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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**

## Chemical & Physical Properties

### Typical Chemical Composition

<i>Elements</i>	<i>Min%</i>	<i>Max%</i>
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

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



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<b>0.2% Proof Stress (N/mm<sup>2</sup>)</b>	Continuous	RT	170	
<b>Tensile Strength (N/mm<sup>2</sup>)</b>	Continuous	RT	360	
<b>Elongation in 5.65√Cross Sectional Area%</b>	Continuous	RT	6	
<b>Brinell Hardness (HB)</b>	Continuous	RT	100	
<b>0.2% Proof Stress (N/mm<sup>2</sup>)</b>	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**

The information above is based on our current knowledge and is given in good faith; however the company will accept no liability in respect of any third party reliance thereon.