



**WA. ALLOY CO.**

WASHINGTON ALLOY'S Quality  
Management System is  
Certified to **ISO 9001:2008**  
Cert # 05-R0925

# 904L (385) Welding Wire and Rod

U.S. ALLOY CO.  
dba Washington Alloy  
7010-G Reames Rd.  
Charlotte, NC 28216  
[www.weldingwire.com](http://www.weldingwire.com)



**American Welding Society**  
Sustaining Company Member



## ALLOY DESCRIPTION AND APPLICATION;

904L is a high alloy austenitic stainless steel used to weld base metal of similar composition and with its extra low residual elements such as C, Si, S, P, and N improves the weld metal from hot cracking & fissuring. 904L with its 20% Cr, 25% Ni, 4.5% Mo and 1.5% Cu is often found to manufacture or repair processing equipment, tanks, vessels, and piping that handles acetic & sulfuric acids and other chlorides. Also used for joining 317L & 904L to 304 or 316 where added corrosion resistance is needed.

Ar + 30% He + 1-3 % CO<sub>2</sub> recommended

(Tri-mix gas = 90%He+7.5%Ar+2.5%CO<sub>2</sub>)

## TYPICAL GMAW WELDING PROCEDURES; DCEP Short Circuit

| Wire Diameter      | Wire Speed (ipm) | Amps           | Volts        | Electrical Stick-out | Tri-mix (cfh)        |
|--------------------|------------------|----------------|--------------|----------------------|----------------------|
| 0.035              | 120-330          | 60-150         | 15-22        | 3/8-1/2"             | 20-35                |
| 0.045              | 100-280          | 90-210         | 16-22        | 3/8-1/2"             | 25-40                |
| <i>Spray 0.035</i> | <i>250-470</i>   | <i>170-275</i> | <i>23-29</i> | <i>1/2-3/4"</i>      | <sup>(1)</sup> 25-35 |
| <i>0.045</i>       | <i>200-385</i>   | <i>195-330</i> | <i>24-31</i> | <i>1/2-3/4"</i>      | <sup>(1)</sup> 30-40 |

<sup>(1)</sup> Ar+  
1-3%O<sub>2</sub>

## TYPICAL GTAW WELDING PROCEDURES; DCEN with EWTh-2 truncated conical tip

| Filler Wire Size | Tungsten | Amps    | Volts | Gas Cup Size | Argon (cfh) | Base thickness |
|------------------|----------|---------|-------|--------------|-------------|----------------|
| 1/16"            | 1/16"    | 80-150  | 12    | 3/8"         | 20-35       | 1/16-1/8"      |
| 3/32"            | 3/32"    | 150-250 | 12    | 3/8"         | 20-35       | 1/8- 3/16"     |
| 1/8"             | 1/8"     | 200-375 | 12    | 1/2"         | 25-40       | 1/4-1/2"       |

Procedures may vary with change in position, base metals, filler metals, equipment and other changes. Keep heat input low with interpass below 250° F

## TYPICAL WIRE CHEMISTRY (%) & WELD METAL PROPERTIES

|            |           |                        |           |
|------------|-----------|------------------------|-----------|
| Carbon     | 0.025 max | Tensile Strength (psi) | 82,200    |
| Manganese  | 1.0-2.5   | Yield Strength (psi)   | 55,000    |
| Silicon    | 0.50 max  | Elongation             | 35 %      |
| Molybdenum | 4.2-5.2   |                        |           |
| Nickel     | 24.0-26.0 | Phosphorus             | 0.020 max |
| Chromium   | 19.5-21.5 | Sulfur                 | 0.03 max  |
| Copper     | 1.2-2.0   |                        |           |

**AVAILABLE SIZES:** TS 904L = Spools of 035, 045  
TT 904L = Cut lengths of 045, 1/16, 3/32, 1/8, 5/32

Other sizes available – please inquire

**SPECIFICATIONS;** ANSI/AWS A5.9 ER385  
ASME SFA 5.9 ER385

**EAST COAST**  
7010-G Reames Rd  
Charlotte, NC 28216  
Tel (888) 522-8296  
Fax (704)598-6673

**GULF COAST**  
4755 Alpine Drive #100A  
Stafford, TX 77477  
Tel (877) 711-9274  
Fax (281)313-6332

**WEST COAST**  
8535 Utica Ave  
Rancho Cucamonga, CA 91730  
Tel(800)830-9033  
Fax (909)291-4586



2012 DC

Warehouse Distribution Center – Dayton, Ohio

Head Office – Puyallup, Washington

Washington Alloy Company believes that all information and data given is correct. Use this information to assist in making your own evaluations or decisions and this information should not be mistaken as an expressed or implied warranty. U.S. ALLOY CO. assumes no liability for results or damages incurred from the use of any information contained herein, in whole or in part.