



# Lynn Welding

Welding - Machining - Fabrication

**AEROSPACE WELDING &  
MACHINING EXPERTS**

[www.lynnwelding.com](http://www.lynnwelding.com) | [sales@lynnwelding.com](mailto:sales@lynnwelding.com)  
phone: (860) 667-4400 | fax: (860) 667-3040



**Lynn Welding**  
Welding - Machining - Fabrication



Everyday we come into Lynn Welding with a true purpose, to be the best welding company in America. We have the recipe to get there and the key ingredients are our team members. It's imperative to have people on our team that have a passion for what they do. We prioritize creating a fun, positive work environment that promotes growth and career advancement. Our culture and values are apparent to our customers through the excellent customer service, and quality work we deliver every day. Being the best welding company in America is not a destination for us, it's a daily experience!

**-Darius Kania**  
**Vice President of Lynn Welding**



The Statue Mounted at the entrance of Lynn Welding's headquarters was designed, fabricated, and welded by one of our very own who has a passion for what he does!

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Welding - Machining - Fabrication

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## **FUSION WELDING**

- 05** Specializing in both precision TIG and MIG welding, Lynn Welding provides NADCAP-accredited fusion welding services.

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## **ROBOTIC WELDING**

- 07** Lynn Welding provides robotic welding services using a state-of-the-art system designed to weld components at three separate stations.

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- 09** With over 25 resistance welding machines, Lynn Welding stands as one of the largest aerospace resistance welding companies in the nation.

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## **TORCH BRAZING**

- 11** Lynn Welding is a NADCAP-accredited brazing facility. The company's certified brazers routinely join dissimilar materials to meet x-ray standards.

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## **FABRICATION**

- 13** Lynn Welding provides precision fabrication services with a focus on its three core functions: aerospace tooling, aerospace fabrication, and military fabrication.

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## **MACHINING**

- 15** Lynn Welding's state-of-the-art machine shop offers wire EDM, 5-axis milling, and CNC turning.

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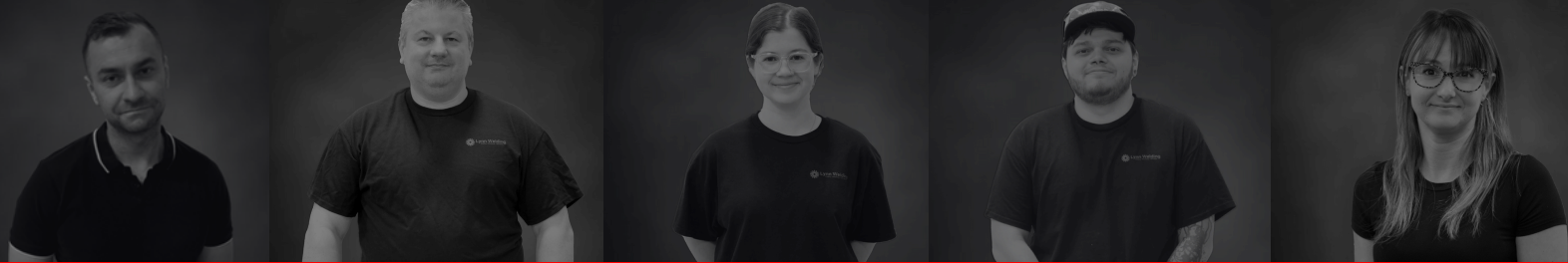
## **FIXTURE BUILDING**

- 17** Lynn Welding builds precision fixtures and tooling for welding, assembly, inspection, and machining.

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## **CERTIFICATIONS**

- 19** Lynn Welding prides itself on its extensive list of certifications and approvals.



# Lynn Welding

Welding - Machining - Fabrication



# About Lynn Welding Lynn Welding's Rich History

Lynn Welding's rich history laid the foundation for its customer-centric, quality-driven approach.

## Providing Quality Welding, Machining, and Fabrication Services Since 1979

Today, Lynn Welding stands as a highly recognized leader in welding and machining services for the Aerospace, Defense, Nuclear, Industrial, and Medical industries. From its beginnings as a small one-man welding shop, the company has grown into a trusted provider known for solving complex welding and machining challenges. Lynn Welding's unique capability to weld, machine, and fabricate entire assemblies sets it apart in the industry.



## Delivering Certainty

Throughout its growth, Lynn Welding has maintained a strong focus delivering certainty to both its customers and team members alike.

### Lynn Welding Customers

Lynn Welding strives to deliver certainty to its customers by prioritizing communication and reliability. The team is trained to provide clear, concise, and frequent updates, ensuring that customers are always informed about the status of their orders.

### Lynn Welding Team

Delivering certainty to Lynn Welding's team means providing a safe and stable work environment where employees and their families feel supported. The leadership team is dedicated to ensuring that all employees have ongoing work opportunities and remain satisfied with the company they represent for years to come.



In the last decade  
**Lynn Welding**

**47,266**  
JOBS PROCESSED

**3,298,472**  
PARTS SHIPPED

**656**  
CUSTOMERS SERVED





# Lynn Welding Services

## Fusion Welding

**Lynn Welding provides Nadcap-accredited fusion welding services and specializes in GTAW Welding.**

Lynn Welding's reputation becomes evident through the weld bead produced by one of its certified welders. Specializing in Gas Tungsten Arc Welding (GTAW), Lynn Welding's experienced team meticulously adheres to NADCAP requirements, ensuring superior weld quality. Whether working with aluminum or stainless steel, customers can trust that the welds will meet precise tolerances and uphold X-ray quality standards.

Lynn Welding is AWS D17.1 certified and possesses numerous other precision welding approvals. For a comprehensive list of certifications, please refer to page 19.

### Certifications Industry Specific Approvals & Certifications

Raytheon Technologies  
Boeing  
Bell Helicopter  
Rolls- Royce  
GE Aviation  
Collins Aerospace  
Kaman Aerospace  
Pratt & Whitney Canada  
Northrop Grumman  
United Launch Alliance  
Sikorsky  
General Dynamics  
Pratt & Whitney  
Gulfstream  
Beechcraft

### Fusion Welding Equipment List & Facility Specifications

- 20 Miller Dynasty 350 tig welders
- 3 Miller Maxstar 200 tig welders
- 1 Miller Syncrowave 300 tig welder
- 1 Miller Syncrowave 500 tig welder
- 1 Miller Dynasty 280
- Millermatic 350P mig welder
- Weldlogic automatic tig welding system
- Custom 48" x 48" x 36" vacuum welding chamber
- Custom 72" x 48" x 32" purge welding chamber
- Mbraun 48" x 36" x 36" vacuum welding chamber
- CWI (certified welding inspectors)
- 10,000 sq ft welding department
- Approved weld procedures for most alloys
- Metallurgical lab for performance and procedure qualification

### Fusion Welding Material Capabilities

Stainless Steel, Greek Ascology, Titanium, Inconel, Aluminum and, Chromalloy

Learn more about Lynn Welding's  
Fusion Welding services



### Tig (GTAW) Welding

Lynn Welding provides TIG welding for aerospace and defense applications. The facility is qualified to perform the GTAW process in accordance with AWS D17.1 standards.

### Mig (GMAW) Welding

Lynn Welding also provides professional MIG welding services. The facility is qualified to perform the GMAW process according to AWS D1.1, D1.2, and D1.6 standards.





# Lynn Welding Services Robotic Welding

Lynn Welding provides GTAW Robotic Welding for high volume projects.

Lynn Welding's robotic welding system operates at three distinct stations for enhanced flexibility and reduced tooling changeover. One station features a two-axis positioner with three tooling stations, allowing a six-axis welding robot to work efficiently under a light curtain safety system, ensuring quick and safe operator intervention. The other two stations are equipped with a 2'x4.5' weld tooling table, protected by pneumatic telescoping barrier doors.

This versatile system incorporates an ABB 6-axis robotic arm integrated with Fronius TIG welding equipment to achieve the required quality and throughput of parts.

## Capabilities Why Choose Robotic Welding?

- Increased accuracy
- Process reliability
- Reduced welding cost
- Exact repeatability
- Increased productivity
- Welding on multiple axes
- Circumferential welding
- Linear seam welding
- Multiple location welding



## Robotic Welding Facility Specifications

ABB IRB 1600

- 6-Axis robotic arm
- 10 Kg. payload & 1.45m reach

ABB IRBP A-250

- 2-Axis workpiece positioner
- Up to 250 Kg weight capacity
- 1.18 Diameter part envelope

ABB IRBP L-300 tail stock

- Helps support long parts with A-250
- Increases A-250 load capacity to 500 Kg.

Fronius MagicWave 3000 TIG

- Tig welding up to 300A

Arc voltage control

- Enables through-the-arc seam-tracking for tig process

## Robotic Welding Material Capabilities

Stainless Steel, Greek Ascology, Titanium, Inconel, and Aluminum





# Lynn Welding Services

## Resistance Welding

**Lynn Welding provides Nadcap-accredited Resistance spot and seam welding services.**

Lynn Welding offers NADCAP-accredited resistance welding solutions and operates over 25 resistance welding machines. The department utilizes SCIAKY welders, renowned globally for maintaining the strictest tolerances required by the aerospace industry. The internal quality department meticulously monitors resistance welding operations to ensure compliance with NADCAP guidelines. Lynn Welding offers resistance spot welding, resistance seam welding, projection welding, and micro-resistance welding for Stainless Steel, Titanium, Inconel, Aluminum and, most other metals.

Lynn Welding is AWS D17.2 certified and possesses numerous other aerospace welding approvals. For a comprehensive list of certifications, please refer to page 19.

### Certifications Industry Specific Approvals & Certifications

Raytheon Technologies  
Boeing  
Bell Helicopter  
Rolls- Royce  
GE Aviation  
Collins Aerospace  
Kaman Aerospace  
Northrop Grumman  
United Launch Alliance  
Sikorsky  
General Dynamics  
Pratt & Whitney  
Pratt & Whitney Canada  
Gulfstream  
Beechcraft  
Honeywell

Learn more about Lynn Welding's  
Resistance Welding services



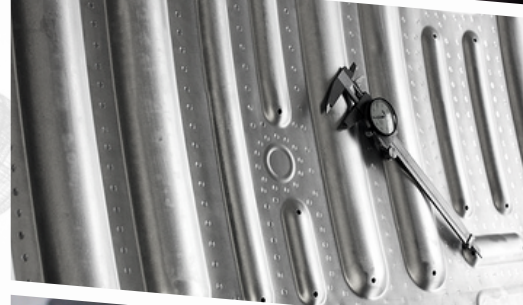
### Resistance Welding Equipment List & Facility Specifications

- 1000 ADP Miyachi micro resistance welder
- 200 KVA Sciaky resistance spot welder
- 200 KVA Sciaky resistance seam welder
- 150 KVA Sciaky resistance spot welder
- 150 KVA Sciaky resistance seam welder
- 125 KVA Sciaky resistance spot welder
- 100 KVA Sciaky resistance spot welder
- 150 KVA Sciaky resistance seam welder
- 100 KVA Sciaky spot welder
- 90 KVA Sciaky resistance spot welder
- 30 KVA Miyachi micro-resistance welder
- 23 KVA Techna portable gun welder
- 20 KVA Joyal micro-resistance welder
- 0-100 Micro-ohm resistance surface analyzer
- Metallurgical laboratory

### Resistance Welding Metallographic Laboratory

Lynn Welding's metallographic laboratory is NACAP-approved, Boeing-approved, and Pratt and Whitney LCS-approved. The laboratory undergoes regular internal and external audits to maintain these approvals and ensure full compliance with all customer and government requirements. Equipped with highly specialized tools, the laboratory facilitates metallurgical evaluation of resistance-welded coupons. It features two identical stations equipped with grinding, polishing, etching, and evaluation capabilities.

- 20x-100x video microscopes with digital readouts
- 10x-80x video videoscope with digital readouts
- 2lb-20,000lb pull tester
- Acid etching and sample mounting station





# Lynn Welding Services Torch Brazing

Lynn Welding provides Nadcap certified brazers routinely join dissimilar materials to meet X-ray standards.

Certified torch brazing is increasingly difficult to find in the aerospace market due to a shortage of experienced professionals. Fortunately, Lynn Welding's skilled brazing technicians bring years of expertise to every project. Whether brazing flight-critical fuel supply lines or pitot probes, Lynn Welding's team handles assemblies with unmatched precision and skill. The NADCAP-approved torch brazing cells and technicians meet most aerospace brazing specifications, including Mil-B-7883, AWS C3.4, AWS C3.5, AMS2664, and AMS2665.

## Certifications Industry Specific Approvals & Certifications

Raytheon Technologies  
Gulfstream  
United Launch Alliance  
Boeing  
GE Aviation  
Sikorsky  
Pratt & Whitney  
Collins Aerospace

## Advantages of Torch Brazing

- Properly brazed joints are pressure-tight.
- Brazing allows the joining of dissimilar metals.
- Precision dimensions can be maintained while brazing machined components.
- Extremely thin-walled material that cannot be welded can be joined by brazing.
- Brazing can join fabrications economically
- There is less heat "shock" and distortion when brazing

## Certified Brazing Material Capabilities

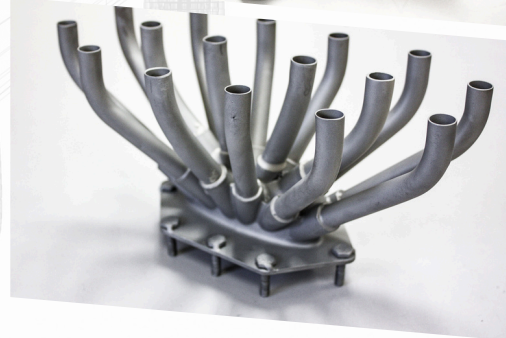
Base Metals: 300 Series stainless steel, 400 Series stainless steel, Inconel, Mild Steel, Copper, Carbide, Tungsten, and Aluminum.

Braze Alloys: Silver, Nickel, Copper

Solder Alloys: Tin/lead solder, Gold/tin solder (80 & max au)

## Common Brazing projects

Tubes/ferrules, engine seals, nut plates, electronics, and fuel filters.



Learn more about Lynn Welding's  
Brazing services





# Lynn Welding Services Machining

**Precision machining solutions driven by skilled craftsmanship and cutting-edge technology.**

Lynn Welding employs a full-time team of machinists with decades of experience in programming and operating CNC equipment. Our skilled machinists excel in producing highly complex and dimensionally critical parts using a wide range of standard and exotic materials. The machine shop at Lynn Welding features capabilities in 3-axis, 4-axis, and 5-axis CNC milling, as well as manual milling, CNC turning and Wire EDM.

## CNC Machining

Lynn Welding's full time staff of machinists have decades of experience in programming and operating CNC and manual equipment. Lynn Welding's machinists are capable of running highly complex and dimensionally critical parts consisting of most standard and exotic materials.

## Wire EDM

Lynn Welding's Wire EDM machines maintain tolerances typically within .0005 inches, can handle up to 30 degrees of taper, and are equipped to use both .004-inch and .010-inch diameter wire. Our capabilities include Wire EDM machining for internal and external splines, gears, square holes, and more.

Learn more about Lynn Welding's Machining services



## Machining Equipment List & Facility Specifications

### Wire EDM

- Fanuc robotic a-1B wire EDM (X 18", Y 12", Z 8")

### Turning

- Southwestern Trak TRL 1840 CCS (X 18", Z 31")
- Doosan lynx 2100A turning center
- (2) Hardinge lathe. 6" max dia.
- Wasino lathe. 22" max dia.

### Milling

- Matsuura vertical CNC milling center 4-axis. (X 30", Y 19", Z 19")
- Leadwell vertical CNC milling center 3-axis. (X 30", Y 19", Z 18")
- Doosan vertical CNC milling center 3-axis (X 25", Y 17.1", Z 20")
- Doosan 5-axis
- DNM-200 machining center
- (2) Southwestern Trak DPM3 (X 28.5", Y 17.5", Z 13")
- (2) Southwestern Trak K3SX (X 32", Y 16", Z 15.5")
- Bridgeport milling





# Lynn Welding Services Fabrication

**Lynn Welding offers fabrication services for aerospace and defense applications.**

Lynn Welding's team specializes in aerospace tooling, aerospace fabrication, and military fabrication services. With over 60 years of combined experience, they excel in fabricating assemblies such as tube assemblies, duct assemblies, crew door components, and many other aerospace assemblies.

## Aerospace Tooling

Aerospace Tooling fabrication of pressure vessels, enclosures, piping systems, tanks and custom assemblies.

Lynn Welding's highly experienced toolmakers and CNC programmers specialize in aerospace tooling services. They assist numerous customers, including the military, with aerospace tooling for various programs such as the Black Hawk and Humvee.

## Military Fabrication

High-precision fabrication for the military and defense industries.

Lynn Welding's highly skilled fabricators bring decades of experience in fabricating assemblies, including ground support equipment, maintenance stands, dollies, and tooling for various military platforms.

## Aerospace Fabrication

Lynn Welding has over 60 years of combined experience in fabricating assemblies.

Lynn Welding specializes in fabricating assemblies for the aerospace industry, including tube assemblies, duct assemblies, and crew door components. Their aerospace fabrication services support various government programs, including the F-35, F-16, A-10, and UH-60 Black Hawk.

## Fabrication solutions Fabrication Department Capabilities

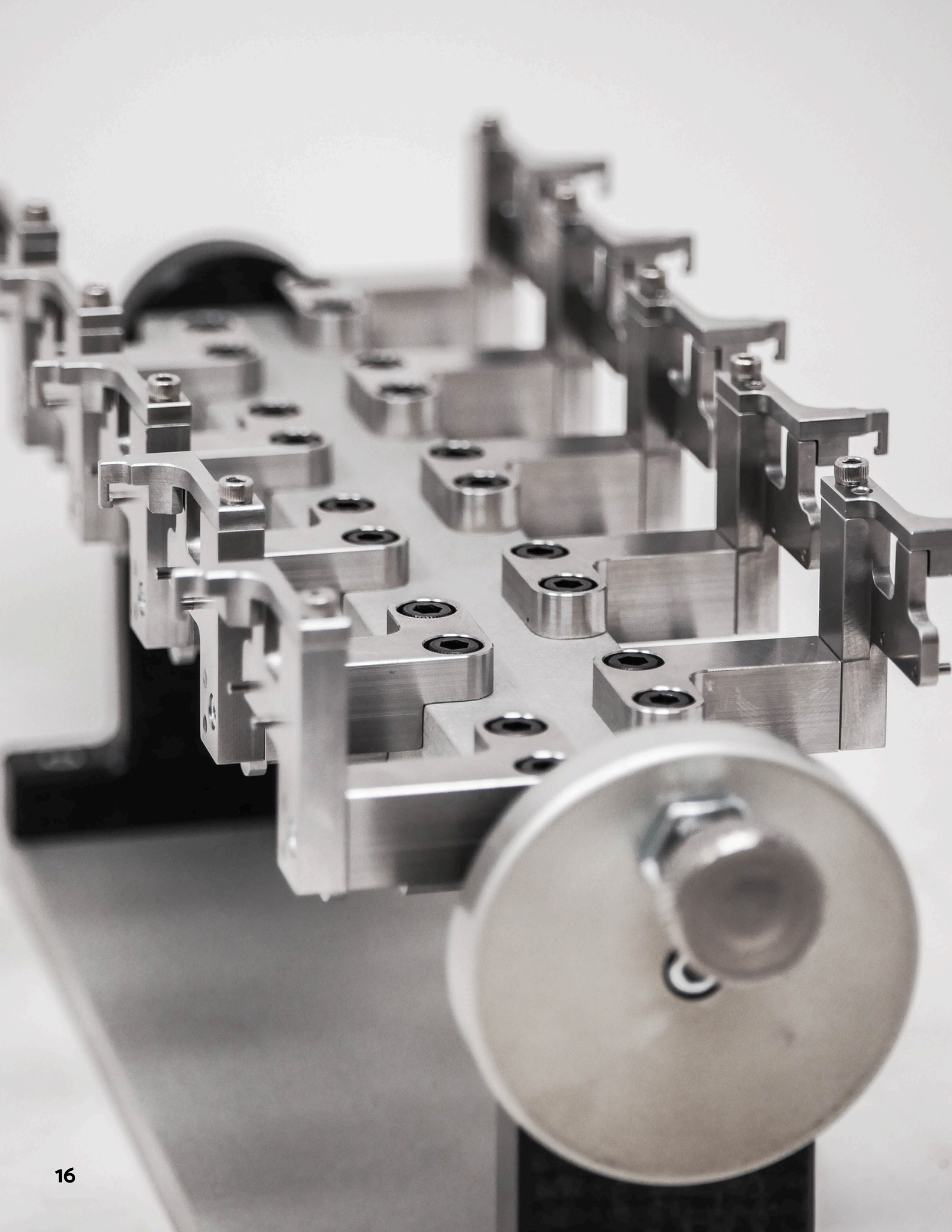
- Pressure vessels
- Tanks
- Pipe assemblies
- Jet engine assembly carts
- Blade transport carts
- Dollies
- Racks
- Enclosures
- Custom assemblies
- Scaffolds

## Fabrication Capabilities

Machining, Forming, Cutting, Bending, Welding, Assembling, and Painting

Learn more about Lynn Welding's Fabrication services





# Lynn Welding Services

## Fixture Building

**Building precision fixtures and tooling for welding, assembly, inspection and, machining.**

Lynn Welding understands the critical importance of tooling and the need for a creative approach to solving client challenges. They streamline the entire fixtures and tooling development process, offering advanced functionality and step-by-step guidance to tackle even the most complex designs.

### Fixture solutions **Fixture Building Applications**

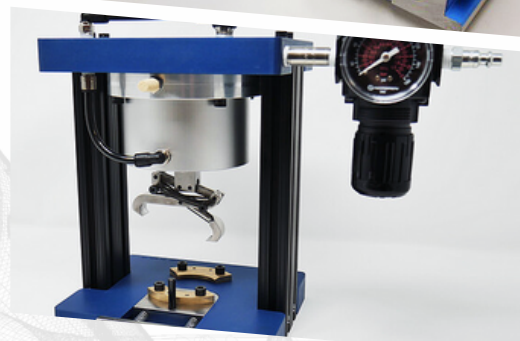
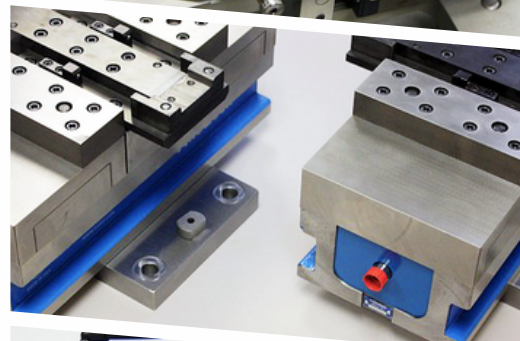
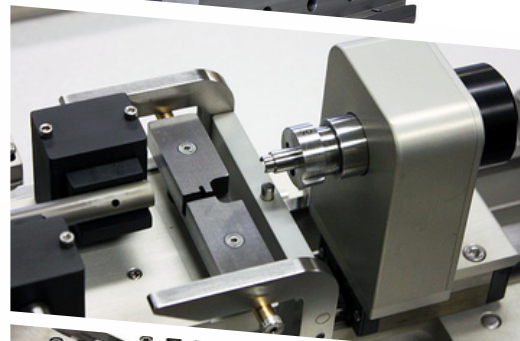
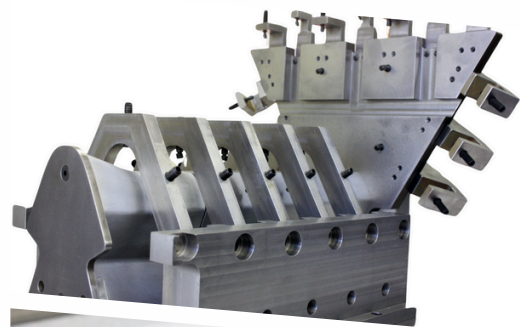
High tolerance CNC  
machining fixtures  
Machined components  
gages  
Part qualification test  
fixtures  
Switch tester  
Contact testers  
Cable  
cutter/measure/testers  
Feeding systems  
Inspection systems  
Assembly systems  
Micro resistance welding  
systems  
Machining services  
Assembly services

### **Fixture & Tooling**

Lynn Welding specializes in manufacturing custom vertical and horizontal machining fixtures. Their fixtures are available with hydraulic, pneumatic, and manual options, including captured oil accumulators built into the fixture and spring clamps with air and hydraulic unclamp actuation. Their machining fixture capabilities encompass concept development, installation, repair, refurbishing, and assembly. They provide CAD and detailed drawings, as well as commercial items suitable for various high-volume manufacturing applications.

### **Fixture & Tooling Capabilities**

welding fixtures, machining fixtures, semi-automatic fixtures, and assembly fixtures.



Learn more about Lynn Welding's  
Fixture & Tooling services





## Certifications

# Industry Specific Approvals & Certifications

Lynn Welding's approval list is continually expanding, and they may be in the process of obtaining additional approvals. Contact Lynn Welding to discuss which additional approvals you require.



**Pratt & Whitney**

A United Technologies Company

### Fusion Welding (LCS Approved Facility)

PWA 16-1 (carbon and low alloy steel)  
PWA 16-2 (corrosion-resistance steels other than precipitation-hardenable)  
PWA 16-22 (precipitation-hardenable, corrosion-resistance steel)  
PWA 16-3 (nickel and non precipitation-hardenable nickel alloys)  
PWA 16-33 (precipitation hardenable nickel alloys)  
PWA 16-37 (NI & Non precipitation-hardenable nickel alloys welded to cobalt alloys)  
PWA 16-333 (NI & Non precipitation-hardenable nickel alloys welded to precipitation-hardenable nickel alloys)  
PWA 16-4 (aluminum alloys)  
PWA 16-6 (commercial pure titanium)  
PWA 16-66 (titanium alloys)  
PWA 16-666 (titanium alloys, special alloy filler metal requirement)  
PWA 16-7 (cobalt alloys)  
PWA 16-777 (cobalt to nickel alloys)

### Resistance Welding

PWA 15 seam resistance welding (thickness range .015-.123)  
PWA 15 spot resistance welding (thickness range .0009-.123)

### Brazing

AMS 2664 high temp manual braze, torch braze  
AMS 2665 low temp manual braze, torch braze

### Tack Welding

PWA 36951



### Fusion Welding

AWS D17.1/MIL-STD-2219  
Carbon and low alloy steels  
Corrosion resistance steels other than precipitation-hardenable  
precipitation-hardenable, corrosion-resistance steel  
Cres. precipitation-hardenable alloys  
Nickel and non precipitation-hardenable nickel alloys  
Precipitation-hardenable nickel alloys  
Aluminum alloys  
Commercial pure titanium  
Titanium alloys  
Titanium alloys, special alloy filler metal requirement  
Cobalt alloys  
Cobalt to nickel alloys  
NI & non precipitation-hardenable nickel alloys welded to cobalt alloys  
NI & non precipitation-hardenable nickel alloys welded to precipitation-hardenable nickel alloys

### Resistance Welding

AWS D17.2  
MIL-W-6858  
SAE-AMS-W-6858

### Brazing

SS8731/ MIL-B-7883



**Pratt & Whitney Canada**

A United Technologies Company

### Fusion Welding (LCS Approved Facility)

CPW 24-1A (Carbon & low alloy steel)  
CPW 24-2A (Corrosion-resistance steel and other precipitation-hardenable)  
CPW 24-2J (Corrosion-resistance steel and other precipitation-hardenable)  
CPW 24-22A (Precipitation-hardenable, corrosion-resistance steels)  
CPW 24-3A (Nickel and non precipitation-hardenable nickel alloys)  
CPW 24-3J (Nickel and non precipitation-hardenable nickel alloys)  
CPW 24-33A (Precipitation-hardenable nickel alloys)  
CPW 24-33J (Precipitation-hardenable nickel alloys)  
CPW 24-4A (Aluminum alloys)  
CPW 24-4J (Aluminum alloys)  
CPW 24-6A (Commercial pure titanium)  
CPW 24-6J (Commercial pure titanium)  
CPW 24-66A (Titanium alloys)  
CPW 24-66J (Titanium alloys)  
CPW 24-7A (Cobalt alloys)

### Resistance Welding

CPW 23 Seam Resistance Welding (Thickness range .015-.0123) Spec YC-1  
CPW 23 Spot Resistance Welding (Thickness range .015-.123) Spec YC-1



### Fusion Welding (LCS Approved Facility)

AWS D17.1 & WS33739 class A,B & C  
AWS D1.1 & WS33739 welding of carbon steel  
AWS D1.1 & WS33739 welding of aluminum  
AWS D1.6 & WS33739 welding of stainless steel  
AWS D9.1 & WS33739 welding of sheet metal  
AWS D1.3 welding of sheet steel  
AWS D14.1

### Resistance Welding

AWS D17.2 class A, B & C

### Torch Brazing

AWS C3.4

## Certifications

# Industry Specific Approvals & Certifications

## Honeywell

### Fusion Welding

AMS2685 - Welding, Tungsten Arc, Inert Gas (GTAW Method)  
AMS2689 - Fusion Welding Titanium and Titanium Alloys  
AWS D17.1/D17.1M - Specification for Fusion Welding for Aerospace Applications  
GPS4100-1 - Welding, Fusion arc  
GPS7024-1 - Welding, Fusion arc (F-18)  
GPS7315-1 - Joining (Grimes)  
GPS7320-1 - Welding, Manual gas tungsten arc, Aluminum alloys (Grimes)  
P6200 - Process for Fusion Welding  
P6207 - Welding, Titanium, Gas Tungsten Arc, Process for  
S9074-AR-GIB-010/278 - Requirements for fabrication welding and inspection, and casting inspection and repair for machinery, piping, and pressure vessels  
WBS28 - Fusion welding supplement to AWS D17.1/D17.1M  
WBS5018 - Fusion arc welding

### Resistance Welding

91547-P6201 - Process for Resistance Welding  
AWS D17.2/D17.2M - Specification for Resistance Welding for Aerospace Applications  
GPS7321-1 - Welding, Resistance spot & seam (Grimes)  
M693284 - Manufacturing Specification for Spot Welding Under Special Conditions  
MIL-W-12332 - Welding, Resistance, spot, seam, and projection; for fabricating assemblies of low-carbon steel  
NGPS 2 - Spot welding of aircraft parts  
P6201 - Welding, Resistance, Process for



## Rolls-Royce®

### Fusion Welding

EDS 1306  
EPS 14500  
AWS D17.1  
EIS 1200 acceptance criteria for fusion welding  
EPS 14530 projection welding

### Resistance Welding

EPS 14523 projection welding  
EPS 14520 resistance welding (spot & seam) of ferrous, nickel and cobalt based alloys.



## Collins Aerospace

A United Technologies Company

### Fusion Welding

AWS D17.1  
MIL-STD-2219  
HS 191 CL1A  
HS 191 CL1B  
HS 191 CL1C  
HS 191 CL2A  
HS 191 CL2B  
HS 191 CL3

### Resistance Welding

AWS D17.2  
HAWS-W-6858  
HS 3944  
HS 91  
MIL-W-6858  
SAE-AMS-W-6858

### Torch Brazing

HS 198 TYA3  
PN 05.41  
ON 05.41-11  
Mil-B-7883

## KAMAN

### Fusion Welding

Fusion AWS D17.1 -process code: 241-1 welding  
Fusion, qualification AWS D17.1 -process code 241-5 welders

### Resistance Welding

Resistance stitch SAE-AMS-W-6858 -process code: 241-2 welding  
Resistance spot SAE-AMS-W-6858 -process code: 241-3 welding  
Resistance seam SAE-AMS-W-6858 -process code 241-1 welding



### Resistance Welding: Spot, Seam & Stitch

Sta-100-81-15 A spot welding spec



## Westinghouse

### Fusion Welding

QMSP-1012

## LOCKHEED MARTIN

### Fusion Welding

AWS D17.1/ D17.1M



#### **Fusion Welding**

Fusion welding- CRES heat resistance nickel-cobalt alloys BAC5975/ process code: 201 /specification title: fusion welding of metals  
 Fusion welding of aluminum alloys- BAC975/ process code: 210 / specification title: fusion welding for aerospace applications  
 Fusion welding for aerospace applications- aluminum alloys MIL-STD-2219/ process code: 211 / specification title: fusion welding for aerospace applications  
 Fusion welding for aerospace applications- aluminum alloys AWS d17.1/ process code: 211A / specification title: fusion welding for aerospace applications  
 Fusion welding for aerospace applications- aluminum alloys AMS-STD-2219/ process code: 211B / specification title: fusion welding for aerospace applications  
 Fusion welding for aerospace applications- aluminum alloys MIL-W-8604/ process code: 211C / specification title: fusion welding for aerospace applications  
 Fusion welding- titanium - titanium alloys BAC 5975/ process code:214 / specification title: fusion welding of metals

#### **Resistance Welding**

Resistance welding- steel alloys BAC 5977/ process code: 220 / specification title: resistance spot/roll spot/seam  
 Resistance welding- Ni.-Co. base alloys BAC5977/ process code: 222 / specification title: resistance: spot/roll spot/seam  
 Resistance welding- aluminum alloys MIL-W-6858/ process code: 234 / specification title: resistance spot-seam  
 Resistance welding- titanium alloys BAC 5977 / process code: 234 / specification title: resistance spot/roll spot/seam  
 Resistance welding- titanium alloys MIL-W-6858 / process code: 235 / specification title: resistance spot-seam  
 Resistance welding- aluminum alloys PS 22010/ process code: S230 / specification title: resistance welding aluminum  
 Resistance welding- PS 22010 resistance welding of aluminum alloys using a weld-through sealant  
 Resistance welding- material group II PS22000 (Thickness range .032"- .125" -precleaning to be done by an outside source/ process code: S220 /specification title: resistance spot-seam

#### **Brazing**

Silver brazing of steel, copper, nickel-cobalt alloys- torch-induction BAC5940/ process code: 251 /specification title: silver brazing

#### **Other**

Metallurgical testing met. testing/ process code: 803 / Specification title: metallurgical testing  
 Processor basic quality system for D1-4426 approval only quality system/ process code: 003 / specification title: processor quality system  
 Welders and weld operator qualification/ process code: 808 / specification title: qual/cert



#### **Fusion Welding**

AMS-STD-2219 fusion welding (all types)  
 AC 7004/ AS 9003 NADCAP accreditation to AS9001  
 AC7110/5 NADCAP audit for fusion welding

#### **Resistance Welding**

AC7100/4 NADCAP audit for resistance welding

#### **Brazing**

AC7110/1 NADCAP audit for brazing (torch/induction)  
 AC7110 NADCAP audit for welding/brazing

#### **Other**

AC7110/13 NADCAP audit for metal evaluation of welds  
 AC7110-12 NADCAP audit for operator qualification



#### **Fusion Welding**

All procedures are GTAW-MA (gas tungsten arc weld-manual)  
 AWS D17.1  
 Code 6.01 welding, fusion titanium, aluminum, and steel)  
 GAMPs 2302 fusion welding-inconel and steel  
 GAMPs 2308 fusion welding-titanium  
 GAMPs 2309 fusion welding-aluminum

#### **Resistance Welding (spot)**

GAMPs 2301 resistance foil, mesh and steel

#### **Torch Brazing**

AWS C3.4  
 Code 6.05 brazing, torch

#### **Other**

Code 5.03 material test, metallographic  
 Code 5.04 material test, physical



#### **Resistance Welding**

Mil-W-6858 resistance welding



#### **Resistance Welding**

RAPWA15 resistance weld

## Certifications

# Industry Specific Approvals & Certifications



### S9074-AQ-GIB-010/248

NAVSEA technical publication: requirements for welding and brazing procedure and performance qualification.

### S9074-AQ-GIB-010/278

NAVSEA technical publication: requirements for fabrication welding, inspection, casting inspection, repair for machinery, piping, and pressure vessels.

### NAVSEA T9074-AD-GIB-010/1688



GE Aviation

### Fusion Welding

CS- welding, titanium CS00 \*\*M50T1; P8TF3; P8TF11; P21TF6  
CF- welding, gas shielded arc, CF01 \*P8TF3; M50T1A; P8TF11; P21TF6; AWS D17.1;  
MILTT-5021

### Resistance Welding

CE- welding, resistance, CE000 spot; seam; stud resistance welding; P8TF4; AWS D17.2

### Brazing

CD- brazing, cd02\*\*\* M50T1; P9TF1; ANSI/AWSC3.4



### Fusion Welding

CSMP039- fusion welding of aluminum, steel, nickel, and titanium alloys

### Resistance Welding

CSMP007- resistance welding (spot and seam)



### Fusion Welding

BPS 4404 fusion welding

### Resistance Welding

QPS 101  
BPS 4115 resistance welding  
BPS 4113 preparation of metals for resistance welding  
MIL-W-6858 resistance welding spot & seam



BY TEXTRON AVIATION

### Fusion Welding

36B1 fusion-aluminum alloys  
36C1 fusion-magnesium  
36D1 fusion-steel alloys  
36EA fusion-titanium alloys

### Resistance Welding (spot)

36F resistance-aluminum  
36G resistance-magnesium  
36H resistance-nickel and cobalt  
36I resistance- steel  
36J resistance-titanium  
36K resistance-seam

**NORTHROP GRUMMAN**

### Fusion Welding

All procedures are GTAW-MA (Gas tungsten arc weld-manual)  
MIL-STD-278  
AWS D17.1

### Resistance Welding (spot)

MIL-W-6858D



**BLUE ORIGIN**

### Fusion Welding

AWS D17.1

### Resistance Welding

AWS D17.1



#### Scope of Accreditation- Welding

##### AC7000 - AUDIT CRITERIA FOR NADCAP ACCREDITATION

AC7110 Rev G - NADCAP audit criteria for welding/ torch and induction brazing and additive mfg  
AC7110S - NADCAP supplemental audit criteria for welding, torch and induction brazing, and AM  
U1 Honeywell

##### AC7110/1 Rev H - NADCAP Audit Criteria for Brazing (Torch/Induction)

###### Baseline (All Audits)

Supplement A - torch (additional requirements)  
Supplement G - processes using gas (additional requirements)  
Supplement H - processes using flux - (additional requirements)

##### AC7110/4 Rev I - NADCAP Audit Criteria for Resistance Welding (Spot, Seam, Projection)

###### Baseline (All Audits)

Projection welding - sheet  
Seam welding - sheet  
Seam welding -foil  
Spot welding - foil  
Spot welding - sheet  
Supplement A - aluminum / magnesium (additional requirements)  
Supplement B - shear Testing (additional requirements)  
Supplement F - metallographic evaluation of resistance welds (qualification and / or process control)  
(additional requirements)

##### AC7110/4S Rev G - NADCAP Supplemental Audit Criteria for Resistance Welding

U10 GE Aviation  
U11 The Boeing Company  
U3 Rolls Royce

##### AC7110/5 Rev I - NADCAP Audit Criteria for Fusion Welding (to be used on audits on/after 6 Jan 2019)

###### Baseline (All Audits)

Supplement D - titanium (additional requirements)  
Supplement F - filler materials (additional requirements)  
Supplement G - processes using gas (for example GTAW, PAW) (additional requirements)  
Supplement H - pre/Interpass heat treatment (additional requirements)  
Supplement J - tack Welding (additional requirements)  
Supplement K - metallographic evaluation of qualification welds (additional requirements)

##### AC7110/5S Rev F - NADCAP Supplemental Audit Criteria for Fusion Welding

U1 Honeywell  
U10 GE Aviation  
U11 The Boeing Company  
U3 Rolls Royce

##### AC7110/12 Rev F - NADCAP Audit Criteria for Welder/Welding Operator Qualification

###### Baseline (All audits)

Supplement A - metallographic evaluation of qualification welds (additional requirements)

##### AC7110/12S Rev H - NADCAP Supplemental Audit Criteria for Welder/Welding Operator Qualification

U1 Honeywell  
U10 GE Aviation  
U11 The Boeing Company  
U3 Rolls Royce



**American  
Welding Society**

##### Qualified Procedures In-House

AMS-STD-1595  
AMS 2668  
AWS CS.5  
AWS D17.1  
AWS D1.1  
AWS D1.2  
ASMSE Section IX

**GENERAL  
DYNAMICS**

##### Fusion Welding

A10458 AWS D17.1  
MIL-STD-2219

##### Resistance Welding (spot)

MIL-W-6858D



##### Ground Combat Vehicle Welding Code

Steel 12479550 GTAW and GMAW

M1 to M1 GTAW method  
M1 to M1 GMAW method



# Lynn Welding

Welding - Machining - Fabrication



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[www.aerospacewelding.com](http://www.aerospacewelding.com) | [sales@lynnwelding.com](mailto:sales@lynnwelding.com)  
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39 Progress Circle Unit B Newington CT 06111