

01 耐磨产品助力绿色矿山、智能矿山 GRINDING PRODUCTS TO HELP DEVELOP GREEN MINES AND INTELLI- GENT MINES

球磨机耗材/Ball milling consumables
半自磨机耗材/SAG milling consumables
棒磨机耗材/Rod milling consumables
立磨机耗材/Vertical milling consumables

19 可控、可靠、可追溯 CONTROLLABLE, RELIABLE, TRACEABLE

原材料双重检验/Double inspection of raw materials
自动化生产线/Automatic production line
极冷复合热处理/Extreme cold composite heat treatment
质量控制/Quality control
包装及发货/Packing and delivery

29 安全与健康 SAFETY AND HEALTH

33 与您并肩应对复杂挑战 TACKLING COMPLEX CHALLENGES BY YOUR SIDE

37 公司介绍 COMPANY PROFILE



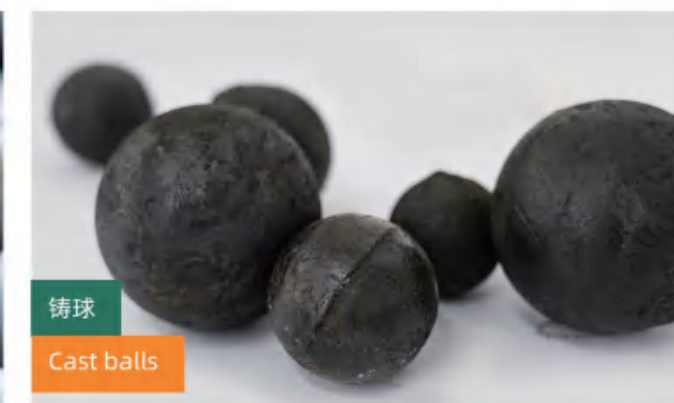
Grinding products to help develop
green mines and intelligent mines

耐磨产品助力绿色矿山、智能矿山

矿山的胸怀
The Bosom of Mines
摄影: 高玉和
Photographer: Gao Yuhé

球磨机耗材

· · Ball Milling Consumables



产品规格

Product Specifications

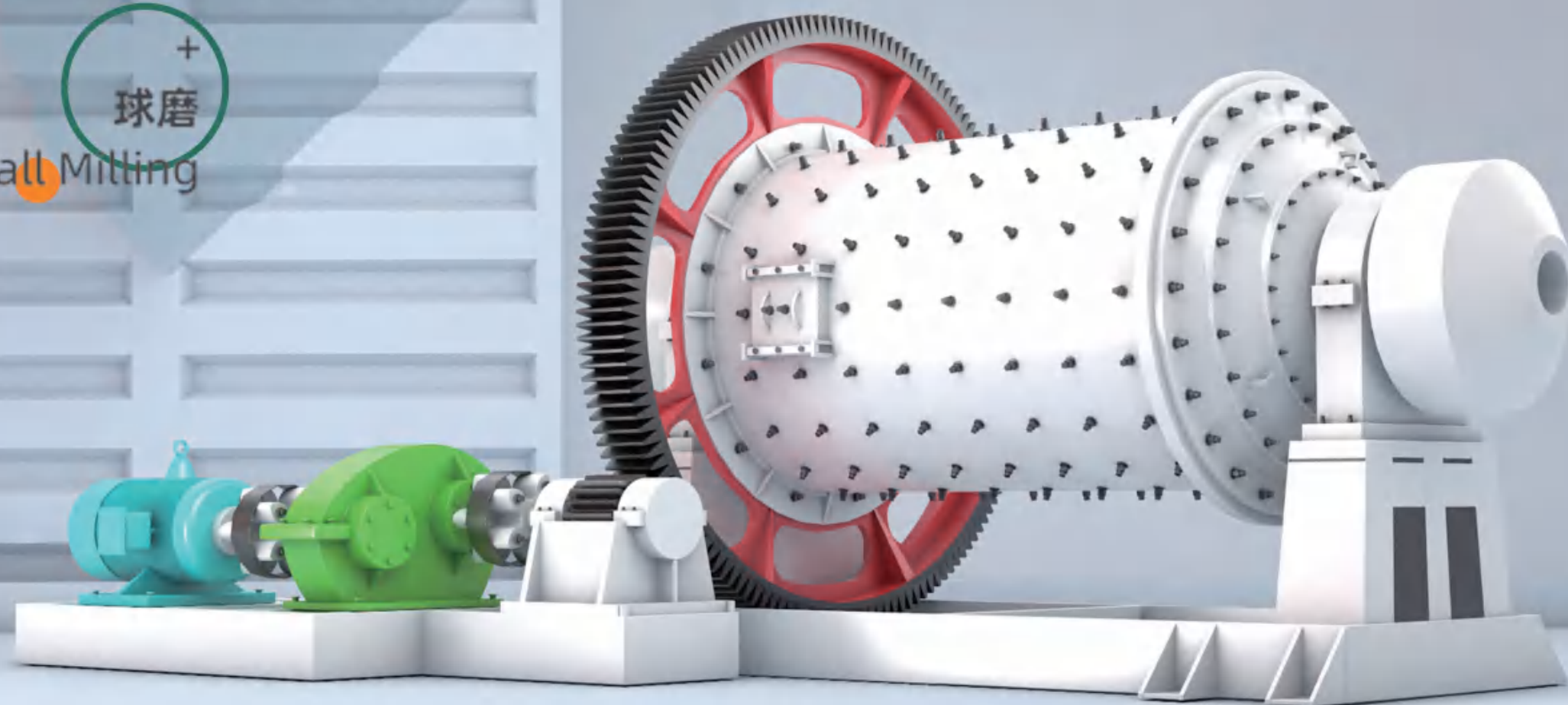
20mm-120mm

产品性能

Product Performance

表面硬度 Surface hardness	体积硬度 Volume hardness	冲击韧性 Impact toughness	破碎率 Breakage rate
60-65HRC	58-65HRC	> 12J/CM ²	< 0.5%

球磨
Ball Milling



伊莱特耐磨钢球被广泛应用于球磨机的磨选矿环节，产品具备硬度高、耐磨性强、破碎率低、质量稳定等特性，适用于金矿、银矿、铜矿、铝矿等有色金属矿山和铁矿、锰矿、钒钛等黑色金属矿山的球磨机破碎，可有效降低矿山在磨矿方面的成本。产品已广泛应用于1530格子型球磨机——7.32*12.5m溢流型球磨机。

Iraeta grinding steel balls are widely used in the grinding and beneficiation process of ball mills, with high hardness, strong wear resistance, low breakage rate, stable quality and other characteristics, suitable for ball mill grinding of gold, silver, copper, aluminum and other non-ferrous metal mines, as well as iron ore, manganese ore, vanadium and titanium and other ferrous metal mines, effectively reducing the cost of mines in grinding. Iraeta products have been widely used in 1530 grate ball mill - 7.32 * 12.5 m overflow ball mill.



半自磨机耗材 SAG Milling Consumables



产品规格

Product Specifications

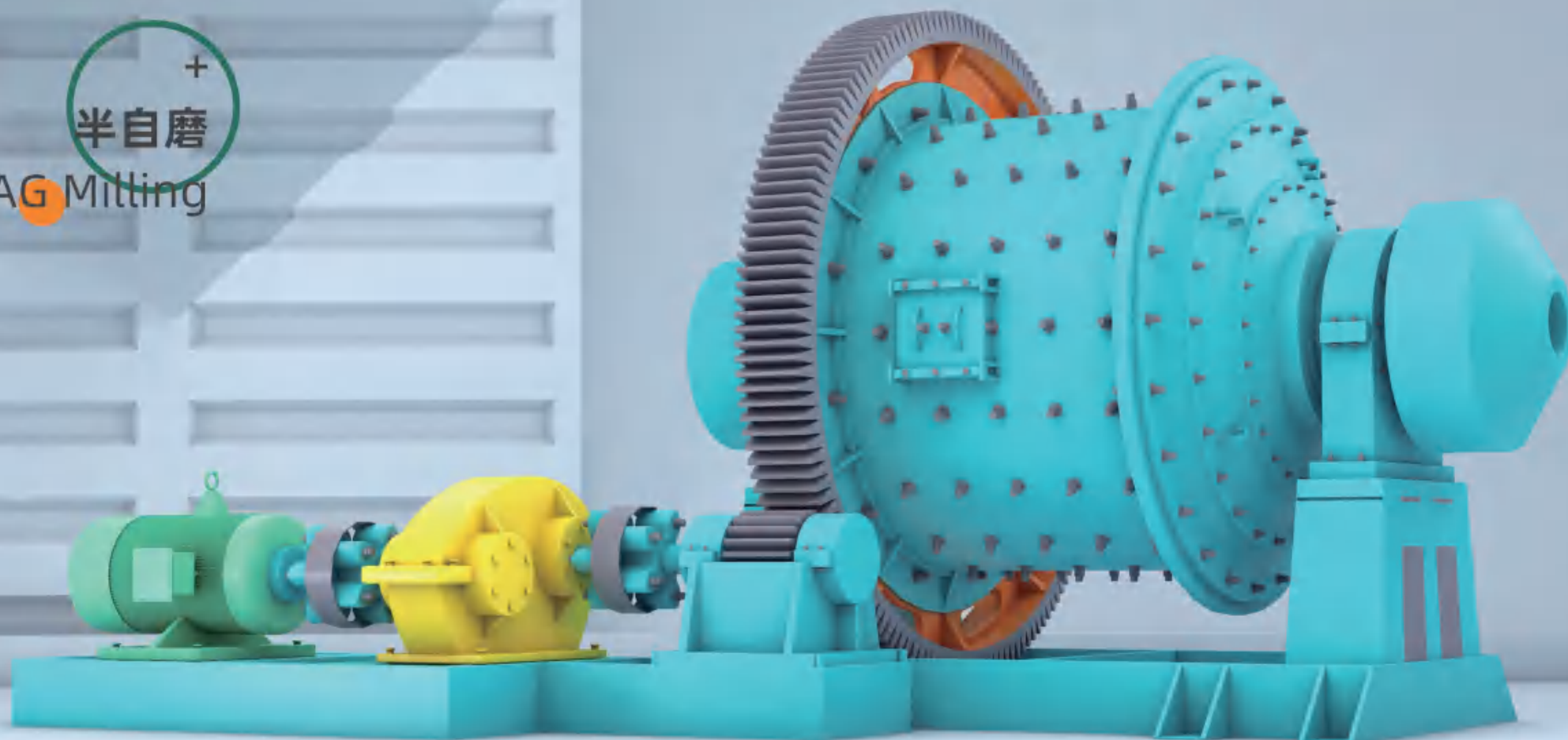
80mm-160mm

产品性能

Product Performance

表面硬度 Surface hardness	体积硬度 Volume hardness	冲击韧性 Impact toughness	破碎率 Breakage rate
58-63HRC	56-63HRC	> 20J/CM ²	< 0.5%

+ 半自磨 SAG Milling



伊莱特半自磨机专用钢球是伊莱特专家团队和中科院金属研究所李依依院士团队共同研发，在原有的基础上对材料的化学成分进行了优化，改变了传统的热处理方式，大大提高了产品的韧性，增加了金属的耐疲劳性能及力学性能，有效地减少了钢球的消耗，广泛应用于矿山大型半自磨机，目前国、内外众多知名矿山的半自磨球已经选用了伊莱特的产品。

产品可应用于4.88*2.39m半自磨机——11.06*7.01m半自磨机等设备。在巴西某大型铜矿选厂，其他指标不变的前提下，磨耗下降20%。在蒙古某大型铜矿选厂，自2016年合作至今，持续不断地为客户节能降耗、节约成本。

The Iraeta steel balls for SAG milling are jointly developed by its expert team and the team led by Academician Li Yiyi of the Institute of Metal Research of Chinese Academy of Sciences. On the basis of the original products, they have optimized the chemical composition of the material, changing the traditional heat treatment method, greatly improving the toughness of the products, increasing the fatigue resistance and mechanical properties of the metal, effectively reducing the consumption of the steel balls, which are widely used for large SAG milling in mines. At present, many famous mines in domestic and overseas have chosen Iraeta's products for their semi-autogenous mills.

The products can be applied to 4.88 * 2.39 m SAG milling-11.06 * 7.01 m SAG milling and other equipment. In a large copper ore processing plant in Brazil, their grinding consumption was reduced by 20% with other indicators remaining unchanged after using Iraeta's products. Since 2016, we have collaborated with a large copper ore processing plant in Mongolia, continuously saving energy and costs for them.



+ 棒磨机耗材 Rod Milling Consumables



磨棒
Grinding rod



产品规格

Product Specifications

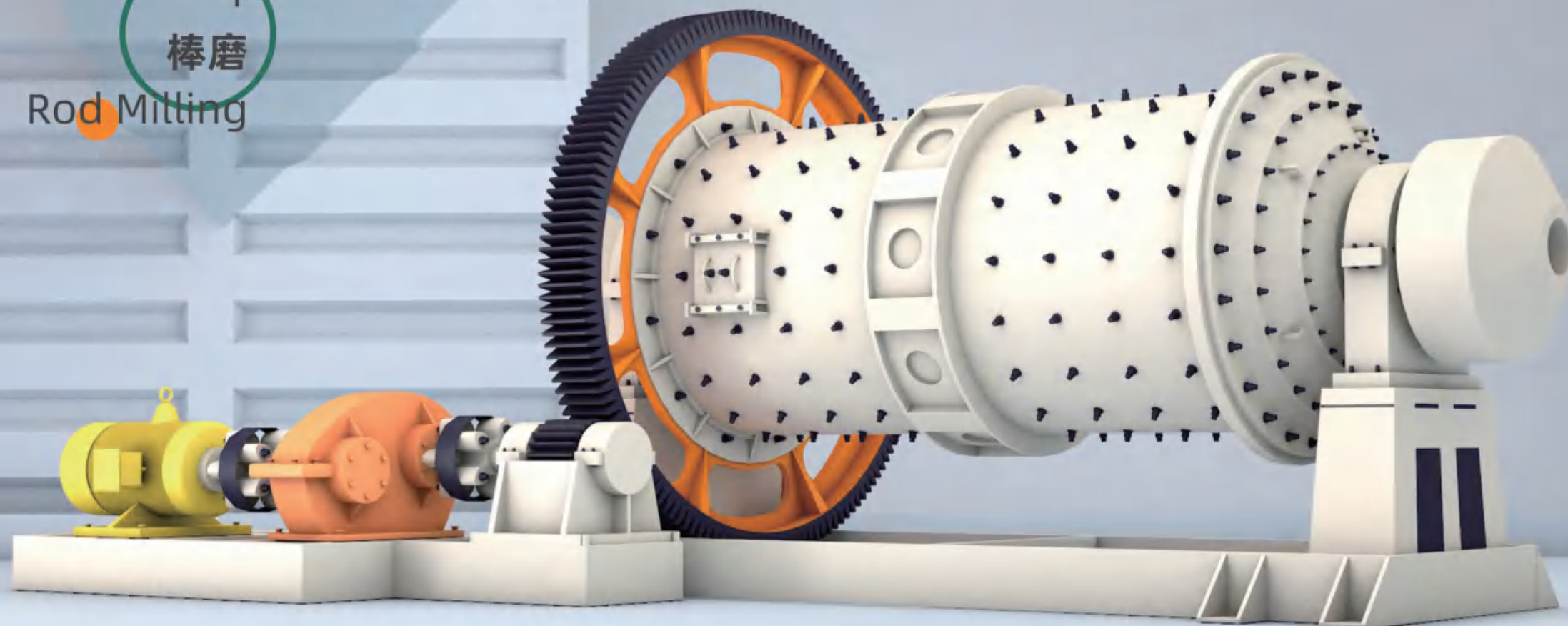
$\phi 40\text{mm}-150\text{mm}$
 长度可根据需求定制
 Length can be customized upon request

产品材质

Product Material

65Mn、40Cr、42CrMo等
 可根据需求定制
 Can be customized upon request

+ 棒磨 Rod Milling

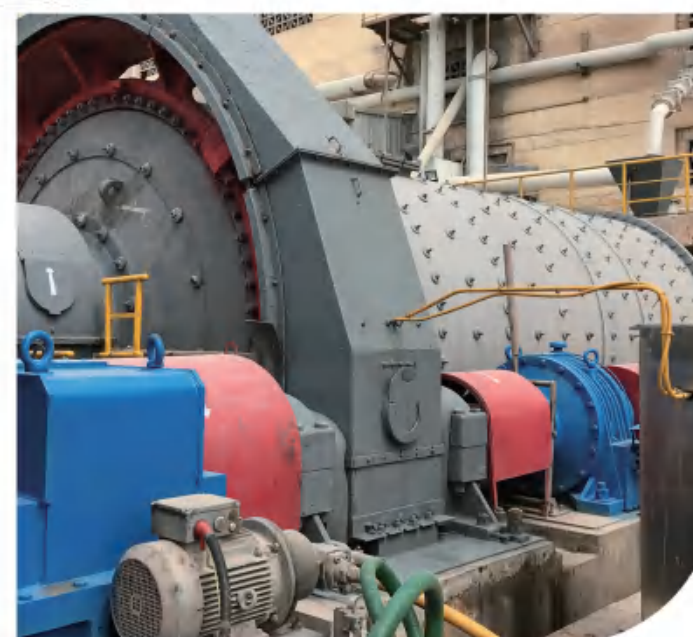


伊莱特可根据客户要求，生产各种规格和硬度级别、性能优异的耐磨钢棒，采用全自动生产线及先进的热处理工艺进行生产。产品特点：硬度高、韧性强、耐研磨、不断棒、不弯棒。由于使用寿命长，不但能为客户节约成本，还减少了棒磨机换棒时间，提高了客户生产效率。

产品被广泛应用于各类金属矿山、氧化铝、煤化工、煤浆发电厂、石英砂、制砂厂、钢渣等领域的各类棒磨机设备。

The Company can produce grinding rods with various specifications, hardness levels and excellent performance according to customer requirements, using fully automated production lines and advanced heat treatment processes. Product features: high hardness, strong toughness, strong grinding resistance, no breakage, no bending. Due to the long service life, they could not only save the costs for customers, but also reduce the rod-changing frequency and improve the production efficiency for the customers.

The products are widely used in all kinds of rod milling equipment in various metal mines, alumina, coal chemical, coal slurry power plants, quartz sand, sand making plants, steel slag and other fields.





产品规格

Product Specifications

20mm-30mm

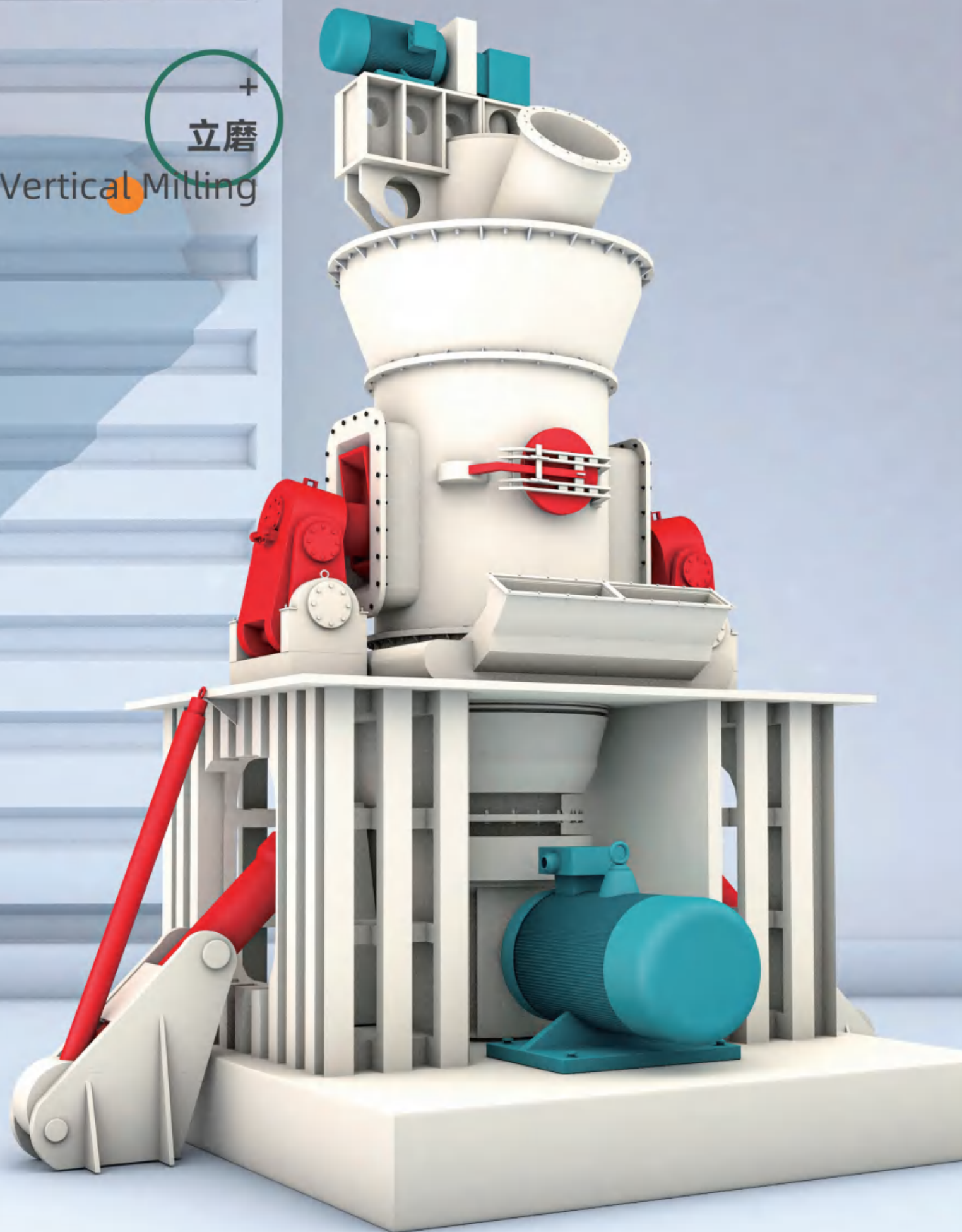
产品性能

Product Performance

表面硬度 Surface hardness	体积硬度 Volume hardness	冲击韧性 Impact toughness	破碎率 Breakage rate
62-65HRC	62-65HRC	/	< 0.5%

立磨


Vertical Milling



立磨机是专门用来做精细磨处理的，要求物料粒度的细度低，所以一般立磨机都会采用小规格直径锻轧钢球。伊莱特立磨机用球生产自动化程度高，产品性能稳定，不破碎、不开裂、不掉皮，耐磨性能优良。

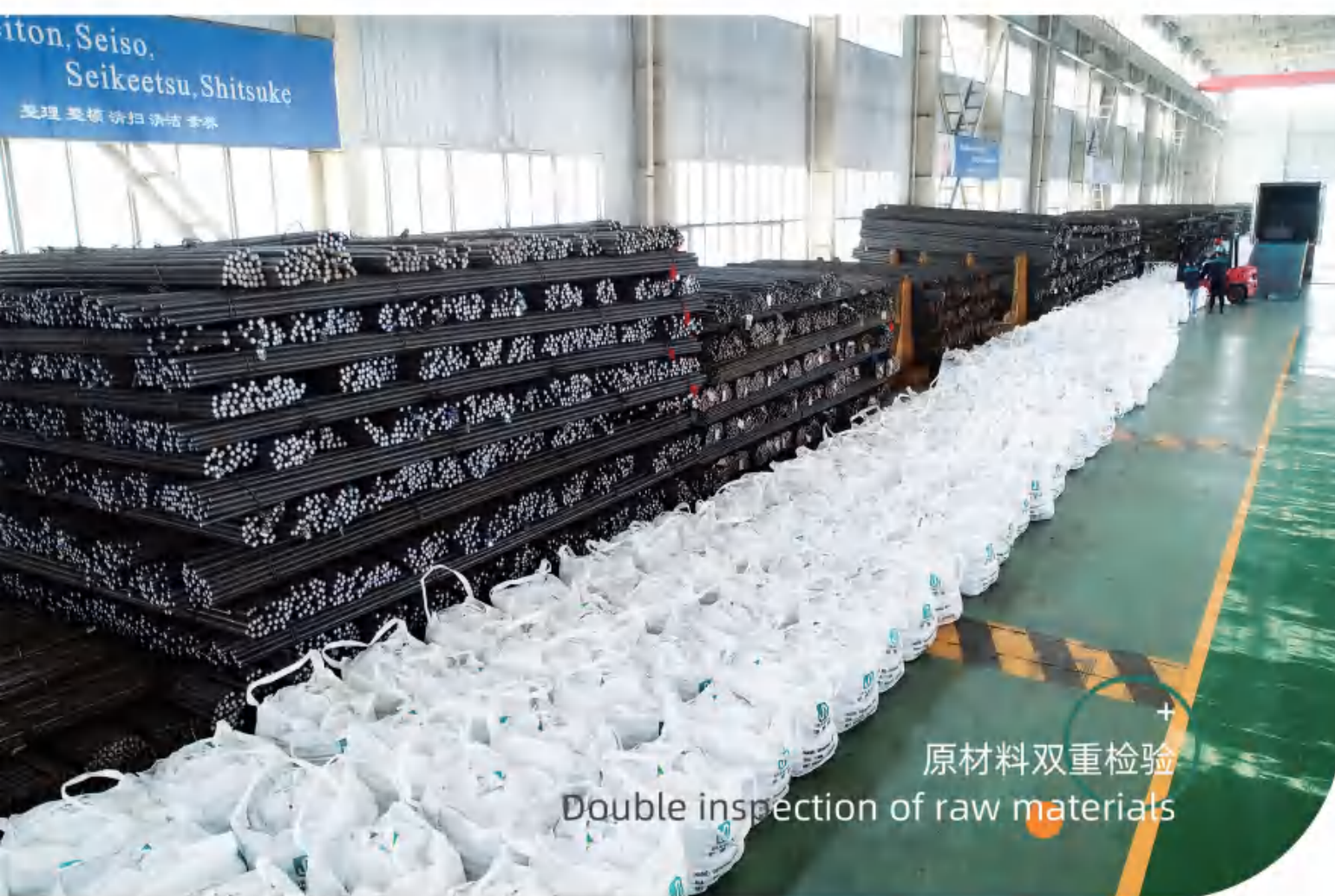
Vertical milling is specially used for fine grinding processing, requiring low fineness of material size, so generally small diameter forged and rolled steel balls are used. The production of the Company's balls for vertical mills is highly automated, with stable product performance, no breakage, no cracking, no peeling, and excellent wear resistance.



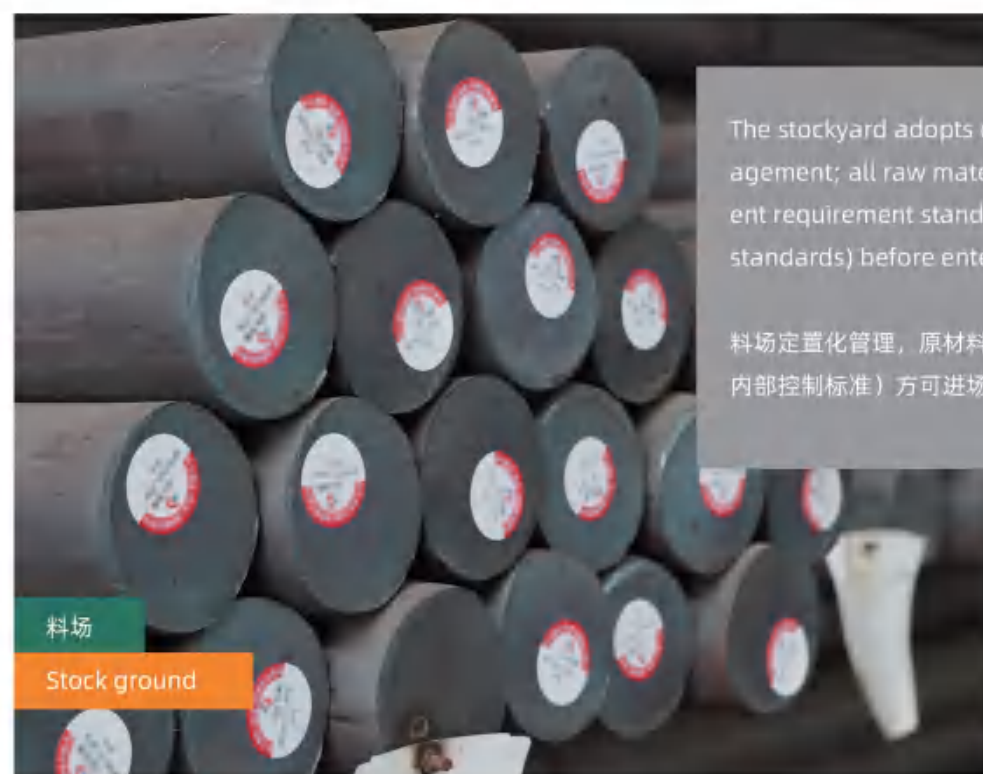


Controllable , Reliable , Traceable

可控、可靠、可追溯



原材料双重检验
Double inspection of raw materials



料场
Stock ground

The stockyard adopts designated placement management; all raw materials are checked twice (client requirement standards and internal control standards) before entering the stockyard.

料场定置化管理，原材料经双重检验（客户需求标准、内部控制标准）方可进场。

自动化生产线 Automatic Production line



轧球生产线
Rolling ball production lines

Iraeta (Shandong) Grinding Material Co., Ltd. 7 hot-rolled steel ball production lines and 7 forging ball production lines are all computer-controlled, which greatly reduces manual intervention and process transfer, making the quality of its products highly stable even from batch to batch. For the mining industry that needs stable grinding efficiency, our products can better meet their requirements.

伊莱特(山东)耐磨材料有限公司目前拥有的7条热轧钢球生产线、7条锻球生产线全部使用电脑控制，由于极大减少了人工干预和工序转接，我们的产品质量即便是在不同批次间也有很高的稳定性，对于需要稳定研磨效率的采矿业来讲，使用我们的产品更能满足您的要求。



锻球生产线
Forging ball production lines



极冷复合热处理 Extreme Cold Composite Heat Treatment



淬火
Quenching

We have introduced Spanish technology in our heat treatment process and co-developed a unique multiplex heat treatment technology in collaboration with experts from scientific research institutions. Through the processes of multiple-time quenching, quenching liquid temperature control and continuous tempering, our steel balls have a better performance in the uniformity of volume hardness and overall wear resistance.

我们在热处理工艺上引进了西班牙技术，并联合科研机构的专家，研发出了独特的复合热处理技术，通过多次淬火，淬火液温度控制，连续回火等工艺让我们的钢球在体积硬度的均匀性和整体耐磨性上有了更好的表现。



多次硬化
Multiple hardening



韧性改善
Toughness improvement

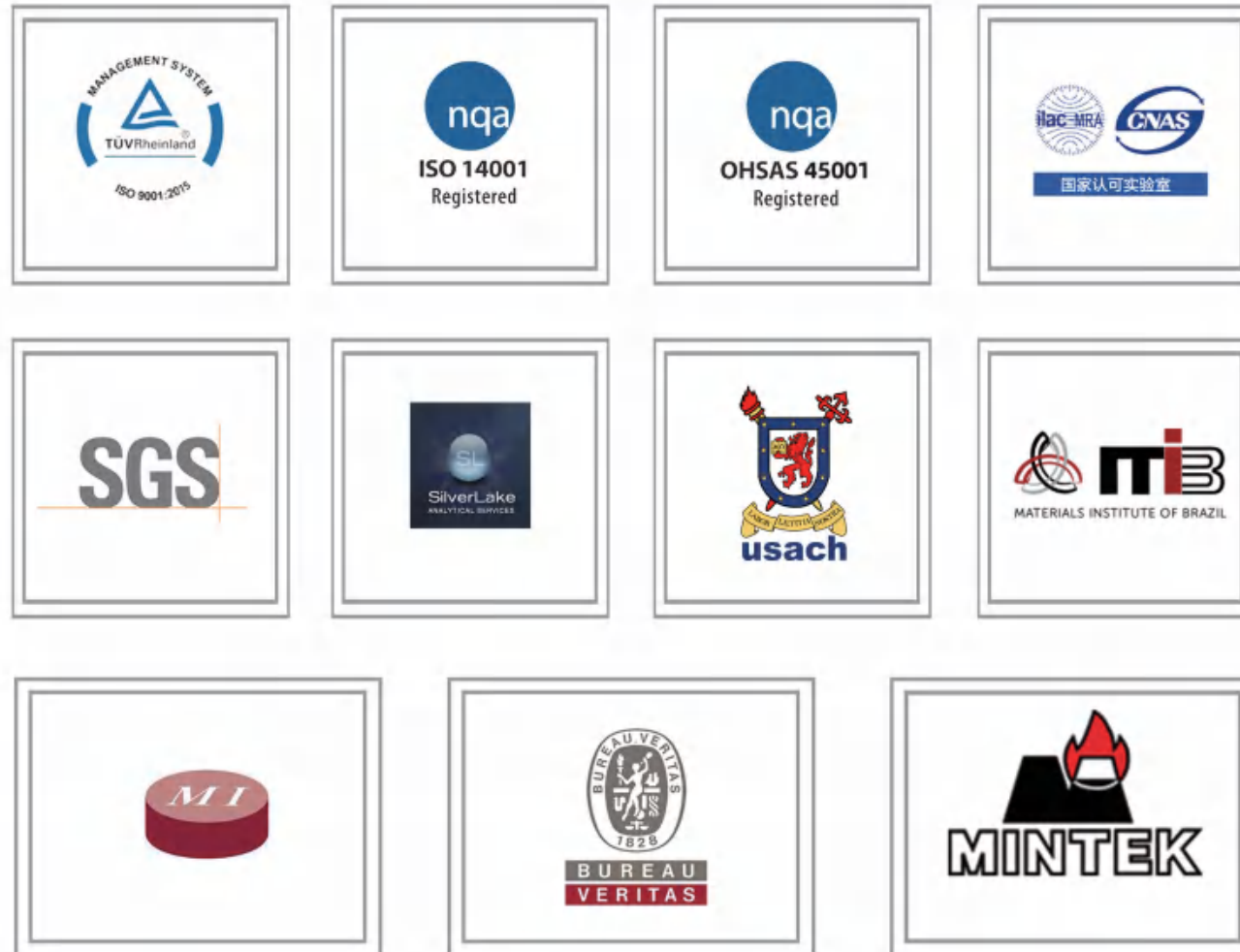


连续回火
Continuous tempering



淬火介质温度控制
Quenching liquid temperature control

质量控制
Quality Control



包装及发货
Packing and delivery





Safety and Health
安全与健康



职工安全防护

Employee safety protection

We look at the safety of our working environment from the perspective of being responsible for our employees and their family, and strictly comply with ISO 45001 OHSMS and other standards, while creating a comfortable working and management atmosphere for them and organizing regular safety training and emergency drills. Moreover, the Company operates under an ISO 14001 EMS and focuses on harmony with the surrounding community to promote sustainable development.

我们以对员工及整个家庭负责的角度来审视工作环境的安全性，严格遵守ISO45001职业健康安全管理体系等标准，同时为员工营造舒适的工作和管理氛围，定期组织安全培训和应急演练。并且，在ISO14001环境管理体系下进行经营，注重与周边社区的和谐相处，促进可持续发展。



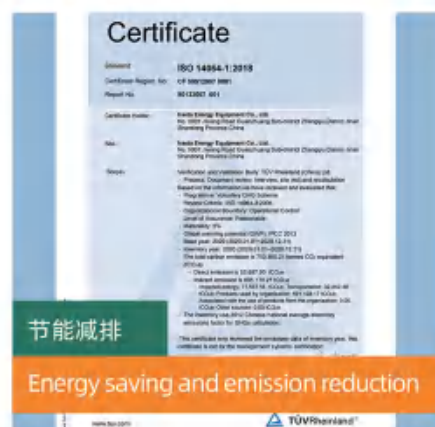
定期安全培训

Regular safety training



定期安全演习

Regular safety drills



节能减排

Energy saving and emission reduction



促进女性就业

Promoting female employment



奉献社会

Contributing to society





Tackling complex challenges
by your side

与您并肩应对复杂挑战



定制化

研磨技术指导
Grinding technical guidance



24h

订单启动计划
Order start plan



20+

年海外服务经验
Year overseas service plan



N

遍布全球n个国家的技术服务网络
Technical service network
in n countries around the world



售前/Pre-sales

01

技术沟通

Technical communication



02

定制方案

Customized solution



03

商务合作

Business cooperation



售中/In-sales

01

跟踪每个生产环节

Tracking each production process



02

与客户保持密切沟通

keeping close communication with clients



03

及时反馈产品进度

Timely feedback on the progress of products



售后/Post-sales

01

交付后持续关注

Ongoing attention after delivery



02

收集产品工作信息

Collect product work information



03

内部讨论，优化方案，以便下次提供更好的产品

Internal discussions, solution optimization,
in order to provide better products next time



Iraeta (Shandong) Grinding Material Co., Ltd.

伊莱特（山东）耐磨材料有限公司

伊莱特(山东)耐磨材料有限公司是伊莱特股份的全资子公司，中国规模超大、经验丰富的耐磨钢球生产制造商之一，年产各类钢球30万吨，采用自动化先进工艺进行生产，质量稳定、性能可靠，各类检测设备齐全，公司实验室具备CNAS国家实验室资质，严格控制从原材料进厂到产品检测出厂的每道工序。

我们与时俱进、不断创新，始终走在行业的前沿，可以根据不同客户、不同材质、不同要求进行定制化生产服务，满足客户的一切需求，为全球各地的矿山提供产品、创造价值。产品远销亚洲、南美、北美、非洲、欧洲等40多个国家，被广泛应用于铜矿、铁矿、金矿、钼矿、铅锌等各类矿山矿石的破碎研磨，得到了力拓、淡水河谷、嘉能可、智利铜矿、金罗斯、雅玛娜、中国五矿、中国黄金、中国铝业、山东黄金、中国有色、紫金矿业等国内、外知名矿企的一致认可。曾获得中国循环经济协会科学技术奖三等奖，真正助力绿色矿山发展。



Iraeta (Shandong) Grinding Material Co., Ltd. is a wholly owned subsidiary of Iraeta Group, one of the largest and experienced manufacturers of wear resistant steel balls in China, with an annual production capacity of 300,000 tons of various types of steel balls, adopting advanced automated technology for production, to guarantee their stable quality and reliable performance. With all kinds of testing equipment, the Company's laboratory has obtained the CNAS national laboratory qualification, and it also exerts strict control over each process from raw materials incoming to product inspection before shipping.

We keep pace with the times, keep innovating, and always stay at the forefront of the industry. We can provide customized production services according to different requirements of different customers and different materials, to meet all the needs of our customers, provide products and create value for mines around the world. Our products are exported to more than 40 countries in Asia, South America, North America, Africa, Europe, etc. They are widely used in the crushing and grinding of copper ore, iron ore, gold, molybdenum, lead and zinc and other kinds of mining ores, and have been unanimously approved by Chinese and foreign famous mining enterprises such as Rio Tinto, Vale, Glencore, Chilean Copper Mine, Kinross, Yamana, China Minmetals, China Gold, Chalco, Shandong Gold, China Nonferrous, Zijin Mining, etc. The Company has won the third prize of the Science and Technology Award of China Association of Circular Economy, for its contribution to the development of green mines.

Company Profile

公司介绍

伊莱特——为人类锻造更加安全、绿色与高效的未来工业。

伊莱特致力于向各类先进装备与高价值资产提供关键可靠部件，我们在锻造行业拥有半个世纪的坚定承诺，以及超过30年的国际市场服务经验。

我们在中国和西班牙的10个生产基地和2500余名员工，服务于清洁能源、化石能源、海洋工程、隧道掘进、水泥制造、金属矿山等不同市场的客户。

伊莱特高度聚焦于锻造行业，主要产品包括盘类、环类、筒体锻件，锻棒与锻轴，耐磨介质等，涵盖了从0.3公斤到350吨的各类大中小型锻件。我们能提供从原材料定制、锻造、热处理、高精度机加工、检测、复杂运输的整套解决方案。

我们拥有全球少数公司才具备的极限制造能力，可提供最大重量350吨的自由锻件，最大直径22米的整体无缝轧环，最大高度5米的锻轧式筒节，以及最大长度25米的径向锻棒。伊莱特在2022年制造出了直径15.7米，周长49.2米的整体无缝锻环，创造了吉尼斯世界纪录。

这些加工能力帮助我们推出一系列创新性产品，并将其成功应用于四代核电、日产万吨水泥回转窑、掘进直径16米盾构机、25 MW 漂浮式海上风机等超级装备中。

愿景：为人类锻造更加安全、绿色与高效的未来工业。

使命：成为全球高端装备锻件核心部件制造商。

价值观：诚实、谦逊、坚韧、拼搏。

Vision: Forge a safer, greener and more efficient future for mankind.

Iraeta is committed to supplying mission-critical/high-reliability components for advanced equipment and high-value assets. We have half a century of dedication to the forging industry and over 30 years of service offering experience in the global market.

We serve clients across clean energy, fossil fuels, marine engineering, tunnel boring, cement production, and metal mining sectors through our 10 production bases in China and Spain, supported by a workforce of over 2,500.

Specializing exclusively in forging, Iraeta manufactures disc, ring, and shell forgings, forged bars & shafts, as well as wear-resistant grinding media+covering small, medium, and large forgings ranging from 0.3 kg to 350 tons. We deliver end-to-end solutions, from custom material preparation and forging to heat treatment, high-precision machining, testing, and complex logistics.

With extreme manufacturing capabilities that only a handful of global firms possess, we can provide unparalleled forgings with a maximum weight of 350 tons, seamless rolled rings up to 22 m in diameter (monolithic construction), rolled cylindrical shells up to 5 m in height, and radially forged bars up to 25 m in length. In 2022, Iraeta set a Guinness World Record by producing the largest seamless forged ring ever made: 15.7 m in diameter (49.2 m circumference).

These processing capabilities enable us to launch a series of innovative products, which have been successfully applied to super equipment such as the fourth-generation nuclear power plant, cement rotary kilns with a daily output of 10,000 tons, shield machines with a tunnelling diameter of 16 m, and 25 MW floating offshore wind turbines.

Vision: Forge a safer, greener and more efficient future for mankind.

Mission: Become the core manufacturer of equipment forgings in the world.

Values: Honesty, humility, tenacity, and diligence.

Traffic 交通

济南国际机场 Jinan Airport	驾车40分钟 / 40 mins' drive
青岛 Qingdao	高铁1小时50分钟 / 1 hours 50 mins by train
北京 Beijing	高铁1小时45分钟 / 1 hour 45 mins by train
上海 Shanghai	高铁3小时30分钟 / 3 hours 30 mins by train 飞机1小时50分钟 / 1 hour 50 mins by plane

距青岛港：300公里	To Qingdao Port: 300km
距潍坊港：200公里	To Weifang Port: 200km
距日照港：300公里	To Rizhao Port: 300km
距天津港：350公里	To Tianjin Port: 350km