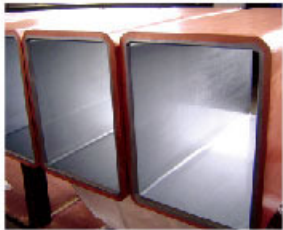
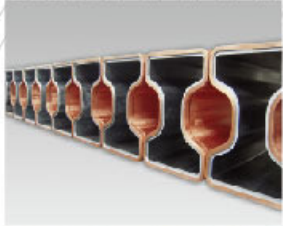




ANSSEN
Metallurgy Group Co.,Ltd



CCM Spare Parts

Service World Steel !

企業介紹

大連安森冶金機械有限公司是中國最早研發和生產結晶器銅管的企業，公司占地面積60000平方米，職工總數280人，工程技術人員50多人。公司擁有精良的生產設備、完善的制造工藝、精湛的電鍍技術、完備的檢測手段、健全的管理體制、穩定的產品質量以及嚴格的環保措施。

安森公司致力於生產銅坯連鑄機用方形、矩形、圓形、H型結晶器銅管、銅板及其配件。銅管年產量30000支，銅板年產量5000套，結晶器總成年產量1500臺，電磁攪拌器全套設備年產量200套。我公司長期與中國知名鋼鐵設計院合作，共同研發新技術、新工藝，以確保公司的技術創新力與領先地位。產品出口到美國、巴西、墨西哥、厄瓜多爾、意大利、希臘、土耳其、俄羅斯、白俄羅斯、格魯吉亞、澳大利亞、阿塞拜疆、印度、菲律賓、馬來西亞、沙特、卡塔爾、孟加拉、巴基斯坦、越南、埃塞俄比亞、蘇丹、肯尼亞、贊比亞等30多個國家，與客戶建立長期穩定的供貨關係！

安森公司的使命是通過引進先進的技術為用戶制造歐洲品質的連鑄產品，以幫助客戶降低生產成本、提高生產效率為己任。安森全體員工真誠期待與您的合作！

About Us

ANSSEN Metallurgy Group Co.,Ltd is one of the earliest enterprises who is dedicated in researching, developing & manufacturing copper moulds in China, with area of 60000 square meters, 280 workers, 50 technicians and engineers. ANSSEN is equipped with advanced equipments, mastering excellent technology for mechanical and Electro-plating processing, strict quality control, perfect management system, stable quality and strict environmental protecting measures.

ANSSEN is specialized in manufacturing square, rectangular, round, beam blank copper moulds and CCM spare parts. The annual output of copper mould tube is 30000pcs, copper mould plate 5000 sets, mould assembly 1500 sets, annual capacity of Electromagnetic Stirrer is 200 sets. ANSSEN has allied with Chinese iron and steel institutes to research and develop new technology as to ensure continuous technology innovation and leading position. ANSSEN products are extensively exported to more than 30 countries, like USA, Brazil, Mexico, Ecuador, Italy, Greece, Turkey, Russia, Belarus, Georgia, Australia, Azerbaijan, India, Philippines, Malaysia, KSA, Qatar, Bangladesh, Pakistan, Vietnam, Ethiopia, Sudan, Kenya, Zambia, etc. ANSSEN has established long-term & stable business relations with customers.

ANSSEN's mission is to manufacture European quality copper moulds at more competitive price by introducing advanced technologies, to minimize user's production cost and maximize their efficiency. ANSSEN is sincerely expecting pleasant cooperation with you!



ISO9001:2008
Certificate CN10/10314

Catalogue

P
1-3

◆ Copper Mould Tube

P
4

◆ Copper Mould Plate

P
5

◆ Mould Assembly

P
5

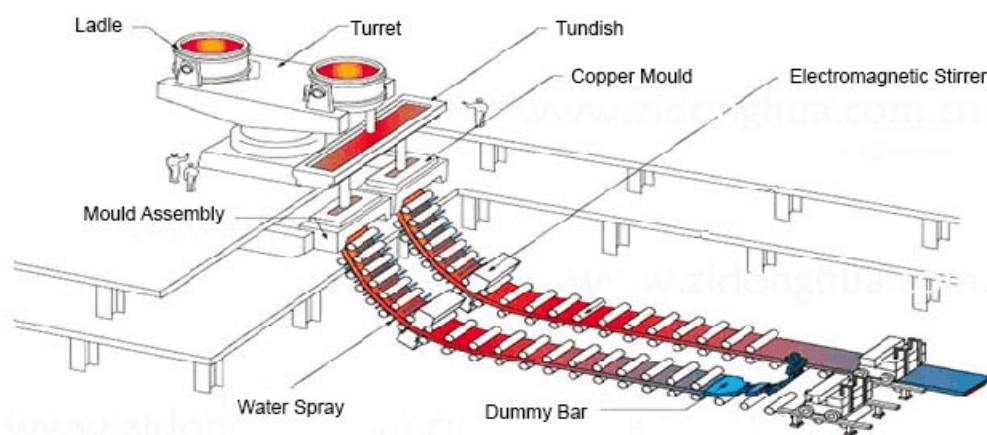
◆ Dummy Bar

P
6

◆ Electromagnetic Stirrer

P
7

◆ ESR Crystallizer

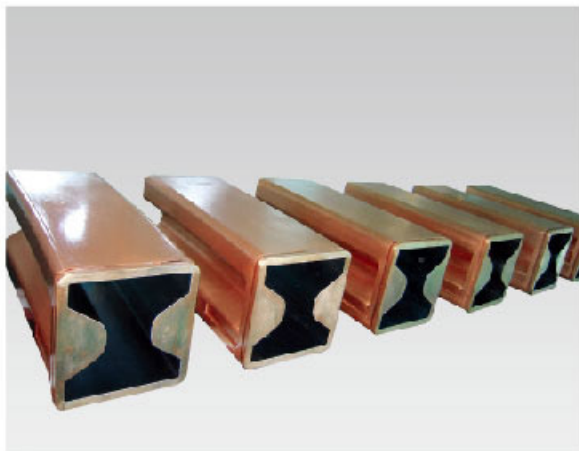


Copper Mould Tube

Copper mould is placed in the heart position of continuous casting machine(CCM), its function is to solidify the liquid steel pouring through the Submerged entry nozzle(SEN), guarantees required billet/bloom/slab with enough thick shell to be obtained. Copper mould plays a crucial role in increasing con-casting efficiency as well as improving billet/bloom/slab quality.

• ANSSEN Mould datasheet

<div><div></div><div>Item</div></div>		Radius	Thick	Length	Remarks (Unit: mm)
Name	Shape/Size				
Square &Rectangular Mould	Square 50X50~650X650	3000-17000 & Straight	6~50	602-1100	Design with single taper, double tapers, triple tapers, quadruple tapers, parabolic taper, double parabolic tape
	Rectangular (100~500) X650				
Round mould	∅ 110- ∅ 1500	6000-17000 & Straight	10~50	602-900	Design with double tapers, triple taper, multi-taper, continuous tapers
Beam blank mould	As per order	6000-14000	12~50	700-1016	Triple taper, multi-taper, continuous tapers

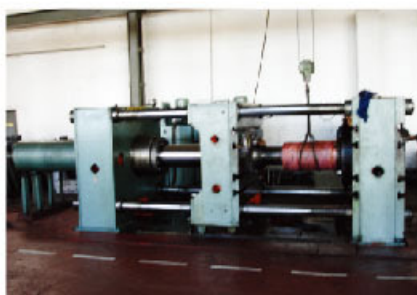


Material Datasheet

Item	Temp.	Unit	Material		
			Mouldmetal-1 Sf Cu Din1787	Mouldmetal-2 CuAg0.1	Mouldmetal-3 CuCrZr
Chemical composition					
		%	P 0.015-0.040 Cu: Balance	Ag 0.08-0.12 P 0.004-0.012 Cu: Balance	Cr 0.30-1.20 Zr 0.03-0.30 Cu: Balance
Physical properties					
Electical conductivity	20	%IACS	83	95	80
Thermal conductivity	20	W/(m.k)	340	372	330
Coefficient of thermal expansion	20-300	10 ⁻⁶ /K	17.1	17.1	17.2
Recrystallisation temperature		°C	345	360	690
Modulus of elasticity	20	10 ³ MPa	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
0.2Yield point strength(Rp0.2)	20	Mpa	190-250	200-225	280-355
Elongation (A5)	20	%	25--10	16--10	20--13
Hardness	20	HB	80-95	110-125	115-130

Manufacturing & Inspection Facilities

S/n	Name of facility	Model	Origin
1	3 axes CNC lathe	WNC7003	China
2	VAI 12500KN oil press	A3500	Austria
3	400KN lie type oil press	TH969-400	Japan
4	CNC planer	BK60120	China
5	50#Lath	CU62/00c	China
6	Vertical milling machine	X5040	China
7	3 Dimensional space detector	PMM121010	China
8	Spectrograph	DR	China
9	USA HAAS machining center		USA
10	Germany CPW chrome plating line		Germany
11	UT Tester	HUD20	USA
12	Chrome thickness measurement instrument	Quanlx	Germany
13	Roughness tester	tr210	Germany
14	3 Dimensional taper measurement machine	D100S	Switzerland



Hydraulic Press Machine



Cutting Machine



Rinsing Bath

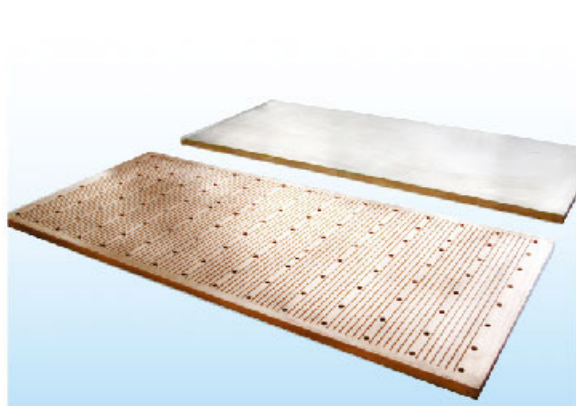
Advanced CNC Maching Center



Copper Mould Plate

ANSSEN Copper Plate manufacturing company is equipped with internationally advanced CNC machine and electro-plating equipments, max. width 3800mm, ensure each client's needs will be met.

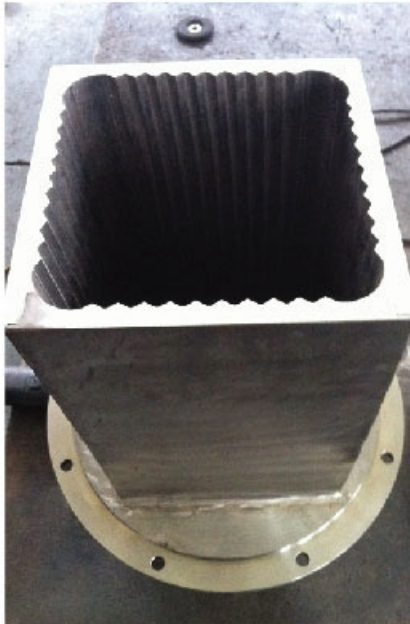
Copper plate size	Specifications (Unit: mm)			Material	Coating
	Length	Width	Thickness		
Slab mould	350-3800	700~1000	30-75	Cr-Zr-Cu, CuAg	Ni-Co, Cr, Ni-Fe
Beam blank	350-900	300-1000	35-300	Cr-Zr-Cu, CuAg	Ni-Co, Cr, Ni-Fe
Retangular	700-900	200-3000	30-70	Cr-Zr-Cu, CuAg	Ni-Co, Cr, Ni-Fe



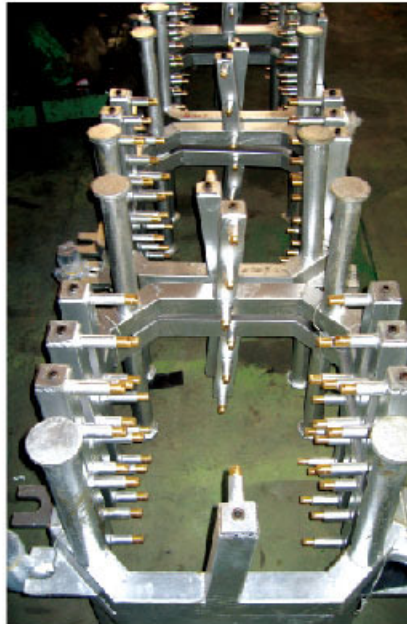
Coating Parameters

Specification	Material of coating			
	Cr	Ni	Cr-Fe	Ni-Co
Hardness(HV)	600min.	140min	250min	300min.
Thermal conductivity W/(m.k)	60~66	76~84	63~88	75~84
Adhesive strength N/mm ²	240min.	220min	220min	240min.
Thickness MM	-----	0~3	0~3	0~3

Mould Assembly



Water Jacket



Water Spray



Mould Assembly

Dummy Bar

Application: The dummy bar is used to tract and lead the cooled and solidified strand and pull it out by the withdrawal and straightening machine.

Features: In order to avoid the deformation of dummy bar body due to heating, the dummy bar is equipped with a cooling water pipe inside the bar body. It has the feature of smaller deformation, long service life, simple structure and installation, easy operation and maintenance.

Main technical data:

Outer bow radius of bar body: R4000mm, R5250mm, R7000mm, R8000mm

Section dimension of bar body:

90×90mm; 100×100mm; 120×120mm; 150×150mm; 160×160mm; 170×170mm;

180×180mm; 180×240mm; 135×400mm; Ø100×100mm; Ø120×120mm



Electromagnetic Stirrer

The essence of electromagnetic stirring is to agitate molten steel in casting blank, therefore to change and optimize the transfer of molten steel and heat exchange in the casting blank, and finally achieve targets of quality improvement and higher productivity. Specific improvements include surface/subsurface cleanliness, segregation, non-metal inclusions, porosity, inter-columnar cracking, grain/structure refinement, shell thickness uniformity, breakouts frequency, and machine throughput.

Installation Positions on Caster

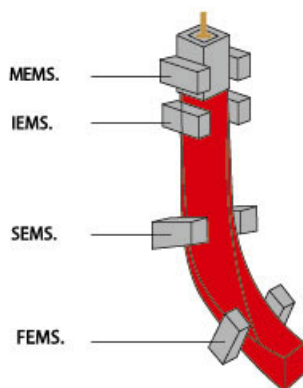
In principle, electromagnetic stirrers may be installed at any positions of a caster, whereas a reasonable position selected is not only very important for obtaining the better metallurgical effects, but also is related to the investment cost of CCM.

The followings are schematics about where an EMS is installed on a caster.



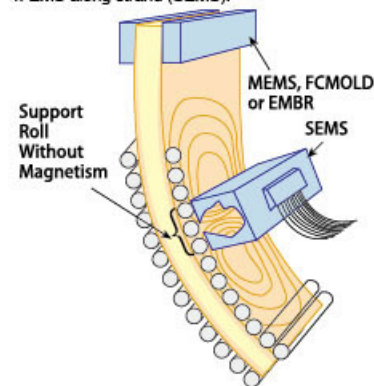
Electromagnetic stirrers for billets/blooms:

1. Mould area electromagnetic stirrer (MEMS);
2. EMS along strand (SEMS);
3. EMS at final solidification zone (FEMS).



Electromagnetic stirrers for slabs

1. Mold level electromagnetic stirrer (MEMS);
2. Mold level electromagnetic Brake (EMBR);
3. Mold level flow control FC Mold;
4. EMS along strand (SEMS).



Different installation position for different metallurgical effectiveness

EFFECT TTPE	Entrained slag on surface	Pinhole	Blow hole	Subsurface inclusion	Break- out	Internal crack	Solidification structure	Center porosity	Center segregation	"V" shape segregation
MEMS	+++	+++	+++	+++	+++	+++	+++	++	+	
SEMS						+++	+++	++	+	
FEMS								+++	+++	+++

ESR Crystallizer

● Purpose:

Electroslag remelting utilize resistance as heat source to be a measure of smelting, which produced when current go through electroslag. The main purpose is to purify metals, and gain well-distributed and dense crystal structure of ingot.

● Characteristic:

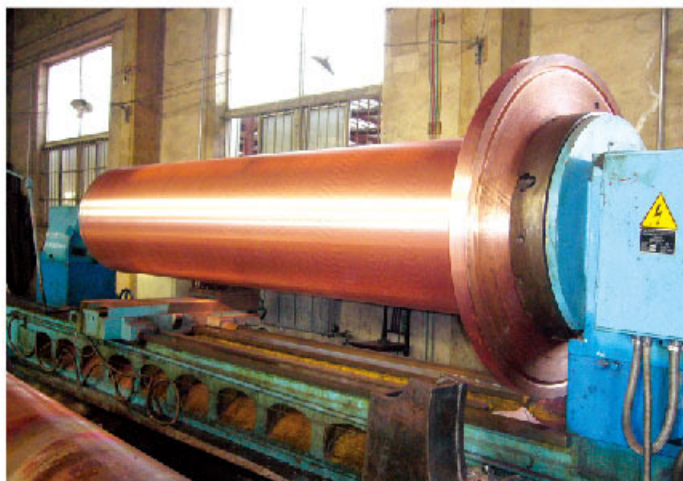
1. Copper tube adopt forged seamless copper tube or coiling weld copper plate.
2. Flange adopts CuCrZr alloy which has high thermal conductivity and thermostability.
3. The safe and reliable welding technology can adapt to high-strength and high temperature working condition.

● Technical parameters:

- Chemical composition: Cu≥99.93%
- Welding line flaw detection standard corresponds to GB3323-87 I - II
- Pressure test: Hydraulic pressure: 1.5MPa; Pressurize: 30mins; No leakage phenomenon
- Electric conductivity: $\sigma \geq 94\%$ IACS

● Range of products:

- Forging seamless straight pipe and taper pipe
- Forging area flange straight pipe and taper
- Forging straight pipe and taper pipe to weld flange
- Coiling copper plate to weld straight pipe and taper pipe



Crystallizer Specification (Special design of ESR)

General specifications:

NO	Tonnage of mold	Specification (upper/lower inside diameter×High)
1	1 MT	Φ340/Φ380×1600
2	1.5 MT	Φ430/Φ470×1500
3	2 MT	Φ480/Φ520×1600
4	3 MT	Φ580/Φ620×1600
5	5 MT	Φ680/Φ720×1800
6	7.5 MT	Φ780/Φ820×2000
7	10 MT	Φ860/Φ900×2200
8	15 MT	Φ1040/Φ1100×2200

Anssen Overseas





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