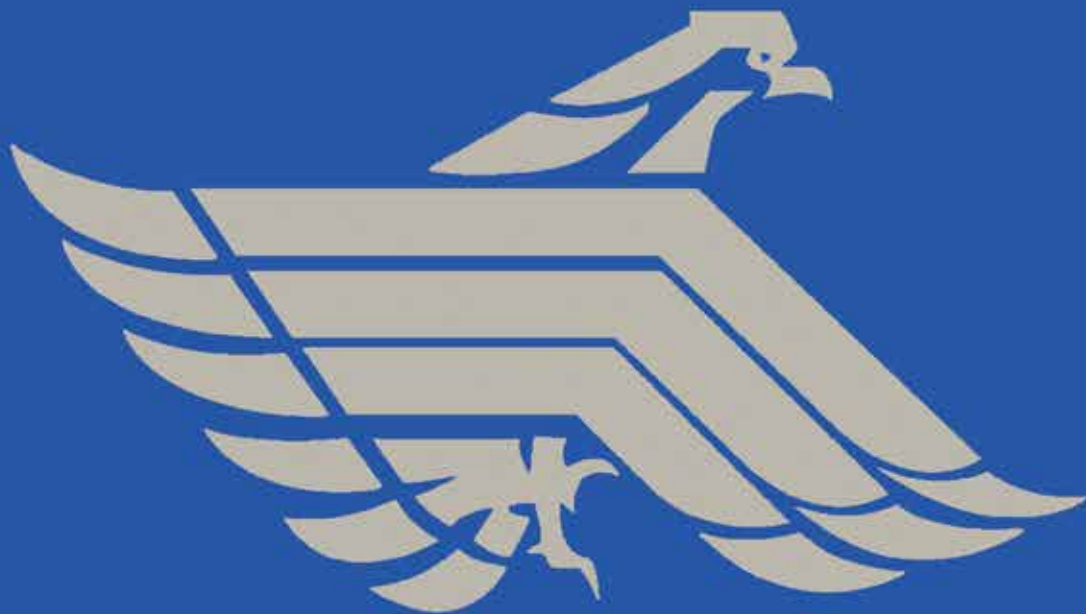


WASHINGTON ALLOY CO.

TRU-ARC+ 

**Seamless Flux Cored
Welding Wire**





Seamless Flux-Cored Welding Wire ***A Standard of Excellence!***

As the welding industry continues to improve and look for ways to reduce production costs and produce better finished products, new innovations continue to arise and lead the way to more efficient welding processes. **Washington Alloy** is proud and excited to announce a team effort with **Nippon Steel & Sumikin Welding Co.** To bring in a new standard of quality and functionality to Flux-Cored welding wires, made available to the U.S. market.

Both **Mild Steel** and **Stainless Steel *Seamless* Flux-cored wires** are now available from Washington Alloy Co. at our distribution centers accross the US. Experience the ultimate in Flux-Core Wires.

Shipping:

All Washington Alloy wires and accessories are combinable for prepaid freight allowances.

Washington Alloy Co.
Operates and Maintains an

ISO 9001
Certified Quality Management System

www.weldingwire.com

WASHINGTON ALLOY CO.

TRU-ARC+ Seamless SF-1A



**For Mixed Gas
E71T-1M, 9M**

AWS A5.20, E71T-1M, 9M H4
AWS A5.20M E491T-1M, 9M H4
AWS A5.36 E71T1-M21A2-CS1 H4
AWS A5.36M E491T1-M21A3-CS1 H4

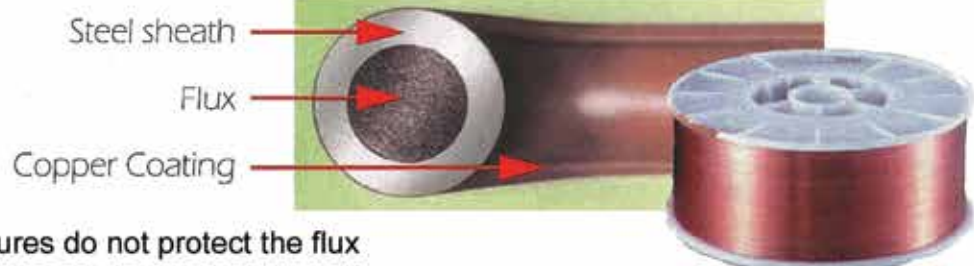
Seamless, Copper Coated Mild Steel Flux Cored Wire
From NIPPON STEEL & SUMIKIN WELDING CO, LTD

NIPPON STEEL SF-1A approvals: ABS, NK, LR, DNV, GL, BV, PRS, CWB

Seamless sheath,
protects flux from
contamination



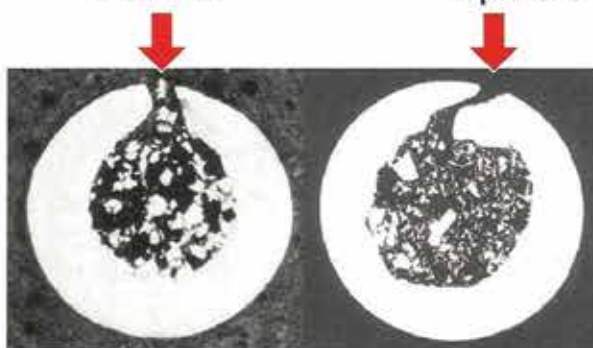
Superior Protection Inside and Out
Copper coating protects wire surface and aids feeding



Traditional wire closures do not protect the flux
in the wire core from ambient humidity

Butt Seam

Lap Seam



Bare wire surface does not
guard against oxidation.



Conventional wire closure seams for FCW



WASHINGTON ALLOY CO.

TRU-ARC+ Seamless SF-1B



For Mixed Gas or 100% CO₂ E71T-1C/1M, 9C/9M

AWS A5.20, E71T-1C/1M, 9C/9M H4
AWS A5.20M E491T-1C/1M, 9C/9M H4
AWS A5.36 E71T1-C1A2/M21A2-CS1 H4
AWS A5.36M E491T1-C1A3/M21A3-CS1 H4

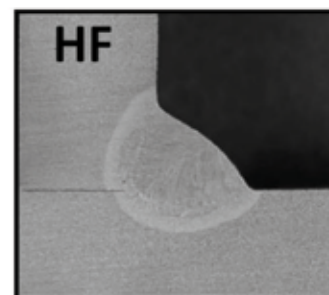
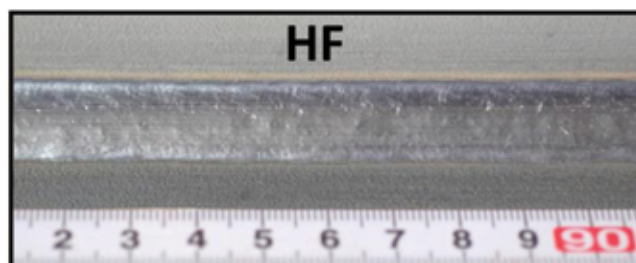
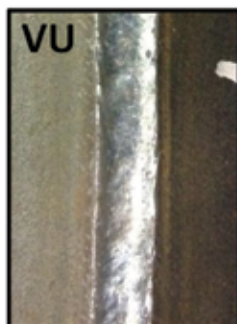
The Superior Performance of SF-1A and SF-1B

- * **Low spatter and Easy Slag Removal** * **High Efficiency Deposition**
- * **Excellent Surface Rust Protection** * **Excellent Hygroscopic Resistance**
- * **Excellent Feeding and Tip Abrasion Resistance**

Typical chemical composition of deposited metal (mass %)

Shield Gas	C	Si	Mn	P	S
Ar+25%CO ₂	0.05	0.53	1.59	0.010	0.006
100%CO ₂	0.05	0.38	1.29	0.013	0.007

When running **SF-1B** on 100% CO₂, increase approx. 2V for best results



All position, excellent penetration and macrostructure.



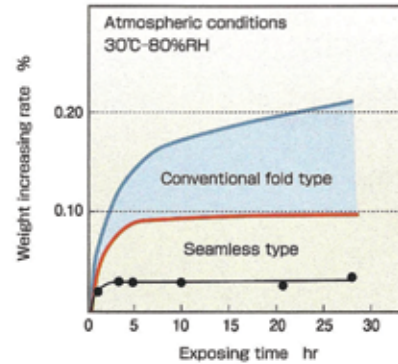
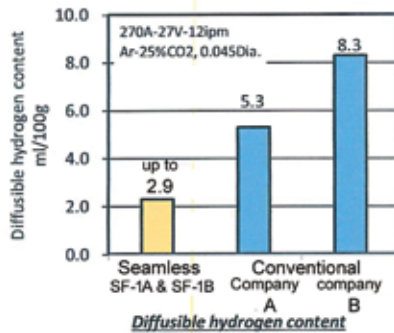
NIPPON STEEL SF-1B approvals: ABS, CWB, DNV, LR, GL

Advantages of Washington Alloy

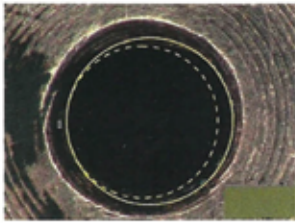
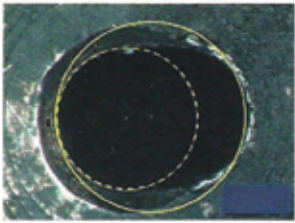
Tru-Arc+ SF-1A & SF-1B

Seamless Copper Coated FCW

Longer Shelf Life and Open-Air Exposure Over Standard Seamed Wires



Less Tip Abrasion & Longer Tip Life

Conditions	Seamless Flux Cored Wires	Conventional fold type
Continuous welding 10min x 10times (Accumulating total 100min) Wire dia. : .045" Welding current : 270A		
Abrasion amount of top of the tip	0.13mm	0.45mm

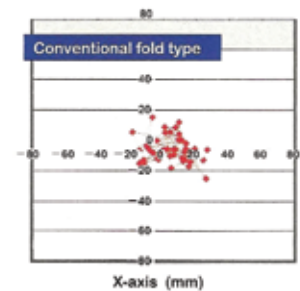
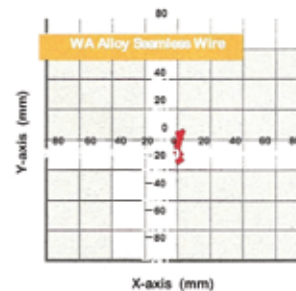
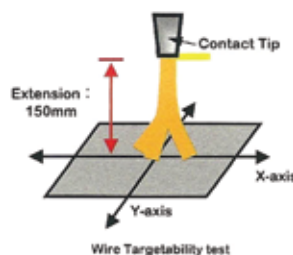
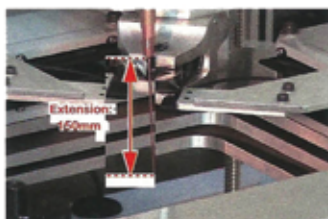
*(Circumscribed circle of tip hole after welding) (Diameter of the tip hole before welding)

Washington Alloy Seamless FCW has a tip life that is approximately 3.5 times longer than conventional type FCW.

This is due to:

- Washington Alloy Seamless FCW is plated with copper, therefore friction on the tip is minimal.
- The cross-section shape of Washington Alloy Seamless FCW is symmetrical, therefore the wire is fed out straight.

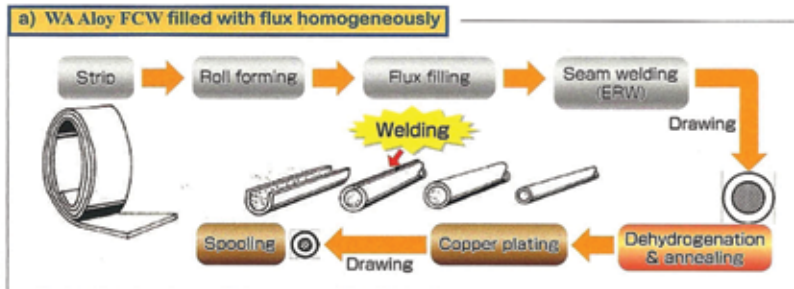
Targeting Point is Extremely Stable



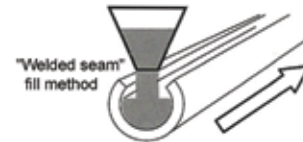
Best Choice for Automatic Welding

Tru-Arc+ Innovative Production Process for Seamless FCW vs. Other Seamless FCW

NSSW's Unique manufacturing process

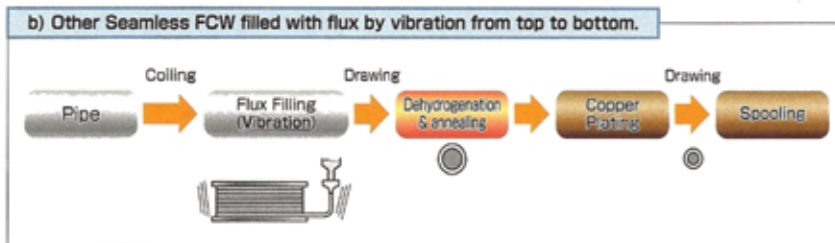


Leading edge fill technology for Seamless FCW

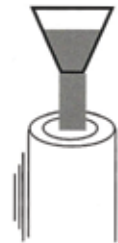


The welded seam allows for a homogeneous flux-fill, eliminating any shifting or settling of larger or heavier particles within the flux matrix. The result is "no flux voids" and a more consistent, uniform weld deposit.

Other Seamless FCW



Older fill method of Seamless FCW



The "vibration fill" creates the possibility of settling flux particles and may result in a non-uniform flux consistency with potential flux voids within the wire tube.

Average Diffusible Hydrogen content: **H2.9 for SF-1A** and **H2.3 for SF-1B**, ensures toughest crack resistance at low temperature environments as well as high-stress applications in construction and general fabrication

Typical Chemical Analysis

C	Cu	Mn	S	P	Si
0.05	0.30	1.30	0.003	0.013	0.55

Typical Mechanical Properties

Yield Strength at 0.2% offset (psi)	77,000
Tensile Strength (psi)	83,000
Elongation (%)	27
Charpy V-notch (ft lbs)	69 ft-lbf @ -20°F

Welding Parameters. Current / DC+

Wire Diameter	Amps/Volts	Shielding Gas
.045" (1.2mm)	180-300A / 22-32V	75%Ar-25% CO ₂
1/16" (1.6mm)	300-400A / 25-35V	75%Ar-25% CO ₂

Ordering Information:

Pt. No.	Description
TCC NSSW SF-1A 16	.045 x 11# spl
TCC NSSW SF-1A 17	.045 x 33# spl
TCC NSSW SF-1A 21	.052 x 33# spl
TCC NSSW SF-1A 24	1/16 x 33# spl
TCC NSSW SF-1B 17	.045 x 33# spl



Seamless Stainless Steel Flux-Cored Welding Wire

The Leading Edge of Flux-Cored Wire Technology,
Washington Alloy's Seamless Flux-cored wire delivers the highest levels
of Welding Performance, Efficiency and Mechanical Integrity.

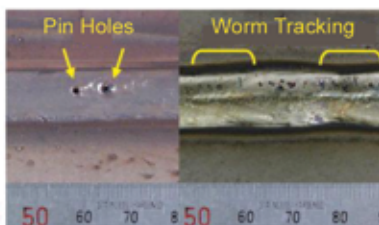
Smooth Feed, Stable Arc, Low Spatter, Low Fume

Grade	Mfr Brand Name	Shielding Gas	AWS A5.22	Application and Characteristics
Austenitic Stainless Steel	NSSW SF-308L	100%CO ₂ Ar + 25% CO ₂	E308LT0-1/4	Welding of AISI type 304L
	NSSW SF-308LP		E308LT1-1/4	All positional welding of AISI type 304L
	NSSW SF-309L		E309LT0-1/4	Welding of dissimilar metal such as type 304L to carbon steel, welding the clad side of type 304L clad steels and cladding of stainless steel to carbon steel
	NSSW SF-309LP		E309LT1-1/4	All positional welding type of SF-309L
	NSSW SF-316L		E316LT0-1/4	Welding of AISI type 316L
	NSSW SF-316LP		E316LT1-1/4	All positional welding of AISI type 316L

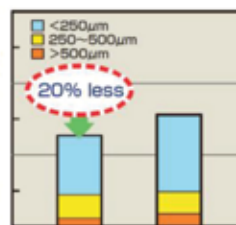


Seamless Wire

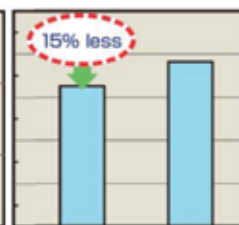
The bead appearances are welded Flux cored wires after 6 months from opening



Conventional Folded Seam Wire



**SF-309L The Fold Type
Spatter amount**



**SF-309LP The Fold Type
Fume emissions**

Wire diameter	Amps	Volts	Polarity	Shielding gas
.035	125-250	21-30	DC+	75/25 Ar/CO ₂
.045	150-300	25-33	DC+	75/25 Ar/CO ₂

Pt. Nos.

TCC SF-308L 17	.045 X 33 F/H	TCC SF-309L 17	.045 X 33 F/H	TCC SF-316L 17	.045 X 33 F/H
TCC SF-308LP 09	.035 X 33 A/P	TCC SF-309LP 09	.035 X 33 A/P	TCC SF-316LP 09	.035 X 33 A/P
TCC SF-308LP 17	.045 X 33 A/P	TCC SF-309LP 17	.045 X 33 A/P	TCC SF-316LP 17	.045 X 33 A/P

ORDERING INFORMATION

NIPPON STEEL Approvals: E308LT0-1/4, E309LT0-1/4 - **ABS, NK, LR, DNV, GL, BV, RS**
E316LT1-1/4 - **LR, DNV, GL** E316LT0-1/4 - **ABS, NK, LR, DNV, GL, RS**



Manufactured for

WASHINGTON ALLOY CO.

by Nippon Steel & Sumikin Welding Company





Washington Alloy has implemented
a certified Quality Management System scope
in accordance with
ISO 9001

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1-704-598-6673 Fax

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Rancho Cucamonga, California 91730

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1-909-291-4586 Fax

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Stafford, Texas 77477

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