



EXCELLENCE IN ENGINEERED ALLOYS



EXPERT MATERIALS & SOLUTIONS FOR THE STEEL INDUSTRY

www.ampcometal.com

Wear is a constant and bothersome companion in the Steel Production Process. Wear parts are crucial for every plant's operation - especially in a challenging environment like a Steel Mill.

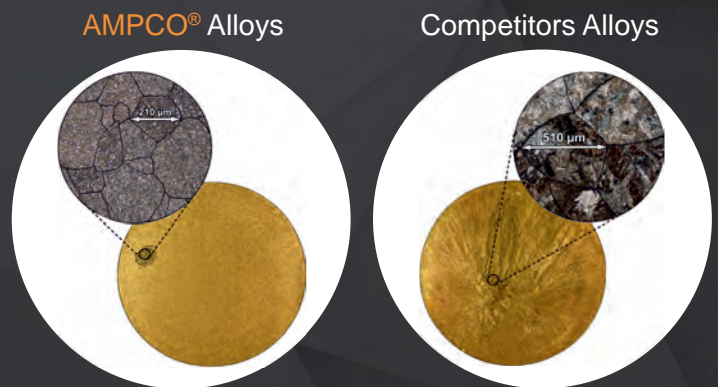
With over 100 years of experience; AMPCO METAL has developed the unique patented MICROCAST® manufacturing process, allowing for optimal control of homogeneous grain size, density, and dispersion. This leads to the rugged and unmatched wear resistance of all AMPCO® alloys.

We produce wear plates, bushings, and other wear parts and copper-based components for companies in the Steel Industry. But the company is not limited to wear parts. Drawing on its extensive expertise, we are the world's leader in manufacturing finished machined parts and can produce any workpiece according to your specifications and drawings.

microcast®

AMPCO METAL's patented MICROCAST® manufacturing process for continuous cast rod, rectangle, and tube provides the following benefits:

- Fine and most uniform grain size available vs standard products
- Exhibit stable properties over a wide range of working temperatures, like their wrought equivalents
- High specific strength, allowing components to be fabricated in smaller dimensions, saving component weight
- High tensile and fatigue strength available in non-galling bearing and bushing material
- Outstanding wear resistance when properly lubricated



	Alloy	Hardness Brinell (HBW)	Elongation %	Yield Rp 0.2 Mpa	Tensile Strength Mpa	Usage
AMPCO® BRONZE	AMPCO® 18	192	14	365	724	Bushings, Wear Plate, Liners
	AMPCO® 18.23	207	16	386	758	Bushings, Wear Plate, Liners
	AMPCO® 21	286	1	420	758	Work rest blade, Work roll
	AMPCO® 25	364	0.2	R _{pc0.1} 710	R _{mc} 1580	Work rest blades
	AMPCO® M4	260/300	8	793	1000	Pressure plate

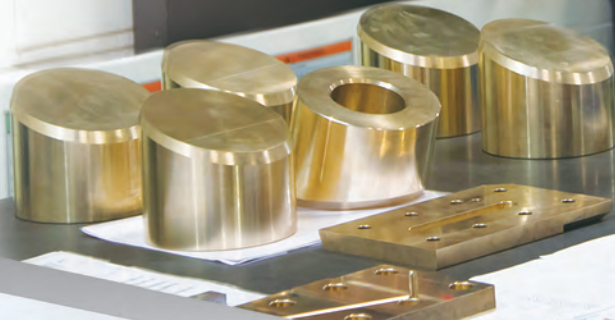
FACILITIES

Our worldwide distribution network enables us to fulfill finished machined parts requirements for various applications in the United States, Europe, Asia, and India while meeting time-sensitive requirements from our customers.

Leverage our finished machined parts expertise for your applications, we provide:

- A One-Stop-Shop solution for all your finished machined needs
- Production of parts to your specification and blueprints
- From very small parts to large parts
- Expert in finishing hard bronzes

We have the knowledge, expertise, and a wide range of machining equipment for your projects, including conventional machines to 5-axis CNC machinery for high-precision parts and automatization robots for bigger lots.



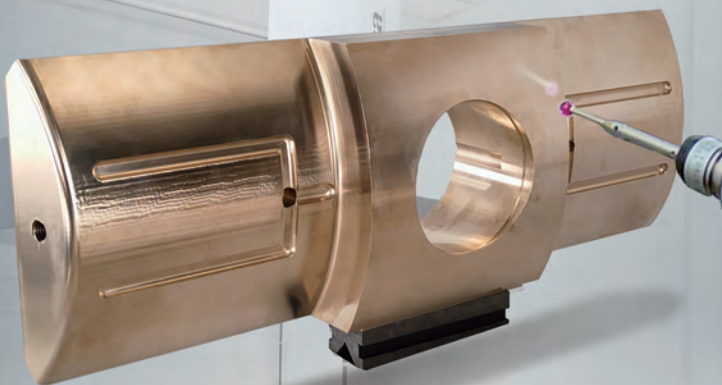
INSPECTION & QUALITY CONTROL

At AMPCO METAL, our expert engineers and facilities are committed to providing the best metal solution that performs exceptionally exceeding our customers' requirements and improving overall quality. This is the result of quality measurement and constant improvement of production processes.

All our materials are subjected to rigorous physical testing, including tensile, yield strength, conductivity, elongations, and hardness.

All our materials are identified at all stages of the production process and are thoroughly analyzed and checked before delivery.

All material produced can be supplied with full verification in accordance with specs, whether chemically, mechanically, or physically.





Down Coiler Mandrel Spares for HSM (Hot Strip Mill) / CSP (Continuous Strip Plant)

Steel production is an industry where the materials and parts are exposed to wear. Wear can be a serious problem in any industry as it directly affects the productivity and, therefore the economic success of a company. There are many different types of wear, including galling and fretting. Due to their challenging environment, steel mills are particularly prone to wear. Therefore, aluminum bronzes such as AMPCO® 18 offer great advantages for any company in the steel industry.

What makes AMPCO® outstanding?

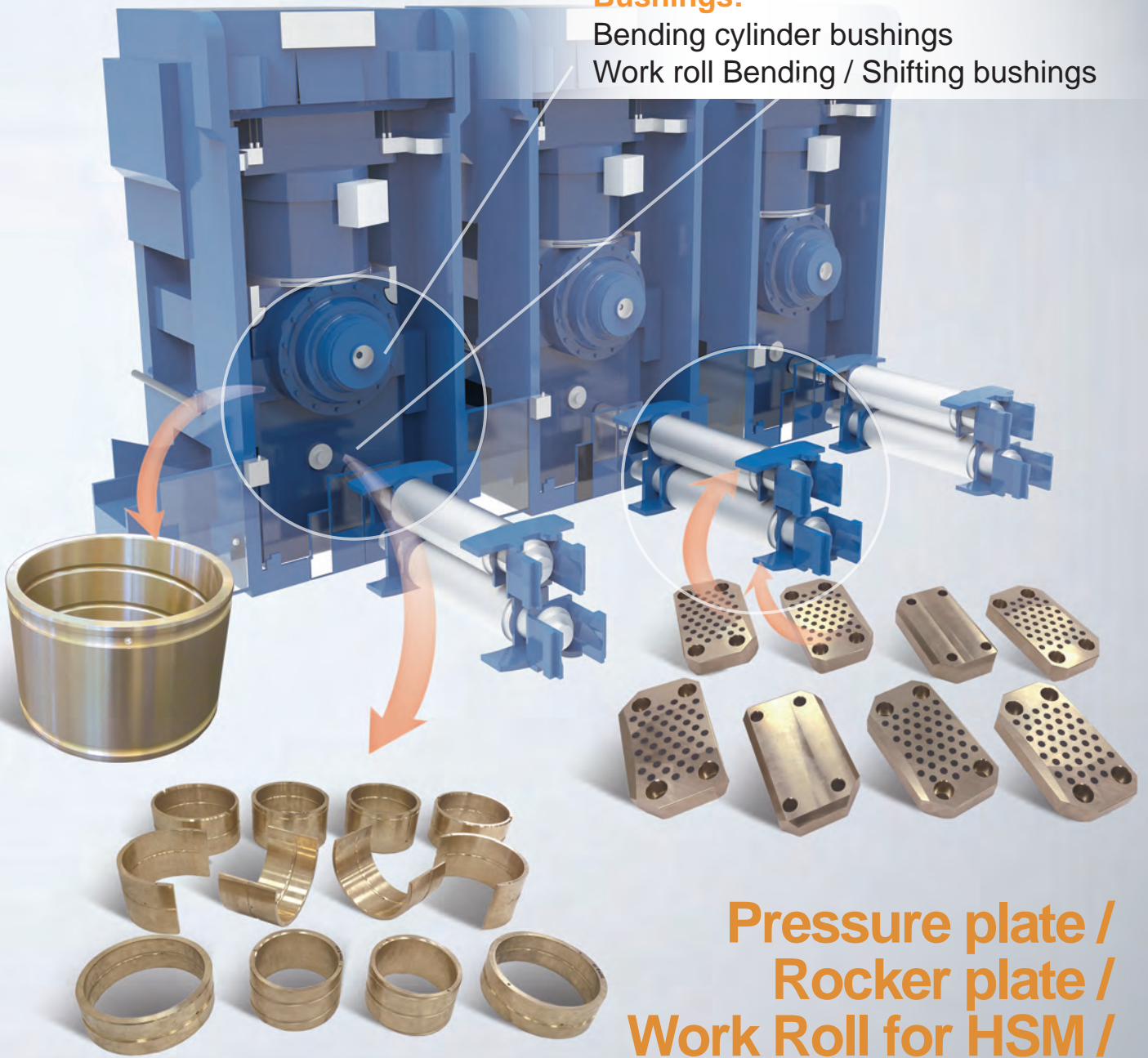
- 30 to 50 % greater resistance to corrosion
- 20 to 40 % higher wear characteristics
- 10 to 20 % higher mechanical properties

Furthermore, AMPCO® 18 is nickel-free, ensuring no nickel contamination, and prevents any galling against stainless steel. These qualities enable this alloy to perform successfully in a wide range of critical applications in the Steel Industry.

Bushings:

Bending cylinder bushings

Work roll Bending / Shifting bushings



**Pressure plate /
Rocker plate /
Work Roll for HSM /
CSP /**

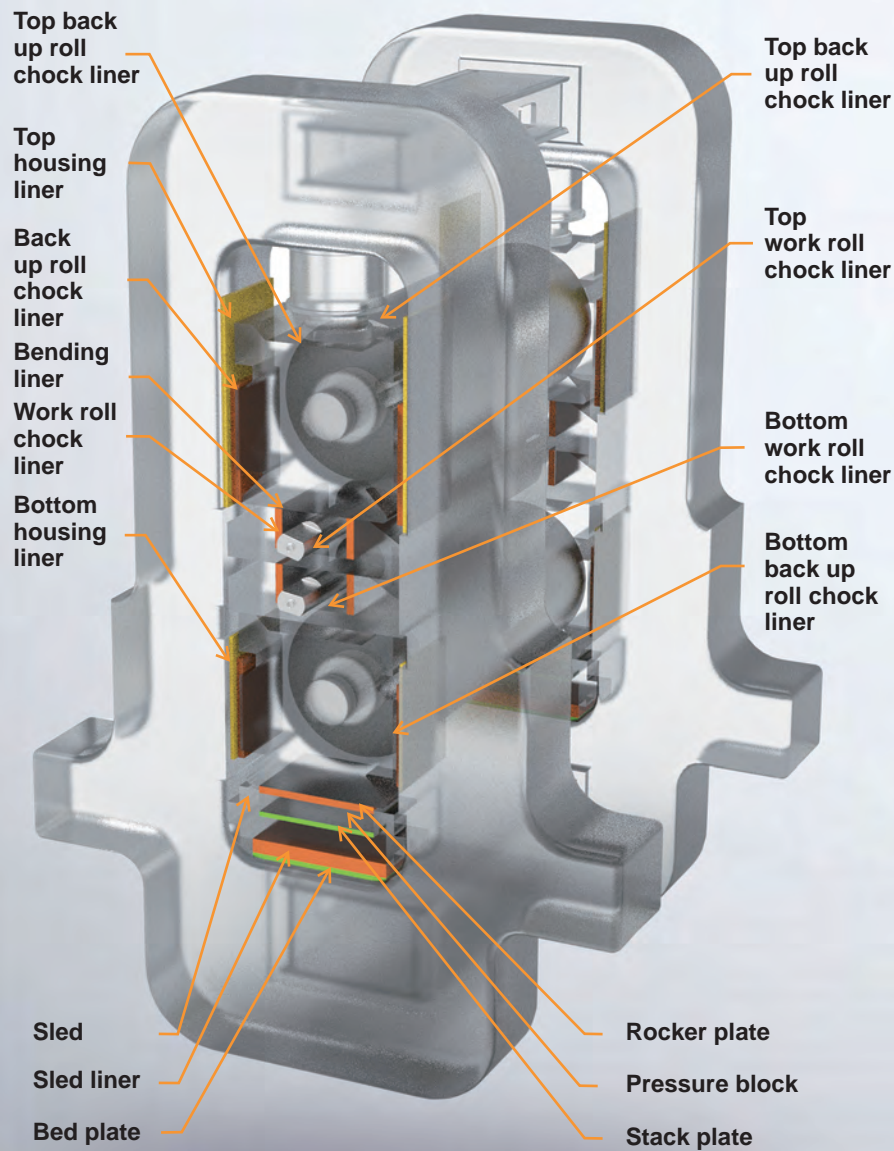
Through our patented production process, AMPCO® M4 has mechanical properties far beyond the range of conventional commercial nickel-aluminum bronzes. AMPCO® M4 is used for applications that demand a much higher dynamic loads & much higher wear resistance in wet conditions, which makes it very suitable for Pressure Plates.

The material offers:

- Maximize equipment speed
- Improve sliding properties
- Reduce production costs
- Minimum friction
- No seizing



Minimum Wear Maximum Efficiency



Mill Housing/Stand Liners

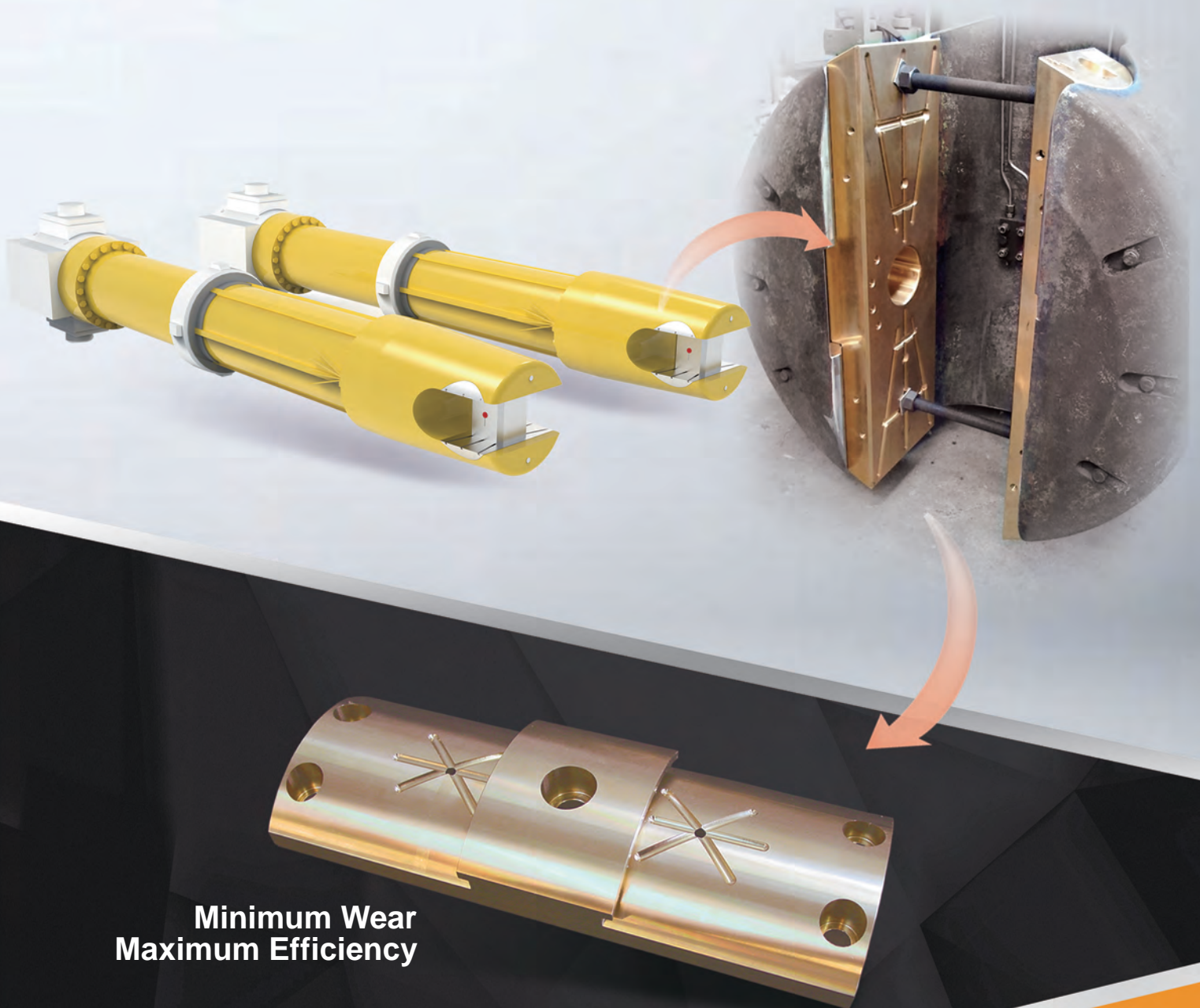
Wear components made from AMPCO® Aluminium Bronze

- Resistance to excessive fatigue higher wear & corrosion resistance improved
- Impact resistance
- Low coefficient of friction
- Reduced maintenance cost and total cost of ownership. Less downtime,
- Protecting other mill components for a longer lifetime

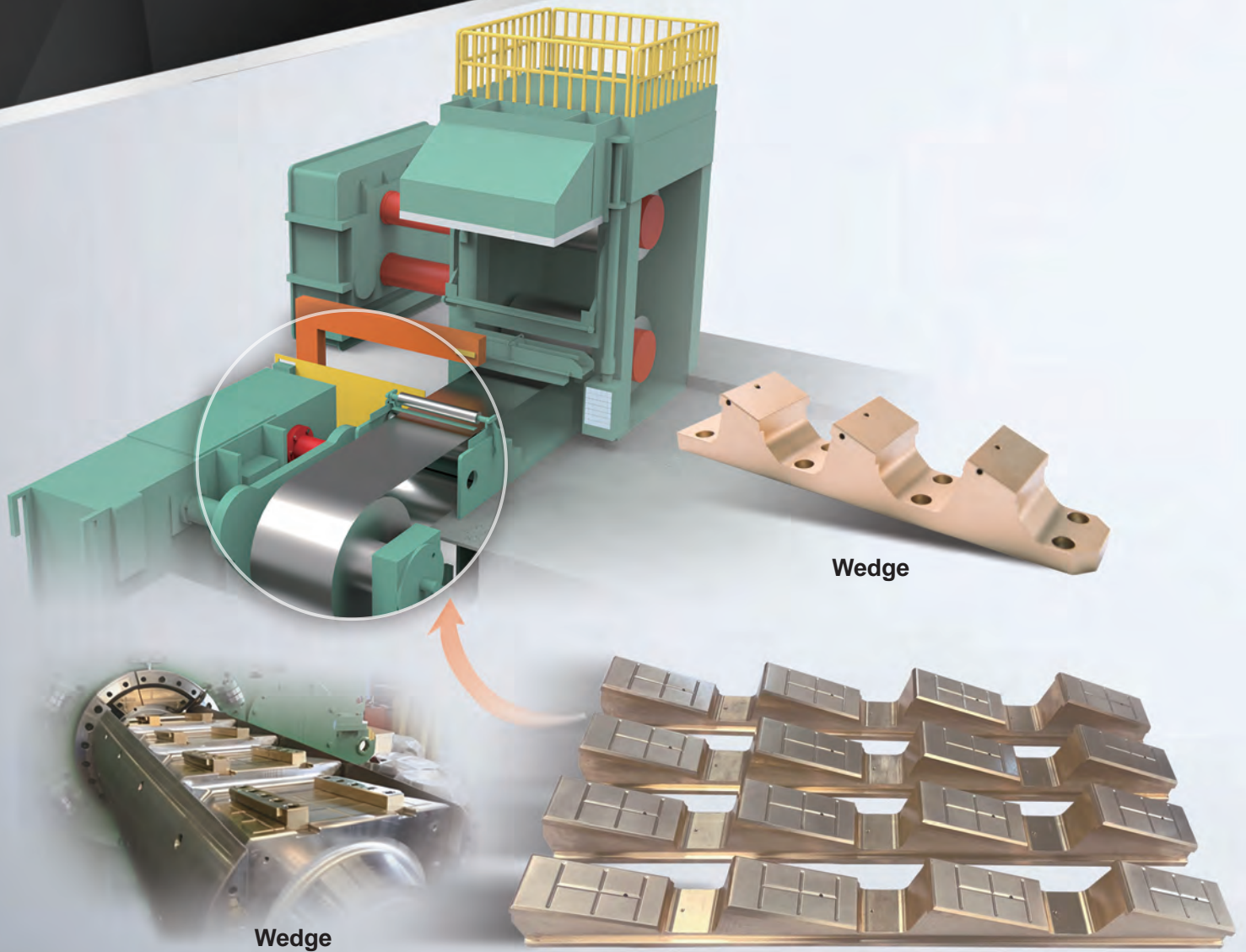
AMPCO® Slipper Pads

Slippers are sliding elements used in a drive coupling and can compensate for the misalignment of the drive rod when adjusting the shafts. The equipment in a rolling mill must withstand enormous loads. On one hand, the weight of steel blocks weighs several tonnes, and on the other hand, are exposed to high temperatures. Finally, the constant spraying of water also poses a danger, because of the moisture the material runs the risk of corroding faster.

There are many parts, especially in Hot Rolling Mills, Plate Mills and Blooming Mills, where AMPCO® 18 can make a great difference, for example Slipper Pads are coupling parts used in this departments.



**Minimum Wear
Maximum Efficiency**



Coiler/ Uncoiler mandrel Spares for CRM (Cold Rolling Mill)

AMPCO® Bronzes have a wide variety of important properties. Where other materials might fail prematurely or are very expensive to purchase, AMPCO® Bronzes thrive in these environments. For example, AMPCO® Bronzes offer great advantages in rolling mills and steel manufacture, such as:

- Very good sliding properties
- High wear resistance
- High-pressure resistance
- High ductility
- High compressive strength
- Permits high surface pressure

AMPCO® Bronzes are suitable for various parts in a rolling mills. A thrust bearing, for example, must withstand high compressive forces and have good sliding properties under pressure.

AMPCO® 18.23 is the perfect solution for such tasks, as this nickel-free alloy has very good sliding properties, hardness and allows a high Compressive strength of Rmc 1034 MPa.

Solutions for Blast Furnaces



Tuyere: Made of High Conductivity Cast Copper, above 65% IACS



Tuyere Cooler: Made of High Conductivity Cast Copper, above 77% IACS

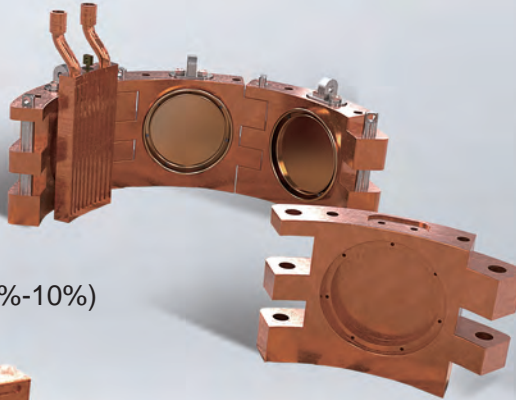


Staves: Made of High Conductivity Cast Copper, above 77% IACS



Cooling plates: Made of High Conductivity Cast Copper, above 55% IACS

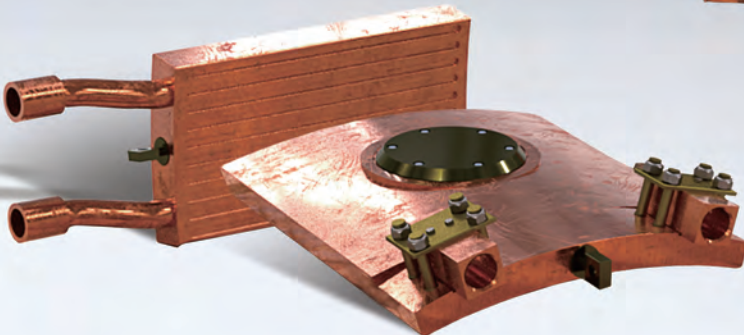
Iron Making Furnace Solutions



Pressure Plates:
Made of CuAl (90%-10%)
or CuZn (85/15)

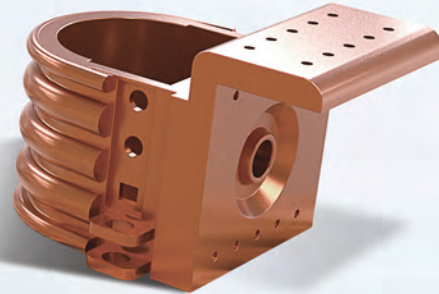
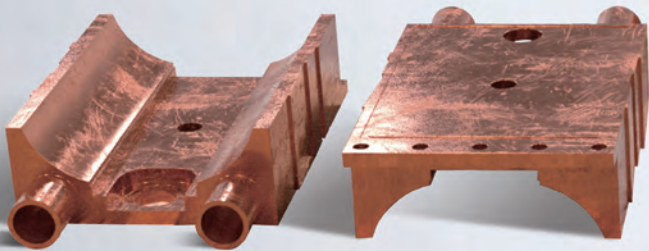


Pressure ring: Made of DIN 1982 Cu-C Grade B, it has high conductivity, provides energy and heat exchange by convection between water and parts in the chamber



Contact Plates: Used in iron alloy furnaces, they are provided with cooling channels. Can be made of copper - zinc (85% - 15%) or with high conductivity pure copper

Electric Arc Furnace (EAF) / Steel Melting Shop (SMS) Solutions

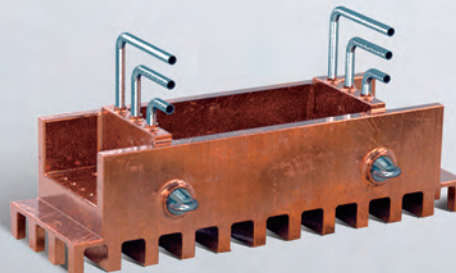


Electrode Holder: Made of High Conductivity Cast Copper, above 77% IACS

Contact Plates: Used in iron alloy furnaces, they are provided with cooling channels. Made of copper-Zinc (85% - 15%) or in high conductivity pure copper



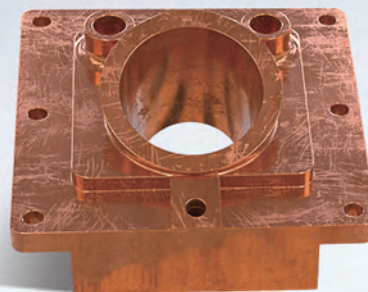
Transfer Channel: Made of High Conductivity Cast Copper, above 77% IACS



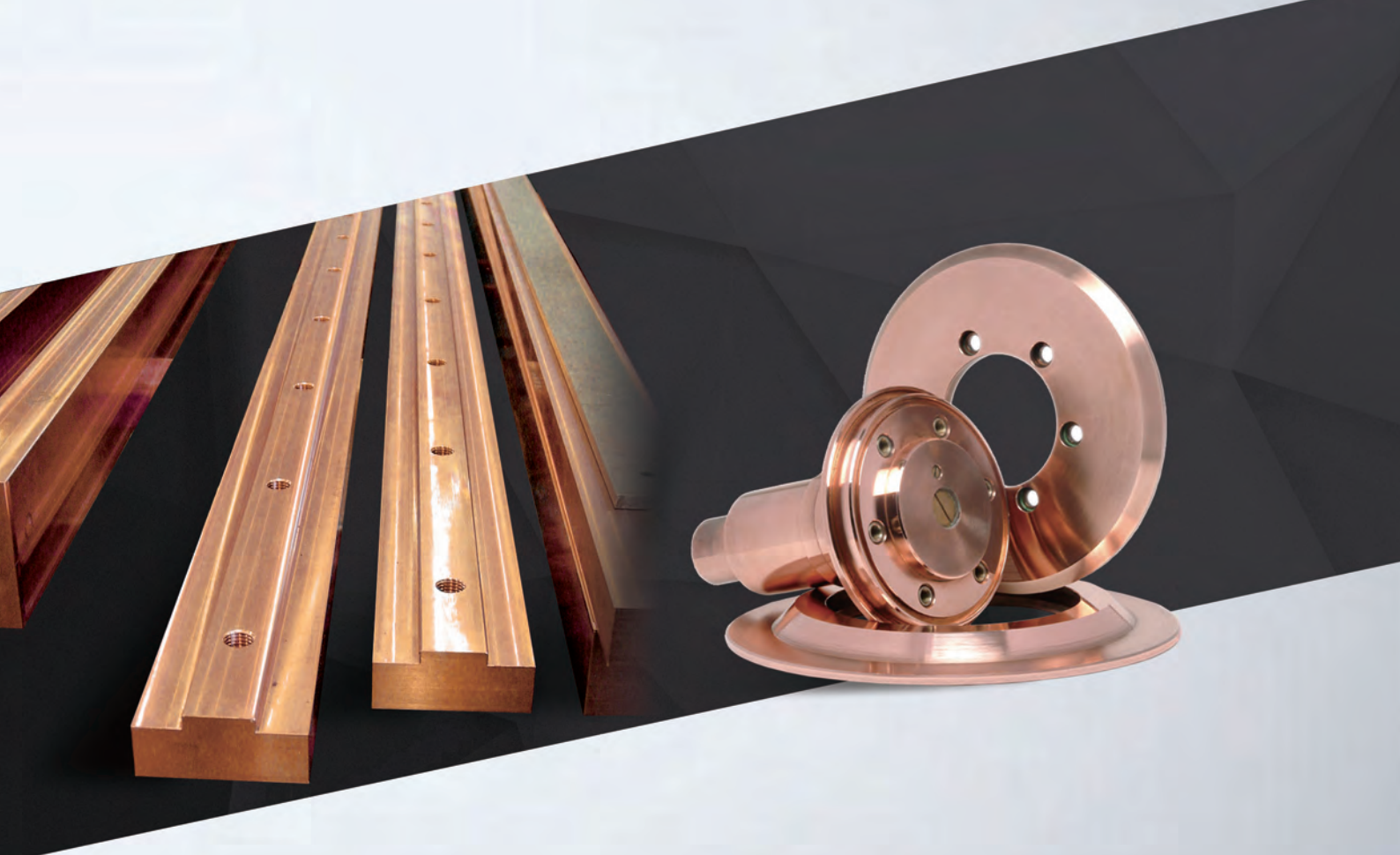
Element: Made of High Conductivity Cast Copper, above 77% IACS



Oxygen Lance: Made of High Conductivity Cast Copper above 85% IACS



Oxygen Lance Holder: Made of High Conductivity Cast Copper, above 77% IACS



AMPCOLOY® Welding Wheel and Welding Electrode Solutions

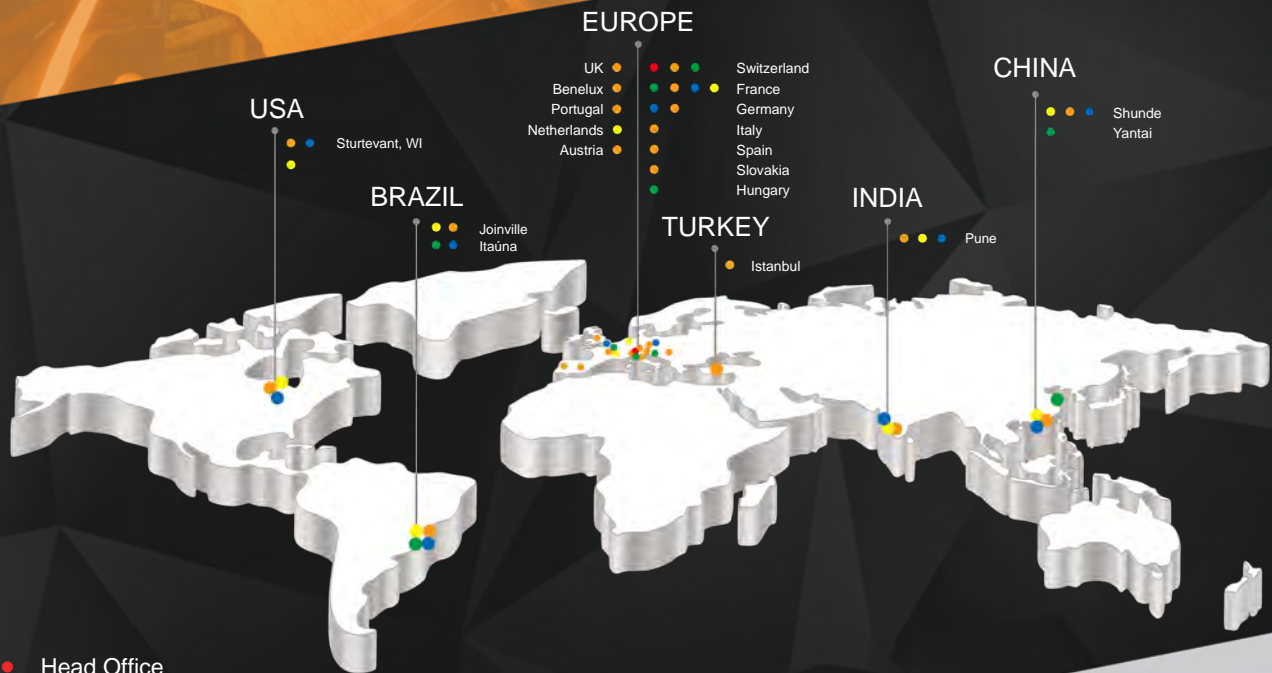
We produce a wide range of alloys, which can be used in various fields. The high copper alloys AMPCOLOY® 83, AMPCOLOY® 88, AMPCOLOY® 940, AMPCOLOY® 944, and AMPCOLOY® 972 are particularly well suited for the use in resistance welding. The materials are used as plates as well as welding wheel electrodes.

AMPCO METAL offers four RWMA classes, each with its specific properties and characteristics:

	Alloy	Hardness Brinell (HBW)	Elongation %	Yield Rp 0.2 Mpa	Thermal Conductivity W/ m.K(300°C)	Electrical Conductivity % IACS	RWMA Class	Usage
AMPCOLOY® ALLOYS	AMPCOLOY® 83	360	5	827	145	20%	4	Resistance welding for coiler joining
	AMPCOLOY® 940	210	13	517	243	48%	3	Spot Welding Electrode, Welding Wheels
	AMPCOLOY® 88	250	14	R _{p0.5} 550	340	69%	3	Resistance welding for coiler joining
	AMPCOLOY® 972	151	18	466	367	82%	2	Spot Welding Electrode, Welding Wheels



EXCELLENCE IN ENGINEERED ALLOYS



- Head Office
- Foundry
- Machining Facility
- Distribution Center
- Sales Office



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