BAOSTEEL 宝钢股份

BeCOREs 宝钢硅钢

宝钢取向硅钢

BAOSTEEL GO ELECTRICAL STEEL

Application Technology

应用技术

宝钢应用技术理念　Baosteel application technology concept

成为用户真诚可靠的材料供应商及其解决方案的合作者，实现可持续、共赢发展。

To be customer's sincere and reliable partner in providing electrical steels and their solutions to achieve win-win collaboration.

宝钢应用技术文化　Baosteel application technology culture

用户思维——源于用户、服务用户、成就用户

协同思维——同一目标、网式工作、众口同声

进取思维——精于专业、诚于奉献、超越期待

Customer Thinking——From customer, Serve customer, Achieve customer

Synergy Thinking——Same target, Net-working, One word

Enterprising Thinking——Professional, Sincere dedication, Beyond expectation

宝钢取向硅钢应用技术 Baosteel application technology for GO electrical steel

宝钢为变压器厂提供从选材设计到产品制造的技术支持：

Baosteel could offer a variety of specialized services and technical support from material selection in design of transformer cores to transformer manufacturing, including:

- 铁心设计选材支持，以设计控制成本和性能；
- 铁心用材和结构持续优化，实现技术降本；
- 铁心加工制造支持，实现材料与装备最佳匹配；
- 新产品、新技术的推荐应用，提升变压器产品的竞争力。

- Material selecting in core design for property/cost control
- Optimization of steel and structure in terms of cost and performance purposes.
- Technical support for core manufacturing to ensure the best performance.
- Recommendation of new products and technologies to enhance the competitiveness of transformer products.

完善的取向硅钢产品体系和发展方向

Perfect product system of GO electrical steel

- **经验：** 50年研发、生产及应用技术研究
- **品种：** 普通型、高磁感型、磁畴细化高磁感型、耐热刻痕型、低噪声特 性、特殊涂层取向硅钢产品，全系列全品种
- **等级：** 最高牌号铁损$P_{1.7/50}$低于0.55W/Kg
- **能力：** 国内首家成功开发低温工艺并具备100%高等级取向硅钢制造能力的企业,取向硅钢产量全球第一

- Experience: Devoted in grain-oriented electrical steel 50 years ago, with a complete capability of R&D, manufacturing and application.
- Products: conventional, high permeability, domain refined, low magnetostriction and special coating grain-oriented electrical steel.
- Grade: The most advanced grade with iron loss $P_{1.7/50}$ lower than 0.55W/kg.
- Ability: The ever first steel company in China who developed low-temperature reheating technology with the ability of manufacturing 100% high grade grain-oriented electrical steel. The output of grain-oriented electrical steel ranks first in the world.

ORES

普通型 Conventional

B30G120	30Q120
B30G130	30Q130
B35G155	35Q155

高磁感型 High permeability

B18P075	B23P090	B30P095	18QG080	27QG090
B18P080	B23P095	B30P100	20QG080	27QG095
B20P075	B23P100	B30P105	20QG085	27QG100
B20P080	B27P090	B30P120	23QG085	30QG100
B20P085	B27P095	B35P115	23QG090	30QG105
B23P080	B27P100	B35P135	23QG095	30QG120
B23P085			23QG100	35QG135

磁畴细化型 Domain Refined

B18R055	B20R075	B27R085	18RK065	23RK085
B18R060	B23R070	B27R090	18RK070	23RK090
B18R065	B23R075	B27R095	20RK070	27RK085
B18R070	B23R080	B30R090	20RK075	27RK090
B20R060	B23R085	B30R100	23RK075	27RK095
B20R065	B23R090		23RK080	30RK100
B20R070	B27R080			

一级能效叠铁芯配电变压器
Energy efficiency grade I distribution transformer

一级能效立体卷铁芯配电变压器
Energy efficiency grade I distribution transformer with tridimensional wound

±800kV换流变压器
±800kV Converter transformer

s 宝钢硅钢

耐热刻痕型 Heat-resistant domain refined

B18HS070	B20HS070	B23HS075
B18HS075	B20HS075	B23HS080
	B20HS080	

低噪音型 Low magnetostriction

B20R070-LM	B27R090-LM	27QG100-LN
B23R075-LM	B27R095-LM	27QG120-LN
B23R080-LM	B30R100-LM	30QG105-LN
B23R085-LM	B30P105-LM	30QG120-LN
B27R085-LM	B30P120-LM	30RK100-LN

特殊涂层 Special coating

35Q155-Y	35Q155-Z	35Q155-W

注：绿色字体为全球首发产品。

“-W” 代表无底层系列产品；

“-Y” 代表C6涂层系列产品；

“-Z” 代表自粘接涂层系列产品。

Note: The products in green font are the world's premiere products.

"- W" stands for no - glass - film products;

"- Y" stands for C6 coating series products;

"- Z" stands for self-adhesive coating series products.

1000kV交流变压器
1000kV AC transformer

±1100kV换流变压器
±1100kV Converter transformer

取向硅钢全面技术解决方案

COMPREHENSIVE TECHNICAL SOLUTIONS FOR GO ELECTRICAL STEEL

完善的变压器用材数据支持

COMPLETE MATERIAL DATABASE SUPPORT FOR TRANSFORMER

不断更新和完善的变压器用材性能数据库，为用户提供从机械性能、基础电磁性能及特殊工况性能等一系列全套的数据支持。根据用户的多样化需求，可提供性能指标与原始曲线数据等各种形式数据。

Baosteel continuously updates and improves properties database of products for transformer use, supporting customers with a range of full set of data from mechanical properties and basic magnetic properties to the properties under special working conditions. According to the diversed requirements, Baosteel can provide customers with performance data, the original curves, and other forms of data.

变压器用材性能数据库
Transformer material database

基础电磁性能 Basic magnetic properties	典型机械性能 Mechanical properties
铁损曲线 Core loss curves	抗拉强度 Tensile strength
交流激磁功率曲线 A.C. Exciting power curves	弯曲次数 Number of bends
直流磁化曲线和直流磁导率曲线 D.C.Magnetization curves/D.C. Permeability curves	屈服强度 Yield strength
高频铁损曲线 Core loss at high frequency	延伸率 Elongation
热导率 Thermal conductivity	硬度 Hardness

完备的性能测试支持

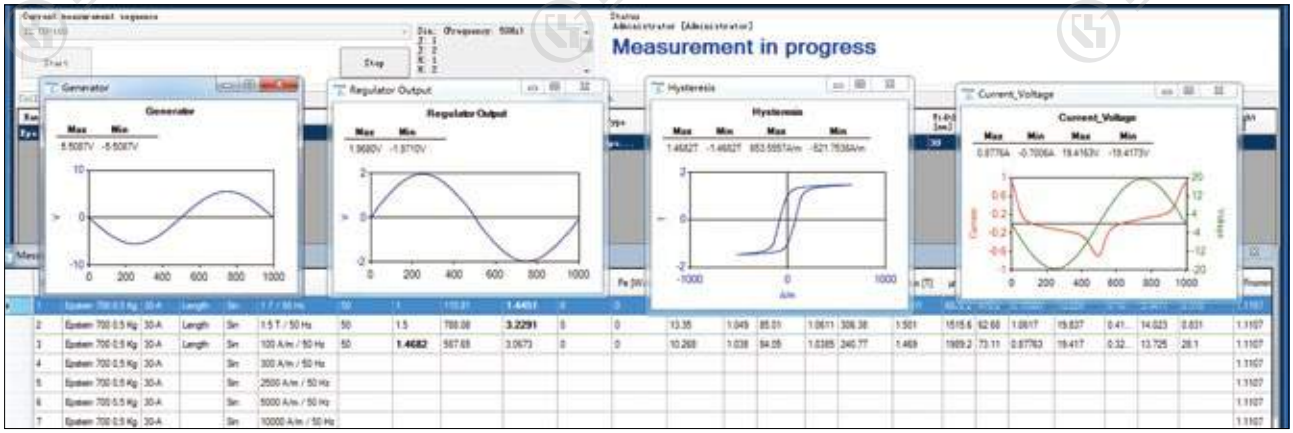
COMPREHENSIVE PERFORMANCE TEST SUPPORT

磁性测试平台

Magnetic Properties Test Platform

完备的材料性能测试平台，可为用户提供各种尺寸的材料在任一频率、场强下的磁性数据，以及B-P、B-H、H—μ等各种电磁性能曲线的测量，最大程度地挖掘材料特性。

With complete material property test platform, Baosteel could provide customers with magnetic property data at any frequency and magnetic flux density of all size of the material, and the measurement of B-P, B-H and H-μ and other forms of magnetic property curves, to fully make use of the material properties at the greatest extent.



基础性能数据
Typical Magnetic Properties

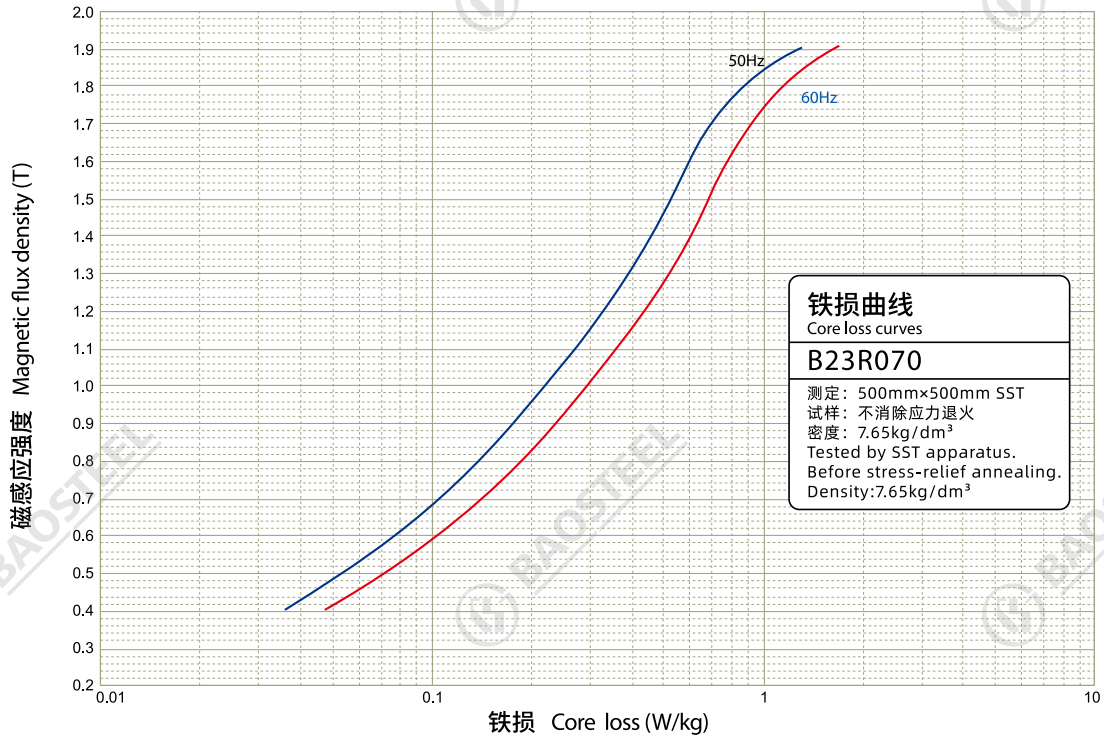
取向硅钢主要牌号的典型性能
Typical magnetic properties of major grain-oriented electrical steel grades

类型 Type	牌号 Grade	比总损耗 Specific total loss (W/kg)	磁极化强度 Magnetic polarization (T)
		$P_{1.7/50}$	B8
高磁极化强度型 High permeability type	B18P075	0.74	1.89
	B18P080	0.79	1.89
	B20P075	0.74	1.91
	B20P080	0.79	1.89
	B23P085	0.83	1.92
	B27P095	0.92	1.91
	B27P100	0.94	1.91
	B30P105	0.99	1.91
磁畴细化型 Domain Refined High Permeability Grades	B18R055	0.54	1.91
	B18R060	0.59	1.92
	B18R065	0.64	1.91
	B20R060	0.59	1.92
	B20R065	0.63	1.92
	B20R070	0.68	1.91
	B23R070	0.69	1.90
	B23R075	0.74	1.92
	B23R080	0.77	1.91
	B23R085	0.80	1.91
	B27R080	0.78	1.92
	B27R085	0.82	1.91
	B27R090	0.86	1.90
	B30R090	0.88	1.92
	B30R100	0.94	1.91
耐热刻痕型 Heat-resistant domain refined	B18HS070	0.68	1.90
	B18HS075	0.73	1.90
	B20HS070	0.68	1.90
	B20HS075	0.73	1.90
	B20HS080	0.78	1.90
	B23HS075	0.73	1.90
	B23HS080	0.78	1.90

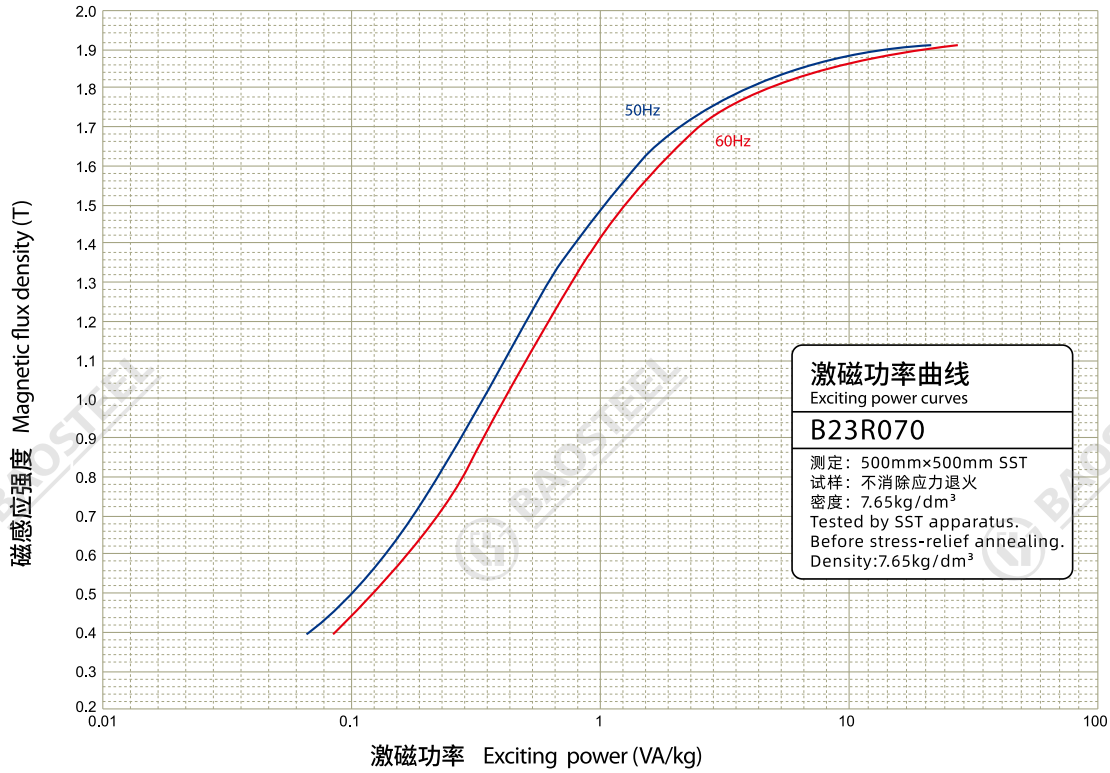
电磁性能曲线
Typical Magnetic Curves

- B23R070 : 典型值$P_{17/50}$=0.69W/kg，B8=1.91T。 B23R070 : typical values $P_{17/50}$=0.69W/kg, B8=1.91T

- 铁损曲线 Iron Loss Curves

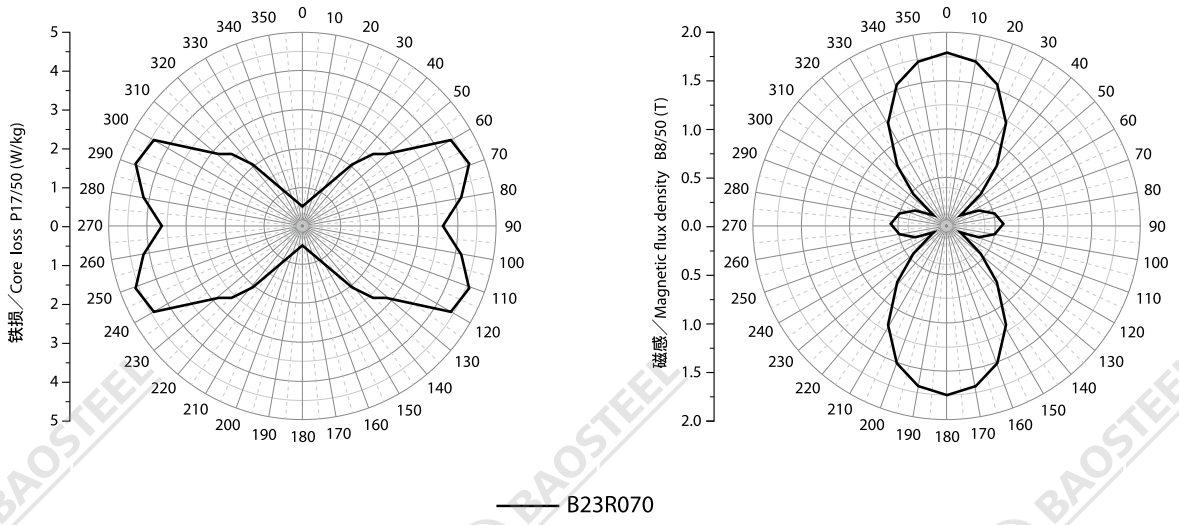


- 激磁功率曲线 Exciting power curves

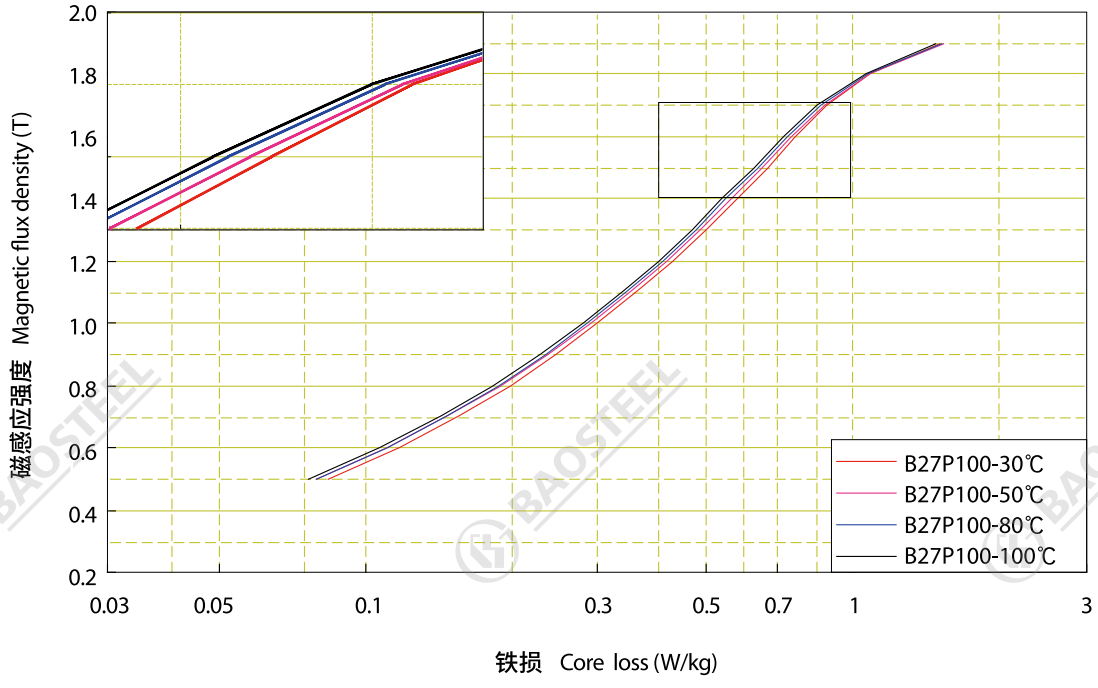


特殊条件下的磁性曲线
Magnetic Curves Under Special Conditions

不同方向下的磁性　Magnetic properties along various directions



不同工作温度条件下的铁损曲线　Iron loss curves at various working temperatures



全面的使用技术支持

COMPREHENSIVE APPLICATION TECHNICAL SUPPORTS

选材推荐
Material Selection

综合考量材料性能、价格等因素，为变压器铁芯设计进行选材支持。根据铁芯设计、加工工艺预测性能，对比不同材料的使用效果，以实现性价比最优。

Considering overall the factors such as material properties and prices, Baosteel could supply technical support for material selection for the design of transformer cores. By effective comparison between different materials through predicting core properties according to the design and process, the optimal cost can be achieved.

高能效配变领域 High efficiency distribution transformers

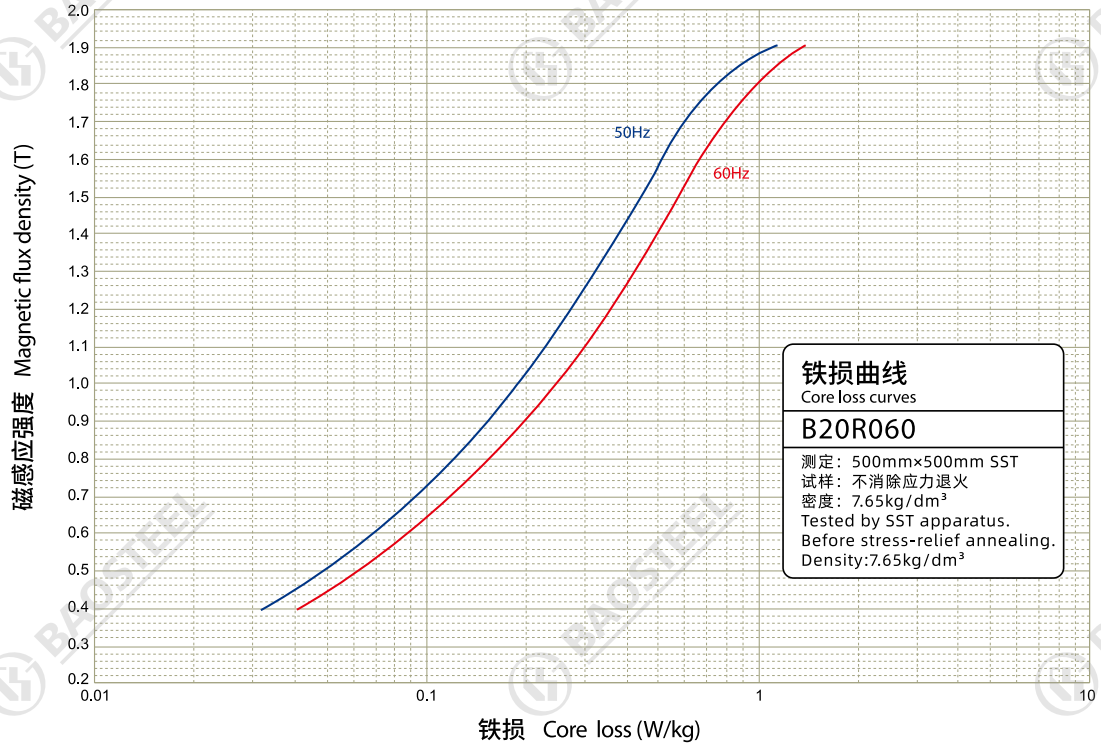
高能效配电变压器推荐用取向硅钢牌号表

Grain-oriented electrical steel grades applied to high efficiency distribution transformers

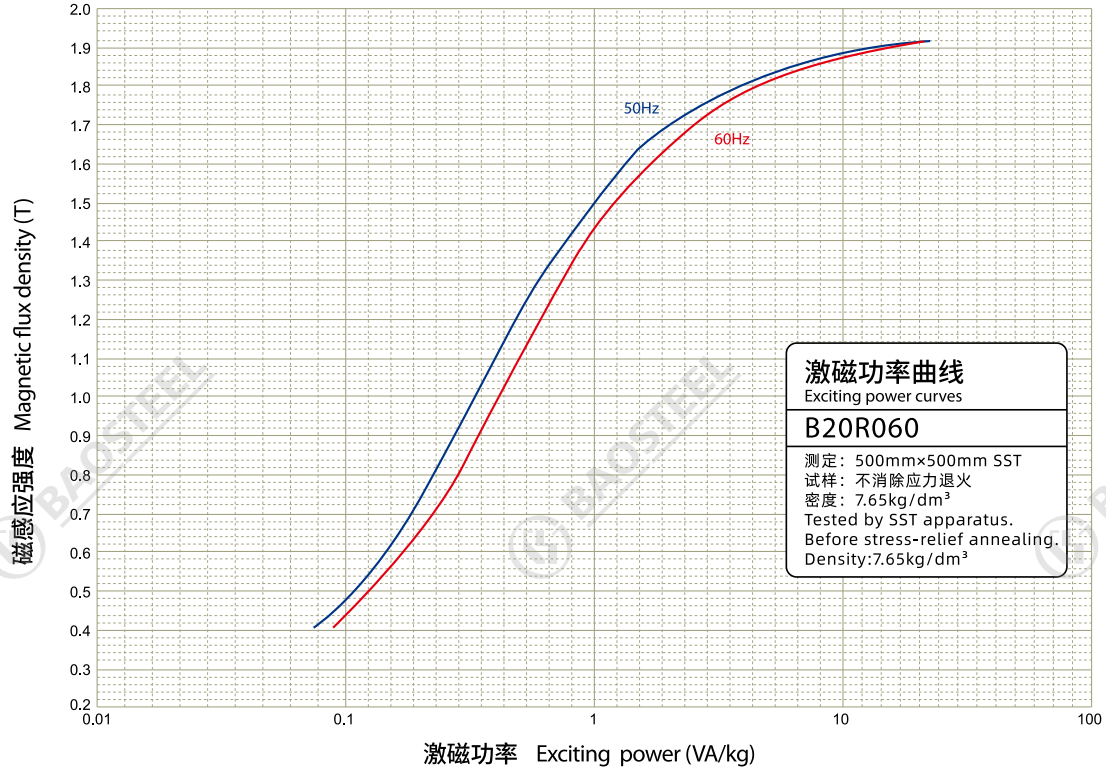
配电变压器能效等级 GB20052-2024 Energy efficiency grades for distribution transformers	能效2级 Energy efficiency grade 2		能效1级 Energy efficiency grade 1	
	叠铁心 laminated core	卷铁心 wound core	叠铁心 laminated core	卷铁心 wound core
油浸式配电变压器 Oil-immersed distribution transformer	B20R070	B20P075	B18R055	B20HS070
	B23R070	B20P080	B20R060	B20P075
	B23R075	B23HS075	B20R065	B23HS075
干式配电变压器 Dry type distribution transformer	B20R075	B23HS080	B20R070	B18HS070
	B23R080	B23P085	B23R070	B20P075
	B23R085	B23P090	B23R075	B23HS075

■ B20R060 : 典型值$P_{17/50}$=0.59W/kg，B8=1.91T。 B20R060 : typical values $P_{17/50}$=0.59W/kg, B8=1.91T

■ 铁损曲线 Iron loss curves

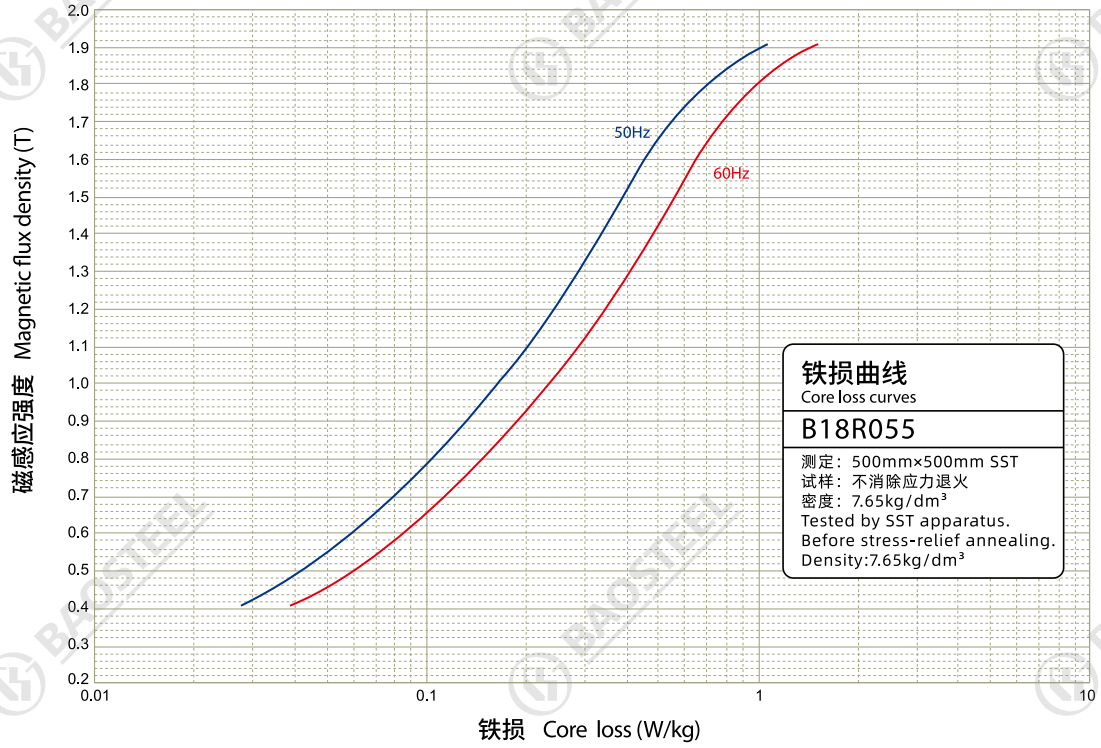


■ 激磁功率曲线 Exciting power curves

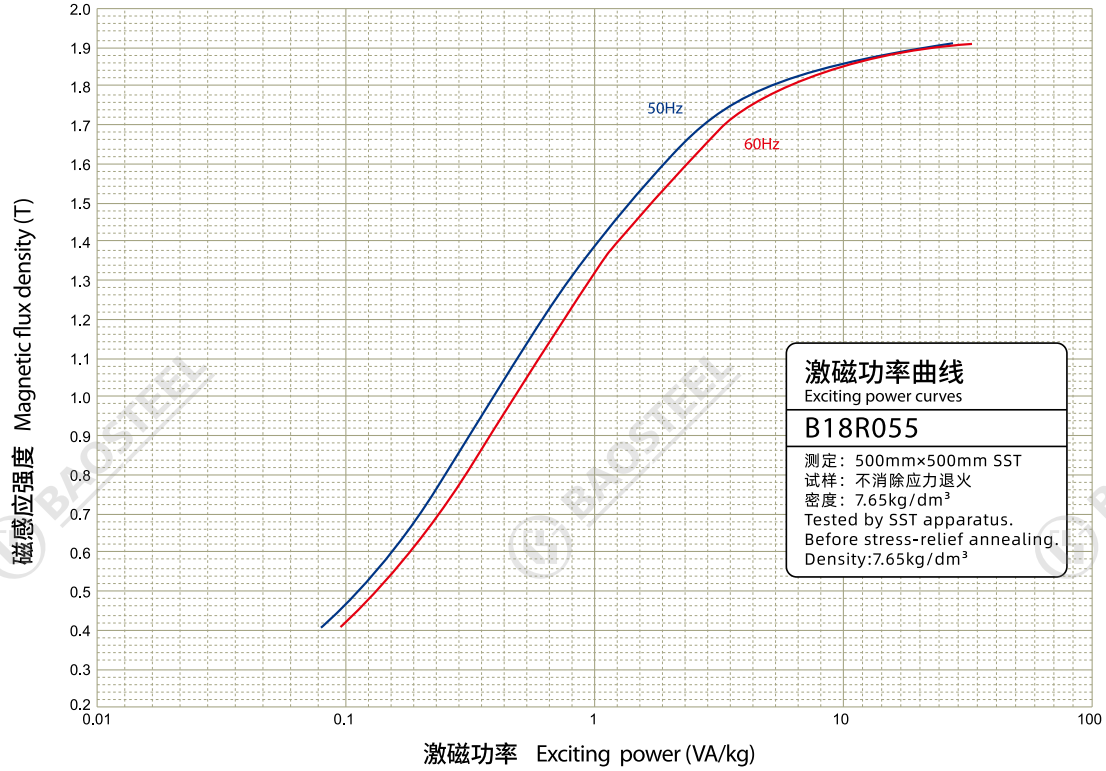


■ B18R055 : 典型值$P_{17/50}$=0.54W/kg，B8=1.91T。 B18R055 : typical values $P_{17/50}$=0.54W/kg, B8=1.91T

■ 铁损曲线 Iron loss curves

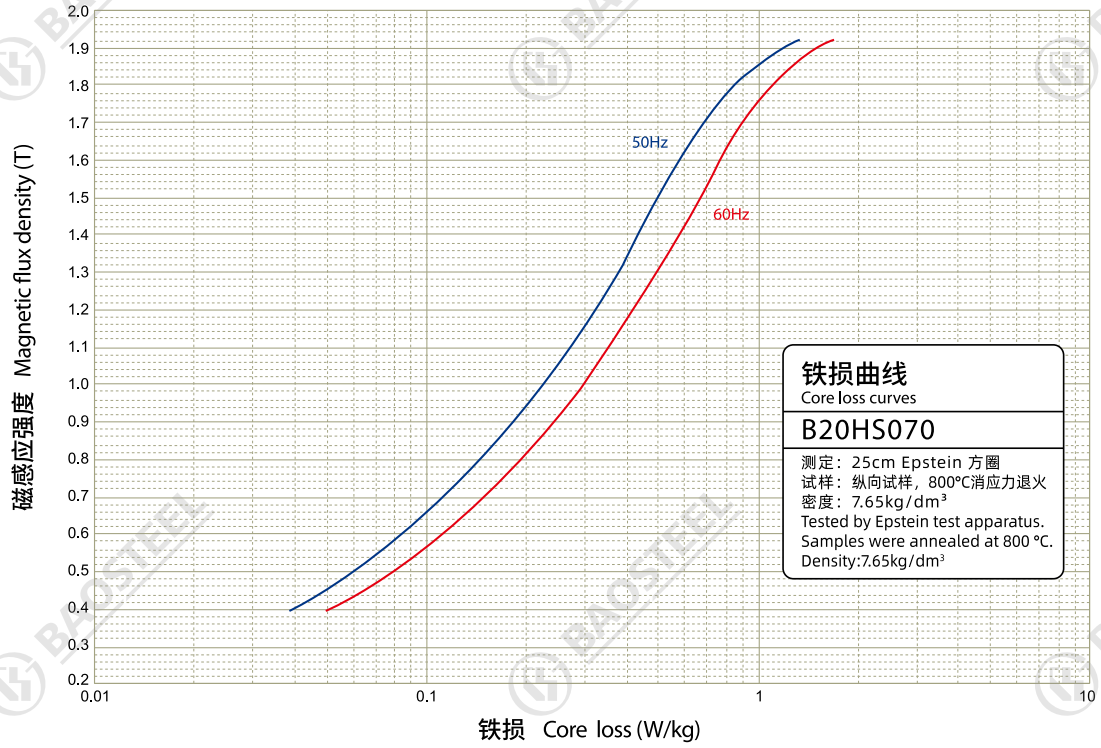


■ 激磁功率曲线 Exciting power curves

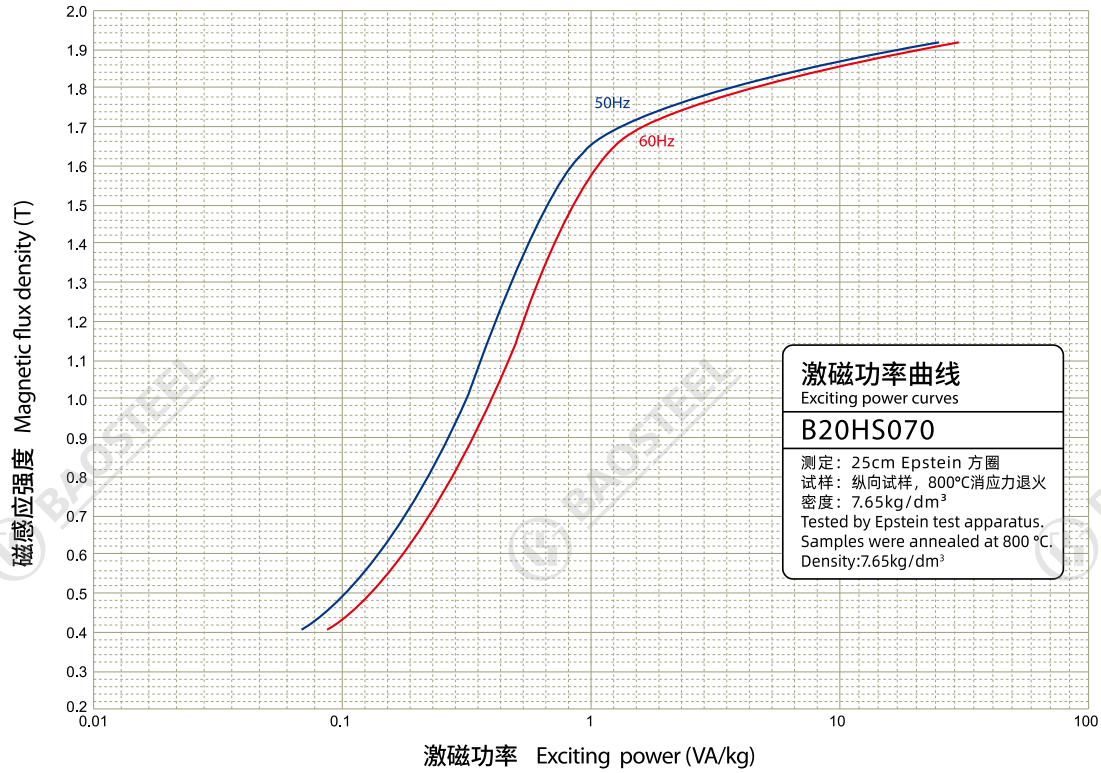


■ B20HS070 : 典型值$P_{17/50}$=0..68W/kg，B8=1.90T。 B20HS070 : typical values $P_{17/50}$=0.68W/kg, B8=1.90T

■ 铁损曲线 Iron loss curves

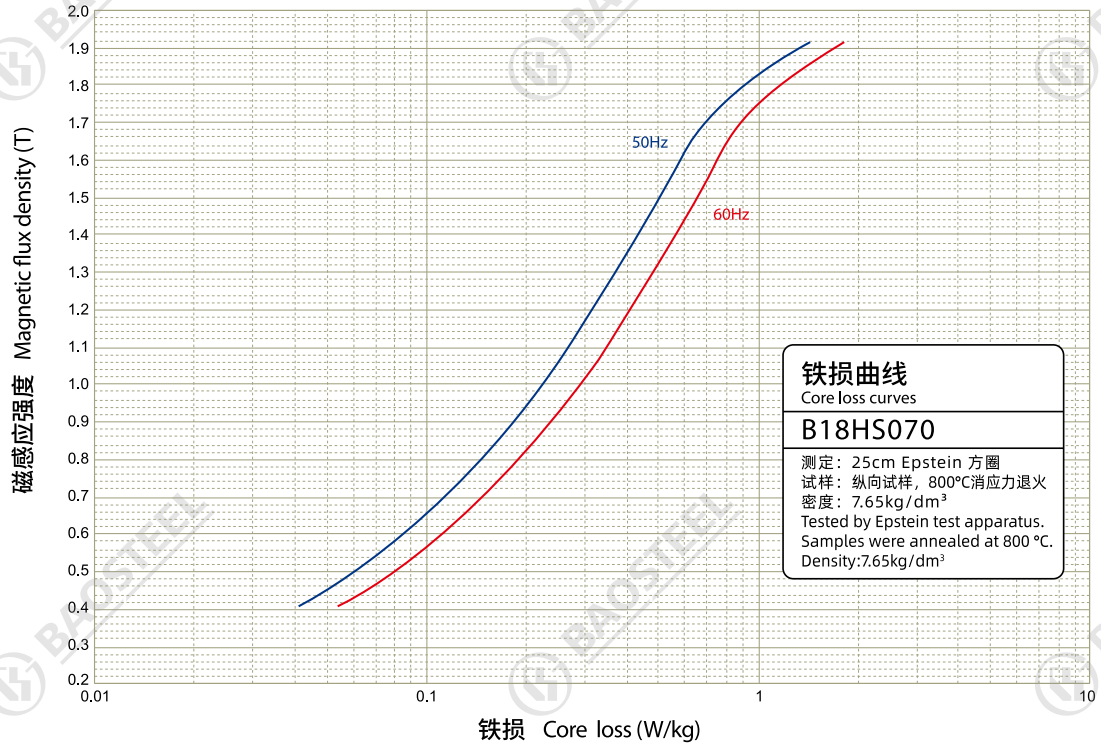


■ 激磁功率曲线 Exciting power curves

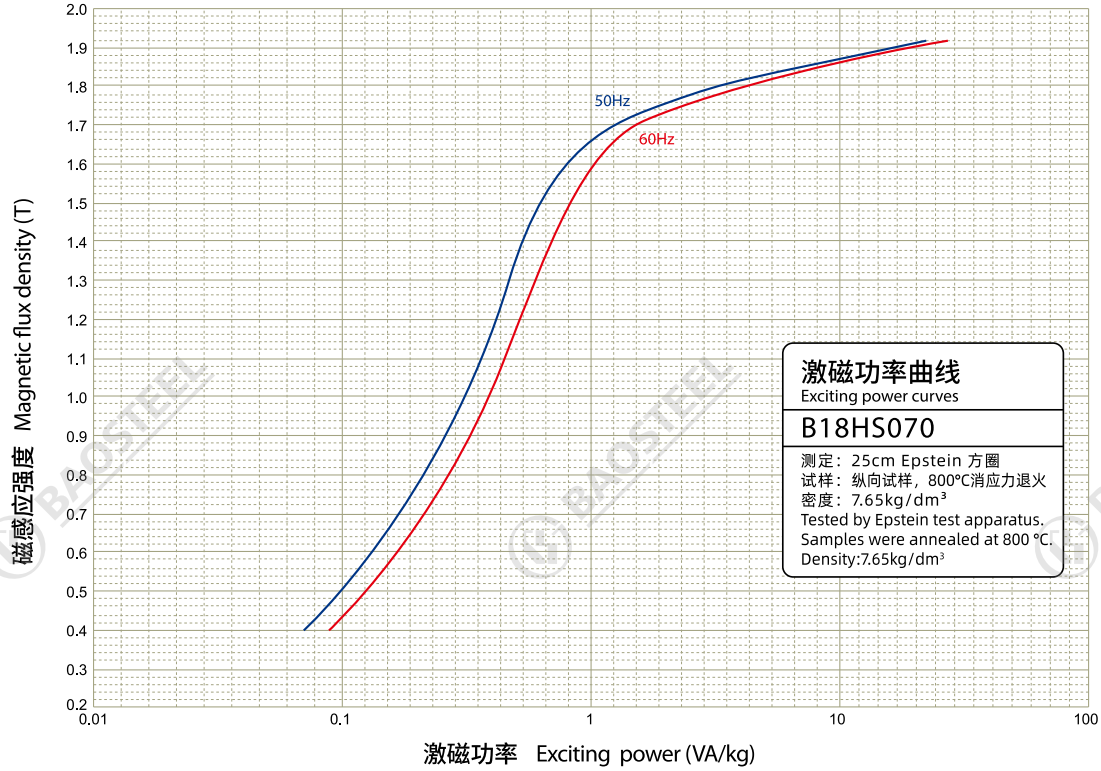


■ B18HS070：典型值$P_{17/50}$=0.68W/kg，B8=1.90T。 B18HS070 : typical values $P_{17/50}$=0.68W/kg, B8=1.90T

■ 铁损曲线 Iron loss curves



■ 激磁功率曲线 Exciting power curves

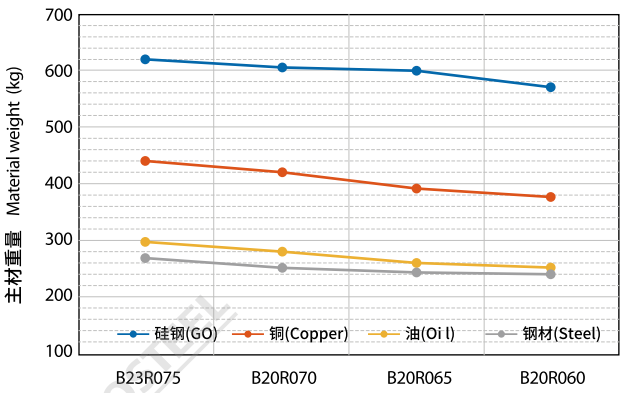


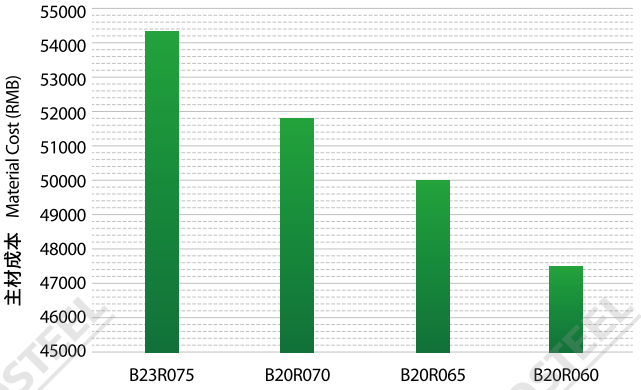
案例——配电变压器性价比优化分析

Case —— Cost-performance ratio analysis for the distribution transformer

更高的性价比是采用高性能取向硅钢产品生产变压器的动力之一。下面以GB20052新能效1级叠铁心S22-M-400/10-NX1油浸式配电变压器为例，采用宝钢四种硅钢牌号进行变压器成本分析。

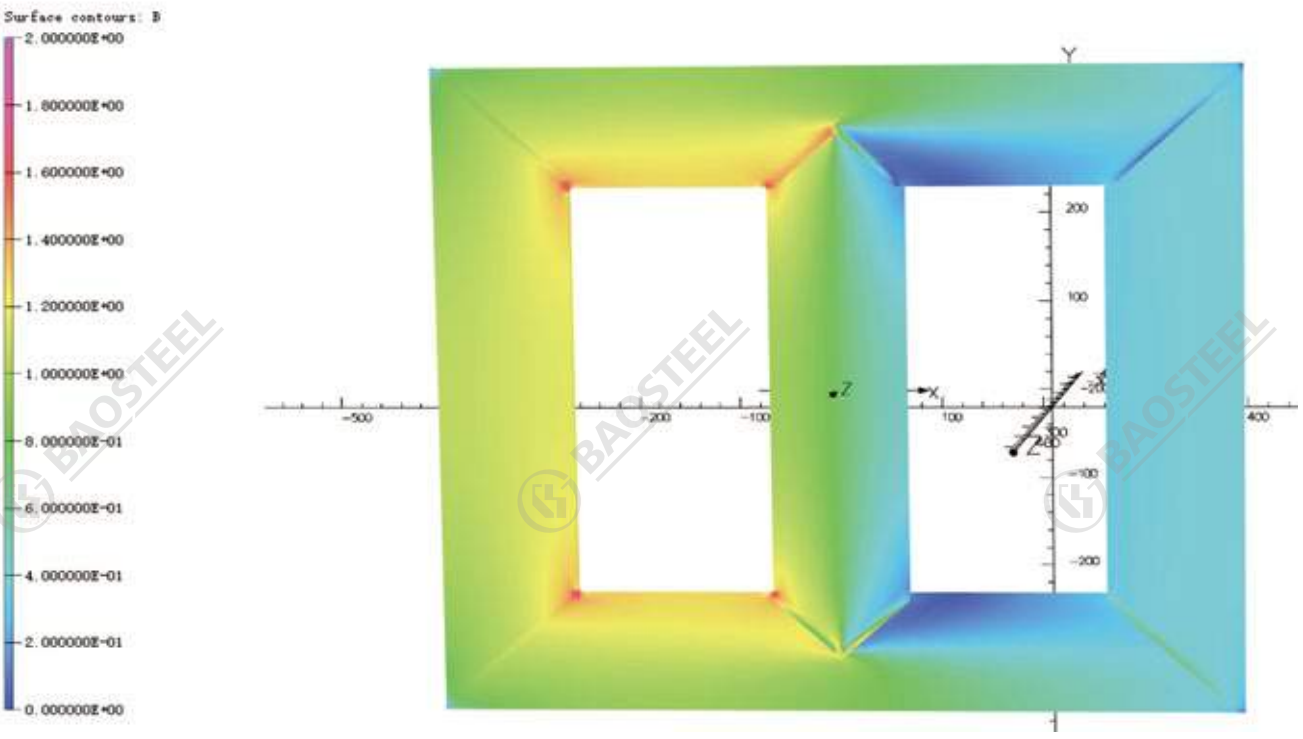
High cost-performance ratio is one motivation to use high-performance grain-oriented electrical steel. Taking the new energy efficiency grade 1 laminated core S22-M-400/10-NX1 oil immersed distribution transformer of GB20052 as an example, four kinds of electrical steel grades of Baosteel are used for transformer cost analysis.





采用高等级取向硅钢B18R055、B20R060已成功制造生产出GB20052新能效标准1级能效产品，S22-M-200/10、S22-M-400/10型变压器，变压器的空载损耗、负载损耗均达到新一级能效变压器的要求。

GB20052 new energy efficiency grade 1 products S22-M-200/10, S22-M-400/10 transformers have been successfully manufactured with high grade GO electrical steel B18R055,B20R060, whose no-load loss and load loss all meet the requirements of the new grade 1 transformer.



采用B18R055、B20R060制造的叠铁心及采用B18HS070、B20HS070制造的卷铁心一级能效配电变压器性能

The performance of energy efficiency 1 transformers made of B18R055、B20R060 and B18HS070、B20HS070

S22-M-200/10测试项目 Test items	标准要求值 Standard value	实测值 Measured value
空载损耗，W No-load loss, W	190	174 （B18R055）
空载损耗，W No-load loss, W	190	181 （B20R060）

S22-M-400/10测试项目 Test items	标准要求值 Standard value	实测值 Measured value
空载损耗，W No-load loss, W	330	282 （B18R055）
空载损耗，W No-load loss, W	330	306 （B20R060）

S22-MRL-400/10测试项目 Test items	标准要求值 Standard value	实测值 Measured value
空载损耗，W No-load loss, W	330	266 （B20HS070）
空载损耗，W No-load loss, W	330	315 （B20HS070）
空载损耗，W No-load loss, W	330	304 （B18HS070）

S22-MRL-200/10测试项目 Test items	标准要求值 Standard value	实测值 Measured value
空载损耗，W No-load loss, W	190	180 （B18HS070）
空载损耗，W No-load loss, W	190	179 （B18HS070）
空载损耗，W No-load loss, W	190	180 （B18HS070）

节能型电力变领域 Energy saving power transformer

节能型电力变压器主要应用牌号表

Grain-oriented electrical steel grades applied to energy saving power transformer

主要应用硅钢牌号 Grain-oriented electrical steel grades applied	$P_{1.7/50}$(W/kg)	B8 (T)
B18R060	0.59	1.92
B20R065	0.63	1.91
B20R070	0.68	1.91
B23R070	0.69	1.92

案例——节能型电力变压器宝钢2030冷轧主变应用

Case —— Application of energy saving power transformer Baosteel 2030 Cold Rolling main transformer.

宝钢股份结合2030冷轧单元主变的更新改造，在产线的2台型主变中，全部采用B20R070超薄取向硅钢制造大型轧机110kV主变。按照30年寿命测算，节约能耗1495万kWh，节约成本747.5万元。

Baosteel adopted two large-scale 110kV main transformer manufactured with B20R070 in the production line to upgrade and reform 2030 cold rolling mill. Arcording to the 30 year life expectancy,14.95 million kWh and 7.475 million RMB cost will be saved.

宝钢2030冷轧主变SFSZ-140000/110kV采用B20R070制造结果

Baosteel 2030 Cold Rolling main transformer SFSZ-140000/110kV made with B20R070 performances

序号 NO	性能指标 Performance indicators	新主变参数 New main transformer	旧主变参数 Old main transformer
1	空载损耗 No-load loss	37.46 kW	74.9 kW
2	空载电流 No-load current	0.06%	0.31%
3	负载损耗 Load loss	483.2kW	522.6 kW
4	30年寿命节能 Energy saving in 30-year life	1495万kWh 14.95 million kWh	—
5	30年寿命节能成本 Cost saving in 30-year life	747.5 万元 7.475 million RMB	—

大型电力变领域 Large power transformers

特高压交直流变压器主要应用牌号表

Grain-oriented electrical steel grades applied to large power transformers

主要应用硅钢牌号 Grain-oriented electrical steel grades applied	$P_{1.7/50}$(W/kg)	B8 (T)
B20RT065	0.63	1.91
B23RT075	0.72	1.91
B23RT080	0.77	1.91
B27RT085	0.82	1.91
B27RT090	0.86	1.91
B27RT095	0.89	1.91
B27PT100	0.94	1.91

案例——特高压交流输电工程项目双百万变压器应用

Case —— Dual million transformers used in the ultra high voltage AC transmission project

宝钢高等级取向硅钢B27R090成功用于生产国家电网皖电东送特高压交流输电工程项目双百万变压ODFPS-1000000/1000，变压器的空载损耗、空载电流、噪音达到要求。

Baosteel high-grade grain-oriented electrical steel B27R090 was successful applied to manufacture the dual million transformer ODFPS-1000000/1000 for the ultra high voltage AC transmission project. All the transformer properties including no-load loss, no-load current and noise meet the design requirements.

采用B27R090试制的双百万变压器性能

Properties of the dual million transformer made with B27R090

测试项目 Test items	合同要求值 Guaranteed value	实测值 Measured value
空载损耗，kW No-load loss, kW	185, +15%	177.9
空载电流，% No-load current, %	0.1	0.07
噪音，dB(A) Noise, dB(A)	75	72

案例——国网昌吉-古泉±1100kV特高压直流输电工程应用
Case —— Application in Changji - Guquan ±1100kV UHVDC transmission project from of State Grid.

宝钢高等级取向硅钢B23R075成功应用于生产国网昌吉-古泉±1100kV特高压直流输电工程换流变压器，变压器的空载损耗、空载电流、噪声完全满足技术要求。

Baosteel high grade grain oriented silicon steel B23R075 has been successfully applied to the production of converter transformer in Changji - Guquan ± 1100kV UHVDC transmission project of State Grid. The no-load loss, no-load current and noise of the transformer fully meet the technical requirements.

采用B23R075制造的±1100kV特高压换流变压器性能
The performance of the ±1100kV UHV converter transformer made with B23R075

型号 Model	牌号名称 Grades	空载损耗，kW No-load loss	空载电流，% No-load current	噪声，dB(A) Noise
ZZDFPZ-587100/1000-275	B23R075	198.5	0.079	72
ZZDFPZ-587100/1000-550		199.8	0.089	73

案例——B20RT065制造±800kV特高压直流工程换流变压器应用
Case —— B20RT065 application in ±800kV UHVDC Project

首次在特高压换流变采用宝钢最高端的硅钢片B20RT065，并且采用了九级接缝，实现了降低损耗和噪声。较同类产品，新产品的空载损耗降低了7.6%，噪声降低了2—3分贝。

For the first time, Baosteel's high grade silicon steel B20RT065 was used in the ultra-high voltage transformer, 9 step-lap of the core were used to reduce losses and noise. Compared to similar products, the no-load loss of the product has been reduced by 7.6%, and the noise has been reduced by 2-3 dB(A)

特殊需求—低噪音变压器 Special demand—low noise transformers

随着国民经济的发展，人口密集化，变电站负荷加重，对城市变压器的噪音要求变得越来越严格。宝钢也已开发0.20mm、0.23mm、0.27mm、0.30mm所有牌号的低噪音产品。

With the development of national economy, densification of population in cities, substation load is increasing. The noise requirements of transformers becomes stricter. Baosteel has also developed low-noise products of 0.20mm,0.23mm, 0.27mm, and 0.30mm.

低噪音变压器主要应用牌号表

Grain-oriented electrical steel grades applied to low noise transformers

牌号名称 Grades	$Awv_{1.7/50}$, dB(A)		$P_{1.7/50}$, W/kg		B8,T	
	典型值 Typical value	保证值 Guaranteed value	典型值 Typical value	保证值 Guaranteed value	典型值 Typical value	保证值 Guaranteed value
B20R070-LM	51.5	≤52	0.68	≤0.70	1.91	≥1.88
B23R080-LM	52.5	≤53	0.77	≤0.79	1.91	≥1.88
B23R085-LM	52.5	≤53	0.80	≤0.82	1.91	≥1.88
B27R095-LM	54	≤55	0.90	≤0.94	1.91	≥1.88
B30P105-LM	54	≤55	1.01	≤1.03	1.91	≥1.90
B30P120-LM	54	≤55	1.04	≤1.06	1.91	≥1.90

应用案例 Cases

宝钢低噪声特性材料经多家用户试用，变压器的噪音较标准要求降低2-3dB(A)，材料获得广泛认可。

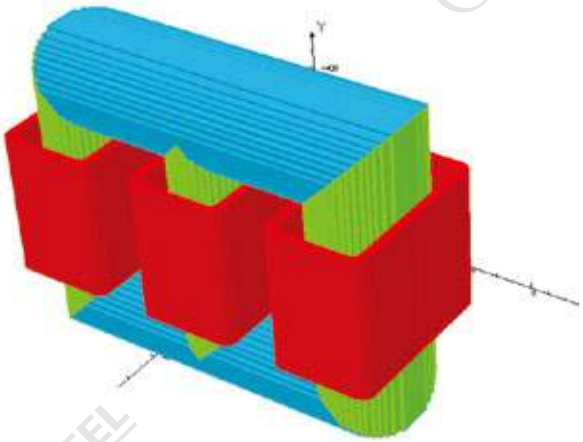
With transformer noise 2-3dB(A) lower than the requirement, Baosteel low magnetostriction GO electrical steel has been widely accepted by customers.

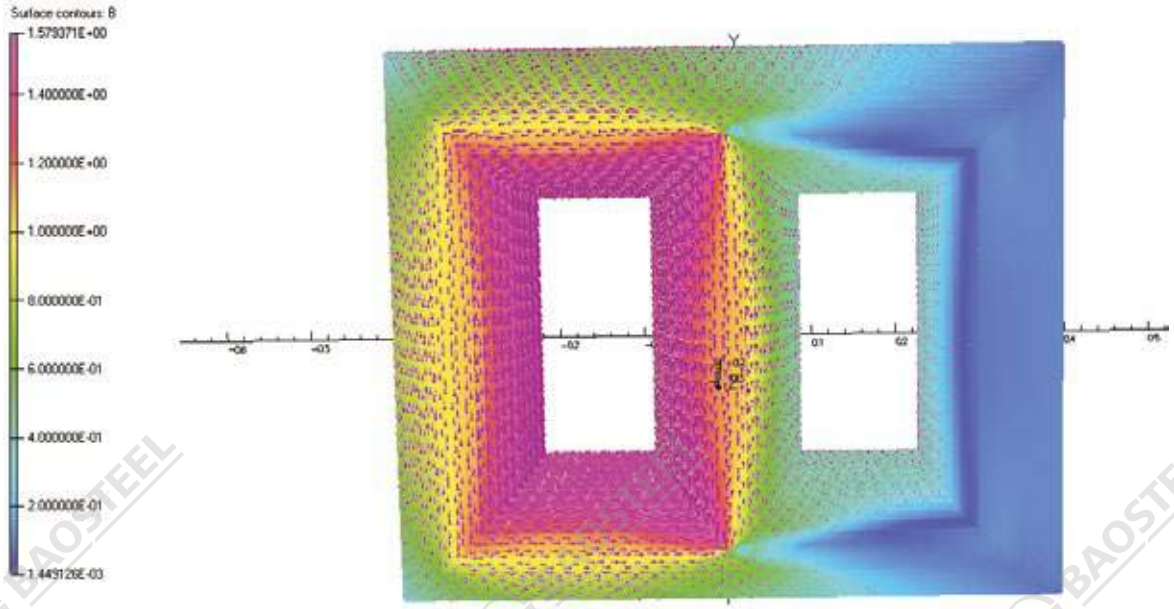
电力产品名称 Power products	噪音要求 Noise requirements	常规材料 Normal material	低噪音材料 Low magnetostriction material
SSZ11-240000/220型变压器 SSZ11-240000/220 transformer	63 dB(A)	—	60 dB(A)
SB11-M-500/10型变压器 SB11-M-500/10 transformer	47 dB(A)	44.3 dB(A)	42 dB(A)
SFSZ-180000/220型变压器 SFSZ-180000/220 transformer	63 dB(A)	60 dB(A)	58 dB(A)
SZ-50000/110型变压器 SZ-50000/110 transformer	60 dB(A)	58 dB(A)	56 dB(A)
SCB11-1000/10型变压器 SCB11-1000/10 transformer	50 dB(A)	47.5 dB(A)	44 dB(A)
DF11-120000/750型变压器 DF11-120000/750 transformer	65 dB(A)	62 dB(A)	60 dB(A)
S14-M-400/10型变压器 S14-M-400/10 transformer	48 dB(A)	45 dB(A)	42 dB(A)
BKS-90000/230型电抗器 BKS-90000/230 reactor	75 dB(A)	70 dB(A)	69 dB(A)
BKS-75000/230型电抗器 BKS-75000/230 reactor	75 dB(A)	74 dB(A)	72 dB(A)
SCB14-2000KVA型变压器 SCB14-2000KVA Transformer	—	46 dB(A)	44 dB(A)

仿真能力
Simulation Analysis

- 具备提供变压器空载特性分析的能力
- 具备仿真磁场分布的能力
- 具备仿真直流偏磁特性的能力
- 具备仿真谐波特性的能力

- Ability to provide no-load characteristic analysis
- Ability to simulate magnetic field distribution
- Ability to simulate DC magnetic bias characteristics
- Ability to simulate harmonic characteristics





材料剪切技术支持
Technical Support in Material Slitting and Cross Cutting



产线因素
Production line factors

- 产线类型
- 运行速度
- 送料对中
- 稳定性
- Production line
- Production speed
- Feed centering
- Stability

刀具因素
Cutting tool factors

- 刀刃状态
- 刀刃间隙量
- 刀刃重合量
- 刀具修磨精度
- 刀具修磨周期
- Blade condition
- Gap between blades
- Overlap
- Grinding precision
- Grinding cycle

良好的剪切质量是
保证变压器空载特性的重要因素

Good cutting quality is important to ensure no-load characteristics of transformers

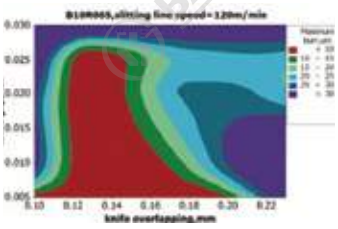
其他因素
Other factors

- 压板间隙
- 张紧气压
- 导轨位置
- 分离环状态
- Gap between platens
- Tension pressure
- Position of guides
- Separation ring

材料因素
Material factors

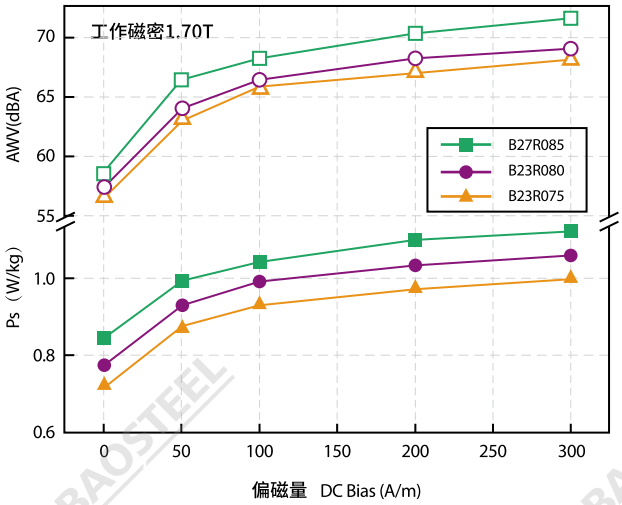
- 来料厚度
- 力学性能
- 来料状态
- 缺陷情况
- 涂层
- Material thickness
- Mechanical properties
- Coil state
- Defects
- Coating

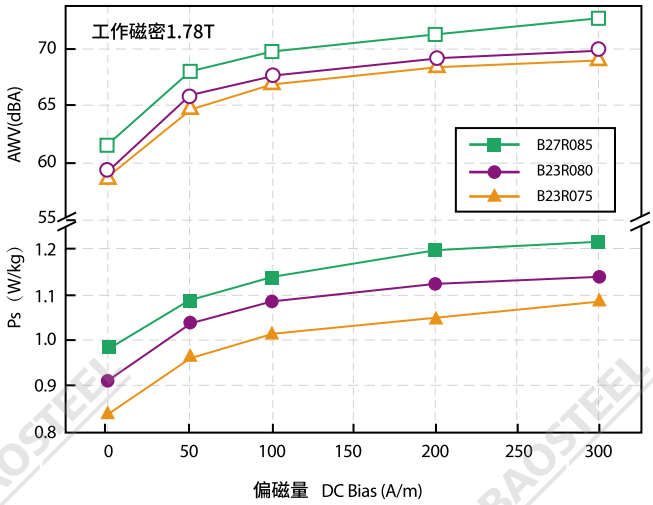




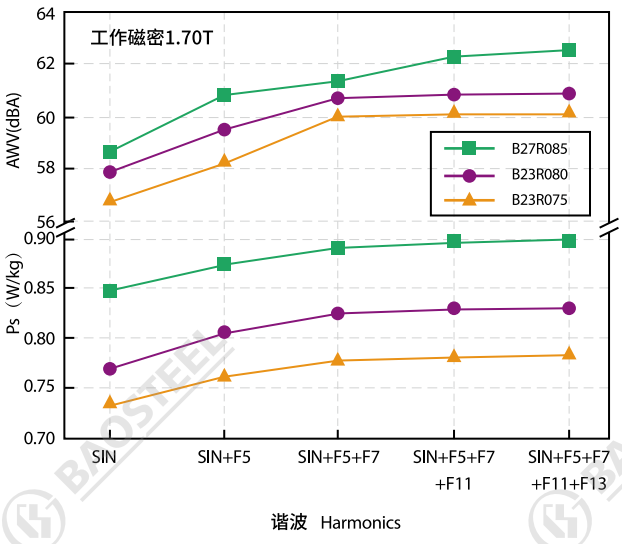
特殊工况技术支持
Technical Support in Special Operating Condition

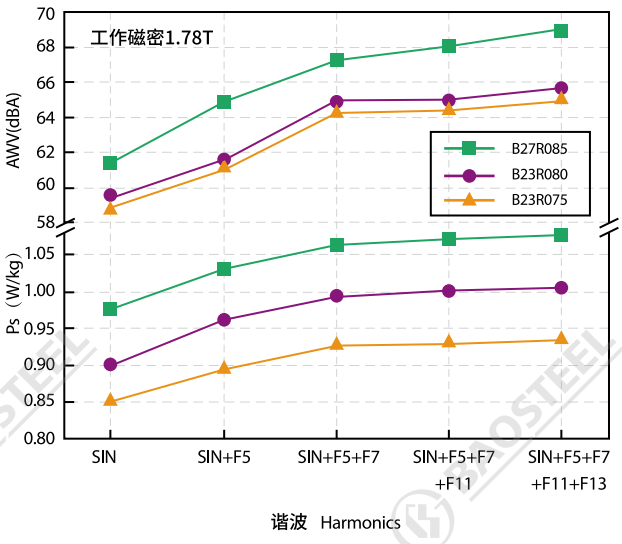
直流偏磁 DC Magnetic Bias



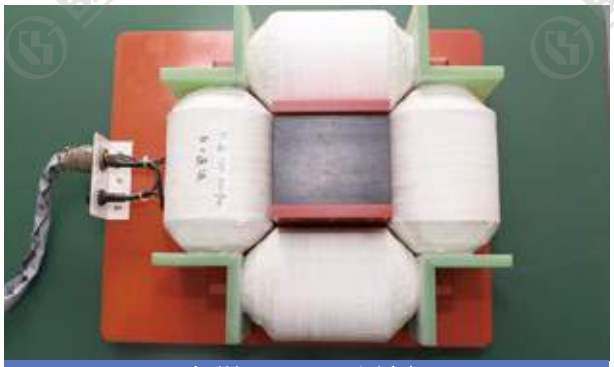


高次谐波 High Order Harmonic





实验研究能力
Experimental Research Ability



高磁场100kA/m测定框

High magnetic field 100kA/m measurement frame

微小硅钢测定框

Micro silicon steel measurement frame

三维激光测试测量装置

3D laser testing and measurement device

硅钢厚度方向性能测量装置

Measurement device for normal performance of silicon steel

法向压应力下硅钢性能测量装置

Properties test under normal compress stress

变压器铁心智能测试平台

Intelligent testing platform for transformer core

宝山钢铁股份有限公司
http://www.baosteel.com

BAOSHAN IRON & STEEL CO., LTD.
http://www.baosteel.com

硅钢销售部
Silicon Steel Sales Department
地址：上海宝山漠河路151号
邮编：201999
电话：021-26649613

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

2024.06 印刷于中国上海/Printed in Shanghai China

GOT2406C

扫描二维码可直接下载本手册内容
Scan QR code to download this file