vehicles, electric tricycles, home appliances, elevators and etc; Products are suitable for those general industries that have high requirement on the appearance, function, construction environment .



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.



部分合作顾客，排序不分先后。  
All of cooperative customers, in no particular order.



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please consult Holisen customer service staff.



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#### 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

