

# HM Wire International, Inc.

Ph: 330-244-8501 Fax: 330-244-8561

www.litz-wire.com info@litz-wire.com www.hmwire.com



## Alloy 220 - Commercial Bronze

<b>Nominal Composition:</b>	<b>Cu%</b>	<b>Zn%</b>		
	90%	10%		
<b>Composition Limits:</b>	<b>Cu%</b>	<b>Zn%</b>	<b>Pb%</b>	<b>Fe%</b>
	89 -91%	Balance	0.05% Max	0.05% Max

### Physical Properties

	English Units	Metric Units
<b>Melting Point, Liquidus</b>	1910°F	1045°C
<b>Melting Point, Solidus</b>	1870°F	1020°C
<b>Density</b>	0.318 lb/cu in @ 68°F	8.80 gm/cu cm
<b>Thermal Conductivity, Annealed</b>	109 BTU ft/sq ft-hr-°F @ 68°F	0.45 cal cm/sq cm-sec-°C @ 20°C
<b>Coefficient of Thermal Expansion</b>	0.0000102 per °F (77 - 572°F)	0.0000184 per °C (25 - 300°C)
<b>Electrical Resistivity, Annealed</b>	24 ohms (circ mil/ft) @ 68°F	3.99 microhm/cm @ 20°C
<b>Electrical Conductivity, Annealed</b>	44% I.A.C.S	0.255 megmho/cm @ 20 °C
<b>Thermal Capacity (Specific Heat)</b>	0.09 BTU/lb-°F @ 68°F	0.09 cal-gm-°C @ 20°C
<b>Modulus of Rigidity</b>	6,400,000 psi	4500 kg/sq mm
<b>Modulus of Elasticity (Tension)</b>	17,000,000 psi	12,000 kg/sq mm

### Typical Mechanical Property Data - Annealed Tempers (Soft)

Average Grain Size mm (a)	Tensile Strength ksi (b)	Yield Strength x 1000 psi (c) ksi (c)	Elongation % in 2" (d)	Hardness Range (e) Rockwell F
.040/.060	36/37	8/9	48/49	57/62
.020/.040	37/39	9/12	48/49	62/67
.015/.030	38/40	10/14	48/49	57/69
.010/.025	38/41	11/15	47/48	65/72
.005/.015	39/42	13/17	46/48	69/74

\*To be used as a guideline only.

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