LEEDS BRONZE
ENGINEERING LTD

Material List

The global bronze expert

INTRODUCTION

Leeds Bronze Engineering Ltd is a business founded on history and become a market leader in the stockholding of high quality bronze material.

Operating from our site in Leeds, West Yorkshire we offer a reliable and efficient service ensuring we achieve that ‘just-in-time’ delivery.

Our experienced sales team are on hand to offer advice on our range of leaded, phosphor and aluminium bronzes which are all certified and fully traceable.

In addition to our standard stock range we can supply bespoke castings in either centrifugally or continuously cast condition to any size or volume.

CONTENTS

Bronze, alloy traditionally composed of copper and tin. Bronze is of exceptional historical interest and still finds wide applications. The proportions of copper and tin vary greatly but, by the Middle Ages in Europe, certain proportions were known to yield specific properties. Some modern bronzes contain no tin at all, substituting other metals such as aluminium, manganese, and even zinc.

Leaded (Tin) Bronze

- Excellent wear resistance
- Easily machinable
- Free cutting
- Good load carrying capacity and thermal conductivity
- Bronze with a high lead content offers good lubricity
- Commonly used in the manufacture of bushes, bearings and wear plates

Phosphor Bronze

- Hard wearing bronze containing a small amount of phosphorus
- High fatigue resistance
- High tin content reduces the risk of corrosion
- Phosphorus increases wear resistance
- Commonly used in manufacture of bearings, sleeves, thrust washers and gears

Aluminium Bronze

- Aluminium is the main alloying metal added to copper in contrast to standard bronze (copper/tin)
- Higher strength and corrosion resistance compared to other bronzes
- Resistance to corrosion in seawater
- Material reacts with atmospheric oxygen to create a tough layer of aluminium oxide
- Commonly used in the marine sector, oil and petrochemical industries (non sparking environments)
- Used in the manufacture of valves and fasteners

SAE660/C93200

Chemical Properties

		min	max
Cu	Copper	81	85
Sn	Tin	6.3	7.5
Pb	Lead	6.0	8.0
Zn	Zinc	2.0	4.0
Ni	Nickel	-	1[A]
P	Phosphorus	-	1.50
Al	Aluminium	-	0.005
Fe	Iron	-	0.20
Sb	Antimony	-	0.35
S	Sulphur	-	0.08
Si	Silicon	-	0.005
	Bismuth	-	-

Mechanical Properties

	Tensile Strength N/mm²	Proof Strength N/mm²	Elongation % min
Continuously Cast (B505)	241	140	10
Centrifugally Cast (B271)	207	97	15
Density (g/cm³) Approx		8.8	

Hardness HB (min)

Continuously Cast (B505)	70
Centrifugally Cast (B271)	70

FINISHED SIZE		SUPPLIED SIZE		
O/D (inch)	I/D (inch)	O/D (inch)	I/D (inch)	KGS/FT
1/2	ø	17/32	ø	0.41
5/8	ø	21/32	ø	0.61
3/4	ø	25/32	ø	0.87
7/8	ø	29/32	ø	1.22
1	ø	1 1/32	ø	1.52
1 1/4	ø	1 9/32	ø	2.33
1 1/2	ø	1 17/32	ø	3.35
1 5/8	ø	1 21/32	ø	3.96
1 3/4	ø	1 25/32	ø	4.57
2	ø	2 1/32	ø	5.89
2 1/4	ø	2 9/32	ø	7.41
2 1/2	ø	2 17/32	ø	9.14
2 3/4	ø	2 25/32	ø	11.06
3	ø	3 1/32	ø	13.10
3 1/4	ø	3 9/32	ø	15.30
3 1/2	ø	3 17/32	ø	17.80
3 3/4	ø	4 1/6	ø	20.40
4	ø	4 9/16	ø	23.50
4 1/2	ø	4 17/32	ø	29.70
5	ø	5 1/16	ø	36.50
5 1/2	ø	5 9/16	ø	44.30
6	ø	6 1/16	ø	52.50
6 1/2	ø	6 9/16	ø	61.40
7	ø	7 1/16	ø	71.20
8	ø	8 1/16	ø	92.80
9	ø	9 1/16	ø	117.20
10	ø	10 1/16	ø	144.40

FINISHED SIZE		SUPPLIED SIZE		
O/D (inch)	I/D (inch)	O/D (inch)	I/D (inch)	KGS/FT
1	1/2	1 1/32	15/32	1.24
1	3/4	1 1/32	23/32	0.82
1 1/4	1/2	1 9/32	15/32	2.06
1 1/4	3/4	1 9/32	23/32	1.65
1 1/4	1	1 9/32	31/32	1.03
1 1/2	1/2	1 17/32	15/32	3.09
1 1/2	3/4	1 17/32	23/32	2.68
1 1/2	1	1 17/32	31/32	2.06
1 1/2	1 1/4	1 17/32	1 7/32	1.24
1 3/4	3/4	1 25/32	23/32	3.81
1 3/4	1	1 25/32	31/32	3.19
1 3/4	1 1/4	1 25/32	1 7/32	2.47
1 3/4	1 1/2	1 25/32	1 15/32	1.44
2	3/4	2 1/32	23/32	5.25
2	1	2 1/32	31/32	4.64
2	1 1/4	2 1/32	1 7/32	3.81
2	1 1/2	2 1/32	1 15/32	2.88
2 1/4	3/4	2 9/32	23/32	6.80
2 1/4	1	2 9/32	31/32	6.18
2 1/4	1 1/4	2 9/32	1 7/32	5.36
2 /4	1 1/2	2 9/32	1 15/32	4.43
2 1/4	1 3/4	2 9/32	1 23/32	3.30
2 1/2	1	2 17/32	31/32	7.93
2 1/2	1 1/4	2 17/32	1 7/32	7.21
2 1/2	1 1/2	2 17/32	1 15/32	6.18
2 1/2	1 3/4	2 17/32	1 23/32	5.05
2 1/2	2	2 17/32	1 31/32	3.71
2 3/4	1	2 25/32	31/32	9.89
2 3/4	1 1/4	2 25/32	1 7/32	8.76
2 3/4	1 1/2	2 25/32	1 15/32	8.03
2 3/4	1 3/4	2 25/32	1 23/32	6.90
2 3/4	2	2 25/32	1 31/32	5.56
2 3/4	2 1/4	2 25/32	2 7/32	4.12
3	1	3 1/32	31/32	11.95
3	1 1/4	3 1/32	1 7/32	11.12
3	1 1/2	3 1/32	1 15/32	10.20
3	1 3/4	3 1/32	1 23/32	9.06
3	2	3 1/32	1 31/32	7.73
3	2 1/4	3 1/32	2 7/32	6.18
3	2 1/2	3 1/32	2 15/32	4.43
3 1/4	1 1/2	3 9/32	1 15/32	12.46
3 1/4	1 3/4	3 9/32	1 23/32	11.33
3 1/4	2	3 9/32	1 31/32	9.99
3 1/4	2 1/4	3 9/32	2 7/32	8.45
3 1/4	2 1/2	3 9/32	2 15/32	6.80
3 1/2	1	3 17/32	31/32	16.69
3 1/2	1 1/2	3 17/32	1 15/32	14.94
3 1/2	1 3/4	3 17/32	1 23/32	13.80
3 1/2	2	3 17/32	1 31/32	12.46
3 1/2	2 1/4	3 17/32	2 7/32	10.92
3 1/2	2 1/2	3 17/32	2 15/32	9.27
3 1/2	2 3/4	3 17/32	2 23/32	7.31
3 1/2	3	3 17/32	2 31/32	5.25
3 3/4	2	3 25/32	1 31/32	15.04
3 3/4	2 1/2	3 25/32	2 15/32	11.95
3 3/4	3	3 25/32	2 31/32	7.93
4	1	4 1/16	31/32	22.60
4	1 1/2	4 1/16	1 15/32	20.80
4	2	4 1/16	1 13/32	18.20

FINISHED SIZE		SUPPLIED SIZE		
O/D (inch)	I/D (inch)	O/D (inch)	I/D (inch)	KGS/FT
4	2 1/2	4 1/16	2 15/32	15.00
4	2 3/4	4 1/16	2 23/32	13.20
4	3	4 1/16	2 31/32	11.10
4	3 1/2	4 1/16	3 15/32	6.50
4 1/2	1 1/2	4 9/16	1 15/32	27.00
4 1/2	2	4 9/16	1 13/32	24.50
4 1/2	2 1/2	4 9/16	2 15/32	21.30
4 1/2	3	4 9/16	2 31/32	17.40
4 1/2	3 1/2	4 9/16	3 15/32	12.70
4 3/4	2 1/2	4 13/16	2 15/32	24.70
4 3/4	3 1/2	4 13/16	3 15/32	16.10
4 3/4	4	4 13/16	3 29/32	11.40
4 1/2	1 1/2	4 9/16	1 15/32	27.00
4 1/2	2	4 9/16	1 13/32	24.50
4 1/2	2 1/2	4 9/16	2 15/32	21.30
4 1/2	3	4 9/16	2 31/32	17.40
4 1/2	3 1/2	4 9/16	3 15/32	12.70
4 3/4	2 1/2	4 13/16	2 15/32	24.70
4 3/4	3 1/2	4 13/16	3 15/32	16.10
4 3/4	4	4 13/16	3 29/32	11.40
5	2	5 1/16	1 31/32	31.52
5	2 1/2	5 1/16	2 15/32	28.33
5	3	5 1/16	2 31/32	24.31
5	3 1/2	5 1/16	3 15/32	19.67
5	4	5 1/16	3 29/32	15.04
5	4 1/2	5 1/16	4 13/32	8.94
5 1/2	2 1/2	5 9/16	2 15/32	35.95
5 1/2	3	5 9/16	2 31/32	32.03
5 1/2	3 1/2	5 9/16	3 15/32	27.40
5 1/2	4	5 9/16	3 29/32	22.66
5 1/2	4 1/2	5 9/16	4 13/32	16.69
6	2	6 1/16	1 31/32	47.59
6	2 1/2	6 1/16	2 15/32	44.39
6	3	6 1/16	2 31/32	40.48
6	3 1/2	6 1/16	3 15/32	35.74
6	4	6 1/16	3 29/32	31.11
6	4 1/2	6 1/16	4 13/32	25.13
6	5	6 1/16	4 29/32	18.33
6 1/2	3 1/2	6 9/16	3 15/32	44.91
6 1/2	4	6 9/16	3 29/32	40.27
6 1/2	4 1/2	6 9/16	4 13/32	34.30
6 1/2	5	6 9/16	4 29/32	27.50
6 1/2	5 1/2	6 9/16	5 13/32	19.93
7	3	7 1/16	2 31/32	59.43
7	4	7 1/16	3 29/32	50.16
7	5	7 1/16	4 29/32	37.39
7 1/2	5 1/2	7 9/16	5 13/32	40.48
8	4	8 1/16	3 29/32	72.10
8	5	8 1/16	4 29/32	59.33
8	6	8 1/16	5 29/32	43.57
8	6 1/2	8 1/16	6 13/32	34.71
9	4	9 1/16	3 29/32	96.72
9	5	9 1/16	4 29/32	84.15
9	6	9 1/16	5 29/32	68.39
9	7	9 1/16	6 29/32	49.85
10	5	10 1/16	4 29/32	111.76
10	6	10 1/16	5 29/32	96.20
10	8	10 1/16	7 29/32	56.14

BS1400 PB1

Chemical Properties

		min	max
Cu	Copper	87	89.5
Sn	Tin	10.0	11.5
Pb	Lead	-	0.25
Zn	Zinc	-	0.05
Ni	Nickel	-	0.10
P	Phosphorus	-	1.0
Al	Aluminium	-	0.01
Fe	Iron	-	0.10
Sb	Antimony	-	0.05
S	Sulphur	-	0.05
Si	Silicon	-	0.01
	Bismuth	-	0.05

Mechanical Properties

	Tensile Strength N/mm²	Proof Strength N/mm²	Elongation % min
Continuously Cast (B505)	350	170*	6
Centrifugally Cast (B271)	350	170*	4
Density (g/cm³) Approx	8.7		

FINISHED SIZE		SUPPLIED SIZE		
O/D (inch)	I/D (inch)	O/D (inch)	I/D (inch)	KGS/FT
1/2	ø	17/32	ø	0.4
5/8	ø	21/32	ø	0.6
3/4	ø	25/32	ø	0.9
7/8	ø	29/32	ø	1.1
1	ø	1 1/32	ø	1.5
1 1/4	ø	1 9/32	ø	2.3
1 1/2	ø	1 17/32	ø	3.3
1 3/4	ø	1 25/32	ø	4.4
2	ø	2 1/32	ø	5.8
2 1/4	ø	2 9/32	ø	7.2
2 1/2	ø	2 17/32	ø	8.9
2 3/4	ø	2 25/32	ø	10.8
3	ø	3 1/32	ø	12.8
3 1/4	ø	3 9/32	ø	14.9
3 1/2	ø	3 17/32	ø	17.4
4	ø	4 1/6	ø	22.9
4 1/2	ø	4 9/16	ø	28.9
5	ø	5 1/16	ø	35.6
5 1/2	ø	5 9/16	ø	43.0
6	ø	6 1/16	ø	51.1
6 1/2	ø	6 9/16	ø	59.9
7	ø	7 1/16	ø	69.3
8	ø	8 1/16	ø	90.3
9	ø	9 1/16	ø	114.2
10	ø	10 1/16	ø	142.5

FINISHED SIZE		SUPPLIED SIZE		
O/D (inch)	I/D (inch)	O/D (inch)	I/D (inch)	KGS/FT
1 1/4	3/4	1 9/32	2 3/32	1.6
1 1/2	3/4	1 17/32	2 3/32	2.6
1 1/2	1	1 17/32	3 1/32	2.0
1 1/2	1 1/4	1 17/32	1 7/32	1.2
1 3/4	3/4	1 25/32	2 3/32	3.7
1 3/4	1	1 25/32	3 1/32	3.2
1 3/4	1 1/2	1 25/32	1 15/32	1.4
2	1	2 1/32	3 1/32	4.5
2	1 1/4	2 1/32	1 7/32	3.7
2	1 1/2	2 1/32	1 15/32	2.8
2 1/4	1 1/2	2 9/32	1 15/32	4.3
2 1/2	1	2 17/32	3 1/32	7.7
2 1/2	1 1/2	2 17/32	1 15/32	6.0
2 1/2	1 3/4	2 17/32	1 23/32	4.8
2 1/2	2	2 17/32	1 31/32	3.6
2 3/4	1 3/4	2 25/32	1 23/32	6.7
2 3/4	2	2 25/32	1 31/32	5.5
3	1	3 1/32	3 1/32	11.6
3	1 1/2	3 1/32	1 15/32	9.9
3	1 3/4	3 1/32	1 23/32	8.8
3	2	3 1/32	1 31/32	7.5
3 1/4	1 3/4	3 9/32	1 23/32	11.0
3 1/4	2	3 9/32	1 31/32	9.7
3 1/4	2 1/2	3 9/32	2 15/32	6.6
3 1/4	2 3/4	3 9/32	2 23/32	4.7
3 1/2	1 1/2	3 17/32	1 15/32	14.5
3 1/2	2	3 17/32	1 31/32	12.2
3 1/2	2 1/2	3 17/32	2 15/32	9.1
3 3/4	2	3 25/32	1 31/32	14.7
3 3/4	2 3/4	3 25/32	2 23/32	9.8
3 3/4	3	3 25/32	2 31/32	7.7
4	1	4 1/16	3 1/32	21.9
4	1 1/2	4 1/16	1 15/32	20.2
4	2	4 1/16	1 31/32	17.8
4	2 1/2	4 1/16	2 15/32	14.7
4	2 3/4	4 1/16	2 23/32	12.9
4	3	4 1/16	2 31/32	10.8
4 1/2	2	4 9/16	1 31/32	23.9
4 1/2	2 1/2	4 9/16	2 15/32	20.8

FINISHED SIZE		SUPPLIED SIZE		
O/D (inch)	I/D (inch)	O/D (inch)	I/D (inch)	KGS/FT
4 1/2	3	4 9/16	2 31/32	16.9
4 1/2	3 1/2	4 9/16	3 15/32	12.4
4 1/2	3 3/4	4 9/16	3 23/32	9.9
4 3/4	3 3/4	4 13/16	3 23/32	13.2
5	2	5 1/16	1 31/32	30.7
5	2 1/2	5 1/16	2 15/32	27.6
5	3	5 1/16	2 31/32	23.7
5	3 1/2	5 1/16	3 15/32	19.2
5	4	5 1/16	3 29/32	14.6
5 1/2	3	5 9/16	2 31/32	31.2
5 1/2	3 1/2	5 9/16	3 15/32	26.7
5 1/2	4	5 9/16	3 29/32	22.1
5 1/2	4 1/2	5 9/16	4 13/32	16.3
6	2	6 1/16	1 31/32	47.6
6	2 1/2	6 1/16	2 15/32	43.3
6	3	6 1/16	2 31/32	39.4
6	3 1/2	6 1/16	3 15/32	34.9
6	4	6 1/16	3 29/32	30.3
6	4 1/2	6 1/16	4 13/32	24.4
6	5	6 1/16	4 29/32	17.9
6 1/2	3	6 9/16	2 31/32	48.4
6 1/2	4	6 9/16	3 29/32	39.2
6 1/2	5	6 9/16	4 29/32	26.8
7	3	7 1/16	2 31/32	57.9
7	4	7 1/16	3 29/32	48.8
7	5	7 1/16	4 29/32	36.5
7 1/2	5 1/2	7 9/16	5 13/32	39.4
8	4	8 1/16	3 29/32	70.5
8	5	8 1/16	4 29/32	58.6
8	6	8 1/16	5 29/32	42.5
9	5	9 1/16	4 7/8	82.8
9	6	9 1/16	5 29/32	67.7
9	7	9 1/16	6 29/32	49.7
10	6	10 1/16	5 29/32	96.5
10	7	10 1/16	6 29/32	78.0
10	8	10 1/16	7 29/32	58.2
11	8	11 1/16	7 29/32	87.1
12	8	12 1/16	7 29/32	124.8
12	10	12 1/16	9 29/32	75.9

BS2874 CA104

Triple Released to BS B23 1991, EN12163 CW307G R680/R740

Chemical Properties

		min	max
Cu	Copper	BAL	-
Sn	Tin	-	0.10
Pb	Lead	-	0.05
Zn	Zinc	-	0.40
Ni	Nickel	-	5.5
Al	Aluminium	8.5	11.0
Fe	Iron	4.0	5.50
Mn	Manganese	-	0.50
Si	Silicon	-	0.20
	Impurities	-	0.50

Mechanical Properties

Size Range Ø mm	0.2%PS N/mm²	UTS N/mm²	Elongation %
6 - 18mm	400	700	10
18 -80mm	370	700	12
80mm +	320	650	12

FINISHED SIZE		
O/D (inch)	I/D (inch)	KGS/FT
0.500	ø	0.31
0.625	ø	0.47
0.750	ø	0.67
0.875	ø	0.91
1.000	ø	1.2
1.125	ø	1.51
1.250	ø	1.87
1.375	ø	2.25
1.500	ø	2.68
1.625	ø	3.15
1.750	ø	3.61
2.000	ø	4.77
2.250	ø	6.04
2.500	ø	7.46
2.750	ø	9.03
3.000	ø	10.74
3.250	ø	12.61
3.500	ø	14.6
3.750	ø	16.78
4.000	ø	19.09
4.250	ø	21.55
4.500	ø	24.16
5.000	ø	29.83
5.250	ø	33.13
5.500	ø	36.13
6.000	ø	42.93
6.250	ø	46.61
6.500	ø	50.85
6.750	ø	54.27
8.000	ø	76.37

FINISHED SIZE		
O/D (inch)	I/D (inch)	KGS/FT
12mm	ø	0.26
15mm	ø	0.43
16mm	ø	0.48
20mm	ø	0.74
22mm	ø	0.9
30mm	ø	1.68
60mm	ø	6.65
180mm	ø	60.06
360mm	ø	242.67

NES833 Part 2 Issue 3 Grade 1

(RELEASED TO DEF-STAN 02-833 Part 2 Issue 2 Grade 1)

Chemical Properties

		min	max
Cu	Copper	BAL	-
Sn	Tin	-	0.10
Pb	Lead	-	0.05
Zn	Zinc	-	0.40
Ni	Nickel	4.5	5.5
Al	Aluminium	8.5	10.0
Fe	Iron	4.0	5.00
Mn	Manganese	-	0.50
Si	Silicon	-	0.10
	Impurities	-	0.50

Mechanical Properties

Size Range Ø mm	0.2%PS N/mm²	UTS N/mm²	Elongation %	Impact Joules
1 1/4	3/4	1 9/32	23/32	1.61 1/2
6 - 15mm	325	680	17	-
15 - 25mm	325	680	17	24
25 - 100mm	295	635	17	27
100mm+	245	620	15	23

FINISHED SIZE		
O/D (inch)	I/D (inch)	KGS/FT
0.500	ø	0.31
0.625	ø	0.47
0.750	ø	0.67
0.875	ø	0.91
1.000	ø	1.2
1.125	ø	1.51
1.250	ø	1.87
1.375	ø	2.25
1.500	ø	2.68
1.625	ø	3.15
1.750	ø	3.61
1.875	ø	4.19
2.000	ø	4.77
2.250	ø	6.04
2.375	ø	6.73
2.500	ø	7.46
2.625	ø	8.22
2.750	ø	9.03
3.000	ø	10.74
3.250	ø	12.61
3.375	ø	13.59
3.500	ø	14.6
3.750	ø	16.78
4.000	ø	19.09
4.250	ø	21.55
4.500	ø	24.16
4.750	ø	27.2
5.000	ø	29.83
5.250	ø	33.13
5.500	ø	36.13
6.000	ø	42.93
6.250	ø	46.61
6.500	ø	50.85
6.750	ø	54.27
8.000	ø	76.37
10.000	ø	120.17
11.250	ø	152.14

FINISHED SIZE		
O/D (inch)	I/D (inch)	KGS/FT
180mm	ø	60.06
235mm	ø	105.56

ASTM B150 C63000 (AMS4640) / ASTM B150 C63200

Chemical Properties

		C63000		C63200	
		min	max	min	max
Cu	Copper	-	BAL	-	BAL
Sn	Tin	-	0.20	-	-
Zn	Zinc	-	0.30	-	-
Ni	Nickel	4.0	5.5	4.0	4.8
Al	Aluminium	9.0	11.0	8.7	9.5
Fe	Iron	2.0	4.0	3.5	4.3
Mn	Manganese	-	1.5	1.2	2.0
Si	Silicon	-	0.25	-	0.10
Pb	Lead	-	-	-	0.02

Mechanical Properties

	Size Range Ø mm	0.2%PS N/mm²	UTS N/mm²	Elongation %	Hardness
C63000	25mm	470	760	10	201-248
	25 - 50mm	415	760	10	187-241
	50 - 80mm	380	725	10	
C63200	Up to 3 inch	345-496	648-792	15-25	190-230
	3 to 5 inch	310-400	648-792	15 -30	190-230
	5 - 12 inch	276-379	634-751	15 - 25	180-210

C63000

SUPPLIED SIZE		
O/D (inch)	I/D (inch)	KGS/FT
0.500	ø	0.31
0.625	ø	0.47
0.750	ø	0.67
0.875	ø	0.91
1.000	ø	1.2
1.125	ø	1.51
1.250	ø	1.87
1.500	ø	2.68
1.625	ø	3.15
1.750	ø	3.61
2.000	ø	4.77
2.250	ø	6.04
2.500	ø	7.46
2.750	ø	9.03
3.000	ø	10.74
3.250	ø	12.61
3.500	ø	14.6
4.000	ø	19.09
4.250	ø	21.78
4.500	ø	24.16
5.000	ø	29.83
5.250	ø	33.24
6.000	ø	42.93
6.500	ø	50.94
6.970	ø	58.57
8.125	ø	79.59
10.000	ø	120.56

C63200

SUPPLIED SIZE		
O/D (inch)	I/D (inch)	KGS/FT
0.750	ø	0.67
1.000	ø	1.2
1.250	ø	1.87
1.500	ø	2.68
1.750	ø	3.61
2.000	ø	4.77
2.250	ø	6.04
2.500	ø	7.46
2.750	ø	9.03
3.000	ø	10.74
3.500	ø	14.6
4.000	ø	19.09
4.500	ø	24.16

BS1400 LB2 / LB4 / PB2

Chemical Properties

		LB2		LB4		PB2	
		min	max	min	max	min	max
Cu	Copper	-	BAL	-	BAL	-	BAL
Sn	Tin	9	11	4	6	11.2	13
Pb	Lead	8	11	8	10	-	0.50
Zn	Zinc	-	1	-	2	-	0.30
Ni	Nickel	-	2	-	2	-	0.50
P	Phosphorus	-	0.1	-	0.10	0.25	0.60
Al	Aluminium	-	0.01	-	0.01	-	-
Fe	Iron	-	0.15	-	0.25	-	-
Sb	Antimony	-	0.5	-	0.5	-	-
Mn	Manganese	-	0.20	-	0.20	-	-
S	Sulphur	-	0.1	-	0.1	-	-
Si	Silicon	-	0.02	-	0.02	-	-
	Impurities	-	0.30	-	0.50	-	-

Mechanical Properties

		Tensile Strength N/mm²	Proof Strength N/mm²	Elongation % min
Continuously Cast (B505)	LB2	280	160	6
	LB4	230	130	9
	PB2	310	170	5
Centrifugally Cast (B271)	LB2	230	140	5
	LB4	220	80	6
	PB2	280	170	3

LB2

FINISHED SIZE		SUPPLIED SIZE		
O/D (inch)	I/D (inch)	O/D (inch)	I/D (inch)	KGS/FT
3	ø	3 1/32	ø	13.20
4	ø	4 1/16	ø	23.55
5	ø	5 1/16	ø	36.53
5	2	5 1/16	1 31/32	31.52
6	4	6 1/16	3 29/32	39.35

LB4

FINISHED SIZE		SUPPLIED SIZE		
O/D (inch)	I/D (inch)	O/D (inch)	I/D (inch)	KGS/FT
1 1/2	ø	1 17/32	ø	3.35
2	ø	2 1/31	ø	5.89
2 1/2	ø	2 17/32	ø	9.14
3	ø	3 1/31	ø	13.09
3 1/2	ø	3 17/32	ø	17.86
4	ø	4 1/16	ø	23.55
6	ø	6 1/16	ø	52.39
6	2	6 1/16	1 31/32	46.87
6	3	6 1/16	2 31/32	39.89
6	4	6 1/16	3 29/32	30.75
10	ø	10 1/16	ø	144.33

PB2

FINISHED SIZE		SUPPLIED SIZE		
O/D (inch)	I/D (inch)	O/D (inch)	I/D (inch)	KGS/FT
2 1/2	ø	2 17/32	ø	8.93
3 1/2	ø	3 17/32	ø	17.36
4 9/16	ø	4 5/8	ø	29.84
5 9/16	ø	5 5/8	ø	44.15

Related Alloy Designations for Copper Alloys

British		European	German	American	
BS		EN 1982:2008- 08	DIN	ASTM	
Designation	Composition	Designation	Designation	UNS	SAE
Copper - Tin					
PB1	CuSn11P-C	CC481K		C90710	SAE65
PB2	CuSn11P-C	CC483K	CuSn12	C90800	SAE65
PB4	CuSn10PbP	CC480K	CuSn10	C92700	SAE65
CT2	CuSn12Ni	CC484K		C91700	SAE640
LPB1	CuSn7PbP		CuSn8Pb4Zn1	C93100	
Copper - Tin - Lead					
LG1	CuSn3Pb5Zn8	CC490K	CuSn3ZnPb	C84400	SAE40
LG2	CuSn5Pb5Zn5	CC491K	CuSn5ZnPb	C83600	SAE40/SAE J462
LG3	CuSn7Pb4Zn2			C92200	
LG4	CuSn7Pb3Zn3	CC492K	CuSn7ZnPb	C93400/C92410	SAE J461
G1	CuSn10Zn2		CuSn10Zn2	C90500	SAE62
G2	CuSn8Zn4Pb			C92610	
G3	CuSn7Ni5Zn3			C94800	
LB1	CuPb15Sn9	CC496K	CuPb15Sn	C93800/C93900	SAE67
LB2	CuSn10Pb10	CC495K	CuPb10Sn	C93700	SAE64/SAE797
LB4	CuSn5Pb9	CC494K		C93500	SAE66
LB5	CuPb20Sn5	CC497K	CuPb20Sn	C94100	SAE794/SAE799
		CC493K	CuSn7ZnPb (Rg7)	C93200	SAE660
Copper - Aluminium					
AB1	CuAl10Fe3	CC331G	CuAl10Fe	C95210/C95400	SAE68
AB2	CuAl10Fe5Ni5	CC333G	CuAl10Ni	C95810/C95800	SAE68B/SAE630
CA101	CuAl5		CuAl5	C60600	
CA102	CuAl6Ni2			C61550/C61000	AMS4631
CA103	CuAl10Fe	CW306G	CuAl10Fe3Mn2	C62300/C62500	AMS4635
CA104	CuAl10Ni5Fe4	CW307G	CuAl10Ni5Fe4	C63000/C63200	AMS4640
CA105	CuAl9Ni6Fe3		CuAl9Ni6Fe3	C63000/C63020	AMS4640/4590
CA106	CuAl8Fe3	CW303G	CuAl8Fe	C61400	
B23	CuAl10Ni5Fe4	CW307G	CuAl10Ni5Fe4	C63000/C63200	AMS4640
Copper - Zinc					
HTB1	CuZn35AlFeMn	CC765S	CuZn35Al1	C86500	SAE43
HTB2	CuZn36Al4FeMn	CC764S	CuZn34Al2		SAE430A/Alloy423
HTB3	CuZn28Al5FeMn	CC762S	CuZn25Al5	C86300	SAE430B Alloy424
DCB1	CuZn38	CC767S	CuZn38Al	C85700	
DCB3	CuZn37Pb	CC754S	CuZn37Pb	C85710	
Copper - Nickel					
CN1	CuNi30Cr	CC382H			
CN2	CuNi30Nb	CC383H			
		CC380H	CuNi10	C96200	
		CC381H	CuNi30	C96400	

Related Alloy Designations for Copper Alloys

British	European	German	American	
			UNS	SAE
Marine Aluminium Bronze				
NES833 (Def-Stan 02-833)	CuAl10Ni5Fe4	DIN17665 CuAl10Ni5Fe4	C63200	
NES834 (Def-Stan 02-834)	CuAl7Si2		C64200	
NES835 (Def-Stan 02-835)	CuNi14Mn4Al2Fe			
NES747 (Def-Stan 02-747)	CuAl10Fe5Ni5	DIN1714 CuAl10Ni	C95500	SAE68B
NES779 (Def-Stan 02-779)	CuNi 90/10	DIN17664 CuNi10Fe	C70600	
NES780 (Def-Stan 02-780)	CuNi 70/30	DIN17664 CuNi30Fe	C71500	
NES830 (Def-Stan 02-830)	CuSn7Zn2Pb3	DIN1705 CuSn7ZnPb	C93400/C92410	SAE J461
NES838 (Def-Stan 02-838) BS2874 1986 PB102CuSn	(CW451K)		C51000/C54400	

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