ALL BEST METAL AND MINERAL CO., LTD

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1. Description

Copper mould tube is a kind of used for cast steel continuous casting machine accessories . molten steel casting directly inside the crystallizer copper tube ,in the copper tube pulling billet continuous cooling molding, in order to solve the working process of the copper pipe and the cooling problem of solidified shell sometimes touching and sometimes isolated .Copper mould tube material requirement is good thermal conductivity, recrystallization high temperature, thermal fatigue, high strength, good abrasion resistance, long service life.

Mould & Plate Coatings

Copper has lower hardness which leads to lower antiabrasive 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, Orient New Material 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 Orient New Materialwill 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 Ni-Cr coating to meet the demand of various customers both at home and abroad.

Advantage: Leading technology, stable quality, best service and good price

Material: Phosphorized copper(TP2); Cu-Ag; CuCrZr

Coating: Cr; Cr-Ni(Ni-Co-Fe); Ni-Co; Co-Ni

NAME	SIZE	CAMBER RADIUS	THICKNESS	LENGTH	REMARKS
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 varius kinds of continuous taper high effciency copper mould tubes
Round copper tubes	Φ110-Φ1500	5000-17000 Also straight	10-50	602-900	With slot double taper,quadruplicate taper,parabolic taper and varius kinds of continuous taper high effciency copper mould tubes

Non-standard copper mould tubes Beam Blank copper mould tubes	535-150×120-70	6000-14000	12-50	700-1016	With slot single taper,double taper,triple taper,quadruplicate taper,parabolic taper

Desired properties:

High thermal conductivity
High strength and hardness
Wear resistance
Creep resistance
Fatigue resistance
Cracking resistance

2. Details of Product

1) Square Billet Copper tubes

The Square billet is a kind of crystallizer divided according to the shape and specifications of the cast slab. This type of crystallizer has good performance, can produce larger crystal grains (up to 600-1200μm in size), has high production strength, and is not easy to crystallize in the device. It has become one of the main forms of continuous crystallizer and can be used for crystallization operations in vacuum cooling, evaporation, direct contact freezing and reaction methods. There is an internal circulation axial flow pump near the lower end of the guide tube, which rotates at a lower speed. Propelled by the propeller, the suspension rises to the surface of the liquid in the cylinder, then turns downwards, flows to the bottom of the device along the annular channel between the deflector and the baffle, and is sucked into the lower end of the deflector, and it circulates endlessly. Form conditions close to good mixing. DTB type crystallizer has the function of clear mother liquor overflow and elimination of crystallization.

2) Round Billet Copper tubes

The round billet crystallizer is heated by an external heater to the circulating material liquid. The heated material liquid enters the evaporation chamber to evaporate to supersaturation, and then enters the suspended bed through the vertical pipe to make the crystal grow in the metastable zone. Due to the special structure of the crystallizer , Larger particles will grow preferentially in contact with the supersaturated solution, so the crystals produced by the round billet crystallizer have the advantages of large volume, uniform particles, large production capacity, continuous operation and low labor intensity.

Process feature:

1. The product has the advantages of larger particles and uniform particle size;
2. The material liquid circulation is large, the supersaturation is small, and it is not easy to produce secondary crystal nuclei, which is beneficial to crystallization;
3. Continuous production;
4. High circulation heat transfer coefficient of clear liquid;
5. Uniform supersaturation in the crystal growth chamber provides good conditions for crystal growth.

3)Rectangle Copper tubes

Since the guide tube is set in the crystallizer to form an internal circulation channel, the crystal slurry has good mixing conditions. Only a very low pressure head is required to achieve a good circulation in the crystallizer, and the flow cross-sections are maintained high. Rotation speed, the concentration of crystal slurry can reach 30-40% (weight). In evaporative crystallization, it can quickly reduce the supersaturation of the boiling interface, and make the supersaturation of the solution at a relatively low level. It is especially suitable for materials with a steep solubility curve. Practice has proved that the rectangular slab crystallizer has good performance, large production capacity, large crystal grain size, and it is not easy to scar in the crystallizer. It has become the main equipment for continuous crystallization. It is suitable for continuous crystallization and evaporation crystallization in vacuum flash cooling.

Technical feature:

1. The crystal grain size is large and can be adjusted within a certain range.
2. Long-term continuous operation, high equipment utilization.
3. Stable operation, simple operation, effectively reducing labor costs.
4. Liquid level, spray, temperature, pressure and flow can be controlled automatically.

4) Mould Plates&Non-standard copper mould tubes
Beam Blank copper mould tubes

Main feature:

01. The plate mould technology is currently the most advanced international crystallizer technology. It only needs a very small amount of raw steam (a small amount of raw steam is required when starting up, and it is almost no longer needed in normal operation), which greatly reduces the operating cost of the enterprise. reduce environmental pollution.

02. Because the compressor is used to provide the heat source, compared with the traditional evaporator, the temperature difference is much smaller, which can achieve gentle evaporation, greatly improve product quality and reduce fouling.

03. No need for condenser or condenser with small area. The structure and process are very simple, fully automatic operation, continuous operation, safe and reliable.

04. The equipment is equipped with CIP cleaning pipelines, which can realize on-site cleaning. The entire equipment is easy to operate and has no dead ends.

05. The crystallizer evaporates the material at low temperature (evaporating temperature 45℃-75℃) and does not produce foam. The material liquid is uniform, does not run out, is not easy to coke, and the material is heated to less degeneration.