



宁波金田铜业(集团)股份有限公司  
NINGBO JINTIAN COPPER (GROUP) CO., LTD.

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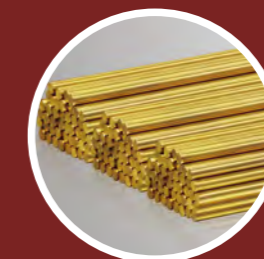
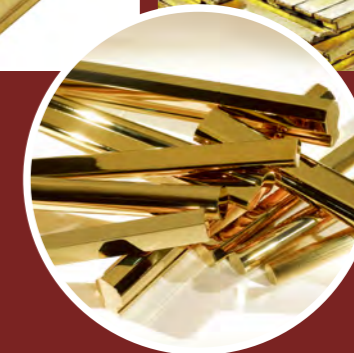
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## BRIEF INTRODUCTION 公司简介



宁波金田铜业（集团）股份有限公司始建于1986年，是一家以铜加工为主的中国500强企业，也是国内最大的铜加工企业之一。

公司占地2000多亩，员工近5000人，产业涵盖铜加工、高新材料、有色金属贸易等领域，下辖十几家生产型及贸易型分子公司，主要产品有铜线、铜棒、铜管、铜带、漆包线、阴极铜、阀门、水表、磁性材料等，产品产量均居行业前列。

金田铜棒分公司致力于普黄铜、铅黄铜、合金黄铜、纯黄铜，棒、线、条，精抛铜锭的开发与生产。牌号集国标、日标、美标、德标、欧标等于一体。品种有柳合料、快削料、锻造黄铜系列、无铅易切削系列、普黄铜系列等。产品适合于自动车床精密加工，广泛用于电子元件、汽车配件、电器五金、电讯连接器、制冷配件、卫浴配件及民用五金。

公司通过系列质量体系认证，依托集团公司，遵循“天天求变，永不满足，用于竞争，追求卓越”的企业精神，坚持“以人为本，‘科技领先’的经营理念，聚一流人才，出一流产品，创一流企业。在未来的日子里，公司将以优质的产品，优秀的品牌，优良的服务，与新老客户真诚合作，共兴共荣，共创辉煌！

Ningbo Jintian Copper (Group) Co., Ltd., established in 1986, is a Top 500 enterprises in China, majoring in the copper processing. It has grown into one of the largest copper processing enterprises in China.

The company covers 2,000 acres, with nearly 5,000 staffs. The major industries of Jintian Group are copper processing, high-tech materials and non-ferrous metals trade under the jurisdiction of more than a dozen production and trade oriented subsidiaries. The main products include copper wires, copper bars, copper tubes, copper stripes, enameled wires, cathode copper, valves, water meters, and magnetic materials, etc. All the production outputs rank in the forefront of the same industry.

Ningbo Jintian Copper Rod Co., Ltd. specialized in ordinary brass rods & wires, lead brass rods & wires, copper rods & wires, copper alloy and fine-polishing copper ingots research and manufacture. We can produce all kinds of copper alloy product according to

different standards (GB, ISO, ASTM, JIS, EN, DIN, BS, NF, etc.) Our products included riveting brass series, free cutting brass series, forging brass series, lead-free brass series, ordinary brass wire series. It is suitable for automatic lathe processing, and it's widely used in electronic component, automobile parts, electrical apparatus, hardware, telecommunication connector, refrigeration parts, sanitary ware parts and civilian hardware, etc.

This company has passed many kinds of quality supervision system attestation. Relying on the Group Corporation, it abides by the enterprise spirits of "Seek Changes Everyday, Never to be Satisfied, be Bold in Competition, and always Seek Excellence". It persists the high-grade products, creates the top-notch enterprise with vast old and new customers by good remarkable goods, best brand, wonderful service for the purpose of the joint prosperity and brilliance-making.



**ENTERPRISE'S HONOR** 企业荣誉



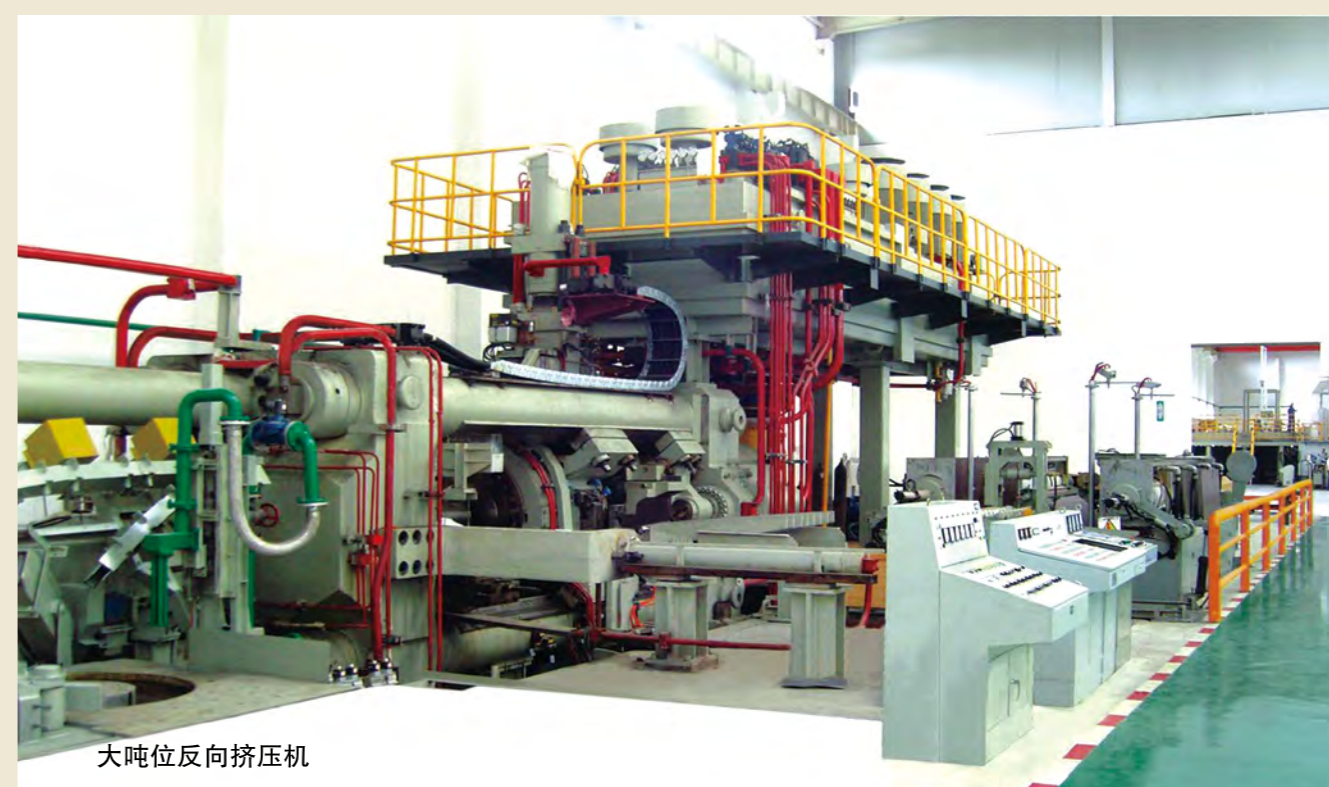
营造国际品牌 构筑百年企业  
Elevate an International brandname.  
Construct a centenary enterprise.



**PRODUCTION STRENGTH,  
MODERN EQUIPMENT** 生产实力、现代装备

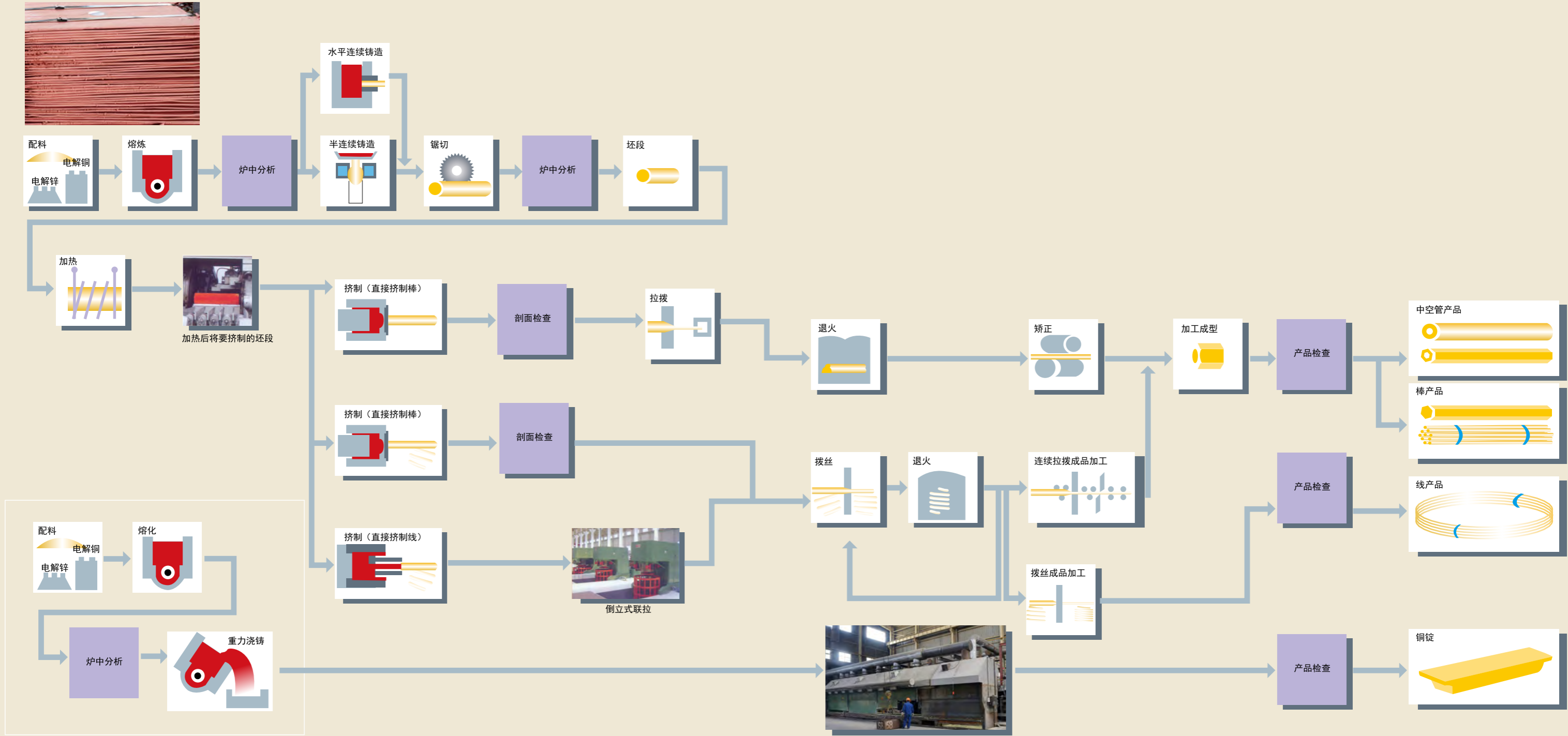
Elevate an International brandname. Construct a centenary enterprise.  
营造国际品牌 构筑百年企业

Process efficiently and precisely to eliminate waste.  
走精益生产之路 尽全力消除浪费



TECHNOLOGICAL  
PROCESS

工艺流程



# QUALITY ASSURANCE

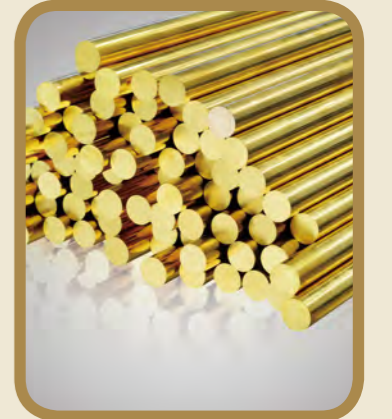
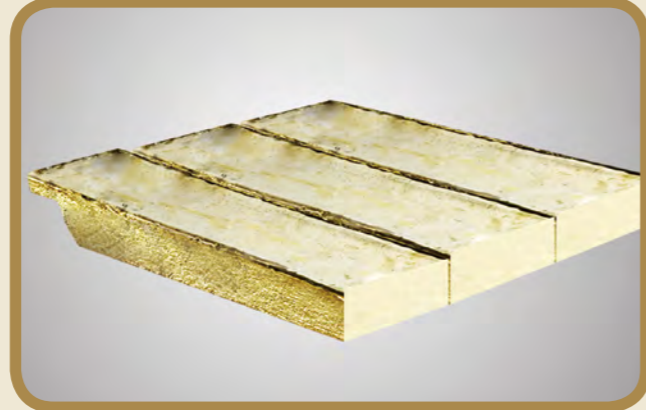
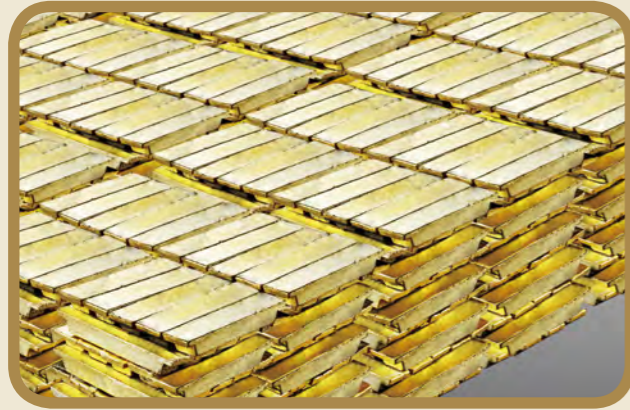
## 品质保证

精益生产，品质为先。专门的质监机构，专业的检测中心，先进的测试设备，为金田集团构建起了科学完善的质量控制体系。金田集团已通过ISO9001:2000质量认证和ISO1400:2004环境认证，并获得了UL、ASTM、EN、TUV等国际标准认证



Keep meliorating in the production. Quality is above all. The specialized QC department, the professional test center, the advanced test equipment, etc. Have provided Jintian Group with a scientific & perfect QC system. Jintian Group has been ISO9001:2000 certified for quality and ISO1400:2004 certified for environment protection, furthermore, has attained international approvals including UL, ASTM, EN, TUV certifications.





**铜锭**  
Ordinary Brass

**特A级铜锭**

材质名称	化学成分 %										
	铜	铅	铝	铁	镍	锡	硅	锰	磷	锌	杂质总和
特A级铜锭	59-60.2	1.0-1.6	0.55-0.72	≤ 0.1	≤ 0.1	≤ 0.15	≤ 0.02	≤ 0.02	≤ 0.01	余量	≤ 0.2

**DZR铜锭**

材质名称	化学成分 %									
	铜	铅	铝	铁	镍	锡	硅	锌	As	杂质总和
DZR 铜锭	61-63	0.8-1.6	0.5-0.75	≤ 0.2	≤ 0.15	≤ 0.2	≤ 0.05	余量	0.04-01	≤ 0.3

**无铅铜锭**

材质名称	化学成分 %									
	铜	铋	铝	铁	镍	锡	硅	锌	As	杂质总和
无铅铋黄铜锭	59-63	0.8-1.6	0.5-0.75	≤ 0.2	≤ 0.15	≤ 0.2	≤ 0.05	余量	0.04-01	≤ 0.3

**抛光质量标准**

等级	A 级抛光铜锭
表面杂质数量 (单个的面积小于等于 0.08 平方毫米)	小于或等于 3 个

**铜锭金相组织标准**

宏观分析：用高硫酸铵盐浸泡光镜面铜块，按照客户要求分级为下列图，0 级、1 级合格；2 级、3 级、4 级不合格。



**抗脱锌标准**

产品类型	抗脱锌深度要求
DZR 铜锭	<100 微米

**微观组织标准**

用显微镜观察，结构均匀，晶粒度小于 1/10mm，最佳 1/20mm。

**抛光铜锭的外观要求**

铜锭的表面不得有裂纹、气孔、熔渣和夹杂物。可以有氧化膜、皱皮和边缘小水波纹。

**抗脱锌性能测试方法**

测试方法按照 ISO 6509-1981《金属和合金的腐蚀 - 黄铜耐脱锌性能的测定》的要求进行。

**无铅铜棒**  
Lead free copper

**材料特征**

环保 (Pb%<0.2%)  
良好的抗脱锌腐蚀性能 (<200 μm)  
良好的机械加工性  
良好的热成型性能  
良好的抗应力腐蚀开裂性能

**用途**

水暖五金、水表、各种阀门、管道接头、供水管配件等涉水器件。  
适用于自动车床、数控车床加工有生态环保和卫生安全要求等系列产品；如电子、电讯、电气接插件、联接件，五金、照相、家电、饮用水工程的零部件。

**化学成分**

牌号	铜 Cu	锡 Sn	硅 Si	铋 Bi	铅 Pb	砷 As	P	Fe	其他
C27451	60-65	-	-	-	0.25	-	0.1	0.35	0.4
C46400	59-62	0.5-1.0	-	-	0.2	-	-	0.1	0.4
C46500	59-62	0.5-1.0	-	-	0.2	0.02-0.06	-	0.1	0.4
C68350	59-64	0.6	0.3-1.0	-	0.1	-	0.05-0.4	0.15	0.4
C69300	74-77	-	2.7-3.3	-	0.1	-	0.1	0.1	0.4

**物理性能**

牌号	抗拉强度 Rm [MPa]	延伸率 A5 [%]	维氏硬度 HV 5
C46500	>380	>25%	>90

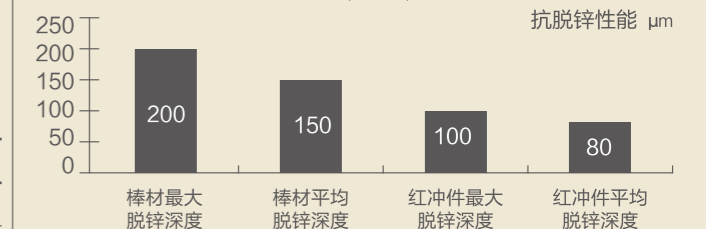
**氨熏测试**

腐蚀介质	时间/h	结果判定	维氏硬度 HV 5
氨介质	24/72	不开裂	>90

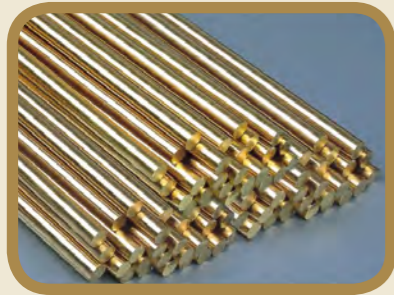
应力腐蚀开裂：将受到应力作用的金属材料、在腐蚀环境中暴露一段时间、则会发生开裂。大家知道，黄铜材在氨介质环境中会发生开裂。

**抗脱锌性能**

测试条件依据 GB 10119-88《黄铜耐脱锌腐蚀性能的测定》执行。目前市场上采用的抗脱锌标准有：EN12165-2011 和澳大利亚标准 AS2345-2006(DZR)。



关于脱锌腐蚀：所谓脱锌腐蚀是黄铜中的锌成分被选择性溶解、导致合金强度大大降低的腐蚀现象。同时，抗脱锌性能表征材料中合金元素溶入水中的数量，一般来说，脱锌层越小，水中含有金属元素越少。



**普黄铜**  
Ordinary Brass  
H62,H65,C2700,C2800

状态 Temper: M,Y2,Y,Y4  
生产范围 Production rang  
线材: Φ1.5mm~Φ12mm  
棒材: Φ2.0mm~Φ50mm  
直径 Diameter:1mm~50mm  
长度 Length: 2m~3.5m

**主要特性**  
The main characteristics

有良好的机械性能, 热态下塑性好, 冷态下塑性也可以, 切削性好, 易钎接和焊接, 耐蚀, 但易产生腐蚀破裂。

With excellent machinability, cold Plasticity, hot plasticity, free cutting and resistance to corrosion, it is easy to joint and braze.

**用途 Usage**

适用各种深引伸和弯折制造的受力零件, 如销钉、铆钉、垫圈、螺帽、导管、散热器零件等。

Used in a lot of deep-drawability parts, such as hardware, radiator parts, springs, bolts, rivets and machine parts.

**铅黄铜**  
Lead Brass  
Hpb58-3,Hpb59-1,C3771

状态 Temper: M,Y2,Y  
生产范围 Production rang  
直径 Diameter:1mm~50mm  
长度 Length: 2m~3.5m

**主要特性**  
The main characteristics

是应用最广泛的铅黄铜, 有良好的切削性能和好的机械性能, 能承受冷、热压力加工, 易钎接和焊接, 对一般腐蚀有良好的稳定性。

With excellent machinability, good performance in cutting, stability as to the common corrosion, can stand cold and hot-working,easy to joint and braze, Hpb59-1 A includes more impurity.

**用途 Usage**

适用以热冲和切削加工制作的各种结构零件, 如螺钉、垫圈、垫片、衬套、螺帽、喷嘴等。

Used in spare parts which is hot-drawability and cutting,such as bolts,shims,screw caps,gaskets, linings.

**易切削黄铜**  
Free Cutting Brass  
C3601-C3604,C36000

状态 Temper: M,Y2,Y  
生产范围 Production rang  
直径 Diameter:1mm~52mm  
长度 Length: 2m~3.7m

**主要特性**  
The main characteristics

具有极好的切削、钻孔性能, 强度高, 耐磨性好, 有良好耐腐蚀性

Excellent cutting and boring performance, high strength,high conductivity and corrosion-resistance

**用途 Usage**

适用于自动车床、数控车床加工产品, 如五金件、电气接插件、联接件等。

Used very common in the ordinary brass, often used in complicated cold-drawability and deep-drawability, such as shims, the shell of radiator, pipes,etc.

产品化学成份&标准  
Chemistry component & Standard

产品名称 Product name	牌号 Alloy grade	化学成分 (不在于 %) Chemistry component(no more than,%)						
		Cu	Pb	Al	Fe(max)	Sn	Zn	Impurity total
普通黄铜 Ordinary brass	H68	67-70	0.03	-	0.1	-	REM	0.1
	H65	63.5-68	0.03	-	0.1	-	REM	0.3
	H63	62-65	0.08	-	0.15	-	REM	0.3
	H62	60.5-63.5	0.08	-	0.15	-	REM	0.5
铅黄铜 Lead brass	Hpb63-3	62.0-65.0	2.4-3	0.5	0.1	-	REM	0.75
	Hpb63-0.1	61.5-63.5	0.05-0.3	0.2	0.15	-	REM	0.5
	Hpb59-1	57.0-60.0	0.8-1.9	0.2	0.5	-	REM	1.0
	Hpb58-3	57.0-58.0	2.0-3.5	-	-	-	REM	-
	59-B	57.0-59.0	1.0-2.0	-	-	-	REM	-
	58-2A	57.0-58.5	3.0	-	-	-	REM	-
易切削黄铜 Free cutting brass	58-2C	54.5-56.5	2.0-5.0	-	-	-	REM	-
	C3601	59.0-63.0	1.8-3.7	-	0.3	Fe+Sn:0.5	REM	-
	C3602	59.0-63.0	1.8-3.7	-	0.5	Fe+Sn:1.2	REM	-
	C3603	57.0-61.0	1.8-3.7	-	0.35	Fe+Sn:0.6	REM	-
	C3604	57.0-61.0	1.8-3.7	-	0.5	Fe+Sn:1.2	REM	-
无铅黄铜 Lead free copper	C3605	57.0-63.0	3.5-4.5	-	0.5	Fe+Sn:1.2	REM	-
	C89540	57.0-63.0	0.01	-	0.5	-	REM	Bi:0.5-3.5
锻造用黄铜 Brass Rod for forging	C89550	57.0-63.0	0.01	-	0.5	-	REM	Bi:0.5-3.5
	C3712	58.0-62.0	0.25-1.2	-	-	Fe+Sn:0.8	REM	-
	C3771	57.0-61.0	1.0-2.5	-	-	Fe+Sn:1.0	REM	-
	C36000	60.0-63.0	2.5-3.7	-	0.35	-	REM	-
	C37700	58.0-61.0	1.5-2.5	-	0.3	-	REM	-

常用铜合金牌号对照表  
Common copper alloy trade mark compare tabulation

产品名称 Product name	Correspond to grade							
	国标GB	国际标准ISO	美标ASTM	日标JIS	欧标EN	德标DIN	英标BS	法标NF
纯铜 Pure copper	T2	Cu-FRHC	C11000	C1100	CW004A	E-Cu58	C101	Cu-a1
	T3	Cu-FRTP	C12500	-	-	-	C104	-
磷脱氧铜 Phosphorous deoxidize copper	TP2	Cu-DHP	C12100	C1220	CW024A	SF-Cu	C106	Cu-b1
普通黄铜 Ordinary brass	H68	-	C26200	-	-	CuZn33	-	-
	H65	CuZn35	C27000	C2700	-	CuZn36	Cz107	CuZn33
	H63	CuZn37	C27200	C2720	CW508L	CuZn37	CZ108	CuZn37
	H62	CuZn40	C28000	C2800	CW509L	-	CZ109	CuZn40
铅黄铜 Lead brass	HPb63-3	-	C34500	C3560	-	CuZn36Pb3	CZ124	-
	HPb63-0.1	-	-	-	-	CuZn36Pb0.5	-	-
	HPb59-1	CuZn39Pb1	C37710	C3771	CW611N	CuZn40Pb2	CZ122	-
铅黄铜锭 Lead brass ingot	ZHD62	-	C85500	-	-	-	-	-
	ZHPbD59-1	-	-	-	-	-	PCB1	-
	ZHPbD60-2	GCuZn40Pb	-	-	-	G-CuZn37Pb	DCB3	CuZn40