

### Bronze Alloy

#### Typical Applications

- Fasteners
- Springs
- Pump & Valve spindles
- Shafts
- Electrical and electronic components
- Flanges
- Bushes & Bearings
- Connectors & Switches

#### Product Description

PB102 is the most common grade of wrought phosphor bronze used in the UK due to its ability to be used across an extensive range of general purpose applications. Due to its tin content PB102 offers superb spring qualities as well as high corrosion resistance that is close to that of aluminium bronzes in a range of atmospheric conditions. It combines good mechanical properties with excellent cold forming properties and has a fair machinability rating.

#### Weldability

Good.

#### Related material specifications

- CW451K
- CuSn5
- Def Stan 02-838

#### Chemical Composition (weight %)

	Cu	Sn	P	Zn	Ni	Fe	Pb	Total Imps
min	Bal	4.5	0.01					
max	Bal	5.5	0.4	0.2	0.2	0.1	0.02	0.2

#### Mechanical Properties \*

Proof Stress	560 MPa
Tensile Strength	650 MPa
Elongation A50 mm	3 to 40%
Hardness Vickers	75 to 230 HV

\* Mechanical values are variable depending on the condition of the material i.e. 1/2 hard, 1/4 hard etc. Mechanical values for bar are a typical average

#### Key features

- Excellent cold forming properties
- Good spring properties
- High mechanical properties
- Very good corrosion resistance
- High wear resistance
- Low magnetic permeability

#### Availability

Round bar, hexagon.

#### Cut to size capability

There are thirty power saws within the Smiths group including a fully automated magazine feed CNC rod blanking line. We can economically cut from one off blanks to the largest production run for immediate or just in time deliveries.

#### Corrosion Resistance

Excellent

#### Machinability

Good.

#### Physical Properties

Density	8.85 g/cm <sup>3</sup>
Melting Point	930 °C
Modulus of Elasticity	121 GPa
Thermal Conductivity	63 W/m.K
Electrical Resistivity	0.096 x10 <sup>-6</sup> Ω .m

#### UK Service Centres:

Smiths Belfast **02895 908 897**  
 Smiths Biggleswade **01767 604 704**  
 Smiths Birmingham **0121 728 4940**  
 Smiths Bristol **0117 971 2800**  
 Smiths Chelmsford **01245 466 664**  
 Smiths Gateshead **0191 469 5428**  
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#### Quality & Testing:



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