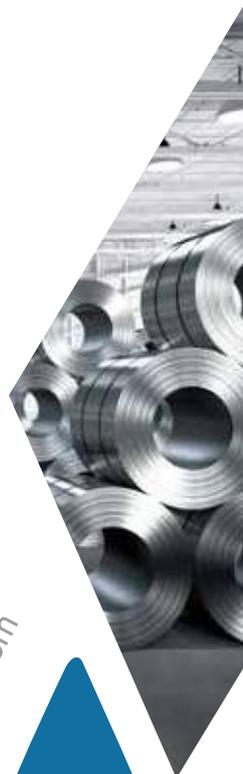


Appliance Steel

家电用钢

www.baosteel.com



CONTENTS

目录

TECHNICAL MANUAL

TECHNICAL MANUAL OF STEEL FOR APPLIANCES



01

生产基地简介
Introduction of production base

03

主要家电用钢选材
Selection of steel for appliances

15

家电用钢产品特性
Product features of steel for appliances

33

主要表面处理产品介绍
Introduction of the surface treatment products

49

合规性声明
Compliance declaration

55

绿色低碳
Green and low-carbon



INTRODUCTION OF PRODUCTION BASE

生产基地简介

宝钢股份冷轧产品主要涉及宝山、青山、东山、梅山四大生产基地、**11**个生产单元、**66**条主产线、**15**个细分品种，产品覆盖酸洗、普冷、热镀、电镀、彩涂、镀锡等所有冷轧品种，具有**2180**万吨高品质冷轧板带材生产规模。

Baosteel's cold-rolled products mainly involve four major production bases in Baoshan, Qingshan, Dongshan, and Meishan, 11 production units, 66 main production lines, and 15 subdivision varieties. The products cover all cold-rolled varieties such as pickling, cold-rolled, hot-dip galvanized, electro-galvanized, prepainted, and tin plate, with a production scale of 21.8 million tons of high-quality cold rolled sheets.



01 宝山基地

宝山基地冷轧1988年投产，拥有2030单元、1420单元、1550单元、1730单元等生产单元，产品包括酸洗、轧硬卷、普冷、热镀GI、热镀GA、热镀铝硅、热镀锌铝镁、电镀锌、彩涂、电镀锡、电镀铬、覆膜铁等品种。宝山基地商品材产销量规模710万吨，广泛应用于汽车、家电、轻工、建筑等行业。

The Baoshan Base Cold Rolling started the manufacture in 1988, with production lines including 2030 line, 1420 line, 1550 line, 1730 line, etc. Its products include pickling, hard rolled coil, cold-rolled, hot-dip galvanized GI, hot-dip galvanized GA, hot-dip aluminum-silicon, hot-dip zinc-aluminum-magnesium, electro-galvanized, prepainted, tin plate, chromium plate, laminated steel, and other varieties. The sales volume of commercial materials in Baoshan Base is 7.1 million tons, widely used in industries such as automobile, household appliances, light industry, and construction.

02 青山基地

青山基地冷轧1978年投产，拥有1700单元、2180单元、1550单元等生产单元，产品包括酸洗、轧硬卷、普冷、热镀GI、热镀GA、热镀锌铝镁、电镀锌、彩涂等品种。青山基地商品材产销量规模500万吨，广泛应用于汽车、家电、轻工、建筑等行业。

The Qingshan Base Cold Rolling started the manufacture in 1978, with 1700 line, 2180 line, 1550 line and other production lines. Its products include pickling, hard rolled coil, cold-rolled, hot-dip galvanized GI, hot-dip galvanized GA, hot-dip zinc-aluminum-magnesium, electro-galvanized, prepainted, and other varieties. The sales volume of commercial materials in Qingshan Base is 5 million tons, widely used in industries such as automobile, household appliances, light industry, and construction.



03 东山基地

东山基地冷轧2016年投产, 拥有2030单元、1750单元、1550单元等生产单元, 产品包括酸洗、轧硬卷、普冷、热镀GI、热镀GA、热镀锌铝镁、彩涂等品种。东山基地商品材产销量规模710万吨, 广泛应用于汽车、家电、轻工、建筑等行业。

The Dongshan Base Cold Rolling started the manufacture in 2016, with production lines including 2030 line, 1750 line, 1550 line, and other production lines. The products include pickling, hard rolled coil, cold-rolled, hot-dip galvanized GI, hot-dip galvanized GA, hot-dip zinc-aluminum-magnesium, prepainted, and other varieties. The sales volume of commodity materials in Dongshan Base is 7.1 million tons, widely used in industries such as automobile, household appliances, light industry, and construction.

04 梅山基地

梅山基地冷轧2009年投产, 拥有1420单元等生产单元, 产品包括酸洗、轧硬卷、普冷、热镀铝锌、彩涂、电镀锡等品种。梅山基地商品材产销量规模260万吨, 广泛应用于家电、轻工、建筑等行业。

The Meishan Base Cold Rolling started the manufacture in 2009, with 1420 line and other production lines. The products include pickling, hard rolled coil, cold-rolled, hot-dip aluminum-zinc, prepainted, tin plate, and other varieties. The sales volume of commercial materials in Meishan Base is 2.6 million tons, widely used in industries such as household appliances, light industry, and construction.

SELECTION OF STEEL FOR APPLIANCES

主要家电用钢选材

- 空调 Air conditioner
- 冰箱 Refrigerator
- 洗衣机 Washing machine
- 影视 Video
- OA OA
- 电气柜 Electrical cabinets
- 微电机壳 Micromotor shell
- 电池壳 Battery shell
- 搪瓷钢 Vitreous enamelling





AIR CONDITIONER

空调



面板
Front panel



后盖板
Back cover



上盖板
Top cover



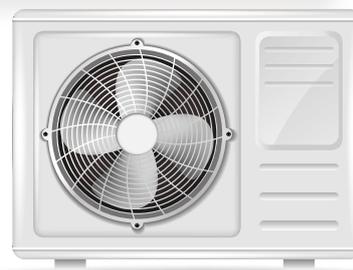
底板
Bottom plate



阀座板
Mounting plate



蒸发器支撑板
Vaporizer bracket plate



零部件 Parts	普冷 Cold-rolled steel	热镀锌 Hot-dip galvanized	锌铁合金 Galvannealed	电镀锌 Electro- galvanized	镀铝锌 Hot-dip Al-Zn alloy coated	中铝锌铝镁 BaoXM®
面板 Front panel		✓	✓			
底板 Bottom plate		✓	✓		✓	✓
上盖板 Top cover		✓	✓			
阀座板 Mounting plate		✓				✓
挂钩 Hanger		✓				✓
下挡板 Bottom plate		✓				✓
蒸发器支撑板 Vaporizer bracket plate		✓			✓	✓
加热器支架 Heater bracket		✓				✓

内部件基本采用热镀锌产品冲压后直接使用；外部件采用锌铁合金或者热镀锌产品成型后喷涂使用；镀铝锌用于使用时需耐高温的零部件生产；部分用户直接采用中铝锌铝镁产品制作外部件。

Inner parts basically use hot-dip galvanized products for direct use after drawing; outer parts use galvannealed or hot-dip galvanized products for painting after forming; hot-dip Al-Zn alloy coated products are used for the production of the parts which need to be high temperature resistant when used; some users directly use BaoXM® to produce outer parts.

REFRIGERATOR

冰箱



零部件 Parts	普冷 Cold-rolled steel	热镀锌 Hot-dip galvanized	锌铁合金 Galvannealed	电镀锌 Electro-galvanized	镀铝锌 Hot-dip Al-Zn alloy coated	中铝锌铝镁 BaoXM®
门板 Door panel	✓	✓		✓		
侧板 Side plate	✓					
压缩机底板 Baseplate for compressor		✓			✓	✓
桥板 Bridge plate		✓				
后盖板 Back cover		✓			✓	
L型加强条 L-shape reinforcing bar	✓	✓			✓	

冰箱零件材料以热镀锌产品为主，部分用户会选择镀铝锌和普冷板。

Parts of the refrigerator mainly use hot-dip galvanized products; some users will choose hot-dip Al-Zn alloy coated and cold-rolled plate.

WASHING MACHINE

洗衣机



门板
Casing



底板
Foundation plate



封门板
Sealing plate



固定板
Fixed plate



箱角
Case corner



离合器
Clutch



箱体连接板
Case junction panel



零部件 Parts	普冷 Cold-rolled steel	热镀锌 Hot-dip galvanized	锌铁合金 Galvannealed	电镀锌 Electro- galvanized	镀铝锌 Hot-dip Al-Zn alloy coated	中铝锌铝镁 BaoXM®
门板 Casing	✓	✓	✓	✓		
封门板 Sealing plate	✓	✓	✓	✓		
箱体连接板 Case junction panel		✓				
底板 Foundation plate		✓				✓
箱角 Case corner		✓				
固定板 Fixed plate		✓				
离合器 Clutch		✓				

洗衣机零件材料以热镀锌产品为主，部分用户会选择锌铁合金和普冷板。

Parts of the washing machine mainly use hot-dip galvanized products; some users will choose galvannealed and cold-rolled plate.

VIDEO PRODUCT

影视产品



模组后背板
Module



模组(框)
Module



各类结构件
Various types of brackets

零部件 Parts	普冷 Cold-rolled steel	热镀锌 Hot-dip galvanized	锌铁合金 Galvannealed	电镀锌 Electro- galvanized	镀铝锌 Hot-dip Al-Zn alloy coated	中铝锌铝镁 BaoXM®
模组 Module		✓		✓	✓	
后盖 Rear cover		✓		✓	✓	
各类结构件 Various types of brackets	✓	✓		✓	✓	

模组用钢（背板和边框）主要为电镀锌钢板和镀铝锌钢板

The module steel (backplate and frame) are mainly made of electro-galvanized steel and hot-dip Al-Zn alloy coated.

OA PRODUCT

OA产品

打印机

Printer



底板
Foundation



结构件
Bracket

零部件 Parts	普冷 Cold-rolled steel	热镀锌 Hot-dip galvanized	锌铁合金 Galvannealed	电镀锌 Electro- galvanized	镀铝锌 Hot-dip Al-Zn alloy coated	中铝锌铝镁 BaoXM®
底板 Foundation				✓		
结构件 Bracket				✓		

复印机、打印机内置框架件均采用电镀锌钢板

The inner frame pieces of copiers & printers are mainly made of electro-galvanized steel.

复印机

Duplicating machine



结构件
Bracket



底板
Foundation

零部件 Parts	普冷 Cold-rolled steel	热镀锌 Hot-dip galvanized	锌铁合金 Galvannealed	电镀锌 Electro- galvanized	镀铝锌 Hot-dip Al-Zn alloy coated	中铝锌铝镁 BaoXM®
底板 Foundation				✓		
结构件 Bracket				✓		

复印机、打印机内置框架件均采用电镀锌钢板

The inner frame pieces of copiers & printers are mainly made of electro-galvanized steel.

ELECTRICAL CABINETS

电气柜



面板
Front panel



机盒
Box



零部件 Parts	普冷 Cold-rolled steel	热镀锌 Hot-dip galvanized	锌铁合金 Galvannealed	电镀锌 Electro- galvanized	镀铝锌 Hot-dip Al-Zn alloy coated	中铝锌铝镁 BaoXM®
机盒上下盖 Upper and lower covers of machine case		✓		✓	✓	✓
机箱面板 Case panel		✓			✓	✓
机箱骨架 Case framework	✓	✓			✓	✓
机柜面板 Cabinet panel	✓	✓			✓	✓
机柜骨架 Cabinet framework	✓	✓			✓	✓

以热镀锌材料裸用或喷涂使用为主，部分产品会使用普冷板、电镀锌和中铝锌铝镁。

The parts mainly use hot-dip galvanized materials for direct use or for use after spraying; some users will choose Cold-rolled plate, electro-galvanized and BaoXM® products.

MICROMOTOR SHELL

微电机壳



零部件 Parts	普冷 Cold-rolled steel	热镀锌 Hot-dip galvanized	锌铁合金 Galvannealed	电镀锌 Electro- galvanized	镀铝锌 Hot-dip Al-Zn alloy coated	中铝锌铝镁 BaoXM®
钢壳 Steel shell				✓		✓

微电机壳以电镀锌材料为主，部分用户会使用中铝锌铝镁。

The micromotor shell mainly use electro-galvanized materials; some users may will choose BaoXM® products.

BATTERY SHELL

电池壳



零部件 Parts	普冷 Cold-rolled steel	热镀锌 Hot-dip galvanized	锌铁合金 Galvannealed	电镀锌 Electro- galvanized	镀铝锌 Hot-dip Al-Zn alloy coated	中铝锌铝镁 BaoXM®
电池钢壳 Battery shell	✓					

电池钢壳均为电池钢冲制而成

Battery shell are punched by battery steel.

VITREOUS ENAMELLING

搪瓷钢



零部件 Parts	普冷 Cold-rolled steel	热镀锌 Hot-dip galvanized	锌铁合金 Galvannealed	电镀锌 Electro- galvanized	镀铝锌 Hot-dip Al-Zn alloy coated	中铝锌铝镁 BaoXM®
搪瓷钢产品 vitreous enamelling steel products	✓					

烤炉内胆、托盘和边框全部为搪瓷钢；灶台的台面为搪瓷钢生产。

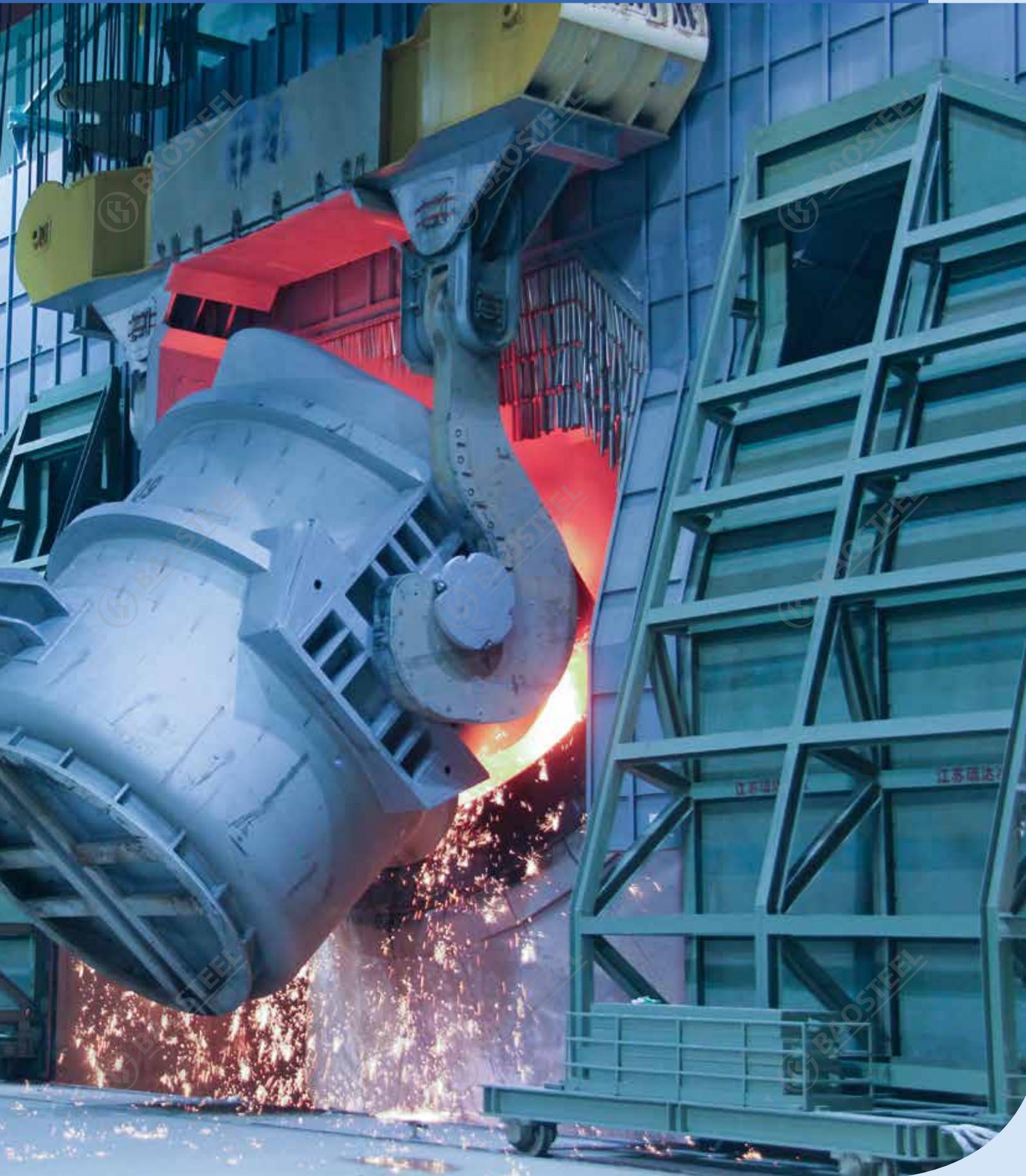
Oven liner, tray and border all use vitreous enamelling steel; the table board of the hearth is made from vitreous enamelling steel.

PRODUCT FEATURES OF STEEL FOR APPLIANCES

家电用钢产品特性

- 冷轧产品
Cold-rolled steel sheet
- 热镀锌产品
Hot-dip galvanized steel sheet
- 电镀锌产品
Electro-galvanized steel sheet
- 镀铝锌产品
Hot-dip Al-Zn alloy coated steel sheet





COLD-ROLLED STEEL SHEET

冷轧产品

■ 冲压系列用钢牌号及用途简介(宝钢企业标准Q/BQB 408-2023)

Introduction of grades and uses of steel for drawing series (Baosteel enterprise standard Q/BQB 408-2023)

材料类别 Material category	标准及牌号 Standard and grades	宝钢企业标准 Baosteel enterprise standards		相当国际标准 Equivalent foreign standard		说明 Description
		标准号 Standard number	牌号 Grade	标准号 Standard number	牌号 Grade	
一般用 General use		Q/BQB408-2023	SPCC DC01 BLC	JIS G3141 EN 10130 JFS A 2001	SPCC DC01 JSC270C	冰箱等家电外壳、油桶、钢家具等一般成形加工用 Steel for general shaping and processing of refrigerator and other household appliances shell, oil drums, steel furniture
冲压级 Used for drawing		Q/BQB408-2023	SPCD DC03 BLD	JIS G3141 EN 10130 JFS A 2001	SPCD DC03 JSC270D	家电冲压成形加工用钢 Steel for the drawing and shaping of household appliances
深冲用 Used for deep drawing		Q/BQB408-2023	SPCE DC04 BUSD	JIS G3141 EN 10130 JFS A 2001	SPCE DC04 JSC270E	深冲压成形加工用钢 Steel for deep drawing and shaping process
特深冲用 Used for special deep drawing		Q/BQB408-2023	SPCF(SPCEN) DC05 BUFD	JIS G3141 EN 10130 JFS A 2001	SPCF DC05 JSC270F	特深冲压成形加工用钢 Steel for special deep drawing and shaping process
超深冲用 Extra deep drawing		Q/BQB408-2023	SPCG DC06 BSUFD	JIS G3141 EN 10130 JFS A 2001	SPCG DC06 JSC260G	超深冲压成形加工用钢。 Steel for special deep drawing and shaping process
特超深冲用 Used for special extra-deep drawing		Q/BQB408-2023	DC07	EN 10130	DC07	深冲性能特别优良加工用钢 Steel with particularly good deep drawing properties

■ 冲压系列用钢力学性能

Mechanical properties of steel drawing series

牌号 Grade	屈服强度 ^a MPa Yield strength	抗拉强度 MPa Tensile strength 不小于 Not less than	断后伸长率 ^b Elongation % A80mm 不小于 Not less than						$r_{90}^{b,c}$	$n_{90}^{b,c}$
			公称厚度 mm Nominal thickness							
			<0.30	0.30~<0.50	0.50~<0.70	0.70~<1.0	1.0~<1.6	≥1.6		
DC01 ^d	140~260	270~410	24	26	28	30	32	34	—	—
DC03	140~220	270~370	—	30	32	34	35	36	1.3	—
DC04	130~200	270~350	—	34	36	38	39	40	1.6	0.18
DC05	120~180	270~330	—	35	38	40	40	41	1.9	0.2
DC06	110~170	260~330	—	37	39	41	42	43	2.1	0.22
DC07	100~150	250~310	—	40	42	44			2.5	0.23

a. 无明显屈服时采用 $R_{p0.2}$ ，否则采用 R_{eL} 。当厚度大于0.50mm且不大于0.70mm时，屈服强度规定值允许增加20MPa；当厚度不大于0.50mm时，屈服强度规定值允许增加40MPa。

b. 试样为GB/T 228中的P6试样，试样方向为横向。

c. r_{90} 值和 n_{90} 值的要求仅适用于厚度不小于0.50mm的产品。当厚度大于2.0mm时， r_{90} 值允许降低0.2，当产品厚度>2.3~2.5mm时， r_{90} 值允许降低0.4，当产品厚度>2.5mm， r_{90} 不做要求。

d. DC01的屈服强度上限值仅适用于产品制造完成之日起的8天内。

a. When there is no significant yield, $R_{p0.2}$ should be used; otherwise R_{eL} should be used. When the thickness is more than 0.50mm and not more than 0.70mm, the specified value of the yield strength is allowed to increase 20MPa; when the thickness is not more than 0.50mm, the specified value of the yield strength is allowed to increase 40MPa.

b. The sample is the P6 sample in GB/T 228 and the sample direction is transverse.

c. The requirements of r_{90} and n_{90} values apply only to products with the thickness not less than 0.50mm. When the thickness is more than 2.0mm, the value of r_{90} is allowed to lower 0.2. When the thickness is > 2.3~2.5mm, the value of r_{90} is allowed to lower 0.4. When the thickness is more than 2.5mm, the value of r_{90} is not required.

d. The upper limit value of DC01 yield strength applies only to products within 8 days since the manufacturing date.

牌号 Grade	屈服强度 ^{a,b,c} MPa Yield strength	抗拉强度 MPa Tensile strength 不小于 Not less than	断后伸长率 ^c Elongation % (L0=50mm,b=25mm) 不小于 Not less than							r ^{c,d,e} 不小于	
			公称厚度 mm Nominal thickness							公称厚度 mm Nominal thickness	
			<0.25	0.25~<0.30	0.30~<0.40	0.40~<0.60	0.60~<1.0	1.0~<1.6	≥1.6	0.5~1.0	>1.0~1.6
SPCC	—	270	25	28	31	34	36	37	38	—	—
SPCD	140~220	270	27	30	33	36	38	39	40	—	—
SPCE	130~200	270	29	32	35	38	40	41	42	—	—
SPCF	120~190	270	—	—	37	40	42	43	44	—	—
SPCG	110~180	270	—	—	—	42	44	45	46	1.5	1.4

a. 当屈服现象不明显时采用 $R_{p0.2}$ ，否则采用 R_{eL} 。除 SPCC 牌号外，当厚度大于0.40mm且不大于0.60mm时，屈服强度的规定值允许增加20MPa；

b. 当厚度不大于0.40mm时，屈服强度的规定值允许增加40MPa。

c. 试样为GB/T 228中的P14试样，试样方向为纵向。

d. 厚度<0.5mm和厚度>1.6mm时，r值不做要求。

$$e. \bar{r} = (r_{90} + 2r_{45} + r_0) / 4$$

a. When there is no significant yield, $R_{p0.2}$ should be used; otherwise R_{eL} should be used.

b. Except for SPCC, When the thickness is more than 0.40mm and not more than 0.60mm, the specified value of the yield strength is allowed to increase 20MPa; when the thickness is not more than 0.40mm, the specified value of the yield strength is allowed to increase 40MPa.

c. The sample is the P14 sample in GB/T 228 and the sample direction is longitudinal.

d. When the thickness is less than 0.5mm and more than 1.6mm, r values are not required.

$$e. \bar{r} = (r_{90} + 2r_{45} + r_0) / 4$$

牌号 Grade	屈服强度 ^a MPa Yield strength	抗拉强度 MPa Tensile strength 不小于 Not less than	断后伸长率 ^b Elongation % (L ₀ =50mm, b=25mm) 不小于 Not less than				r ₉₀ ^{b, c}	n ₉₀ ^{b, c}
			公称厚度 mm Nominal thickness					
			<0.60	0.60~<1.0	1.0~<1.6	≥1.6		
BLC	150~260	270	36	38	40	42	—	—
BLD	130~220	270	39	41	43	45	1.5	0.18
BUSD	120~200	260	41	43	45	47	1.7	0.20
BUFD	120~180	250	43	45	47	49	2.0	0.21
BSUFD	110~170	250	45	47	49	51	2.2	0.22

a. 当屈服现象不明显时采用R_{P0.2}，否则采用R_{eL}。

b. 试样为GB/T 228中的P14试样，试样方向为横向。

c. r₉₀和n₉₀的要求仅适用于厚度不小于0.50mm的产品。当厚度大于2.0mm时，r₉₀值允许降低0.2。
当产品厚度>2.5 mm 时，r₉₀值不做要求。

a. When there is no significant yield, R_{P0.2} should be used; otherwise R_{eL} should be used.

b. The sample is the P14 sample in GB/T 228 and the sample direction is transverse.

c. The requirements of r₉₀ and n₉₀ values apply only to products with the thickness not less than 0.50mm. When the thickness is more than 2.0mm, the value of r₉₀ is allowed to lower 0.2. When the thickness is more than 2.5mm, the value of r₉₀ is not required.

■ 冲压系列用钢可供范围

Available range of steel for drawing series

项目 Item	公称尺寸 mm Nominal size
厚度 Thickness	0.17-3.5
宽度 Width	800-2040
钢板 长度 Steel plate Length	1000-6000
钢带 卷内径 Steel strip Coil inside diamete	508、610

HOT-DIP GALVANIZED STEEL SHEET

热镀锌产品

■ 热镀锌牌号介绍(宝钢企业标准Q/BQB 420-2023)

Introduction of hot-dip galvanized grades (Baosteel enterprise standard Q/BQB 420-2023)

牌号 Grade	特点 Feature
DC51D+Z, DC51D+XM, DC51D+ZF, DD51D+Z, DD51D+ZF	低碳钢 Low carbon steel
DC52D+Z, DC52D+XM, DC52D+ZF	低碳钢或无间隙原子钢 Low carbon steel or interstitial free steel
DC53D+Z, DC53D+XM, DC53D+ZF	
DC54D+Z, DC54D+XM, DC54D+ZF	无间隙原子钢 Interstitial free steel
DC56D+Z, DC56D+XM, DC56D+ZF	
DC57D+Z, DC57D+XM, DC57D+ZF	
S220GD+Z, S220GD+XM, S220GD+ZF	碳素结构钢或低合金钢 Carbon structural steel or low alloy steel
S250GD+Z, S250GD+XM, S250GD+ZF	
S280GD+Z, S280GD+XM, S280GD+ZF	
S320GD+Z, S320GD+XM, S320GD+ZF	
S350GD+Z, S350GD+XM, S350GD+ZF	
S550GD+Z, S550GD+XM	
HC180YD+Z, HC180YD+ZF	高强度无间隙原子钢或碳锰钢 High strength interstitial free steel or carbon manganese steel
HC220YD+Z, HC220YD+ZF	
B240P1D+Z, B240P1D+ZF	
B260LYD+Z, B260LYD+ZF	
HC260YD+Z, HC260YD+ZF	
HC180BD+Z, HC180BD+ZF	烘烤硬化钢 Bake hardening steel
HC220BD+Z, HC220BD+ZF	
HC260BD+Z, HC260BD+ZF	
HC300BD+Z, HC300BD+ZF	
HC260LAD+Z, HC260LAD+ZF, HD260LAD+Z	低合金高强度钢 High strength low alloy steel
HC300LAD+Z, HC300LAD+ZF, HC300LAD+XM, HD300LAD+Z	
HC340LAD+Z, HC340LAD+ZF, HC340LAD+XM, HD340LAD+Z	
HC380LAD+Z, HC380LAD+ZF, HC380LAD+XM, HD380LAD+Z	
HC420LAD+Z, HC420LAD+ZF, HC420LAD+XM, HD410LAD+Z	
HC460LAD+Z, HC460LAD+ZF, HC460LAD+XM, HD460LAD+Z	
HC500LAD+Z, HC500LAD+ZF, HC550LAD+Z, HD500LAD+Z	

注：DD51D+Z、DD51D+ZF、HD260LAD+Z、HD300LAD+Z、HD340LAD+Z、HD380LAD+Z、HD410LAD+Z、HD460LAD+Z、HD500LAD+Z、HD550LAD+Z、HD660/760CPD+Z、HD720/950CPD+Z为热轧酸洗基板，其余均为冷轧基板；后缀XM的为中铝锌铝镁产品。

牌号 Grade	特点 Feature
HD500LAD+Z, HD550LAD+Z	低合金高强度钢 High strength low alloy steel
B410LAD+Z, B410LAD+ZF,	
HC250/450DPD+Z, HC250/450DPD+ZF	双相钢 Dual-phase steel
HC300/500DPD+Z, HC300/500DPD+ZF	
HC340/590DPD+Z, HC340/590DPD+ZF, HC340/590DPD+XM	
B340/590DPD+Z, B340/590DPD+ZF	
HC420/780DPD+Z, HC420/780DPD+ZF	
HC500/780DPD+Z, HC500/780DPD+ZF	
HC550/980DPD+Z, HC550/980DPD+ZF	
HC650/980DPD+Z, HC650/980DPD+ZF	
HC700/980DPD+Z, HC700/980DPD+ZF	
HC820/1180DPD+Z, HC820/1180DPD+ZF	
HC1000/1470DPD+ZF	
HC340/590DHD+Z	
HC420/780DHD+Z	
HC500/780DHD+Z	
HC550/980DHD+Z	
HC700/980DHD+Z	
HC380/590TRD+Z, HC380/590TRD+ZF	相变诱导塑性钢 Transformation induced plasticity steels
HC400/690TRD+Z, HC400/690TRD+ZF	
HC420/780TRD+Z, HC420/780TRD+ZF	
HC570/780CPD+Z, HD660/760CPD+Z	复相钢 Complex phase steels
HC780/980CPD+Z, HD720/950CPD+Z	
HC600/980QPD+Z, HC600/980QPD+ZF	淬火延性钢 Quenching and partitioning Steel
HC600/980QP-ELD+Z, HC600/980QP-ELD+ZF	
HC820/1180QPD+Z, HC820/1180QPD+ZF	
HC820/1180QP-ELD+Z, HC820/1180QP-ELD+ZF	

Note: DD51D+Z、DD51D+ZF、HD260LAD+Z、HD300LAD+Z、HD340LAD+Z、HD380LAD+Z、HD410LAD+Z、HD460LAD+Z、HD500LAD+Z、HD550LAD+Z、HD660/760CPD+Z、HD720/950CPD+Z refer to basal plate for hot rolled pickling sheet, and others refer to basal plate for cold rolling; The suffix XM refers to Zn-6%Al-3%Mg alloy galvanized steel sheet.

■ 热镀锌镀层种类及后处理方式

Categories and treatment of hot-dip galvanized coating

分类项目 Classification	类别 Category	代号 Code	
镀层种类 Coating type	纯锌镀层	Pure zinc coating	Z
	锌铁合金镀层	Zinc-iron alloy coating	ZF
	锌铝镁合金镀层	Zinc-aluminum-magnesium alloy coating	XM
镀层重量表示方法 ^{a,b} Expressive methods of coating weight	等厚镀层A (g/m ²)/B (g/m ²) (A=B) Uniform thickness		A/B
	差厚镀层A (g/m ²)/B (g/m ²) (A≠B) Different thickness coating		
表面结构 Surface structure	纯锌镀层(Z)	Pure zinc coating	M
	锌铁合金镀层(ZF)	Zinc-iron alloy coating	R
	锌铝镁合金镀层(XM)	Zinc-aluminum-magnesium alloy coating(XM)	M
表面处理 Surface treatment	铬酸钝化	Chromic acid passivation	C
	铬酸钝化+涂油	Chromic acid passivation + oiling	CO
	无铬钝化(有机)	Chrome-free passivation	C5
	无铬钝化(有机)+涂油	Chrome-free passivation + oiling	CO5
	无铬耐指纹	Chrome-free fingerprint resistant	N5
	自润滑	Self-lubricating	SL
	易加工自润滑	Easy workability self-lubrication	EW
	无机固体润滑	Inorganic solid lubrication	T
	涂油	Oiling	O
	不处理	Without treatment	U
	无铬高导电耐指纹	Chrome-free high conductive fingerprint resistant	NE
	无铬自润滑	Chrome-free self-lubricating	SL2
	无铬无机钝化	Chrome-free inorganic passivation	IC
	无铬无机钝化+涂油	Chrome-free inorganic passivation + oiling	ICO
	无机自润滑	Chrome-free self-lubricating	SW

- a. A为钢带的外表面镀层重量或钢板的上表面镀层重量, 单位为g/m²;
B为钢带的内表面镀层重量或钢板的下表面镀层重量, 单位为g/m²。
b. 经供需双方协商, 等厚镀层代号可以双面重量之和表示。例如Z250, ZF90等。

- a. A is the coating weight on the outer surface of steel strip or the coating weight on the upper surface of steel plate, with the unit in g/m²;
B is the coating weight on the inner surface of steel strip or the coating weight on the lower surface of steel plate, with the unit in g/m².
b. By the agreement of both sides of supply and demand, the code of the coating with uniform thickness can be expressed with the sum of the weight in both sides, such as Z250, ZF90, etc.

■ 热镀锌镀层范围及推荐公称镀层重量

Hot-dip galvanized coating range and recommended nominal coating weight

镀层形式 Coating form	适用的表面结构 Applicable surface structure	下列镀层种类的镀层重量范围 ^a g/m ² (A/B) Range of coating weight of the following coating types (A/B)			
		纯锌镀层(Z) Pure zinc coating	锌铁合金镀层(ZF) Zinc-iron alloy coating	锌铝镁合金镀层(XM) Zinc-aluminum-magnesium alloy coating	
等厚 Uniform thickness	X、M、R	30/30~225/225	30/30~90/90	30/30~225/225	50/50~225/225
差厚 ^b Different thickness	X、M	30~150(每面)	-	30~150(每面)	30~150(每面)

a 50 g/m² 镀层(纯锌和锌铁合金)重量约等于镀层厚度为7.1μm, 50 g/m² 镀层(锌铝镁合金)重量约等于镀层厚度为8.3μm。
b 对于差厚镀层, 差厚比最大1:3。

a. The weight of 50 g/m² of coating (pure zinc and zinc-iron alloy) is equal to about 7.1μm,the weight of 50 g/m² of coating (Zinc-aluminum-magnesium alloy coating) is equal to about 8.3μm.
b. For the coating with different thickness, the maximum ratio of different thickness is 1: 3.

镀层种类 Coating type	镀层形式 Coating form	推荐的镀层重量 g/m ² Recommended coating weight	镀层代号 Coating code
Z	等厚 Uniform thickness	40/40	40/40
		50/50	50/50
		70/70	70/70
		100/100	100/100
		125/125	125/125
		140/140	140/140
		175/175	175/175
ZF	等厚 Uniform thickness	225/225	225/225
		30/30	30/30
		45/45	45/45
		50/50	50/50
XM	等厚 Uniform thickness	60/60	60/60
		50/50	50/50
		70/70	70/70
		100/100	100/100
		125/125	125/125
		140/140	140/140
Z、XM	差厚 Different thickness	175/175	175/175
		225/225	225/225
		50/100	50/100
		70/140	70/140

■ 热镀锌镀层重量

Hot-dip galvanized coating range

镀层种类 Coating type	镀层形式 Coating form	镀层代号 Coating code	镀层重量 g/m ² 不小于 Coating weight Not less than	
			单面三点平均值 Average value of three points in the single side	单面单点值 single spot per side
Z、ZF、XM	等厚镀层 Coating with uniform thickness	A/B ^a	A/B ^a	(0.85×A)/(0.85×B)
Z、XM	差厚镀层 Coating with different thickness			

a. A、B为钢板及钢带的公称镀层重量(g/m²)。

a. A and B are the nominal coating weight of steel plate and steel strip (g/m²).



■ 热镀锌可供范围

Available range of hot-dip galvanized products

项目 Item		公称尺寸 mm Nominal
厚度 Thickness	冷轧基板 Cold rolled base metal	0.23~3.00
	热轧酸洗基板 Hot rolled pickling base metal	1.50~4.00
宽度 Width	钢带 Steel strip	400~2070
长度 Length	钢板 Steel plate	1000~6000
钢带(卷)内径 Inside diameter of steel strip (coil)		610/508



ELECTRO-GALVANIZED STEEL SHEET

电镀锌产品

■ 电镀锌牌号介绍(宝钢企业标准Q/BQB 430-2023)

Introduction of electro-galvanized grades (Baosteel enterprise standard Q/BQB 430-2023)

电镀锌材料类别 Categories of electro-galvanized material	标准及牌号 Standards and grades	
	牌号 Grade	标准 Standard
一般用 General use	SECC BLCE+Z DC01E+Z	Q/BQB430-2023
冲压用 Used for drawing	SECD BLDE+Z DC03E+Z	
深冲用 Used for deep drawing	SECE BUSDE+Z DC04E+Z	
特深冲用 Used for special deep drawing	SECF DC05E+Z BUFDE+Z	
超深冲用 Used for extra deep drawing	BSUFDE+Z DC06E+Z	
特超深冲用 Used for special extra deep drawing	DC07E+Z	

■ 电镀锌镀层种类及后处理方式

Categories and treatment of electro-galvanized coating

分类项目 Classification	类别 Category	代号 Code
镀层种类 Coating type	纯锌镀层 Pure zinc coating	Z
镀层重量表示方法 ^{a, b} Expressive methods of coating weight	等厚镀层A (g/m ²)/B (g/m ²) (A=B)	Equal thickness coating A (g/m ²)/B (g/m ²) (A=B)
	差厚镀层A (g/m ²)/B (g/m ²) (A≠B)	Differential thickness coating A (g/m ²)/B (g/m ²) (A≠B)
	单面镀层A(g/m ²)/B (g/m ²)(A=0或B=0)	Single side coating A (g/m ²)/B (g/m ²) (A=0 or B=0)
镀层表面处理 Coating surface treatment	无铬钝化	Chromium-free passivation
	无铬钝化+涂油	Chromium-free passivation + Oiling
	单面无铬钝化+涂油	Single-side chromium-free passivation, + Oiling
	磷化	Phosphating
	磷化+涂油	Phosphating + Oiling
	磷化(含无铬封闭)	Phosphating (including chromium-free sealing)
	磷化(含无铬封闭)+涂油	Phosphating (including chromium-free sealing) + Oiling
	涂油	Oiling
	不处理	Unprocessed
	无铬耐指纹	Chromium-free fingerprint resistant
	高导电高耐蚀型无铬耐指纹	Chromium-free fingerprint resistant with high conductive and corrosion resistance
	优良导电型无铬耐指纹	Chromium-free fingerprint resistant with good conductivity
	耐高温干燥无铬耐指纹	Chromium-free fingerprint resistant with high temperature and drying
	高耐腐蚀型无铬耐指纹	Chromium-free fingerprint resistant with high corrosion resistance
	高散热型无铬耐指纹	Chromium-free fingerprint resistant with superior heat dissipation
	油箱专用无铬钝化	Fuel tank exclusive applied chromium-free passivation
无机自润滑	Inorganic self-lubrication	
有机自润滑	Organic self-lubrication	

A为钢带的外表面镀层重量或钢板的上表面镀层重量，单位为g/m²；
B为钢带的内表面镀层重量或钢板的下表面镀层重量，单位为g/m²。

A is the coating weight on the outer surface of steel strip or the coating weight on the upper surface of steel plate, with the unit in g/m²;
B is the coating weight on the inner surface of steel strip or the coating weight on the lower surface of steel plate, with the unit in g/m².

■ 电镀锌镀层范围及推荐公称镀层重量

Electro-galvanized coating range and recommended nominal coating weight

镀层形式 Coating form	镀层种类 Coating type
等厚 Uniform thickness	3~90
差厚 Different thickness	3~90, 两面差值最大值为40 The maximum difference value between both sides is 40.
单面 Single side	10~110

注：50g/m²纯锌镀层重量约等于7.1μm。

Note: The weight of 50g/m² of pure zinc coating is equal to about 7.1μm.

镀层形式 Coating form	镀层种类 Coating type
等厚 Uniform thickness	10/10, 20/20, 30/30, 40/40, 50/50, 70/70, 90/90
差厚 Different thickness	10/30, 20/40, 30/50, 40/60, 50/70, 60/90
单面 Single side	10/0, 20/0, 30/0, 40/0, 50/0, 60/0, 70/0, 80/0, 90/0, 100/0, 110/0

■ 电镀锌可供范围

Available range of electro-galvanized products

项目 Item		公称尺寸 mm Nominal
厚度 Thickness		0.4~2.0
宽度 Width		800~1830
长度 Length	钢板 Steel plate	1000~6000
	钢带 Steel strip	卷内径 Coil inside diameter 508、610



HOT-DIP AL-ZN ALLOY COATED STEEL SHEET

镀铝锌产品

■ 镀铝锌牌号介绍(宝钢企业标准Q/BQB 425-2023)

Introduction of hot-dip Al-Zn alloy coated grades (Baosteel enterprise standard Q/BQB 425-2023)

牌号 Grade	用途 Use
DC51D+AZ	冷成形用 For cold forming
DC52D+AZ	
DC53D+AZ	
DC54D+AZ	
S250GD+AZ	结构用 For structure
S300GD+AZ	
S350GD+AZ	
S550GD+AZ	

■ 镀铝锌镀层种类及后处理方式

Categories and treatment of hot-dip Al-Zn alloy coated coating

项目 Item	分类 Classification	代号 Code
镀层种类 Coating type	铝锌合金镀层 Aluminum-zinc alloy coating	AZ
镀层表面结构 Coating surface structure	正常锌花 Normal spangle	R
	正常小锌花 Normal minized spangle	M
	平整处理 Skinpassed	S
表面处理 Surface treatment	无铬钝化 Chrome-free passivation	C5
	无铬钝化+涂油 Chrome-free passivation + oiling	CO5
	普通耐指纹 Common fingerprint resistant	N
	无铬耐指纹 Chrome-free fingerprint resistant	N5
	无铬高耐候耐指纹 Chrome-free high weather resistant fingerprint resistant	NW
	涂油 Oiling	O
	不处理 Without treatment	U

■ 镀铝锌镀层范围及推荐公称镀层重量

Hot-dip Al-Zn alloy coated coating range and recommended nominal coating weight

镀层种类 Coating type	推荐的公称镀层重量 ^a g/m ² Recommended nominal coating weight
铝锌合金镀层 55% Al-Zn alloy galvanized coating	30/30, 40/40, 50/50, 60/60, 75/75, 90/90

^a 50 g/m²热镀铝锌合金镀层的厚度约为13.3μm。

The thickness of 50 g/m² of hot-dip galvanized and aluminized alloy coating is about 13.3μm.

■ 镀铝锌可供范围

Available range of hot-dip Al-Zn alloy coated products

公称厚度 mm Nominal thickness	宽度 mm Width	钢板长度 mm Length of steel plate	钢带内径 mm Inside diameter of steel strip
0.3~2.5	700~1250	1000~6000	508、610

INTRODUCTION OF THE SURFACE TREATMENT PRODUCTS

主要表面处理产品介绍

- 热镀锌表面处理钢板
Hot-dip galvanized steel sheet
- 电镀锌表面处理钢板
Electro-galvanized steel sheet
- 镀铝锌表面处理钢板
Hot-dip Al-Zn alloy coated steel sheet





HOT-DIP GALVANIZED STEEL SHEET

热镀锌表面处理钢板



■ 耐腐蚀性

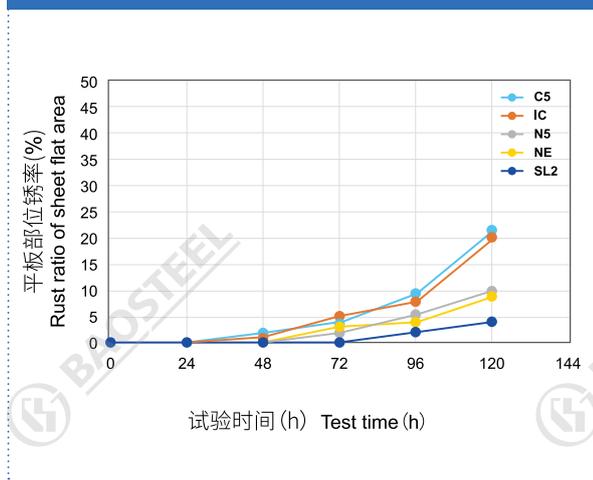
Corrosion resistance

采用盐雾试验(JIS Z 2371), 以表面白锈率 (WR%)表征, 分别评价平板和加工部位的耐腐蚀性。

Salt spray test (JIS Z 2371):The corrosion resistance of flat surface section and formed section is evaluated by surface white rust ratio (WR%)

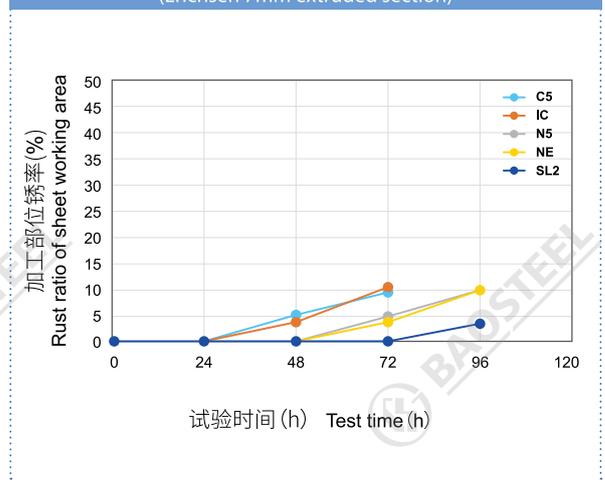
平板耐腐蚀性试验实例

Example of corrosion resistance of flat surface section



杯突7mm耐腐蚀性试验实例

Example of corrosion resistance of formed section (Erichsen 7mm extruded section)



■ 平板及杯突7mm盐雾照片

Photograph of corrosion resistance of flat surface section and erichsen 7mm extruded section

	平板 flat surface section	杯突 Cup-testing
C5	 SST 48h	 SST 24h
IC	 SST 48h	 SST 24h
N5	 SST 72h	 SST 48h
NE	 SST 72h	 SST 48h
SL2	 SST 96h	 SST 72h

耐指纹性

Fingerprinting resistant

表面涂层类型 Surface coating types	评价方法 Evaluation method	色差 (ΔE^*) Chromatism (ΔE^*)
C5	擦拭前后钢板表面的色差值(凡士林擦拭法) Chromatism Values of the Steel Sheet Surface before and after wiping with Vaseline	< 1.5
IC		< 1.5
N5		< 1.0
NE		< 1.0
SL2		< 1.0

导电性

Conductivity

● 表面电阻(4探针式)

LORESTA-EP低阻抗表面接触电阻测定仪, ESP探针评价

$$\text{导通率(\%)} = \frac{\text{导通次数}^*}{20\text{次}} \times 100$$

*导通: 小于1mΩ

● Loresta (4 prove type)

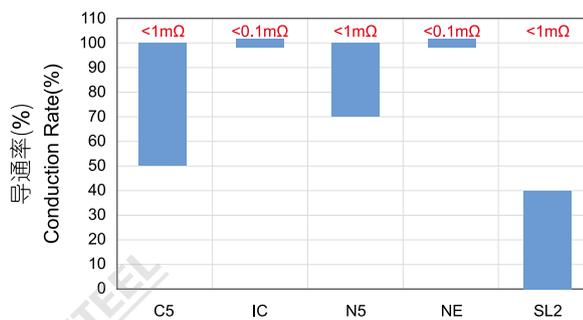
Lorsta type
Assessment

$$\text{Conducting rate (\%)} = \frac{\text{conducting cycle}^*}{20\text{ cycles}} \times 100$$

*Conducting: Less than 1mΩ

表面电阻

Surface Resistance





■ 润滑性

Lubricity

● 动摩擦系数

试验状态: 不涂油

触头: 10mm 不锈钢球

滑动速度: 150mm/min

负荷: 100g-f

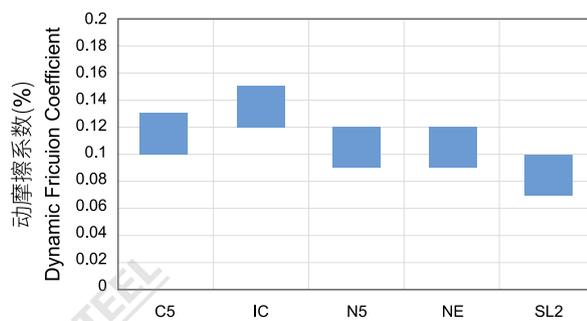
● Lubricity Dynamic friction coefficient

Test status: No oil condition

Contact part: g10mm sus ball

Moving speed: 150mm/min

Load: 100g-f



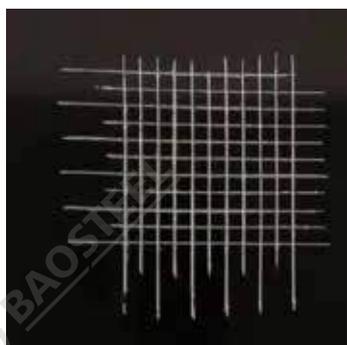
■ 涂装性

Painting adhesiveness

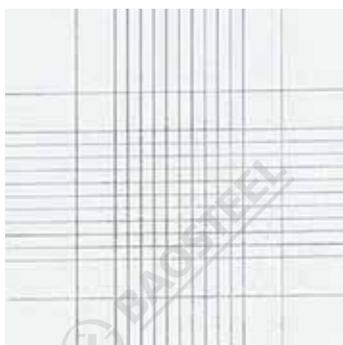
涂料种类 Paint types	膜厚 Coating film thickness	烘烤条件 Baking condition	试验结果 Test result				
			C5	IC	N5	NE	SL2
三聚氰胺醇酸树脂涂料 Melamin alkyd resin paint	20μm	140°C*40min	2%剥离 2% peeling	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling
丝网印刷油墨 Screen printing ink	20μm	120°C*20min	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling
粉末涂装A Powder A	60-80μm	200°C*10min	1%剥离 1% peeling	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling
粉末涂装B Powder B	60-80μm	200°C*10min	10%剥离 10% peeling	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling

备注：涂装性受涂料种类、涂装条件影响显著，因此请务必在使用前进行涂装确认

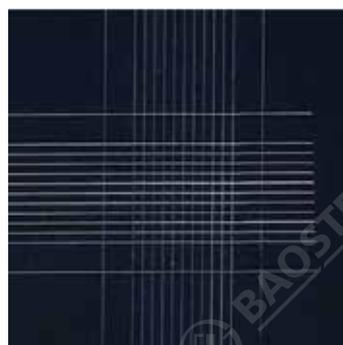
Note: The painting adhesiveness is significantly affected by the type and conditions of the painting, so please confirm the painting before use.



粉末（划格试验）
Powder (Cross cut test)



三聚氰胺醇酸树脂（划格试验）
Melamine alkyd resin
(Cross cut test)

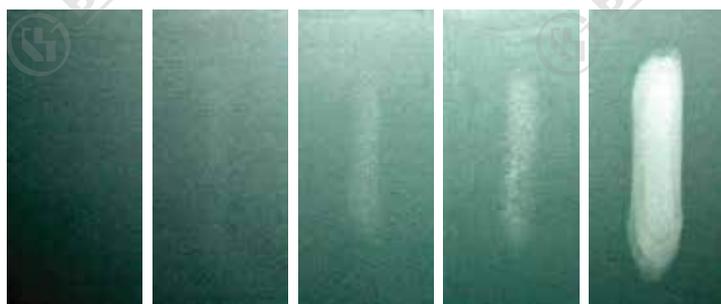


油墨（划格试验）
Ink (Cross cut test)

■ 耐溶剂性

Solvent resistance

涂层类型 Coating type	试验条件 Test conditions	试验结果 Test result
C5	M.E.K(丁酮)或者80%酒精擦拭20次 Wiping by M.E.K (butanone) or 80% alcohol for 20 times	≥3级 ≥level 3
IC		
N5		
NE		
SL2		



5级
level 5

4级
level 4

3级
level 3

2级
level 2

1级
level 1

等级说明:

- 5级: 表面无任何损伤;
- 4级: 正面观察表面无损伤, 侧光下皮膜轻微损伤;
- 3级: 正面可见皮膜轻度损伤;
- 2级: 皮膜损伤严重, 但未暴露基板;
- 1级: 皮膜完全脱落。

Level description

- Level 5: no surface damage;
- Level 4: no visible damage under front side observation, but minor film damage could be found from side light;
- Level 3: visible light damage of the film on the front side;
- Level 2: serious damage of the film but without exposing the base plate;
- Level 1: Complete peeling of the film.

ELECTRO-GALVANIZED STEEL SHEET

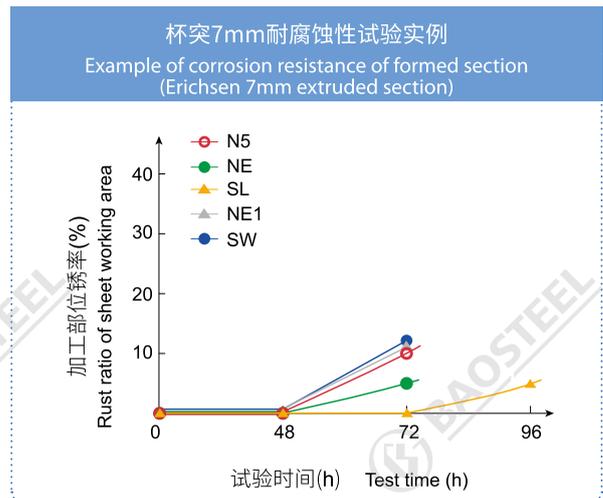
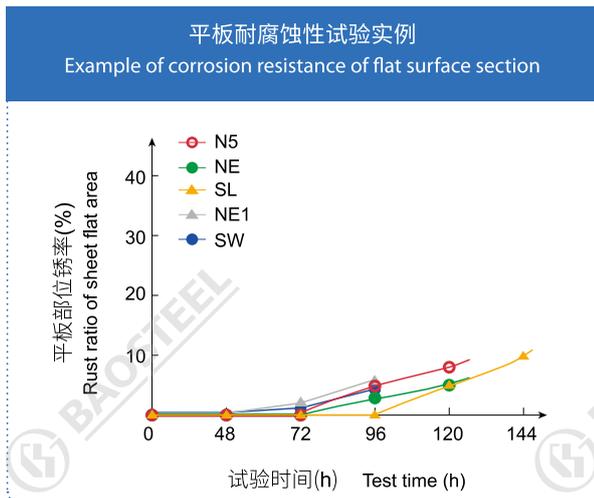
电镀锌表面处理钢板

■ 耐腐蚀性

Corrosion resistance

采用盐雾试验（JIS Z 2371），以表面白锈率（WR%）表征，分别评价平板和加工部位的耐腐蚀性。

Salt spray test (JIS Z 2371): The corrosion resistance of flat surface section and formed section is evaluated by surface white rust ratio (WR%)



■ 平板及杯突7mm盐雾照片

Photograph of corrosion resistance of flat surface section and erichsen 7mm extruded section

N5		SST 96h (平板 / Flat Surface Section)		SST 48h		SST 72h
NE		SST 120h (平板 / Flat Surface Section)		SST 48h		SST 72h
SL		SST 144h (平板 / Flat Surface Section)		SST 48h		SST 72h
NE1		SST 96h (平板 / Flat Surface Section)		SST 48h		SST 72h
SW		SST 96h (平板 / Flat Surface Section)		SST 48h		SST 72h

■ 耐指纹性

Fingerprinting resistant

表面涂层类型 Surface coating types	评价方法 Evaluation method	色差 (ΔE^*) Chromatism (ΔE^*)
N5	擦拭前后钢板表面的色差值(凡士林擦拭法) Chromatism Values of the Steel Sheet Surface before and after wiping with Vaseline	< 2.0
NE	浸泡前后钢板表面的色差值(人工指纹液(JIS K2246)浸泡5秒钟) Chromatism Values of the Steel Sheet Surface before and after dipping-in with Artificial Fingerprinting Solution (JIS K2246) for 5 seconds.	< 1.0
SL	擦拭前后钢板表面的色差值(凡士林擦拭法) Chromatism Values of the Steel Sheet Surface before and after wiping with Vaseline	< 2.0
NE1	浸泡前后钢板表面的色差值(人工指纹液(JIS K2246)浸泡5秒钟) Chromatism Values of the Steel Sheet Surface before and after dipping-in with Artificial Fingerprinting Solution (JIS K2246) for 5 seconds.	< 1.0
SW	擦拭前后钢板表面的色差值(凡士林擦拭法) Chromatism Values of the Steel Sheet Surface before and after wiping with Vaseline	< 2.0

■ 导电性

Conductivity

● 表面电阻(4探针式)

LORESTA-EP低阻抗表面接触电阻测定仪, ESP探针评价

$$\text{导通率(\%)} = \frac{\text{导通次数}^*}{20\text{次}} \times 100$$

*导通: 小于1mΩ

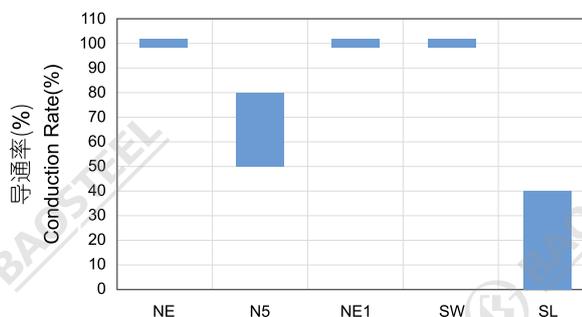
● Loresta (4 prove type)

Lorsta type
Assessment

$$\text{Conducting rate (\%)} = \frac{\text{conducting cycle}^*}{20\text{ cycles}} \times 100$$

*Conducting: Less than 1mΩ

表面电阻
Surface Resistance



■ 润滑性

Lubricity

● 动摩擦系数

试验状态: 不涂油

触头: 10mm 不锈钢球

滑动速度: 150mm/min

负荷: 100g-f

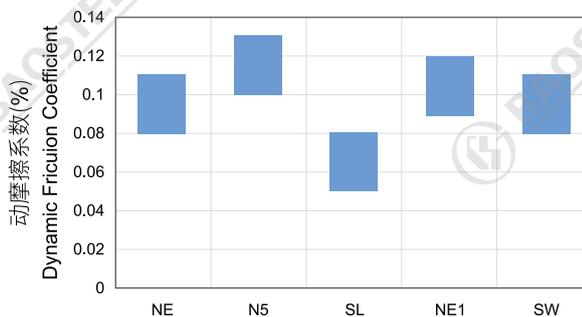
● Lubricity Dynamic friction coefficient

Test status: No oil condition

Contact part: g10mm sus ball

Moving speed: 150mm/min

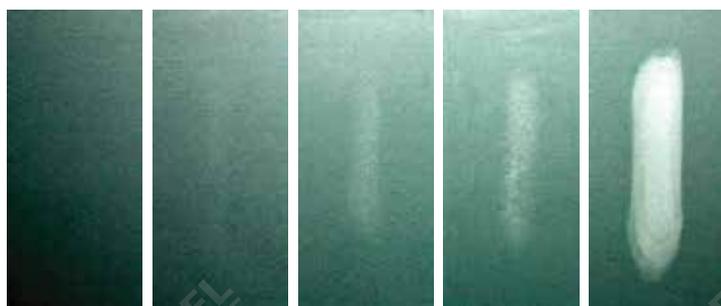
Load: 100g-f



■ 耐溶剂性

Solvent resistance

涂层类型 Coating type	试验条件 Test conditions	试验结果 Test result
N5	M.E.K(丁酮)或者80%酒精擦拭20次 Wiping by M.E.K (butanone) or 80% alcohol for 20 times	≥3级 ≥level 3
SL		
SW		
NE	常用有机溶剂浸泡168h Soaking of common organic solvent for 168h	5级 ≥level 5
NE1		



5级
level 5

4级
level 4

3级
level 3

2级
level 2

1级
level 1

等级说明:

5级: 表面无任何损伤;

4级: 正面观察表面无损伤, 侧光下皮膜轻微损伤;

3级: 正面可见皮膜轻度损伤;

2级: 皮膜损伤严重, 但未暴露基板;

1级: 皮膜完全脱落。

Level description

Level 5: no surface damage;

Level 4: no visible damage under front side observation, but minor film damage could be found from side light;

Level 3: visible light damage of the film on the front side;

Level 2: serious damage of the film but without exposing the base plate;

Level 1: Complete peeling of the film.

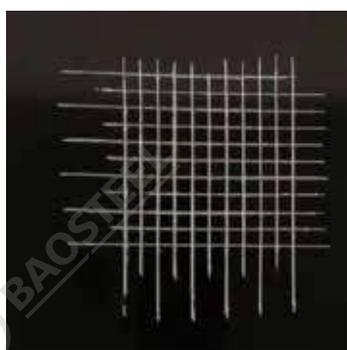
■ 涂装性

Painting adhesiveness

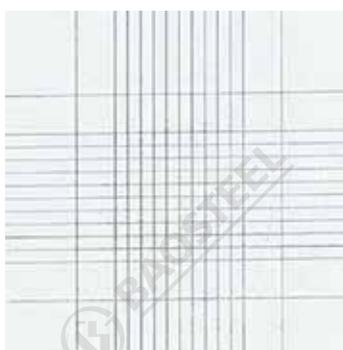
涂料种类 Paint types	膜厚 Coating film thickness	烘烤条件 Baking condition	试验结果 Test result				
			N5	NE	SL	NE1	SW
三聚氰胺醇酸树脂涂料 Melamin alkyd resin paint	20μm	140°C*40min	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling
丝网印刷油墨 Screen printing ink	10μm	120°C*20min	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling	无剥离 No peeling
粉末涂装A Powder A	60-80μm	200°C*10min	无剥离 No peeling	无剥离 No peeling	50%剥离 50% peeling	无剥离 No peeling	无剥离 No peeling
粉末涂装B Powder B	60-80μm	200°C*10min	无剥离 No peeling	无剥离 No peeling	90%剥离 90% peeling	无剥离 No peeling	无剥离 No peeling

备注：涂装性受涂料种类、涂装条件影响显著，因此请务必在使用前进行涂装确认SL产品不建议用于粉末涂装用途)

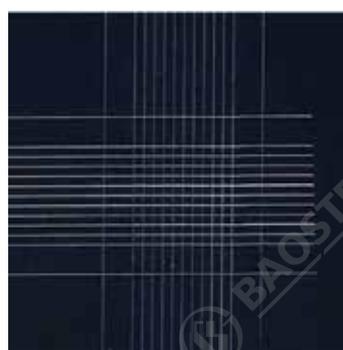
Note: The painting adhesiveness is significantly affected by the type and conditions of the painting, so please confirm the painting before use. SL products are not recommended for powder painting purposes.



粉末 (划格试验)
Powder (Cross cut test)



三聚氰胺醇酸树脂 (划格试验)
Melamine alkyd resin
(Cross cut test)



油墨 (划格试验)
Ink (Cross cut test)

HOT-DIP AL-ZN ALLOY COATED STEEL SHEET

镀铝锌表面处理钢板



热镀铝锌生产线生产铝锌合金(55%Al—43.4%Zn—1.6%Si)钢板具备出色的耐大气腐蚀性能和外观,除应用于高档建筑外板以外,钝化或耐指纹膜处理的镀铝锌钢板在家电行业的使用量正在逐步上升。

热镀铝锌无铬耐指纹钢板或无铬钝化钢板,适合用作冰箱、空调后背板或内部其他结构件等,该产品锌花均匀美观,耐蚀性优良,使用时与发泡性粘结剂的附着力良好。

Hot-dip Al-Zn alloy coated steel sheet has excellent weather-proof property and appearance. In addition to the plate for top grade building outside, the volume of hot-dip Al-Zn alloy coated sheet with Cr-free passivation and anti-fingerprinting treatment used in home appliance is getting bigger and bigger.

Cr-free passivation and anti-fingerprinting hot-dip Al-Zn alloy coated sheet are applicable to rear back panel for refrigerator and air conditioner or other internal structural parts. This kind of product has even beautiful spangle, with excellent corrosion resistance property and good adhesion with foaming adhesive.

■ 热镀锌耐指纹板性能对比

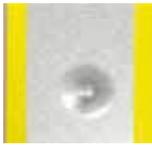
Performance comparison of hot-dip Al-Zn alloy coated anti-fingerprinting coated sheet

性能 Performance	N5无铬耐指纹 产品-适用户内家电 Non-chromate anti-fingerprint-suitable for household appliances	N有铬耐指纹 产品-适用户外建筑 Anti-fingerprint-suitable for outdoor architecture	NW无铬高耐候耐指纹产 品—适用户外家电及建筑 Weathering non-chromate anti-fingerprint-suitable for outdoor appliances and architecture
耐腐蚀性 Corrosion resistance	△	◎	◎
耐候性 Weathering resistance	◎	○	◎
润滑性 Lubricating property	△	○	◎
抗加工发黑性 Corrosion resistance	△	○	◎
耐黑变性 Anti-blackening property	○	△	◎
耐化学介质性 Chemical reagent resistance	◎	◎	◎
环保 Environment protection	◎	含Cr	◎

说明:◎ 优秀 ○ 好 △ 一般
Note: ◎ Excellent ○ Good △ Normal

■ 耐蚀性 — 中性盐雾

Corrosion resistance-Salt spray test

	平板 Flat panel (240h)	杯突 6mm Erichsen (120h)	划X Cross cut (120h)	杯突 6mm+脱脂后 Erichsen after degrease (96h)	溶剂擦拭后 After wiped with solvent (120h)
高耐蚀良加工GL Weathering non-chromate anti-fingerprint					
普通无铬耐指纹GL Non-chromate anti-fingerprint					
有铬耐指纹GL Anti-fingerprint					

■ 耐候性

Weathering resistance

紫外光老化 QUV



NW	N5	N
		
500h, 无变化 Without change $\Delta E^*=1.4$	500h, 表面微白 Change white $\Delta E^*=4.2$	500h, 表面微白 Change white $\Delta E^*=9.3$

■ 耐黑变性

Anti-blackening property

耐碱 Alkali resistance

NW	N5	N
		
无明显变化 Without change $\Delta E^*=0.52$	发黑 darken $\Delta E^*=22.7$	发黑 darken $\Delta E^*=31.5$

耐水煮 Boiling water resistance

NW	N5	N
		
$\Delta E^*=0.5$	$\Delta E^*=1.2$	$\Delta E^*=2.5$

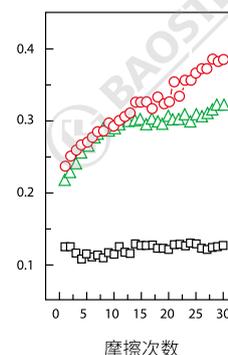
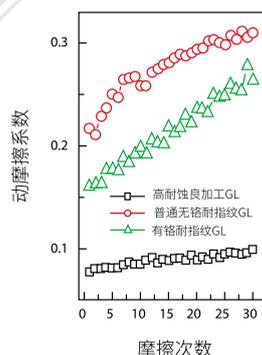
■ 抗加工发黑性

Anti-blackening after forming

	常温 (25°C) Room temperature	高温 (100°C) High temperature
高耐蚀良加工GL Weathering non-chromate anti-fingerprint		
普通无铬耐指纹GL Non-chromate anti-fingerprint		
有铬耐指纹GL Anti-fingerprint		

■ 润滑性——动摩擦系数

Lubricating property-sliding friction coefficient



■ 耐化学介质等其他性能

Chemical reagent resistance and etc

	耐酒精 Anti-alcohol	耐丁酮 Anti-MEK	耐脱脂 Anti-alkali	涂装性 Paintability	导电性 Electroconductivity	环保 Pro-environment
高耐蚀良加工GL Weathering non-chromate anti-fingerprint	◎	◎	◎	◎	△	◎
普通无铬耐指纹GL Non-chromate anti-fingerprint	○	○	◎	◎	◎	◎
有铬耐指纹GL Anti-fingerprint	◎	◎	◎	◎	◎	×

◎ 优 ○ 良 △ 中 × 差

◎ Excellent ○ Good △ Normal × Bad

COMPLIANCE DECLARATION

合规性声明





COMPLIANCE DECLARATION

合规性声明



宝山钢铁股份有限公司
Baoshan Iron & Steel Co., Ltd.

关于宝钢钢铁产品符合 RoHS2.0 指令相关规定的声明

尊敬的客户：

宝山钢铁股份有限公司（以下简称“宝钢”），与宝钢原材料供应商一起，根据宝钢在钢铁产品制造领域的丰富经验，以及原料供应商提供的原材料信息，借助现有科学与技术条件下的最新技术评估手段，对宝钢钢铁产品的法律法规符合性进行了审慎评估，在此，我们认为以下声明信息是正确可靠的，评估的方法是科学的。

宝山钢铁股份有限公司在此声明：附表 1 中所列由宝钢直接供货的产品，符合欧盟 2011/65/EU (RoHS2.0) 《关于在电子电气设备中限制使用某些有害物质指令》及其后续修订的指令。RoHS2.0 指令对限用物质在均一材质中最大允许浓度规定如下：

物质名称		最大允许浓度（质量分数）
铅	Pb	1000ppm
镉	Cd	100ppm
汞	Hg	1000ppm
六价铬	Cr6+	1000ppm
多溴联苯	PBBs	1000ppm
多溴联苯醚	PBDEs	1000ppm
邻苯二甲酸酯	DEHP	1000ppm
	BBP	1000ppm
	DBP	1000ppm
	DIBP	1000ppm

对于 RoHS2.0 指令后续的重大修订，如增补限用物质，豁免应用条款的取缔等，宝山钢铁股份有限公司将及时进行进一步的评估，并适时更新本符合性声明。

宝山钢铁股份有限公司

2024年9月25日
承诺书专用章

Compliance of RoHS2.0 Declaration

Dear Customers:

After careful evaluation of EU Directives 2011/65/EU (commonly called "RoHS2.0"), Baoshan Iron & Steel Co., Ltd. (hereinafter referred to as BAOSTEEL) hereby certifies the steel products manufactured by BAOSTEEL, which have been listed in the ANNEX, are fully compliant with Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011, on the restriction of the use of certain Hazardous Substances in electrical and electronic equipment. None of our products contain any unconditionally banned substances, including Cadmium (Cd) and its compounds, Lead (Pb) and its compounds, Hexavalent chromium (Cr) compounds, Mercury (Hg) and its compounds, prohibited flame retardants, namely Polybrominated biphenyls (PBB's), Polybrominated diphenyl ethers (PBDE's), and PAEs, namely Diethylhexyl phthalate (DEHP), Butyl benzyl phthalate (BBP), Dibutyl phthalate (DBP), Diisobutyl phthalate (DIBP).

As Regulations from different authorities are updated frequently, normally, these changes are within scope, and typically involve adding substances with specific constraints and eliminating exemptions on certain substances with specific constraints. BAOSTEEL continually tracks changes to regulations, evaluates the further revise in time and update this declaration to reflect these changes.

Baoshan Iron & Steel Co., Ltd.

Sep. 25 2024



关于宝钢钢铁产品符合 REACH 法规相关规定的声明

尊敬的客户：

宝山钢铁股份有限公司（以下简称“宝钢”），与宝钢原材料供应商一起，根据宝钢在钢铁产品制造领域的丰富经验，以及原料供应商提供的原材料信息，借助现有科学与技术条件下的最新技术评估手段，对宝钢钢铁产品的法律法规符合性进行了审慎评估，在此，我们认为以下声明信息是正确可靠的，评估的方法是科学的。

宝山钢铁股份有限公司在此声明：本声明书附录 1 所列产品，符合 REACH 法规以下条款的规定：

1. 符合（EC） No 1907/2006（REACH）法规第 33 条款的规定，即对物品中高度关注物质（SVHC）通报的义务；（按照欧洲化学品管理署（ECHA）2024 年 6 月 27 日最新正式公布的高度关注物质（SVHC）清单（参见附录 2），以上 SVHC 在宝钢钢铁产品中的重量百分比小于 0.1%）；
2. 符合（EC） No 1907/2006（REACH）法规第 67 条款的规定，即除非该（化学）物质、混合物或物品满足附件 XVII 中列明的限制条件，否则不得制造、投放市场或使用。宝钢制造的钢铁产品作为物品，符合附件 XVII 中列明的限制物质在物品中的重量百分比小于 0.1%。
3. 符合（EC） No 1907/2006（REACH）附录 17 Entry 51 公告所列邻苯二甲酸酯 DEHP+BBP+DBP+DIBP 总和小于 1000ppm 的要求。

鉴于 REACH 法规的内容仍在不断的更新中，对于其后续的重大修订，如附录 XIV 对 SVHC 候选物质的增加，附录 XVII 对限制物质的增加，宝钢将及时对这些变化进行评估，并保留更新和撤销本声明的权力。



REACH Compliance Declaration

Dear Customers:

After careful evaluation of the European Union Regulation (EC) 1907/2006 concerning the Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) , Baoshan Iron & Steel Co., Ltd. (hereinafter referred as BAOSTEEL) hereby certifies the steel products manufactured by BAOSTEEL (Including Baoshan base, Qingshan base, Dongshan base, Meishan base) , which have been listed in the Annex 1, are fully comply with the related requirements of REACH:

1. Under the structure of the REACH Regulation, BAOSTEEL is a manufacturer of “articles” to our EU customers(according to ECHA’s guidance for articles, the steel coils, plates, sheets, bars, wire rods shall be considered as articles). We do not manufacture “substances” or “preparations” and our articles do not involve the “intentional release of substances”. Accordingly, we foresee no registration or pre-registration requirement for the products we supply to you.
2. With regard to the requirements of Article 33 of REACH:Duty to communicate information on substances in articles. We declare that none of the SVHCs (the Candidate List of Substances of Very High Concern for authorisation currently released by ECHA updated on June 27,2024 please refer to Annex 2) is present in BAOSTEEL's steel products (and also package) in quantities totaling in a concentration equal or above 0.1%.
3. With regard to the requirement of Article 67 of REACH: A substance on its own, in a preparation or in an article, for which Annex XVII contains a restriction shall not be manufactured, placed on the market or used unless it complies with the conditions of that restriction. We declare that none of the restricted substances is present in BAOSTEEL’s steel products (and also package) in quantities totaling in a concentration equal or above 0.1%.
4. With regard to the requirement of Entry 51 of Annex XVII for REACH,We declare that the totaling of DEHP+BBP+DBP+DIBP is in concentration less than 0.1% in BAOSTEEL’s steel products (and also package) and fulfills the requirement .

As REACH Regulation is updated frequently, for the major changes afterwards, such as the addition of SVHC substances into Annex XIV, the addition of restricted substances in Annex XVII, BAOSTEEL will evaluate the further revise in time and update this declaration to reflect these changes.

Baoshan Iron & Steel Co.,Ltd.



GREEN AND LOW-CARBON

绿色低碳

- 宝钢股份低碳产线规划
BeyondECO® steel production lines plan

2025年

- 氢基竖炉+电炉
Shaft furnace+EAF
- 全废钢电炉
100%Scrap+EAF
- 高炉转炉大废钢
30%Scrap+BF-BOF

2030年

- 氢基竖炉+电炉
Shaft furnace+EAF
- 全废钢电炉
100%Scrap+EAF
- 高炉转炉大废钢
30%Scrap+BF-BOF
- 富氢碳循环氧气高炉
HyCROF



■ 低碳产品供应计划

BeyondECO® steel supply schedule

通过规划实施的系列行动, 为市场开发和提供显著减碳的低碳排放钢铁产品

2022年起, 提供**100%**废钢电炉钢(非板材)+**100%**绿电的低碳产品

2023年起, 提供高炉转炉大比废钢+**100%**绿电的低碳产品

2025年起, 供应氢基竖炉电炉工艺板材, 全废钢电炉长材低碳产品

2022, 100% Scrap+EAF (Non plate) with 100% renewable electricity Low-Carbon Products

2023, 30~50% Scrap +BF/BOF with 100% renewable electricity Low-Carbon Products

2025, DRI-EAF with 100% renewable electricity Low-Carbon Products

2022	2023-2024	2025	2030
<ul style="list-style-type: none"> 全废钢电炉(非板材) 100% Scrap+EAF (Non plate) 100%绿电 100% Renewable electricity 高强钢/超高强钢 HSS/UHSS 示范供应 Trial supply 	<ul style="list-style-type: none"> 高废钢比高炉转炉 30%-50%Scrap+BF/BOF 100%绿电 100% Renewable electricity 所有钢种 All grade 批量供应 Batch supply 	<ul style="list-style-type: none"> 氢基竖炉-电炉 DRI-EAF 电炉 EAF 100%绿电 100% Renewable electricity 大部分钢种 Majority of grades 	<ul style="list-style-type: none"> 富氢碳循环氧气高炉 HyCROF 氢基竖炉-电炉 DRI-EAF 电炉 CCUS 100%绿电 Renewable electricity 所有钢种 All grade

冷板销售部

CRS Sales Department

地址: 上海宝山漠河路151号
邮编: 201999
电话: 021-26642620

宝钢服务热线

Baosteel Service Hot-line

400-820-8590

宝钢慧创平台

iBaosteel

http://www.ibaosteel.com

国内贸易公司 Domestic Sales Channels

上海宝钢钢材贸易有限公司
SHANGHAI BAOSTEEL
STEEL PRODUCTS TRADING CO., LTD.
TEL: 021-26640916

广州宝钢南方贸易有限公司
GUANGZHOU BAOSTEEL
SOUTHERN TRADING CO., LTD.
TEL: 020-32219999

北京宝钢北方贸易有限公司
BEIJING BAOSTEEL
NORTHERN TRADING CO., LTD.
TEL: 010-56512000

成都宝钢西部贸易有限公司
CHENGDU BAOSTEEL
WESTERN TRADING CO., LTD.
TEL: 028-85335388

武汉宝钢华中贸易有限公司
WUHAN BAOSTEEL
CENTRAL CHINA TRADING CO., LTD.
TEL: 027-84298800

沈阳宝钢东北贸易有限公司
SHENYANG BAOSTEEL
NORTH-EASTERN TRADING CO., LTD.
TEL: 024-31391180

东北亚及澳洲大区 Northeast Asia and Oceania Region

宝和通商株式会社
HOWA TRADING CO., LTD.
TEL: 0081-3-32379121
FAX: 0081-3-32379123

首尔事务所
SEOUL OFFICE
TEL: 0082-2-5080893
FAX: 0082-2-5080891

BGM株式会社
BGM CO., LTD
TEL: 0082-70-44225903
FAX: 0082-31-3514558

高雄事务所
KAOHSIUNG OFFICE
TEL: 00886-7-3356606
FAX: 00886-7-3356609

宝钢澳大利亚贸易有限公司
BAO AUSTRALIA PTY LTD.
TEL: 0061-8-94810535
FAX: 0061-8-94810536

东南亚及南亚大区 South East Asia and South Asia Region

宝钢新加坡贸易有限公司
BAOSTEEL SINGAPORE PTE LTD.
TEL: 0065-63336818
FAX: 0065-63336819

宝新越南代表处
VIETNAM OFFICE
TEL: 0084-8-9100126
FAX: 0084-8-9100124

宝新泰国代表处
THAILAND OFFICE
TEL: 0066-2-6368485
FAX: 0066-2-2348989

宝新河内代表处
HANOI OFFICE
TEL: 0084-24-62694200
FAX: 0084-24-62691392

宝钢印尼钢材加工有限公司(含印尼代表处)
PT. BAOSTEEL INDONESIA STEEL SERVICE CENTER
(INDONESIA OFFICE)
TEL: 0062-21-3040 8575
FAX: 0062-21-3040 8583

宝钢印度有限公司(含SANAND加工中心)
BAOSTEEL INDIA COMPANY PRIVATE LTD.
(SANAND STEEL SERVICE CENTER)
TEL: 0091-22-30071700
FAX: 0091-22-30071777

宝新马来西亚代表处
MALAYSIA OFFICE
TEL: 0060-32-2016986

欧非中东大区 Europe, Africa & Middle East Region

宝钢欧洲有限公司
BAOSTEEL EUROPE GMBH
TEL: 0049-89-32709090
FAX: 0049-89-3270909130

宝钢意大利钢材集散中心有限公司
BAOSTEEL ITALIA DISTRIBUTION CENTER SPA
TEL: 0039-010-530881
FAX: 0039-010-5308895

宝钢西班牙有限公司
BAOSTEEL ESPAÑA, S.L.
TEL: 0034-93-4119325
FAX: 0034-93-4119330

宝钢中东公司
BAOSTEEL MIDDLE EAST FZE
TEL: 00971-4-8840458
FAX: 00971-4-8840485

宝欧俄罗斯代表处
RUSSIA OFFICE
TEL: 7-499-2585602
FAX: 7-499-2585602

宝欧南非代表处
SOUTH AFRICA OFFICE
TEL: 0027-11-7839985
FAX: 0027-11-7842408

宝欧土耳其代表处
TÜRKIYE OFFICE
TEL: 0090-212-3440067
FAX: 0090-212-3440068

宝欧沙特代表处
SAUDI ARABIA OFFICE
TEL: 00966-502894656

宝欧突尼斯代表处
TUNISIA OFFICE
TEL: 00216-36013995

美洲大区 America Region

宝钢美洲有限公司
BAOSTEEL AMERICA INC.
TEL: 001-201-3073355
FAX: 001-201-3073358

宝钢巴西有限公司
BAOSTEEL DO BRAZIL LTDA.
TEL: 0055-11-26678869

宝美加拿大代表处
CANADA OFFICE
TEL: 001-905-7315888/7315885
FAX: 001-905-7315883

宝美圣地亚哥代表处
SAN DIEGO OFFICE
TEL: 001-949-7526789
FAX: 001-949-7521234

宝美墨西哥代表处
MEXICO OFFICE
TEL: 0052-55-55319506
FAX: 0052-55-55319506-201

宝美巴拿马代表处
PANAMA OFFICE
TEL: 507-382-5225

宝美蒙特雷代表处
MONTERREY OFFICE
TEL: 0052-81-12537111

