



**CERTIFICATES OF CONFORMANCE
2014**

**Select Arc, Inc
600 Enterprise Drive
P.O. Box 259
Fort Loramie, Oh 45845**

INDEX

<u>Product</u>	<u>Specification</u>	<u>Classification</u>
<u>Flux Cored Electrodes</u>		
Select 71	AWS A5.20	E70T-1C
Select 97	"	E70T-1C, T-9C
Select 70TR	"	E70T-1C, T-9C
Select 720HP	"	E71T-12MJ
Select 720HP	"	E71T-12CJ
Select 720	"	E71T-1M, T-1MJ, T-9M, T-9MJ
Select 720	"	E71T-1C, T-1CJ, T-9C, T-12C, T-12CJ
Select 720A	"	E71T-9M
Select 720A	"	E71T-9C
Select 727	"	E71T-1M, T-9M
Select 727	"	E71T-1C, T-9C, T-12C
Select 737	"	E71T-9MJ
Select Encore	"	E71T-1M, T-9M
Select Encore	"	E71T-1C, T-9C
Select 810-Ni1	AWS 5.29	E81T1-Ni1MJ
Select 810-Ni1	"	E81T1-Ni1CJ
Select 810-Ni2	"	E81T1-Ni2M
Select 810-Ni2	"	E81T1-Ni2C
Select 810-W	"	E81T1-W2M
Select 810-W	"	E81T1-W2C
Select 820-Ni1	"	E81T1-Ni1MJ
Select 820-Ni1	"	E81T1-Ni1CJ
Select 920-Ni1	"	E91T1-GC
<u>Solid and Metal Cored Electrodes</u>		
Select 70C-3	AWS 5.18	E70C-3M
Select 70C-6 (75Ar/25Co2)	"	E70C-6M
Select 70C-6 (90Ar/10Co2)	"	E70C-6M
Select 70C-6LS (75Ar/25Co2)	"	E70C-6M
Select 70C-6LS (90Ar/10Co2)	"	E70C-6M
Select 70C-T	"	E70C-6M
Select ER70S-3	"	ER70S-3
Select ER70S-6	"	ER70S-6
<u>Submerged Arc Electrodes</u>		
Select ENi1S (Lincoln 960 flux)	AWS A5.23	ECNi1



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT-ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 71** electrode, classification **E70T-1C, T-9C**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **April 1, 2014**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameters .045" through 3/32", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis: 3/32" dia.	0.07	1.51	0.68	0.010	0.012
.045" dia.	0.07	1.48	0.56	0.009	0.012

RADIOGRAPHIC TESTS

Met requirements

FILLET WELD TESTS

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in):	3/32	.045
Amperage:	385	211
Arc Voltage:	30	29
Current Polarity:	DCEP	DCEP
Electrical Extension (in):	3/4	3/4
Shielding Gas:	CO ₂	CO ₂
No. of Passes/Layers:	12/6	12/6
Interpass Temperature (°F):	300 +/-25	300 +/-25
Heat Input (KJ/in):	45	31

TEST RESULTS:

	Requirements	Actual Results-3/32"	Actual Results-.045"
Tensile Strength (psi):	70-95,000 min.	91,300	92,100
Yield Strength (psi):	58,000 min.	78,500	80,700
Elongation (%):	22 min.	24	28
Charpy V-notch Impact:		21,29,27,20,25	23,22,27,35,25
ft•lb f @ -20°F	20 min. avg.	24 avg.	25 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT-ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/Production No. Shipped:

This is to certify that **Select 97** electrode, classification **E70T-1C, T-9C**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **April 1, 2014**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameters .045" through 3/32", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.	0.50 max.
Deposit Analysis: 3/32" dia.	0.08	1.70	0.33	0.010	0.012	0.35
.045" dia.	0.08	1.23	0.34	0.012	0.014	0.26

RADIOGRAPHIC TESTS

Met requirements

FILLET WELD TESTS

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in):	3/32	.045
Amperage:	391	231
Arc Voltage:	30	29
Current Polarity:	DCEP	DCEP
Electrical Extension (in):	3/4	3/4
Shielding Gas:	CO ₂	CO ₂
No. of Passes/Layers:	13/7	12/6
Interpass Temperature (°F):	300 +/-25	300 +/-25
Heat Input (KJ/in):	50	40

TEST RESULTS:

	Requirements	Actual Results-3/32"	Actual Results-.045"
Tensile Strength (psi):	70-95,000 min.	87,900	84,400
Yield Strength (psi):	58,000 min.	76,700	71,400
Elongation (%):	22 min.	28	31
Charpy V-notch Impact:		22,18,26,20,20	17,22,25,32,20
ft•lb f @ -20°F	20 min. avg.	21 avg.	22 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 

Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT-ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 70TR** electrode, classification **E70T-1C, T-9C**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **April 1, 2014**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameters 1/16" through 3/32", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis: 3/32" dia.	0.07	1.43	0.66	0.010	0.013
1/16" dia.	0.08	1.37	0.53	0.010	0.013

RADIOGRAPHIC TESTS

Met requirements

FILLET WELD TESTS

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in):	3/32	1/16
Amperage:	400	270
Arc Voltage:	29	30
Current Polarity:	DCEP	DCEP
Electrical Extension (in):	3/4	3/4
Shielding Gas:	CO ₂	CO ₂
No. of Passes/Layers:	10/5	12/6
Interpass Temperature (°F):	300 +/-25	300 +/-25
Heat Input (KJ/in):	50	49

TEST RESULTS:

	Requirements	Actual Results-3/32"	Actual Results-1/16"
Tensile Strength (psi):	70-95,000 min.	93,400	84,700
Yield Strength (psi):	58,000 min.	81,000	71,500
Elongation (%):	22 min.	28	33
Charpy V-notch Impact:		22,25,29,26,25	20,25,21,26,23
ft•lb f @ -20°F	20 min. avg.	25 avg.	23 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 720 HP** electrode, classification **E71T-12MJ** as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used testing on **February 18, 2014**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameter .035" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel
Requirements:	0.12 max.	1.60 max.	0.90 max.	0.03 max.	0.03 max.	0.50 max.
Deposit Analysis:	0.05	1.05	0.34	0.010	0.013	0.39

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 260
 Arc Voltage: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: 75Ar-25%CO₂
 No. of Passes/Layers: 14/7
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 36

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-90,000	81,200
Yield Strength (psi):	58,000 min.	70,600
Elongation (%):	22 min.	29
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	38,58,34,35,51 41 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 720 HP** electrode, classification **E71T-12CJ** as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **February 19, 2014**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameter .035" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel
Requirements:	0.12 max.	1.60 max.	0.90 max.	0.03 max.	0.03 max.	0.50 max.
Deposit Analysis:	0.05	0.99	0.29	0.009	0.013	0.39

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 270
 Arc Voltage: 29
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: CO₂
 No. of Passes/Layers: 13/7
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 40

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-90,000	77,600
Yield Strength (psi):	58,000 min.	67,200
Elongation (%):	22 min.	34
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	46,46,43,34,44 44 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: _____

Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
600 Enterprise Dr.
P. O. Box 259
Fort Loramie, OH 45845

Supplied to :

Date:
Customer Order Number :
Order Number :
Weight :
Lot/ Production No. Shipped:

This is to certify that **Select 720** electrode, classification **E71T-9MJ**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used testing on **February 24, 2014**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameters .035” through 1/16”, were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis: 1/16” dia.	0.07	1.57	0.52	0.010	0.009

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
Amperage: 310
Arc Voltage: 28
Current Polarity: DCEP
Electrical Extension (in): 3/4-1
Shielding Gas: Ar-25%CO₂
No. of Passes/Layers: 12/6
Interpass Temperature (°F): 300 +/-25
Heat Input (KJ/in): 45

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000	94,500
Yield Strength (psi):	58,000 min.	81,000
Elongation (%):	22 min.	27
Charpy V-notch Impact:		38,45,48,34,60
ft•lb f @ -40°F	20 min. avg.	44 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: _____

Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 720** electrode, classification **E71T-9CJ**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **February 25, 2014**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameters .035" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus
Requirements:	0.12 max.	1.60 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis: 1/16" dia.	0.07	1.57	0.52	0.010	0.009

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 300
 Arc Voltage: 29
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: CO₂
 No. of Passes/Layers: 12/6
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 42

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000	86,100
Yield Strength (psi):	58,000 min.	73,900
Elongation (%):	22 min.	31
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	58,43,46,49,46 54 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 720A** electrode, classification **E71T-9M**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used testing on **February 25, 2014**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameters .035” through 1/16”, were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis: 1/16” dia.	0.06	1.54	0.45	0.011	0.012

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 305
 Arc Voltage: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 12/6
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 43

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000	91,600
Yield Strength (psi):	58,000 min.	80,700
Elongation (%):	22 min.	29
Charpy V-notch Impact:		67,60,63,57,69
ft•lb f @ -20°F	20 min. avg.	63 avg.
ft•lb f @ -40°F	-	64,42,48,39,62 51 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 720A** electrode, classification **E71T-9C**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used testing on **February 25, 2014**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameters .035" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis: 1/16" dia.	0.06	1.43	0.37	0.011	0.012

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 296
 Arc Voltage: 29
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: CO₂
 No. of Passes/Layers: 12/6
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 44

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000	82,800
Yield Strength (psi):	58,000 min.	71,700
Elongation (%):	22 min.	32
Charpy V-notch Impact:		46,40,65,50,49
ft•lb f @ -20°F	20 min. avg.	48 avg.
ft•lb f @ -40°F	-	32,36,32,33,30 32 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
600 Enterprise Dr.
P. O. Box 259
Fort Loramie, OH 45845

Supplied to :

Date:
Customer Order Number :
Order Number :
Weight :
Lot/ Production No. Shipped:

This is to certify that Select 727 electrode, classification E71T-9MJ, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used testing on February 24, 2014. All tests required by specifications AWS A5.20/ASME SFA-5.20, for wire diameters .035" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

Table with 6 columns: Requirements, Carbon, Manganese, Silicon, Sulphur, Phosphorus. Rows include Requirements and Deposit Analysis for 1/16" dia.

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED [X]

STRESS RELIEVED (hr @ °F) []

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
Amperage: 300
Arc Voltage: 29
Current Polarity: DCEP
Electrical Extension (in): 3/4-1
Shielding Gas: Ar-25%CO2
No. of Passes/Layers: 12/6
Interpass Temperature (°F): 300 +/-25
Heat Input (KJ/in): 45

TEST RESULTS:

Table with 3 columns: Requirements, Actual Results. Rows include Tensile Strength, Yield Strength, Elongation, Charpy V-notch Impact.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: [Signature]
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 727** electrode, classification **E71T-9CJ**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **February 25, 2014**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameters .035" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus
Requirements:	0.12 max.	1.60 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis: 1/16" dia.	0.06	1.40	0.43	0.009	0.009

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 300
 Arc Voltage: 29
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: CO₂
 No. of Passes/Layers: 12/6
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 42

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000	86,000
Yield Strength (psi):	58,000 min.	74,000
Elongation (%):	22 min.	22
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	43,46,58,49,46 47 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
600 Enterprise Dr.
P. O. Box 259
Fort Loramie, OH 45845

Supplied to :

Date:
Customer Order Number :
Order Number :
Weight :
Lot/ Production No. Shipped:

This is to certify that **Select 737** electrode, classification **E71T-9MJ**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **February 26, 2014**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameters .035" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis: 1/16" dia.	0.06	1.46	0.32	0.011	0.009

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
Amperage: 280
Arc Voltage: 28.5
Current Polarity: DCEP
Electrical Extension (in): 3/4-1
Shielding Gas: Ar-10%CO₂
No. of Passes/Layers: 13/7
Interpass Temperature (°F): 300 +/-25
Heat Input (KJ/in): 40

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000	89,500
Yield Strength (psi):	58,000 min.	78,000
Elongation (%):	22 min.	27
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	76,83,76,75,80 77 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Encore** electrode, classification **E71T-1M, T-9M**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used testing on **February 26, 2014**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameters .045” through 1/16”, were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis: 1/16” dia.	0.05	1.23	0.38	0.011	0.006

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 260
 Arc Voltage: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 13/7
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 42

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000 min.	77,600
Yield Strength (psi):	58,000 min.	66,600
Elongation (%):	22 min.	29
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	94,90,101,85,101 95 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
600 Enterprise Dr.
P. O. Box 259
Fort Loramie, OH 45845

Supplied to :

Date:
Customer Order Number :
Order Number :
Weight :
Lot/ Production No. Shipped:

This is to certify that Encore electrode, classification E71T-1C, T-9C, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used testing on February 25, 2014. All tests required by specifications AWS A5.20/ASME SFA-5.20, for wire diameters .045" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

Table with 6 columns: Requirements, Carbon, Manganese, Silicon, Sulphur, Phosphorus. Rows include Requirements and Deposit Analysis for 1/16" dia.

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED [X]

STRESS RELIEVED (hr @ °F) []

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
Amperage: 246
Arc Voltage: 29
Current Polarity: DCEP
Electrical Extension (in): 3/4-1
Shielding Gas: CO2
No. of Passes/Layers: 14/7
Interpass Temperature (°F): 300 +/-25
Heat Input (KJ/in): 43

TEST RESULTS:

Table with 3 columns: Test Name, Requirements, Actual Results. Rows include Tensile Strength, Yield Strength, Elongation, Charpy V-notch Impact.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: [Signature]
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :

SELECT ARC, INC.

600 Enterprise Dr.

P. O. Box 259

Fort Loramie, OH 45845

Supplied to :

Date:

Customer Order Number :

Order Number :

Weight :

Lot/ Production No. Shipped:

This is to certify that **Select 810-Ni1** electrode, classification **E81T1-Ni1MJ**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **March 12, 2014**. All tests required by specifications **AWS A5.29/ASME SFA-5.29**, for wire diameters .045" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Molybdenum	Vanadium
Requirements:	0.12 max.	1.50 max.	0.80 max.	0.03 max.	0.03 max.	0.80-1.10	0.15 max.	0.35 max.	0.05 max.
Deposit Analysis: 1/16" dia.	0.06	1.32	0.52	0.008	0.007	1.01	0.05	<0.01	0.02

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 263
 Arc Voltage: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 15/8
 Preheat /Interpass Temp (°F): 300 +/-25
 Heat Input (KJ/in): 36

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	90,300
Yield Strength (psi):	68,000 min.	78,300
Elongation (%):	19 min.	28
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	43,38,30,20,26 31 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: _____

Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 810-Ni1** electrode, classification **E81T1-Ni1CJ**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **March 12, 2014**. All tests required by specifications **AWS A5.29/ASME SFA-5.29**, for wire diameters .045" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Molybdenum	Vanadium
Requirements:	0.12 max.	1.50 max.	0.80 max.	0.03 max.	0.03 max.	0.80-1.10	0.15 max.	0.35 max.	0.05 max.
Deposit Analysis: 1/16" dia.	0.05	1.12	0.38	0.008	0.007	0.96	0.04	<0.01	0.01

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 253
 Arc Voltage: 30
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: CO₂
 No. of Passes/Layers: 16/8
 Preheat /Interpass Temp (°F): 300 +/-25
 Heat Input (KJ/in): 36

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	80,000
Yield Strength (psi):	68,000 min.	68,000
Elongation (%):	19 min.	33
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	66,63,24,20,43 43 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :

SELECT ARC, INC.

600 Enterprise Dr.

P. O. Box 259

Fort Loramie, OH 45845

Supplied to :

Date:

Customer Order Number :

Order Number :

Weight :

Lot/ Production No. Shipped:

This is to certify that **Select 810-Ni2** electrode, classification **E81T1-Ni2M**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **April 21, 2014**. All tests required by specifications **AWS A5.29/ASME SFA-5.29**, for wire diameters .045" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel
Requirements:	0.12 max.	1.50 max.	0.80 max.	0.03 max.	0.03 max.	1.75-2.75
Deposit Analysis: 1/16" dia.	0.06	1.12	0.44	0.009	0.008	2.54

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 276
 Arc Voltage: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 17/8
 Preheat /Interpass Temp (°F): 300 +/-25
 Heat Input (KJ/in): 31

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	99,800
Yield Strength (psi):	68,000 min.	86,900
Elongation (%):	19 min.	24
Charpy V-notch Impact:		48,45,40,46,45
ft•lb f @ -40°F	20 min. avg.	45 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
600 Enterprise Dr.
P. O. Box 259
Fort Loramie, OH 45845

Supplied to :

Date:
Customer Order Number :
Order Number :
Weight :
Lot/ Production No. Shipped:

This is to certify that Select 810-Ni2 electrode, classification E81T1-Ni2C, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on April 21, 2014. All tests required by specifications AWS A5.29/ASME SFA-5.29, for wire diameters .045” through 1/16”, were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel
Requirements:	0.12 max.	1.50 max.	0.80 max.	0.03 max.	0.03 max.	1.75-2.75
Deposit Analysis: 1/16” dia.	0.05	1.02	0.38	0.009	0.008	2.39

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)


WELDING PARAMETERS:

Electrode Diameter (in): 1/16
Amperage: 283
Arc Voltage: 29
Current Polarity: DCEP
Electrical Extension (in): ¾-1
Shielding Gas: CO₂
No. of Passes/Layers: 16/8
Preheat /Interpass Temp (°F): 300 +/-25
Heat Input (KJ/in): 36

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	93,100
Yield Strength (psi):	68,000 min.	80,500
Elongation (%):	19 min.	28
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	32,35,33,26,30 32 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 810W** electrode, classification **E81T1-W2M**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **March 24, 2014**. All tests required by specifications **AWS A5.29/ASME SFA-5.29**, for wire diameters .045" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Copper
Requirements:	0.12 max.	0.50-1.30	0.35-0.80	0.03 max.	0.03 max.	0.40-0.80	0.45-0.70	0.30-0.75
Deposit Analysis: 1/16" dia.	0.05	0.97	0.46	0.009	0.011	0.54	0.52	0.39

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 271
 Arc Voltage: 27
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: 75Ar-25CO₂
 No. of Passes/Layers: 12/6
 Preheat/Interpass Temp (°F): 300 +/-25
 Heat Input (KJ/in): 41

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	89,500
Yield Strength (psi):	68,000 min.	76,900
Elongation (%):	19 min.	27
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	30,28,32,21,28 29 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: _____

Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 810W** electrode, classification **E81T1-W2C**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **April 21, 2014**. All tests required by specifications **AWS A5.29/ASME SFA-5.29**, for wire diameters .045" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Copper
Requirements:	0.12 max.	0.50-1.30	0.35-0.80	0.03 max.	0.03 max.	0.40-0.80	0.45-0.70	0.30-0.75
Deposit Analysis: 1/16" dia.	0.04	0.81	0.36	0.010	0.011	0.53	0.49	0.37

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 270
 Arc Voltage: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: CO₂
 No. of Passes/Layers: 13/7
 Preheat/Interpass Temp (°F): 300 +/-25
 Heat Input (KJ/in): 41

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	80,700
Yield Strength (psi):	68,000 min.	68,300
Elongation (%):	19 min.	31
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	42,51,17,46,18 35 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: _____

Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 820-Ni1** electrode, classification **E81T1-Ni1MJ**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **March 14, 2014**. All tests required by specifications **AWS A5.29/ASME SFA-5.29**, for wire diameters .045" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Molybdenum	Vanadium
Requirements:	0.12 max.	1.50 max.	0.80 max.	0.03 max.	0.03 max.	0.80-1.10	0.15 max.	0.35 max.	0.05 max.
Deposit Analysis: 1/16" dia.	0.04	1.41	0.52	0.008	0.007	1.01	0.04	0.01	0.02

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 305
 Arc Voltage: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 13/6
 Preheat /Interpass Temp (°F): 300 +/-25
 Heat Input (KJ/in): 34

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	98,100
Yield Strength (psi):	68,000 min.	89,000
Elongation (%):	19 min.	28
Charpy V-notch Impact:		28,58,63,47,61
ft•lb f @ -40°F	20 min. avg.	55 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number:
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 820-Ni1** electrode, classification **E81T1-Ni1CJ**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **March 12, 2014**. All tests required by specifications **AWS A5.29/ASME SFA-5.29**, for wire diameters .045" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Molybdenum	Vanadium
Requirements:	0.12 max.	1.50 max.	0.80 max.	0.03 max.	0.03 max.	0.80-1.10	0.15 max.	0.35 max.	0.05 max.
Deposit Analysis: 1/16" dia.	0.02	1.31	0.44	0.009	0.009	0.99	0.06	<0.01	0.02

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 257
 Arc Voltage: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: CO₂
 No. of Passes/Layers: 16/8
 Preheat /Interpass Temp (°F): 300 +/-25
 Heat Input (KJ/in): 33

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	84,700
Yield Strength (psi):	68,000 min.	76,300
Elongation (%):	19 min.	29
Charpy V-notch Impact:		74,74,88,77,73
ft•lb f @ -40°F	20 min. avg.	75 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :

SELECT ARC, INC.

600 Enterprise Dr.

P. O. Box 259

Fort Loramie, OH 45845

Supplied to :

Date:

Customer Order Number :

Order Number :

Weight :

Lot/ Production No. Shipped:

This is to certify that **Select 920-Ni1** electrode, classification **E91T1-GC**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **March 14, 2014**. All tests required by specifications **AWS A5.29/ASME SFA-5.29**, for wire diameters .045" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel
Requirements:	-	0.50 min.	1.00 max.	0.030	0.030	0.50 min.
Deposit Analysis: 1/16" dia.	0.04	1.42	0.52	0.009	0.007	0.86

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 297
 Arc Voltage: 29
 Current Polarity: DCEP
 Electrical Extension (in): 3/4-1
 Shielding Gas: CO₂
 No. of Passes/Layers: 14/7
 Preheat /Interpass Temp (°F): 300 +/-25
 Heat Input (KJ/in): 35

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	90,000	90,900
Yield Strength (psi):	Not Required	80,900
Elongation (%):	Not Required	27
Charpy V-notch Impact:		48,51,59,39,37
ft•lb f @ -40°F	Not Required	46 avg.
Charpy V-notch Impact:		50,37,45,41,46
ft•lb f @ -50°F	Not Required	44 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
 SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 70C-3** electrode, classification **E70C-3M**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **April 1, 2014**. All tests required by specifications **AWS A5.18/ASME SFA-5.18**, for wire diameters .035" through 3/32", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Molybdenum	Vanadium	Copper
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.	0.50 max.	0.20 max.	0.30 max.	0.08 max.	0.50 max.
Deposit Analysis: .045" diam.	0.06	1.34	0.48	0.012	0.011	0.03	0.03	0.010	<0.01	0.08

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 251
 Arc Voltage: 29
 Current Polarity: DCEP
 Electrical Extension (in): ¾
 Shielding Gas: 75Ar/25CO₂
 No. of Passes/Layers: 13/7
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 35

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	78,000
Yield Strength (psi):	58,000 min.	65,200
Elongation (%):	22 min.	35
Charpy V-notch Impact: ft•lb f @ 0°F	20 min. avg.	116,141,141,126,129 132 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
 SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 70C-6** electrode, classification **E70C-6M**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **April 1, 2014**. All tests required by specifications **AWS A5.18/ASME SFA-5.18**, for wire diameters .035" through 3/32", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Molybdenum	Vanadium	Copper
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.	0.50 max.	0.20 max.	0.30 max.	0.08 max.	0.50 max.
Deposit Analysis: .045" diam.	0.04	1.48	0.86	0.009	0.013	0.03	0.04	0.01	<0.01	0.07

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 250
 Arc Voltage: 29
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: 75Ar/25CO₂
 No. of Passes/Layers: 16/8
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 44

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	83,600
Yield Strength (psi):	58,000 min.	71,400
Elongation (%):	22 min.	37
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	70,84,59,77,55 69 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
 Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
 SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 70C-6** electrode, classification **E70C-6M**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **March 29, 2014**. All tests required by specifications **AWS A5.18/ASME SFA-5.18**, for wire diameters .035" through 3/32", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Molybdenum	Vanadium	Copper
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.	0.50 max.	0.20 max.	0.30 max.	0.08 max.	0.50 max.
Deposit Analysis: .045" diam.	0.05	1.59	0.87	0.011	0.014	0.03	0.04	0.01	<0.01	0.09

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 281
 Arc Voltage: 29.0
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: 90Ar/10CO₂
 No. of Passes/Layers: 12/6
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 38

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	91,700
Yield Strength (psi):	58,000 min.	81,500
Elongation (%):	22 min.	27
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	50,74,68,54,69 64 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
 SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 70C-6LS** electrode, classification **E70C-6M**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **March 29, 2014**. All tests required by specifications **AWS A5.18/ASME SFA-5.18**, for wire diameters .035" through 3/32", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Molybdenum	Vanadium	Copper
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.	0.50 max.	0.20 max.	0.30 max.	0.08 max.	0.50 max.
Deposit Analysis: .045" diam.	0.08	1.42	0.60	0.011	0.011	0.42	0.03	0.01	<0.01	0.07

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 251
 Arc Voltage: 29
 Current Polarity: DCEP
 Electrical Extension (in): ¾
 Shielding Gas: 75Ar/25CO₂
 No. of Passes/Layers: 16/8
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 34

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	88,200
Yield Strength (psi):	58,000 min.	76,500
Elongation (%):	22 min.	30
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	27,40,40,44,36 39 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
 SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 70C-6LS** electrode, classification **E70C-6M**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **April 1, 2014**. All tests required by specifications **AWS A5.18/ASME SFA-5.18**, for wire diameters .035" through 3/32", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Molybdenum	Vanadium	Copper
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.	0.50 max.	0.20 max.	0.30 max.	0.08 max.	0.50 max.
Deposit Analysis: .045" diam.	0.08	1.60	0.69	0.012	0.011	0.42	0.03	0.01	<0.01	0.07

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 260
 Arc Voltage: 34
 Current Polarity: DCEP
 Electrical Extension (in): ¾
 Shielding Gas: 90Ar/10CO₂
 No. of Passes/Layers: 12/6
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 34

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	86,000
Yield Strength (psi):	58,000 min.	74,100
Elongation (%):	22 min.	26
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	97,89,81,94,60 88 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT-ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to:

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select 70C-T** electrode, classification **E70C-6M**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **April 1, 2014**. All tests required by specifications **AWS A5.18/ASME SFA-5.18**, for wire diameters .035" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Molybdenum	Vanadium	Copper
Requirements:	0.12 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.	0.50 max.	0.20 max.	0.30 max.	0.08 max.	0.50 max.
Deposit Analysis:	0.06	1.43	0.61	0.013	0.012	0.39	0.03	0.01	<0.01	0.10

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 250
 Arc Voltage: 29
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: 75Ar/25CO₂
 No. of Passes/Layers: 14/7
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 34

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	88,200
Yield Strength (psi):	58,000 min.	76,800
Elongation (%):	22 min.	32
Charpy V-notch Impact:		32,56,68,57,82
ft•lb f @ -20°F	20 min. avg.	60 avg.
ft•lb f @ -40°F	-	53,36,56,65,28
		48 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

SELECT-ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select ER70S-3** electrode, classification **ER70S-3**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **March 29, 2014**. All tests required by specifications **AWS A5.18/ASME SFA-5.18**, for wire diameters .035" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Molybdenum	Vanadium	Copper
Requirements:	0.06-0.15	0.90-1.40	0.45-0.75	0.035 max.	0.025 max.	0.15 max.	0.15 max.	0.15 max.	0.03 max.	0.50 max.
Electrode Analysis:	0.08	1.17	0.54	0.009	0.006	0.01	0.01	<0.01	0.002	<0.16

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 260
 Arc Voltage: 30
 Current Polarity: DCEP
 Shielding Gas: CO₂
 No. of Passes/Layers: 14/7
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 36

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	77,200
Yield Strength (psi):	58,000 min.	62,200
Elongation (%):	22 min.	27
Charpy V-notch Impact: ft•lb f @ 0°F	20 min. avg.	99,115,111,96,94 102 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select ER70S-6** electrode, classification **ER70S-6**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **April 1, 2014**. All tests required by specifications **AWS A5.18/ASME SFA-5.18**, for wire diameters .035" through 1/16", were performed in conformance with these specifications and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	Carbon	Manganese	Silicon	Sulphur	Phosphorus	Nickel	Chromium	Molybdenum	Vanadium	Copper
Requirements:	0.06-0.15	1.40-1.85	0.80-1.15	0.035 max.	0.025 max.	0.15 max.	0.15 max.	0.15 max.	0.03 max.	0.50 max.
Electrode Analysis:	0.09	1.51	0.90	0.006	0.011	0.01	0.02	0.01	<0.01	<0.16

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 260
 Arc Voltage: 30
 Current Polarity: DCEP
 Shielding Gas: CO₂
 No. of Passes/Layers: 16/8
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 36

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	84,800
Yield Strength (psi):	58,000 min.	67,900
Elongation (%):	22 min.	32
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	70,54,66,65,81 67 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director



CERTIFICATE OF CONFORMANCE

Manufactured in the U.S.A. by :
SELECT ARC, INC.
 600 Enterprise Dr.
 P. O. Box 259
 Fort Loramie, OH 45845

Supplied to :

Date:
 Customer Order Number :
 Order Number :
 Weight :
 Lot/ Production No. Shipped:

This is to certify that **Select ENi1S** electrode, classification **ECNi1**, and **Lincoln 960 flux** were used for testing on **March 24, 2014**. All tests required by specifications **AWS A5.23**, classification **F7A2-ECNi1-Ni1**, for wire diameters 1/16" through 5/32", were performed in conformance with this specification and the results met all requirements. The test results were as follows:

CHEMICAL ANALYSIS (%)

	C	Mn	Si	S	P	Cr	Ni	Mo	Cu	Ti+V+Zr
Requirements:	0.12 max.	1.60 max.	0.80 max.	0.025 max.	0.030 max.	0.15 max.	0.75-1.10	0.35 max.	0.35 max.	0.05 max.
Deposit Analysis: 5/32" dia. (from multipass weld)	0.03	1.29	0.26	0.010	0.019	0.04	0.94	0.12	0.05	<0.01

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 5/32
 Amperage: 605
 Arc Voltage: 33
 Current Polarity: DCEP
 Electrical Extension (in): 1
 Flux: Lincoln 960
 No. of Passes/Layers: 19/9
 Preheat /Interpass Temp (°F): 300 +/-25
 Heat Input (KJ/in): 58

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000	79,100
Yield Strength (psi):	58,000 min.	67,400
Elongation (%):	22 min.	29
Charpy V-notch Impact:		40,50,44,40,26
ft•lb f @ -20°F	20 min. avg.	41 avg.
ft•lb f @ -50°F	-	18,48,42,31,28
		34 avg.

The undersigned certifies that the product supplied will meet the requirements of the applicable AWS Filler Metal Specification when tested in accordance with that specification, and that no significant change has been made in the formulations and manufacturing procedures described in the qualification approval.

Signed by: 
Ben Pletcher, Technical Director