**ICS 77.150.30**

**CCS H 62**



GB/T 5231-XXXX

代替GB/T 5231-2012

加工铜及铜合金牌号和化学成分

Designation and chemical composition of wrought

copper and copper alloys

（送审稿）

xxxx-xx-xx发布 xxxx-xx-xx实施

国 家 市 场 监 督 管 理 总 局

国家标准化管理委员会 发布

GB/ T5231—XXXX

前 言

本文件按照GB/T1.1-2020《标准化工作导则 第1部分：标准化文件的结构和起草规则》的规定起草。

本文件代替GB/T 5231—2012《加工铜及铜合金牌号和化学成分》。本文件保留GB/T 5231-2012文件中的213个牌号，新增131牌号，总计344牌号。本文件与GB/T 5231-2012相比，除结构调整和编辑性改动外，主要变化如下：

a) 增加了纯铜16个牌号及代号：T4、TUP0.003、TUP0.002、TUP0.008、TAg0.05、TAg0.08、TAg0.2、TSn0.1、TSn0.15、TSn0.3、TSn0.5、TZr 0.1、TUAl0.15、TUAl0.25、TUAl0.35、TUAl0.60（见表1）；

b) 增加了高铜合金30个牌号及代号： TBe1.9-0.2、TBe2.4、TBe2.8、TBe0.3-0.5、TBe0.3-0.7、

TBe0.3-1.2、TNi0.6-0.2、TNi1.1-0.25、TNi1-1-0.25、TCr0.3-0.05-0.02、TCr0.3-0.15-0.03、TCr0.5-0.15-0.1、TCr0.3-0.1-0.02-0.03、TCr0.3-0.1-0.02、TCr0.6、TCr1.2、TMg0.15、TMg0.25、TMg0.3-0.2、TMg0.35、TMg0.45、TMg0.6-0.2、TSi1-0.25、TSn2-0.6-0.15、TSn2-0.2-0.06、TSn1.5-0.8-0.06、TFe0.75、TFe5、TZn0.9-0.5、TTi3.0（见表2）；

c) 增加了黄铜50个牌号及代号： H96、H62.5、H58、HCr90-0.3、HAs63-0.1、HAs62-004、HAs63-0.04、HAs65-0.04、HPb65-1.5、HPb63-1.5、HPb63-1.5-0.6、HPb63-1-0.6、HPb62-1-0.6、HPb61-1.5、HPb61-3、HPb59-1.8、HPb59-2.8、HPb57-3、HSn88-7、HSn88-1、HSn88-2、HSn75-1、HSn71-1、HSn71-1-0.06、HSn60-0.4-0.2、HSn60-1-0.04、HSn60-0.8、HSn60-0.8-0.04、HSn61-0.8-1.8、HBi58-1.5、HBi62-1.4-1、HMn61-2-1-0.5、HMn61-2-1-1、HMn61-3-1、HMn60-3-1.7-1、HMn58-3-1-1、HMn58-2-1-0.5、HMn58-2-2-0.5、HMn58-3-2-0.8、HMn57-2-2-1、HSi76-3-0.05、HSi75-3、HSi68-1.5、HSi67-1、HAl61-1-1、HAl60-4-3-1、HAl60-5-2-2、HAl58-4-4-1、HAl63-0.6-0.2、HNi55-7-4-2（见表3）；

d) 增加了青铜20个牌号及代号： QSn4-0.15-0.10-0.03、QSn6.5-0.2、QSn10-0.3、QSn4-3.5-3-0.3、QSn1.6、QSn2-0.2、QSn2.0-0.1-0.03、QMn11-3.5-1.5、QAl7-3-0.4、QAl9-3、QAl11-3、QAl13-4、QAl14-3、QAl10-5-3、QAl10-6-5、QAl9-4-4、 QAl9-4-4-1、QAl7-2、QAl6.5-2、QSi0.6-2.1（见表4）；

e) 增加了白铜15个牌号及代号： B7、BFe10-1.4-1、BSn9-6、BSn15-8、BSn21-5、BZn8-26、BZn10-25、BZn12-24-1.1、BZn14-24、BZn12-38-2、BSi3.2-0.7、BSi2-0.45、BSi2-0.5、BSi7-2-1、BCo19-0.4（见表5）；

f) 普通黄铜和部分复杂黄铜增加了镍含量的规定（见表3）；

g) 铅黄铜HPb65-1.5合金中铅（Pb）含量由2.5%～3.7%更改为2.5%～3.0%（见表3,2012版表2）；

h) 锰黄铜HMn57-2-2-0.5(T67420)黄铜合金中的硅（Si）含量由0.5%～0.7%更改为0.4%～0.8%（见表3,2012版表2）；

i) 锡青铜QSn4-4-4合金中铅（Pb）含量由3.5%～4.5%更改为3.0%～4.0%（见表3,2012版表3）；

j)增加“数值修约按GB/T 8170 的规定进行”（见2.6）；

k)高铜、黄铜、青铜和白铜合金，增加“铜+所列元素总和”规定，删除 “杂质总和”规定（见表2～表5）。

**请注意本文件某些内容可能涉及专利。本文件发布机构不承担识别这些专利的责任。**

本文件由中国有色金属工业协会提出。

本文件由全国有色金属标准化技术委员会（SAC/TC243）归口。

本文件负责起草单位：中铝洛阳铜加工有限公司、浙江海亮股份有限公司、宁波博威合金材料股份有限公司、宁波兴业盛泰集团有限公司、宁波长振铜业有限公司、安徽楚江科技新材料股份有限公司、安徽鑫科新材料股份有限公司、宁波金田铜业（集团）股份有限公司、江西耐乐铜业有限公司、江苏萃隆精密铜管股份有限公司、无锡隆达金属材料有限公司、沈阳有色金属加工有限公司、山西春雷铜材有限责任公司、广东精艺金属股份有限公司、中铜华中铜业有限公司、中铝沈阳有色金属加工有限公司、沈阳有色金属研究所有限公司、中色奥博特铜铝业有限公司、江西金品铜业科技有限公司、上虞金鹰铜业有限公司、浙江力博控股有限公司

本文件主要起草人：

本文件所代替文件的历次版本发布情况为：

——1985首次发布GB/T 5231-1985、

——2001年第一次修订时，并入了GB/T 5232-1985、GB/T 5233-1985、GB/T 5234-1985。

——2012年第二次修订；

——本次为第三次修订。

GB/T5231—xxxx

**加工铜及铜合金牌号和化学成分**

1．范围

本文件规定了加工铜及铜合金的牌号和化学成分。

本文件适用于以压力加工方法生产的铜及铜合金加工产品及其所用的铸锭和坯料。

2. 规范性引用文件

GB/T 8170 数值修约规则与极限数值的表示和判定

3. 术语及定义

本文件没有需要界定的术语和定义。

4．化学成分

4.1 加工铜及铜合金的牌号和化学成分应符合表1～表5的规定。

4.2表1～表5中含量有上下限者为合金元素，含量为单个数值者，铜为最低限量，Cu+所列列元总和为最低限量，其他杂质元素为最高限量。

4.3杂质总和为主成分之外的所有杂质元素总和，主要为Ag、As、Bi、Cd、Co、Cr、Fe、Mn、Ni、O、P、Pb、S、Sb、Se、Si、Sn、Te、Zn等元素。

4.4 表1～表5中未列出元素的极限值，可由供需双方协商确定。铜或锌为余量元素时，可取所有已分析元素与100%之间的差值。

4.5数值修约按GB/T 8170规定进行修约。

4.6本文件与国外标准对应的牌号见附录A。

表1 加工铜化学成分

| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu+Ag  (最小值) | P | Ag | Bia | Sba | Asa | | Fe | Ni | Pb | Sn | S | Zn | O | |
| 无  氧  铜 | C10100 | TU00 | 99.99b | 0.0003 | 0.0025 | 0.0001 | 0.0004 | 0.0005 | | 0.0010 | 0.0010 | 0.0005 | 0.0002 | 0.0015 | 0.0001 | 0.0005 | |
| Te ≤0.0002　，Se≤0.0003 ，Mn≤0.00005 ，Cd≤0.0001 | | | | | | | | | | | | | | |
| T10130 | TU0 | 99.97 | 0.002 | ― | 0.001 | 0.002 | 0.002 | 0.004 | | 0.002 | 0.003 | 0.002 | 0.004 | 0.003 | 0.001 | |
| T10150 | TU1 | 99.97 | 0.002 | ― | 0.001 | 0.002 | 0.002 | 0.004 | | 0.002 | 0.003 | 0.002 | 0.004 | 0.003 | 0.002 | |
| T10180 | TU2c | 99.95 | 0.002 | ― | 0.001 | 0.002 | 0.002 | 0.004 | | 0.002 | 0.004 | 0.002 | 0.004 | 0.003 | 0.003 | |
| C10200 | TU3 | 99.95 | ― | ― | ― | ― | ― | ― | | ― | ― | ― | ― | ― | 0.0010 | |
| C10300 | TUP0.003 | 99.95d | 0.001～0.005 | ― | ― | ― | ― | ― | | ― | ― | ― | ― | ― | | ― |
| T10410 | TUP0.002 | 99.99d | 0.0015～0.0025 | ― | ― | ― | ― | ― | | ― | ― | ― | ― | ― | | 0.0010 |
| C10800 | TUP0.008 | 99.95d | 0.005～0.012 | ― | ― | ― | ― | ― | | ― | ― | ― | ― | ― | ― | |
| 银  无  氧  铜 | T10350 | TU00Ag0.06 | 99.99 | 0.002 | 0.05～0.08 | 0.0003 | 0.0005 | 0.0004 | 0.0025 | | 0.0006 | 0.0006 | 0.0007 | ― | 0.0005 | 0.0005 | |
| C10500 | TU Ag0.03 | 99.95 | ― | ≥0.034 | ― | ― | ― | ― | | ― | ― | ― | ― | ― | 0.0010 | |
| T10510 | TUAg0.05 | 99.96 | 0.002 | 0.02～0.06 | 0.001 | 0.002 | 0.002 | 0.004 | | 0.002 | 0.004 | 0.002 | 0.004 | 0.003 | 0.003 | |
| T10530 | TUAg0.1 | 99.96 | 0.002 | 0.06～0.12 | 0.001 | 0.002 | 0.002 | 0.004 | | 0.002 | 0.004 | 0.002 | 0.004 | 0.003 | 0.003 | |
| T10540 | TUAg0.2 | 99.96 | 0.002 | 0.15～0.25 | 0.001 | 0.002 | 0.002 | 0.004 | | 0.002 | 0.004 | 0.002 | 0.004 | 0.003 | 0.003 | |
| T10550 | TUAg0.3 | 99.96 | 0.002 | 0.25～0.35 | 0.001 | 0.002 | 0.002 | 0.004 | | 0.002 | 0.004 | 0.002 | 0.004 | 0.003 | 0.003 | |
| 锆无氧铜 | T10600 | TUZr0.15 | 99.97l | 0.002 | Zr:0.11～0.21 | 0.001 | 0.002 | 0.002 | 0.004 | | 0.002 | 0.003 | 0.002 | 0.004 | 0.003 | 0.002 | |
| 纯  铜 | T10900 | T1 | 99.95 | 0.001 | ― | 0.001 | 0.002 | 0.002 | 0.005 | | 0.002 | 0.003 | 0.002 | 0.005 | 0.005 | 0.02 | |
| T11050 | T2fg | 99.90 | ― | ― | 0.001 | 0.002 | 0.002 | 0.005 | | ― | 0.005 | ― | 0.005 | ― | ― | |
| T11090 | T3 | 99.70 | ― | ― | 0.002 | ― | ― | ― | | ― | 0.01 | ― | ― | ― | ― | |
| T10950 | T4 | 99.95 | 0.001 | ― | ― | ― | ― | 0.001 | | ― | ― | 0.005 | ― | ― | 0.008～0.03 | |
| 银  铜 | T11110 | TAg0.05 | 99.90 | ― | 0.02～0.06 | ― | ― | ― | ― | | ― | ― | ― | ― | ― | | ― |
| T11120 | TAg0.08 | 99.90 | ― | 0.06～0.12 | ― | ― | ― | ― | | ― | ― | ― | ― | ― | | ― |
| T11200 | TAg0.1-0.01 | 99.9d | 0.004～0.012 | 0.08～0.12 | ― | ― | ― | ― | | 0.05 | ― | ― | ― | ― | 0.05 | |
| T11210 | TAg0.1h | 99.5i | ― | 0.06～0.12 | 0.002 | 0.005 | 0.01 | 0.05 | | 0.2 | 0.01 | 0.05 | 0.01 | ― | 0.1 | |
| T11220 | TAg0.15 | 99.5 | ― | 0.10～0.20 | 0.002 | 0.005 | 0.01 | 0.05 | | 0.2 | 0.01 | 0.05 | 0.01 | ― | 0.1 | |
| T11230 | TAg0.2 | 99.90 | ― | 0.15～0.25 | ― | ― | ― | ― | | ― | ― | ― | ― | ― | ― | |
| 磷脱氧铜 | C12000 | TP1 | 99.90 | 0.004～0.012 | ― | ― | ― | ― | ― | | ― | ― | ― | ― | ― | ― | |
| C12200 | TP2 | 99.9 | 0.015～0.040 | ― | ― | ― | ― | ― | | ― | ― | ― | ― | ― | ― | |
| T12210 | TP3 | 99.9 | 0.01～0.025 | ― | ― | ― | ― | ― | | ― | ― | ― | ― | ― | 0.01 | |
| T12400 | TP4 | 99.90 | 0.04～0.065 | ― | ― | ― | ― | ― | | ― | ― | ― | ― | ― | 0.002 | |

表1（续）　加工铜化学成分

| 分  类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu+Ag  (最小值) | P | Ag | | Bib | Sbb | Asb | Fe | Ni | Pb | Sn | S | Zn | O | Cd |
| 锡铜 | C14415 | TSn0.12 | 99.96 j | ― | ― | ― | | ― | ― | ― | ― | ― | 0.10～0.15 | ― | ― | ― | ― |
| T14416 | TSn0.15 | 99.90j | ― | ― | ― | | ― | ― | ― | ― | ― | 0.01～0.20 | ― | ― | 0.0030 | ― |
| T14417 | TSn0.3 | 99.90 j | ― | ― | ― | | ― | ― | ― | ― | ― | 0.15～0.40 | ― | ― | 0.0030 | ― |
| T14418 | TSn0.5 | 99.90 j | ― | ― | ― | | ― | ― | ― | ― | ― | 0.35～0.70 | ― | ― | 0.0030 | ― |
| 碲铜 | T14440 | TTe0.3 | 99.9j | 0.001 | Te:0.20～0.35 | | 0.001 | 0.0015 | 0.002 | 0.008 | 0.002 | 0.01 | 0.001 | 0.0025 | 0.005 | ― | 0.01 |
| T14450 | TTe0.5-0.008 | 99.8 j | 0.004～0.012 | Te:0.4～0.6 | | 0.001 | 0.003 | 0.002 | 0.008 | 0.005 | 0.01 | 0.01 | 0.003 | 0.008 | ― | 0.01 |
| C14500 | TTe0.5 | 99.90 j | 0.004～0.012 | Te: 0.40～0.7 | | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― |
| C14510 | TTe0.5-0.02 | 99.85 j | 0.010～0.030 | Te: 0.30～0.7 | | ― | ― | ― | ― | ― | 0.05 | ― | ― | ― | ― | ― |
| 硫铜 | C14700 | TS0.4 | 99.90j | 0.002～0.005 | ― | | ― | ― | ― | ― | ― | ― | ― | 0.20～0.50 | ― | ― | ― |
| 锆铜 | C15100 | TZr0.1 | 99.80 j | ― | Zr:0.05～0.15 | | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― |
| C15000 | TZr0.15 | 99.9j | ― | Zr:0.10～0.20 | | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― |
| T15200 | TZr0.2 | 99.5j | ― | Zr:0.15～0.30 | | 0.002 | 0.005 | ― | 0.05 | 0.2 | 0.01 | 0.05 | 0.01 | ― | ― | ― |
| T15400 | TZr0.4 | 99.5j | ― | Zr:0.30～0.50 | | 0.002 | 0.005 | ― | 0.05 | 0.2 | 0.01 | 0.05 | 0.01 | ― | ― | ― |
| 弥散无氧铜 | T15700 | TUAl0.12 | 余量 | 0.002 | Al2O3:0.16～0.26 | | 0.001 | 0.002 | 0.002 | 0.004 | 0.002 | 0.003 | 0.002 | 0.004 | 0.003 | ― | ― |
| C15715 | TUAl0.15 | 99.62 | ― | Al:0.13～0.17k | | ― | ― | ― | 0.01 | ― | 0.01 | ― | ― | ― | 0.12～0.19k | ― |
| C15725 | TUAl0.25 | 99.43 | ― | Al:0.23～0.27 k | | ― | ― | ― | 0.01 | ― | 0.01 | ― | ― | ― | 0.20～0.28k | ― |
| C15735 | TUAl0.35 | 99.43 | ― | Al:0.33～0.37 | | ― | ― | ― | 0.01 | ― | 0.01 | ― | ― | ― | 0.29～0.37 | ― |
| C15760 | TUAl0.60 | 98.77 | ― | Al:0.58～0.62 k | | ― | ― | ― | 0.01 | ― | 0.01 | ― | ― | ― | 0.52～0.59k | ― |
| a砷、铋、锑可不分析，但供方必须保证不大于极限值。  b此值为铜量，铜含量（质量分数）不小于99.99%时，其值应由差减法求得。  c电工用无氧铜TU2氧含量不大于0.002%。  d此值为Cu+Ag +P。  e此值为Cu+Ag+ Zr。  f 导电用T2铜P不大于0.001%。  g电力机车接触材料用纯铜线坯：Bi≤0.0005%、Pb≤0.0050%、O≤0.035%、P≤0.001%，其他杂质总和≤0.03%。  h电力机车接触材料用银铜线坯：Ag0.08%～0.12%、Bi≤0.0005%、O≤0.035%、P≤0.001%，其他杂质总和≤0.03%。  i此值为铜量。  j此值为Cu+Ag +主元素总和。  k所有的铝以Al2O2的形式存在，不大于0.04%的氧以Cu2O的形式存在于铜的固溶体中的含量可以忽略不计。 | | | | | | | | | | | | | | | | | |

表2　加工高铜合金a化学成分

| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu+Ag | Be | Ni | Cr | Si | Fe | Al | Pb | Ti | Zn | Sn | | S | | P | Mn | | Co | Cu+所列  元素总和 | 其他 |
| 镉铜 | C16200 | TCd1 | 余量 | ― | ― | ― | ― | 0.02 | ― | ― | ― | ― | ― | | ― | | Cd:0.7～1.2 | | | ― | 99.5 |  |
| 铍铜 | C17200 | TBe1.9-0.2 | 余量 | 1.80-2.00 | ― | ― | 0.20 | ― | 0.20 | ― | ― | ― | | ― | ― | | ― | ― | | 0.20 b | 99.5 |  |
| C17300 | TBe1.9-0.4 | 余量 | 1.80～2.00 | ― | ― | 0.20 | ― | 0.20 | 0.20～0.6 | ― | ― | ― | | ― | | ― | ― | | 0.20 b | 99.5 |  |
| C17410 | TBe0.3-0.5 | 余量 | 0.15～0.50 | ― | ― | 0.20 | 0.20 | 0.20 | ― | ― | ― | ― | | ― | | ― | ― | | 0.35～0.6 | 99.5 |  |
| C17450 | TBe0.3-0.7 | 余量 | 0.15～0.50 | 0.50～1.0 | ― | 0.20 | 0.20 | 0.20 | ― | ― | ― | 0.25 | | ― | | ― | ― | | Zr≤0.50 | 99.5 |  |
| C17460 | TBe0.3-1.2 | 余量 | 0.15～0.50 | 1.0～1.4 | ― | 0.20 | 0.20 | 0.20 | ― | ― | ― | 0.25 | | ― | | ― | ― | | Zr≤0.50 | 99.5 |  |
| T17490 | TBe0.3-1.5 | 余量 | 0.25～0.50 | ― | ― | 0.20 | 0.10 | 0.20 | ― | ― | ― | ― | | ― | | Ag:0.90～1.10 | | | 1.40～1.70 | 99.5 c |  |
| C17500 | TBe0.6-2.5 | 余量 | 0.4～0.7 | ― | ― | 0.20 | 0.10 | 0.20 | ― | ― | ― | ― | | ― | | ― | ― | | 2.4～2.7 | 99.5 |  |
| C17510 | TBe0.4-1.8 | 余量 | 0.2～0.6 | 1.4～2.2 | ― | 0.20 | 0.10 | 0.20 | ― | ― | ― | ― | | ― | | ― | ― | | 0.3 | 99.5 |  |
| T17700 | TBe1.7 | 余量 | 1.6～1.85 | 0.2～0.4 | ― | 0.15 | 0.15 | 0.15 | 0.005 | 0.10～0.25 | ― | ― | | ― | | ― | ― | | ― | 99.5 c |  |
| T17710 | TBe1.9 | 余量 | 1.85～2.1 | 0.2～0.4 | ― | 0.15 | 0.15 | 0.15 | 0.005 | 0.10～0.25 | ― | ― | | ― | | ― | ― | | ― | 99.5c |  |
| T17715 | TBe1.9-0.1 | 余量 | 1.85～2.1 | 0.2～0.4 | ― | 0.15 | 0.15 | 0.15 | 0.005 | 0.10～0.25 | ― | ― | | ― | | Mg:0.07～0.13 | ― | | ― | 99.5c |  |
| T17720 | TBe2 | 余量 | 1.80～2.1 | 0.2～0.5 | ― | 0.15 | 0.15 | 0.15 | 0.005 | ― | ― | ― | | ― | | ― | ― | | ― | 99.5c |  |
| T17730 | TBe2.4 | 余量 | 2.30～2.50 | 0.002 | ― | 0.025 | 0.025 | 0.01 | 0.002 | ― | ― | Sb+Sn+Zn≤0.03; As+P≤0.01 | | | | | | | 0.01 | 99.7 c |  |
| T17740 | TBe2.8 | 余量 | 2.60～3.00 | 0.002 | ― | 0.025 | 0.025 | 0.01 | 0.002 | ― | ― | Sb+Sn+Zn≤0.03; As+P≤0.01 | | | | | | | 0.01 | 99.7 c |  |
| 镍铬铜 | C18000 | TNi2.4-0.6-0.5 | 余量 | ― | 1.8～3.0d | 0.10～0.8 | 0.40～0.8 | 0.15 | ― | ― | ― | ― | ― | | ― | ― | | ― | ― | | 99.5 |  |
| 镍铜 | T18010 | TNi0.6-0.2 | 余量 | ― | 0.5～0.7 | ― | 0.03 | 0.05 | ― | 0.005 | Mg≤0.002 | 0.005 | ― | | ― | | 0.005 | ― | Zr:0.12-0.27 | | 99.9 |  |
| C19000 | TNi1.1-0.25 | 余量 | ― | 0.9～1.3 | ― | ― | 0.10 | ― | 0.05 | ― | 0.8 | ― | | ― | | 0.15～0.35 | ― | ― | | 99.5 | ― |
| C19160 | TNi1-1-0.25 | 余量 | ― | 0.8～1.2 | ― | ― | 0.05 | ― | 0.8～1.2 | ― | 0.50 | 0.05 | |  | | 0.15～0.35 | ― | ― | | 99.5 | ― |
| 铬  铜 | C18070 | TCr0.3-0.05-  0.02 | 99.0 | ― | ― | 0.15～0.40 | 0.02～0.07 | ― | ― | ― | 0.01～0.04 | ― | ― | | ― | | ― | ― | ― | | 99.8 | ― |
| C18080 | TCr0.5-0.15-  0.1 | 余量e | Ag:0.01～0.30 | ― | 0.20～0.70 | 0.01～0.10 | 0.02～0.20 | ― | ― | 0.01～  0.15 | ― | ― | | ― | | ― | ― | ― | | 99.8 | ― |
| C18135 | TCr0.3-0.3 | 余量 | ― | ― | 0.20～0.6 | ― | ― | ― | ― | ― |  |  | | ― | | ― | ― | Cd:0.20～0.6 | | 99.5 |  |
| C18140 | TCr0.3-0.15-0.03 | 余量 | ― | ― | 0.15～0.45 | 0.005～0.05 | ― | ― | ― | ― | ― | ― | | ― | | ― | ― | Zr:0.05～0.25 | | 99.5 | ― |
| C18141 | TCr0.3-0.1-  0.02-0.03 | 余量 | ― | ― | 0.20～0.40 | 0.01～0.03 | ― | 0.10 | ― | Mg:0.002～0.050 | ― | 0.20 | | ― | | ― | ― | Zr:0.07～  0.13 | | 99.5 | ― |
| C18143 | TCr0.3-0.1-0.02 | 余量 | ― | ― | 0.20～0.40 | 0.01～  0.03 | ― | 0.10 | ― | Mn≤0.05 | ― | 0.20 | | ― | | ― | ― | Zr:0.07～  0.13 | | 99.5 | ― |
| T18140 | TCr0.5 | 余量 | ― | 0.05 | 0.4～1.1 | ― | 0.1 | ― | ― | ― | ― | ― | | ― | | ― | ― | ― | | 99.5 |  |
| T18142 | TCr0.5-0.2-0.1 | 余量 | ― | ― | 0.4～1.0 | ― | ― | 0.1～0.25 | ― | Mg:0.1～0.25 | ― | ― | | ― | | ― | ― | ― | | 99.5 |  |

表2（续）　加工高铜合金a化学成分

| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu+Ag | Zr | Cr | | | Ni | Si | Fe | Al | Pb | Mg | Zn | Sn | S | P | B | | Sb | Bi | | Cu+所列元素总和 | 其他 |
| 铬  铜 | T18144 | TCr0.5-0.1 | 余量 | ― | 0.40～0.70 | | | 0.05 | 0.05 | 0.05 | ― | 0.005 | ― | 0.05～0.25 | 0.01 | 0.005 | Ag：0.08～0.13 | | | ― | ― | | 99.9 | ― |
| T18145 | TCr0.6 | 余量 | ― | 0.50～0.70 | | | 0.03 | 0.05 | 0.05 | ― | 0.005 | 0.002 | 0.015 | ― | ― | 0.01 | ― | | ― | ― | | 99.9 | ― |
| T18146 | TCr0.7 | 余量 | ― | 0.55～0.85 | | | 0.05 | ― | 0.1 | ― | ― | ― | ― | ― | ― | ― | ― | | ― | ― | | 99.5 c | ― |
| T18148 | TCr0.8 | 余量 | ― | 0.6～0.9 | | | 0.05 | 0.03 | 0.03 | 0.005 | ― | ― | ― |  | 0.005 | ― | ― | | ― | ― | | 99.9 | ― |
| C18150 | TCr1-0.15 | 余量 | 0.02～0.20 | 0.5～1.5 | | | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― | | ― | ― | | 99.7 | ― |
| T18160 | TCr1-0.18 | 余量 | 0.05～0.30 | 0.5～1.5 | | | ― | 0.10 | 0.10 | 0.05 | 0.05 | 0.05 | ― | ― | ― | 0.10 | 0.02 | | 0.01 | 0.01 | | 99.7 c | ― |
| T18170 | TCr0.6-0.4-0.05 | 余量 | 0.3～0.6 | 0.4～0.8 | | | ― | 0.05 | 0.05 | ― | ― | 0.04～0.08 | ― | ― | ― | 0.01 | ― | | ― | ― | | 99.5 c | ― |
| C18200 | TCr1 | 余量 | ― | 0.6～1.2 | | | ― | 0.10 | 0.10 | ― | 0.05 | ― | ― | ― | ― | ― | | ― | ― | ― | | 99.5 | ― |
| C18400 | TCr1.2 | 余量 | ― | 0.4～1.2 | | | ― | 0.10 | 0.15 | ― | ― | As≤0.005 | 0.7 | Ca≤0.005 | | 0.05 | | Li≤0.05 |  |  | | 99.5 | ― |
| 镁  铜 | T15610 | TMg0.15 | 余量 | ― | | ― | | ― | ― | ― | ― | ― | 0.05～0.20 | ― | ― | ― | 0.0100 | ― | | ― | ― | | 99.9 c | ― |
| T15620 | TMg0.25 | 余量 | ― | | ― | | ― | ― | ― | ― | ― | 0.10～0.40 | ― | ― | ― | 0.010 | ― | | ― | ― | | 99.9 c | ― |
| T18658 | TMg0.2 | 余量 | ― | | ― | | ― |  | ― | ― | ― | 0.1～0.3 | ― | ― | ― | 0.01 | ― | | ― | ― | | 99.9c | ― |
| T18660 | TMg0.35 | 余量 | ― | | ― | | ― | ― | ― | ― | ― | 0.15～0.60 | ― | ― | ― | 0.0100 | ― | |  |  | | 99.9 c | ― |
| C18661 | TMg0.4 | 余量 | ― | | ― | | ― | ― | 0.10 | ― | ― | 0.10～0.7 | ― | 0.20 | ― | 0.001～0.02 | ― | | ― | ― | | 99.5 | ― |
| T18663 | TMg0.45 | 余量 | ― | | |  | ― | ― | ― | ― | ― | ― | 0.30～0.70 | ― | ― | ― | 0.0100 | | ― | ― | | ― | 99.9 c |
| T18664 | TMg0.5 | 余量 | ― | | | ― | ― | ― | ― | ― | ― | 0.4～0.7 | ― | ― | ― | 0.01 | ― | | ― | ― | | 99.9 | ― |
| T18667 | TMg0.8 | 余量 | ― | | | ― | 0.006 | ― | 0.005 | ― | 0.005 | 0.70～0.85 | 0.005 | 0.002 | 0.005 | ― |  | | 0.005 | 0.002 | | 99.7c | ― |
| T18665 | TMg0.6-0.2 | 余量 | Te:0.15～0.20 | | | | 0.002 | ― | 0.002 | ― | 0.005 | 0.5～0.7 | 0.0016 | ― | ― | 0.0005 |  | | 0.001 | 0.001 | | 99.9 c | ― |
| T18695 | TMg0.3-0.2 | 余量 | Te:0.15～0.20 | | | | 0.002 | ― | 0.002 | ― | 0.005 | 0.2～0.4 | 0.0016 | ― | ― | 0.0005 | ― | | 0.001 | 0.001 | | 99.9 c | ― |
| 铅铜 | C18700 | TPb1 | 99.5c | ― | ― | | | ― | ― | ― | ― | 0.8～1.5 | ― | ― | ― | ― | ― | ― | | ― | | ― | 99.5c | ― |
| 硅铜 | C19010 | TSi1-0.25 | 余量 | ― | | ― | | 0.8～1.8 | 0.15～0.35 | ― | ― | ― | ― | ― | ― | ― | 0.01～  0.05 | ― | | ― | | ― | 99.5 | ― |
| 锡铜 | C19020 | TSn2-0.6-0.15 | 余量 | ― | | ― | | 0.50～3.0 | ― | ― | ― | ― | ― | - | 0.30～  0.9 | ― | 0.01～  0.20 | ― | | ― | | ― | 99.8 | ― |
| C19040 | TSn1.5-0.8-  0.06 | 96.1 | ― | | ― | | 0.7～0.9c | 0.010 | 0.06 | ― | 0.02 | Mn≤0.02 | 0.8 | 1.0～  2.0 | ― | 0.02～  0.09 | ― | | ― | | ― | 99.8 | ― |
| T19060 | TSn2-0.2-0.06 | 余量 | ― | | ― | | 0.1～0.3 | ― | 0.1 | ― | 0.01 | ― | 1.0 | 1.8～  2.5 | ― | 0.03～  0.10 | ― | | ― | | ― | 99.5 | ― |
| 铁  铜 | C19200 | TFe1.0 | 98.5 | ― | ― | | | ― | ― | 0.8～1.2 | ― | ― | ― | 0.20 | ― | ― | 0.01～0.04 | ― | | ― | | ― | 99.8 | ― |
| C19210 | TFe0.1 | 余量 | ― | ― | | | ― | ― | 0.05～0.15 | ― | ― | ― | ― | ― | ― | 0.025～0.04 | ― | | ― | | ― | 99.8 | ― |

表2（续）　加工高铜合金a化学成分

| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu+Ag | Zr | Cr | Ni | Si | Fe | Al | Pb | Mg | Zn | Sn | S | P | B | Sb | Bi | Cu+所列  元素总和 | 其他 |
| 铁  铜 | C19400 | TFe2.5 | 97.0 | ― | ― | ― | ― | 2.1～2.6 |  | 0.03 | ― | 0.05～0.20 | ― | ― | 0.015～0.15 | ― | ― | ― | ― | ― |
| T19460 | TFe5 | 余量 |  | 0.01 |  | 0.01 | 4.5～5.5 |  |  | 0.002 |  |  |  | 0.002 |  | Mn≤0.01 |  | 99.9 c | ― |
| C19700 | TFe0.75 | 余量 | ― | ― | 0.05 |  | 0.30～1.20 | ― | 0.05 | 0.01～0.20 | 0.20 | 0.20 | ― | 0.10～0.40 | ― | Mn≤0.05 | Co≤ 0.05 | 99.8 | ― |
| 锌铜 | C19800 | TZn0.9-0.5 | 余量 |  |  |  |  | 0.02～0.50 |  |  | 0.10～1.0 | 0.30～1.5 | 0.10～1.0 |  | 0.01～0.10 |  |  |  | 99.8 | ― |
| 钛铜 | C19900 | TTi3.0 | 余量e | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― | Ti：2.9～3.5 | | ― | 99.5 | ― |
| C19910 | TTi3.0-0.2 | 余量e | ― | ― | ― | ― | 0.17～0.23 | ― | ― | ― | ― | ― | ― | ― | Ti:2.9～3.4 | | ― | 99.5 | ― |
| a高铜合金，指铜含量在96.0%～99.3%之间的合金。  b此值为 Ni+Co≥0.20%；Ni+Co+Fe≤0.6%。  c 此值为Cu+主元素总和。  d此值为Ni+Co。  e此值不含Ag。  f此值为表中所列杂质元素实测值总和。 | | | | | | | | | | | | | | | | | | | | |

表3 加工黄铜化学成分

(铜锌合金)

| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu | Fea | Pb | Si | | Nib | B | As | Zn | Cu+所列  元素总和 | 其他 |
| 普  通  黄  铜 | T20800 | H96 | 95.0～97.0 | 0.10 | 0.03 | ― | | 0.5 | ― | ― | 余量 | 99.8 | ― |
| C21000 | H95 | 94.0～96.0 | 0.05 | 0.05 | ― | | 0.5 | ― | ― | 余量 | 99.8 | ― |
| C22000 | H90 | 89.0～91.0 | 0.05 | 0.05 | ― | | 0.5 | ― | ― | 余量 | 99.8 | ― |
| C23000 | H85 | 84.0～86.0 | 0.05 | 0.05 | ― | | 0.5 | ― | ― | 余量 | 99.8 | ― |
| C24000 | H80c | 78.5～81.5 | 0.05 | 0.05 | ― | | 0.5 | ― | ― | 余量 | 99.8 | ― |
| T26100 | H70 c | 68.5～71.5 | 0.10 | 0.03 | ― | | 0.5 | ― | ― | 余量 | 99.8 | ― |
| T26300 | H68 | 67.0～70.0 | 0.10 | 0.03 | ― | | 0.5 | ― | ― | 余量 | 99.8 | ― |
| C26800 | H66 | 64.0～68.5 | 0.05 | 0.09 | ― | | 0.5 | ― | ― | 余量 | 99.7 | ― |
| C27000 | H65 | 63.0～68.5 | 0.07 | 0.09 | ― | | 0.5 | ― | ― | 余量 | 99.7 | ― |
| T27300 | H63 | 62.0～65.0 | 0.15 | 0.08 | ― | | 0.5 | ― | ― | 余量 | 99.7 | ― |
| C27450 | H62.5 | 60.0～65.0d | 0.35 | 0.25 | ― | | 0.5 | ― | ― | 余量 | 99.5 | ― |
| T27600 | H62 | 60.5～63.5 | 0.15 | 0.08 | ― | | 0.5 | ― | ― | 余量 | 99.7 | ― |
| T27800 | H60 | 59.0～61.5 | 0.15 | 0.08 | Sn≤0.02 | 0.02 | |  |  | 余量 | 99.8 | ― |
| T28200 | H59 | 57.0～60.0 | 0.3 | 0.5 | ― | | 0.5 | ― | ― | 余量 | 99.8 | ― |
| T28400 | H58 | 57.0～59.0d | 0.3 | 0.2 | Sn≤0.3 | | 0.3 | Al≤0.05 | ― | 余量 | 99.8 | ― |
| 硼砷铬  黄铜 | T22100 | HCr90-0.3 | 90.0～91.0 | 0.05 | 0.02 | Cr:0.2～0.4 | | ― | ― | ― | 余量 | 99.5e | ― |
| T22130 | HB90-0.1 | 89.0～91.0 | 0.02 | 0.02 | 0.5 | | ― | 0.05～0.3 | ― | 余量 | 99.5e | ― |
| T23030 | HAs85-0.05 | 84.0～86.0 | 0.10 | 0.03 | ― | | 0.5 | ― | 0.02～0.08 | 余量 | 99.8 | ― |
| C26130 | HAs70-0.05 | 68.5～71.5 | 0.05 | 0.05 | ― | | ― | ― | 0.02～0.08 | 余量 | 99.7 | ― |
| T26330 | HAs68-0.04 | 67.0～70.0 | 0.10 | 0.03 | ― | | 0.5 | ― | 0.03～0.06 | 余量 | 99.8 | ― |
| T27010 | HAs65-0.04 | 63.0～68.5 | 0.07 | 0.09 | ― | | 0.5 | ― | 0.02～0.06 | 余量 | 99.7 | ― |
| T27350 | HAs63-0.04 | 62.0～65.0 | 0.15 | 0.08 | ― | | 0.5 | ― | 0.02～0.06 | 余量 | 99.7 | ― |
| T27370 | HAs63-0.1 | 61.5～63.5 | 0.1 | 0.2 | Sn≤0.1 | | 0.3 | Mn≤0.1 Al≤0.05 | 0.02～0.15 | 余量 | 99.9 | P+Mn+S+Bi+Sb+Cr+B+Cd+Si≤0.2 |
| T27610 | HAs62-0.04 | 60.5～63.5 | 0.15 | 0.08 | ― | | 0.5 | ― | 0.02～0.06 | 余量 | 99.7 | ― |

表3（续） 加工黄铜化学成分

（铜锌铅合金）

| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu | Fea | Pb | Al | Mn | Sn | As | Nib | Zn | Cu+所列元素总和 | 其他 |
| 铅黄铜 | C31400 | HPb89-2 | 87.5～90.5 | 0.10 | 1.3～2.5 | ― |  | ― | ― | 0.7 | 余量 | 99.6 | ― |
| C33000 | HPb66-0.5 | 65.0～68.0 | 0.07 | 0.25～0.7 | ― | ― | ― | ― |  | 余量 | 99.6 | ― |
| T33510 | HPb65-1.5 | 64.0～66.0 | 0.3 | 1.2～1.7 | 0.8～1 | 0.1 | 0.3 | 0.02～0.15 | 0.2 | 余量 | 99.8 | P+S+Bi+Sb+Cr+B+Cd+Si≤0.2 |
| T34700 | HPb63-3 | 62.0～65.0 | 0.10 | 2.4～3.0 | ― | ― | ― | ― | 0.5 | 余量 | 99.8 | ― |
| T34900 | HPb63-0.1 | 61.5～63.5 | 0.15 | 0.05～0.3 | ― | ― | ― | ― | 0.5 | 余量 | 99.5e | ― |
| T34750 | HPb63-1.5 | 62.0～64.0 | 0.3 | 1.2～1.6 | 0.5～0.7 | 0.1 | 0.3 | 0.02～0.15 | 0.2 | 余量 | 99.8 | P+S+Bi+Sb+Cr+B+Cd+Si≤0.2 |
| T34760 | HPb63-1.5-0.6 | 62.0～63.6 | 0.3 | 1.4～1.6 | 0.5～0.7 | 0.1 | 0.3 | 0.09～0.13 | 0.2 | 余量 | 99.8 | Bi+Sb+Cd+S≤0.2 |
| T34770 | HPb63-1-0.6 | 62.0～63.6 | 0.3 | 0.8～1.6 | 0.5～0.7 | Mn≤0.1  P≤0.01 | Sn≤0.3,Si≤0.02 Sb:0.008～0.02 | 0.09～0.13 | 0.2 | 余量 | 99.8 | Bi+Cd+S≤0.2 |
| T35100 | HPb62-0.8 | 60.0～63.0 | 0.2 | 0.5～1.2 | ― | ― | ― | ― | 0.5 | 余量 | 99.5 | ― |
| T35200 | HPb62-1-0.6 | 61.0～62.5 | 0.3 | 0.8～1.2 | 0.6～0.7 | Mn≤0.1  P≤0.01 | Sn≤0.3,Si≤0.02 Sb:0.03～0.06 | 0.04 | 0.2 | 余量 | 99.8 | Bi+Cd+S≤0.2 |
| C35300 | HPb62-2 | 60.0～63.0 | 0.15 | 1.5～2.5 | ― | ― | ― | ― | ― | 余量 | 99.5 | ― |
| C36000 | HPb62-3 | 60.0～63.0 | 0.35 | 2.5～3.0 | ― | ― | ― | ― | ― | 余量 | 99.5 | ― |
| T36210 | HPb62-2-0.1 | 61.0～63.0 | 0.1 | 1.7～2.8 | 0.05 | 0.1 | 0.1 | 0.02～0.15 | ― | 余量 | 99.8 | ― |
| T36220 | HPb61-2-1 | 59.0～62.0 | ― | 1.0～2.5 | ― | ― | 0.30～1.5 | 0.02～0.25 | ― | 余量 | 99.6 | ― |
| T36230 | HPb61-2-0.1 | 59.2～62.3 | 0.2 | 1.7～2.8 | ― | ― | 0.2 | 0.08～0.15 | ― | 余量 | 99.9 | ― |
| C37100 | HPb61-1 | 58.0～62.0 | 0.15 | 0.6～1.2 | ― | ― | ― | ― | ― | 余量 | 99.6 | ― |
| T37200 | HPb61-1.5 | 60.0-62.0 | 0.25 | 1.2-2.0 |  |  | 0.25 |  | 0.2 | 余量 | 99.8 | ― |
| T37300 | HPb61-3 | 59.0-63.0 | 0.50 | 1.8-3.7 |  |  | Fe+Sn≤1.0 |  | 0.5 | 余量 | 99.7 | ― |
| C37700 | HPb60-2 | 58.0～61.0 | 0.30 | 1.5～2.5 | ― | ― | ― | ― | ― | 余量 | 99.5 | ― |
| T37900 | HPb60-3 | 58.0～61.0 | 0.3 | 2.5～3.5 | ― | ― | 0.3 | ― | ― | 余量 | 99.5 | ― |
| T38100 | HPb59-1 | 57.0～60.0 | 0.5 | 0.8～1.9 | ― | ― | ― | ― | 0.5 | 余量 | 99.5 | ― |
| T38200 | HPb59-2 | 57.0～60.0 | 0.5 | 1.5～2.5 | ― | ― | 0.5 | ― | 0.5 | 余量 | 99.0e | ― |
| T38202 | HPb59-1.8 | 57.0～61.0 | - | 1.0～2.5 |  |  | Fe+Sn≤1.0 |  | 0.5 | 余量 | 99.7 | ― |
| T38208 | HPb59-2.8 | 57.0～61.0 | 0.50 | 1.8～3.7 |  |  | Fe+Sn≤1.0 |  | 0.5 | 余量 | 99.7 | ― |
| T38210 | HPb58-2 | 57.0～59.0 | 0.5 | 1.5～2.5 | ― | ― | 0.5 | ― | 0.5 | 余量 | 99.0e | ― |
| T38300 | HPb59-3 | 57.5～59.5 | 0.50 | 2.0～3.0 | ― | ― | ― | ― | 0.5 | 余量 | 99.3 | ― |
| T38310 | HPb58-3 | 57.0～59.0 | 0.5 | 2.5~3.5 | ― | ― | 0.5 | ― | 0.5 | 余量 | 99.0e | ― |
| T38400 | HPb57-4 | 56.0～58.0 | 0.5 | 3.5～4.5 | ― | ― | 0.5 | ― | 0.5 | 余量 | 99.8 | ― |
| T38410 | HPb57-3 | 56.0～58.0 | 0.50 | 2.5～3.5 | ― | ― | ― | ― | 0.5 | 余量 | 99.7e | ― |

表3（续）　加工黄铜化学成分

| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu | Te | B | Si | As | Bi | Cd | Sn | P | | Nib | Mn | Fea | Pb | Zn | Cu+所列元素总和 | 其他 |
| 锡  黄  铜 | T41900 | HSn90-1 | 88.0～91.0 | ― | ― | ― | ― | ― | ― | 0.25～0.75 | ― | | 0.5 | ― | 0.10 | 0.03 | 余量 | 99.8e | ― |
| C41125 | HSn88-7 | 86.5～90.5 |  |  |  |  |  |  | 0.50～0.9 | 0.06 | | 0.8 |  | 0.03 | 0.05 | 余量 | 99.7 | ― |
| C42200 | HSn88-1 | 86.0～89.0 | ― | ― | ― | ― | ― | ― | 0.8～1.4 | 0.35 | | ― | ― | 0.05 | 0.05 | 余量 | 99.8 | ― |
| C42500 | HSn88-2 | 87.0～90.0 | ― | ― | ― | ― | ― | ― | 1.5～3.0 | 0.35 | | ― | ― | 0.05 | 0.05 | 余量 | 99.8 | ― |
| C44250 | HSn75-1 | 73.0～76.0 | ― | ― | ― | ― | ― | ― | 0.50～1.5 | 0.10 | | 0.20 | ― | 0.2 | 0.07 | 余量 | 99.6 | ― |
| C44300 | HSn72-1 | 70.0～73.0 | ― | ― | ― | 0.02～0.06 | ― | ― | 0.8～1.2f | ― | | ― | ― | 0.06 | 0.07 | 余量 | 99.6 | ― |
| C44400 | HSn71-1-0.06 | 70.0～73.0 |  |  |  |  |  |  | 0.8～1.2f | Sb:0.02～0.10 | | |  | 0.06 | 0.07 | 余量 | 99.6 | ― |
| C44500 | HSn71-1 | 70.0～73.0 | ― | ― | ― | ― | ― | ― | 0.8～1.2 | P或As:0.02～0.10 | | | ― | 0.06 | 0.07 | 余量 | 99.6 |  |
| T45000 | HSn70-1 | 69.0～71.0 | ― | ― | ― | 0.03～0.06 | ― | ― | 0.8～1.3 | ― | 0.5 | | ― | 0.10 | 0.05 | 余量 | 99.8 | ― |
| T45010 | HSn70-1-0.01 | 69.0～71.0 | ― | 0.0015～0.02 | ― | 0.03～0.06 | ― | ― | 0.8～1.3 | ― | ― | | ― | 0.10 | 0.05 | 余量 | 99.8 | ― |
| T45020 | HSn70-1-0.01-0.04 | 69.0～71.0 | ― | 0.0015～0.02 | ― | 0.03～0.06 | ― | ― | 0.8～1.3 | ― | 0.05～1.00 | | 0.02～2.00 | 0.10 | 0.05 | 余量 | 99.8 | ― |
| T46100 | HSn65-0.03 | 63.5～68.0 | ― | ― | ― | ― | ― | ― | 0.01～0.2 | 0.01～0.07 | ― | | ― | 0.05 | 0.03 | 余量 | 99.8 | ― |
| T46300 | HSn62-1 | 61.0～63.0 | ― | ― | ― | ― | ― | ― | 0.7～1.1 | ― | 0.5 | | ― | 0.10 | 0.10 | 余量 | 99.9 | ― |
| T46410 | HSn60-1 | 59.0～61.0 | ― | ― | ― | ― | ― | ― | 1.0～1.5 | ― | 0.5 | | ― | 0.10 | 0.30 | 余量 | 99.4 | ― |
| T46420 | HSn60-0.4-0.2 | 58.0～61.0 | Al≤0.1 | Mg:0.03～0.2 | 0.01～0.1 | 0.01～0.05 | ― | ― | 0.2～0.6 | 0.05～0.25 | 0.2 | | ― | - | 0.1～0.2 | 余量 | 99.8 | Bi+Sb+Cd+S≤0.2 |
| T46440 | HSn60-1-0.04 | 59.0～62.0 | ― | ― | ― | 0.02～0.06 | ― | ― | 0.5～1.0 | ― | ― | | ― | ≤0.1 | 0.2 | 余量 | 99.8 |
| C46400 | HSn60-0.8 | 59.0～62.0 | ― | ― | ― |  | - | ― | 0.50～1.0 | ― | ― | | ― | 0.10 | 0.20 | 余量 | 99.7 | ― |
| C46500 | HSn60-0.8-0.04 | 59.0～62.0 | ― | ― | ― | 0.02～0.06 | ― | ― | 0.50～1.0 | ― | ― | | ― | 0.10 | 0.20 | 余量 | 99.7 | ― |
| C48500 | HSn61-0.8-1.8 | 59.0～62.0 | ― | ― | ― | ― | ― | ― | 0.50～1.0 | ― | ― | | ― | 0.10 | 1.3～2.2 | 余量 | 99.7 | ― |
| 铋  黄  铜 | T49210 | HBi58-1.5 | 57.0～59.0 |  |  | ― |  | 0.5～2.5 | 0.0075 | 0.5 | 0.15 |  | |  | 0.5 | 0.01 | 余量 | 99.7e | ― |
| T49230 | HBi60-2 | 59.0～62.0 |  |  | ― |  | 2.0～3.5 | 0.01 | 0.3 | ― |  | |  | 0.2 | 0.1 | 余量 | 99.5 e | ― |
| T49240 | HBi60-1.3 | 58.0～62.0 |  |  | ― |  | 0.3～2.3 | 0.01 | 0.05～1.2 g | ― |  | |  | 0.1 | 0.2 | 余量 | 99.7e | ― |
| C49260 | HBi60-1.0-0.05 | 58.0～63.0 |  |  | 0.10 |  | 0.50～1.8 | 0.001 | 0.50 | 0.05～0.15 |  | |  | 0.50 | 0.09 | 余量 | 99.5 | ― |

（铜锌锡合金、复杂黄铜）

表3（续）　加工黄铜化学成分

| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu | Te | Al | Si | As | Bi | Cd | Sn | P | Nib | Mn | Feb | Pb | Zn | Cu+所列元素总和 | 其他 |
| 铋  黄  铜 | T49310 | HBi60-0.5-0.01 | 58.5～61.5 | 0.010～  0.015 | ― | ― | 0.01 | 0.45～0.65 | 0.01 | ― | ― | ― | ― | ― | 0.1 | 余量 | 99.5e |  |
| T49320 | HBi60-0.8-0.01 | 58.5～61.5 | 0.010～0.015 | ― | ― | 0.01 | 0.70～0.95 | 0.01 | ― | ― | ― | ― | ― | 0.1 | 余量 | 99.5e | ― |
| T49330 | HBi60-1.1-0.01 | 58.5～61.5 | 0.010～0.015 | ― | ― | 0.01 | 1.00～1.25 | 0.01 | ― | ― | ― | ― | ― | 0.1 | 余量 | 99.5e | ― |
| C49340 | HBi62-1.4-1 | 60.0～63.0d | ― | ― | 0.10 | ― | 0.50～2.2 | 0.001 | 0.50～1.5 | 0.05～0.15 | ― | ― | 0.12 | 0.09 | 余量 | 99.5 | ― |
| C49350 | HBi62-1 | 61.0～63.0 | Sb:0.02～0.10 | ― | 0.30 | ― | 0.50～2.5 | ― | 1.5～3.0 | 0.04～0.15 | ― | ― | ― | 0.09 | 余量 | 99.5 | ― |
| T49360 | HBi59-1 | 58.0～60.0 | ― | ― | ― | ― | 0.8～2.0 | 0.01 | 0.2 | ― | ― | ― | 0.2 | 0.1 | 余量 | 99.5e | ― |
| 锰  黄  铜 | T67100 | HMn64-8-5-1.5 | 63.0～66.0 | ― | 4.5～6.0 | 1.0～2.0 | ― | ― | ― | 0.5 | ― | 0.5 | 7.0～8.0 | 0.5～1.5 | 0.3～0.8 | 余量 | 99.0 e | ― |
| T67200 | HMn62-3-3-0.7 | 60.0～63.0 | ― | 2.4～3.4 | 0.5～1.5 | ― | ― | ― | 0.1 | ― | 0.5 | 2.7～3.7 | 0.1 | 0.05 | 余量 | 99.0 | ― |
| T67210 | HMn61-2-1-0.5 | 60.0～62.0 | ― | 0.5-1.5 | 0.3～1.0 | ― | ― | ― | - | ― | 0.2 | 1.0-2.5 | 0.35 | 0.1 | 余量 | 99.2e | ― |
| T67211 | HMn61-2-1-1 | 60.0～63.0 | ― | 0.1 | 0.5～1.5 | ― | ― | ― | 0.2 | ― | 0.1-1.0 | 1.5-3.0 | 0.3 | 0.2-1.0 | 余量 | 99.4e | ― |
| T67212 | HMn61-3-1 | 60.0～63.0 | ― | 0.25 | 0.6～1.5 | ― | ― | ― | 0.25 | ― | 0.25 | 2.25～3.0 | 0.1 | 0.2 | 余量 | 99.5e | ― |
| C67300 | HMn60-3-1.7-1 | 58.0～63.0d | ― | 0.25 | 0.50～1.5 | ― | ― | ― | 0.30 | ― | 0.25 | 2.0～3.5 | 0.50 | 0.4～3.0 | 余量n | 99.5e | ― |
| T67300 | HMn62-3-3-1 | 59.0～65.0 | Cr:0.07～0.27 | 1.7～3.7 | 0.5～1.3 | ― | ― | ― | ― | ― | 0.2～0.6 | 2.2～3.8 | 0.6 | 0.18 | 余量 | 99.2e | ― |
| T67310 | HMn62-13g | 59.0～65.0 | ― | Ti+Al:  0.5～2.5 | 0.05 | Sb:0.005 | 0.005 | B:0.001 | ― | 0.005 | 0.05～0.5 h | 10～15 | 0.05 | 0.03 | 余量 | 99.8e | ― |
| T67320 | HMn55-3-1 i | 53.0～58.0 | ― | ― | ― | ― | ― | ― | ― | ― | ― | 3.0～4.0 | 0.5～1.5 | 0.5 | 余量 | 99.0 | ― |
| T67330 | HMn59-2-1.5-0.5 | 58.0～59.0 | ― | 1.4～1.7 | 0.6～0.9 | ― | ― | ― | ― | ― | ― | 1.8～2.2 | 0.35～0.65 | 0.3～0.6 | 余量 | 99.7 | ― |
| T67400 | HMn58-2i | 57.0～60.0 | ― | ― | ― | ― | ― | ― | ― | ― | 0.5 | 1.0～2.0 | 1.0 | 0.1 | 余量 | 99.9 | ― |
| C67400 | HMn58-3-1-1 | 57.0～60.0d | ― | 0.5～2.0 | 0.5～1.5 | ― | ― | ― | 0.3 | ― | 0.25h | 2.0-3.5 | 0.35 | 0.5 | 余量j | 99.5 | ― |
| T67401 | HMn58-2-1-0.5 | 56.0～60.5 | ― | 0.2～2.0 | ― | ― | ― | ― | ― | ― | ― | 0.5-2.5 | 0.10-1.0 | 0.5 | 余量 | 99.7 | ― |
| T67402 | HMn58-2-1.7-0.5 | 57.0～59.0 | ― | 1.3～2.3 | 0.3～1.3 | ― | ― | ― | 0.4 | ― | 1.0 | 1.5～3.0 | 1.0 | 0.2～0.8 | 余量 | 99.7 | ― |
| T67403 | HMn58-3-2-0.8 | 57.0～60.0 | ― | 1.5-2.0 | 0.6-0.9 | ― | ― | ― | ― | ― | ― | 2.0-4.0 | 0.25 | 0.3～0.6 | 余量 | 99.6e | ― |
| T67410 | HMn57-3-1 i | 55.0～58.5 | ― | 0.5～1.5 | ― | ― | ― | ― | ― | ― | 0.5 | 2.5～3.5 | 1.0 | 0.2 | 余量 | 99.9 | ― |
| T67420 | HMn57-2-2-0.5 | 56.5～58.5 | ― | 1.3～2.1 | 0.4～0.8 | ― | ― | ― | 0.5 | ― | 0.5 | 1.5～2.3 | 0.3～0.8 | 0.3～0.8 | 余量 | 99.0e | ― |
| T67422 | HMn57-2-2-1 | 56.0～58.0 | ― | 0.5 | 0.5～1.5 | ― | ― | ― | 0.25 | ― | 1.5～3.0 | 1.0～2.5 | 0.5 | 0.2～0.8 | 余量 | 99.0e | ― |

（复杂黄铜）

表3（续） 加工黄铜化学成分

（复杂黄铜）

| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu | Fea | Pb | Al | Mn | P | Sb | Nib | Si | Cd | Sn | Zn | Cu+所列元素总和 | 其他 |
| 铁  黄  铜 | T67600 | HFe59-1-1 | 57.0～60.0 | 0.6～1.2 | 0.20 | 0.1～0.5 | 0.5～0.8 | ― | ― | 0.5 | ― | ― | 0.3～0.7 | 余量 | 99.7 e | ― |
| T67610 | HFe58-1-1 | 56.0～58.0 | 0.7～1.3 | 0.7～1.3 | ― | ― | ― | ― | 0.5 | ― | ― | ― | 余量 | 99.5e | ― |
| 锑黄铜 | T68200 | HSb61-0.8-0.5 | 59.0～63.0 | 0.2 | 0.2 | ― | ― | ― | 0.4～1.2 | Ni+Sn+B:  0.05～1.2 | 0.3～1.0 | 0.01 | ― | 余量 | 99.5 e | ― |
| T68210 | HSb60-0.9 | 58.0～62.0 | ― | 0.2 | ― | ― | ― | 0.3～1.5 | Ni+Fe+B:  0.05～0.9 | ― | 0.01 | ― | 余量 | 99.7e | ― |
| 硅  黄  铜 | T68310 | HSi80-3 | 79.0～81.0 | 0.6 | 0.1 | ― | ― | ― | ― | 0.5 | 2.5～4.0 | ― | ― | 余量 | 99.2 | ― |
| T68315 | HSi76-3-0.06 | 75.0～77.0 | 0.3 | 0.1 | 0.05 | 0.05 | 0.02～0.1 | ― | 0.2 | 2.7～3.5 | ― | ≤0.3 | 余量 | 99.8 | Bi+Sb+Cd+S≤0.2 |
| T68320 | HSi75-3 | 73.0～77.0 | 0.1 | 0.1 | ― | 0.1 | 0.04～0.15 | ― | 0.1 | 2.7～3.4 | 0.01 | 0.2 | 余量 | 99.5e | ― |
| T68341 | HSi68-1.5 | 66.0-70.0 | 0.15 | 0.1 | Bi≤0.01 | AS≤0.1 | 0.05-0.40 | - | 0.3 | 1.0～2.0 |  | 0.6 | 余量k | 99.7 | ― |
| T68342 | HSi68-1 | 66.0～68.0 | 0.06～0.1 | 0.06～0.09 | 0.05 | ― | As:0.03～0.8 | Mg≤0.03 | 0.02～0.04 | 0.8～2.0 | ― | 0.05～0.1 | 余量 | 99.8 | P+Mn+S+Bi+Sb+Cr+B+Cd≤0.2 |
| C68350 | HSi62-0.6 | 59.0～64.0d | 0.15 | 0.09 | 0.30 | ― | 0.05～0.40 | ― | 0.2h | 0.30～1.0 | ― | 0.6 | 余量 | 99.5 | ― |
| T68360 | HSi61-0.6 | 59.0～63.0 | 0.15 | 0.2 | ― | ― | 0.03～0.12 | ― | 0.05～  1.0 g | 0.4～1.0 | 0.01 | ― | 余量 | 99.7 e | ― |
| 铝  黄  铜 | C68700 | HAl77-2 | 76.0～79.0d | 0.06 | 0.07 | 1.8～2.5 | ― | As:0.02～0.06 | ― | ― | ― | ― | ― | 余量 | 99.5 | ― |
| T68900 | HAl67-2.5 | 66.0～68.0 | 0.6 | 0.5 | 2.0～3.0 | ― | ― | ― | 0.5 | ― | ― | ― | 余量 | 99.6 | ― |
| T69200 | HAl66-6-3-2 | 64.0～68.0 | 2.0～4.0 | 0.5 | 6.0～7.0 | 1.5～2.5 | ― | ― | 0.5 | ― | ― | ― | 余量 | 99.0 | ― |
| T69210 | HAl64-5-4-2 | 63.0～66.0 | 1.8～3.0 | 0.2～1.0 | 4.0～6.0 | 3.0～5.0 | ― | ― | ― | 0.5 | ― | 0.3 | 余量 | 99.5 | ― |
| T69215 | HAl63-0.6-0.2 | 62.2～64.2 | 0.3 | 0.2～0.3 | 0.5～0.7 | 0.1 | As:0.09～0.13 | Sb:0.008  ～0.02 | 0.2 | 0.02 | P≤0.01 | 0.3 | 余量 | 99.8 | Bi+Cd+S≤0.2 |
| T69220 | HAl61-4-3-1.5 | 59.0～62.0 | 0.5～1.3 | ― | 3.5～4.5 | ― | Co:1.0～2.0 | ― | 2.5～4.0 | 0.5～1.5 |  | 0.2～1.0 | 余量 | 99.7 | ― |
| T69225 | HAl61-1-1 | 余量 | 0.10～0.25 | 0.75～1.25 | 1.0～1.4 | 0.02～0.10 | ― | ― | 0.02～0.10 | ― | ― | 0.05～0.25 | 35.0～38.0 | 99.7 | ― |
| T69230 | HAl61-4-3-1 | 59.0～62.0 | 0.3～1.3 | ― | 3.5～4.5 | ― | Co:0.5～1.0 | ― | 2.5～4.0 | 0.5～1.5 | ― | ― | 余量 | 99.3 | ― |
| T69240 | HAl60-1-1 | 58.0～61.0 | 0.70～1.50 | 0.40 | 0.70～1.50 | 0.1～0.6 | ― | ― | ― | ― | ― | ― | 余量 | 99.7 | ― |
| T69243 | HAl60-4-3-1 | 57.0～62.0 | 0.5～1.3 | 0.80 | 3.5～4.5 | 0.5～0.8 | Co:1.0～2.0 | ― | 2.5～4.0 | 0.5～1.5 | ― |  | 余量 | 99.7 | ― |
| T69244 | HAl60-5-2-2 | 57.0～62.0 | — | ― | 4.3～5.2 | ― | Ti:1.2～2.0 | ― | 2.0～3.0 | — | ― | ― | 余量 | 99.7 | ― |
| T69250 | HAl59-3-2 | 57.0～60.0 | 0.50 | 0.10 | 2.5～3.5 | ― | ― | ― | 2.0～3.0 | ― | ― | ― | 余量 | 99.7 | ― |
| T69260 | HAl58-4-4-1 | 55.0～61.0 | 0.5～1.1 | ― | 3.5～4.5 | 1.2～2.0 | ― | ― | 3.6～4.5 | 0.7～1.3 | ― | — | 余量 | 99.8 | ― |

表3（续） 加工黄铜化学成分

（复杂黄铜）

| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu | Fea | Pb | Al | Mn | As | Mg | Cd | Mn | Nib | Si | Co | Sn | Zn | Cu+所列元素总和 | 其他 |
| 镁  黄 铜 | T69800 | HMg60-1 | 59.0～61.0 | 0.2 | 0.1 | ― | ― | Bi:0.3～0.8 | 0.5～2.0 | 0.01 | ― | ― | ― | ― | 0.3 | 余量 | 99.5e | ― |
| 镍  黄  铜 | T69900 | HNi65-5 | 64.0～67.0 | 0.15 | 0.03 | ― | ― | ― | ― | ― | ― | 5.0～6.5 | ― | ― | ― | 余量 | 99.7e | ― |
| T69910 | HNi56-3 | 54.0～58.0 | 0.15～0.5 | 0.2 | 0.3～0.5 | ― | ― | ― | ― | ― | 2.0～3.0 | ― | ― | ― | 余量 | 99.6 | ― |
| T69920 | HNi55-7-4-2 | 54.0～56.0 | 0.5～1.0 | ― | 3.0～4.5 | ― | ― | ― | ― | — | 6.0～ 7.5 | 2.0～2.5 | - | — | 余量 | 99.8 | ― |
| a抗磁用黄铜的铁的质量分数不大于0.030%。  b无对应国外牌号的黄铜（镍为主成分者除外）的镍含量计入铜中。  c特殊用途的H70、H80的杂质最大值为：Fe：0.07%、Sb：0.002%、P：0.005%、As：0.005%、S：0.002%、杂质总和为0.20%。  d此值为Cu+Ag。  e 此值为Cu+主元素之和。  f此牌号为管材产品时，Sn含量最小值为0.9%。  g此值为Sb+ B+ Ni+Sn。  h此值为Ni+Co。  i供异型铸造和热锻用的HMn57-3-1、 HMn58-2的磷的质量分数不大于0.03%。供特殊使用的HMn55-3-1的铝的质量分数不大于0.1%。  j此值为该元素为实测值。  k此值为100%减去表中所列元素实测值所得。 | | | | | | | | | | | | | | | | | | |

表4　 加工青铜化学成分

（铜锡、铜锡磷、铜锡铅合金）

| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu | Sn | P | Fe | Pb | Al | B | | Ti | | Mn | Si | Ni | Zn | | Cu+所列元素总和 | 其他 |
| 锡  青  铜b | T50110 | QSn0.4 | 余量 | 0.15～0.55 | 0.001 | ― | ― | ― | ― | ― | | | ― | ― | O≤ 0.035 | ― | | 99.9c | ― |
| T50120 | QSn0.6 | 余量 | 0.4～0.8 | 0.01 | 0.020 | ― | ― | ― | ― | | | ― | ― | ― | ― | | 99.9 c | ― |
| T50130 | QSn0.9 | 余量 | 0.85～1.05 | 0.03 | 0.05 | ― | ― | ― | ― | | | ― | ― | ― | ― | | 99.9 c | ― |
| T50300 | QSn0.5-0.025 | 余量 | 0.25～0.6 | 0.015～0.035 | 0.010 | ― | ― | ― | ― | | | ― | ― | ― | ― | | 99.9 c | ― |
| T50400 | QSn1-0.5-0.5 | 余量 | 0.9～1.2 | 0.09 | ― | 0.01 | 0.01 | ― | | ― | | 0.3～0.6 | 0.3～0.6 | ― | | ― | 99.9 c | S≤0.005 |
| C50500 | QSn1.5-0.2 | 余量 | 1.0～1.7 | 0.03～0.35 | 0.10 | 0.05 | ― | ― | ― | | ― | | ― | ― | 0.30 | | 99.5 | ― |
| T50501 | QSn1.6 | 余量 | 1.0～1.7 | 0.15 | 0.10 | 0.02 |  |  |  | |  | |  |  | 0.20 | | 99.5 | ― |
| C50700 | QSn1.8 | 余量 | 1.5～2.0 | 0.30 | 0.10 | 0.05 | ― | ― | ― | | ― | | ― | ― | ― | | 99.5 | ― |
| T50701 | QSn2-0.2 | 余量 | 1.7～2.3 | 0.15 | 0.10 | 0.02 |  |  |  | |  | |  | 0.10～0.40 | 0.20 | | 99.5 | ― |
| C50715 | QSn2.0-0.1-0.03 | 余量 | 1.7～2.3 | 0.025～0.04 | 0.05～0.15 | 0.02 |  |  |  | | |  |  |  |  | | 99.5c | ― |
| T50800 | QSn4-3 | 余量 | 3.5～4.5 | 0.03 | 0.05 | 0.02 | 0.002 | ― | ― | | | ― | ― | ― | 2.7～3.3 | | 99.8 c | ― |
| C51000 | QSn5-0.2 | 余量 | 4.2～5.8 | 0.03～0.35 | 0.10 | 0.05 | ― | ― | ― | | ― | | ― | ― | 0.30 | | 99.5 | ― |
| T51010 | QSn5-0.3 | 余量 | 4.5～5.5 | 0.01～0.40 | 0.1 | 0.02 | ― | ― | ― | | | ― | ― | 0.2 | 0.2 | | 99.5 | ― |
| C51100 | QSn4-0.3 | 余量 | 3.5～4.9 | 0.03～0.35 | 0.10 | 0.05 | ― | ― | ― | | ― | | ― | ― | 0.30 | | 99.5 | ― |
| C51180 | QSn4-0.15-0.10-0.03 | 余量 | 3.5～4.9 | 0.01～0.35 | 0.05～0.20 | 0.05 | ― | ― | ― | | ― | | ― | 0.05～  0.20 | 0.30 | | 99.5 | ― |
| T51500 | QSn6-0.05 | 余量 | 6.0～7.0 | 0.05 | 0.10 | ― | ― | ― | ― | | | ― | ― | ― | 0.05 | | 99.8 c | Ag:0.05～0.12 |
| T51510 | QSn6.5-0.1 | 余量 | 6.0～7.0 | 0.10～0.25 | 0.05 | 0.02 | 0.002 | ― | ― | | | ― | ― | ― | 0.3 | | 99.6 c | ― |
| T51520 | QSn6.5-0.4 | 余量 | 6.0～7.0 | 0.26～0.40 | 0.02 | 0.02 | 0.002 | ― | ― | | | ― | ― | ― | 0.3 | | 99.6 c | ― |
| T51530 | QSn7-0.2 | 余量 | 6.0～8.0 | 0.10～0.25 | 0.05 | 0.02 | 0.01 | ― | ― | | | ― | ― | ― | 0.3 | | 99.5 | ― |
| C51900 | QSn6.5-0.2 | 余量 | 5.0～7.0 | 0.03～0.35 | 0.10 | 0.05 |  | ― | ― | | ― | | ― | - | 0.30 | | 99.5 | ― |
| C52100 | QSn8-0.3 | 余量 | 7.0～9.0 | 0.03～0.35 | 0.10 | 0.05 | ― | ― | ― | | ― | | ― | ― | 0.20 | | 99.5 | ― |
| C52400 | QSn10-0.3 | 余量 | 9.0～11.0 | 0.03～0.35 | 0.10 | 0.05 | ― | ― | ― | | ― | | `― | ― | 0.20 | | 99.5 | ― |
| T52500 | QSn15-1-1 | 余量 | 12～18 | 0.5 | 0.1～1.0 | ― | ― | 0.002～1.2 | | 0.002 | | 0.6 | ― | ― | 0.5～2.0 | | 99.0 c | ― |
| T53300 | QSn4-4-2.5 | 余量 | 3.0～5.0 | 0.03 | 0.05 | 1.5～3.5 | 0.002 | ― | ― | | | ― | ― | ― | 3.0～5.0 | | 99.8 c | ― |
| C53400 | QSn4-3.5-3-0.3 | 余量 | 3.5～5.8 | 0.03～0.35 | 0.10 | 0.8～1.2 |  | ― | ― | | | ― | ― | ― | 0.30 | | 99.5 | ― |
| T53500 | QSn4-4-4 | 余量 | 3.0～5.0 | 0.03 | 0.05 | 3.0～4.0 | 0.002 | ― | ― | | | ― | ― | ― | 3.0～5.0 | | 99.8 c | ― |

表4（续） 加工青铜化学成分

（铜铬、铜锰、铜铝合金）

| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu | Al | Fe | Ni | Mn | P | Zn | Sn | Si | Pb | Asa | Mg | Sba | Bia | S | Cu+所列  元素总和 | 其他 |
| 铬  青铜 | T55600 | QCr4.5-2.5-0.6 | 余量 | Cr:3.5～5.5 | 0.05 | 0.2～1.0 | 0.5～2.0 | 0.005 | 0.05 | ― | ― | ― | Ti:1.5～3.5 | ― | ― | ― | ― | 99.0 c | ― |
| 锰  青  铜 | T56100 | QMn1.5 | 余量 | 0.07 | 0.1 | 0.1 | 1.20～1.80 | ― | ― | 0.05 | 0.1 | 0.01 | ― | ― | 0.005 | 0.002 | 0.01 | 99.7 c | Cr≤0.1 |
| T56200 | QMn2 | 余量 | 0.07 | 0.1 | ― | 1.5～2.5 | ― | ― | 0.05 | 0.1 | 0.01 | 0.01 | ― | 0.05 | 0.002 | ― | 99.5 c | ― |
| T56300 | QMn5 | 余量 | ― | 0.35 | ― | 4.5～5.5 | 0.01 | 0.4 | 0.1 | 0.1 | 0.03 | ― | ― | 0.002 | ― | ― | 99.1 c | ― |
| T56800 | QMn11-3.5-1.5 | 余量 | 2.50～4.50 | 1.00～1.60 | ― | 10.8～12.5 | 0.005 | 0.10 | ― | 0.10 | 0.005 | ― | 0.05 | 0.002 |  | 0.02 | 99.2 c | C≤0.10 |
| 铝  青  铜 | T60700 | QAl5 | 余量 | 4.0～6.0 | 0.5 | ― | 0.5 | 0.01 | 0.5 | 0.1 | 0.1 | 0.03 | ― | ― | ― | ― | ― | 98.4 c | ― |
| C60800 | QAl6 | 余量d | 5.0～6.5 | 0.10 | ― | ― | ― | ― | ― | ― | 0.10 | 0.02～0.35 | ― | ― | ― | ― | 99.5 | ― |
| C61000 | QAl7 | 余量d | 6.0～8.5 | 0.50 | ― | ― | ― | 0.20 | ― | 0.10 | 0.02 | ― | ― | ― | ― | ― | 99.5 | ― |
| T61700 | QAl9-2 | 余量 | 8.0～10.0 | 0.5 | ― | 1.5～2.5 | 0.01 | 1.0 | 0.1 | 0.1 | 0.03 | ― | ― | ― | ― | ― | 98.3 c | ― |
| T61720 | QAl9-4 | 余量 | 8.0～10.0 | 2.0～4.0 | ― | 0.5 | 0.01 | 1.0 | 0.1 | 0.1 | 0.01 | ― | ― | ― | ― | ― | 98.3 c | ― |
| T61740 | QAl9-5-1-1 | 余量 | 8.0～10.0 | 0.5～1.5 | 4.0～6.0 | 0.5～1.5 | 0.01 | 0.3 | 0.1 | 0.1 | 0.01 | 0.01 | ― | ― | ― | ― | 99.4 c | ― |
| T61760 | QAl10-3-1.5e | 余量 | 8.5～10.0 | 2.0～4.0 | ― | 1.0～2.0 | 0.01 | 0.5 | 0.1 | 0.1 | 0.03 | ― | ― | ― | ― | ― | 99.3 c | ― |
| T61780 | QAl10-4-4 f | 余量 | 9.5～11.0 | 3.5～5.5 | 3.5～5.5 | 0.3 | 0.01 | 0.5 | 0.1 | 0.1 | 0.02 | ― | ― | ― | ― | ― | 99.0 c | ― |
| T61790 | QAl10-4-4-1 | 余量 | 8.5～11.0 | 3.0～5.0 | 3.0～5.0 | 0.5～2.0 | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― | 99.2 c | ― |
| T62100 | QAl10-5-5 | 余量 | 8.0～11.0 | 4.0～6.0 | 4.0～6.0 | 0.5～2.5 | ― | 0.5 | 0.2 | 0.25 | 0.05 | ― | 0.10 | ― | ― | ― | 99.9 | ― |
| T62200 | QAl11-6-6 | 余量 | 10.0～11.5 | 5.0～6.5 | 5.0～6.5 | 0.5 | 0.1 | 0.6 | 0.2 | 0.2 | 0.05 | ― | ― | ― | ― | ― | 98.5 c | ― |
| C61300 | QAl7-3-0.4g | 余量d | 6.0～7.5 | 2.0～3.0 | 0.15h | 0.20 | 0.015 | 0.10g | 0.20～0.50 | 0.10 | 0.01 | ― | ― | ― | ― | ― | 99.5 | ― |
| C62300 | QAl9-3 | 余量d | 8.5～10.0 | 2.0～4.0 | 1.0h | 0.50 | ― | ― | 0.6 | 0.25 | — | — | ― | ― | ― | ― | 99.5 | ― |
| C62400 | QAl11-3 | 余量d | 10.0～11.5 | 2.0～4.5 | ― | 0.30 | ― | ― | 0.20 | 0.25 | ― | ― | ― | ― | ― | ― | 99.5 | ― |
| C62500 | QAl13-4 | 余量d | 12.5～13.5 | 3.5～5.5 | ― | 2.0 | ― | ― | ― | ― | ― | ― | ― | ― | ― | ― | 99.5 | ― |
| T62610 | QAl14-3 | 余量 | 13.0～16.0 | 2.0～4.0 | ― | 0.5～1.5 | ― | ― | ― | 0.04 | ― | ― | ― | ― | ― | ― | 99.5 | Co:  0.1～0.5 |
| C63000 | QAl10-5-3 | 余量 | 9.0～11.0 | 2.0～4.0 | 4.0～5.5 h | 1.5 | ― | 0.30 | 0.20 | 0.25 | — | — | ― | ― | ― | ― | 99.5 | ― |
| C63020 | QAl10-6-5 | 74.5 | 10.0～11.0 | 4.0～5.5 | 4.2～6.0 h | 1.5 | ― | 0.30 | 0.25 | ― | 0.03 | ― | ― | ― | ― | ― | 99.5 | Cr≤0.05 Co≤ 0.20 |
| C63200 | QAl9-4-4 | 余量 | 8.7～9.5 | 3.5～4.3i | 4.0～4.8hi | 1.2～2.0 | ― | ― | ― | 0.10 | 0.02 | ― | ― | ― | ― | ― | 99.5 | ― |
| T63210 | QAl9-4-1-1 | 81～88.0 | 8.5～11.0 | 3.0～5.0 | 0.50～2.0 | 0.50～2.0 | ― | ― | ― | 0.25 | ― | ― | ― | ― | ― | ― | 99.5 | ― |

表4（续）加工青铜化学成分

（铜铝、铜硅合金）

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 分类 | 代号 | 牌号 | 化学成分（质量分数%） | | | | | | | | | | | | | | | | | | | |
| Cu | Al | Fe | Ni | Mn | P | Zn | Sn | Si | Pb | As a | Mg | | Sb a | Bia | | S | | Cu+所列元素总和 | 其他 |
| 铝  青  铜 | C64200 | QAl7-2 | 余量 | 6.3～7.6 | 0.30 | 0.25 h | 0.10 | — | 0.50 | 0.20 | 1.5～2.2 | 0.05 | 0.09 | ― | ― | | ― | | ― | | 99.5 | ― |
| C64210 | QAl6.5-2 | 余量 | 6.3～7.0 | 0.30 | 0.25 h | 0.10 | — | 0.50 | 0.20 | 1.5～2.0 | 0.05 | 0.09 | ― | ― | | ― | | ― | | 99.5 | ― |
| 硅  青  铜 | C64700 | QSi0.6-2 | 余量 | ― | 0.10 | 1.6～2.2h | ― | ― | 0.50 | ― | 0.40～0.8 | 0.09 | ― | ― | | ― | ― | | ― | 99.5 | | ― |
| T64705 | QSi0.6-2.1 | 余量 | ― | 0.2 | 1.6～2.5 | 0.1 | 0.3 | ― | ― | 0.4～0.8 | 0.02 | ― | ― | | ― | ― | | ― | 99.7 | | ― |
| T64720 | QSi1-3 | 余量 | 0.02 | 0.1 | 2.4～3.4 | 0.1～0.4 | ― | 0.2 | 0.1 | 0.6～1.1 | 0.15 | ― | ― | | ― | ― | | ― | 99.5 c | | ― |
| T64730 | QSi3-1 b | 余量 | ― | 0.3 | 0.2 | 1.0～1.5 | ― | 0.5 | 0.25 | 2.7～3.5 | 0.03 | ― | ― | | ― | ― | | ― | 98.9 c | | ― |
| T64740 | QSi3.5-3-1.5 | 余量 | ― | 1.2～1.8 | 0.2 | 0.5～0.9 | 0.03 | 2.5～3.5 | 0.25 | 3.0～4.0 | 0.03 | 0.002 | ― | | 0.002 | | ― | ― | 98.9 c | | ― |
| a 砷、锑和铋可不分析，但供方必须保证不大于界限值。  b抗磁用锡青铜铁的质量分数不大于0.020%, QSi3-1铁的质量分数不大于0.030%。  c此值为Cu+主元素之和。  d此值为Cu+Ag  e非耐磨材料用QAL10-3-1.5，其锌的质量分数可达1%，但杂质总和应不大于1.25%。柴油发动机用的QAl10-3-1.5，其铝的质量分数上限可达11.0%。  f经双方协商，焊接或特殊要求的QAl10-4-4,其锌的质量分数不大于0.2%。  g当用户指定产品用于后续焊接时的QAl7-3-0.4，Cr+Cd+Zr+Zn≤0.05%。  h此值为Ni+Co。  i Fe含量不得超过Ni含量。  m此值为Cu+Sn+Fe+P。 | | | | | | | | | | | | | | | | | | | | | | |

表5 加工白铜化学成分

（铜镍合金）

| 分  类 | 代号 | 牌 号 | 化学成分（质量分数%） | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu | Ni+Co | Al | Fe | Mn | Pb | | P | S | C | Mg | Si | Zn | | Sn | Cu+所列元素总和 | 其他 |
| 普  通  白  铜 | T70110 | B0.6 | 余量 | 0.57～0.63 | ― | 0.005 | ― | 0.005 | | 0.002 | 0.005 | 0.002 | ― | 0.002 | ― | ― | | 99.9b | ― |
| T70380 | B5 | 余量 | 4.4～5.0 | ― | 0.20 | ― | 0.01 | | 0.01 | 0.01 | 0.03 | ― | ― | ― | ― | | 99.5b | ― |
| T71050 | B19c | 余量 | 18.0～20.0 | ― | 0.5 | 0.5 | 0.005 | | 0.01 | 0.01 | 0.05 | 0.05 | 0.15 | 0.3 | | ― | 98.2b | ― |
| C71100 | B23 | 余量d | 22.0～24.0 | ― | 0.10 | 0.15 | 0.05 | | ― | ― | ― | ― | ― | 0.20 | | ― | 99.5 | ― |
| T71200 | B25 | 余量 | 24.0～26.0 | ― | 0.5 | 0.5 | 0.005 | | 0.01 | 0.01 | 0.05 | 0.05 | 0.15 | 0.3 | | 0.03 | 98.2 b | ― |
| T71400 | B30 | 余量 | 29.0～33.0 | ― | 0.9 | 1.2 | 0.05 | | 0.006 | 0.01 | 0.05 | ― | 0.15 | ― | ― | | 97.7 b | ― |
| 铁  白  铜 | C70400 | BFe5-1.5-0.5 | 余量d | 4.8～6.2 | ― | 1.3～1.7 | 0.30～0.8 | 0.05 | | ― | ― | ― | ― | ― | 1.0 | | ― | 99.5 | ― |
| T70510 | BFe7-0.4-0.4 | 余量 | 6.0～7.0 | ― | 0.1～0.7 | 0.1～0.7 | 0.01 | | 0.01 | 0.01 | 0.03 | ― | 0.02 | 0.05 | | ― | 99.3 b | ― |
| T70590 | BFe10-1-1 | 余量 | 9.0～11.0 | ― | 1.0～1.5 | 0.5～1.0 | 0.02 | | 0.006 | 0.01 | 0.05 | ― | 0.15 | 0.3 | | 0.03 | 99.3 b | ― |
| C70600 | BFe10-1.4-1 | 余量d | 9.0～11.0 | ― | 1.0～1.8 | 1.0 | 0.05 | | ― | ― | ― | ― | ― | 1.0 | | ― | 99.5 | ― |
| C70610 | BFe10-1.5-1 | 余量d | 10.0～11.0 | ― | 1.0～2.0 | 0.50～1.0 | 0.01 | | ― | 0.05 | 0.05 | ― | ― | ― | | ― | 99.5 | ― |
| T70620 | BFe10-1.6-1 | 余量 | 9.0～11.0 | ― | 1.5～1.8 | 0.5～1.0 | 0.03 | | 0.02 | 0.01 | 0.05 | ― | ― | 0.20 | | ― | 99.6 b | ― |
| T70900 | BFe16-1-1-0.5 | 余量 | 15.0～18.0 | ― | 0.50～1.00 | 0.2～1.0 | 0.05 | | ― | Cr:0.30  ～0.70 | ― | ― | 0.03 | 1.0 | | ― | 98.9 b | Ti≤0.03 |
| C71500 | BFe30-0.7 | 余量d | 29.0～33.0 | ― | 0.40～1.0 | 1.0 | 0.05 | | ― | ― | ― | ― | ― | 1.0 | | ― | 99.5 | ― |
| T71510 | BFe30-1-1 | 余量 | 29.0～32.0 | ― | 0.5～1.0 | 0.5～1.2 | 0.02 | | 0.006 | 0.01 | 0.05 | ― | 0.15 | 0.3 | | 0.03 | 99.3 b | ― |
| T71520 | BFe30-2-2 | 余量 | 29.0～32.0 | ― | 1.7～2.3 | 1.5～2.5 | 0.01 | | ― | 0.03 | 0.06 | ― | ― | ― | ― | | 99.5 | ― |
| 锰  白  铜 | T71620 | BMn3-12 e | 余量 | 2.0～3.5 | 0.2 | 0.20～0.50 | 11.5～13.5 | 0.020 | | 0.005 | 0.020 | 0.05 | 0.03 | 0.1～0.3 | ― | ― | | 99.5 b | ― |
| T71660 | BMn40-1.5 e | 余量 | 39.0～41.0 | ― | 0.50 | 1.0～2.0 | 0.005 | | 0.005 | 0.02 | 0.10 | 0.05 | 0.10 | ― | ― | | 99.1 b | ― |
| T71670 | BMn43-0.5 e | 余量 | 42.0～44.0 | ― | 0.15 | 0.10～1.0 | 0.002 | | 0.002 | 0.01 | 0.10 | 0.05 | 0.10 | ― | ― | | 99.4 b | ― |
| 铝  白  铜 | T72400 | BAl6-1.5 | 余量 | 5.5～6.5 | 1.2～1.8 | 0.50 | 0.20 | 0.003 | ― | | ― | ― | ― | ― | ― | | ― | 99.6 | ― |
| T72600 | BAl13-3 | 余量 | 12.0～15.0 | 2.3～3.0 | 1.0 | 0.50 | 0.003 | 0.01 | | ― | ― | ― | ― | ― | | ― | 99.6 | ― |

表5（续） 加工白铜化学成分

（铜镍锌合金）

| 分类 | 代号 | 牌 号 | 化学成分（质量分数 %） | | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu | Ni+Co | Fe | Mn | Pb | Al | Si | P | S | C | Sn | Bia | Ti | | Sba | Zn | Cu+所列元素总和 | 杂质总和 |
| 锡  白  铜 | C72700 | BSn9-6 | 余量d | 8.5～9.5 | 0.50 | 0.05～0.30 | 0.02f |  |  |  |  |  | 5.5～6.5 |  | Mg  ≤0.15 | | Nb  ≤0.10 | 0.50 | 99.7 | ― |
| C72900 | BSn15-8 | 余量d | 14.5～15.5 | 0.50 | 0.30 | 0.02f | ― | ― | ― | ― | ― | 7.5～8.5 |  | Mg≤0.15 | | Nb≤0.10 | 0.50 | 99.7 | ― |
| C72950 | BSn21-5 | 余量d | 20.0～22.0 | 0.6 | 0.6 | 0.05 |  |  |  |  |  | 4.5～5.7 |  |  | |  |  | 99.7 | ― |
| 锌  白  铜 | C73500 | BZn18-10 | 70.5～73.5d | 16.5～19.5 | 0.25 | 0.50 | 0.09 | ― | ― | ― | ― | ― | ― | ― | ― | | ― | 余量 | 99.5 | ― |
| C74300 | BZn8-26 | 63.0～66.0d | 7.0～9.0 | 0.25 | 0.50 | 0.09 | ― | ― | ― | ― | ― | ― | ― | ― | | ― | 余量 | 99.5 | ― |
| C74500 | BZn10-25 | 63.5～66.5 d | 9.0～11.0 | 0.25 | 0.50 | 0.09g | ― | ― | ― | ― | ― | ― | ― | ― | | ― | 余量 | 99.5 | ― |
| T74600 | BZn15-20 | 62.0～65.0 | 13.5～16.5 | 0.5 | 0.3 | 0.02 | ― | 0.15 | 0.005 | 0.01 | 0.03 | Asa≤0.010 | 0.002 | Mg  ≤0.05 | | 0.002 | 余量 | 99.1 b | ― |
| C75200 | BZn18-18 | 63.0～66.5 d | 16.5～19.5 | 0.25 | 0.50 | 0.05 | ― | ― | ― | ― | ― | ― | ― | | ― | ― | 余量 | 99.5 | ― |
| T75210 | BZn18-17 | 62.0～66.0 | 16.5～19.5 | 0.25 | 0.50 | 0.03 | ― | ― | ― | ― | ― | ― | ― | | ― | ― | 余量 | 99.1 b | ― |
| T76100 | BZn9-29 | 60.0～63.0 | 7.2～10.4 | 0.3 | 0.5 | 0.03 | 0.005 | 0.15 | 0.005 | 0.005 | 0.03 | 0.08 | 0.002 | 0.005 | | 0.002 | 余量 | 99.5 | 0.8h |
| T76200 | BZn12-24 | 63.0～66.0 | 11.0～13.0 | 0.3 | 0.5 | 0.03 | ― | ― | ― | ― | ― | 0.03 | ― | ― | | ― | 余量 | 99.5 | 0.8h |
| T76210 | BZn12-26 | 60.0～63.0 | 10.5～13.0 | 0.3 | 0.5 | 0.03 | 0.005 | 0.15 | 0.005 | 0.005 | 0.03 | 0.08 | 0.002 | 0.005 | | 0.002 | 余量 | 99.5 | 0.8 h |
| T76220 | BZn12-29 | 57.0～60.0 | 11.0～13.5 | 0.3 | 0.5 | 0.03 | ― | ― | ― | ― | ― | 0.03 | ― | ― | | ― | 余量 | 99.5 | 0.8 h |
| T76260 | BZn14-24 | 60.0～64.0 | 12.5～15.5 | 0.25 | 0.50 | 0.03 | ― | ― | ― | ― | ― | ― | ― | | Mg  ≤0.1 | ― | 余量 | 99.5 | ― |
| T76300 | BZn18-20 | 60.0～63.0 | 16.5～19.5 | 0.3 | 0.5 | 0.03 | 0.005 | 0.15 | 0.005 | 0.005 | 0.03 | 0.08 | 0.002 | 0.005 | | 0.002 | 余量 | 99.5 | 0.8 h |
| T76400 | BZn22-16 | 60.0～63.0 | 20.5～23.5 | 0.3 | 0.5 | 0.03 | 0.005 | 0.15 | 0.005 | 0.005 | 0.03 | 0.08 | 0.002 | 0.005 | | 0.002 | 余量 | 99.5 | 0.8h |
| T76500 | BZn25-18 | 56.0～59.0 | 23.5～26.5 | 0.3 | 0.5 | 0.03 | 0.005 | 0.15 | 0.005 | 0.005 | 0.03 | 0.08 | 0.002 | 0.005 | | 0.002 | 余量 | 99.5 | 0.8 h |
| C77000 | BZn18-26 | 53.5～56.5 d | 16.5～19.5 | 0.25 | 0.50 | 0.05 | ― | ― | ― | ― | ― | ― | ― | | ― | ― | 余量 | 99.5 | ― |
| T77500 | BZn40-20 | 38.0～42.0 | 38.0～41.5 | 0.3 | 0.5 | 0.03 | 0.005 | 0.15 | 0.005 | 0.005 | 0.10 | 0.08 | 0.002 | 0.005 | | 0.002 | 余量 | 99.5 | 0.8 b |

表5（续） 加工白铜化学成分

（铜镍锌合金）

| 分类 | 代号 | 牌 号 | 化学成分（质量分数 %） | | | | | | | | | | | | | | | | |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Cu | Ni+Co | Fe | Mn | Pb | Al | Si | P | S | C | Sn | Bia | Ti | Sba | Zn | Cu+所列  元素总和 | 其他 |
| 锌  白  铜 | T78300 | BZn15-21-1.8 | 60.0～63.0 | 14.0～16.0 | 0.3 | 0.5 | 1.5～2.0 | ― | 0.15 | ― |  |  |  |  |  |  | 余量 | 99.1b | ― |
| C79200 | BZn12-24-1.1 | 59.0~66.5d | 11.0~13.0 | 0.25 | 0.50 | 0.8~1.4 |  |  |  |  |  |  |  |  |  | 余量 | 99.5 |  |
| T79500 | BZn15-24-1.5 | 58.0～60.0 | 12.5～15.5 | 0.25 | 0.05～0.5 | 1.4～1.7 | ― | ― | 0.02 | 0.005 | ― | ― | ― | ― | ― | 余量 | 99.5 | ― |
| C79800 | BZn10-41-2 | 45.5～48.5d | 9.0～11.0 | 0.25 | 1.5～2.5 | 1.5～2.5 | ― | ― | ― | ― | ― | ― | ― | ― | ― | 余量 | 99.5 | ― |
| C79860 | BZn12-37-1.5 | 42.3～43.7 d | 11.8～12.7 | 0.20 | 5.6～6.4 | 1.3～1.8 | ― | 0.06 | ― | ― | ― | 0.10 | ― | ― | ― | 余量 | 99.8 | ― |
| T79870 | BZn12-38-2 | 42.5～44.0 | 11.0～12.3 | 0.20 | 5.0～6.0 | 1.2～2.2 |  | 0.06 | 0.02 | ― | ― | 0.10 | ― | ― | ― | 余量 | 99.8 | ― |
| 硅  白  铜 | C70250 | BSi3.2-0.7 | 余量d | 2.2～4.2 | 0.20 | 0.10 | 0.05 |  | 0.25～1.2 | ― | ― | ― | ― | ― | Mg:0.05  ～0.30 | ― | 1.0 | 99.5 | ― |
| C70260 | BSi2-0.45 | 余量d | 1.0～3.0 | ― | ― | ― | ― | 0.20～0.7 | 0.01 | ― | ― | ― | ― | ― | ― | ― | 99.5 | ― |
| C70350 | BSi2-0.5 | 余量 | 1.0～2.5i | 0.20 | 0.20 | 0.05 | ― | 0.50～1.2 | Co:1.0～2.0 | ― | ― | ― | ― | Mg≤0.15 | ― | 1.0 | 99.5 | ― |
| T70360 | BSi7-2-1 | 余量 | 6.5～8.0 | 0.15 | ― | ― | ― | 1.5～3.0 | Cr:0.6～1.5 | - | ― | ― | ― | ― | ― | ― | 99.5 b | ― |
| 钴  白铜 | T71060 | BCo19-0.4 | 余量 | 18.0～20.0 | 0.05 | ― | ― | ― | 0.05 | Co:0.2～0.6 | ― | ― | ― | ― | ― | ― | ― | 99.9 | ― |
| a铋、锑和砷可不分析，但供方必须保证不大于界限值。  b此值为Cu+主元素之和。  c特殊用途的B19白铜带，可供应硅的质量分数不大于0.05%的材料。  d此值为Cu+Ag。  e为保证电气性能，对BMn3-12合金、作热电偶用的BMn40-1.5和BMn43-0.5合金，其规定有最大值和最小值的成分，允许略微超出表5的规定。  f 热轧时Pb最大值为0.005%。  g 用于棒材、线材和管材时，Pb≤0.05%。  h此值为表中所列杂质元素实测值总和。  i此值为Ni。 | | | | | | | | | | | | | | | | | | | |

附 录A

（资料性）

等同采用国外标准的牌号

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 国外标准数字代号 | 本文件牌号 |  | 国外标准数字代号 | 本文件牌号 |
| C10100 | TU00 |  | C37100 | HPb61-1 |
| C10200 | TU3 |  | C37700 | HPb60-2 |
| C10300 | TUP0.003 |  | C41125 | HSn88-7 |
| C10500 | TU Ag0.03 |  | C42200 | HSn88-1 |
| C10800 | TUP0.008 |  | C42500 | HSn88-2 |
| C12000 | TP1 |  | C44250 | HSn75-1 |
| C12200 | TP2 |  | C44300 | HSn72-1 |
| C14415 | TSn0.12 |  | C44400 | HSn71-1-0.06 |
| C14500 | TTe0.5 |  | C44500 | HSn71-1 |
| C14510 | TTe0.5-0.02 |  | C46400 | HSn60-0.8 |
| C14700 | TS0.4 |  | C46500 | HSn60-0.8-0.04 |
| C15000 | TZr0.15 |  | C48500 | HSn61-0.8-1.8 |
| C15100 | TZr0.10 |  | C49260 | HBi60-1.0-0.05 |
| C15715 | TUAl0.15 |  | C49340 | HBi62-1.4-1 |
| C15725 | TUAl0.25 |  | C49350 | HBi62-1 |
| C15735 | TUAl0.35 |  | C50500 | QSn1.5-0.2 |
| C15760 | TUAl0.60 |  | C50700 | QSn1.8 |
| C16200 | TCd1 |  | C50715 | QSn2.0-0.1-0.03 |
| C17200 | TBe1.9-0.2 |  | C51000 | QSn5-0.2 |
| C17300 | TBe1.9-0.4 |  | C51100 | QSn4-0.3 |
| C17410 | TBe0.3-0.5 |  | C51180 | QSn4-0.15-0.10-0.03 |
| C17450 | TBe0.3-0.7 |  | C51900 | QSn6.5-0.2 |
| C17460 | TBe0.3-1.2 |  | C52100 | QSn8-0.3 |
| C17500 | TBe0.6-2.5 |  | C52400 | QSn10-0.3 |
| C17510 | TBe0.4-1.8 |  | C53400 | QSn4-3.5-3-0.3 |
| C18000 | TNi2.4-0.6-0.5 |  | C60800 | QAl6 |
| C18070 | TCr0.3-0.05-0.02 |  | C61000 | QAl7 |
| C18080 | TCr0.5-0.15-0.1 |  | C61300 | QAl7-3-0.4 |
| C18135 | TCr0.3-0.3 |  | C62300 | QAl9-3 |
| C18140 | TCr0.3-0.15-0.03 |  | C62400 | QAl11-3 |
| C18141 | TCr0.3-0.1-0.02-0.03 |  | C62500 | QAl13-4 |
| C18143 | TCr0.3-0.1-0.02 |  | C63000 | QAl10-5-3 |
| C18150 | TCr1-0.15 |  | C63020 | QAl10-6-5 |
| C18200 | TCr1 |  | C63200 | QAl9-4-4 |
| C18400 | TCr1.2 |  | C64200 | QAl7-2 |
| C18661 | TMg0.4 |  | C64210 | QAl6.5-2 |
| C18700 | TPb1 |  | C64700 | QSi0.6-2 |
| C19000 | TNi1.1-0.25 |  | C67300 | HMn60-3-1.7-1 |
| C19010 | TSi1-0.25 |  | C67400 | HMn58-3-1-1 |
| C19020 | TSn2-0.60.15 |  | C68350 | HSi62-0.6 |
| C19040 | TSn1.5-0.8-0.06 |  | C68700 | HAl77-2 |
| C19060 | TSn2-0.2-0.06 |  | C70250 | BSi3.2-0.7 |
| C19160 | TNi1-1-0.25 |  | C70260 | BSi2-0.45 |
| C19200 | TFe1.0 |  | C70350 | BSi3.2-0.5 |
| C19210 | TFe0.1 |  | C70400 | BFe5-1.5-0.5 |
| C19400 | TFe2.5 |  | C70600 | BFe10-1.4-1 |
| C19700 | TFe0.75 |  | C70610 | BFe10-1.5-1 |
| C19900 | TTi3.0 |  | C71100 | B23 |
| C19910 | TTi3.0-0.2 |  | C71500 | BFe30-0.7 |
| C21000 | H95 |  | C72700 | BSn9-6 |
| C22000 | H90 |  | C72900 | BSn15-8 |
| C23000 | H85 |  | C72950 | BSn21-5 |
| C24000 | H80 |  | C73500 | BZn18-10 |
| C26130 | HAs70-0.05 |  | C74300 | BZn8-26 |
| C26800 | H66 |  | C74500 | BZn15-20 |
| C27000 | H65 |  | C75200 | BZn18-18 |
| C27450 | H62.5 |  | C77000 | BZn18-26 |
| C31400 | HPb89-2 |  | C79200 | BZn12-24-1.1 |
| C33000 | HPb66-0.5 |  | C79800 | BZn10-41-2 |
| C35300 | HPb62-2 |  | C79860 | BZn12-37-1.5 |
| C36000 | HPb62-3 |  |  |  |