

# SEAM WELDING WHEELS

Mipalloy is dedicated to manufacture and supply superior quality copper alloys.

Apart from having a majority market share in all our product lines in India, we regularly export our products to USA, Canada, UK, Germany, Spain, Australia, Turkey, Czech Republic, Italy, Mexico, Indonesia, Oman, Saudi Arabia, Singapore, Thailand, Malaysia, Egypt etc.

Since Copper forms the core of all our activities and as we have considerable experience in handling this precious red metal, our motto is **“COMPLETE COMPETENCE IN COPPER”**



**mipalloy**®

Complete Competence in Copper



ISO 9001 : 2015



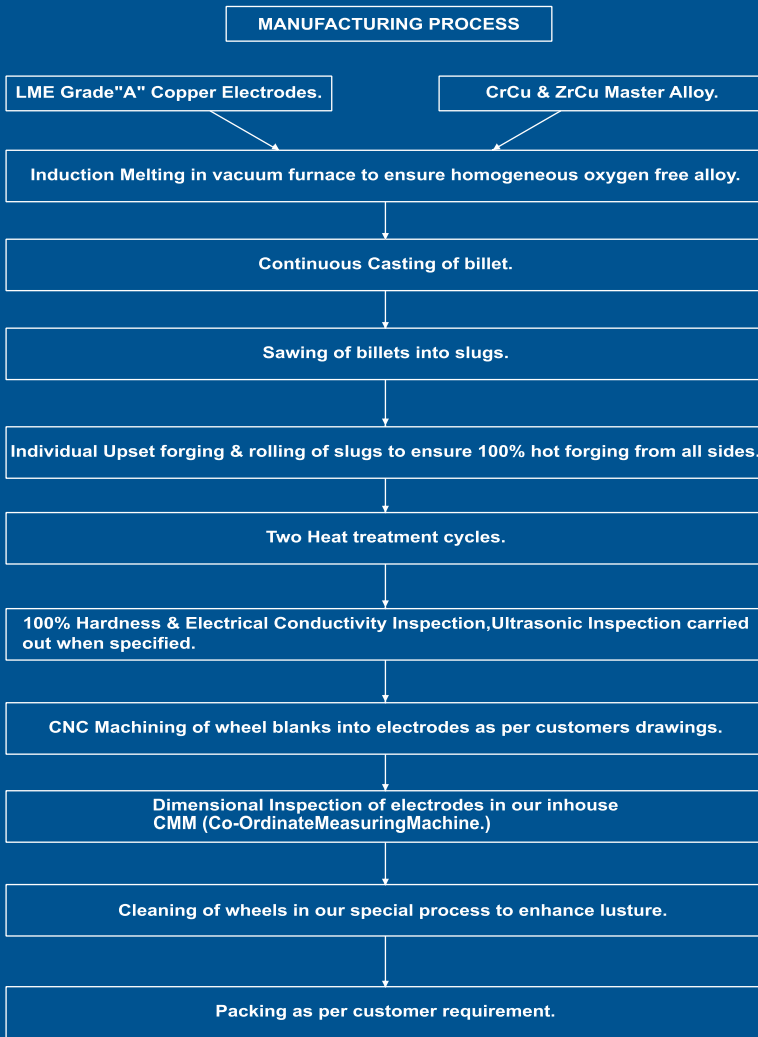
ISO 14001 : 2015



OHSAS 18001 : 2007

## PREAMBLE:

This is a brief presentation of Mipalloy's seam welding electrode manufacturing program along with an insight into our manufacturing facility



Seam Welding Process



Seam Welding Machine

## FACILITY & PROCESS:

Our manufacturing facility for the manufacture of seam welding wheels includes state-of-art equipments & cutting edge technology.

The genesis of the product takes place by melting LME Grade "A" Copper cathodes with master alloy in vacuum induction furnaces to ensure an alloy almost free of oxygen. The alloy made in such furnace is of very high integrity and totally consistent across batches. This homogeneous molten alloy is then poured through special systems into a continuous casting equipment where the alloy is made to freeze rapidly. This directional solidification ensures a refined microstructure. Continuous cast billets are cut into appropriate slugs for forging.

All slugs are 100% upset forged & rolled individually to ensure complete forging & super fine micro structure with small grain size. This contributes to the long life of our seam welding electrodes. The seam welder electrodes are either in the form of wheels or flat bars. Our forge shop has the capability of forging wheels of upto Ø28" of virtually any thickness as our limitation on weight is 3000 kgs. We can forge rectangular blocks with various combinations of length, width and thickness. Again the limitation is a very high ceiling of 3000 kgs single piece weight. With this 3000 kgs ceiling almost any conceivable product can be manufactured.

After forging, the seam welding electrodes are heat treated in rapid quench furnaces. Mipalloy has advanced CNC machines to turn wheels of up to Ø28" & VMC's to machine flat anvil bars of upto 250 mm thick x 1500 mm width x 2500 mm length.



**Complete Competence in Copper**

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## ALLOY PROGRAM:

Though majority of the seam welding electrodes are made in Mipalloy 3ZR (Chromium Zirconium Copper), some applications require electrodes in Mipalloy 100 (Nickel Silicon Chromium Copper), Mipalloy 100 (0.55% Beryllium Copper) & Mipalloy 4 (2% Beryllium Copper). We also make seam welding electrodes in refractory alloys like M70WC (70% Tungsten 30% Copper), M75WC (75% Tungsten 25% Copper).

Alloy	UNS No	Typical Composition	Hardness	Electrical Conductivity
Mipalloy 3ZR Cr Zr Cu	C18150	Cr 0.5-1.5% Zr 0.05-0.25% Rest Copper	+70HRB	+75% IACS
Mipalloy 100 Ni Si Cr Cu	C18000	Ni 1.8-3% Cr 0.1-0.8% Si 0.4- 0.8% Rest Copper	+90HRB	+45% IACS
Mipalloy 100 0.55% Be Cu	C17510	Be 0.2-0.6% Ni 1.4-2.2% Si 0.2% Co 0.3% Rest Copper	+95HRB	+45% IACS
Mipalloy 4 2% Be Cu	C17200	Be 1.8-2% Co 0.2% Si 0.2% Al 0.2% Rest Copper	+35HRC	+20% IACS
Mipalloy M70 WC		W 70% Cu 30%	+88HRB	+47% IACS
Mipalloy M75WC		W 75% Cu 25%	+94 HRB	+42% IACS

## STANDARD SIZES:

We stock the following sizes in Mipalloy 3ZR

Thickness in mm.	Diameter in mm.													
	Ø160	Ø165	Ø170	Ø195	Ø210	Ø230	Ø250	Ø254	Ø310	Ø325	Ø330	Ø350	Ø355	Ø400
6	o	o	o	o	o	o	o	o	o	o				
8	o	o	o	o	o	o	o	o	o	o				
9	o	o	o	o	o	o	o	o	o	o				
12	o	o	o	o	o	o	o	o	o		o	o		
12.7	o	o	o	o	o	o	o	o	o			o	o	
14	o	o	o	o	o	o	o	o	o					
15	o	o	o	o	o	o	o	o	o		o			
15.875	o	o	o	o	o	o	o	o	o					
16		o	o	o	o	o	o	o	o			o	o	
18		o	o	o	o	o	o	o	o			o		o
19		o	o	o	o	o	o	o	o					
20		o	o	o	o	o	o	o	o					
25		o	o	o	o	o	o	o	o					



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Anvil Contact Bar

## ANVIL BARS (FLAT CONTACT BARS):

While majority of seam welder electrodes are wheels some of them are called anvil bars which are nothing but flat bars. Anvil bars or such flat bars play the role of bottom seam welding electrodes in steel plants rolling mills. In such cases the rolled steel sheet rests over the flat anvil bar (Bottom electrode). The top seam welding electrode which is in the form of a wheel moves across the sheet. As force & current is transmitted between the electrodes with the job in between, the sheets get welded.

The greatest advantage of our forge shop is our ability to manufacture large sized flat anvil bars. Our machine shop is equipped with heavy duty double column VMC's to machine plates upto 1000mm thick x 1500mm wide x 2500mm long. Our QC Department is equipped with CMM's to measure 1000mm thick x 1500mm wide x 2500mm long bars.



CNC Machining of Seam Welding Wheels



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