

Steel and iron industry – cement works - mining – sand and gravel conveying – coal-fired power plants - foundries – sugar factories - refineries – ready-mix concrete - agriculture - mineral handling

**Successful in
wear protection
with:**



- > **Experience**
- > **Materials**
- > **Technologies**
- > **Know how**

Quarrying, producing and processing of minerals.



Manufacturing, processing and recycling asphalt and concrete.



Hard facing, regenerating and metal spraying.



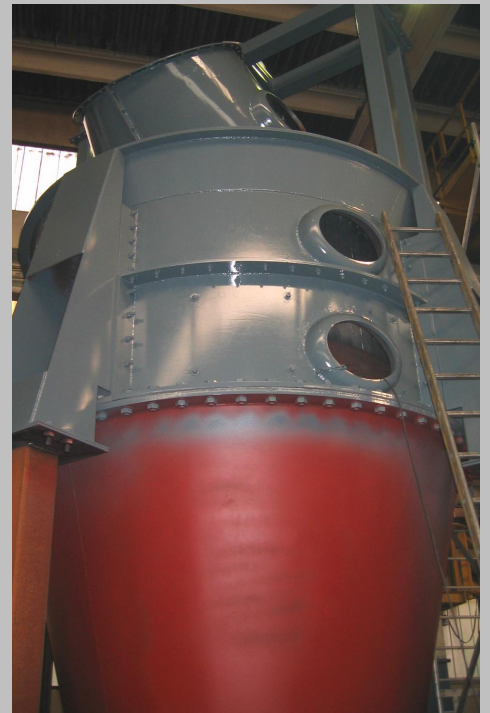
Adept and competent in wear protection

For the past 20 years we have been intensively and successfully dedicated to fighting wear of machine and plant components.

We analyse your wear problems and compile proposals for solutions. In order to realise these; an extensive range of materials is at our disposal.

Our experience and know-how, production facilities tuned to our special products and a committed, motivated team form the basis of our competence in wear protection:

Our experienced specialists work for you at our two sites in Rechberghausen near Göppingen in Germany and Hattstatt near Colmar in France.



Separator with **A.S.S. Compound plates** →



Ventilator: blade wheel with **A.S.S. plates**

A.S.S. Compound plates

are two-layer-plates. A hard layer with an extremely high proportion of carbide is applied to a basic steel plate (i.e. St.37). Depending on the type of alloy, these carbides are formed using chrome, tungsten, niobium, vanadium or boride.

For even higher demands, alloys are combined with further additives.

Small flaws in the hard layer are typical for these plates. These cracks are necessary (stress relief) and do not affect the basic material.

Our processing procedure is fully automatic and thus guarantees constant quality of the hard layer. (lowest possible blending with the basic material.)

Depending on requirements, thickness is between 3mm and more than 10 mm

The use of **A.S.S. compound plates** repeatedly achieves higher durability than other so-called "highly wear-resistant steel plates".



Screen with **A.S.S. compound blade**

Standard measurements [mm]:

Plate format [mm]	1000 x 2000	1250 x 2500	1500 x 3000
usable	850 x 1850	1100 x 2300	1300 x 2800
area [mm]	1,57 m ²	2,53 m ²	3,64 m ²

Cutting : Excellent cuts are achieved by plasma cutting. Jet cutting produces even more precise outlines, small holes and penetration.

Warping:
Canting, rolling
(warm or cold)



Sinkhole ring



Plasma cut →

Mounting:

- With hard-faced counter-sunk screws and fitting sinkhole rings welded into the compound plate
- With welded screw bolt at the back
- By welding or other mechanical mounting

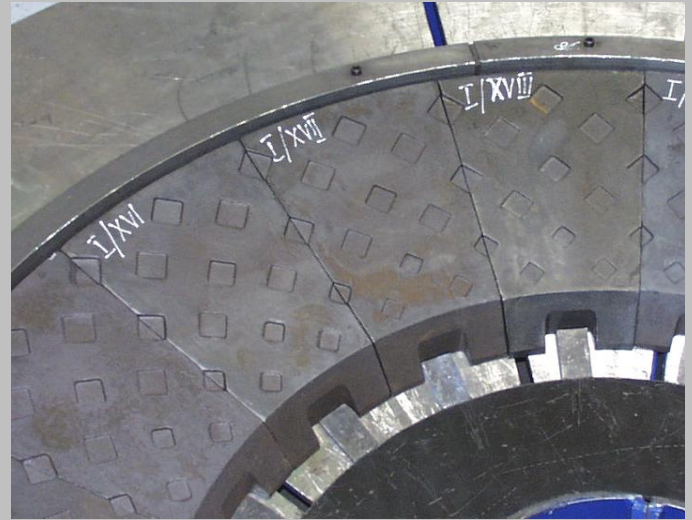
Abrasion resistant cast iron

High chrome alloyed cast iron offers the best wear resistance of all cast iron materials.

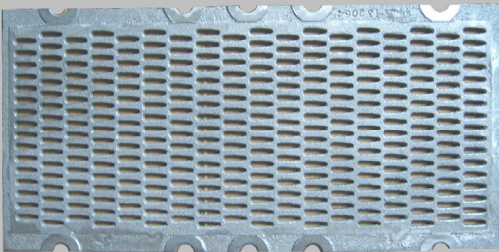
The carbon content varies between 1,2 and 5,0%. The proportion of chrome lies in between 12 and 33%. According to requirements, niobium, vanadium and other particularly carbide-forming materials are added. These materials reach their highest possible resistance to wear only after an initial heat treatment. This is effected at 900 to 1050 °C with either accelerated or resting air-cooling.

The structure is composed of a high concentration of chrome and mixed carbides in a largely martensitic basic structure.

Considering material properties, extremely manifold applications can be realised.



Milling course for a bowl mill with **CrNi alloyed casting**



Screen cover of **High Cr-alloyed casting**



Stirrer disks **Cr-cast**



Oxide ceramics (Al_2O_3 and ZrO_2)

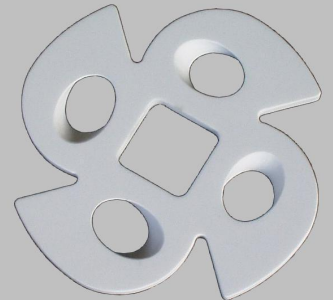


Bearing bushings of **ZrO_2**

Oxide ceramics is an ideal material for wear protection in the area of plant engineering and machine construction.

To be used in adverse application conditions such as:

- Strong abrasion
- Chemical abrasion
- High temperatures



stirrer disk from **Al_2O_3**

Tungsten carbide hard metal

offers excellent wear protection in the area of plant engineering and machine construction.

To be used in adverse application conditions such as:

- Strong abrasion
- Strain of impact
- Edge stress



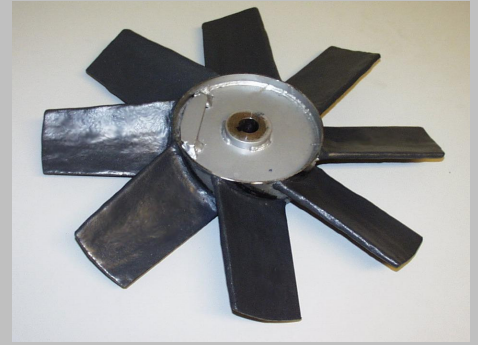
Mixerblade: surface with **tungsten carbide**



Pump component with soldered **cemented carbide**

EPO-SiC is a type of polymer ceramics, which - to ward off frictional mineral wear - is smoothed directly onto the areas under strain. Component can be finished in advance, as the **EPO-SiC** coating is effected at room temperature and thus causes no delay.

EPO-CER is cast polymeric ceramics. Similar to **EPO-SiC**, they add very good wear properties to compact cast parts. The extreme hardness of the embedded ceramic main components (**SiC**) guarantee an excellent durability against wear due to sliding action.



Ventilator wheel coated with **EPO-SiC** polymeric ceramics



Pendulum of a bowl mill, protected by **ArC** metal spraying

ArC-Metall is a wear-resistant layer applied by metal spraying. Embedded carbides feature a high degree of hardness and guarantee superb durability in terms of sliding abrasion. Coating may be effected at the finished component as **ArC metal spraying** is effected at low component temperatures causing no warpage.



Mill liner protected by **ArC** metal spraying →

The coatings created by means of the **A.S.S. hard - facing - procedure** own similar properties than A.S.S. compound plates. Thickness may be of several cm.

A.S.S. cladding may even improve the wear protection of "un-weldable" cast alloys such as Ni-Hard.

Similar to our compound plates, various alloys may be welded on and as required by exposure and demands.

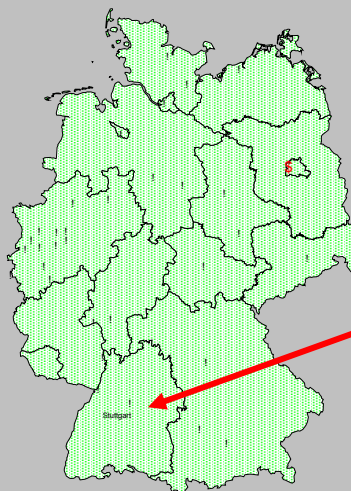


Grinding roll cladded by **A.S.S.** hard facing →



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Where we are

