

**2025 STATE HIGHWAY
CERTIFICATES OF CONFORMANCE**

FLUX CORED WIRES AND STICK ELECTRODES

ESAB WELDING & CUTTING PRODUCTS

We hereby certify that the results provided on the following pages for welding rods, electrodes and filler metals are a true representation of the tests and results recorded as performed at our facilities.

These welding rods, electrodes and filler metals meet the classification requirements of their respective AWS/ASME specifications as identified in the index.


J. Smith Quality Specialist

2025 STATE HIGHWAY CERTIFICATES OF CONFORMANCE INDEX

The certificates listed below serve to document that ESAB Welding & Cutting Products welding consumables conform to the referenced specifications.

<u>The ESAB Group Electrode</u>	<u>AWS Classification</u>	<u>AWS Specification</u>
Atom Arc 7018	E7018H4R	AWS A5.1: 2012
Atom Arc 7018-1	E7018-1H4R	AWS A5.1: 2012
Atom Arc 7018 Acclaim	E7018H4R	AWS A5.1: 2012
Atom Arc 8018	E8018-C3H4R	AWS A5.5: 2014
Atom Arc 9018	E9018-MH4R	AWS A5.5: 2014
Atom Arc T	E11018-MH4R	AWS A5.5: 2014
Coreweld C6	E70C-6M	AWS A5.18: 2017
Dual Shield R-70 Ultra	E70T-1C-DH8/T-1M/T-9C-DH8/T-9M	AWS A5.20: 2015
Dual Shield II 70T12-H4	E71T-1MJH4/T-12MJH4	AWS A5.20: 2015
Dual Shield 7100 Ultra	E71T-1C-DH8/T-1M/T-9C-DH8/T-9M	AWS A5.20: 2015
Dual Shield 7100LC	E71T-1C-DH8/T-1M/T-9C-DH8/T-9M	AWS A5.20: 2015
Dual Shield II 70 Ultra	E71T-1M/T-12M	AWS A5.20: 2015
Dual Shield II 71 Ultra	E71T-1CJ/T-12CJ	AWS A5.20: 2015
Dual Shield 70 Ultra Plus	E71T-1M/T-9M	AWS A5.20: 2015
Dual Shield 700X	E70T-1C	AWS A5.20: 2015
Dual Shield 710X	E71T-1C-DH8/T-1M/T-9C-DH8/T-9M	AWS A5.20: 2015
Dual Shield 710-M	E71T-1C/T-1M-DH8/T-9C/T-9M-DH8	AWS A5.20: 2015
Dual Shield II 712X	E71T-1MJH8/T-12MJH8	AWS A5.20: 2015
Coreshield 8	E71T-8 H8	AWS A5.20: 2015
Dual Shield II 80Ni1H4	E81T1-Ni1M-JH4	AWS A5.29: 2010
Dual Shield 810X-Ni1	E81T1-Ni1C-JH8	AWS A5.29: 2010

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 7018** Classification **E7018H4R**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.1:2012** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.1:2012**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 1/8"
Test Date: 9/13/2024
Test Number: 2-65351-00
Moisture (RC-412): (P) .125
Concentricity: 2%
X-Rays: Satisfactory
Diffusible Hydrogen: 2.4 ml/100 gr.
Atmospheric Temperature: 69 Deg.
Relative Humidity: 18%

Chemical Analysis:

Carbon: .05
Manganese: 1.09
Silicon: .38
Phosphorus: .016
Sulfur: .013
Chromium: .07
Nickel: .06
Molybdenum: .02
Vanadium: .01
Copper: .12

Full	Split	Triple	Quad	Volts	Amps	
---	6	---	----	22.7	140	DC+

Test Results

As Welded

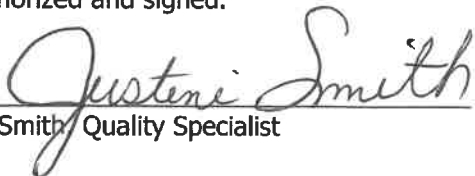
Yield:	68,104
Tensile:	80,292
Elongation (2")%:	35.0
Reduction of Area:	81.0

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 121-124-142-126-178 Ave = 138.2

Fillets: OK Vertical / Overhead

Atom Arc 7018 is manufactured in the USA,
But may contain steel not melted and processed
in the USA.

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith, Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 7018** Classification **E7018H4R**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.1:2012** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.1:2012**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 1/4"
Test Date: 10/19/2024
Test Number: 2-65489-00
Moisture (RC-412): (P) .086 / (E) .253%
Concentricity: 2%
X-Rays: Satisfactory

Chemical Analysis:

Carbon: .05
Manganese: 1.11
Silicon: .46
Phosphorus: .013
Sulfur: .008
Chromium: .06
Nickel: .06
Molybdenum: .02
Vanadium: .01
Copper: .13

Full	Split	Triple	Quad	Volts	Amps	
---	9	---	----	24.2	350	DC+

Test Results

As Welded

Yield:	67,792
Tensile:	79,831
Elongation (2")%:	27.0
Reduction of Area:	60.0

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 64-34-102-110-121 Ave = 86.2

Fillets: OK Horizontal

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But may contain steel not melted and processed
In the USA.

By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 7018** Classification **E7018H4R**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.1:2012** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.1:2012**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 3/16"
Test Date: 2/28/2025
Test Number: 2-65858-00
Moisture (RC-412): (P) .070 / (E) .171%
Concentricity: 2%
X-Rays: Satisfactory

Chemical Analysis:

Carbon: .05
Manganese: .97
Silicon: .39
Phosphorus: .011
Sulfur: .012
Chromium: .07
Nickel: .05
Molybdenum: .01
Vanadium: .01
Copper: .12

Full	Split	Triple	Quad	Volts	Amps	
---	7	---	----	22.2	240	DC+

Test Results

As Welded

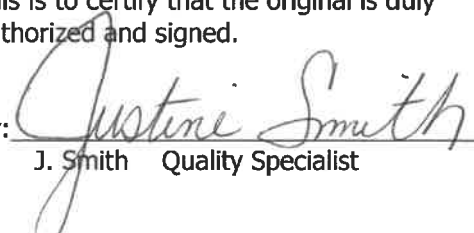
Yield:	64,990
Tensile:	78,940
Elongation (2")%:	32.0
Reduction of Area:	72.0

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 41-30-90-122-101 Ave = 76.8

Filletts: OK Horizontal

Atom Arc 7018 is manufactured in the USA,
and the steel used in this product is melted
and processed in the USA.
Product complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 7018** Classification **E7018H4R**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.1:2012** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.1:2012**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 3/32"
Test Date: 2/19/2025
Test Number: 2-65855-00
Moisture (RC-412): (P) .071 / (E) .178%
Concentricity: 2%
X-Rays: Satisfactory
Diffusible Hydrogen: 1.4 ml/100 gr.
Atmospheric Temperature: 68 Deg.
Relative Humidity: 14%

Chemical Analysis:

Carbon: .05
Manganese: 1.04
Silicon: .33
Phosphorus: .014
Sulfur: .012
Chromium: .08
Nickel: .06
Molybdenum: .02
Vanadium: .01
Copper: .11

Full	Split	Triple	Quad	Volts	Amps	
---	6	---	----	24.1	98	DC+

Test Results

As Welded

Yield:	69,795
Tensile:	80,602
Elongation (2")%:	31.0
Reduction of Area:	77.0

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 147-118-122-142-134 Ave = 132.6

Filletts: OK Vertical / Overhead

Atom Arc 7018 is manufactured in the USA,
and the steel used in this product is melted
and processed in the USA.
Product complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 7018-1** Classification **E7018-1H4R**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.1:2012** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.1:2012**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 3/32"
Test Date: 11/20/24
Test Number: 2-65488-00
Moisture (RC-412): (P) .095 / (E) .178%
Concentricity: 2%
X-Rays: Satisfactory
Diffusible Hydrogen: 1.5 ml/100 gr.
Atmospheric Temperature: 70 Deg.
Relative Humidity: 20%

Chemical Analysis:

Carbon: .06
Manganese: 1.36
Silicon: .43
Phosphorus: .017
Sulfur: .013
Chromium: .08
Nickel: .07
Molybdenum: .03
Vanadium: .01

Full	Split	Triple	Quad	Volts	Amps	
---	6	---	----	22.6	98	DC+

Test Results

As Welded

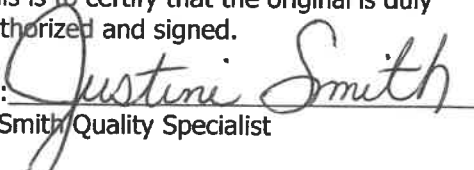
Yield:	81,968
Tensile:	94,108
Elongation (2")%:	26.0
Reduction of Area:	76.0

Charpy V-Notch Impacts Tested @ -50 Deg. F.
Ft. Lbs. 581-61-75-58-88 Ave = 72.6

Filletts: OK Vertical / Overhead

Atom Arc 7018-1 is manufactured in the USA
and the steel used in the product is melted
and processed in the USA.
Product complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 7018-1** Classification **E7018-1H4R**, as supplied under the above order number, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.1:2012** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.1:2012**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 5/32"
Test Date: 04/04/24
Test Number: 2-64980-00
Moisture (RC-412): (P) .097 / (E) .291%
Concentricity: 2%
X-Rays: Satisfactory

Chemical Analysis:

Carbon: .04
Manganese: 1.23
Silicon: .43
Phosphorus: .017
Sulfur: .010
Chromium: .06
Nickel: .05
Molybdenum: .02
Vanadium: .01

Full	Split	Triple	Quad	Volts	Amps
---	8	---	----	23.0	180 DC+

Test Results

As Welded

Yield:	73,624
Tensile:	85,821
Elongation (2")%:	28.0
Reduction of Area:	73.0

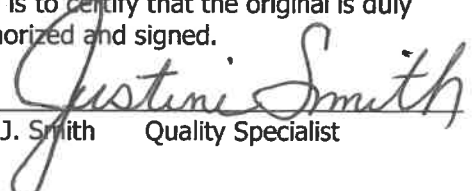
Charpy V-Notch Impacts Tested @ -50 Deg. F.

Ft. Lbs. 42-112-107-62-88 Ave = 82.2J. Smith Quality Specialist

Filletts: OK Vertical / Overhead

Atom Arc 7018-1 is manufactured in the USA
and the steel used in the product is melted
and processed in the USA.

This is to certify that the original is duly
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By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

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This is to certify that **ATOM ARC 7018-1** Classification **E7018-1H4R**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.1:2012** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.1:2012**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 3/16"
Test Date: 3/24/2025
Test Number: 2-65862-00
Moisture (RC-412): (P) .073 / (E) .144%
Concentricity: 2%
X-Rays: Satisfactory

Chemical Analysis:

Carbon: .05
Manganese: 1.30
Silicon: .47
Phosphorus: .013
Sulfur: .011
Chromium: .07
Nickel: .05
Molybdenum: .01
Vanadium: .01

Full	Split	Triple	Quad	Volts	Amps	
---	7	---	----	21.9	230	DC+

Test Results

As Welded

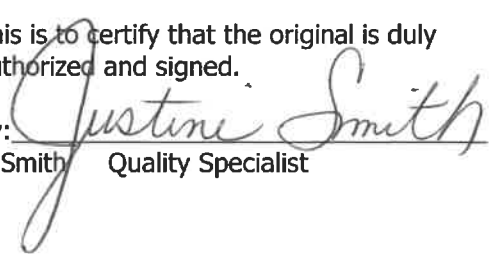
Yield:	69,683
Tensile:	83,282
Elongation (2")%:	30.0
Reduction of Area:	72.0

Charpy V-Notch Impacts Tested @ -50 Deg. F.
Ft. Lbs. 35-42-13-88-92 Ave = 54

Fillets: OK Horizontal

Atom Arc 7018-1 is manufactured in the USA
and the steel used in the product is melted
and processed in the USA.
Product complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 7018 Acclaim** Classification **E7018H4R**, as supplied is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.1:2012** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.1:2012**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 3/32"
Test Date: 7/16/24
Test Number: 2-65182-00
Moisture (RC-412): (P) .094 / (E) .215%
Concentricity: 2%
X-Rays: Satisfactory
Diffusible Hydrogen: 1.9 ml/100 gr.
Atmospheric Temperature: 70 Deg.
Relative Humidity: 20%

Chemical Analysis:

Carbon: .05
Manganese: 1.09
Silicon: .46
Phosphorus: .021
Sulfur: .014
Chromium: .08
Nickel: .05
Molybdenum: .03
Vanadium: .01
Copper: .13

Full	Split	Triple	Quad	Volts	Amps	
---	6	----	----	22.7	98	DC+

Test Results

As Welded

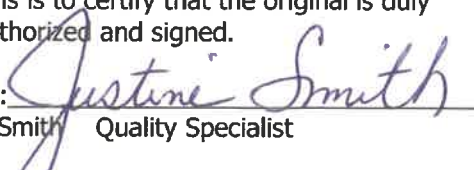
Yield:	74,982
Tensile:	85,852
Elongation (2")%:	27.0
Reduction of Area:	58.0

Charpy V-Notch Impacts Tested @ -40 Deg. F.
Ft. Lbs. 108-97-76-113-105 Ave = 99.8

Filletts: OK Vertical / Overhead

Atom Arc 8018 is manufactured in the USA
and the steel used in this product is melted
and processed in the USA.
Product Complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 7018 Acclaim** Classification **E7018H4R**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.1:2012** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.1:2012**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 5/32"
Test Date: 3/12/2025
Test Number: 2-66284-00
Moisture (RC-412): (P) .064 / (E) .179%
Concentricity: 2%
X-Rays: Satisfactory

Chemical Analysis:

Carbon: .05
Manganese: .91
Silicon: .36
Phosphorus: .021
Sulfur: .009
Chromium: .10
Nickel: .06
Molybdenum: .03
Vanadium: .01
Copper: .14

Full	Split	Triple	Quad	Volts	Amps	
---	6	---	----	24.5	98	DC+

Test Results

As Welded

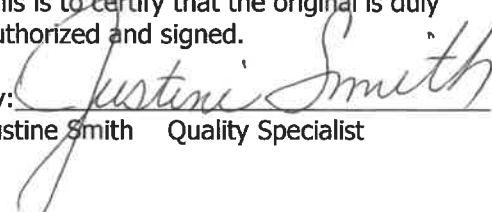
Yield:	71,710
Tensile:	85,801
Elongation (2")%:	25.0
Reduction of Area:	69.0

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 127-120-129-144-126 Ave = 129.2

Fillets: OK Vertical / Overhead

Atom Arc 7018 Acclaim is manufactured in the USA and the steel used in the products is melted and processed in the USA. Product Complies with "Buy America"

This is to certify that the original is duly authorized and signed.

By: 
Justine Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 7018 Acclaim** Classification **E7018H4R**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.1:2012** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.1:2012**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 1/8"
Test Date: 3/24/2025
Test Number: 2-65861-00
Moisture (RC-412): (P) .059/ (E) .126%
Concentricity: 2%
X-Rays: Satisfactory

Chemical Analysis:

Carbon: .04
Manganese: .97
Silicon: .39
Phosphorus: .013
Sulfur: .012
Chromium: .07
Nickel: .04
Molybdenum: .01
Vanadium: .01
Copper: .11

Full	Split	Triple	Quad	Volts	Amps	
---	7	---	----	23.0	140	DC+

Test Results

As Welded

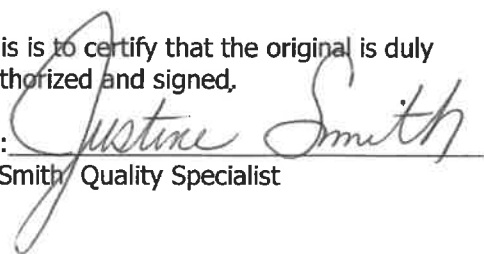
Yield:	71,610
Tensile:	83,593
Elongation (2")%:	33.0
Reduction of Area:	77.0

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 138-128-109-107-109 Ave = 118.2

Filletts: OK Vertical / Overhead

Atom Arc 7018 Acclaim is manufactured in the USA and the steel used in the products is melted and processed in the USA. Product Complies with "Buy America"

This is to certify that the original is duly authorized and signed,

By: 
J. Smith, Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 8018** Classification **E8018-C3H4R**, as supplied is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.5:2014** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.5:2014**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 5/32"
Test Date: 5/02/25
Test Number: 2-66102-00
Moisture (RC-412): (P) .071 / (E) 0.169%
Concentricity: 2%
X-Rays: Satisfactory

Chemical Analysis:

Carbon: .06
Manganese: 1.11
Silicon: .33
Phosphorus: .018
Sulfur: .017
Chromium: .09
Nickel: .87
Molybdenum: .14
Vanadium: .01
Copper: .12

Full	Split	Triple	Quad	Volts	Amps	
---	8	----	----	23.2	180	DC+

Test Results

As Welded

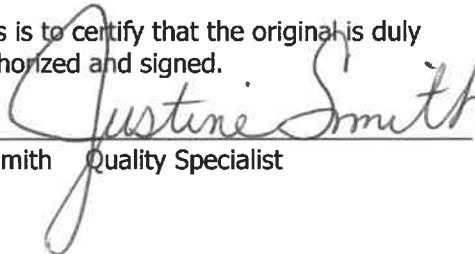
Yield:	75,702
Tensile:	87,942
Elongation (2")%:	24.0
Reduction of Area:	66.0

Charpy V-Notch Impacts Tested @ -40 Deg. F.
Ft. Lbs. 58-69-67-73-70 Ave = 67.4

Filletts: OK Vertical / Overhead

Atom Arc 8018 is manufactured in the USA
and the steel used in this product is melted
and processed in the USA.
Product Complies with "Buy America"

This is to certify that the original is duly
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By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 8018** Classification **E8018-C3H4R**, as supplied is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.5:2014** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.5:2014**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 3/32"
Test Date: 7/16/24
Test Number: 2-65657-00
Moisture (RC-412): (P) .068 / (E) .173%
Concentricity: 2%
X-Rays: Satisfactory
Diffusible Hydrogen: .9 ml/100 gr.
Atmospheric Temperature: 69 Deg.
Relative Humidity: 16%

Chemical Analysis:

Carbon: .04
Manganese: 1.06
Silicon: .37
Phosphorus: .014
Sulfur: .011
Chromium: .05
Nickel: .90
Molybdenum: .13
Vanadium: .02
Copper: .10

Full	Split	Triple	Quad	Volts	Amps	
---	6	----	----	21.7	97	DC+

Test Results

As Welded

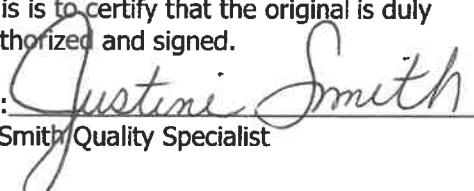
Yield:	83,131
Tensile:	92,163
Elongation (2")%:	25.0
Reduction of Area:	75.0

Charpy V-Notch Impacts Tested @ -40 Deg. F.
Ft. Lbs. 91-98-104-106-74 Ave = 94.6

Fillets: OK Vertical / Overhead

Atom Arc 8018 is manufactured in the USA
and the steel used in this product is melted
and processed in the USA.
Product Complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith Quality Specialist

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Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 8018** Classification **E8018-C3H4R**, as supplied, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.5:2014** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.5:2014**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 3/16"
Test Date: 7/19/25
Test Number: 2-66097-00
Moisture (RC-412): (P) 0.086 / (E) 0.177
Concentricity: 2%
X-Rays: Satisfactory
Diffusible Hydrogen: 2.7 ml/100 gr.
Atmospheric Temperature: 70 Deg.
Relative Humidity: 20%

Chemical Analysis:

Carbon: .05
Manganese: 1.00
Silicon: .26
Phosphorus: .017
Sulfur: .014
Chromium: .09
Nickel: .92
Molybdenum: .13
Vanadium: .01
Copper: .12

Full	Split	Triple	Quad	Volts	Amps	
---	7	---	----	23.1	235	DC+

Test Results

As Welded

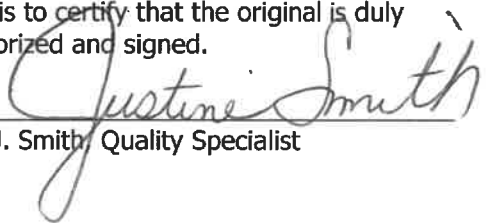
Yield:	72,070
Tensile:	83,925
Elongation (2")%:	28.0
Reduction of Area:	74.0

Charpy V-Notch Impacts Tested @ -40 Deg. F.
Ft. Lbs. 87-118-107-112-121 Ave = 109.0

Fillets: OK Horizontal

Atom Arc 8018 is manufactured in the USA
and the steel used in this product is melted
and processed in the USA.

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith, Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 9018** Classification **E9018-MH4R**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.5:2014** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.5:2014**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 3/32"
Test Date: 3/23/2025
Test Number: 2-65860-00
Moisture (RC-412): (P) .070 / (E) .120%
Concentricity: 2%
X-Rays: Satisfactory
Diffusible Hydrogen: 1.8 ml/100 gr.
Atmospheric Temperature: 68 Deg.
Relative Humidity: 14%

Chemical Analysis:

Carbon: .05
Manganese: .96
Silicon: .30
Phosphorus: .012
Sulfur: .010
Chromium: .06
Nickel: 1.59
Molybdenum: .28
Vanadium: .01
Copper: .12

Full	Split	Triple	Quad	Volts	Amps	
1	3	2	1	23.0	97	DC+

Test Results

As Welded

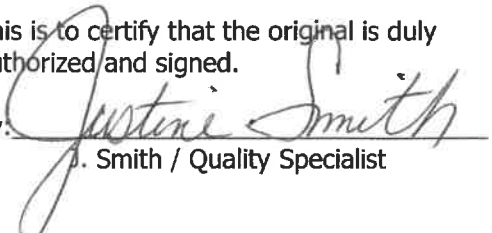
Yield: 94,253
Tensile: 103,044
Elongation (2")%: 24.0
Reduction of Area: 71.0

Charpy V-Notch Impacts Tested @ -60 Deg. F.
Ft. Lbs. 58-41-63-65-67 Ave = 58.8

Filletts: OK Vertical / Overhead

Atom Arc 9018 is manufactured in the USA
and the steel used in this product is melted
and processed in the USA.
Product Complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith / Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC 9018** Classification **E9018-MH4R**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.5:2014** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.5:2014**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 5/32"
Test Date: 11/05/24
Test Number: 2-65659-00
Moisture (RC-412): (P) .054 / (E) .142%
Concentricity: 2%
X-Rays: Satisfactory

Chemical Analysis:

Carbon: .04
Manganese: 95
Silicon: .26
Phosphorus: .011
Sulfur: .010
Chromium: .11
Nickel: 1.60
Molybdenum: .29
Vanadium: .01
Copper: .12

Full	Split	Triple	Quad	Volts	Amps	
-	3	5	---	21.8	182	DC+

Test Results

As Welded

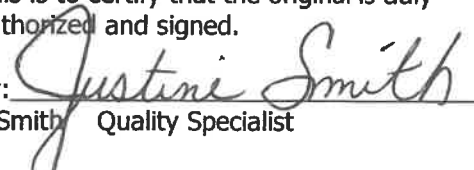
Yield:	87,124
Tensile:	97,647
Elongation (2")%:	26.0
Reduction of Area:	72.0

Charpy V-Notch Impacts Tested @ -60 Deg. F.
Ft. Lbs. 79-61-73-68-68 **Ave = 69.8**

Filletts: OK Vertical / Overhead

Atom Arc 9018 is manufactured in the USA
and the steel used in this product is melted
and processed in the USA.
Product Complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
j. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC T** Classification **E11018-MH4R**, as supplied, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.5:2014** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.5:2014**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 5/32"
Test Date: 1/13/2025
Test Number: 2-65853-00
Moisture (RC-412): (P) .069 / (E) .132%
Concentricity: 2%
X-Rays: Satisfactory

Chemical Analysis:

Carbon: .05
Manganese: 1.70
Silicon: .29
Phosphorus: .013
Sulfur: .011
Chromium: .27
Nickel: 1.93
Molybdenum: .37
Vanadium: .01
Copper: .13

Full	Split	Triple	Quad	Volts	Amps	
	3	5	----	23.0	185	DC+

Test Results

As Welded

Yield:	111,187
Tensile:	117,651
Elongation (2")%:	22.0
Reduction of Area:	61.0

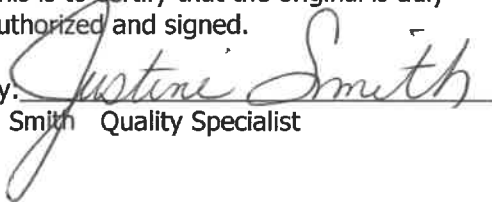
Charpy V-Notch Impacts Tested @ -60 Deg. F.

Ft. Lbs. 52-40-48-37-42 Ave = 43.8

Fillets: OK Vertical / Overhead

Atom Arc T is manufactured in the USA
and the steel used in this product is melted
and processed in the USA.
Product Complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **ATOM ARC T** Classification **E11018-MH4R**, as supplied, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.5:2014** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.5:2014**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Size: 3/32"
Test Date: 04/28/2025
Test Number: 2-66112-00
Moisture (RC-412): (P) .065 / (E) .145%
Concentricity: 2%
X-Rays: Satisfactory
Diffusible Hydrogen: 1.6 ml/100 gr.
Atmospheric Temperature: 70 Deg.
Relative Humidity: 20%

Chemical Analysis:

Carbon: .04
Manganese: 1.44
Silicon: .29
Phosphorus: .011
Sulfur: .010
Chromium: .29
Nickel: 1.93
Molybdenum: .36
Vanadium: .01
Copper: .11

Full	Split	Triple	Quad	Volts	Amps	
	6		----	23.4	100	DC+

Test Results

As Welded

Yield:	109,629
Tensile:	119,031
Elongation (2")%:	24.0
Reduction of Area:	52.0

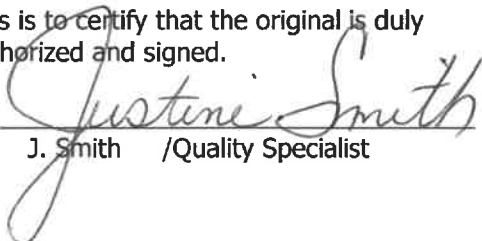
Charpy V-Notch Impacts Tested @ -60 Deg. F.

Ft. Lbs.	58-60-56-66-64	Ave = 60.8
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Fillets: OK Vertical / Overhead

Atom Arc T is manufactured in the USA
and the steel used in this product is melted
and processed in the USA.
Product Complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith /Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **COREWELD C6** Classification **E70C-6M**, as supplied under the above order number, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.18:2017** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.18:2017**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 75% AR/25% CO₂

Test Date: 4/21/25

Test Number: 2-66096-00

Travel Speed: 9.4 IPM

Diffusible Hydrogen: 1.8 ml/100 gr.

Atmospheric Temperature: 70 Deg.

Relative Humidity: 20%

X-Rays: Satisfactory

Chemical Analysis:

Carbon:	.06
Manganese:	1.47
Silicon:	.70
Phosphorus:	.010
Sulfur:	.020
Chromium:	.06
Nickel:	.03
Molybdenum:	.02
Vanadium:	.01
Copper:	.07

Full	Split	Triple	Quad	Volts	Amps
1	5	---	---	27	298 DC+

Test Results

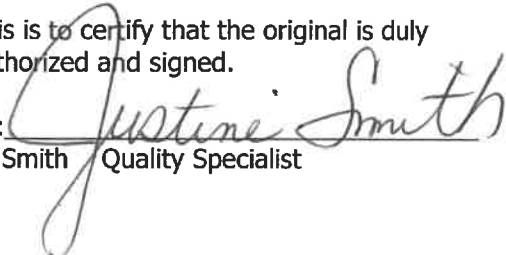
As Welded

Yield:	72,178
Tensile:	84,614
Elongation (2")%:	30.0
Reduction of Area:	71.0

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 22-18-37-29-14 **Ave = 24.0**

Coreweld C6 is manufactured in the USA
and the steel used in this product is melted
and processed in the USA.
Product complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **CORESHIELD 8**, Classification **E71T-8**, as supplied under the above order number, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.20:2015** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.20:2015**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Diameter: 1/16"
Test Date: 9/06/24
Test Number: 2-64359-00
Travel Speed: 10.58 IPM
X-Rays: Satisfactory

Chemical Analysis:

Carbon:	.22
Manganese:	.46
Chromium:	.03
Nickel:	.01
Silicon:	.17
Phosphorus:	.008
Sulfur:	.001
Molybdenum:	<.01
Aluminum:	0
Vanadium:	.01
Copper:	.02

Full	Split	Triple	Quad	Volts	Amps
---	2	5	---	22.0	273 DC+

Test Results

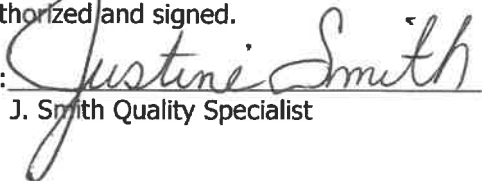
As Welded

Yield:	67,428
Tensile:	89,831
Elongation (2")%:	28.0
Reduction of Area:	63.0

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 34-32-31-34-28 Ave = 31.8

Fillets: OK VERTICAL-UP / OVERHEAD

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith Quality Specialist

Coreshield 8 is manufactured in the USA, and the steel
used in this product is melted and processed in the USA.

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **DUAL SHIELD R-70 ULTRA** Classification **E70T-1C-/T-9C** as supplied under the above order number, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.20:2005** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.20:2005**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 100% CO₂
Diameter: 1/16"
Test Date: 4/13/2025
Test Number: 2-66103-00
Travel Speed: 9.3 IPM
X-Ray: Satisfactory

Chemical Analysis:

Carbon: .05
Manganese: 1.59
Silicon: .65
Phosphorus: .013
Sulfur: .011
Chromium: .04
Nickel: .40
Molybdenum: <.01
Vanadium: .02
Copper: .03

Full	Split	Triple	Quad	Volts	Amps
1	6		---	28.0	266 DC+

Test Results As Welded

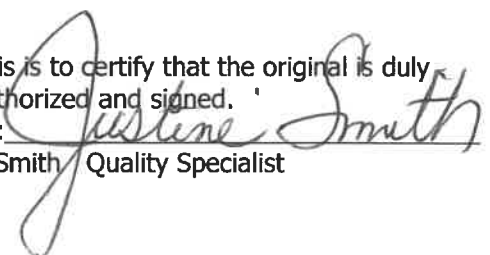
Yield: 76,896
Tensile: 86,373
Elongation (2")%: 26.0
Reduction of Area: 62.0

Charpy V-Notch Impacts Tested @ 0 Deg. F.
Ft. Lbs. 30-31-41-31-37 Ave = 34.0

Filletts: OK HORIZONTAL

Dual Shield R-70 Ultra is manufactured in the USA and the steel used in this product is melted and processed in the USA.
Product complies with "Buy America"

This is to certify that the original is duly authorized and signed.

By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **DUAL SHIELD II 70T-12H4** Classification **E71T-1MJH4/T-12MJH4** is of the same classification, manufacturing process and material requirements as the electrodes tested and reported below. All tests required by **Specification AWS A5.20:2015** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.20:2015**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 75% AR/25% CO₂
Diameter: 1/16"
Test Date: 11/18/24
Test Number: 2-65355-00
Travel Speed: 9.6 IPM
Diffusible Hydrogen: 1.9 ml/100 gr.
Atmospheric Temperature: 69
Relative Humidity: 20%
X-Rays: Satisfactory

Chemical Analysis:

Carbon: .04
Manganese: 1.17
Silicon: .35
Phosphorus: .019
Sulfur: .009
Chromium: .04
Nickel: .01
Molybdenum: .01
Vanadium: .02
Copper: .04

Full	Split	Triple	Quad	Volts	Amps
1	7	---	---	27.0	290 DC+

Test Results

As Welded

Yield: 68,884
Tensile: 78,025
Elongation (2")%: 30.0
Reduction of Area: 71.0

Charpy V-Notch Impacts Tested @ 0 Deg. F.
Ft. Lbs. 185-262-207-201-208 Ave = 212.6

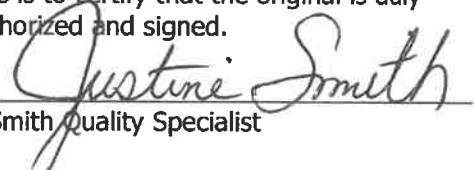
Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 151-262-207-201-208 Ave = 151.0

Charpy V-Notch Impacts Tested @ -40 Deg. F.
Ft. Lbs. 127-127-155-131-128 Ave = 133.6

Fillets: OK VERTICAL-UP / OVERHEAD

Dual Shield II 70T-12H4 is manufactured in the USA and the steel used in this product is melted and processed in the USA.
Product Complies with "Buy America"

This is to certify that the original is duly authorized and signed.

By: 
J. Smith, Quality Specialist

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **DUAL SHIELD 7100 ULTRA** Classification **E71T-1C-DH8/T-1M-D/T-9C-DH8/T-9M**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.20:2005** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.20:2005**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 75% AR/25% CO₂

Diameter: 1/16"
Test Date: 03/30/2025
Test Number: 2-65864-00
Travel Speed: 8.9 IPM
X-Rays: Satisfactory

Chemical Analysis:

Carbon:	.03
Manganese:	1.46
Silicon:	.63
Phosphorus:	.011
Sulfur:	.007
Chromium:	.04
Nickel:	.01
Molybdenum:	.01
Vanadium:	.02
Copper:	.04

Full	Split	Triple	Quad	Volts	Amps
1	6	---	---	26.0	295 DC+

Test Results **As Welded**

Yield:	81,841
Tensile:	87,552
Elongation (2")%:	28.0
Reduction of Area:	69.0

Charpy V-Notch Impacts Tested @ 0 Deg. F.
Ft. Lbs. 72-79-64-92-69 Ave = 75.2

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 34-75-44-61-31 Ave = 49.0

Fillets: OK VERTICAL-UP/OVERHEAD

Shielding Gas: 100% CO₂

Diameter: 1/16"
Test Date: 3/30/2025
Test Number: 2-65865-00
Travel Speed: 10.2 IPM
Diffusible Hydrogen: 4.1 ml/100 gr.
Atmospheric Temperature: 76°
Relative Humidity: 14%
X-Rays: Satisfactory

Chemical Analysis:

Carbon:	.02
Manganese:	1.37
Silicon:	.59
Phosphorus:	.011
Sulfur:	.006
Chromium:	.03
Nickel:	.01
Molybdenum:	<.01
Vanadium:	.02
Copper:	.03

Full	Split	Triple	Quad	Volts	Amps
1	6	---	--	27.0	302 DC+

Test Results **As Welded**

Yield:	76,795
Tensile:	84,297
Elongation (2")%:	29.0
Reduction of Area:	71.0

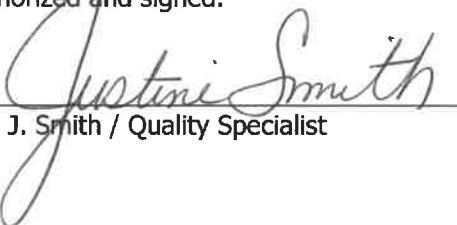
Charpy V-Notch Impacts Tested @ 0 Deg. F.
Ft. Lbs. 69-65-66-85-80 Ave = 73.0

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 68-31-52-45-46 Ave = 48.4

Fillets: OK VERTICAL-UP/OVERHEAD

This is to certify that the original is duly authorized and signed.

By:


J. Smith / Quality Specialist

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **DUAL SHIELD 7100 LC** Classification **E71T-1C/T-1M/T-9C/T-9M** as supplied under the above order number, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.20:2015** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.20:2015**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 75% AR/25% CO₂

Diameter: 1/16"
Test Date: 6/6/25
Test Number: 2-66098
Travel Speed: 9.8 IPM
X-Rays: Satisfactory

Shielding Gas: 100% CO₂

Diameter: 1/16"
Test Date: 6/6/25
Test Number: 2-66099
Travel Speed: 12.2 IPM
X-Rays: Satisfactory

Chemical Analysis:

Carbon: .04
Manganese: 1.25
Silicon: .54
Phosphorus: .016
Sulfur: .010
Chromium: .05
Nickel: .02
Molybdenum: .01
Vanadium: .02
Copper: .04

Chemical Analysis:

Carbon: .03
Manganese: 1.10
Silicon: .45
Phosphorus: .014
Sulfur: .008
Chromium: .05
Nickel: .02
Molybdenum: .01
Vanadium: .02
Copper: .05

Full	Split	Triple	Quad	Volts	Amps
1	6	---	---	27.0	254 DC+

Full	Split	Triple	Quad	Volts	Amps
1	6	--	--	27.0	255 DC+

Test Results **As Welded**

Yield: 79,290
Tensile: 88,759
Elongation (2")%: 27.0
Reduction of Area: 72.0

Test Results **As Welded**

Yield: 74,071
Tensile: 83,809
Elongation (2")%: 31.0
Reduction of Area: 73.0

Charpy V-Notch Impacts Tested @ 0 Deg. F.
Ft. Lbs. 58-86-72-58-73 Ave = 69.4

Charpy V-Notch Impacts Tested @ 0 Deg. F.
Ft. Lbs. 37-29-18-23-19 Ave = 23.7

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 59-39-30-48-51 Ave = 45

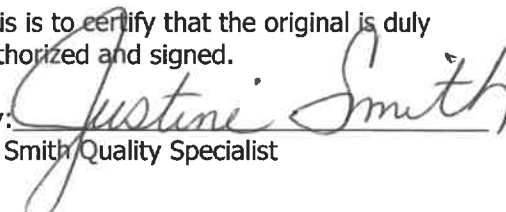
Charpy V-Notch Impacts Tested @ -20 Deg. F.

Fillets: OK VERTICAL UP / OVERHEAD

Fillets: OK VERTICAL UP / OVERHEAD

Dual Shield 7100 LC is manufactured in the USA and the steel used in this product is melted and processed in the USA.
Product complies with "Buy America"

This is to certify that the original is duly authorized and signed.

By: 
J. Smith Quality Specialist

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **DUAL SHIELD II 70 ULTRA** Classification **E71T-1M/T-12M**, as supplied under the above order number, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.20:2015** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.20:2015**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 75% AR/25% CO₂

Diameter: 1/16"

Test Date: 4/27/2025

Test Number: 2-66100-00

Travel Speed: 10.9 IPM

X-Rays: Satisfactory

Chemical Analysis:

Carbon:	.04
Manganese:	1.02
Silicon:	.37
Phosphorus:	.010
Sulfur:	.008
Chromium:	.03
Nickel:	.01
Molybdenum:	<.01
Vanadium:	.02
Copper:	.03

Full	Split	Triple	Quad	Volts	Amps
1	6		---	27.0	274 DC+

Test Results

As Welded

Yield:	72,623
Tensile:	78,811
Elongation (2")%:	29.0
Reduction of Area:	74.0

Charpy V-Notch Impacts Tested @ 0 Deg. F.
Ft. Lbs. 39-120-118-136-183 Ave = 119.2

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 102-47-46-205-131 Ave = 106.2

Fillets: OK VERTICAL-UP / OVERHEAD

This is to certify that the original is duly
authorized and signed.

By:

J. Smith / Quality Specialist

Dual Shield II 70 Ultra is manufactured in the USA
and the steel used in this product is melted and
processed in the USA.
Product complies with "Buy America"

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **DUAL SHIELD II 71 ULTRA** Classification **E71T-1CJ/T-12CJ**, as supplied is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.20:2015** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.20:2015**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 100% CO₂

Diameter: 1/16"
Test Date: 5/31/2024
Test Number: 2-65414-00
Travel Speed: 11.3 IPM
X-Rays: Satisfactory

Chemical Analysis:

Carbon:	.04
Manganese:	1.32
Silicon:	.48
Phosphorus:	.018
Sulfur:	.008
Chromium:	.04
Nickel:	.43
Molybdenum:	<.01
Vanadium:	.02
Copper:	.03

Full	Split	Triple	Quad	Volts	Amps
1	5	1	---	27	271 DC+

Test Results

As Welded

Yield:	79,329
Tensile:	85,985
Elongation (2")%:	28.0
Reduction of Area:	73.0

Charpy V-Notch Impacts Tested @ 0 Deg. F.
Ft. Lbs. 94-66-52-55-52 Ave = 63.8

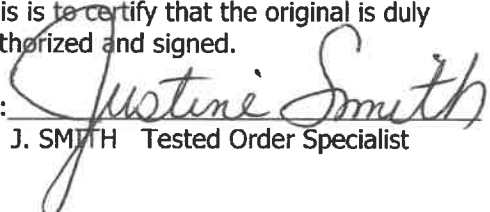
Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 47-62-45-53-39 Ave = 49.2

Charpy V-Notch Impacts Tested @ -40 Deg. F.
Ft. Lbs. 17-26-34-34-25 Ave = 27.2

Fillets: OK VERTICAL-UP / OVERHEAD

Dual Shield II 71 Ultra is manufactured in the USA and the steel used in the product is melted and processed in the USA.
Product complies with "Buy America"

This is to certify that the original is duly authorized and signed.

By: 
J. SMITH Tested Order Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **DUAL SHIELD 700X** Classification **E70T-1C**, as supplied under the above order number, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.20:2015** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.20:2015**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 100% CO₂

Diameter: 1/16"

Test Date: 4/30/25

Test Number: 2-66111-00

Travel Speed: 10.0 IPM

X-Rays: Satisfactory

Chemical Analysis:

Carbon:	.03
Manganese:	1.33
Silicon:	.50
Phosphorus:	.010
Sulfur:	.010
Chromium:	.05
Nickel:	.43
Molybdenum:	.01
Vanadium:	.02
Copper:	.04

Full	Split	Triple	Quad	Volts	Amps
1	6	---	--	27.9	271 DC+

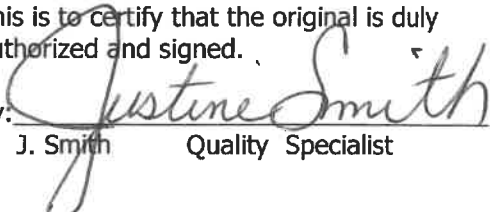
Test Results As Welded

Yield:	79,657
Tensile:	89,552
Elongation (2")%:	26.0
Reduction of Area:	64.0

Charpy V-Notch Impacts Tested @ 0 Deg. F.
Ft. Lbs. 22-29-36-26-42 Ave = 31

Fillets: OK HORIZONTAL

This is to certify that the original is duly authorized and signed.

By: 
J. Smith Quality Specialist

Dual Shield 700X is manufactured in the USA
and the steel used in this product is melted and
processed in the USA
Product complies with "Buy America"

5SAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **DUAL SHIELD 70 ULTRA PLUS** Classification **E71T-1M/T-9M**, as supplied under the above order number, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.20:2005** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.20:2005**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 75% AR/25% CO₂

Diameter: 1/16"
Test Date: 1/27/2021
Test Number: 2-65854-00
Travel Speed: 9.36 IPM
X-Rays: Satisfactory

Chemical Analysis:

Carbon:	.04
Manganese:	1.16
Silicon:	.68
Phosphorus:	.021
Sulfur:	.009
Chromium:	.06
Nickel:	.01
Molybdenum:	.01
Vanadium:	.02
Copper:	.03

Full	Split	Triple	Quad	Volts	Amps	
1	7	---	---	26.0	274.0	DC+

Test Results

As Welded

Yield:	80,305
Tensile:	86,321
Elongation (2")%:	28.0
Reduction of Area:	73.0

Charpy V-Notch Impacts Tested @ 0 Deg. F.

Ft. Lbs.	125-115-120-124-107	Ave = 118.2
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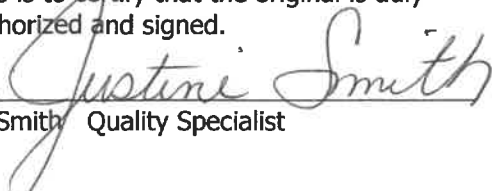
Charpy V-Notch Impacts Tested @ -20 Deg. F.

Ft. Lbs.	96-105-90-131-109	Ave = 106.2
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Fillets: OK VERTICAL-UP / OVERHEAD

Dual Shield 70 Ultra Plus is manufactured in the USA
and the steel used in this product is melted and
processed in the USA.
Product Complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith Quality Specialist

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **DUAL SHIELD 710X-M** Classification **E71T-1C-H8/T-1M/T-9C-H8/T-9M**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.20:2015** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.20:2015**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 75% AR/25% CO₂

Shielding Gas: 100% CO₂

Diameter: 1/16"
Test Date: 11/11/24
Test Number: 2-655415-00
Travel Speed: 11.5 IPM
X-Rays: Satisfactory

Diameter: 1/16"
Test Date: 11/11/2024
Test Number: 2-65416-00
Travel Speed: 11.33 IPM
X-Rays: Satisfactory

Chemical Analysis:

Carbon: .04
Manganese: 1.56
Silicon: .72
Phosphorus: .013
Sulfur: .009
Chromium: .04
Nickel: .43
Molybdenum: <.01
Vanadium: .03
Copper: .04

Chemical Analysis:

Carbon: .03
Manganese: 1.34
Silicon: .54
Phosphorus: .011
Sulfur: .011
Chromium: .03
Nickel: .42
Molybdenum: <.01
Vanadium: .03
Copper: .03

Full	Split	Triple	Quad	Volts	Amps	
1	5	1	---	26.0	283	DC+

Full	Split	Triple	Quad	Volts	Amps	
1	6	---	--	27.0	278	DC+

Test Results As Welded

Yield: 78,933
Tensile: 88,778
Elongation (2")%: 26.0
Reduction of Area: 63.0

Test Results As Welded

Yield: 71,934
Tensile: 83449
Elongation (2")%: 29.0
Reduction of Area: 69.0

Charpy V-Notch Impacts Tested @ 0 Deg. F.
Ft. Lbs. 76-87-78-89-106 Ave = 87.2

Charpy V-Notch Impacts Tested @ 0 Deg. F.
Ft. Lbs. 67-72-62-66-46 Ave = 62.6

Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 73-76-49-47-34 Ave = 55.8

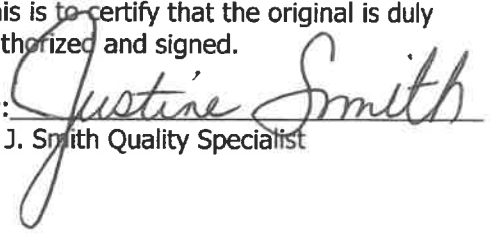
Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 31-28-32-36-44 Ave = 34.2

Fillets: OK VERTICAL / OVERHEAD

Fillets: OK VERTICAL / OVERHEAD

Dual Shield 710X-M is manufactured in the USA
But may contain steel not melted and
processed in the USA.

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **DUAL SHIELD II 712X** Classification **E71T-1MJH8/T-12MJH8** as supplied under the above order number, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.20:2015** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.20:2015**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 75% AR/25% CO₂
Diameter: 1/16"
Test Date: 11/13/2024
Test Number: 2-65356-00
Travel Speed: 12.6 IPM
Diffusible Hydrogen: 5.2 ml/100 gr.
Atmospheric Temperature: 69 Deg.
Relative Humidity: 20%
X-Rays: Satisfactory

Chemical Analysis:

Carbon:	.05
Manganese:	1.27
Silicon:	.43
Phosphorus:	.011
Sulfur:	.011
Chromium:	.03
Nickel:	.01
Molybdenum:	.01
Vanadium:	.02
Copper:	.03

Full	Split	Triple	Quad	Volts	Amps	
1	7	---	---	27.5	298	DC+

Test Results

As Welded

Yield:	77,602
Tensile:	86,100
Elongation (2")%:	28.0
Reduction of Area:	68.0

Charpy V-Notch Impacts Tested @ 0 Deg. F.
Ft. Lbs. 110-86-104-106-99 Ave = 98.8

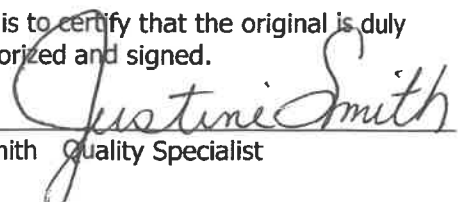
Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 68-87-55-69-72 Ave = 70.2

Charpy V-Notch Impacts Tested @ -40 Deg. F.
Ft. Lbs. 85-45-62-82-37 Ave = 62.2

Fillets: OK VERTICAL-UP / OVERHEAD

Dual Shield II 712X is manufactured in the USA, and the steel used in this product is melted and processed in the USA. Product complies with "Buy America"

This is to certify that the original is duly authorized and signed.

By: 
J. Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **DUAL SHIELD II 80-Ni1H4** Classification **E81T1-Ni1M-JH4**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.29:2010** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.29:2010**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 75% AR/25% CO₂

Diameter: 1/16"

Test Date: 03/15/2024

Test Number: 2-64683-00

Travel Speed: 12.0 IPM

Diffusible Hydrogen: 1.7 ml/100 gr.

Atmospheric Temperature: 69 Deg.

Relative Humidity: 19%

X-Rays: Satisfactory

Chemical Analysis:

Carbon:	.04
Manganese:	1.22
Silicon:	.33
Phosphorus:	.018
Sulfur:	.008
Chromium:	.04
Nickel:	.93
Molybdenum:	.01
Vanadium:	.02
Copper:	.04

Full	Split	Triple	Quad	Volts	Amps	
1	5	1	---	27	306	DC+

Test Results

As Welded

Yield:	80,455
Tensile:	89,302
Elongation (2")%:	25.0
Reduction of Area:	68.0

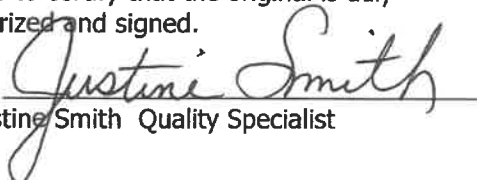
Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 109-96-107-102-97 Ave = 102.2

Charpy V-Notch Impacts Tested @ -60 Deg. F.
Ft. Lbs. 48-74-46-53-58 Ave = 55.8

Fillets: OK VERTICAL-UP/OVERHEAD

Dual Shield II 80Ni1H4 is manufactured in the USA
and the steel used in this product is melted and
processed in the USA.
Product complies with "Buy America"

This is to certify that the original is duly
authorized and signed.

By: 
Justine Smith Quality Specialist

ESAB Welding & Cutting Products
1500 Karen Lane
Hanover, PA 17331

CERTIFICATE OF CONFORMANCE TO REQUIREMENTS FOR WELDING ELECTRODES

This is to certify that **DUAL SHIELD 810X-Ni1** Classification **E81T1-Ni1C-JH8**, is the same classification, manufacturing process, and material requirements as the electrodes tested below. All tests required by **Specification AWS A5.29:2010** were performed in conformance with this specification, and the above electrode met all the requirements. The electrodes were marked in conformance with **AWS A5.29:2010**. The chemistry and mechanical properties of the deposited weld metal were as follows:

Shielding Gas: 100% CO₂

Diameter: 1/16"

Test Date: 03/15/2025

Test Number: 2-65857-00

Travel Speed: 9.2 IPM

Diffusible Hydrogen: 5.8 ml/100 gr

Atmospheric Temperature: 68 Deg.

Relative Humidity: 14%

X-Rays: Satisfactory

Chemical Analysis:

Carbon:	.04
Manganese:	1.12
Silicon:	.55
Phosphorus:	.014
Sulfur:	.008
Chromium:	.05
Nickel:	.90
Molybdenum:	.01
Vanadium:	.02
Copper:	.05

Full	Split	Triple	Quad	Volts	Amps
1	6	---	---	27.5	285 DC+

Test Results

As Welded

Yield:	74,931
Tensile:	85,087
Elongation (2")%:	28.0
Reduction of Area:	73.0

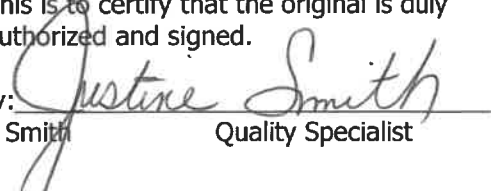
Charpy V-Notch Impacts Tested @ -20 Deg. F.
Ft. Lbs. 61-63-77-41-49 Ave = 58

Charpy V-Notch Impacts Tested @ -40 Deg. F
Ft. Lbs. 22-43-36-35-18 Ave = 31

Dual Shield 810X-Ni1 is manufactured in the USA,
and the steel used in this product is melted and
processed in the USA.
Product complies with "Buy America"

Fillets: OK VERTICAL-UP/OVERHEAD

This is to certify that the original is duly
authorized and signed.

By: 
J. Smith

Quality Specialist