



*We Bring Trust to All the World
Manufacturing Grinding Balls of European Quality
Maximize your grinding efficiency*

HAOYANG

CASTING & FORGING

Jinan Haoyang Casting & Forging Co.,Ltd

Haoyang China Factory

Add: Guangzhuang Industrial Zone, Zhangqiu City,
Jinan Shandong Province China 250200
Tel/Fax: 0086-531-83807989
Contact Person: Jinfu Chen
Email: haoyang@forgedsteelball.com

Haoyang Trading Office China

Add: Room 409, Fortune Office Building,
Hongkong Street, Zhangqiu
Tel:+86-531-61320009 Fax: +86-531-61320009
M: +86-13515418128
Sales Manger : lily Bell
E-mail: info@forgedsteelball.com
Website: www.forgedsteelball.com

European Branch Office

Contact Person: Kristian Nummelin
Address : Ruuhiranta 11, 96800 Rovaniemi, FINLAND
Tel. +358 45 1622616
Fax +358 2 633 7544
Mobile Phone: +358 45 1622616
Email : kristian.nummelin@crossparts.fi

Chile Branch Office

Contact Person: Barbara Roa Salinas
Address: Av. Holanda 099. Of.:1101-Providencia, Chile
Tel: +56 9 79542495
Fax: +56 02 28501717
Email: haoyang@forgedsteelball.com
broa.gama@olviasystems.eu



Jinan Haoyang Casting & Forging Co.,Ltd



COMPANY PROFILE

*We Bring Trust to All the World
Manufacturing Grinding Balls of European Quality
Maximize your grinding efficiency*



HaoYang Manufacturing Grinding Balls of
European Quality



expomin 2016 XIV EXHIBICIÓN Y CONGRESO MUNDIAL PARA LA MINERÍA LATINOAMERICANA
25 - 29 ABRIL 2016 | ESPACIO RIESCO - SANTIAGO, CHILE

ORGANIZA Y PRODUCE **Fisa Chile**

MINEXPO 2016 INTERNATIONAL
SEPTEMBER 26 - 28, 2016
LAS VEGAS, NEVADA, USA

SPONSORED BY **NMA**
THE AMERICAN MINING ASSOCIATION

Jinan Haoyang Casting & Forging Co.,ltd is one of the leading grinding media manufacturer in China . Our products are designed for grinding of raw materials by cement plants, energy generating companies, ore mining and industrial processing facilities, construction materials plants located in China . Haoyang steel balls manufacturing plant was put into operation since 2001. Today, we deal with continuously growing consumer requirements for operational properties of grinding media, what directly affects ball mill prices and quality, efficiency of equipment and the enterprise in general.

The plant was built using the most advanced Hot rolled and forging equipment. Through the use of modern technologies and cooperation with a number of research organizations, we managed to

achieve very high levels of quality in grinding steel balls. Despite its short history, Haoyang managed to become a manufacturer of quality grinding media for ball mills, as well to keep its position on both the domestic and overseas markets .The operational properties of steel balls produced by Haoyang allow to significantly reduce the consumption of grinding balls and power, to increase grinding fineness of raw materials, to decrease the number of mill repairs and, consequently, to increase their productivity.

Manufacturing grinding balls of European quality, we bring trust to all the world
Customer and will maximize your grinding efficiency !

PRODUCT CATEGORIES



Product Specifications

Sizes: Haoyang manufactures grinding balls in nominal sizes from Dia25mm to Dia150mm. Grinding balls in the range of Dia 50mm to 125mm in diameter are classified as medium balls and are used primarily in ball mill operations.

Chemistry: An individual chemical profile has been developed for each diameter ball to correspond with the requirements for heat treatment. Specific alloy additions are included to produce optimum physical properties. The chemistry of the balls is controlled through a close collaboration with our bar suppliers and robust internal quality systems.

Surface and Volumetric Hardness (Rockwell C):

The wear resistance of the balls depends on the microstructure of the steel which is altered using carefully selected heat treatment variables specifically designed for each particular alloy. The control variable for the finish product is the hardness range.

Ball Mill Range

Haoyang China manufactures grinding balls to exacting internal specifications at its grinding media production facilities in Zhangqiu Shandong province China, which are strategically located to service China key mining regions. The balls are manufactured from high carbon low alloy steel bars and then forged into balls. Complete metallurgical control is maintained throughout the process, which is critical in order to obtain the optimum wear and impact resistance required for use in mineral processing operations.

Remarks	Chemical Composition(%) of Raw material						
	C	Mn	Cr	S	P	Si	Hardness(HRC)
45#STEEL	0.5-0.6	0.7-0.8	<0.25	Max0.035	Max0.035	0.17-0.37	48-56
60MN	0.6-0.7	0.8-1.0	<0.25	Max0.035	Max0.035	0.17-0.37	58-60
B2	0.7-0.8	0.7-0.8	0.4-0.6	Max0.035	Max0.035	0.17-0.37	60-64

Remarks	Material	Impact Test Ak.j/cm2	Breakage Rate	Endurance Test times(5m)	Hardness(HRC)			
					Dia25mm-Dia60mm		Dia70mm-Dia150mm	
					Surface	Core	Surface	Core
HAOYANG	45#Steel	≥12	<1%	≥10000	≥48	≥32	≥53	≥30
GRINDING	60MN	≥13	<1%	≥10000	≥58	≥40	≥59	≥35
BALL	B2	≥17	<1%	≥12000	≥60	≥52	≥60	≥50

Nominal Diameter(mm)	Diameter Tolerance(mm)	Approx Weight Per Ball	Average Number Per MT
25	+1.5 -0.5	0.064	15625
30	+1.5 -0.5	0.11	9090
40	+2.0 -1.0	0.26	3846
50	+2.0 -1.0	0.51	1961
60	+3.0 -2.0	0.89	1124
70	+3.0 -2.0	1.4	714
80	+3.0 -2.0	2.0	476
90	+3.0 -2.0	3	333
100	+4.0 -3.0	4.1	244
110	+4.0 -3.0	5.47	183
120	+4.0 -3.0	7.1	141
130	+4.0 -3.0	9.02	111



PRODUCT CATEGORIES



Packaging Options

Bags: Balls can be supplied in woven bags, 1000kgs per bag, on the Pallets and effort in loading and unloading.

Steel Drums: grinding balls to be packed in steel drums with openable top (with threads), drums packed on pallets made of heat treated wood or plywood, two drums per pallet

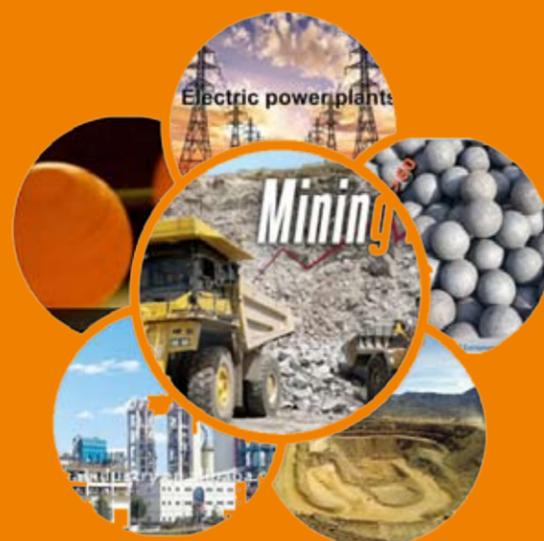


Supply and Quality Guarantee

Long established strategic relationships with local and foreign raw material suppliers allow us to ensure all balls supplied to our customers are made from the highest quality products and meet strict specifications. This gives our customers a confidence in the quality of the product that Haoyang is able to assure.



APPLICATION AREA



Engineering case

- HY-1 40MM/100MM /125mm balls for Finland MECA company in gold mining
- HY-2 90MM/125mm balls for ETS COMPANY in west Africa -Niger
- HY-3 40MM/90MM/100MM for Chile Mining Company via Chinese Trading Agent
- HY-4 80MM balls for YD Global in electric power station of Korea
- HY-5 120MM grinding media balls for TOYO CO.Japan
- HY-6 40MM/60MM/80MM balls for INDIA Sneh Iron & Engineering PVT
- HY-7 80MM/125MM Ball mill balls for Peru Elope Trading

Mine

The ore grinding media usually comes out with the steel grinding ball and steel Grinding rod. Its quality is the decisive factor affecting the operating cost of the mineral processing plant .

We could supply different steel grinding balls in line with different mines and diversified needs of the mineral processing plant. We can offer you the wear resistant steel grinding balls with the diameter ranging from 20mm to 140mm to fit for gold ore, Silver ore, cooper ore , iron ore, etc.. Those products get extensive promotion and applications in actual mining industry , and help the customers attain remarkable economic benefits by saying a lot of procurement cost and largely boosting the production output !

Cement Plant

The power consumption and steel consumption of the ball grinding mill occupy a rather high cost ratio in

the production and processing process of a cement plant. The hardness , breakage rate and the corrosion resistance of the steel grinding ball affect the production cost and efficiency of the ball grinding mill.

Electric Power Plant

The consumption of the steel grinding ball makes up the bulk of the operating cost in the electric power plant . It is very meaningful of how to find a way to reduce the cost and improve the efficiency .

Chemical And other Industries

We can according to the material to be ground provide the most appropriate wear resistant steel grinding balls to enhance the production efficiency of the ball grinding mill, and debase the production cost . Also available is the wear resistant steel grinding rod .

PROCESS EQUIPMENT



Quality Production System Grinding Media P/O number , Batch and Date Recordings

1. Pre-production Checks : Steel bars (Diameter , Length of Cut bars, Heating Numbers signature)
Equipment includes
Air hammer Forging hammer , cooling time and Quenching time and etc..
Temperature Control :- Quenching start Temperature and Quenching End temperature . (Produce 10 balls and then Stop production)



合金材料入厂检测



远红外烘高温仪



落球试验机



从美国进口的PQQ型光谱仪



洛氏硬度计



碳硫分析仪

2. Surface hardness measurement
3. Core Hardness Test Store the 2 cut balls for further inspection
4. Heat Treatment before packing (Record Heat batch , Temperature)
5. Final Hardness Test before dispatch Mark the hardness result in the grinding balls

Ball 1 ~~~ Ball 10	HRC Recordings
	Materials : 60Mn
	25-50mm >62 HRC
	50-80 mm >60 HRC
	90-125mm 56~~59 HRC
	Material : B2
	40-70mm >62 HRC
	80-100mm 56~~60 HRC
	110-140mm 52~~56 HRC

100% Guaranteed Qualified grinding balls will be shipped on board



WHY CHOOSE HAOYANG ?



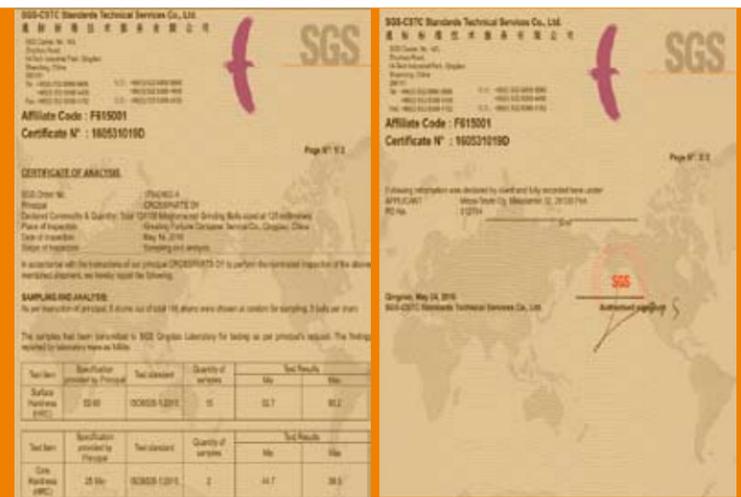
Quality Guarrantee

SAVE TIME, MONEY, AND EFFORT



We aim to offer top quality grinding media at competitive prices on all of our product range.

Haoyang have agent in Europe and providing grinding balls solutions for Gold mining . All the goods will be inspected in factory and then inspected in Loading Port of china by SGS before loading on board . If unqualified , all the containers Will be returned back to factory ! And we accept the claims caused by any problem of the steel .



the SGS report sample from our Europe Customer

Where we will buy the steel - Just directly from China Famous steel company or whose qualified distributors.



Your Qualified Factory and Partner !

- ON-TIME DISPATCH**
We Ship Within 15 Days Of Payment.
- PRE-SHIPMENT (OPTIONAL)**
Choice Of 3rd Party Pre-shipment Inspection At Loading Port Or At Factory
- FACTORY DIRECT PRICES**
We Offer Competitive Prices as the direct factory
- COMPREHENSIVE LOGISTICS**
Instant Freight Rates With Optional Door To Door Delivery

