P+P Non-Ferrous
Tel : (0044) (0)1384 868080 Fax : (0044) (0)1384 482088
Email : sales@ppnonferrous.co.uk

Phosphor bronze is an alloy of tin and copper to which phosphorus has been added during the casting process. It is a single phase alloy suitable for cold working.

The benefits of PB1 include its good resistance to corrosion, (approaching that of aluminum bronzes) and excellent mechanical and high fatigue strength.

PB1 is a tough material of very wide application. Typical examples of its use include the following…

- Heavily loaded bearings
- Re-drawing
- Weaving
- Cold heating
- Spinning

PB1 is mainly available in hollows and rods…

Hollows from 1”OD – 16”OD
Rods from ½”dia – 13”dia

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Chemical & Physical Properties

Typical Chemical Composition

Elements	Min%	Max%
Al		0.005
Cu	Remainder	
Fe		0.10
Ni		0.10
P	0.5	1.2
Pb		0.25
S		0.05
Sb		0.20
Si		0.005
Sn	10.0	12.0
Zn		0.05

Typical Mechanical Properties

Property/unit	Condition	Temp	Min	Max
Tensile Strength (N/mm2)	Centrifugal	RT	330	
Elongation in 5.65√Cross Sectional Area%	Centrifugal	RT	4	
Brinell Hardness (HB)	Centrifugal	RT	95	
0.2% Proof Stress	Sand Cast	RT	130	
Tensile Strength (N/mm2)	Sand Cast	RT	220	
Elongation in 5.65√Cross Sectional Area%	Sand Cast	RT	3	
Brinell Hardness (HB)	Sand Cast	RT	70	
0.2% Proof Stress (N/mm2)	Chill Cast	RT	170	
Tensile Strength (N/mm2)	Chill Cast	RT	310	
Elongation in 5.65√Cross Sectional Area %	Chill Cast	RT	2	
Brinell Hardness (HB)	Chill Cast	RT	95	

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0.2% Proof Stress (N/mm2)	Continuous	RT	170	
Tensile Strength (N/mm2)	Continuous	RT	360	
Elongation in 5.65√Cross Sectional Area%	Continuous	RT	6	
Brinell Hardness (HB)	Continuous	RT	100	
0.2% Proof Stress (N/mm2)	Centrifugal	RT	170	

Tolerances

OD Up to and including 4" + 1/32" – 0
Above 4" + 1/16" – 0
Above 12" + 3mm – 0

ID Up to and including 4" – 1/32"ID + 0
Above 4" – 1/16"ID + 0
Above 12" – 3mmID + 0