

# IS 319 GR III

## LEADED BRASS

### DESCRIPTION

IS 319 Gr III A ductile alloy with good machinability as well as bending and cold heading properties. Suitable for bicycle spoke nipples.

### CHEMICAL COMPOSITION

| Elements     | Min (%)   | Max (%) |
|--------------|-----------|---------|
| Cu           | 62.00     | 63.00   |
| Pb           | 0.50      | 1.50    |
| Fe           | -         | 0.20    |
| Total Others | -         | 0.50    |
| Zn           | Remainder |         |

### MECHANICAL PROPERTIES (AS PER TEMPER HB)

| Range (mm)   | From  | To    | UTS Min (Mpa) | PS Min (Mpa) | Elongation Min (%) | Hardness Min | Hardness Max |
|--------------|-------|-------|---------------|--------------|--------------------|--------------|--------------|
| Round (Dia)  | 6.00  | 12.00 | 355.00        | -            | 8.00               | -            | -            |
|              | 12.00 | 25.00 | 345.00        | -            | 12.00              | -            | -            |
|              | 25.00 | 50.00 | 305.00        | -            | 22.00              | -            | -            |
|              | 50.00 | 75.00 | 285.00        | -            | 27.00              | -            | -            |
| Hex (A/F)    | 6.00  | 12.00 | 355.00        | -            | 8.00               | -            | -            |
|              | 12.00 | 25.00 | 345.00        | -            | 12.00              | -            | -            |
|              | 25.00 | 50.00 | 305.00        | -            | 22.00              | -            | -            |
|              | 50.00 | 75.00 | 285.00        | -            | 27.00              | -            | -            |
| Square (A/F) | 6.00  | 12.00 | 355.00        | -            | 8.00               | -            | -            |
|              | 12.00 | 25.00 | 345.00        | -            | 12.00              | -            | -            |
|              | 25.00 | 50.00 | 305.00        | -            | 22.00              | -            | -            |
|              | 50.00 | 75.00 | 285.00        | -            | 27.00              | -            | -            |

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### PHYSICAL PROPERTIES

|                            |                            |
|----------------------------|----------------------------|
| Density                    | 8.46 g/cm <sup>3</sup>     |
| Melting Point              | 910°C                      |
| Specific heat cap at 20 °C | 0.377 (kJ/kgK)             |
| Electrical conductivity    | 14.7 (MS/m)                |
| Mod of elasticity          | 105 (GPa)                  |
| Coef of therm exp at 20 °C | 20.4 (10 <sup>-6</sup> /K) |
| Thermal Conductivity       | 116W/m.K                   |

### FABRICATION PROPERTIES

| Technique                         | Suitability |
|-----------------------------------|-------------|
| Machinability (CuZn39Pb3 = 100 %) | 80%         |
| Capacity for being cold worked    | poor        |
| Capacity for being hot worked     | Fair        |
| Suitability for soldering         | Excellent   |
| Suitability for Brazing           | Good        |

### TYPICAL USES

- Precision Components Machining with Riveting operation.