



**CERTIFICATES OF CONFORMANCE
2009**

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

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Select 727	"	E71T-1M, T-9M
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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**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used for testing on **July 11, 2008**. 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.	0.04	1.37	0.67	0.009	0.008
.045" dia.	0.05	1.61	0.42	0.008	0.009

RADIOGRAPHIC TESTS

Met requirements

FILLET WELD TESTS

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in):	3/32	.045
Amperage:	400	220
Arc Voltage:	29	28.5
Current Polarity:	DCEP	DCEP
Electrical Extension (in):	3/4	3/4
Shielding Gas:	CO ₂	CO ₂
No. of Passes/Layers:	10/5	10/5
Interpass Temperature (°F):	300 +/-25	300 +/-25

TEST RESULTS:

	Requirements	Actual Results-3/32"	Actual Results-.045"
Tensile Strength (psi):	70-95,000 min.	89,500	85,200
Yield Strength (psi):	58,000 min.	74,200	72,700
Elongation (%):	22 min.	27	28
Charpy V-notch Impact:		30,30,33,31,33	14,29,23,26,23
ft•lb f @ 0°F	20 min. avg.	31 avg.	24 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: _____
Ronald B. Smith, 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 **May 5, 2009**. 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.	0.03	1.57	0.28	0.009	0.012	0.31
.045" dia.	0.03	1.26	0.43	0.009	0.011	0.31

RADIOGRAPHIC TESTS

Met requirements

FILLET WELD TESTS

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in):	3/32	.045
Amperage:	395	240
Arc Voltage:	30	28.5
Current Polarity:	DCEP	DCEP
Electrical Extension (in):	1	3/4
Shielding Gas:	CO ₂	CO ₂
No. of Passes/Layers:	14/7	12/6
Interpass Temperature (°F):	300 +/-25	300 +/-25

TEST RESULTS:

	Requirements	Actual Results-3/32"	Actual Results-.045"
Tensile Strength (psi):	70-95,000 min.	92,500	77,900
Yield Strength (psi):	58,000 min.	79,700	65,500
Elongation (%):	22 min.	24	29
Charpy V-notch Impact:		32,31,26,38,41	72,79,80,68,84
ft•lb f @ -20°F	20 min. avg.	34 avg.	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:

Ronald B. Smith, Technical Director



CERTIFICATE OF CONFORMANCE

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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-H4** as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used testing on **July 10, 2009**. All tests required by specifications **AWS A5.20/ASME SFA-5.20**, for wire diameter .035" through 5/64", 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:	0.06	1.15	0.39	0.009	0.010	0.45

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

Parameters: 205 amps, 27 volts 1" CTWD, 12 ipm travel speed	Requirements		4.0 avg.
	Actual Results	1.8, 1.9, 1.8, 2.2	1.9 avg.

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 290
 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

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-90,000	87,900
Yield Strength (psi):	58,000 min.	80,000
Elongation (%):	22 min.	26
Charpy V-notch Impact:		79,68,73,76,77
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: 

Ronald B. Smith Technical Director



CERTIFICATE OF CONFORMANCE

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 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-1M, T-1MJ, T-9M, T-9MJ**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used testing on **April 6, 2009**. 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.	0.05	1.67	0.58	0.010	0.009

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 270
 Arc Voltage: 28.5
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 10/5
 Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000	89,700
Yield Strength (psi):	58,000 min.	75,100
Elongation (%):	22 min.	30
Charpy V-notch Impact:		46,42,49,36,34
ft•lb f @ -40°F	20 min. avg.	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:

Ronald B. Smith Technical Director



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 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-1C, T-1CJ, T-9C, T-9CJ, T12C, T-12CJ**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used testing on **April 6, 2009**. 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.	0.05	1.42	0.47	0.009	0.010

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 270
 Arc Voltage: 28.5
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: CO₂
 No. of Passes/Layers: 12/6
 Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-90,000	89,700
Yield Strength (psi):	58,000 min.	78,600
Elongation (%):	22 min.	27
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	32,30,32,26,38 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.

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 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-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 **April 6, 2009**. 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.	0.05	1.67	0.58	0.010	0.009

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 270
 Arc Voltage: 28.5
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 10/5
 Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000 min.	90,000
Yield Strength (psi):	58,000 min.	75,000
Elongation (%):	22 min.	30
Charpy V-notch Impact:		58,59,50,58,54
ft•lb f @ -20°F	20 min. avg.	57 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:

Ronald B. Smith Technical Director



CERTIFICATE OF CONFORMANCE

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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-1C, T-9C, T-12C**, 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 6, 2009**. 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.	0.05	1.42	0.47	0.009	0.010

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 270
 Arc Voltage: 28.5
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: CO₂
 No. of Passes/Layers: 12/6
 Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-90,000	90,000
Yield Strength (psi):	58,000 min.	78,500
Elongation (%):	22 min.	27
Charpy V-notch Impact:		36,33,49,43,45
ft•lb f @ -20°F	20 min. avg.	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: _____
Ronald B. Smith Technical Director



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 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-Ni1M**, 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 6, 2009**. 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	1.34	0.54	0.009	0.009	1.06	0.04	<0.01	0.02

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 255
 Arc Voltage: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 16/8
 Preheat /Interpass Temp (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	92,000
Yield Strength (psi):	68,000 min.	78,600
Elongation (%):	19 min.	26
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	26,58,46,62,46 50 avg.
Charpy V-notch Impact: ft•lb f @ -40°F	Not Required	42,40,38,40,44 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: _____
Ronald B. Smith, Technical Director



CERTIFICATE OF CONFORMANCE

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 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-Ni1C**, 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 6, 2009**. 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	1.18	0.44	0.008	0.009	1.05	0.04	<0.01	0.02

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 250
 Arc Voltage: 29.5
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: CO₂
 No. of Passes/Layers: 17/8
 Preheat /Interpass Temp (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	83,700
Yield Strength (psi):	68,000 min.	74,100
Elongation (%):	19 min.	29
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	44,50,50,56,57 52 avg.
Charpy V-notch Impact: ft•lb f @ -40°F	Not Required	32,31,48,36,28 33 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: _____
Ronald B. Smith, Technical Director



CERTIFICATE OF CONFORMANCE

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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 1, 2009**. 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.	0.07	1.06	0.45	0.008	0.006	2.38

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 270
 Arc Voltage: 27
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 14/7
 Preheat /Interpass Temp (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	93,800
Yield Strength (psi):	68,000 min.	79,400
Elongation (%):	19 min.	27
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	41,33,36,40,41 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: _____
Ronald B. Smith, 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 1, 2009. 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	0.93	0.36	0.007	0.007	2.38

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 275
 Arc Voltage: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: CO₂
 No. of Passes/Layers: 16/8
 Preheat /Interpass Temp (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	89,900
Yield Strength (psi):	68,000 min.	75,300
Elongation (%):	19 min.	28
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	52,55,29,36,46 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: _____
Ronald B. Smith, 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 **April 6, 2009**. 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.	0.06	1.08	0.50	0.007	0.013	0.8	0.49	0.45

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 270
 Arc Voltage: 27
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: 75Ar-25CO₂
 No. of Passes/Layers: 12/6
 Preheat/Interpass Temp (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	90,400
Yield Strength (psi):	68,000 min.	75,000
Elongation (%):	19 min.	26
Charpy V-notch Impact:		30,27,27,20,25
ft•lb f @ -20°F	20 min. avg.	26 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: _____

Ronald B. Smith, 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 6, 2009**. 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	0.93	0.42	0.007	0.013	0.78	0.48	0.47

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 250
 Arc Voltage: 29.5
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: CO₂
 No. of Passes/Layers: 17/8
 Preheat/Interpass Temp (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	88,600
Yield Strength (psi):	68,000 min.	78,500
Elongation (%):	19 min.	26
Charpy V-notch Impact:		32,30,26,25,29
ft•lb f @ -20°F	20 min. avg.	28 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: _____

Ronald B. Smith, 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-Ni1M**, 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 27, 2009**. 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	1.33	0.54	0.008	0.009	0.96	0.03	<0.01	0.02

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 265
 Arc Voltage: 27
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 12/6
 Preheat /Interpass Temp (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	81,800
Yield Strength (psi):	68,000 min.	71,300
Elongation (%):	19 min.	33
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	43,41,32,29,35 36 avg.
Charpy V-notch Impact: ft•lb f @ -40°F	Not Required	27,19,24,22,24 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: _____
Ronald B. Smith, 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-Ni1C**, 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 8, 2009**. 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	1.15	0.43	0.007	0.009	0.98	0.04	<0.01	0.02

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

Met requirements

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)


WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 260
 Arc Voltage: 28.5
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: CO₂
 No. of Passes/Layers: 14/7
 Preheat /Interpass Temp (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	88,900
Yield Strength (psi):	68,000 min.	80,300
Elongation (%):	19 min.	31
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	77,74,100,93,105 avg.
Charpy V-notch Impact: ft•lb f @ -40°F	Not Required	32,65,70,62,57 61 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: 
 Ronald B. Smith, 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 6, 2009**. 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.	0.03	1.36	0.44	0.009	0.010	0.02	0.04	<0.01	<0.01	0.04

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 245
 Arc Voltage: 29.8
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: 75Ar/25CO₂
 No. of Passes/Layers: 12/6
 Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	79,100
Yield Strength (psi):	58,000 min.	64,800
Elongation (%):	22 min.	33
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	30,30,20,23,44 28 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: _____

Ronald B. Smith, 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 6, 2009**. 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	1.43	0.76	0.008	0.007	0.01	0.03	<0.01	<0.01	0.04

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 255
 Arc Voltage: 29.5
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: 75Ar/25CO₂
 No. of Passes/Layers: 12/6
 Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	80,800
Yield Strength (psi):	58,000 min.	66,200
Elongation (%):	22 min.	33
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	20,30,45,45,66 40 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: _____

Ronald B. Smith, 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 6, 2009**. 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:	0.03	1.44	0.60	0.007	0.010	0.39	0.04	<0.01	<0.01	0.04

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

WELD METAL DIFFUSIBLE HYDROGEN (mL/100g) by Gas Chromatography method per AWS A4.3-93

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 250
 Arc Voltage: 29.5
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: 75Ar/25CO₂
 No. of Passes/Layers: 12/6
 Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	81,800
Yield Strength (psi):	58,000 min.	69,100
Elongation (%):	22 min.	33
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	38,57,82,52,46 52 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: 

Ronald B. Smith, 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 **April 3, 2009**. 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:	0.069	1.155	0.56	0.010	0.007	0.00	0.01	0.006	0.002	0.16

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 265
 Arc Voltage: 30.5
 Current Polarity: DCEP
 Shielding Gas: CO₂
 No. of Passes/Layers: 16/7
 Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	72,000
Yield Strength (psi):	58,000 min.	58,000
Elongation (%):	22 min.	30
Charpy V-notch Impact: ft•lb f @ 0°F	20 min. avg.	129,108,105,109,94 107 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: _____
 Ronald B. Smith, 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 **March 2, 2009**. 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:	0.090	1.487	0.891	0.009	0.008	0.00	0.01	0.010	0.003	0.16

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 270
 Arc Voltage: 31
 Current Polarity: DCEP
 Shielding Gas: CO₂
 No. of Passes/Layers: 10/5
 Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	81,400
Yield Strength (psi):	58,000 min.	63,900
Elongation (%):	22 min.	27
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	55,36,47,46,45 46 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: _____

Ronald B. Smith, Technical Director