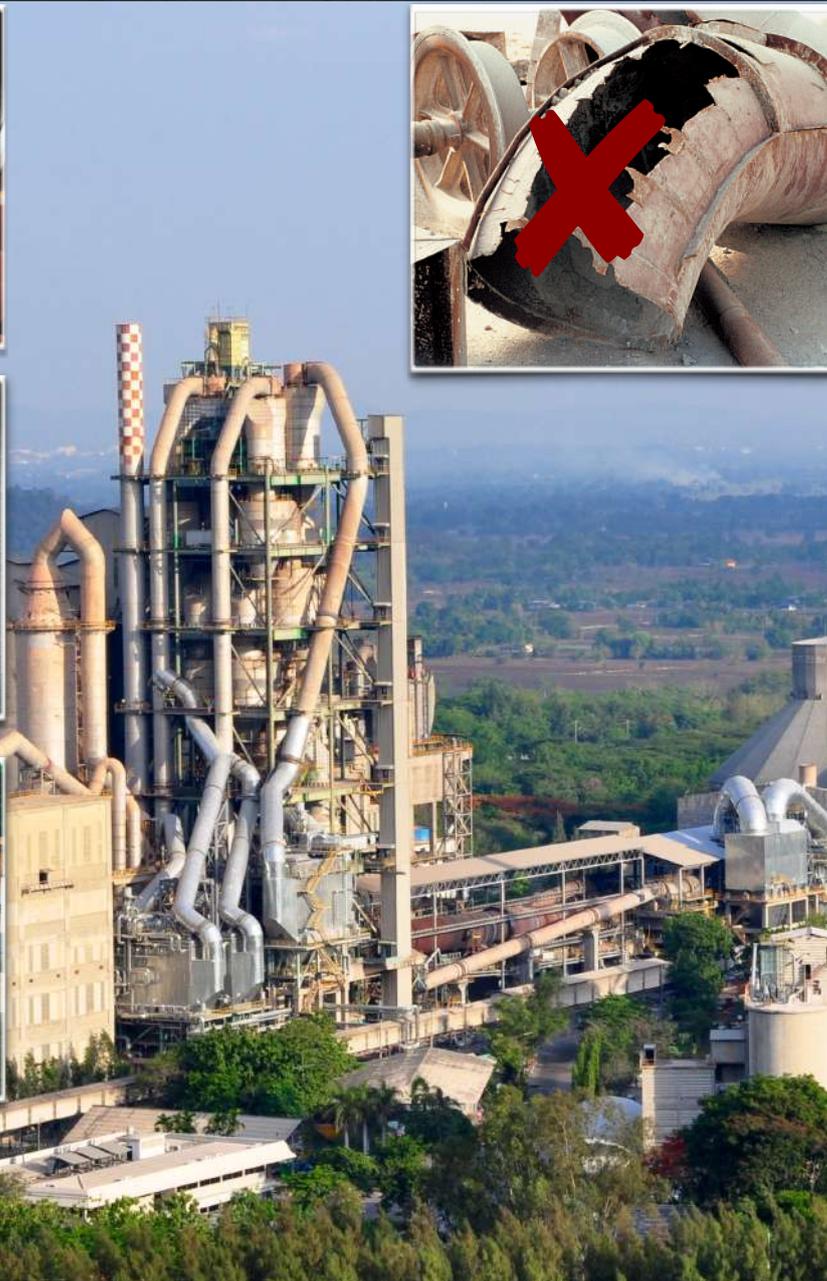


ROLIMA

Wear Protection Solutions



Your reliable partner for industrial wear and corrosion protection

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HARD COMPOUND

Hard compound is the general term for cement bonded wear protection materials. They are based on inorganic materials of high strength and good wear resistance. The use of only extremely hard aggregates such as bauxite and corundum results in the good quality of the wear protection materials.



The recipe for success

The mixture includes defined additives and is made up of:

- hard aggregate materials
- cement binder
- micro and nano silica

A specific portion of steel or other fibres is added to enhance the structural strength. The type of fibres used depends on the thermal, chemical and corrosive stress to which the hard compound will be exposed. Expansion joints will be provided when the compound is used at higher temperatures.

Common Applications

- lining of plant components
- pipe bends in coal dust piping
- agitators for the removal of dust from blast furnace gases in steel works
- and separator linings for the milling of cement.

Advantages

- high strength and abrasion resistance to wear caused by sliding friction
- excellent abrasion values
- large surface lining with no joints
- varying lining thickness depending on the stress due to wear
- can be used after 24 hours
- suitable for temperatures up to 1,200 °C / 2,192 °F
- high thermal shock resistance
- even complicated geometries are feasible
- overhead working without problems
- ideally suited for repairs
- can be installed at the site by locally available staff
- complete wear protection program
- optimal solution when used in combination with other wear resistant materials



Installation



Trowelled

This compound allows protection of horizontal, vertical, inclined and curved surfaces. Overhead working is easily done.

Cast

This material will be particularly useful for protecting flat surfaces against wear or if formwork can be used.



Sprayed-On

Sprayed-on compound allows large surfaces to be lined in a minimum of time. It may be applied by spraying horizontally, vertically or overhead.

FUSED CAST BASALT

Basalt is a variety of igneous rock with high density and a uniform mineral structure. Its hardness makes it the ideal raw material for the mineral-based, wear-resistant products used throughout the world fused basalt reliably protects plant components such as cinder channels, marl funnels or coke bunkers in the iron and steel industry or ordinary piping



Common Applications

- General lining of plant components
- cinder channels
- marl funnels
- coke bunkers in the iron and steel industry
- ordinary piping
- flue ash piping in thermal power stations



Very **hard** and **smooth** surface for good **flow** enhancement properties

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Form of Installation

Custom, precision-made cylinders for lining pipes, pipe bends and specially shaped components, as well as plates for covering plant components. Installation is carried out using cement mortar or special adhesives



Properties

- Corrosion resistance
- (FDA approved)
- Operational temperature max. 350°C
- Usable in locations subject to chemical stresses
- Very hard and smooth surface for good flow enhancement properties
- Cylinders with internal diameters of 40-525 mm



ALUMINA CERAMICS

Alumina Ceramics Al_2O_3 content of at least 92% is a modern high-performance material with outstanding wear protection characteristics. The primary material is an aluminium-based material that is pressed into shape using the dry pressing technique or processed with the slip casting technique. Then it is processed further as needed (cutting, drilling, milling and sintering).



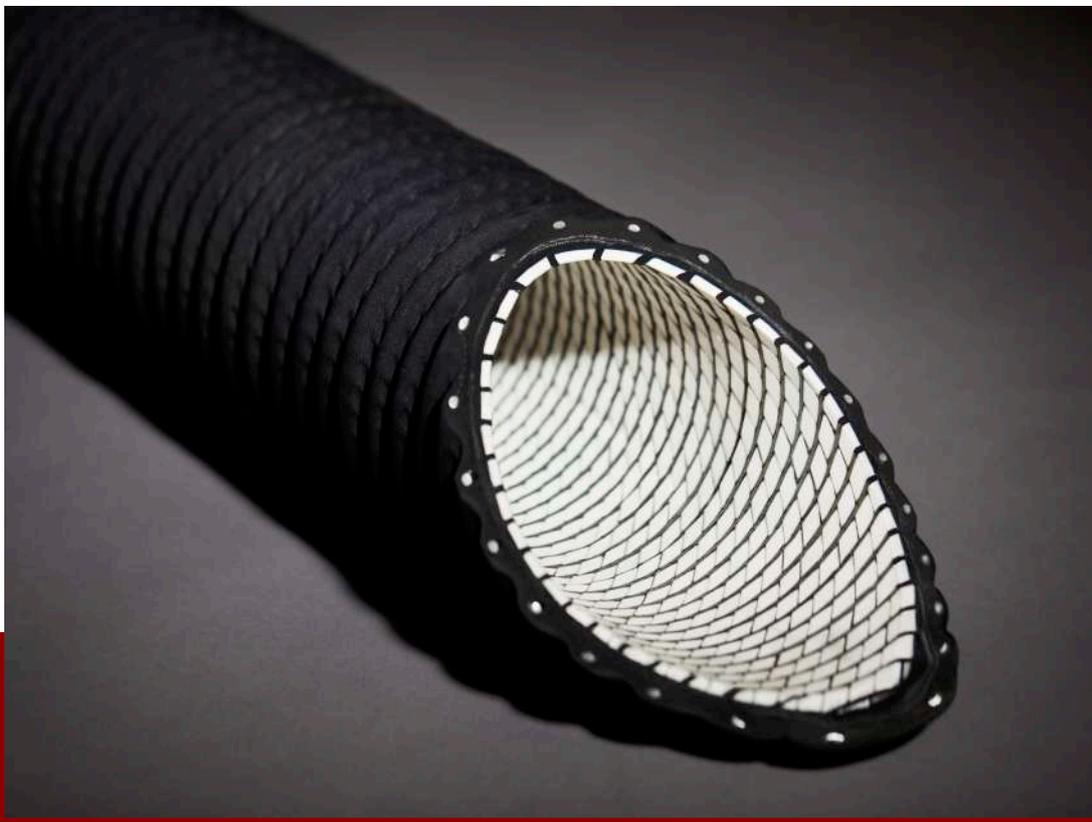
Common Applications

- lining of separators
- bunkers
- chutes
- conveyor belt transfer points
- concrete mixers
- cyclones.

Mechanical Properties

- High resistance to wear and smooth surfaces
- Corrosion resistance
- Usable in locations subject to chemical stresses
- FDA approved
- Easy to adapt to geometrically complex surfaces
- Operational temperature max. 1200°C (depending on conditions for installation)
- Small thicknesses of as little as 1.5 mm upwards
- Weight-saving solution



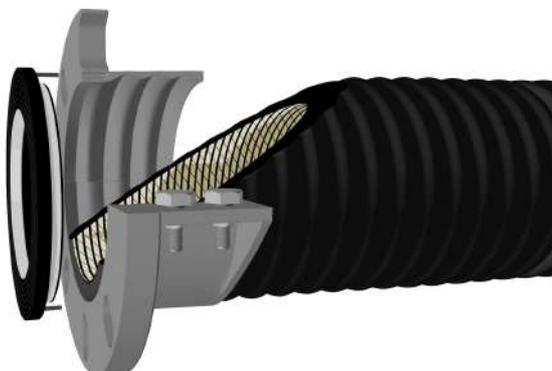


WEAR-RESISTANT FLEXIBLE HOSE SYSTEM

Diamond-shaped ceramic tiles with Alumina ceramics
They provide excellent protection against frictional wear and also make it possible to achieve the tight radius and sharp angles of fixed pipe bends in all directions. The inner diameter ranges from 50 to 200 mm.

Advantages

- Quick, easy, cost-effective installation.
- Uses a variety of flange and coupling connections.
- Flexible radius and angle positions.
- temperature range from -40°C to +80°C.
- Maximum 10 bar pressure (145 psi).
- Absorbs vibration and thermal expansion.
- Highly wear resistant



Common Applications

Hydraulic and pneumatic suction- and pressure delivery of highly abrasive media in stationary pipelines such as:

- sand
- sludges
- lime
- slag granulate
- pulp
- scale
- dust
- cement

ZIRCONIUM CORUNDUM

Cast zirconium corundum refers to the ceramic material which has proven effective for lining plant components that are subject not only to extremely harsh abrasion, but also high or fluctuating temperatures



Common Applications

- chutes for hot sinter or clinker
- in hot gas pipelines
- in dust extraction cyclones
- separators



Mechanical Properties

- Very hard and resistant to wear
- Corrosion resistance
- Usable in locations subject to chemical stresses.
- Operational temperature max. 1200°C
- Small thicknesses for cylinders from 12 mm upwards
- High resistance to temperature fluctuations, resistant to thermal shock
- Wide range of geometries
- Cylinders with diameters of 50-500 mm
- Asymmetric cross sections are available for pipe bends



SILICON CARBIDE

Silicon carbide ceramics for plant components for extreme wear, high temperature and/or thermal shock.



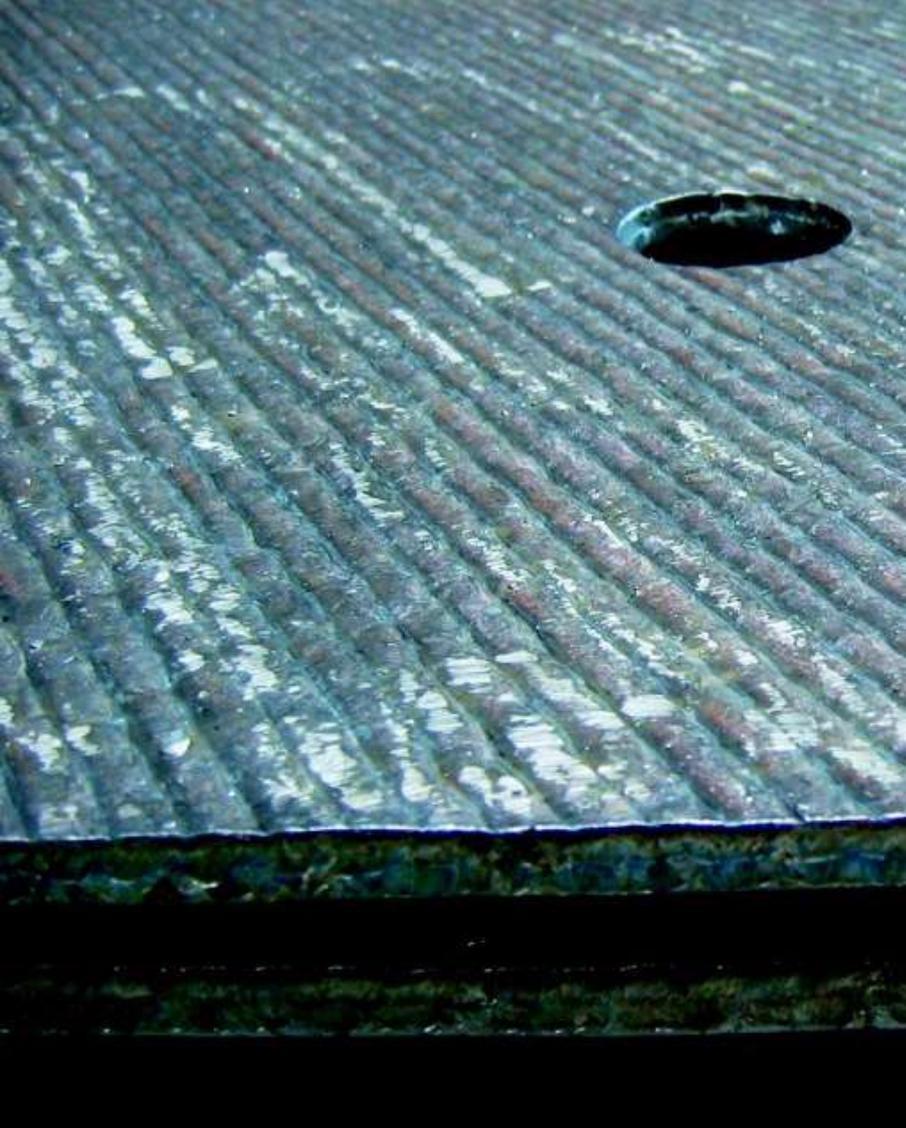
Common Applications

- coal dust distributors
- cyclone linings and coke ramps
- High-precision custom components even for complex geometries
- are used as wear-protection fittings in pumps
- fans
- hydraulic cyclones

Mechanical Properties

- High resistance to wear and smooth surfaces
- Corrosion resistance
- Usable in locations subject to chemical stresses
- Small thicknesses from 2 mm and upwards
- Operational temperature max. 1550°C (depending on conditions for installation)
- High resistance to temperature fluctuations
- Very good heat conductivity





OVERLAY HARDFACING

Wear plates refers to a chromium carbide overlay on a mild steel base plate with excellent wear resistance properties.

Product range consist of a plate variations that can be used in applications with various wear conditions.

Wear Plates categories

Abrasion Resistance

C-Cr-Mn-B-Fe

Overlay Composition: Chromium rich, high carbon and manganese allow

Abrasion with Impact

C-Cr-Mn-Nb-B-Fe

Overlay Composition: Chromium rich, high carbon and manganese allow

Abrasion in high Temperature

C-Cr-Mn-B-Mo-V-W-Nb-Fe

Overlay Composition: Chromium rich, high carbon and multiple alloy complex carbides



Common Applications

- screw conveyors
- ventilator housings
- cyclones and separators
- mixer linings
- piping components
- screens
- troughs
- transport channels.

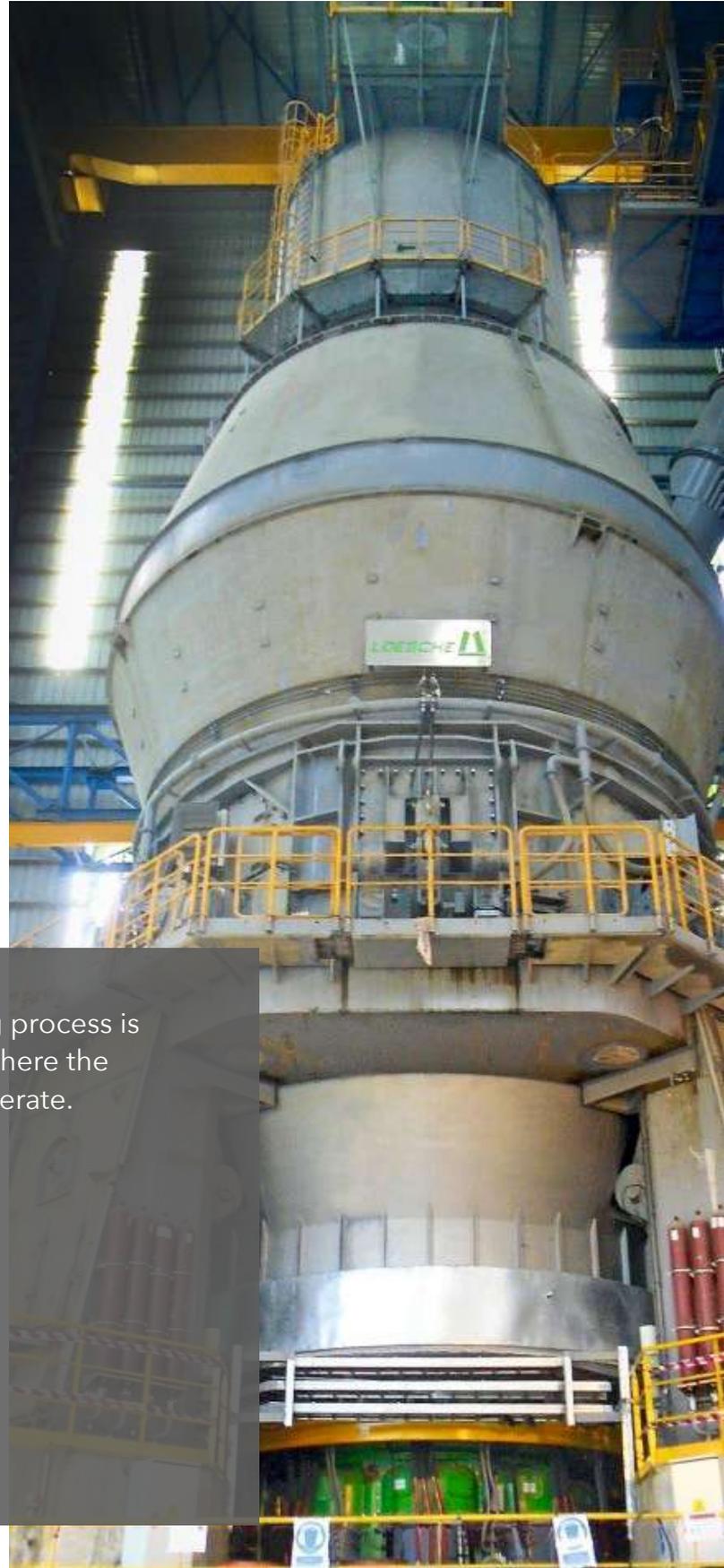
Fabrication of equipment

Cut, Form and Fabricate Wear Resistant Hard faced equipment parts on custom shape



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On-Site Service



The function of welding & hard-facing process is applied exactly in the natural place, where the equipment has been installed and operate.

Industrial areas:

- Cement Plants
- Chemicals/Refineries
- Power Plants
- Pottery and Brick industry
- Mining/Ore
- Geotechnical products/
Excavations • Metallurgy
- Constructions/ Machining tools

HARD CAST ALLOY

Referring to the metallic material for which the balance between impact and wear resistance can be determined in advance. This is achieved by alloying the metal with various quantities of chrome, nickel and carbon additives, carbides



Common Applications

- Inexpensive manufacture of standard components
- Selectable impact and wear resistance depending on alloy mix.
- Smooth surfaces
- Operational temperature max. 350°C
- Thicknesses of plates and pipes from 15-70 mm
- Pipes with internal diameters of 40-800 mm

Installation

Made-to-measure shaped elements in setting compounds; mechanical fixing and self supporting structures



AISI 310 plates

Stainless Steel 310 / 310S Sheets Plates Coils, which are produced in small quantities, contain expensive alloys, and are often sold only by the kilogram and by their individual trade names. Generally Stainless Steel 310 Sheets are very hard, wear - resistant, tough, and inert to local overheating, and frequently engineered to particular service requirements. Stainless Steel 310 Plates also have to be dimensionally stable during hardening and tempering.



310 / 310s Stainless Steel Sheets & Plates- Equivalent Grades

| Grade | EN | C | Mn | Si | P | S | Cr | Mo | Ni | N |
|---------|--------------|-----------|-------|-----------|-----------|-----------|---------------|----------|---------------|------------|
| SS 310 | X15CrNi25-20 | 0.015 max | 2 max | 0.015 max | 0.020 max | 0.015 max | 24.00 - 26.00 | 0.10 max | 19.00 - 21.00 | 54.7 min |
| SS 310S | X8CrNi25-21 | 0.08 max | 2 max | 1.00 max | 0.045 max | 0.030 max | 24.00 - 26.00 | 0.75 max | 19.00 - 21.00 | 53.095 min |

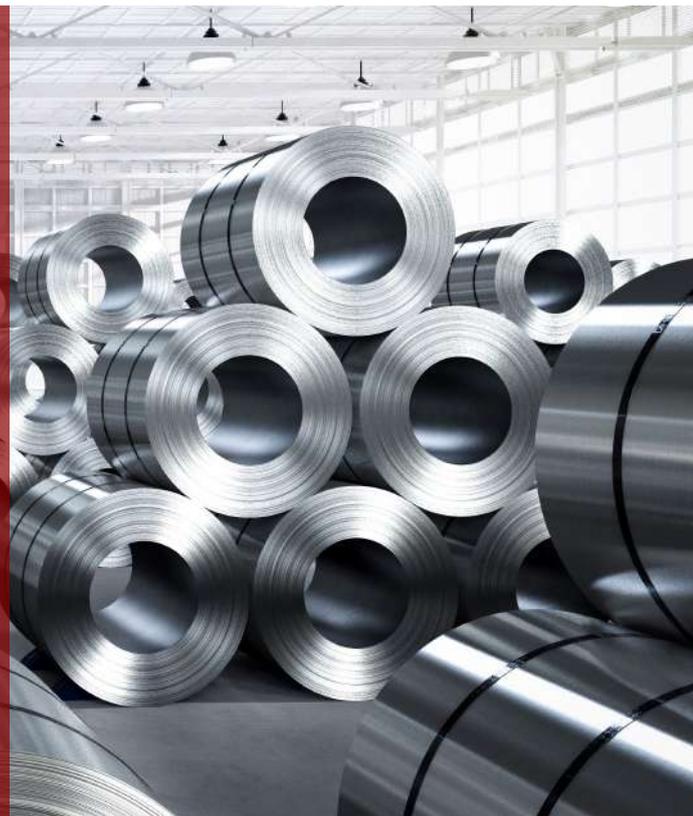
Properties

SS 310S Sheets and Plates has excellent resistance to an oxidizing and carburizing atmosphere. A common feature of high temperature steels like Stainless Steel 310S Plates is that they are designed primarily for use at temperatures exceeding 550 C°



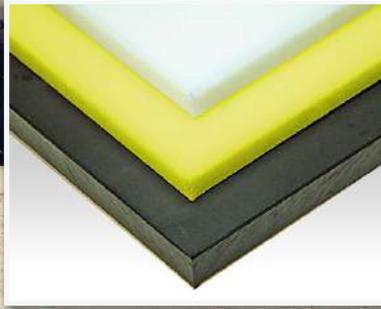
Common Applications

- fluidised bed combustor
- kilns
- radiant tubes
- tube hangers for petroleum refining and steam boilers
- coal gasifier internal components lead pots



POLYETHYLENE

Slide promoting thermoplastic plates. The good anti-friction properties and non-corrodable surface means that goods being transported do not get stuck

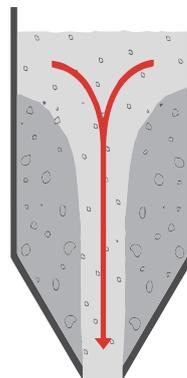


Common Applications

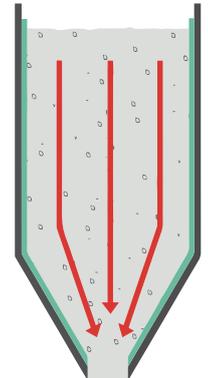
This material is mainly used for transport and storage of fine-grained bulk goods such as:

- lining silo
- bunkers
- loading buckets
- dumpers

Stucked Silo Problem

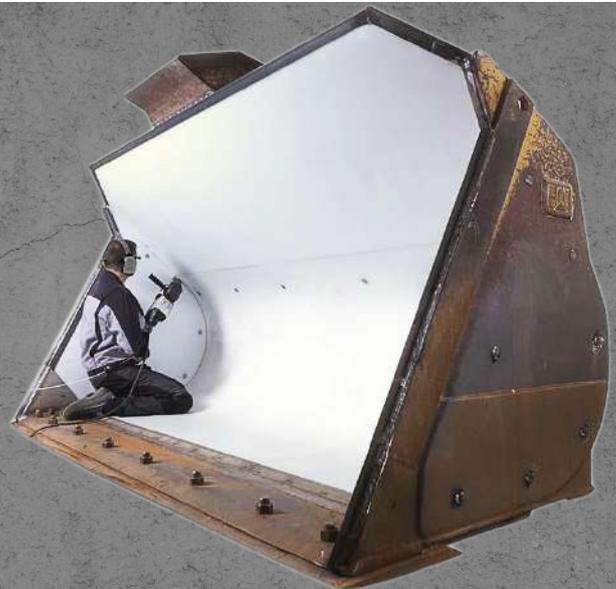


Slide Promotion Solution



Mechanical Properties

- Non-corrodable, slide-promoting wear protection
- Reliable flow of material with no interruption
- Lining can be individually modified to shape
- No open joints due to welding of plates
- Edge protection by means of special edging system
- Special stainless steel fastening elements



CERAMIC ROTARY FEEDER

Lined with wear resistant ceramic elements reduces the wear to conventional rotary feeders significantly. Depending on requirement profile different wear protection systems are available.



Common Applications

For abrasive materials and as feeding device for pneumatic conveying systems for:

- Cement
- Raw meal
- fly ash
- gypsum
- clinker

Max. Back pressure: **2 [bars]**

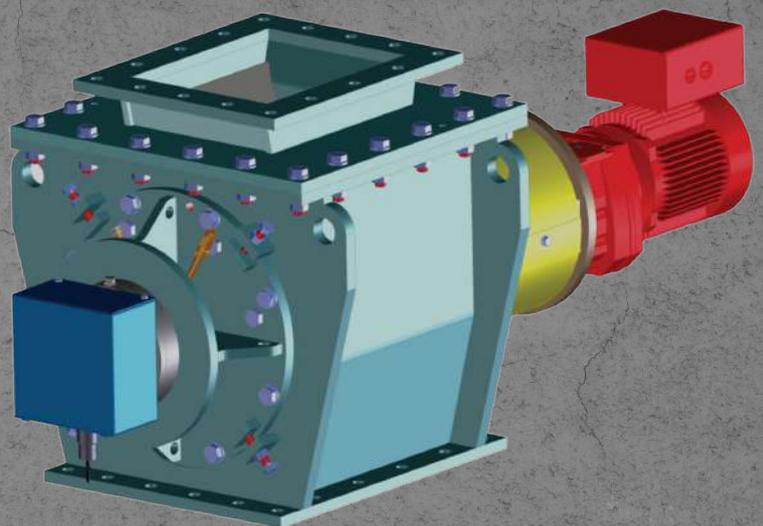
Max. Bulk solid volumeflow: **300 [m³/h]**

Max. Hardness of the bulk solids: **9 [Mohs]**



Mechanical Properties

- Low construction height
- Conveying capacities up to 300 m³/h
- Conveying distances up to 1000 m
- Conveying pressure up to 1.5 bar (g)
- Continuous conveying
- Long life time due to ceramic wear protection
- Available as pressure shock resistant
- Simple control system
- Low energy consumption



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REFERENCES



أسمنت العامرية

a member of  InterCement



TITAN
CEMENT GROUP



السويس للأسمنت

Suez Cement

HEIDELBERGCEMENT Group



حديد البحرين

BAHRAIN STEEL

احدى شركات فولاذ A FOULATH COMPANY



VASSILIKO

C E M E N T



شركة السويس للصلب
SUEZ STEEL CO.

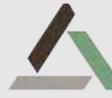


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