



PRODUCT DATA SHEET

Stainless Steel Bare Wire

Weld Process: Used for Mig, Tig, & Submerged Arc

Alloy: 505 Class: ER505 See ER80S-B8 AWS A.5.28

Conforms to Certification: AWS A5.9 / ASME SFA 5.9

Alloy: DM505



PRODUCT

DATA SHEET

AWS Chemical Composition Requirements

| | |
|-----------------|-----------------|
| C = 0.10 max | P = 0.03 max |
| Cr = 8.0 – 10.5 | S = 0.03 max |
| Ni = 0.50 max | Mo = 0.8 – 1.20 |
| Mn = 0.60 max | Cu = 0.75 max |
| Si = 0.50 max | |

Deposited Chemical Composition % (Typical)

| | | |
|-----------|-----------|-----------|
| C = 0.08 | Si = 0.34 | Mn = 0.45 |
| P = 0.023 | S = 0.022 | Cr = 9.15 |
| Mo = 1.05 | | |

Deposited All Weld Metal Properties

Data is typical for ER505 weld metal deposited by mig using argon + 2% oxygen and tig using 100% argon as the shielding gas. Data on sub-arc is dependent of the type of flux used.

Mechanical Properties R.T.

| | |
|------------------|-----------|
| Yield Strength | 63,500psi |
| Tensile Strength | 79,000psi |
| Elongation | 30% |

Application

ER505 is for welding tube or pipe of similar composition. Preheating and post-weld heat treatments are required.

Recommended Welding Parameters

GMAW “Mig Process”

Reversed Polarity

| Wire Diameter | Wire Feed | Amps | Volts | Shielding Gas | Gas CFH |
|--------------------------|-----------|--------|-------|-------------------------|---------|
| <u>Short Arc Welding</u> | | | | | |
| .030 | 13-26 | 40-120 | 16-20 | Argon+2% O ₂ | 25 |
| .035 | 13-26 | 60-140 | 16-22 | Argon+2% O ₂ | 25 |

Spray Arc Welding

| | | | | | |
|------|-------|---------|-------|-------------------------|----|
| .035 | 20-39 | 140-220 | 24-29 | Argon+2% O ₂ | 38 |
| .045 | 16-30 | 160-260 | 25-30 | Argon+2% O ₂ | 38 |
| 1/16 | 10-16 | 230-350 | 27-31 | Argon+2% O ₂ | 38 |

GTAW “Tig Process”

| Wire Diameter | Amps DCEN | Voltage | Gases |
|---------------|-----------|---------|------------|
| .035 | 60-90 | 12-15 | Argon 100% |
| .045 | 80-110 | 13-16 | Argon 100% |
| 1/16 | 90-130 | 14-16 | Argon 100% |
| 3/32 | 120-175 | 15-20 | Argon 100% |

Note: Parameters for tig welding are dependent upon plate thickness and welding position.

Other shielding Gases may be used for Mig and Tig welding. Shielding gases are chosen taking Quality, Cost, and Operability into consideration

Submerged Arc Welding

Reverse Polarity is suggested

| Wire Diameter | Amps | Volts |
|---------------|---------|-------|
| 3/32 | 250-450 | 28-32 |
| 1/8 | 300-500 | 29-34 |
| 5/32 | 400-600 | 30-35 |
| 3/16 | 500-700 | 30-35 |

Both Agglomerated and fused fluxes can be used for submerged arc welding. Note: The chemical composition of the flux mainly affects the chemistry of the weld metal and consequently its corrosion resistance and Mechanical properties