



# Ceramic tile lined pipe

Ceramic tile lined pipe has very uniform coating of specially formulated ceramic material that is affixed to the inner of the pipe and gives a very smooth surface. Ceramics with very low friction factor at low impingement angles decreases the abrasion of materials maximally. Its low density makes it easy to carry and install.

Furthermore, its diamond-like hardness, fine grain structure and superior mechanical strength are the unique features that make it a wide range of demanding applications, such as coal preparation, power generation, iron and steelmaking, cement, asphalt, dredging, mining and mineral processing, oil and gas drilling.

Metals have good ductility but poor resistance to abrasion - which means that abrasion prevention is required when metal pipes are used in high-temperature fluid catalyst service. On the other hand, ceramics possess great hardness and abrasion resistance, but they are brittle. Metal Ceramic double pipe is a hybrid pipe using metal as an outer pipe and a ceramic material for inner pipe segments, applied together to utilize the two materials' advantages. Hence excellent wear-resistance and good corrosion resistance of the ceramics and high strength and toughness of metal can be well combined to get a comprehensive advantage of wear-resistance, corrosion-resistance and anti-scaling. They are suitable for applications in heavy wear working conditions.

Ceramics are among the hardest materials available and provide ultimate wear resistance in piping. In high wear applications, ceramic lined pipes have been demonstrated to be cost-effective by increasing service life and reducing maintenance costs. Sunny Steel supply ceramic lined abrasion resistant steel pipes to your custom dimensions and budget. Our ceramic linings are the highest quality materials available to ensure that we provide the most cost-effective solutions for our clients.





## Ceramic tile

This ceramic tile is usually directly bonded on the inner wall of equipment by our high-strength-temperature-resistance inorganic epoxy adhesive.

Item	Data
Al2O3 (content)	≥92%
Density	≥3.6 g/cm <sup>3</sup>
Rockwell hardness	HRA85-95
Compressive strength	≥850 Mpa
Fracture toughness (KIC)	≥4.8MPa·m <sup>1/2</sup>
Flexural strength	≥290MPa
Thermal conductivity	20W/m.K
Coefficient of thermal expansion	7.2×10 <sup>-6</sup> m/m.K



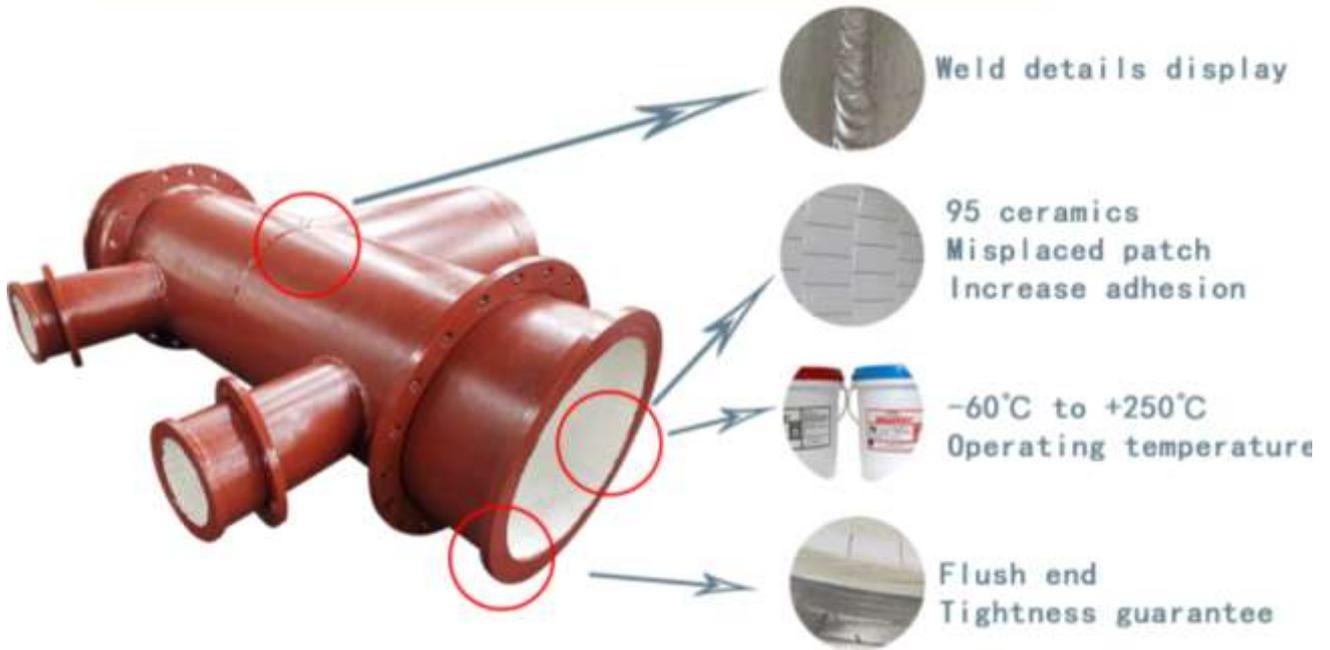


## Advantage of ceramic tile lined pipes

- Super wear-resistant, high density: we use 95% of chromium corundum, 100 tons dry-pressing.
- Elbows formed by hot-bending, the outside of the bending part are seamless which is wear-resistant and can prolong the service life.
- Firmly bonding without peeling: we use epoxy adhesive and miss-match installation technology, so that there is no straight-seam.
- High temperature and ageing resistance: we abandon the traditional organic bond, and use inorganic bond which is ageing resistance.
- High pressure resistance: We use 20# seamless steel pipe, which is high pressure resistance and avoiding welding leakage.
- The pipe with smooth inner wall which can make the materials flow smoothly: we use seamless steel pipes which has smooth inner wall that can reduce weariness, and the height tolerance of ceramics is below 0.5mm.



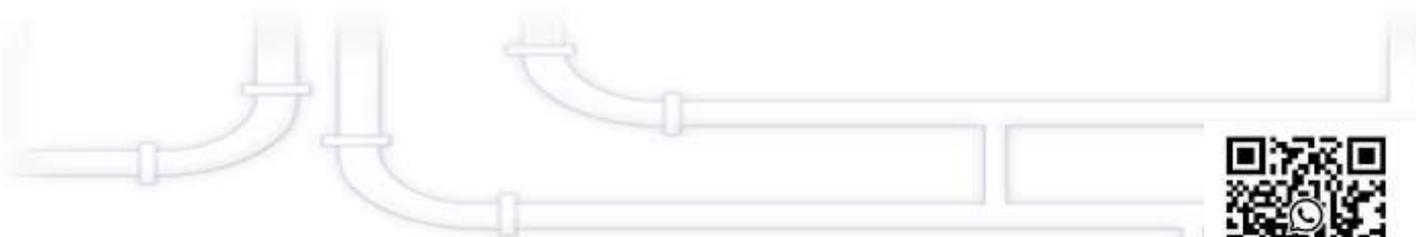
Understand the manufacturer's product details



This method mainly applied in the severe applications like both high temperature and serious abrasions. We widely used in the power plant mill pipe and elbow and steel plant dust conveying pipes, elbows, reducer, T pipe and laterals pipes. It helped customers reducing the shutdown time a lot and saved lots of cost. The diameter of this type pipe fittings has to be more than 400mm.



## Weldable Ceramic tiles lined pipe fittings

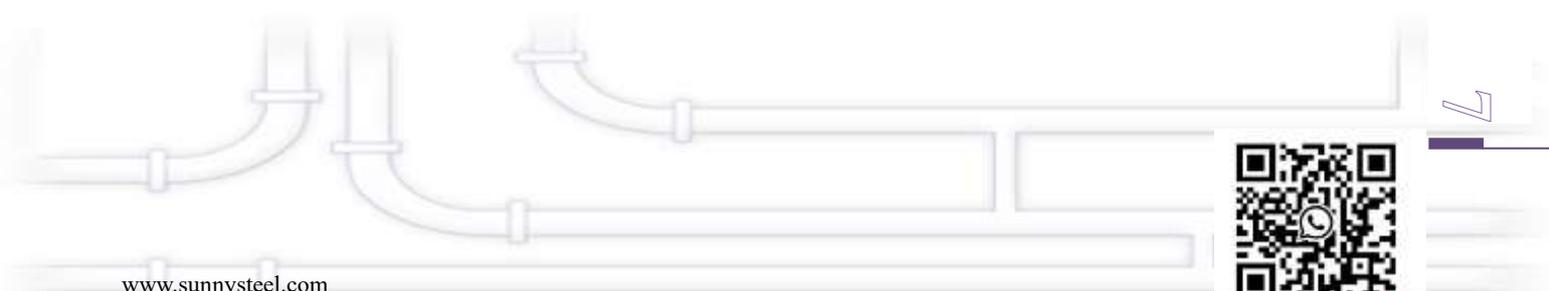


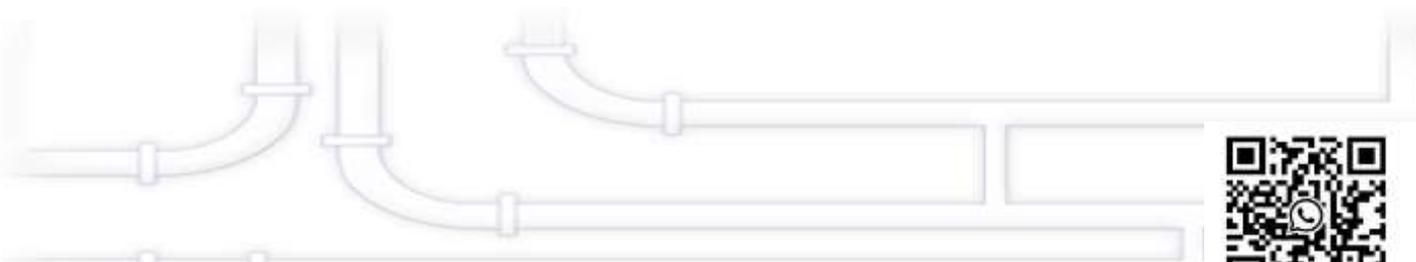
## Ceramic Tile lined elbow



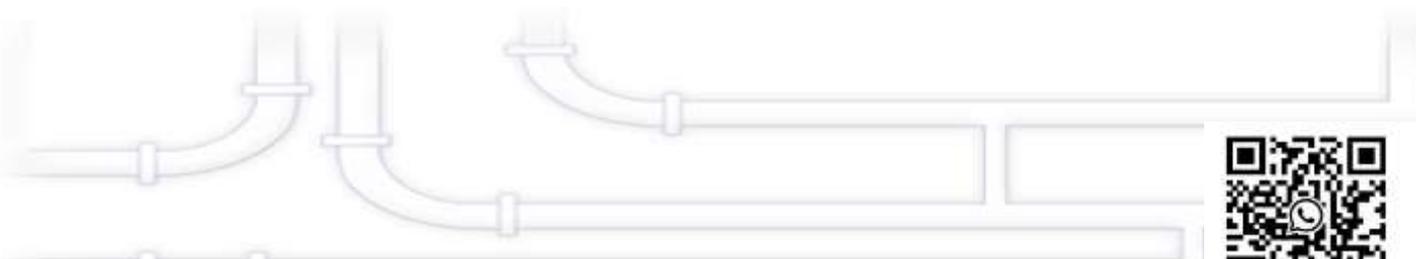
Ceramic Tile Lined Elbow has very uniform coating of specially formulated ceramic material that is affixed to the inner of the pipe and gives a very smooth surface.

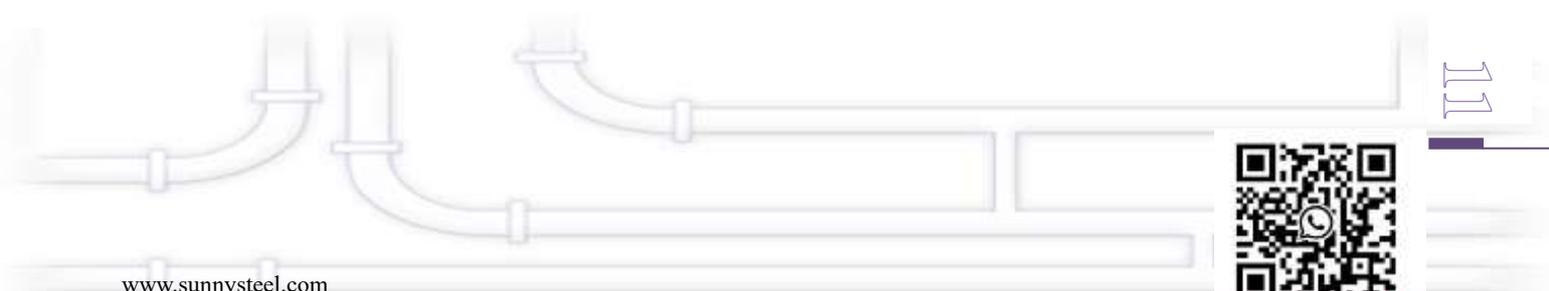
# More Sharpe



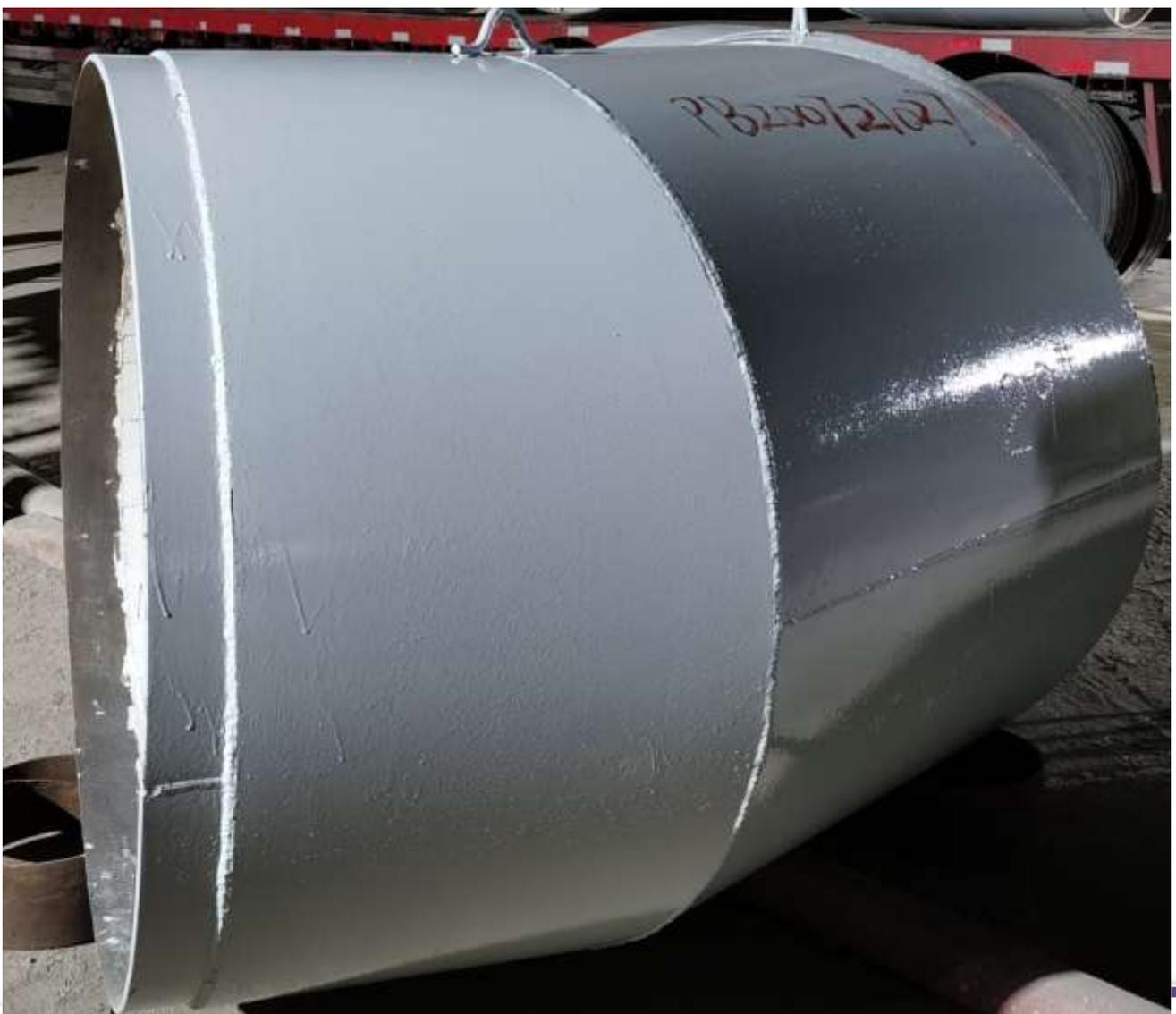


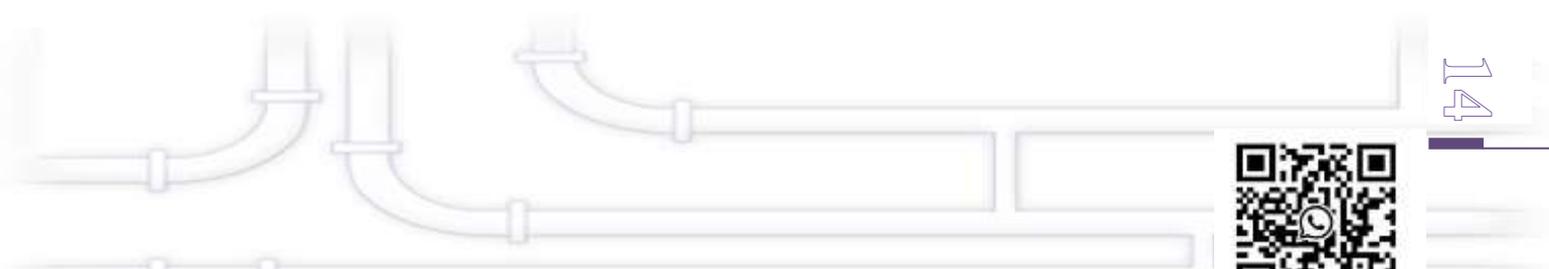


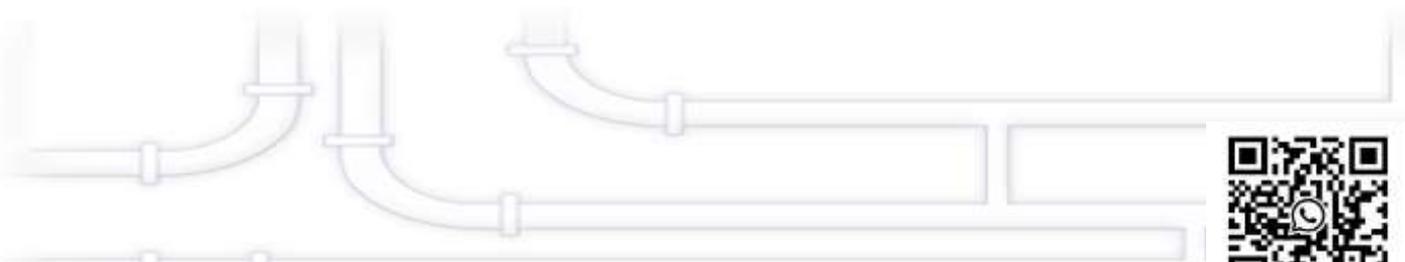


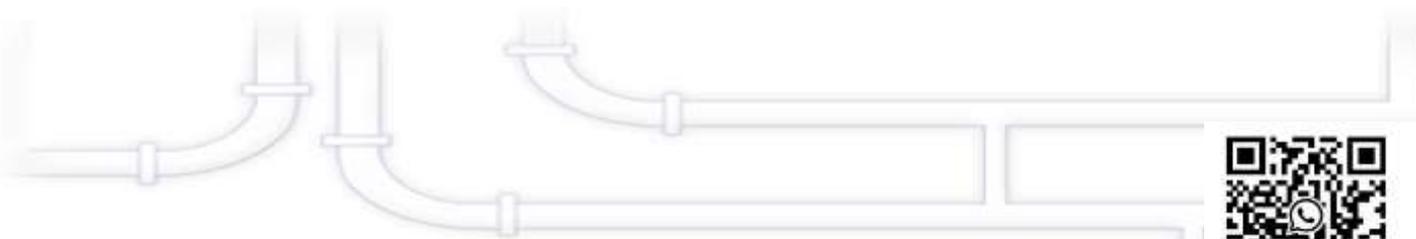














## Suggested usage of the ceramic tile lined pipe:

Rare high-strength low-alloy heat-resistant, wear-resistant steel parts for the power plant boiler systems in coal, powder, ash slagging pipeline.

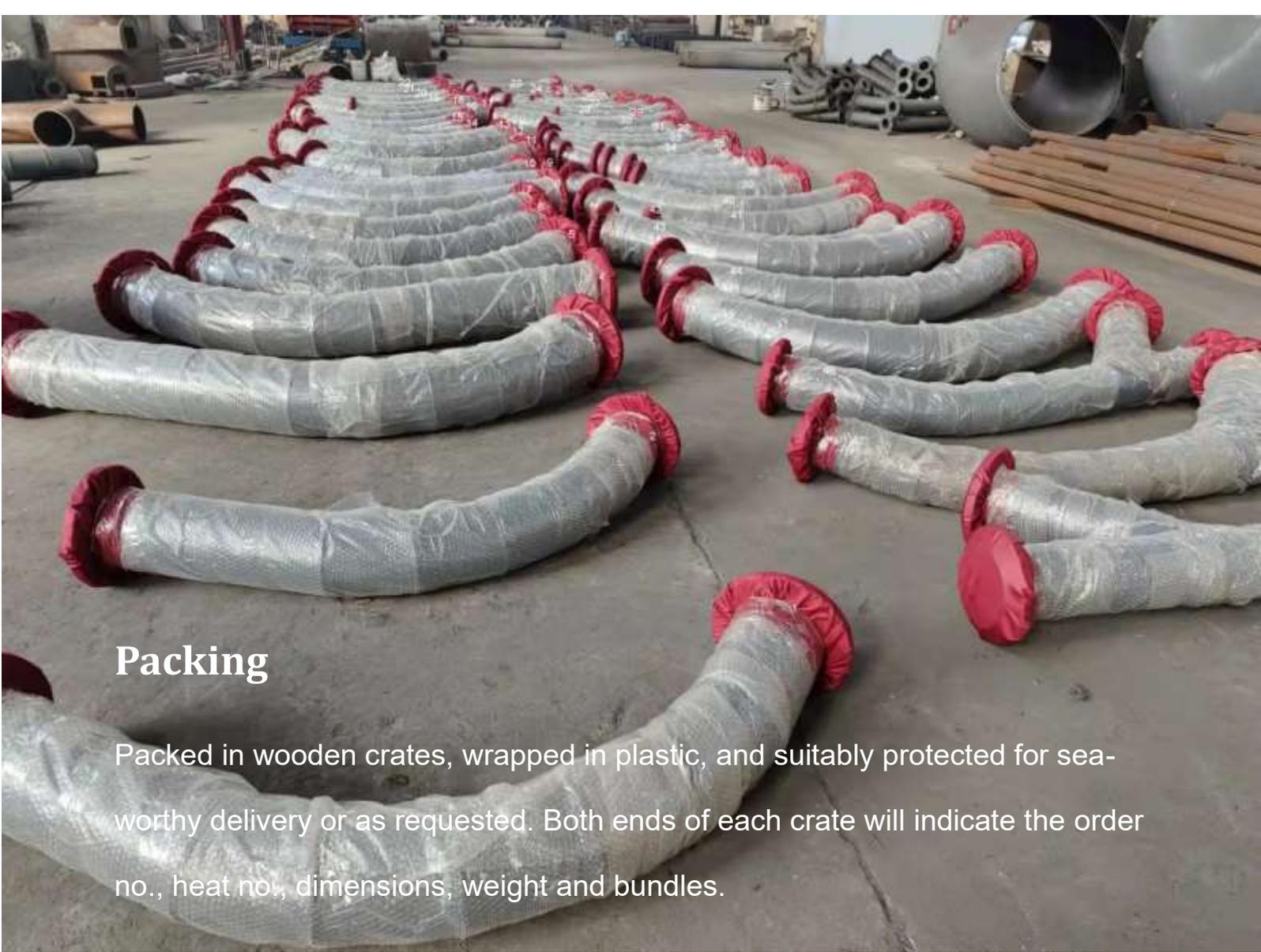
Ceramic tile lined pipe and bend can be cut and welded as you like.



The Ceramic Tiles could protect Industrial Components against abrasion, impact wear and high temperature of above 1000°C.

Standard Flat Tiles of Square & Rectangular Shape having thickness of 6 to 50 mm, with or without central hole are available.





## Packing

Packed in wooden crates, wrapped in plastic, and suitably protected for sea-worthy delivery or as requested. Both ends of each crate will indicate the order no., heat no., dimensions, weight and bundles.





# List of Core values

Professional, Reliable, Efficient

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Collect steel pipes and fittings

