

The following are links to superalloy joining suppliers.  
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TITLE	BUSINESS TYPE	CITATION	WEBLINK	DESCRIPTION
<b>VBC Group Welding Division: Superalloys</b>	Equipment sales and lease, as well as sales servicing, training and calibration	"VBC Group Welding Division: Superalloys." <a href="#">VBC Group</a> . April 2007. Vacuum Brazing Consultants Ltd..	<a href="#">Launch Site</a>	The VBC Group developed its advanced GTAW technology initially for use in the hot section of flying gas turbine engines. However, the the VBC InterPulse welding power source is also becoming widely used for industrial turbine NGV salvage welding by foundries, turbine builders and the power utilities. The VBC InterPulse welding power source is a heat-management, constricted-arc machine that helps to minimise local residual stress and thermal damage when micro fusing filler metal to the defective component.
<b>Astrolite© Alloys: Products</b>	Supplies: welding wire products	"Astrolite© Alloys: Products." <a href="#">Astrolite©</a> <a href="#">Launch Site</a> <a href="#">Alloys</a> . 2004. AstroCosmos.		Astrolite© carries an in-house inventory of more than 150,000 pounds of bulk wire raw material, which is ready for processing as needed. It also stocks a complete supply of finished welding wire in titanium, stainless steel, aluminum, nickel and cobalt-based alloys. All are packaged and ready for immediate shipment. Custom packaging and labeling is also available. Astrolite© also provides welding powders and weld coupons in various alloys for turbine engine repair.
<b>Polymet</b>	Supplies: welding, hardfacing and thermal spray wire	"Polymet Home." <a href="#">Polymet</a> . 2007. Polymet Corporation.	<a href="#">Launch Site</a>	Polymet manufactures high performance welding, hardfacing and thermal spray wire, and offers a wide range of iron, nickel, cobalt, aluminum, or copper based alloys. Its manufacturing process capabilities include hot extruded wire processing, rolling, drawing, alloy cored wire fabrication, spooling, coiling, cutting, straightening and abrading.
<b>Laser Division</b>	Equipment	"Industrial Lasers: Welcome." <a href="#">Laser Division</a> . 2006. GSI Group.	<a href="#">Launch Site</a>	The Laser Division of GSI Group designs, manufactures and sells leading laser brands for use in a variety of manufacturing applications. Accessing the "Aerospace" page under the "Laser Applications" heading on this site will provide descriptions on various joining technologies for turbine engines.

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<b>Wall Colmonoy Oklahoma City</b>	Services: repair of turbine engine components	"Wall Colmonoy Oklahoma City: Qualified Military Aerospace Contractor." <u>Wall Colmonoy Aerospace Group</u> . 2003. Wall Colmonoy Corporation .	<a href="#">Launch Site</a>	Wall Colmonoy's primary aerospace expertise is the overhaul of stationary components in the compressor, combustion and turbine sections of turbine engines. The company's welders are certified to military and aerospace standards and specialize in the welding of superalloys and thin material down to .005" thick.
<b>MicroWeld Engineering, Inc</b>	Services: welding of jet engine superalloys	"Welding Home Page." <u>MicroWeld Engineering, Inc.</u> MicroWeld Engineering, Inc.	<a href="#">Launch Site</a>	MicroWeld Engineering, Inc. uses it MicroMIG process to weld jet engine superalloys with no micro-cracking in the heat affected zones and with no measurable distortion.
<b>Rocketdyne Technical Consulting: Joining</b>	Services	"Rocketdyne Technical Consulting: Joining." <u>Manufacturing Expertise</u> . Pratt & Whitney Rocketdyne	<a href="#">Launch Site</a>	Pratt & Whitney Rocketdyne is a world leader in conventional and state-of-the-art joining processes. The company has the capability to join similar metals as well as dissimilar metals, including super alloys, and is certified in welding of nickle-based superalloys. Robust processes ensure a high degree of first time through yield.
<b>ALSTOM Power Aerospace</b>	Manufacturer: industrial gas turbine supply	"ALSTOM Power Aerospace." <u>ALSTOM Power Turbo-Systems</u> . 2007. ALSTOM.	<a href="#">Launch Site</a>	ALSTOM offers a full range of aero engine products. Its participation in engine programmes ranges from make-to-print, to Revenue and Risk Share Partnerships, where ALSTOM Aerospace designs and supplies finished components. ALSTOM manufactures a wide range of rotating products including compressor and turbine blading, fan blades, discs and blisks. Static components include fan casings, core engine casings and guide vanes.

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<b>EWI: Materials Joining Experts</b>	Consulting	"EWI: Materials Joining Experts." EWI. 2006. EWI.	<a href="#">Launch Site</a>	Founded as the Edison Welding Institute in 1984, this non-profit membership organization provides high impact consulting and R&D services in materials joining and fabrication technologies. EWI provides materials joining assistance, contract research, consulting services and training in the aerospace, automotive, government, energy and chemical, heavy manufacturing, medical and electronics industries
<b>Welding.com</b>	Supplies/Consulting	<a href="#">welding.com</a> . April 2007. Headquarters.com.	<a href="#">Launch Site</a>	Welding.com offers access to an array of welding resources, including product information, suppliers, consultants and industry news. Its focus is providing online business-to-business services to small and medium-sized companies.
<b>Praxair: Braze Filler Metal Products</b>	Supplies	Praxair Surface Technologies, Inc. <a href="#">Braze Filler Metal Products.</a> Indianapolis, IN: Praxair Technology, Inc., 2002.	<a href="#">Read Pamphlet</a>	These cross reference tables provide application data, melting temperature, recommended brazing ranges and more for Praxair Surface Technologies products. Information is included on standard nickel and cobalt braze filler alloy powders, as well as superalloy matrix metal powders.
<b>VAC AERO: Heat Treating Services</b>	Manufacturer: Heat treating and brazing	"VAC AERO: Heat Treating Services." <a href="#">VAC AERO Metallurgical Services.</a> 2007. VAC AERO International, Inc.	<a href="#">Launch Site</a>	VAC AERO's heat treating and brazing provides services to the aerospace, nuclear, telecommunications and other high technology industries. It specializes in vacuum processing and hold numerous heat treating, brazing and quality system approvals. As one of the world's largest subcontract heat treaters of large landing gear components for commercial and military aircraft, VAC AERO also specializes in vacuum heat treating and brazing of superalloys, titanium and other advanced materials. VAC AERO operates more than thirty vacuum, controlled atmosphere and air-circulating furnaces capable of heat treating parts up to 72" diameter and 172"

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<b>Sulzer Turbo Services</b>	Services: thermal turbomachinery repair	"Sulzer Turbo Services." <u>Sulzer Turbo Services</u> . 2007. Sulzer, Ltd.	<a href="#">Launch Site</a>	Sulzer Turbo Services offers comprehensive repair/remanufacturing and maintenance services on thermal rotating equipment. A PDF article on Sulzer's laser powder build-up welding technique for gas turbines can be accessed at <a href="http://www.sulzersts.com/docu/2001_04_Krause_e.pdf">http://www.sulzersts.com/docu/2001_04_Krause_e.pdf</a>
<b>SWS-Trimac: Welding</b>	Services: electron beam and laser welding	"Welding." <u>SWS-Trimac, Inc.</u> . 2006. SWS-Trimac, Inc.	<a href="#">Launch Site</a>	SWS-Trimac, Inc. provides electron beam and laser welding services to the automotive, aerospace, biomedical, chemical and defense industries. The company specializes in joining metals, including aerospace-grade aluminum, titanium, copper, nickel and cobalt alloys. SWS is a contract manufacturer that offers small-lot prototype development, as well as large volume turnkey production.
<b>Bodycote Heat Treatments Ltd</b>	Manufacturer: metal joining and vacuum heat treatment process for the gas turbine market	"Bodycote Heat Treatments Ltd : Skelmersdale." <u>Bodycote Services</u> . 2005. Bodycote International plc.	<a href="#">Launch Site</a>	Bodycote Skelmersdale combines specialist metal joining and vacuum heat treatment processes to meet the needs of the aerospace and power generation industries. It specializes in brazing and welding services for the gas turbine market, particularly in the electron beam welding of turbine and transmission components and vacuum brazing of nozzle guide vanes, turbine blades and honeycomb seal components, for both aerospace and power generation applications.
<b>CreaS</b>	Supplies	"CreaS Company Profile (English)." <u>CreaS</u> . 2004.	<a href="#">Launch Site</a>	This small Italian company is a direct supplier of OEM, providing a variety of gas turbine components and parts to such companies as ALSTOM, GE and FIAT AVIO Power Services. One of its specialty areas is TIG welding of superalloys.

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<b>TCI Gas Turbine Technologies</b>	Services: superalloy welding repair for gas turbine components	"Turbine Parts Maintenance and Repair." <u><a href="#">TCI Gas Turbine Technologies.</a></u> 2005. TCI Shanghai Ltd.	<a href="#">Launch Site</a>	TCI Gas Turbine Technologies specializes in coating technology and superalloy welding repair for gas turbine components. TCI's specialties range from superalloy design and component manufacturing to various coating technologies and superalloy welding
<b>Liburdi</b>	Consulting/Equipment	"Liburdi." <u><a href="#">Liburdi Group of Companies.</a></u> 2005. Liburdi.	<a href="#">Launch Site</a>	Liburdi Turbine Services specializes in upgrading and extending the service life of superalloy components through the use of advanced technologies, including automated welding systems. Liburdi Automation is an industry leader in the development of automated, vision based welding systems for turbine, aerospace, industrial and tube mill applications.
<b>Triumph Components Group</b>	Manufacturing, fabrication, engineering support for turbine engines	"Triumph Components Group." <u><a href="#">Triumph Group, Inc.</a></u> 2007 Triumph Group, Inc.	<a href="#">Launch Site</a>	Triumph Components Group performs advanced manufacturing, fabrication and processing functions as well as engineering support services to deliver precision machined detail parts through complete component assemblies primarily for turbine engines and aircraft structural applications for OEM's and aftermarket customers. Capabilities include welding, brazing, and hot isostatic pressing.
<b>TWI (The Welding Institute)</b>	Consulting, R&D, training and qualification	"Our Technologies." <u><a href="#">TWI (The Welding Institute) - Materials Joining Technology Home Page.</a></u>	<a href="#">Launch Site</a>	TWI provides industry with engineering solutions in welding, joining and associated technologies through information; advice and technology transfer; consultancy and project support; contract R&D; training and qualification; and personal membership. Electrospark deposition (ESD) is a pulsed micro-welding process that is being used increasingly for small scale and precision coating and repair of high value components.

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<b>Masaoood John Brown Gas Turbine Services</b>	Component repair	"Component Repair." <u>Masaoood John Brown</u> . 2003 Masaoood John Brown.	<a href="#">Launch Site</a>	Repair facilities / services include the refurbishment of all hot gas path components including nozzles, buckets, combustion liners, flow sleeves and transition pieces.
<b>Turbine Services</b>	Component repair	"Component Repair Services" <u>Turbine Services</u> . 2004 Turbine Services.	<a href="#">Read Pamphlet</a>	Turbine Services Limited, as a member company of Turbo Services Network®, offers access to the most comprehensive independent gas turbine repair service in the world.