CAST IRON ELECTRODES – Nickel 99, Nickel 55 & Non-Nickel EST Alloys

WASHINGTON ALLOY NICKEL 99
AWS/SFA 5.15 Eni-Cl

	1 LB CONTAINER		10 LB CONTAINER	
SIZE	PART No.	PRICE	PART No.	PRICE
3/32	99-332-1	$25.50	99-332-10	$195.00
1/8	99-18-1	$25.50	99-18-10	$190.00
5/32	99-532-1	$25.50	99-532-10	$190.00
3/16	99-316-1	$25.50	99-316-10	$190.00

DESCRIPTION
Washington Alloy Nickel 99 is recommended for all-position welding of thin cast iron sections where maximum machinability is required. Since the core wire is approximately 99% nickel, weld deposits are basically "soft" and can be shaped, milled, drilled, or tapped, while the color will match that of cast iron. Washington Alloy Nickel 99 is specifically suited for repairing cracked or porous castings and to weld cast iron to itself or dissimilar metals such as low alloy and carbon steels.

APPLICATIONS
The weld deposits produced by Washington Alloy Nickel 99 have lower strength and ductility than those of 55% nickel cast iron electrodes. For this reason Washington Alloy Nickel 99 should only be used where maximum machinability of highly diluted weld metal is required or where weld stresses are not overly severe such as found in light and medium-sized castings. Common uses include thin plates, machinery parts, frames and housings.

TYPICAL WELD METAL CHEMISTRY (%)

C	1.000
Si	0.700
Mn	0.200
P	0.005
S	0.005
Fe	3.000
Ni	Balance

TYPICAL MECHANICAL PROPERTIES OF WELD METAL (as welded)

Tensile strength (psi)	50,000
Yield strength (psi)	40,000
Elongation in 2" (%)	3-4
Hardness (Brinell)	200

SIZES AND RECOMMENDED CURRENT RANGES*

Sizes (in.)	AC	DC (Rev. Polarity)
3/32 (2.4 mm) x 12	50-90	40-80
1/8 (3.2 mm) x 14	90-120	80-120
5/32 (4.0 mm) x 14	120-150	100-140
3/16 (4.8 mm) x 14	130-170	120-170

*These settings are for flat or downhand positions. For overhead welding reduce 5-15 amps and for vertical welding reduce 10-20 amps.

WASHINGTON ALLOY NICKEL 55
AWS/SFA 5.15 Class ENiFe-Cl

	1 LB CONTAINER		10 LB CONTAINER	
SIZE	PART No.	PRICE	PART No.	PRICE
3/32	55-332-1	$19.95	55-332-10	$148.00
1/8	55-18-1	$19.95	55-18-10	$143.00
5/32	55-532-1	$19.95	55-532-10	$143.00
3/16	55-316-1	$19.95	55-316-10	$143.00

DESCRIPTION
Washington Alloy Nickel 55 is designed for all-position joining and surfacing of cast iron, malleable iron and ductile iron to itself or dissimilar metals such as mild steel, stainless steel, wrought alloys or high nickel alloys. A core wire chemistry of approximately 55% nickel and 45% iron produces weld deposits with much lower weld shrinkage stress which in turn reduces the possibility of weld or heat affected zone cracking. Washington Alloy Nickel 55 produces high strength, ductile weld deposits even when welding low grade cast iron containing excessive levels of phosphorus or other contaminants.

APPLICATIONS
Washington Alloy Nickel 55 is especially suited for welding heavy sections such as motor blocks, housings, machine parts, frames, defective castings and building-up worn sections. Weld deposits are machinable and the deposit color will approximate that of cast iron.

TYPICAL WELD METAL CHEMISTRY (%)

C	1.500
Si	0.500
Mn	0.300
P	0.005
S	0.002
Ni	53.000
Fe	Balance

TYPICAL MECHANICAL PROPERTIES OF WELD METAL (as welded)

Tensile strength (psi)	80,000
Yield strength (psi)	60,000
Elongation in 2" (%)	6-12
Hardness (Brinell)	300

SIZES AND RECOMMENDED CURRENT RANGES*

Sizes (in.)	AC	DC (Rev. Polarity)
3/32 (2.4 mm) x 12	50-65	40-65
1/8 (3.2 mm) x 14	80-95	70-95
5/32 (4.0 mm) x 14	110-135	100-135
3/16 (4.8 mm) x 14	130-155	120-155

*These settings are for flat or downhand positions. For overhead welding reduce 5-15 amps and for vertical welding reduce 10-20 amps.

WASHINGTON ALLOY EST
AWS/SFA 5.15 EST

MSDS THIS PAGE AVAILABLE

	1 LB CONTAINER		10 LB CONTAINER	
SIZE	PART No.	PRICE	PART No.	PRICE
3/32	EST-332-1	$8.25	EST-332-10	$36.50
1/8	EST-18-1	$8.25	EST-18-10	$32.00
5/32	EST-532-1	$8.25	EST-532-10	$32.00
3/16	-	-	-	-

DESCRIPTION
Washington Alloy EST is a non-nickel, non-machinable cast iron electrode. It is the most economical way to go for repairing various kinds of cast iron products - providing that machinability of the weld deposit is not required and where weld shrinkage stress is not a concern. Since the core wire is steel, the weld deposits will have a higher tensile strength (65,000 psi) than Nickel 99, however a color match of the base metal should not be expected. Washington Alloy EST melts at relatively low temperatures which permit the use of low welding currents. This electrode may be used in any position utilizing AC or DC (reverse polarity).

APPLICATIONS
Commonly used on gears, motor housings, machine parts, farm equipment, large fames or any other cast iron part where appearance of the weld deposit is not important.

TYPICAL WELD METAL CHEMISTRY (%)

C	0.950
Si	0.640
Mn	0.450
P	0.018
S	0.008
Fe	Balance

TYPICAL MECHANICAL PROPERTIES OF WELD METAL (as welded)

Tensile strength (psi)	65,000
Yield strength (psi)	50,000
Elongation in 2" (%)	5
Hardness (Brinell)	300-330

SIZES AND RECOMMENDED CURRENT RANGES

Sizes (in.)	AC & DC (Rev. Polarity)
3/32 (2.4mm) x 12	60-90
1/8 (3.2 mm) x 14	90-130
5/32 (4.0 mm) x 14	120-160

These settings are for flat or downhand positions. For overhead welding reduce 5-15 amps and for vertical welding reduce 10-20 amps.