



Quality Management System  
in accordance with  
**ISO 9001:2000**  
Cert # 05-R0925

# WASHINGTON Alloy S-7

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



### ALLOY DESCRIPTION AND APPLICATION:

Washington Alloy S-7 shock resisting tool steel filler produces a dense, fine-grained structure with high strength and ductility heat treatable deposits. This alloy retains its properties up to 600° F, also used in cold working applications where high shock loading and metal to metal wear areas. Washington Alloy S-7 is idea for many repair, build-up and alterations to blanking dies, bending dies, trimmer dies, cooling dies, rivet sets, hammer faces, punches & chisels points and shear blades.

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

Filler Wire Size	Tungsten	Amps	Volts	Gas Cup Size	Argon (cfh)	Base thickness
1/16"	1/16"	100-160	12	3/8"	20	1/16-3/32"
1/16-3/32"	3/32"	120-250	12	3/8"	20	1/8- 3/16"
1/8"	1/8"	150-300	12	1/2"	25	1/4-1/2"

Parameters are based on carbon and low allow steels flat position butt joints

Tool steel manufacturer should always be contacted for recommendations on welding and heat treatment procedures

### Typical Preheating, Postheating, and Tempering Temperatures

Annealed Base Metal		Hardened Base Metal		
Preheat and Postheat	Deposit Hardness	Preheat and Postheat	Tempering (double temper)	Deposit Hardness
300-500°F(149-260°C)	47-58 HRC	300-500°F(149-260°C)	400-1100°F(149-260°C)	52--56 HRC

Procedures may vary with change in position, base metals, filler metals, equipment and other changes. Hardness Varies with heat input and cooling rates

### TYPICAL WELD METAL CHEMISTRY (%) AND WELD METAL PROPERTIES (Stress relieved);

Carbon	0.50	Tungsten	2.50
Manganese	0.80	Molybdenum	0.50
Silicon	1.50	Tensile Strength (psi)	165,000
Chromium	1.50	Yield Strength (psi)	110,000

**AVAILABLE SIZES:** .020, .035, .045, 1/16, 3/32, 1/8

**SPECIFICATIONS; AISI S-7**



12-2007 DC

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