



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

312 Welding Wire and Rod



American Welding Society
Sustaining Company Member



ALLOY DESCRIPTION AND APPLICATION;

Washington Alloy 312 gives a two-phase stainless steel weld deposit with about 30% austenite and ferrite matrix. Properties are highly resistant to weld metal cracking and fissures while yielding high strengths and good wear/corrosion resistance. 312 is a good choice for welding carbon steels to stainless, tool steels and other difficult to weld steels.

(Tri-mix gas = 90%He+7.5%Ar+2.5%CO₂)

TYPICAL GMAW WELDING PROCEDURES; DCEP Short Circuit

Wire Diameter	Wire Speed (ipm)	Amps	Volts	Electrical Stick-out	Tri-mix (cfh)
0.023	180-400	30-85	14-19	3/8-1/2"	20-25
0.030	150-350	45-125	15-20	3/8-1/2"	20-25
0.035	120-330	60-150	16-22	3/8-1/2"	20-30
0.045	100-280	90-210	17-22	3/8-1/2"	25-30
<i>Spray 0.030</i>	<i>280-600</i>	<i>160-220</i>	<i>24-28</i>	<i>3/8-1/2"</i>	⁽¹⁾ 25-35
<i>0.035</i>	<i>250-470</i>	<i>170-295</i>	<i>23-29</i>	<i>1/2-3/4"</i>	⁽¹⁾ 25-35
<i>0.045</i>	<i>200-385</i>	<i>195-360</i>	<i>24-30</i>	<i>1/2-3/4"</i>	⁽¹⁾ 30-35
<i>1/16"</i>	<i>110-200</i>	<i>210-380</i>	<i>25-31</i>	<i>1/2-3/4"</i>	⁽¹⁾ 35-40

⁽¹⁾ 98%Ar
2%O₂

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	1/16-1/8"
3/32"	3/32"	150-250	12	3/8"	20	1/8- 3/16"
1/8"	1/8"	200-375	12	1/2"	25	1/4-1/2"

Procedures may vary with change in position, base metals, filler metals, equipment and other changes.

Some base metals may require preheat – 312 will not respond to heat-treatment

TYPICAL WIRE CHEMISTRY (%) & WELD METAL PROPERTIES

Carbon	0.14	Tensile Strength (psi)	109,000
Manganese	1.40	Yield Strength (psi)	79,000
Silicon	0.50	Elongation	25 %
Nickel	9.00	Hardness Rockwell B	93-103
Chromium	29.90		

AVAILABLE SIZES: TS 312= Spools of 020, 030, 035, 045, 1/16, 1/8

TT 312 = Cut lengths of 020, 025, 030, 035, 045, 1/16, 3/32, 1/8, 5/32

SPECIFICATIONS; ANSI/AWS A5.9 ER312
ASME SFA 5.9 ER312 F-6



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