



**THE WORLD'S LEADING
CCM PRODUCTION BASE**

02

**MANUFACTURING
EQUIPMENT**



Equipment

As the old saying goes, one must sharpen his tool before going to make a perfect work, our company spends heavily on the manufacturing equipment of copper mould tubes and plates. Now we have 9 sets of large, medium and small hydraulic press, 30 sets of CNC machine centers, 2 sets special CNC processing machines, We have complete electroplating facilities, first class electro-plating equipment and up-to-date electro-plating technologies. We have two electro-plating workshops for mould tube plating and mould plates plating separately and each of them covers an area of 1800 square meters. There are 32 tanks for Cr plating of mould tubes and 7 tanks for plating of mould plates. The maximum size of round tubes that can be plated is up to Dia.1500mm and the widest mould plates can be plated is up to 3800mm. We have advanced water-treatment system. We adhere strictly to the environmental policy of zero emission which makes our company a green and environment-preserving enterprise.



Process	Equipment	Quantity
Smelting/Casting	Smelting furnace and continuous casting machine	2 line
Forging/Extrusion	Hydraulic Press	9 sets
Machining	CNC Machines	23 various units
	Special CNC Processing Machines	2 Sets
Electro-plating	Copper Annealing Furnace	1 line
	One electro plating Line for tube and plate each	2 lines
Quality Assurance	Tensile Strength Machine	1 set
	Hardness meters	5 sets
	Thickness meters	2 sets
	Ultrasonic flaw detection machine	1 sets





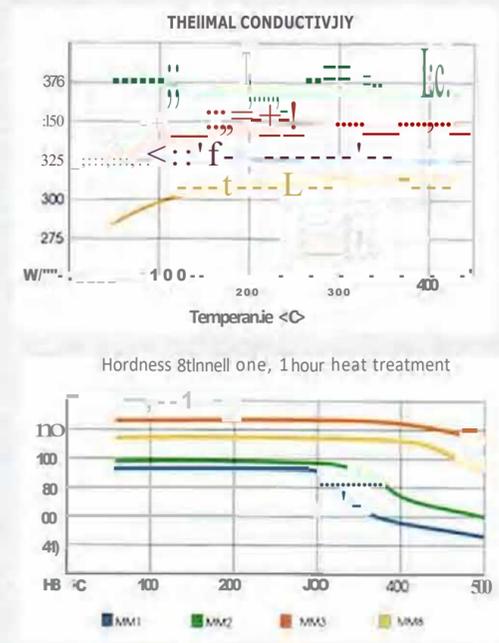
Material



TP2 is a kind of material is selected by most of the steel plants. It shows excellent heat-proof and anti-fatigue property under high temperature and it has good processing property.

CuAg0.1 is adding 0.08%-0.12% silver during copper ingots melting will increase the recrystallization temperature of copper by 100C, which will increase the heat stress and anti-abrasive property of copper mould tube interior surface, showing better heat-resistant property than TP2.

Cu-Cr-Zr is a kind of copper alloys which can be normalized by time. It has excellent mechanical property under both room temperature and high temperature. It has high heat conductivity, melting point, anti-fatigue and anti heat stress properties. Their outstanding features make it different from the previous copper alloys. It combines all good properties together. But compared with other copper alloys, Cu-Cr-Zr is difficult to be formed with higher products costs.



Material					
Item	Temp	Unit	Material		
			CuDHP	CuAg0.1	CuCrZr
Chemical Composition					
			P0.015-0.040	Ag0.08-0.12 P0.004-0.012	Cr0.30-1.20 Zr0.03-0.30
Physical properties					
Electical conductivity	20	%IACS	83	95	80
Thermal conductivity	20	W/(m. K)	340	37.2	330
Coefficient of thermal expansion	20-300	10A -6/K	17.1	17.1	17.2
Recrystallisation temperature		°C	345	360	690
Modulus of elasticity	20	10A 3MPa	120	123	126
Melting point		°C	1083	1083	1078
Specific gravity		g/cm ³	8.9	8.9	8.9
Mechanical properties					
Ultimate tensile strength	20	Mpa	240-310	240-310	375-445
Ultimate tensile strength	100	MPa	190-270	230-270	365-425
Ultimate tensile strength	200	MPa	140-190	205-240	365-410
Ultimate tensile strength	300	MPa		175-210	335-375
Ultimate tensile strength	400	MPa		145-160	315-350
0.2Yield point strength (Rp0.2)	20	MPa	190-250	200-225	280-355
0.2Yield point strength (Rp0.2)	100	MPa	185-260	195-240	270-345
0.2Yield point strength (Rp0.2)	200	MPa		180-225	260-330
0.2Yield point strength (Rp0.2)	300	MPa		165-215	250-320
0.2Yield point strength (Rp0.2)	400	MPa		130-145	240-290
Elongation (AS)	20	%	25-10	16_10	20-13
Hardness	20	HB	80-95	110-125	115-130
Mark: TP2 (GBf T5231-2001)= SF-Cu/DHP-Cu(DIN1 787)					



Copper has lower hardness which leads to lower anti-abrasive property. Therefore, the area at the lower part of the moulds, where the stress increases drastically due to shells, will be more severely worn. To increase the life time of copper moulds, LMM provides uniform mould interior surface plating with suitable hardness. Most of the copper mould tubes for small size billet casting are not used in any casting system where there are rigid casting stream support, therefore they are very sensitive to be worn. We use hard chrome plating to increase the life of mould tubes. The plating thickness recommended by LMM will be controlled in the best range. As for the coating of copper mould plates, based on our years of experience, we are able to provide Cr coating, Ni-Cr coating, Ni-Fe coating and NiCo-Cr coating to meet the demand of various customers both at home and abroad.



Our company has 50 technicians and 15 of them have senior professional titles. We have strong ability to develop products of various materials and sizes (Square, Rectangular, Round, Nonstandard and Beam Blanks, with range from the smallest of 50x50mm to the largest of Dia.1500mm round tubes, 500x500mm Square tubes, 120x650 rectangular tubes). Strong R&D abilities can meet the customers demand to the maximum extent. The perfect combination of experience and theories constantly improves the quality of our products. We are dedicated to shaping steel!

We not only provide products, we also provide handicrafts, the mirror finished tubes surface is like a mirror.



1300 round billets, the largest in the world





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03

PRODUCT

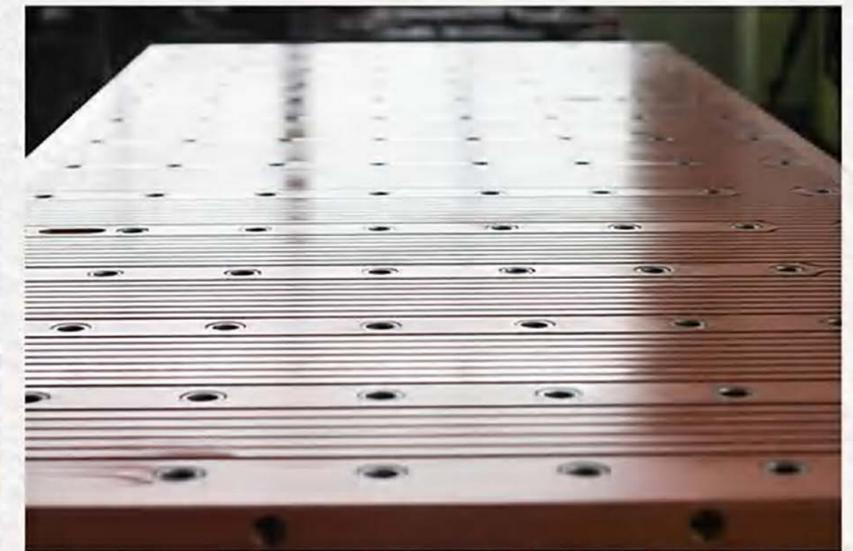
SALES



Mould Plates

Name	ITEM	CAMBER RADIUS	THICKNESS	LENGTH	REMARKS
	SIZE				
Square & Rectangle Copper tubes	Square 50*50 650*650 Rectangle (100-500)*650	3000~ 17000 Also straight	6-50	602-1100	With slot single taper, double taper, triple taper, quadruplicate taper, parabolic taper and various kinds of continuous taper high efficiency copper mould tubes
Round copper tubes	0110-01500	5000-17000 Also straight	10-50	602-900	With slot double taper, quadruplicate taper, parabolic taper and various kinds of continuous taper high efficiency copper mould tubes
Non-standard copper mould tubes Beam Blank copper mould tubes	535-150**150-70	6000-14000	12-50	700-1016	With slot single taper, double taper, triple taper, quadruplicate taper, parabolic taper

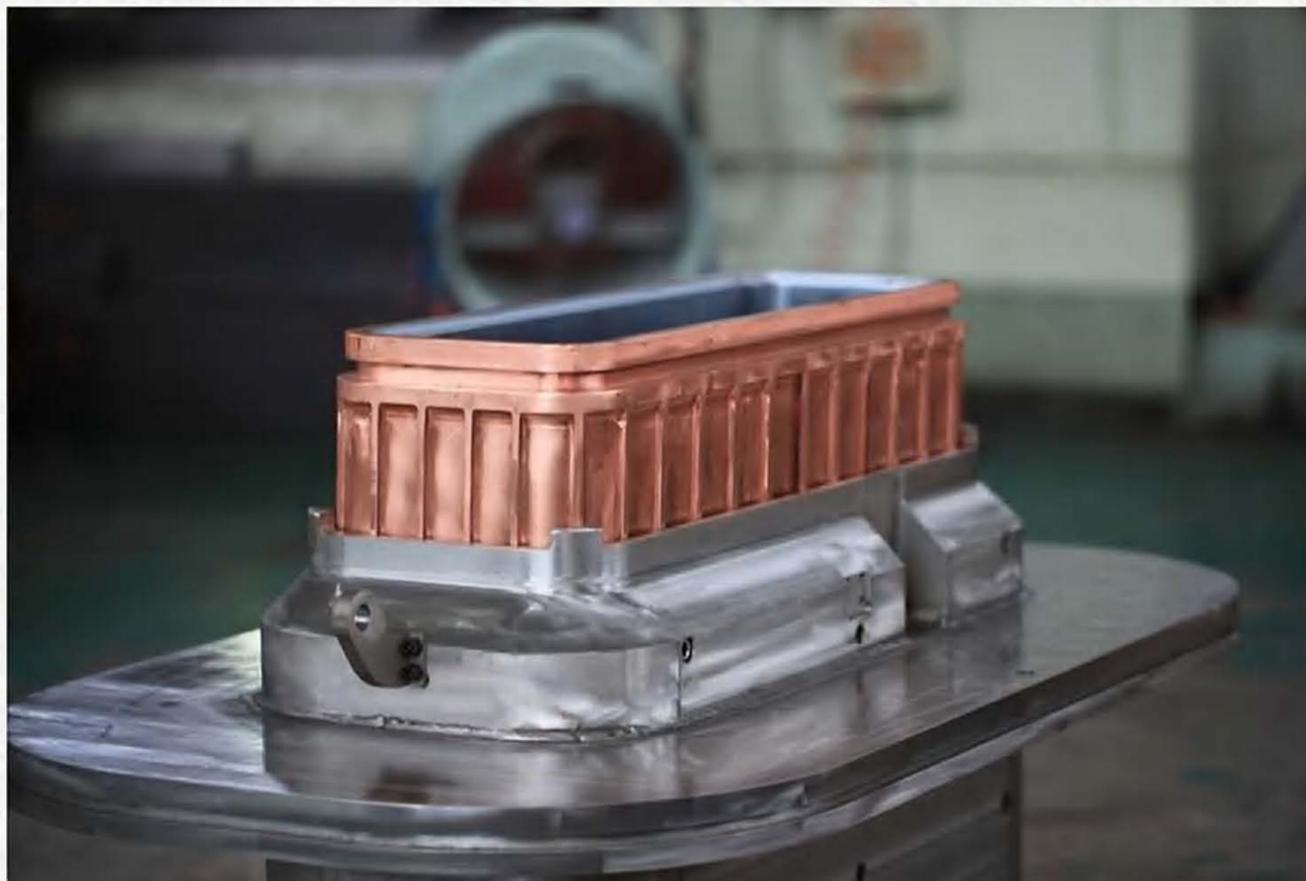
COPPER PLATE SIZE	SPECIFICATIONS			MATERIAL	COATING
	LENGTH	WIDTH	THICKNESS		
Slab	350-3800	700-1000	35-300	Cr-Zr-Cu, CuAg	Ni-Co, Cr, Ni-Fe
Beam Blank	350-900	300-1000	35-300	Cr-Zr-Cu, CuAg	Ni-Co, Cr, Ni-Fe
Rectangle	700-900	200-3000	30-70	Cr-Zr-Cu, CuAg	Ni-Co, Cr, Ni-Fe
Thin Slab	1200-2000	1100-1200		Cr-Zr-Cu, CuAg	Ni-Co, Cr
Ultra-thin Slab	1530	700-900		Cr-Zr-Cu, CuAg	Ni-Co, Cr



Water Jacket

Water jackets are the cooling part of CCM mould assembly. LMM technical know-how and experience in the field has led to the realization that the design and reliability of the water jacket is essential for the continuous casting.

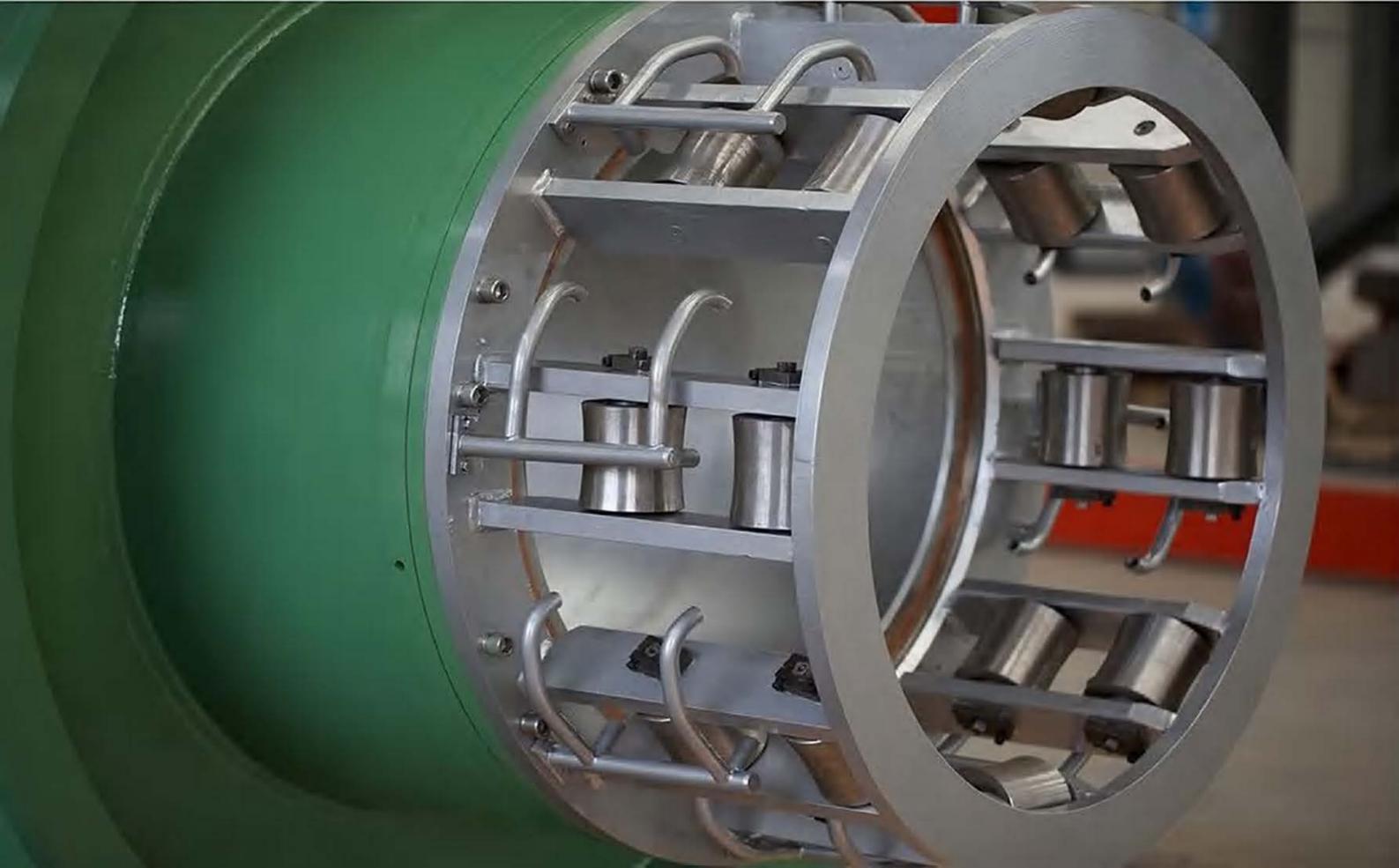
LMM can also provide a single piece stainless steel mould water jacket with tight tolerances and the necessary thickness to avoid deformation. The highest quality standards ensure optimal mould tube performances and an easier mould installation and removal.



精加工

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precision CNC machines.



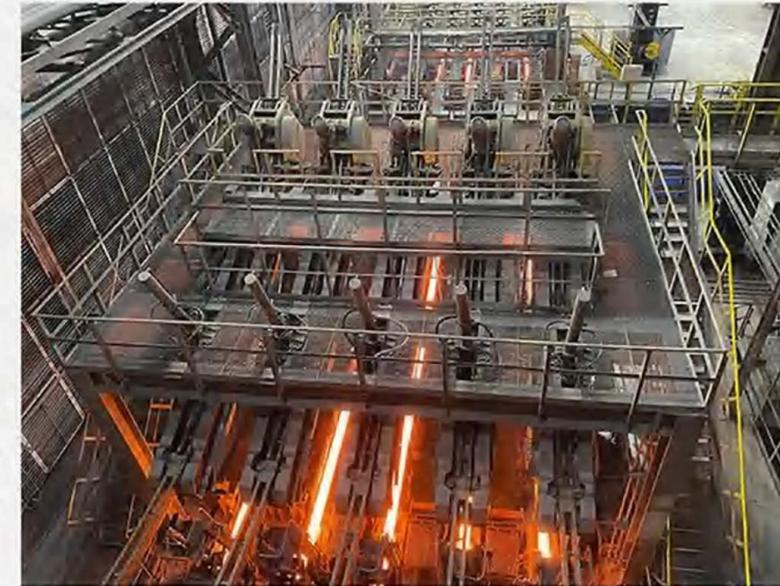
Continuous casting machine

We also can manufacture spare parts as your drawings.

CCM casting powder



Dummy bar



As the steel industry continues to improve quality and reduce cost, there is growing interest to maximize the productivity from a single continuous casting machine. We can design continuous casting machine to increase casting speed to help customers to save cost and improve production efficiency.

CCM Segment

