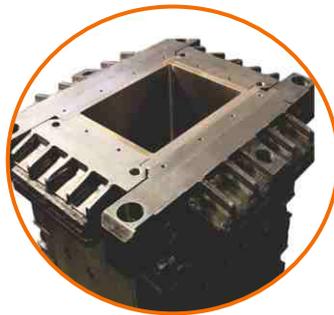


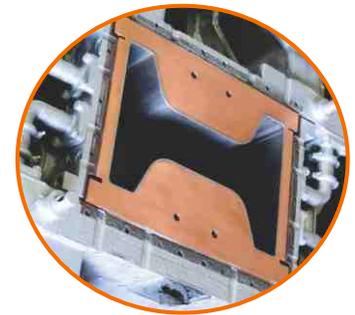
Continuous Casting Mould Plates For Slab/ Bloom/ Beam Blank/ Vertical Casters



Slab Mould Plate



Bloom Mould Plate



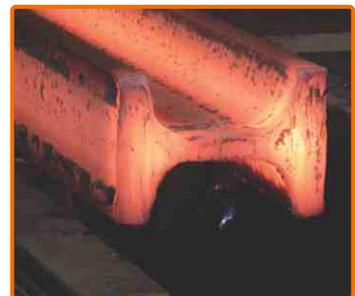
Beam Blank Mould Plate



Slab Casting



Bloom Casting



Beam Blank Casting



Slabs



Blooms



Beam Blanks



Resistance Welding Electrodes



Electrical Contacts



Short Circuit Rings & Rotor Bars

About Mipalloy

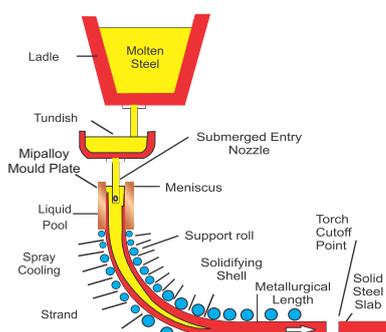
Mipalloy established in 1985 is India's the largest manufacturer of High Conductivity Copper alloys. We have three manufacturing facilities in Chennai to meet our customer requirements for various product lines.

We are an ISO 9001:2008 quality certified company supplying to every location in India with exports to more than 50 countries across the World.

We manufacture the following products in High Conductivity Copper alloy materials for our customers in various Industries.

- 1) Resistance welding products for Automobile & sheet metal industry.
- 2) Electrical Contacts for Switchgears (Medium Voltage, High Voltage, Extra High Voltage and Ultra High Voltage).
- 3) Short Circuit Rings & Rotor Bars for Generators, Traction Motors & Industrial Motors.
- 4) Continuous Casting Mould Plates for the Steel industry & Non-ferrous industry.
- 5) Casting wheels & Dam blocks used for manufacturing Continuous Cast Copper & Aluminum Rods (CCR Lines).
- 6) Beryllium Copper alloys used for Plastic Mould Materials & Plunger Tips for Aluminum pressure Die Casting.
- 7) We manufacture Castings, Forgings, Rings, Tubes, Profiles & Extrusions in Chromium Copper, Zirconium Copper, Chromium Zirconium Copper, Oxygen Free high conductivity Copper, Silver Copper, Nickel Silicon Chromium Copper, Beryllium Copper & Sintered materials such as Tungsten, Tungsten Copper & Molybdenum.

About Continuous Casting Mould Plates manufactured by Mipalloy.



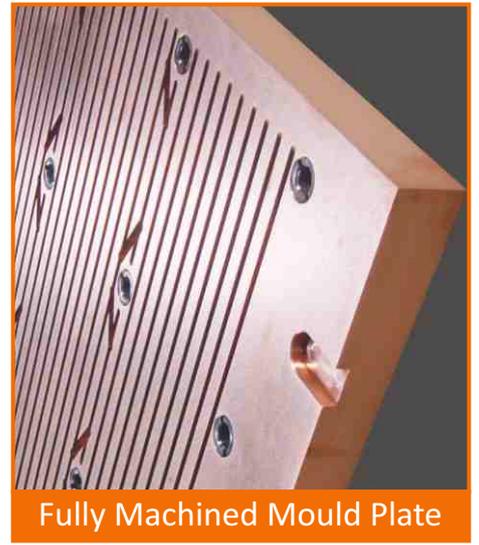
Mould Plate is the most critical part of the Steel Mill/ Non-ferrous Mill. Mipalloy Mould Plates are manufactured from premium quality raw material and precision machined to highest accuracy. Our Mould Plates exceed the performance expectation of our customers.



Cake Raw Material



Machining of Mould Plate



Fully Machined Mould Plate

About Continuous Casting Mould Plates manufactured by Mipalloy

Mipalloy Supplies the following types of Mould Plates.

- 1) Moulds for Steel Slab Casters.
- 2) Moulds for Stainless Steel Slab Casters.
- 3) Moulds for Steel Bloom Casters.
- 4) Moulds for Steel Beam Blank Casters
- 5) Narrow Side Moulds for Thin Slab Casters
- 6) Moulds for Non-ferrous Continuous Casting.

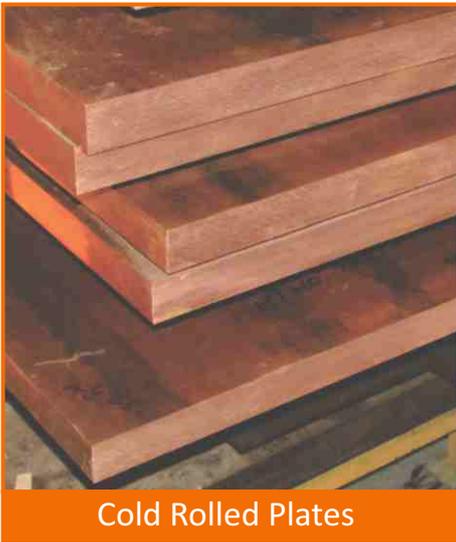
We manufacture our Continuous Casting Mould Plates in the following Materials.

- 1) Mipalloy AC, Silver Copper material, UNS No C10700
- 2) Mipalloy 3ZR, Chromium Zirconium Copper material, UNS No C18150.

We source our premium quality raw materials from.

- 1) Mipalloy AC, Silver Copper material, UNS No C10700 - **MKM Mansfelder Kupfer und Messing GmbH, Germany** (Our Raw material Supplier/ Technical partner)
- 2) Mipalloy 3ZR, Chromium Zirconium Copper material, UNS No C18150 – **Mitsubishi Materials Corporation, Japan** (Our Raw material Supplier/ Technical partner)

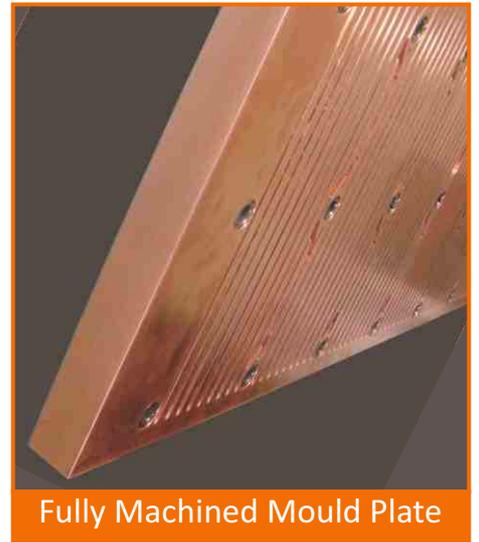
Material Properties	Units	Mipalloy AC (Ag CU)	Mipalloy 3ZR (Cr Zr Cu)
UNS No		C10700	C18150
Chemical Composition		0.08 - 0.12% Ag. 0.001 - 0.007% P. Balance - Cu.	0.5 - 1.5% Cr. 0.05-0.25%Zr. Balance - Cu.
Electrical Conductivity at 20°C (min)	% IACS	95	75
Thermal Conductivity at 20°C (min)	W/(m-k)	370	355
Coefficient of Thermal Expansion at 20°C - 300°C (min)	10 ⁻⁶ /k	17.7	18
Recrystallization temperature (min)	°C	350	700
Annealing temperature (min)	°C	-	525
Modulus of elasticity(min) at 20°C	10 ³ MPa	125	128
0.2% Proof Stress(min) at 20°C	Mpa	265	320
Tensile Strength(min) at 20°C	Mpa	275	415
Elongation Strength(min) at 20°C	%	12	15
Hardness(min) at 20°C	Brinell (HB 2.5/62.5)	85	130



Cold Rolled Plates



Machining of Mould Plate



Fully Machined Mould Plate

Advantages of Mipalloy Mould Plates

Mipalloy supplies Continuous Casting Mould Plates with following Coatings

- 1) TAP-2 Production Plus Plating
- 2) TAP-2 Plating
- 3) Nickel Plating
- 4) Chromium Plating

Mipalloy Mould Plates offers the following Advantages to our customers.

- 1) Longest life of Mould Plate for each campaign with our premium quality raw materials & TAP-2 Coating technology.
- 2) Better quality of Slabs, Blooms & Beam Blanks are produced with our Mould Plates.
- 3) Consistent quality of Mould Plates, precision machined with highest accuracy owing to our CNC machining process & CAM programs.
- 4) Mipalloy Mould Plates offer the **lowest cost/ tonne for Continuous Casting with longest life of Mould Plates, lesser down time & zero casting defects**
- 5) We manufacture **Mould Plates of length +3400 mm** & can handle a **single Mould Plate weighing +10 tonne.**
- 6) We manufacture Mould Plates from raw material to final finish hence we can supply customized moulds tailor made to our customers individual Specifications.

Advantages of Mipalloy Mould Plates in Chromium Zirconium Copper material (Cr Zr Cu) (C18150).

- 1) Our Mould Plates in Chromium Zirconium Copper Materials are made from Mitsubishi's raw materials which are made out of Copper cathodes manufactured in Mitsubishi's Naoshima Refinery. This is a premium cathode of **6N Copper** Viz, Copper **purity of 99.9999%** (highest consistency of chemistry).
- 2) The Chromium Zirconium Copper is continuous cast out of these cathodes in Mitsubishi's Sakai plant in a vacuum melting + casting furnace.
- 3) The **oxygen content is less than 1ppm**, almost nothing and this results in a very high quality material of small grain size eliminating problems of hydrogen embrittlement & enhancing high temperature properties. This helps & enhances Continuous Casting applications.

Advantages of Mipalloy Mould Plates in Silver Copper materials (Ag Cu) (C10700).

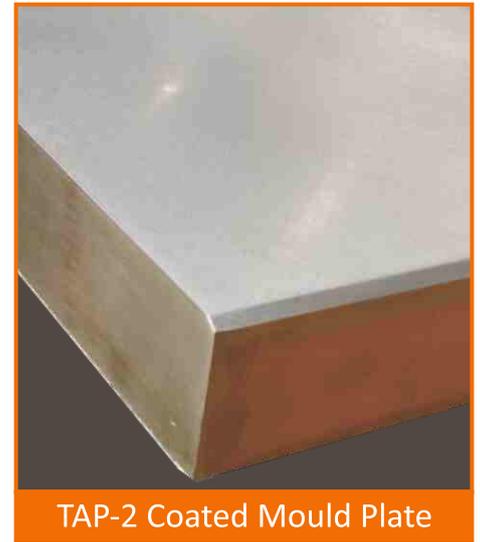
- 1) MKM Mansfelder manufacturers Silver Copper (C10700) Plates using one of the worlds most advanced Casting, Rolling Mill and Final processing of plates to supply cold rolled plates measuring between **(3mm and 240mm thickness)** and **width up to 4000mm.**
- 2) MKM Mansfelder Cold Rolled Plates have **good corrosion resistance** and offer **highest thermal & electrical conductivity.**
- 3) The Silver Copper cold rolled Plates manufactured by MKM Mansfelder in Hettstedt, Germany offer outstanding Technological Processing properties combined with exceptional evenness.



Fully Machined Mould Plate



Machining of coated Mould Plate



TAP-2 Coated Mould Plate

About Mipalloy Nomura Plating Company Pvt Ltd.



Mipalloy Nomura Plating Company Private Limited (MNPCO) In January 2013 Mipalloy established in India a joint venture along with Nomura Plating Company Limited Japan for Plating of Continuous Casting Mould Plates.

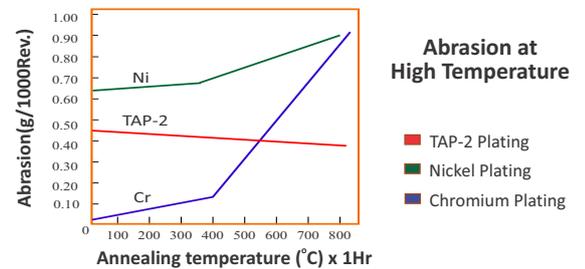
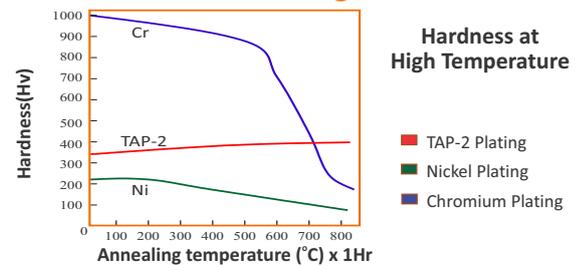
MNPCO offers the following Plating for Mould Plates.

- 1) TAP-2 Production Plus Plating
- 2) TAP-2 Plating
- 3) Nickel Plating
- 4) Chromium Plating.

MNPCO offers the following refurbishment/ remachining/ replating of used Mould Plates for our customers.

- 1) Moulds for Steel Slab Casters.
- 2) Moulds for Stainless Steel Slab Casters.
- 3) Moulds for Steel Bloom Casters.
- 4) Moulds for Steel Beam Blank Casters.
- 5) Moulds for thin Slab Casters.

Comparative Analysis of Mould Plate Coatings:



Comparison of New Mould life between Nickel Plating & TAP-2 Plating

Increase of wide face mould life for one campaign (Ni Plating → TAP-2 Plating)								Advantages of TAP-2 Production Plus & TAP-2 Coating:
Customer	CC	Size mm	Strand	Volume/ 1 heat	Average No of Heats With Nickel Plating	Average No of Heats With TAP-2 Plating	Percentage increased in Mould life with TAP-2 coating	
A	Slab	2200 X 950	2	300 ton	706	2400	↑ 240% UP	1) High hardness at elevated temperature offering good wear resistance at elevated temperature. This results in long life for Mould Plates. 2) Low coefficient of kinematic friction resulting in casting of good surface quality steel slabs, blooms & beam blanks.
B	Slab	2170 X 900	2	325 ton	750	3000	↑ 300% UP	
C	Slab	2440 X 904	2	270 ton	800	2400	↑ 200% UP	
D	Slab	2220 X 900	2	300 ton	667	2000	↑ 200% UP	
E	Slab	2446 X 900	1	170 ton	1300	3000	↑ 130% UP	
F	Bloom	490 X 800	4	90 ton	533	1600	↑ 200% UP	



Five Face Machining Centre



Gun Drilling Machine



Coordinate Measuring Machine (CMM)



Bandsaw Machine



Mipalloy



MNPCO



mipalloy®

Complete Competence in Copper



ISO 9001 : 2015



ISO 14001 : 2015



OHSAS 18001 : 2007

Plot Nos: C14 & C15, SIPCOT Industrial Park, Irrungattukottai - 602 105, Sriperumbudur, (Close to Chennai), India.

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Email: castingmoulds@mipalloy.com, website: www.mipalloy.com