



**CERTIFICATES OF CONFORMANCE
2013**

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

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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, 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 **January 22, 2013**. 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.	0.06	1.58	0.73	0.012	0.012
1/16" dia.	0.07	1.54	0.61	0.008	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	1/16
Amperage:	380	270
Arc Voltage:	30	29.5
Current Polarity:	DCEP	DCEP
Electrical Extension (in):	3/4	3/4
Shielding Gas:	CO ₂	CO ₂
No. of Passes/Layers:	9/5	14/7
Interpass Temperature (°F):	300 +/-25	300 +/-25
Heat Input (KJ/in):	53	40

TEST RESULTS:

	Requirements	Actual Results-3/32"	Actual Results-1/16"
Tensile Strength (psi):	70-95,000 min.	89,600	90,400
Yield Strength (psi):	58,000 min.	77,500	78,800
Elongation (%):	22 min.	31	28
Charpy V-notch Impact:		28,22,17,19,20	32,20,26,31,26
ft•lb f @ -20°F	20 min. avg.	20 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 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 **January 23, 2013**. 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	1.74	0.30	0.010	0.010	0.31
.045" dia.	0.08	1.42	0.46	0.010	0.013	0.38

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:	390	250
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:	11/6	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.	85,600	82,200
Yield Strength (psi):	58,000 min.	74,400	70,700
Elongation (%):	22 min.	32	31
Charpy V-notch Impact:		24,22,26,21,40	37,28,28,25,24
ft•lb f @ -20°F	20 min. avg.	24 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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 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 **January 22, 2013**. 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	1.46	0.65	0.009	0.014
1/16" dia.	0.08	1.32	0.53	0.008	0.011

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	29.5
Current Polarity:	DCEP	DCEP
Electrical Extension (in):	3/4	3/4
Shielding Gas:	CO ₂	CO ₂
No. of Passes/Layers:	10/5	15/7
Interpass Temperature (°F):	300 +/-25	300 +/-25
Heat Input (KJ/in):	50	40

TEST RESULTS:

	Requirements	Actual Results-3/32"	Actual Results-1/16"
Tensile Strength (psi):	70-95,000 min.	91,000	83,200
Yield Strength (psi):	58,000 min.	79,000	71,000
Elongation (%):	22 min.	32	32
Charpy V-notch Impact:		20,21,29,28,26	26,20,25,25,27
ft•lb f @ -20°F	20 min. avg.	25 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: _____

Ronald B. Smith, Technical Director



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 Order Number :
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 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 10, 2013**. 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:	0.07	1.05	0.34	0.010	0.011	0.44

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): ¾
 Shielding Gas: Ar-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	85,000
Yield Strength (psi):	58,000 min.	75,300
Elongation (%):	22 min.	30
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	49,56,29,63,58 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:

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-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 **March 12, 2013**. 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:	0.06	1.02	0.31	0.010	0.010	0.49

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): ¾
 Shielding Gas: CO₂
 No. of Passes/Layers: 14/7
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 39

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-90,000	78,800
Yield Strength (psi):	58,000 min.	69,800
Elongation (%):	22 min.	28
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	28,35,43,34,22 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.

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Ronald B. Smith Technical Director



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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 **March 12, 2013**. 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.	0.08	1.32	0.43	0.010	0.013

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
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 17/8
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 36

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000	87,900
Yield Strength (psi):	58,000 min.	79,800
Elongation (%):	22 min.	30
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	51,28,32,40,40 37 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 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 11, 2013**. 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	1.66	0.48	0.008	0.013

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: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: Ar-25%CO₂
 No. of Passes/Layers: 10/5
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 51

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000	91,000
Yield Strength (psi):	58,000 min.	78,400
Elongation (%):	22 min.	28
Charpy V-notch Impact:		52,80,76,55,67
ft•lb f @ -20°F	20 min. avg.	66 avg.
ft•lb f @ -40°F	-	46,36,68,46,40
		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:

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 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 **January 28, 2013**. 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	1.45	0.37	0.009	0.014

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): 45

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000	86,400
Yield Strength (psi):	58,000 min.	74,800
Elongation (%):	22 min.	27
Charpy V-notch Impact:		40,25,30,41,33
ft•lb f @ -20°F	20 min. avg.	34 avg.
ft•lb f @ -40°F	-	27,31,35,16,30
		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:

Ronald B. Smith
 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 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 January 18, 2013. 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	1.58	0.56	0.010	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: 300
 Arc Voltage: 29
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 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	94,000
Yield Strength (psi):	58,000 min.	82,000
Elongation (%):	22 min.	22
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	32,42,48,30,46 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*
 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 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 January 18, 2013. 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	1.49	0.47	0.012	0.013

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): 45

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000	91,000
Yield Strength (psi):	58,000 min.	81,000
Elongation (%):	22 min.	22
Charpy V-notch Impact:		45,37,48,49,44
ft•lb f @ -40°F	20 min. avg.	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



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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 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 **June 3, 2013**. 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.	0.08	1.46	0.33	0.009	0.010

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: 26.5
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: Ar-10%CO₂
 No. of Passes/Layers: 12/6
 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	94,500
Yield Strength (psi):	58,000 min.	84,800
Elongation (%):	22 min.	25
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	49,64,77,58,73 65 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 **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 27, 2013**. 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.	0.07	1.13	0.32	0.009	0.011

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
Shielding Gas: Ar-25%CO₂
No. of Passes/Layers: 17/9
Interpass Temperature (°F): 300 +/-25
Heat Input (KJ/in): 36

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70-95,000 min.	81,700
Yield Strength (psi):	58,000 min.	72,000
Elongation (%):	22 min.	34
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	32,20,51,40,45 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-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 **January 23, 2013**. 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	1.19	0.41	0.008	0.008	0.97	0.03	<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: 265
 Arc Voltage: 30
 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
 Heat Input (KJ/in): 35

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	84,200
Yield Strength (psi):	68,000 min.	72,100
Elongation (%):	19 min.	29
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	34,40,64,52,59 50 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-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 **February 11, 2013**. 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	1.15	0.36	0.009	0.008	0.88	0.06	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: 270
 Arc Voltage: 30
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: CO₂
 No. of Passes/Layers: 16/8
 Preheat /Interpass Temp (°F): 300 +/-25
 Heat Input (KJ/in): 30

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.	31
Charpy V-notch Impact:		41,20,22,18,22
ft•lb f @ -40°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



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 **January 24, 2013**. 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.	0.04	0.85	0.28	0.009	0.009	2.44

RADIOGRAPHIC TEST

FILLET WELD TEST

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

Met requirements

Met requirements

Requirement: 4.0 avg.

Actual: 2.2 avg

MECHANICAL PROPERTIES

AS WELDED

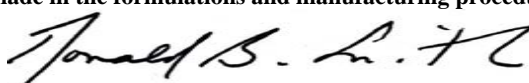
STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

TEST RESULTS:

Electrode Diameter (in): 1/16	Tensile Strength (psi):	<u>Requirements</u>	<u>Actual Results</u>
Amperage: 260	Yield Strength (psi):	80-100,000	87,500
Arc Voltage: 29	Elongation (%):	68,000 min.	75,800
Current Polarity: DCEP	Charpy V-notch Impact:	19 min.	28
Electrical Extension (in): 3/4	ft•lb f @ -40°F	20 min. avg.	39,38,45,47,35
Shielding Gas: CO ₂			41 avg.
No. of Passes/Layers: 16/8			
Preheat /Interpass Temp (°F): 300 +/-25			
Heat Input (KJ/in): 37			

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 **February 27, 2013**. 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.	0.07	0.82	0.36	0.009	0.007	0.55	0.45	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
 Shielding Gas: CO₂
 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	83,200
Yield Strength (psi):	68,000 min.	71,500
Elongation (%):	19 min.	30
Charpy V-notch Impact:		24,30,28,27,24
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 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 **February 19, 2013**. 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	1.36	0.50	0.010	0.011	0.97	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

Requirement: 4.0 avg. Actual: 2.3 avg

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): 1/16
 Amperage: 260
 Arc Voltage: 29
 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
 Heat Input (KJ/in): 32

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	88,400
Yield Strength (psi):	68,000 min.	80,200
Elongation (%):	19 min.	34
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	41,26,24,36,24 28 avg.
Charpy V-notch Impact: ft•lb f @ -50°F	-	31,34,24,19,25 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



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 **February 23, 2013**. 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	1.17	0.37	0.012	0.012	0.90	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: 255
 Arc Voltage: 29
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: CO₂
 No. of Passes/Layers: 16/8
 Preheat /Interpass Temp (°F): 300 +/-25
 Heat Input (KJ/in): 32

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	80-100,000	81,400
Yield Strength (psi):	68,000 min.	71,900
Elongation (%):	19 min.	31
Charpy V-notch Impact: ft•lb f @ -40°F	20 min. avg.	75,54,77,56,36 62 avg.
Charpy V-notch Impact: ft•lb f @ -50°F	-	41,43,53,30,51 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.

Ronald B. Smith

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 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 **February 14, 2013**. 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.	0.06	1.50	0.54	0.012	0.007	0.87

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: 300
 Arc Voltage: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: CO₂
 No. of Passes/Layers: 13/6
 Preheat /Interpass Temp (°F): 300 +/-25
 Heat Input (KJ/in): 36

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	90,000	94,700
Yield Strength (psi):	Not Required	86,300
Elongation (%):	Not Required	26
Charpy V-notch Impact: ft•lb f @ -40°F	Not Required	56,56,50,51,47 52 avg.
Charpy V-notch Impact: ft•lb f @ -60°F	Not Required	46,34,44,27,50 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

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 **January 28, 2013**. 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	1.56	0.52	0.007	0.011	0.02	0.05	0.01	<0.01	0.06

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: 12/6
 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.	79,100
Yield Strength (psi):	58,000 min.	64,700
Elongation (%):	22 min.	34
Charpy V-notch Impact: ft•lb f @ 0°F	20 min. avg.	33,34,40,45,26 36 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 **February 20, 2013**. 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	1.56	0.81	0.010	0.010	0.02	0.03	0.02	<0.01	0.05

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: 17/8
 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.	78,800
Yield Strength (psi):	58,000 min.	64,900
Elongation (%):	22 min.	37
Charpy V-notch Impact:		20,17,34,26,20
ft•lb f @ -20°F	20 min. 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: _____

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 **February 20, 2013**. 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	1.58	0.84	0.009	0.009	0.02	0.03	0.02	<0.01	0.05

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 270
 Arc Voltage: 29.0
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: 90Ar/10CO₂
 No. of Passes/Layers: 14/7
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 39

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	80,700
Yield Strength (psi):	58,000 min.	67,300
Elongation (%):	22 min.	31
Charpy V-notch Impact:		71,80,64,38,77
ft•lb f @ -20°F	20 min. avg.	71 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-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 **January 30, 2013**. 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	1.60	0.62	0.009	0.007	0.35	0.03	<0.01	<0.01	0.06

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: 12/6
 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.	81,800
Yield Strength (psi):	58,000 min.	67,800
Elongation (%):	22 min.	26
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	46,33,38,38,28 36 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-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 **January 30, 2013**. 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	1.72	0.68	0.009	0.006	0.37	0.03	<0.01	<0.01	0.05

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 250
 Arc Voltage: 28
 Current Polarity: DCEP
 Electrical Extension (in): 3/4
 Shielding Gas: 90Ar/10CO₂
 No. of Passes/Layers: 14/7
 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.	83,600
Yield Strength (psi):	58,000 min.	69,700
Elongation (%):	22 min.	29
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	58,47,43,45,50 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: _____
 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 **February 20, 2013**. 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:	0.05	1.46	0.60	0.011	0.010	0.41	0.04	0.02	<0.01	0.08

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: 13/6
 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.	84,700
Yield Strength (psi):	58,000 min.	78,200
Elongation (%):	22 min.	31
Charpy V-notch Impact:		45,50,44,49,59
ft•lb f @ -20°F	20 min. avg.	48 avg.
ft•lb f @ -40°F	-	32,26,16,49,28
		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 **January 29, 2013**. 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	1.16	0.53	0.009	0.008	<0.01	0.01	<0.01	0.004	<0.16

RADIOGRAPHIC TEST

Met requirements

MECHANICAL PROPERTIES

AS WELDED

STRESS RELIEVED (hr @ °F)

WELDING PARAMETERS:

Electrode Diameter (in): .045
 Amperage: 240
 Arc Voltage: 30
 Current Polarity: DCEP
 Shielding Gas: CO₂
 No. of Passes/Layers: 14/7
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 30

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	73,500
Yield Strength (psi):	58,000 min.	58,000
Elongation (%):	22 min.	32
Charpy V-notch Impact: ft•lb f @ 0°F	20 min. avg.	103,130,98,106,126 112 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 **January 28, 2013**. 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	1.48	0.87	0.010	0.009	0.01	0.01	<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: 265
 Arc Voltage: 30
 Current Polarity: DCEP
 Shielding Gas: CO₂
 No. of Passes/Layers: 12/6
 Interpass Temperature (°F): 300 +/-25
 Heat Input (KJ/in): 31

TEST RESULTS:

	<u>Requirements</u>	<u>Actual Results</u>
Tensile Strength (psi):	70,000 min.	86,200
Yield Strength (psi):	58,000 min.	70,600
Elongation (%):	22 min.	32
Charpy V-notch Impact: ft•lb f @ -20°F	20 min. avg.	78,58,51,65,64 62 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