



# Shandong Qishuai Wear-resistant Equipment Co., Ltd.

 QISHUAI

**High Quality Wear Resisting Technology  
To Escort Your Equipment**





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**COMPANY PROFILE**

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## Experts for industrial wear protection.

Shandong Qishuai Wear-resistant Equipment Co., Ltd. is a manufacturing enterprise integrating R & D, manufacture and installation. It is an experienced manufacturer specializing in providing wear-resistant technical solutions and supporting wear-resistant products.

We develop and manufacture custom solutions for the protection of industrial facilities from wear and impact damage. Our wear-resistant materials and products for industrial plants offer customer-specific solutions which allow us to assure the proper flow of materials and secure your production equipment against unplanned downtime.

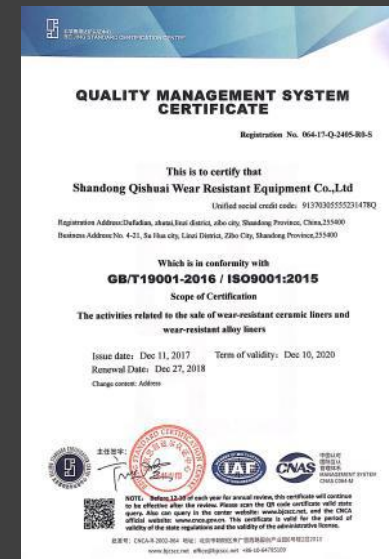
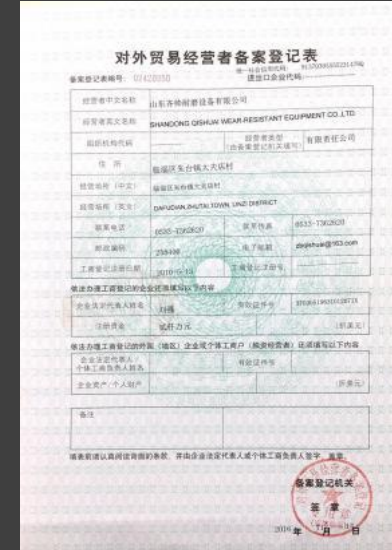






The company was founded in May 2010, and is located in 3,000-year-old Linzi District , ZIBO City, Shandong Province. It is a member of China Welding Association, and is a company designated by Harbin Welding Institute Limited Company to process high-performance hard alloy coatings. It passed ISO9001 Quality System Certification.

The company' s main products include hard alloy surfacing wear-resistant composite liners ( Chromium carbide wear resistant plate ) , alumina ceramic wear-resistant liners, high-strength hard alloy castings, wear-resistant pipes, and wear-resistant equipment. The company also supply fluoroplastic anti-corrosion products and other types of wear-resistant products to match our technical solutions.





The company not only has stable strategic partners in China, but also has customers in Asia, Europe, South America and Oceania, and its products has been exported to more than a dozen countries and regions around the world.



The company has experienced technical staff and advanced equipment, upholding “Integrity-based, Quality first” concept, has won the majority of customers praise and recognition with high-quality services and cost-effective products.





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PART

**PRODUCT APPLICATION**

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# Product Application

**Steel melting industry**

**Mining and beneficiation industries  
(iron ore, copper ore, etc.)**

**Thermal power generation industry**

**Cement & building  
materials industry**

**Mechanical manufacturing industry,  
petrochemical industry**

## **Mining and Beneficiation industries**

The company's products in the mining industry are mainly used in Liner of Loader shovel, Liner of Excavator, Liner of Digging shovel, Liner of Mine Truck, Liner of Chute.

In the raw material conveying system of Beneficiation industry, its products are used in pipeline of Concentrate, pipeline of Tailings.

In the grinding system, its products are used in Liner of feed chute, liner of hopper and exit pipeline. Also are used in Vibration chute , Hydrocyclone , Mining hopper under vibrating sieve , Centrifugal dehydrator , etc.

## **Steel smelting industry**

The company's products in the conveying system are used in Liner of Hopper & Hopper bin, Liner of Vibrating feeder, Wear-resistant belt roller, Repair of Stacker and reclaimer, etc.

In the Sintering system, its products are used in Liner of Mixture hopper bin, Liner of One mixing cylinder, Liner of Secondary mixed cylinder, Repair of Single toothed roll crusher, Repair of comb boards, Roller of four-roll crusher, etc.

In the Blast furnace system, its products are used in Liner of loading car, liner of Slagging channel , liner of hopper bin, liner of Receiving Hopper, liner of Return hopper, Weighing bucket, Three-way distributor, Chute liner of Distributing device, etc.

## **Thermal power generation industry**

The company's products in the conveying system are used in coal pipeline, Coal scuttle, Raw scuttle, Curve drop pipe, liner of Coal feeder.

In the pulverizing system, its products are used in Coal mill housing, feed chute, hopper lining, exit pipeline, burner pipe, pulverizing discharge pipe, Primary duct and elbow, Pulverized Coal Pipe and elbow. In the Dust removal system, its products are used in Dust removal pipe and elbow, Dust blower rotor blade, Slag separation, Ash pipeline, Wear-resistant short tube, etc.



# Product Application

**Steel melting industry**

**Mining and beneficiation industries  
(iron ore, copper ore, etc.)**

**Thermal power generation industry**

**Cement & building  
materials industry**

**Mechanical manufacturing industry,  
petrochemical industry**

## **Cement & building materials industry**

The company's products in the crushing system are used in Crusher rotor and hammer, Flat screen plate of sieve shaker, Circular sieve plate of Round screen. In the grinding system, its products are used in Grinding roller assembly of Vertical Roller Mill, Roller guard, Mill shell liner, Mill chute, Nozzle ring, Air guide plate, Powder separator rotor and Guide vanes, Reject cone, etc.

## **Other industries**

The company's products are also used in Hydrocyclone of coal mining & coal washery, Transport truck bucket liner, medium conveying pipeline, Feeding and discharging pipelines of washing equipment, loader shovel plate, mud mixing equipment, screw conveyor worm propeller off Mechanical Manufacturing Industry.

# Market Distribution

The company's major customers in the domestic steel industry are Shandong Iron&Steel Group Rizhao Boutique Steel Base, Shandong Laiwu Steel Yongfeng Iron and Steel Co., Ltd., Hebei Jingye Group, Shandong Xinhua Special Steel Group, Shandong Weifang Special Steel Group, Shandong Luli Iron and Steel Co., Ltd., Shandong Xiwang Special Steel, Shandong Juneng Special Steel Co.,Ltd , Linyi Jiangxin Steel, etc. In the mechanical processing industry, the main customers are Weifang Kaili Petrochemical Machinery Co. , Ltd. , etc. , and with the country's major metallurgical and power enterprises reached a preliminary agreement, full access to the China Power Investment Corporation.



Overseas sales are mainly involved in mining, electricity, steel plants, and cement plants. The main exporting countries are Australia, Russia, Belgium, Brazil, Chile, Pakistan, Mongolia, Kazakhstan.



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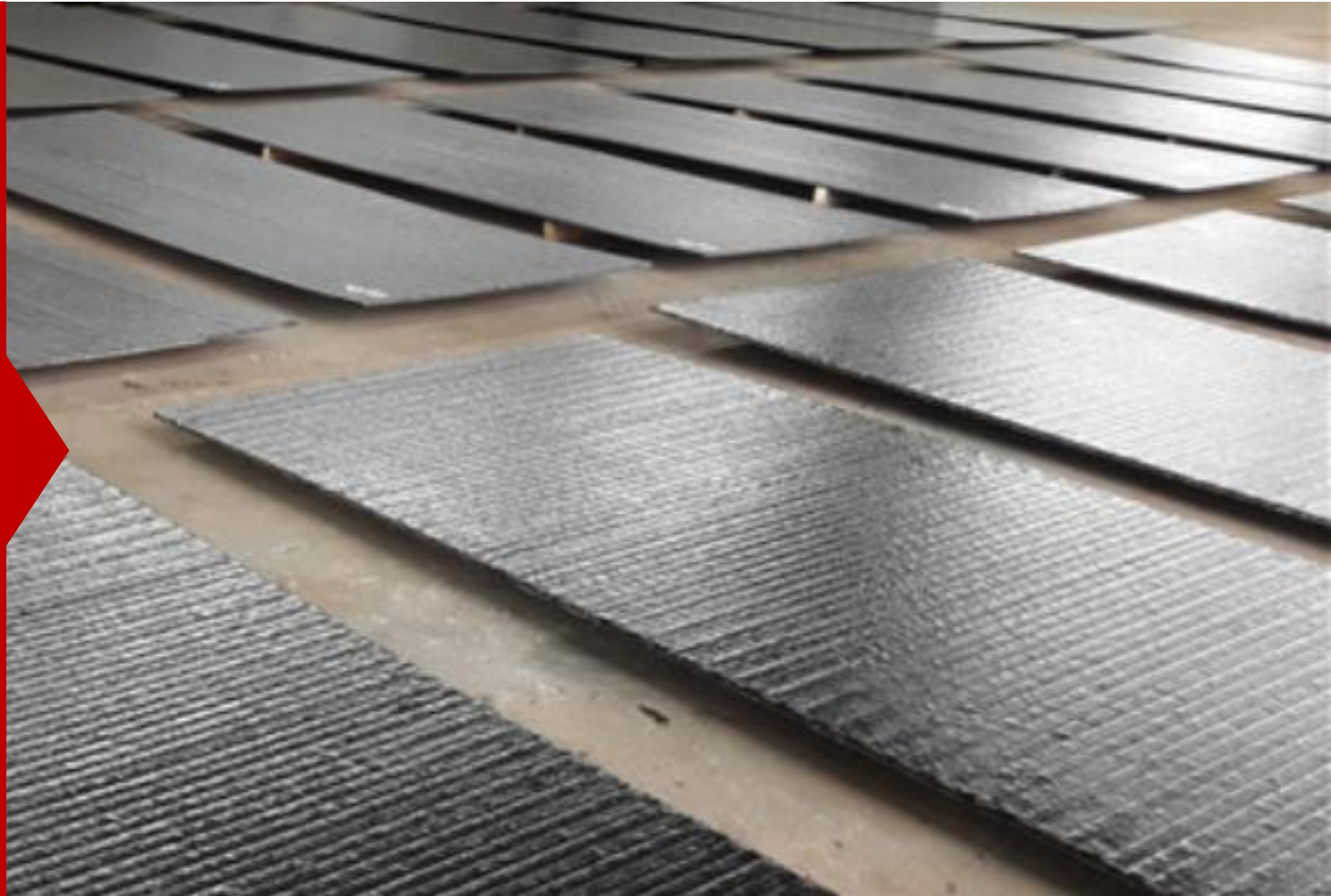
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# **PRODUCT DESCRIPTION**

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## Chromium carbide wear resistant plate

The chrome carbide wear resistant plate produced by our company is made by surfacing process. The surfacing process is as follows: On the substrates of medium and low carbon steel such as Q235 or A3 (Comply with GB / T 709-2006), overlay one or more layers of wear-resistant alloys containing a large amount of chromium carbide hard particles, and add some special elements (Molybdenum, Niobium, Nickel, Tungsten, Vanadium, etc.) to form a hard wear resistant layer. The volume fraction of carbides in the metallographic structure of the Cr<sub>7</sub>C<sub>3</sub> wear resistant layer is over 50%.



## Operation method :

Open arc welding.

## Flatness and thickness tolerance :

Flatness tolerance is within  $\pm 3\text{mm} / \text{m}$ , thickness tolerance is within  $\pm 0.5\text{mm}$ .

## Normal thickness(mm) :

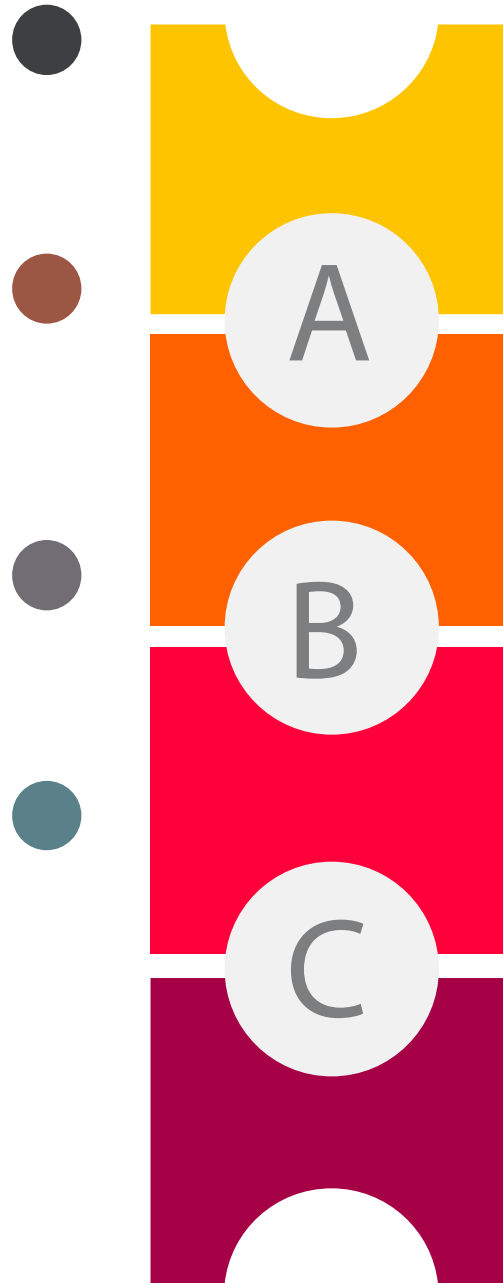
3+3 / 5+3 / 6+4 / 6+6 / 8+5 / 8+6 / 10+6 / 8+8 / 10+8 / 10+10 / 12+12

## Specifications :

The overall plate size is  $\leq 1500\text{mm}$  in width and length  $\leq 3500\text{mm}$ .

We can manufacture wear resistant plates in different sizes, specifications and thicknesses according to customer requirements, and also can cut, bend, curl and splice weld into various engineering structural parts or components according to customer drawings.

This structural parts or component can be installed by direct welding, planting and welding bolts, punching hole or countersunk hole.



## Hardness range :

According to different thickness and application of the wear resistant layer, the hardness range off surface layer is HRC55-62.

The highest micro hardness of chrome carbide is HV1800 (Vickers -hardness).

## Chemical composition :

Cr	C	Si	Mn	Other
15-30%	3.5-5%	0.5-1.5%	0.5-2.5%	$\leq 2\%$

## Wear resistance :

Our company conducted tests in accordance with ASTM-G65A dry sand abrasion test surface wear and 75% deep wear test. The performance shows the abrasion resistance of our products is more than 20 times that of low-carbon steel and more than 8 times that of heat-treated wear-resistant steel.

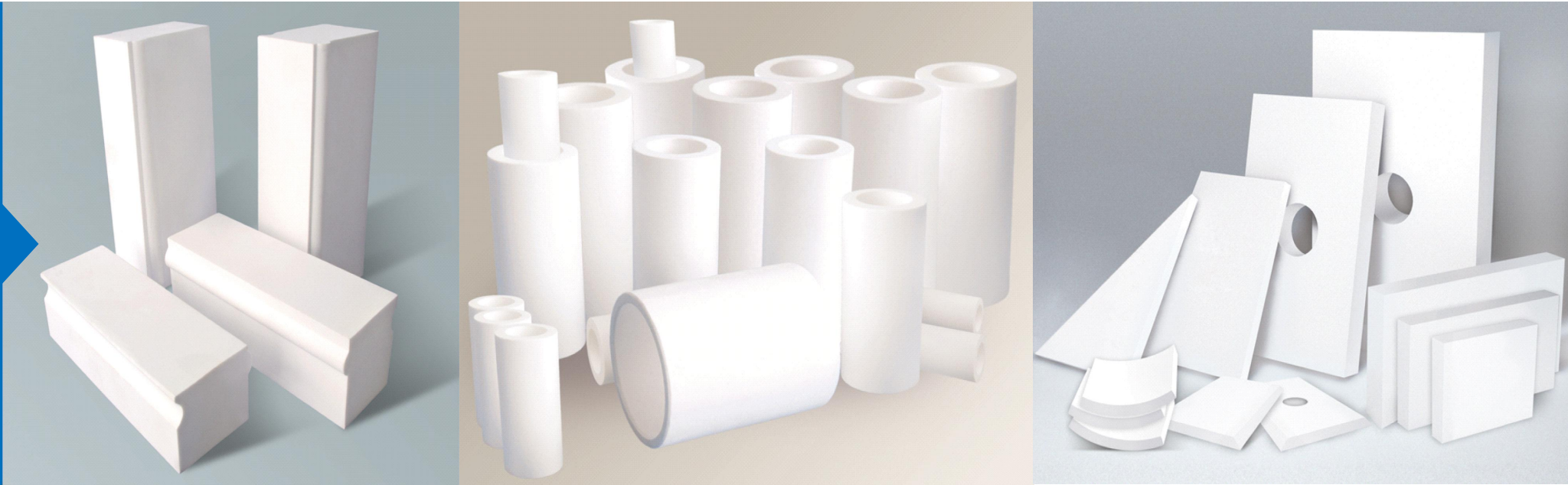
## Mechanical properties :

The wear-resistant layer and the substrate are combined by metallurgy, the wear-resistant layer will melt and penetrate into the substrate 1-2mm, and the maximum metallurgical bond strength test data is 350Mpa.

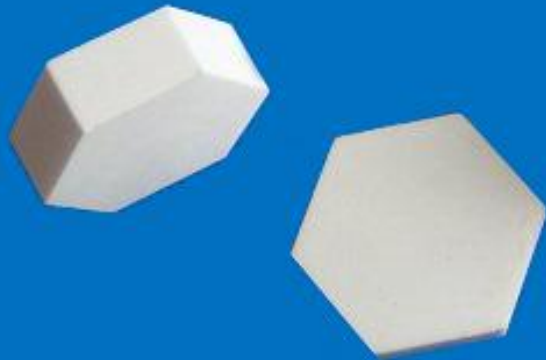


## Wear-resistant ceramics

The wear-resistant ceramic is made of AL2O3 by dry pressing and calcined at 1700 °C with rare metal oxide (yttrium oxide, rare earth etc.) as flux.



## Main parameters and indicators of ceramics



Performance Index	92 series	95 series
AL2O3 (%)	≥92	≥95
Fe2O3 (%)	≤0.25	≤0.2
Rockwell hardness	HRA 80-90	HRA 80-90
Waterabsorption rate (%)	≤0.02	≤0.02
Bulk density (g/m <sup>3</sup> )	≥3.60	≥3.65
Wearing lost (%)	≤0.15	≤0.10



## Smooth surface

High alumina ceramic has the properties of smooth and adhesion, the roughness is only 1/6 that of steel pipes thus less flow Resistance.

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## Light weight

Only half the weight of steel, so greatly reduce the equipment load.

## High hardness

Its Rockwell hardness is HRA80-90, hardness second only to diamond.

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## Corrosion resistance

High alumina ceramic is inorganic oxides with extremely stable molecular structure and no electrochemical corrosion, so they can resist erosion of acids,alkali, salt solutions and organic solvents.

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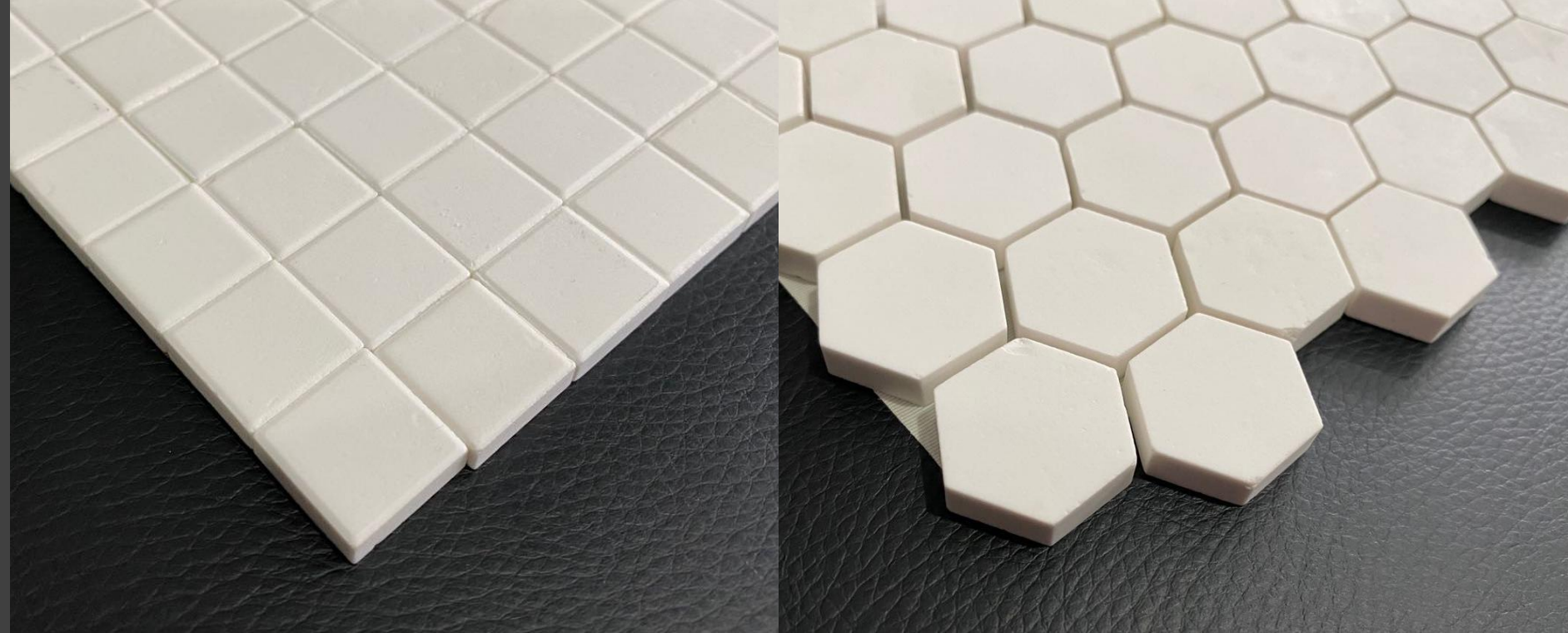
## High wear resistance

Its theoretical wear resistance is equivalent to 260 times of manganese steel and 170 times of high chromium cast iron. Such as 1080 skip car, its 24-hour loading capacity is 3500-4000 tons. If using 30mm thickness of manganese steel as wear-resistant plate, the service life is 3 months, but using our 20mm thickness of wear-resistant ceramic plate, service life is 12 months.

## Wear-resistant ceramic lining (mosaic) :

Common for the Square and Hexagon, other cylindrical and other special-shaped pieces.

Common specifications of cylindrical are  $\varnothing 10-20\text{mm}$ , thickness 3-20mm.



With/without gap	NO gap	a gap of about 1 mm.
Back sticker	Transparent tape(150*80) or double-sided tape ( 150*150 ) or Acetate	Grid cloth or Acetate
Thickness and Size	3mm, 4mm, 5mm, 6mm, 7mm, 8mm, 10mm etc. (10*10mm,17.5*17.5mm,20*20mm).	3mm ( 12*12mm ) 6mm ( 12*12mm , 24*24mm ) etc

Specifications can be customized according to customer requirements.



**Wear-resistant ceramic plates :**

Common for flat plates and perforated plates, others include impact-resistant plates, pipe plates and custom plates.



<b>Size</b>	Length : 50-150mm Width : 25-100mm	Length : 50-150mm Width : 30-100mm
<b>Thickness</b>	6-50mm	8-50mm
<b>Installation method</b>	High-performance adhesive Paste is affected by the adhesive, the temperature can not exceed 300°C	By Welding Welding is generally used in high impact conditions.

Specifications can be customized according to customer requirements.

## Alumina Ceramic Ball :

Alumina ceramic ball is high-quality grinding media, it is made of high-quality raw materials and calcined in a high-temperature tunnel kiln through dry forming technology. The product has the characteristics of high density, high hardness, low abrasion, good seismic stability, corrosion resistance, etc., and is the ideal grinding medium for glazes, blanks and various mineral powders. Products are widely used in cement, coatings, refractory materials, inorganic mineral powder and other industries.

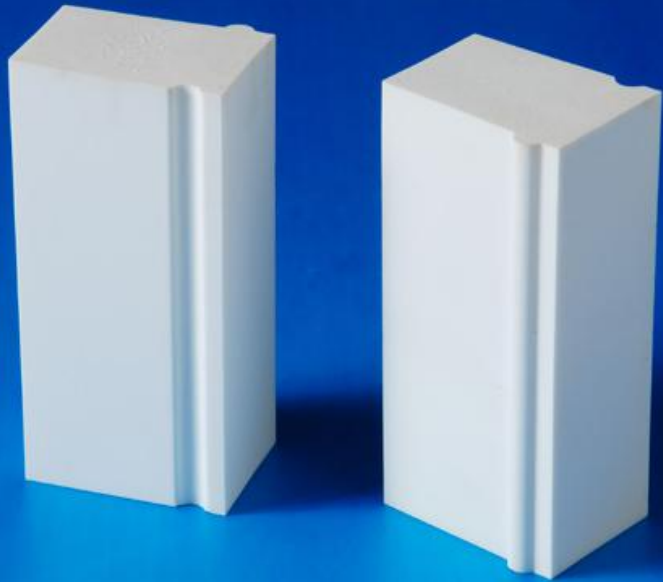


## General specifications:

Pressed Ball :  $\phi 30$ - $\phi 120$

Rolled Ball :  $\phi 0.5$  ,  $\phi 1.0$  ,  $\phi 2$  ,  
 $\phi 3$  ,  $\phi 6$  ,  $\phi 8$  ,  $\phi 10$  ,  $\phi 13$  ,  $\phi 20$  ,  
 $\phi 25$  ,  $\phi 30$  ,  $\phi 40$

Cylindrical Ball :  $\phi 20 \times 20$  ,  
 $\phi 25 \times 25$  ,  $\phi 30 \times 30$  ,  $\phi 40 \times 40$  ,  
 $\phi 50 \times 50$  ,  $\phi 60 \times 60$



## Alumina ceramic lining brick :

Alumina ceramic lining bricks are divided into rectangular lining bricks and oblique lining bricks according to its shape, which are mainly used in ball mill as lining.

Common dimensions of rectangular lining brick:  $150 \times 50 \times 40$  (50、60、70、100)

Common dimensions of oblique lining brick:  $150 \times 45/50 \times 40$  (50、60、70、100)

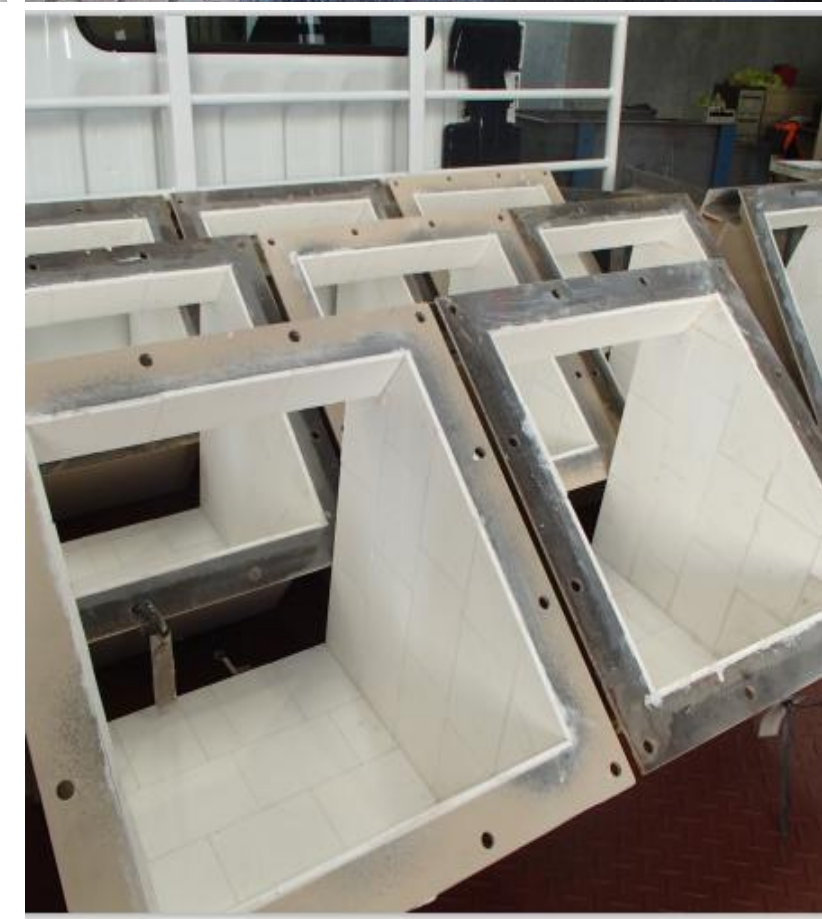






Alumina ceramics are used in chutes, hoppers, pipelines, conveyor belts and others equipments. In high wear environment, high alumina ceramics are used as wear-resistant lining to protect the main equipment due to the heavy wear of the equipment during material transmission. High Alumina ceramics can withstand longer wear than other wear-resistant products.

Wear-resistant alumina ceramics are widely used in iron and steel, electric power, machinery, coal, mining, cement, ports and other industries.





## Chromium carbide wear resistant pipe

Using wear-resistant pipe surfacing machine, adopting open-arc self-protection automatic surfacing welding technology on the inner wall (above 80mm in diameter) or outer wall (unlimited diameter) of seamless steel pipe (Comply with GB / T8163-1999), a layer of high wear-resistant or high corrosion-resistant alloy material is automatically and seamlessly welded by the CNC to form chromium carbide alloy wear-resistant pipe. The chromium carbide wear-resistant pipes manufactured by our company have a longer service life, plus cost-effective and lower cost of comprehensive use, are favored by customers.



## Common thickness :

Steel pipe inner wall surfacing layer is 3-6MM ;  
The thickness of the outer wall surfacing layer can be customized according to customer requirements.

**Operation method :** Open arc welding.

**Hardness range :** HRC55-62.

**Normal thickness(mm) :** 6 + 4/ 8 + 4/ 10 + 8

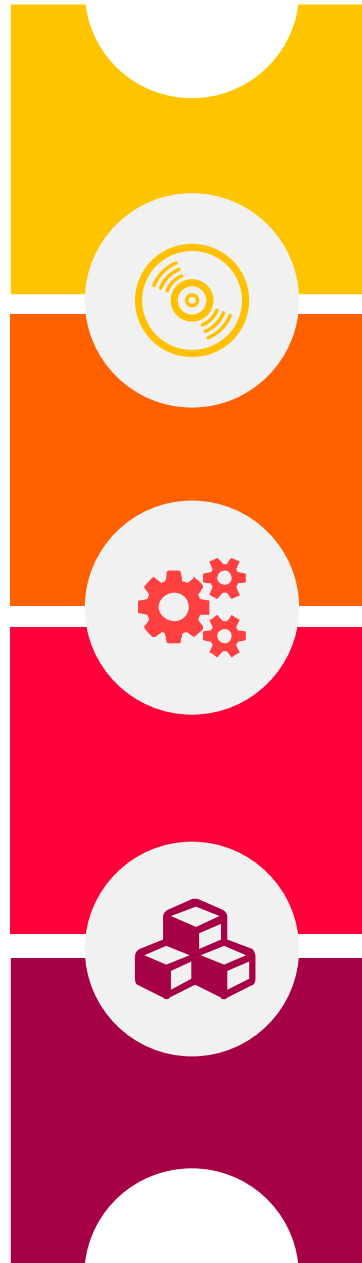
**Pipe length :** 50-3000mm, accept size customization.

## Chemical composition :

Cr	C	Si	Mn	Other
15-30%	4-5%	0.5%-1.5%	0.5%-2.5%	≤2%

**Maximum withstand temperature :** 1400 ° F

**Installation method :** welding, flange



## Pipe performance :

The Chromium carbide wear resistant pipe not only has high abrasion resistance, high temperature resistance, impact resistance and vibration resistance, but also has good toughness. Easy to connect by welding or flange and bolt.

## Production forms of wear resistant pipe :

- ① Ordinary substrate straight pipe plus wear-resistant layer. The substrate pipe is automatically welded online, and the surface is flat after welding;
- ② Wear resistant composite steel plate is rolled into the wear resistant pipe with a rolling machine;
- ③ Wear resistant composite steel plate is cut, assembled and welded into square pipes.

## Production method of wear-resistant elbow :

- ① Overlay welding directly on the inner wall of the elbow.
- ② Cut and assemble with wear resistant pipes and weld them into shrimp joints.

## Other wear resistant pipe fittings :

- ① Tianfangdi circle: According to customer requirements or drawings, cut wear resistant composite plates, folding and welding to form it.
- ② Three-way: Cut, assemble and weld wear-resistant pipes to form it.



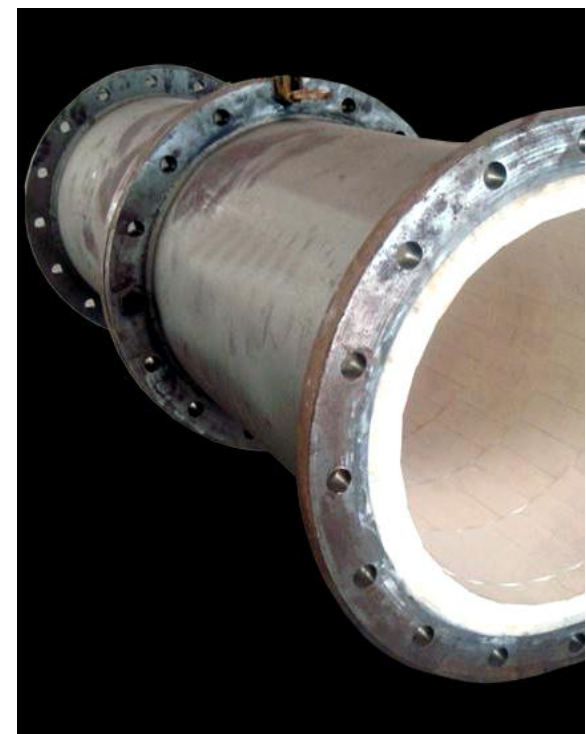
## Wear resistant ceramic composite pipe

The full name is wear resistant alumina ceramic lined composite pipe, which is a type of ceramic composite steel pipe. The wear resistant ceramic composite pipe manufactured by our company is designed according to customer's actual working conditions, such as model of steel pipe, thickness of the ceramic lining and the inner diameter of the final pipe need to be suitable.

According to the requirements of different working conditions, there are two ways to stick ceramic lining to the inner wall of steel pipe to form a hard wear-resistant layer. One way is using ceramic special adhesive to stick ceramic products to the inner wall, specifically flat ceramic products; the other one is to paste first and then weld, especially for ceramic products with holes.

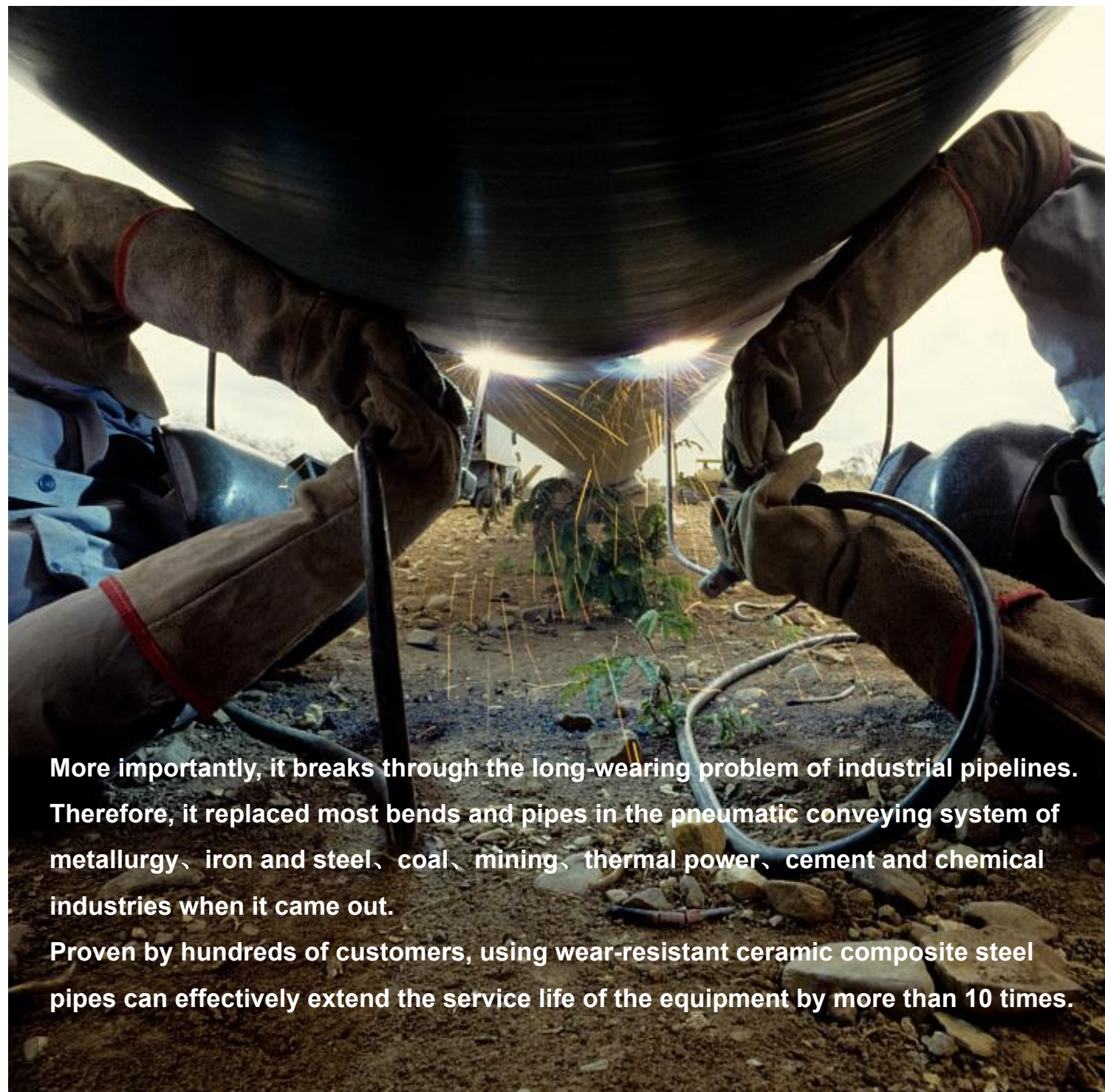






The wear-resistant ceramic composite pipe manufactured by our company has a longer life and excellent quality, and is widely used in metallurgy, iron and steel, coal, mining, thermal power, cement, chemical and other equipment industries with severe wear.

This pipe is designed for powder and slurry conveying systems with particularly severe wear, Its outer shell is generally a national standard carbon steel pipe and the inner lining is alumina ceramic with excellent wear resistance. In this way, not only the high wear resistance and corrosion resistance of ceramic, but also the high strength and high toughness of steel pipe. This integrated design is easy to replace and install.



**More importantly, it breaks through the long-wearing problem of industrial pipelines. Therefore, it replaced most bends and pipes in the pneumatic conveying system of metallurgy, iron and steel, coal, mining, thermal power, cement and chemical industries when it came out. Proven by hundreds of customers, using wear-resistant ceramic composite steel pipes can effectively extend the service life of the equipment by more than 10 times.**

## Corrosion resistance and anti-scaling

Alumina ceramic has acid and alkali resistance, corrosion resistance and anti-scaling properties.

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## Good wear resistance

The inner lining of wear-resistant pipe is alumina ceramic, its Rockwell hardness is HRA80-90, the service life of wear-resistant ceramic composite pipe is more than 10 times that of quenched steel under the working condition of conveying abrasive medium in metallurgy, electric power, mine and coal mine.etc.

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## Good high temperature resistance and thermal shock resistance:

The pipe can be used for a long time in the range of -50 ° C to 900 ° C, the linear expansion coefficient is  $6-8 \times 10^{-6} / ^\circ\text{C}$ .

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## Easy installation

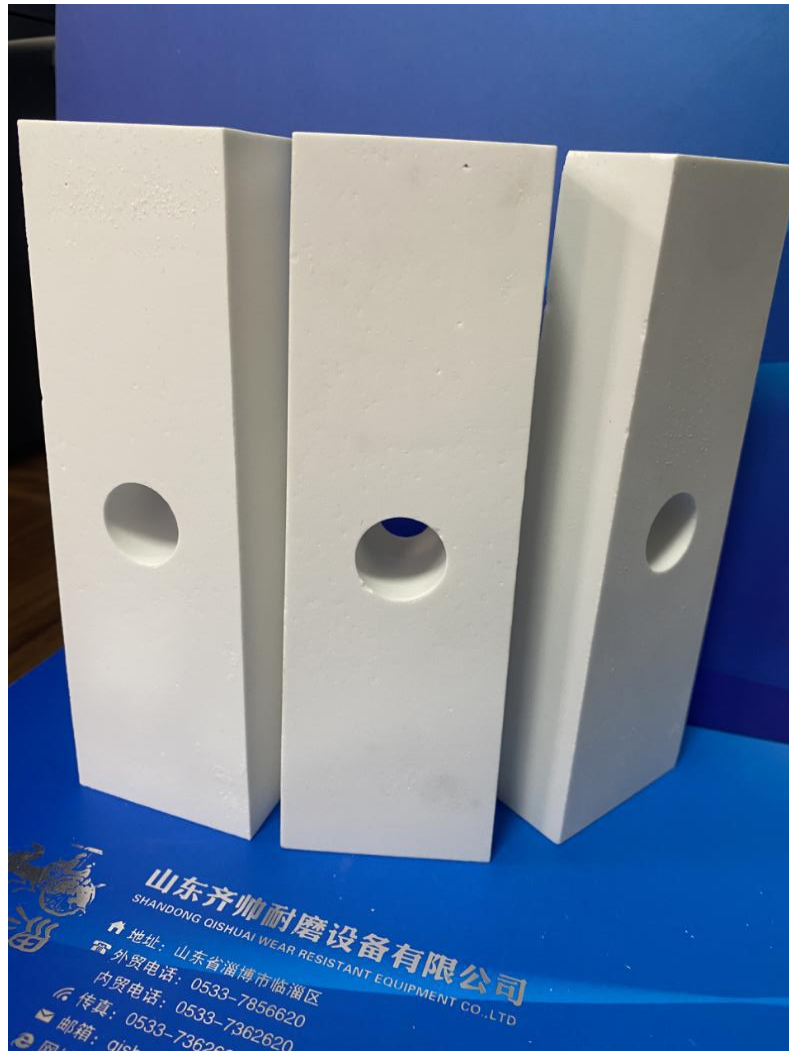
Because its weight is small, and the welding performance is good, therefore can use the welding, the flange connection and so on to install.

**Product Features**





According to the requirement of pipe diameter and thickness, choose the suitable size of alumina ceramic pipe plate, and paste it on the Inner Wall or outer wall of pipe with high strength adhesive in staggered way. The wear resistant ceramic pipe has different types, including straight pipes, elbows, and three-way, etc.



In the environment of high impact force, but the requirements for sticking are not high, Perforated ceramic palte is recommended.



Paste the mosaic tile on the inner or outer wall of the equipment with heat-resistant super glue.



## Alumina ceramic isostatic pressure pipe

Our company adopts the isostatic pressing process to manufacture alumina isostatic pressure pipe, this process gives the product a high density. After fine grinding and polishing pipe's surface, Alumina isostatic pressure pipe is compositely assembled with other pipes. It has complete specifications, and the size range is 50-750mm in diameter.



### **Good wear resistance :**

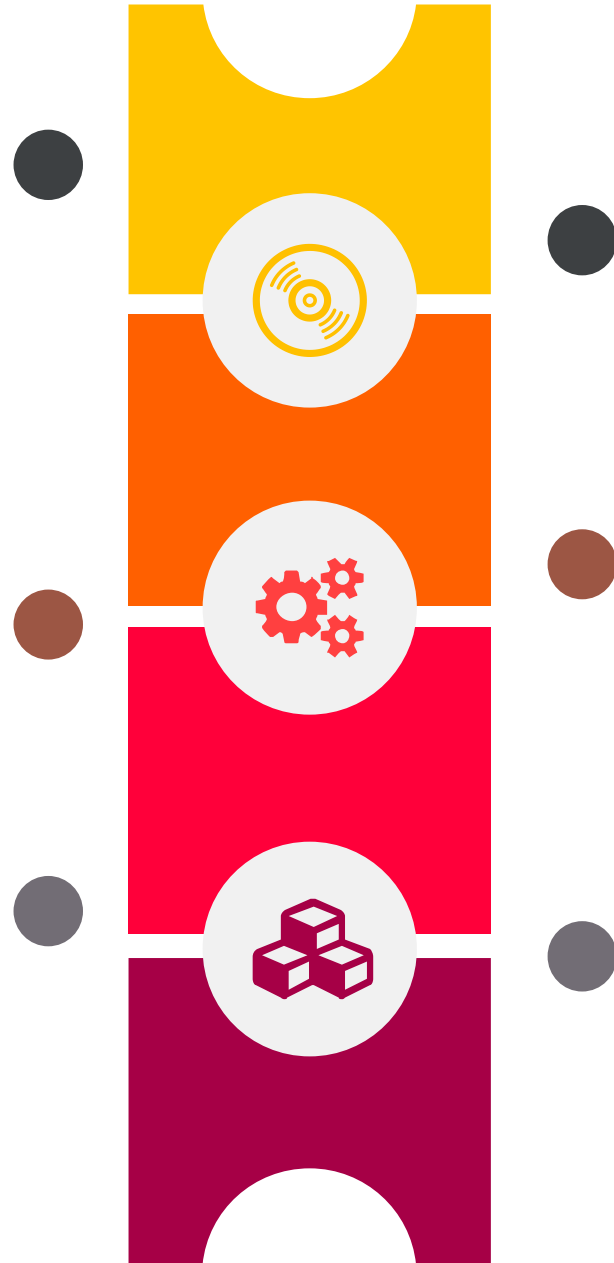
Rockwell hardness is HRA80-90, under the same conditions of wear resistance, it is 10 times than ordinary pipelines. The lining is monolithic ceramic, has better corrosion resistant for strong acid and alkali. So it is widely used in different pipelines as wear-resistant layer.

### **Good scour resistance :**

Can resist larger particles without breaking.

### **Smooth inner and outer wall, good airflow :**

Smooth surface allows the material to pass freely without hanging or blocking.



### **Lower maintenance cost :**

Super abrasion resistance greatly reduces the maintenance frequency, saving costs and labor costs

### **Good heat resistance :**

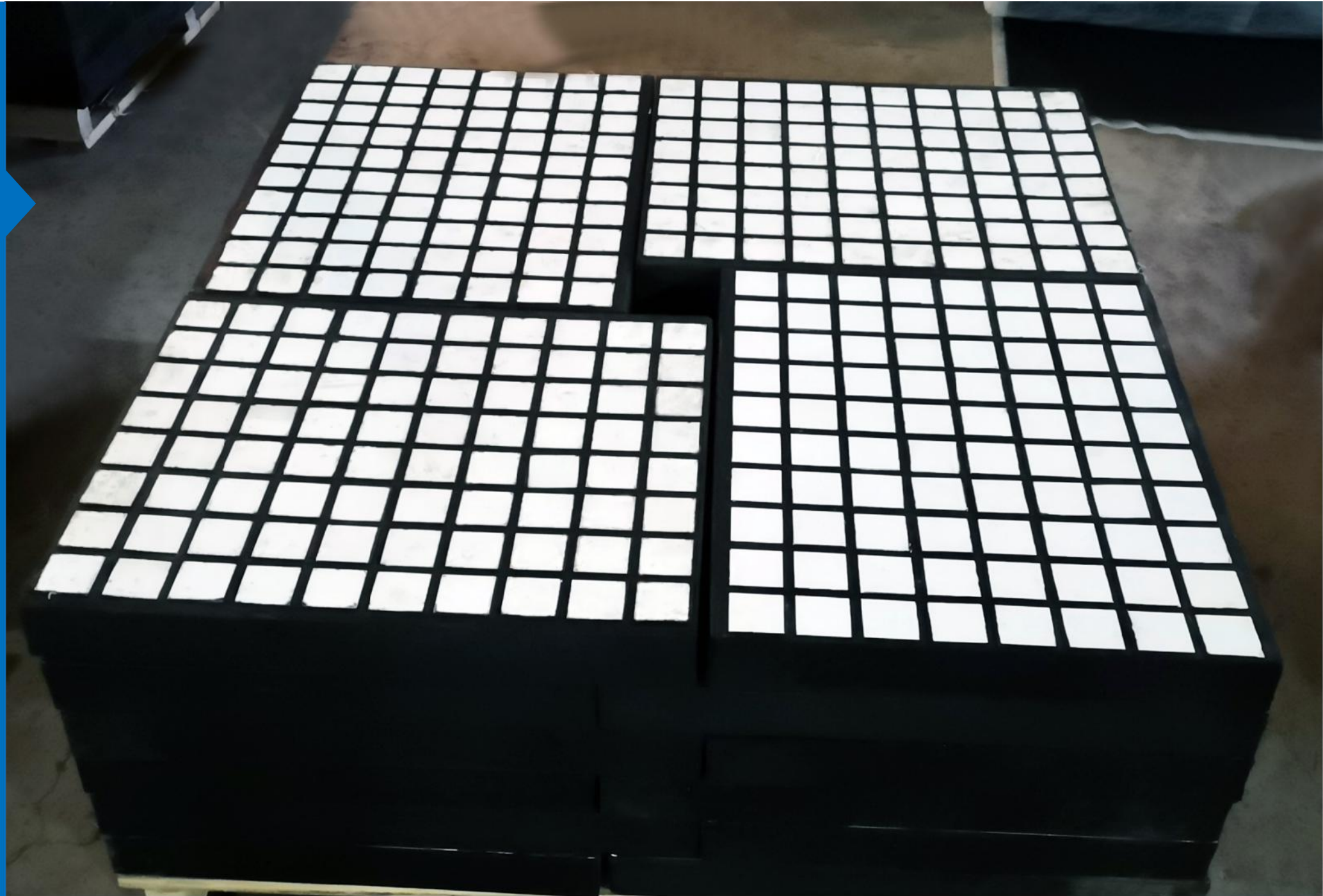
The product has good thermal stability and can be used for a long time below 800 ° C.

### **Longer service life :**

Isostatic pressure pipe is a whole pipe fired with alumina ceramics, it will not fall off even if it is severely worn.

## Rubber ceramic composite linings

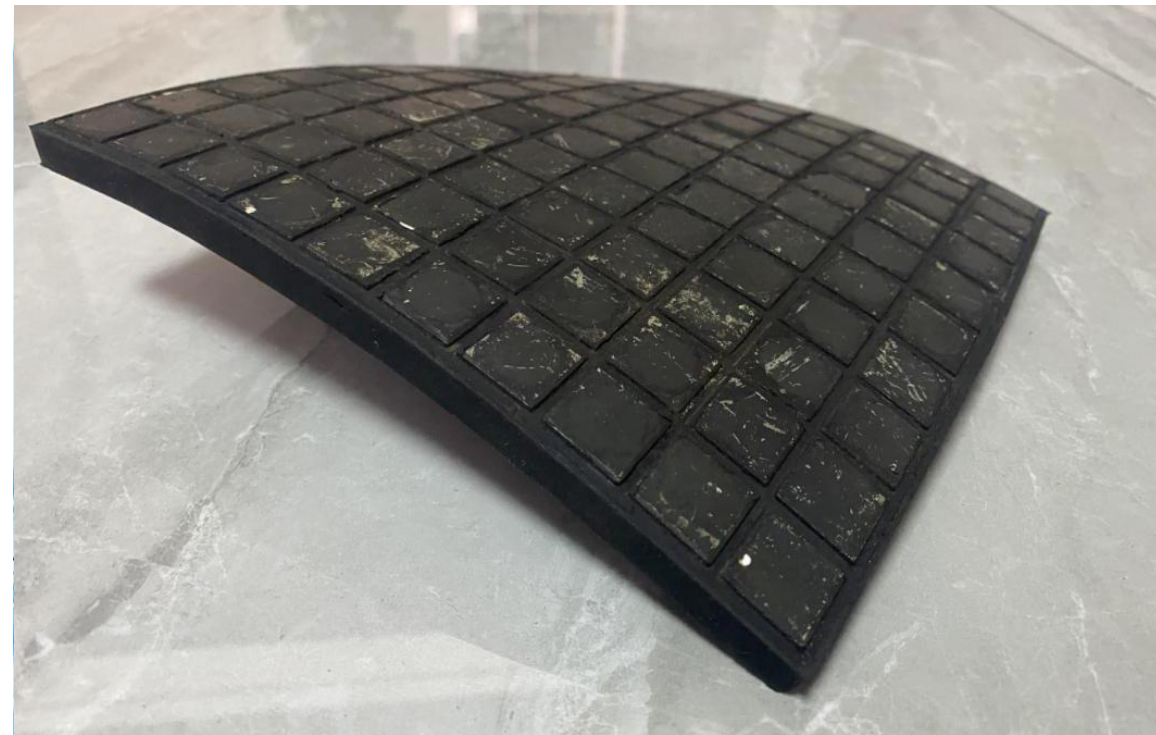
The rubber ceramic composite linings have 2 forms, rubber+ceramic (Two-in-One) & metal+rubber+ceramic (Three-in-One). The special ceramic pieces are embedded into the special rubber through vulcanization process to form a wear-resistant rubber-ceramic composite, which is the Two-in-One product. Based on the Two-in-One, paste the metal in the back to form Three-in-One product. The rubber-ceramic composite lining is fixed on the inner shell steel plate of the equipment by pasting or bolting to form a strong and buffer wear-resistant layer.





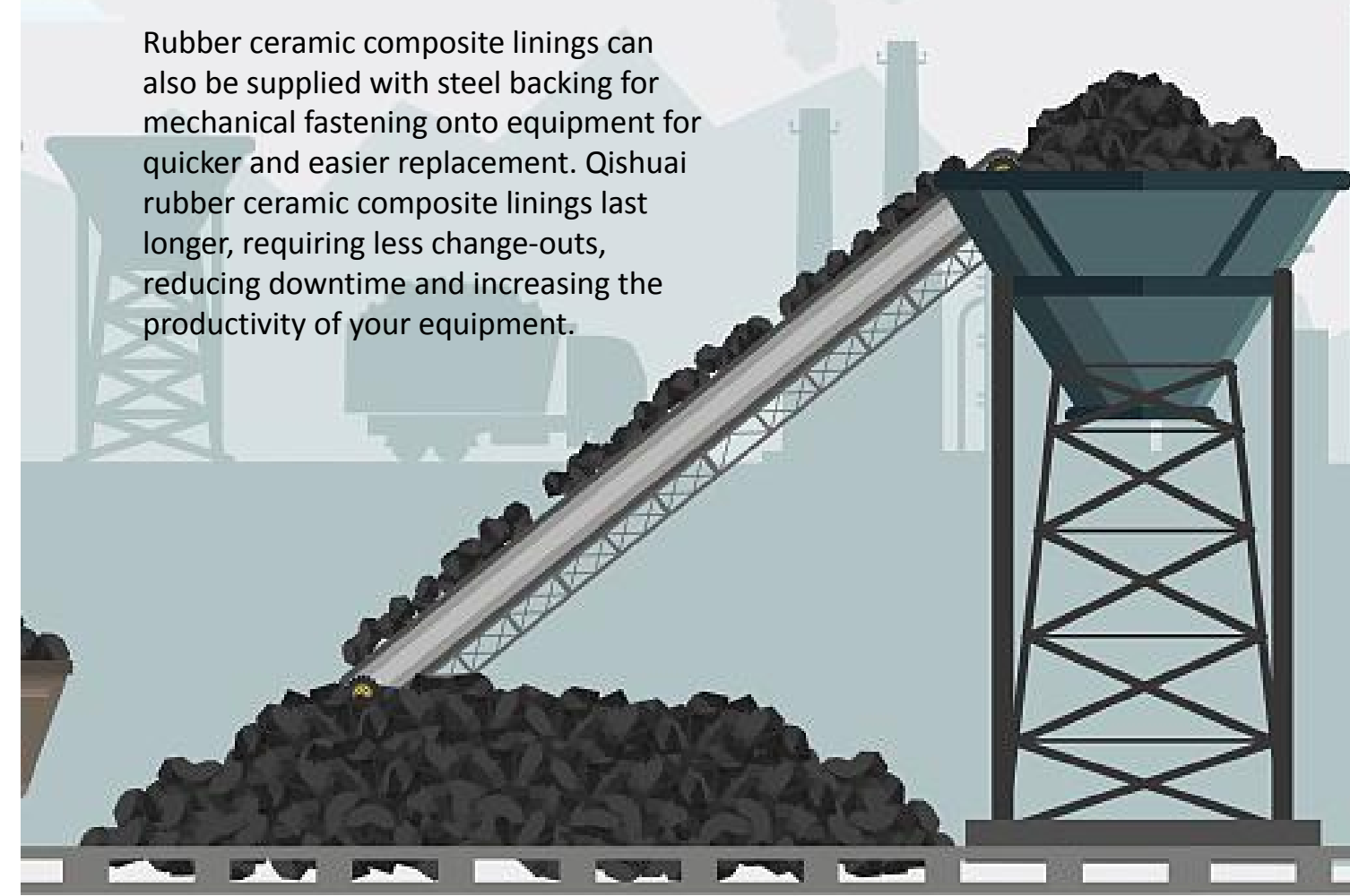
Mineral Processing equipment operates in some of the harshest and remote locations. It is crucial to the Mineral Processing industries that this equipment continues to operate efficiently and its lifecycle is maximised to minimise down time. By appropriately protecting equipment from the extreme wear caused by the high speed and flow rates of ore when processed as a slurry ensure better equipment longevity. Slurry is highly abrasive and can not only cause wear damage to wet processing equipment but also with the inclusion of chemicals and heat, there is constant risk of corrosion and dangerous leakage.

Rubber ceramic composite linings can also be supplied with steel backing for mechanical fastening onto equipment for quicker and easier replacement. Qishuai rubber ceramic composite linings last longer, requiring less change-outs, reducing downtime and increasing the productivity of your equipment.



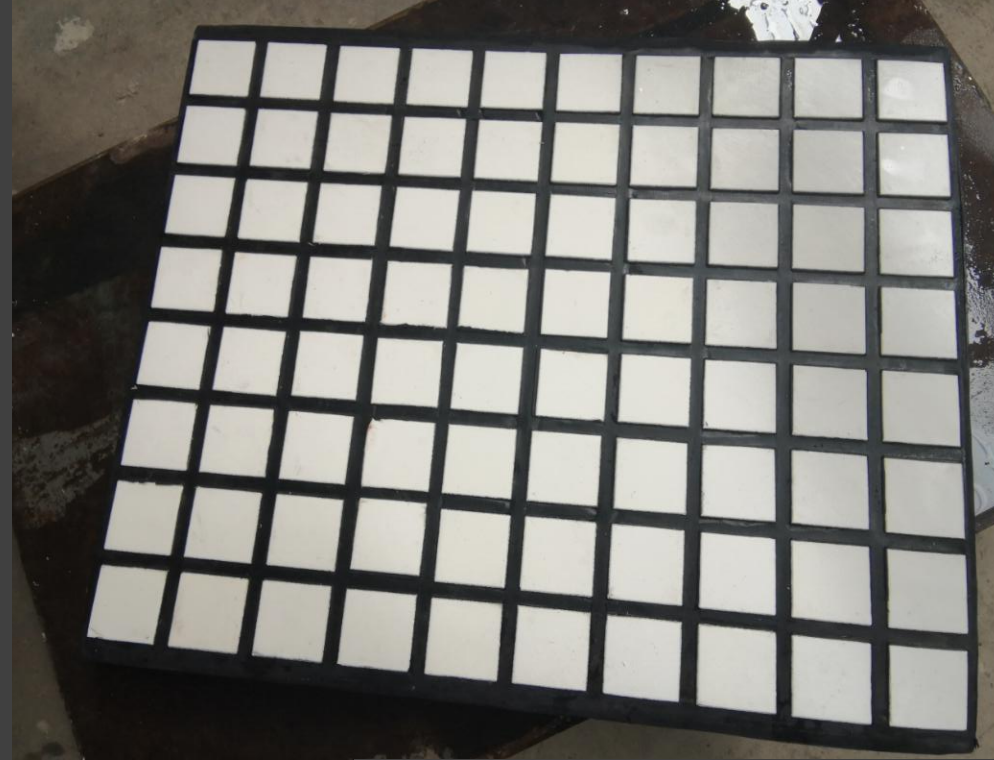
Rubber ceramic composite linings are widely used in coal transportation and ash conveying systems of thermal power plants and conveying, batching silos, hoppers and others equipments in the metallurgical and steel industry, can effectively solve the conveying system problem of low service life due to the large material drop and strong impact. The Two-in-One products can be twisted and cut, be suitable for installation of various special-shaped equipment.

Rubber ceramic composite linings can be supplied as standard pads or cut panels to meet customer drawings and specifications, or can be custom designed to ensure maximum suitability for your specific requirement.



## Features

- ① Twistable
- ② Easy to cut
- ③ Good impact resistance
- ④ Abrasion resistance
- ⑤ Easy to install
- ⑥ Wide application range



## Specifications and Size

Specifications	Length (mm)	Width (mm)	Thickness (mm)
Three-in-One	200-1000	200-1000	15-75
Two-in-One	20-1000	20-1000	10-75

Three-in-one series of rubber ceramic composite lining plates:

- ① Welding bolts are installed on the steel plate mounting surface to fix the lining plate on the equipment substrate;
- ② The steel plate mounting surface is directly welded on the equipment substrate;
- ③ Reserve bolt holes in the lining board according to the installation position of the equipment substrate. After the lining board is installed, use a high-strength adhesive to cover the wear-resistant ceramics at the opening bolt holes.

## Rubber ceramic composite lining plate fixing method:

Two-in-one series of rubber ceramic composite lining plates: paste with high-strength metal rubber adhesive.





Bucket wheel stacker  
reclaimer cylinder and  
wheel、 Belt head  
hopper、 Raw coal  
hopper、 Coal feeder  
ram、 Coal drop pipe  
and Coal mill exit  
inclined pipe off the  
thermal power industry

Chute off Chemical industry

Blast furnace hoppers  
and cylindrical mixers  
off steel industry

Coal falling pipe off Coal chemical industry

Raw chute and Clinker chute  
off Cement industry

Ship unloader hopper off Port  
and Wharf

Hoppers off Smelting  
industry and Machinery  
industry

Primary break transfer chute,  
medium break transfer chute  
and fine break transfer chute,  
and hoppers off Mining  
industry

Grade one cyclone dust  
collector, Grade two cyclone  
dust collector and Grade  
three cyclone dust collector  
off Organic silicon industry



## Application

## Main parameters and indicators

### 【Ceramic】

Item	Index
Alumina content	≥92%
Density	≥3.62g/cm <sup>3</sup>
Rockwell Hardness	80-90HRA
Compressive Strength	≥850MPa
KIC Fracture Toughness	≥4.8MPa.M <sup>1/2</sup>
Bending Strength	≥290MPa
Thermal Conductivity	20W/m.k
Coefficient of Thermal Expansion	7.2×10 <sup>-6</sup> m/×m.k

### 【Metal and rubber adhesives】

Item	Index
Appearance	Brown viscous liquid
Viscosity	≥2.0Pa/s
Strip Strength	≥N/2.5cm

### 【Rubber】

Item	Index
Tensile Strength	≥12MPa
Break Extension	≥300%
Shore Hardness	55-65
Break Permanent Deformation	≤24%
Rubber and ceramic adhesion	≥3.0MPa
Temperature	≤100-300°C
Rubber aging life	≥8years

Note: This adhesive is a polymer liquid adhesive specially designed for the adhesion between metal and rubber. It does not need to be heated、pressurized and cure when used. It has fast bonding and high bonding strength、acid resistance, alkali resistance, salt resistance, oil resistance, water resistance, aging resistance, and so on.



## Ceramic composite metal roller

The product has a long service life, high wear resistance, anti-slip and no deviation; it is widely used in various conveying systems.

QiShuai's new generation of ceramic drum rubber replaces traditional rubber, which has many performance advantages in production and use:





The non-slip pits on the surface of the roller can prevent the relative sliding between the belt and the roller, effectively reduce the damage caused by sliding friction of the belt; and can reduce the belt tension under the same load, and prolong the life of the belt..

## Non-Slip

The high durability of the surface ceramics is used on the belt conveyor rollers. The special structure of the ceramics and the special arrangement can provide 2-3 times the traction force, which increases the friction coefficient between the belt and the belt to prevent it from slipping.

## Protection

The non-slip pits on the surface of the roller can prevent the relative sliding between the belt and the roller, effectively reduce the damage caused by sliding friction of the belt; and can reduce the belt tension under the same load, and prolong the life of the belt..

The roller coating process is mature, simple, and short in cycle. After the drum rubber prefabricated parts are completed, the installation of a ceramic drum rubber can be completed online within 3 hours, without delaying customer production and without the need for disassembly and assembly of the drum, which is convenient for users to put into production in time.

## Easy installation

## Wide range of applicable conditions

The wear-resistant ceramic drum has our company's unique sewage ditch structure design, which can remove rainwater and scattered powder from the sewage ditch as soon as possible. It is suitable for extremely harsh conditions such as high abrasion, easy skid and wet materials or surrounding environment.

## Cost-effective

Due to the abrasion resistance of ceramics, the service life of rolling is more than ten times that of forgiveness. It can almost achieve the effect of one-time installation and casting, eliminating the need for frequent replacement or repeated packaging, and avoiding manual and product Waste, super value for money.



## Other abrasion-resistant products covered by the company

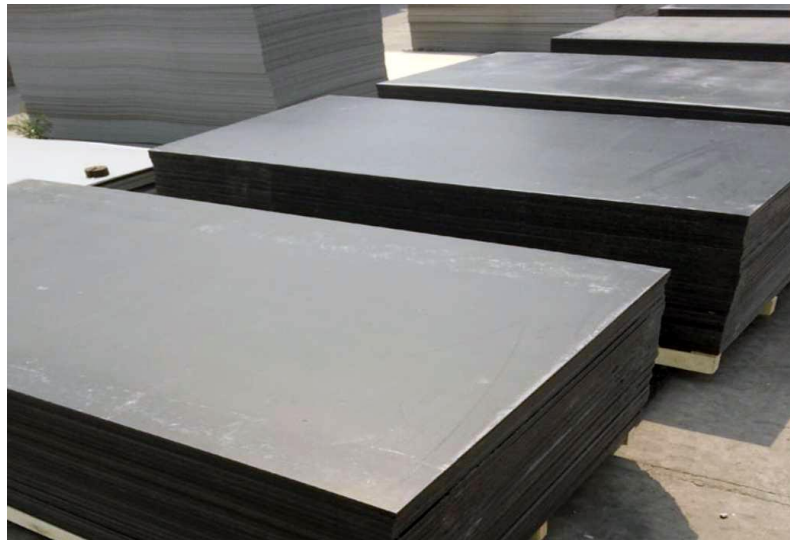
Basalt Cast Stone Slabs and Pipes



Self-propagating ceramic pipes



Calendered microcrystalline plate



Ultra-high molecular weight polyethylene



Wear-resistant ceramic spray coating



Sintered silicon carbide

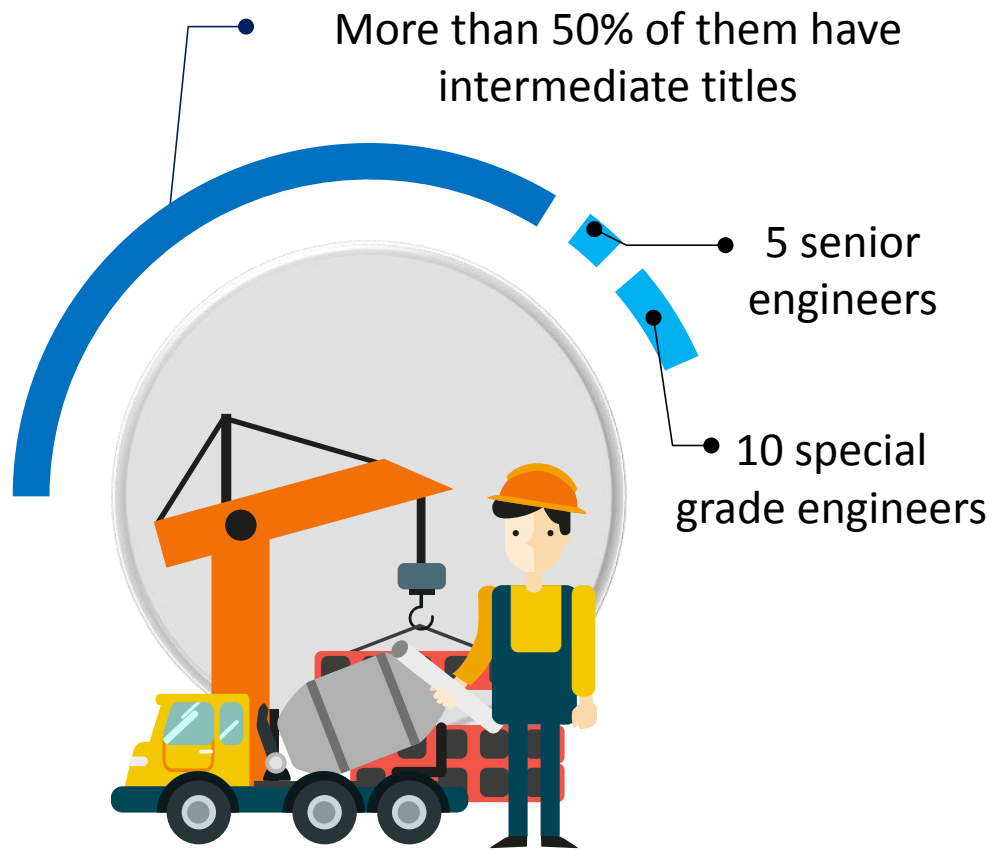


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PART

# **PRODUCTION MANAGEMENT**

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The company has 50 production staff

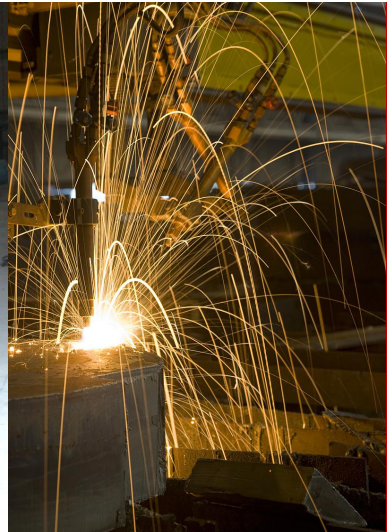


The company has a complete production management system, relying on advanced production technology and excellent technical team, has certain advantages in the wear-resistant industry. In the process of production management, standardized production process, visual management and lean production control are adopted to continuously improve the efficiency of production management, thus ensuring the overall competitiveness of the company.

The company has 50 production staff、 10 special grade engineers、 5 senior engineers, and more than 50% of them have intermediate titles. At the same time, the company has 1750-degree automatic imported high-temperature tunnel kiln and shuttle kiln and other advanced production equipments, and equipped with advanced testing equipments.



# Equipments for producing alloy products



**Alloy manufacturing equipment includes:**  
Plasma cutting machine,  
Electric welding machine,  
Spot welding machine,  
Automatic overlay welding machine,

Rolling machine,  
Plate shears,  
Roller welding machine,  
CNC steel pipe overlay welding machine,  
CNC Turret punch,  
CNC lathe,  
Nine roller Leveler.





# Ceramic product's production scene and equipments

The production equipments of ceramic products include: Automatic dry bag isostatic press, Automatic hydraulic press, Wet bag press, Vulcanizing machine, etc.




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PART

**QUALITY CONTROL**

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Metalloscope




Spectroscop




Abrasive wear machine

## Quality Control

The company has a complete and scientific quality control system. From the perspective of customers, the company is customer-centric and can continuously and stably provide qualified products to customers.



Rockwell hardness tester



Infrared carbon sulfur analyzer



# Quality Control Process

Supplier Review

Material Approach  
Detection

Preparation for passing  
test

Production Quality  
Tracking

Inspection and  
Classification

Coded packing and  
Storage



## Certificate of Quality

ISO9001 Quality  
System Certification  
Enterprise

NATIONAL QUALITY INSPECTION AND SUPERVISION CENTER FOR INDUSTRIAL CERAMICS OF BUILDING MATERIALS INDUSTRY

INSPECTION REPORT 正本

NO.: 2019QI-800-2

Sample Description	Alumina Flat Tile	Sample No.	2019QI-800-1
Client	Shandong Qidao Wear Resistant Equipment Co., Ltd		
Manufacturer	Shandong Qidao Wear Resistant Equipment Co., Ltd		
Size/Type	20*20*5 (mm <sup>2</sup> )	Brand	QJ
Sample state	Piece	Test Type	Contract
Reception Date/Place	The Center, May 12 <sup>th</sup> , 2019	Sample Amount	3

No.	Test Items(Unit)	Test Result		Standard
		Individual	Average	
1.	Al <sub>2</sub> O <sub>3</sub> (%)	92.10	/	GB/T3900-2006
2.	Bulk density (g/cm <sup>3</sup> )	3.80; 3.81; 3.80	3.80	GB/T2997-2000
3.	Water absorption (%)	0.01; 0.01; 0.01	0.01	GB/T3900-2006
4.	Rockwell hardness (HRA)	91.90;90;	90	HBS172-1396

The results only in charge of the detected samples.

Remarks /

Authorization: Verification: Completion:

## INSPECTION REPORT

National Quality  
Inspection and  
Supervision Center  
For industrial  
Ceramics of  
Building Materials  
Industry



## TEST REPORT

Materials Testing  
Center for  
Machinery  
Industry



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PART

**SHIPPING MANAGEMENT**

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The company has formulated the Shipping process management system, and strictly control the shipping process, so that all links of the process, standardization and institutionalization.

Products are packaged according to customer specified packaging form or customer confirmed packaging form.







**QISHUAI**

2020

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