



**CERTIFICATES OF CONFORMANCE
2007**

**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, T-9C
Select 97	"	E70T-1C, T-9C
Select 720	"	E71T-1M, T-1MJ, T-9M, T-9MJ
Select 720	"	E71T-1C, T-1CJ, T-9C, T-12C, T-12CJ
Select 727	"	E71T-1M, T-9M
Select 727	"	E71T-1C, T-9C, T-12C
Select 820-Ni1	AWS A5.29	E81T1-Ni1M
Select 820-Ni1	"	E81T1-Ni1C
Select 810-W	"	E81T1-W2M
Select 810-W	"	E81T1-W2C
<u>Solid and Metal Cored Electrodes</u>		
Select 70C-6	"	E70C-6M
Select 70C-T	"	E70C-6M
Select ER70S-3	"	ER70S-3
Select ER70S-6	"	ER70S-6



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 **November 3, 2006**. All tests required by specifications **AWS A5.20/ASME SFA-5.20** 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:	0.18 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis:	0.08	1.61	0.59	0.008	0.008

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
 Amperage: 400
 Arc Voltage: 31
 Current Polarity: DCEP
 Electrical Extension (in): 1.25
 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.	84,400
Yield Strength (psi):	58,000 min.	69,600
Elongation (%):	22 min.	28
Charpy V-notch Impact:		23,25,17,20,18
ft•lb f @ -20°F	20 min. avg.	20 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 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 **March 12, 2007**. 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:	0.18 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.	0.50 max.
Deposit Analysis:	0.04	1.47	0.24	0.008	0.007	0.32

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
 Amperage: 400
 Arc Voltage: 29.5
 Current Polarity: DCEP
 Electrical Extension (in): 1.0
 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.	90,900
Yield Strength (psi):	58,000 min.	76,900
Elongation (%):	22 min.	28
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	20,20,25,26,19 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: _____
Ronald B. Smith, Technical Director



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 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 **March 9, 2007**. 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:	0.18 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis: 1/16" dia.	0.06	1.38	0.40	0.014	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: 275
 Arc Voltage: 27.5
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 11/6
 Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	91,800
Yield Strength (psi):	58,000 min.	79,400
Elongation (%):	22 min.	25
Charpy V-notch Impact:		36,48,36,55,25
ft•lb f @ -40°F	20 min. avg.	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



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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 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 March 6, 2007. 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: Element (Carbon, Manganese, Silicon, Sulphur, Phosphorus), Requirements, and Deposit Analysis (1/16" dia).

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 [X]

STRESS RELIEVED (hr @ °F) []

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
Amperage: 270
Arc Voltage: 28
Current Polarity: DCEP
Electrical Extension (in): 3/4
Shielding Gas: CO2
No. of Passes/Layers: 12/6
Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

Table with 3 columns: Property (Tensile Strength, Yield Strength, Elongation, Charpy V-notch Impact), Requirements, and Actual Results.

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.

Handwritten signature of Ronald B. Smith

Signed by: Ronald B. Smith Technical Director



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 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 **March 9, 2007**. 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:	0.18 max.	1.75 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis: 1/16" dia.	0.06	1.48	0.51	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: 27
 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):	70,000 min.	92,000
Yield Strength (psi):	58,000 min.	79,500
Elongation (%):	22 min.	25
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	64,66,68,70,56 66 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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Date:
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Order Number :
Weight :
Lot/ Production No. Shipped:

This is to certify that **Select 727** electrode, classification **E71T-1C, T-9C, T12C**, as supplied on the above order number, is of the same classification, manufacturing process and material requirements as the electrode used testing on **March 6, 2007**. 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:	0.18 max.	1.60 max.	0.90 max.	0.03 max.	0.03 max.
Deposit Analysis: 1/16” dia.	0.06	1.41	0.44	0.010	0.008

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
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 min.	84,000
Yield Strength (psi):	58,000 min.	72,000
Elongation (%):	22 min.	28
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	50,66,38,43,59 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: 
Ronald B. Smith Technical Director



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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 12, 2007**. 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	1.43	0.45	0.006	0.005	0.97	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: 260
 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	88,300
Yield Strength (psi):	68,000 min.	77,100
Elongation (%):	19 min.	28
Charpy V-notch Impact:		44,59,46,54,45
ft•lb f @ -20°F	20 min. avg.	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: _____
 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 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 **March 12, 2007**. 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	1.24	0.41	0.009	0.008	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: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: 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	81,100
Yield Strength (psi):	68,000 min.	70,500
Elongation (%):	19 min.	30
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	51,50,65,30,72 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: 
 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 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 **February 28, 2007**. 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	1.04	0.50	0.008	0.008	0.65	0.57	0.52

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	98,300
Yield Strength (psi):	68,000 min.	83,100
Elongation (%):	19 min.	23
Charpy V-notch Impact:		26,22,17,16,26
ft•lb f @ -20°F	20 min. avg.	21 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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SELECT ARC, INC.
 600 Enterprise Dr.
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 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 **March 12, 2007**. 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	0.90	0.45	0.011	0.009	0.64	0.50	0.50

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: 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	86,500
Yield Strength (psi):	68,000 min.	71,200
Elongation (%):	19 min.	26
Charpy V-notch Impact:		26,26,33,16,30
ft•lb f @ -20°F	20 min. avg.	27 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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Date:
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 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 22, 2007**. 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	1.53	0.68	0.009	0.011	0.02	0.03	<0.01	<0.001	0.05

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 245
 Arc Voltage: 28.5
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: 75Ar/25CO₂
 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.	81,200
Yield Strength (psi):	58,000 min.	66,700
Elongation (%):	22 min.	30
Charpy V-notch Impact:		33,31,35,30,27
ft•lb f @ -20°F	20 min. avg.	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: _____

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 **March 5, 2007**. 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:	0.04	1.70	0.70	0.008	0.008	0.43	0.04	0.01	<0.01	0.07

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
 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.	87,800
Yield Strength (psi):	58,000 min.	74,600
Elongation (%):	22 min.	29
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	25,57,27,28,30 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

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 9, 2007**. 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	1.14	0.56	0.015	0.007	<0.01	0.01	<0.01	<0.01	0.16

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

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: 14/6
 Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	74,400
Yield Strength (psi):	58,000 min.	60,300
Elongation (%):	22 min.	35
Charpy V-notch Impact: ft•lb f @ 0°F	20 min. avg.	89,57,80,69,83 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

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 9, 2007**. 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	1.50	0.90	0.011	0.009	0.01	0.01	0.01	0.004	0.16

RADIOGRAPHIC TEST

Met requirements

FILLET WELD TEST

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: 13/5
 Interpass Temperature (°F): 300 +/-25

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	87,300
Yield Strength (psi):	58,000 min.	71,200
Elongation (%):	22 min.	30
Charpy V-notch Impact:		65,57,70,70,62
ft•lb f @ -20°F	20 min. avg.	66 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