

Inweld Phos-Bronze C

Alloy 521 UNS/CDA C52100
 AWS A5.7 Class ERCuSn-C
 ASME SFA5.7 ERCuSn-C
 MIL-E-23765/3 MIL-CuSn-C



Description and Applications:

Inweld Phos-Bronze C MIG & TIG filler metal is used for joining carbon steel and cast iron parts to copper, brass and bronze. It is also used for surfacing applications on shafts, pumps, impellers and propeller blades as well as for building-up bearing journals and frictional wear surfaces. The higher tin (Sn) content (7.0-9.0%) gives Phos-Bronze C weld deposits higher tensile and yield strengths than Phos-Bronze A. Inweld Phos-Bronze C is sometimes used as a “gunmetal” substitute. Preheating is not required, however when welding thick sections – a preheat and interpass temperature of 350 to 400 F (177 to 204 C) will improve metal fluidity. Rapid cooling at room temperature is recommended.

Chemical Composition of Phos-Bronze C ERCuSn-C

| Cu | Zn | Fe | Pb | P | Sn | Total Others |
|---------|------|------|------|-----------|---------|--------------|
| Balance | 0.20 | 0.10 | 0.05 | 0.03-0.35 | 7.0-9.0 | |

Single values are maximum unless otherwise specified.

Approximate Melting Temperature: 1880 F (1026 C)
 Average As-Welded Brinell Hardness: 68-83
 Tensile Strength: 40,000 psi (2809 MPA)



Recommended Welding Parameters:

| | Wire Diameter | Voltage* | Amperage* |
|---------------------------------|---------------------|----------|-----------|
| GMAW (DCRP – Electrode +) | 0.035 ^{cc} | 20-26 | 100-200 |
| 100% Argon or a 75 – 25% | 0.045 ^{cc} | 22-28 | 100-250 |
| Argon / Helium mixture | 1/16 ^{cc} | 29-32 | 250-400 |
| . | 3/32 ^{cc} | 32-34 | 350-500 |
| . | | | |
| GTAW (DCSP – Electrode -) | 1/16 ^{cc} | 70-120 | 70-150 |
| ACHF using 100% Ar or He | 3/32 ^{cc} | 120-160 | 140-230 |
| 2% Thoriated, 2% Ceriated or | 1/8 ^{cc} | 170-230 | 225-320 |
| 2% Lanthanum Tungsten Electrode | 5/32 ^{cc} | 220-280 | 175-300 |
| . | 3/16 ^{cc} | 280-330 | 200-320 |

*Use low range for iron or nickel-based alloy's, middle range for bronze alloys and high range for copper.