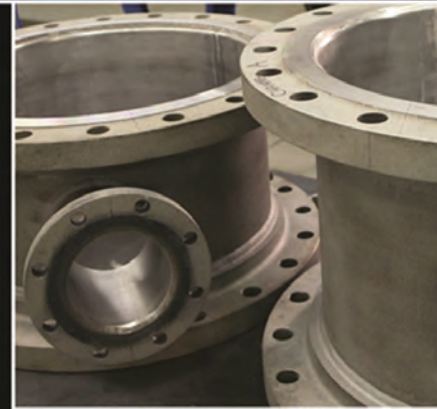
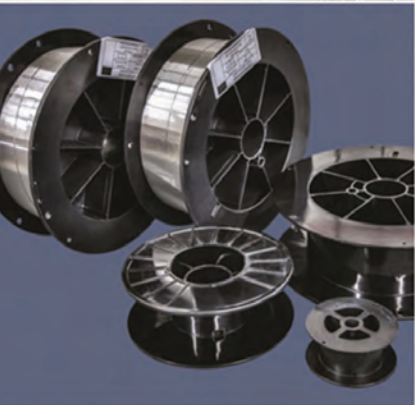


MILL PRODUCTS / FABRICATED PRODUCTS / SHOP & FIELD REPAIR / WELD WIRE



**TITANIUM / TANTALUM / ZIRCONIUM / HASTELLOY® / INCONEL® / MONEL®
NICKEL / DUPLEX STAINLESS STEEL / AUSTENITIC STAINLESS STEEL**



Who We Are

TRICOR INDUSTRIAL is a globally recognized group of companies focused on distribution of mill products, equipment manufacturing and repair of titanium, zirconium, tantalum, high nickel alloys and stainless steels. Our products are shipped worldwide to support the industries that utilize the materials that we specialize in.

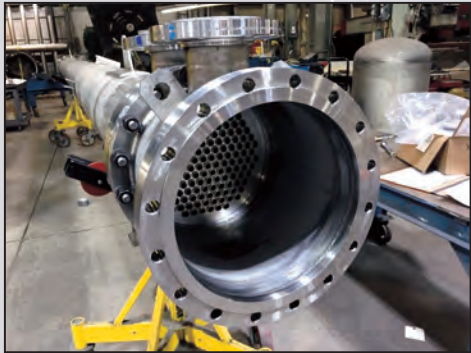
TRICOR INDUSTRIAL BRANDS



BUSINESS DIVISIONS OF TRICOR



Industrial Metals Distribution



Fabricated Equipment



Field Services / Fabrication



Aerospace / Medical
Metals Distribution



Weld Wire



Custom Forgings



One of Four Manufacturing Bays at Tricor Metals Wooster, OH Facility

TRICOR METALS LOCATIONS



Tricor Metals – Ohio Division
Headquarters, Manufacturing & Distribution
Wooster, OH
150,000 Sq. Ft.

Located 60 Miles South of Cleveland, OH
Access to the Port of Baltimore, MD



Tricor Metals –Texas Division
Manufacturing & Distribution
Conroe, TX
49,000 Sq. Ft.

Located 40 Miles North of Houston, TX
Access to the Port Of Houston, TX

Service Center

Tricor Metals has one of the world’s most complete inventories of titanium, titanium alloy, zirconium 702 and tantalum mill products in ASTM and AMS grades including sheet, plate, pipe, forgings, fittings, bar, billet, wire, tubing, and fasteners. We offer advanced processing including water jet cutting, saw cutting, and shearing. We provide custom parts manufacturing and just-in-time inventory for ‘blanket’ order processing.



COMMONLY STOCKED MATERIALS / PRODUCTS

Form	Titanium Grade 1	Titanium Grade 2	Titanium Grade 7	Titanium Grade 12	Zirconium 702	Tantalum	Tantalum w 2.5% Tungsten
Sheet	.016" - .125"	.008" - .157"	.040" - .125"		.040" - .125"	.015" - .050"	.015" - .125"
Plate	.188" - .625"	.188" - 4.00	.188" - 1.50"	.188" - 1.50"	.188" - 1.50"		.25"
Tube		1/8" - 2.0"	3/4" - 1.0"		1/2" - 2.0"		1/2" / 3/4" / 1.0" / 1 1/4" / 2.0"
Pipe		1/8" - 12" Sch 10 / 40 / 80	3/4" - 6" Sch 10 / 40	Build to Order	1/2" - 8 Sch 10 / 40	N/A	N/A
Stub Ends		1/2" - 12" Sch 10 / 40 / 80	3/4" - 4"	Build to Order	1/2" - 8 Sch 10 / 40 / 80	N/A	N/A
Flanges		1/2" to 8" 150# / 300# RFSO / WN / BLIND	3/4" to 6" 150# / 300# RFSO / WN / BLIND	Build to Order	1/2" to 8" 150# / 300# RFSO / WN / BLIND	N/A	N/A
90° Elbows		1/2" - 12" Sch 10 / 40 / 80	3/4" - 6" Sch 10 / 40	Build to Order	1" - 8" Sch 10 / 40	N/A	N/A
Tees		1/2" - 12" Sch 10 / 40 / 80	3/4" - 6" Sch 10 / 40	Build to Order	3/4" - 8" Sch 10 / 40	N/A	N/A
Reducers		3/4" - 8" Sch 10 / 40	3/4" - 6" Sch 10 / 40	Build to Order	3/4" - 8" Sch 10 / 40	N/A	N/A
Couplings		1/8" - 2" 3000# NPT	3/4" - 2" 3000# NPT	Build to Order	1/2" - 2" 3000# NPT	N/A	N/A
Fasteners		1/4" - 5/8"				1/4"- 1/2"	1/4"- 1/2"
Round Bar		1/8" - 13"	1/4" - 11"	1.0" - 13"	1/4" - 13"	1/4" - 2.5"	1/4"- 2.0"
Square Bar		1/2" - 1.0"					
Custom Forgings		YES	YES	YES	YES		
Welding Wire		.045" - 1/8"	1/16" - 1/8"	.045" - 1/8"	.045" - 1/8"		

Tricor Metals can order or make any materials / products listed above to your project requirements. Please contact Tricor Metals Sales Department for more information at 1-800-421-5141 Ext. 2208 or via email at sales@tricormetals.com.



Fabricated Products

Manufacturing Capabilities

Tricor Metals has two fabrication facilities strategically located in the United States — Our headquarters located in Wooster, OH sixty miles south of Cleveland, OH and another in Conroe, TX 40 miles north of Houston.

Our in house design and fabrication capabilities are:

- **Diameter - 15 Feet**
- **Length - 150 Feet**
- **Weight - 100,000 Lbs**

Tricor Metals has a multidisciplinary engineering staff that is capable of thermal and mechanical design of heat exchangers, pressure vessels, tanks, columns, piping system and accessory equipment to the following design codes.

Design Codes:

- | | |
|--------------------------------|--------------------------------------|
| • ASME Section VIII Division 1 | • PED (Pressure Equipment Directive) |
| • ASME Section VIII Division 2 | • TEMA |
| • CRN (Canadian Registration) | • API |
| | • AWS |

Tricor Metals utilizes the most updated computer software in the design of the equipment it manufactures listed below:

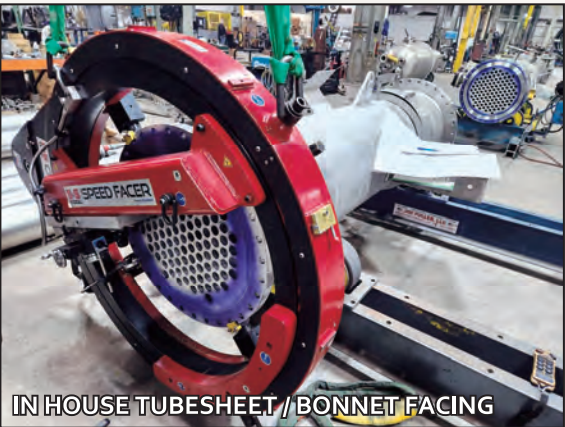
- PV Elite
- Autocad
- HTRI
- Aspen Heat Exchanger Design and Rating

In house welding procedures include:

- | | |
|--------------------------------|--------------------------------|
| • FCAW (Flux Core Arc Welding) | • SMAW (Submerged Arc Welding) |
| • GMAW (MIG) | • PAW (Plasma Arc Welding) |
| • GTAW (TIG) | |
| • KTig | |

Common testing and inspection procedures available at **Tricor Metals** are:

- | | |
|--------------------------|------------------------|
| • Material Traceability | • Ultrasonic Testing |
| • Visual Inspection | • Mag Particle Testing |
| • PMI | • Eddy Current Testing |
| • Dimensional Inspection | • X-Ray Testing |
| • Dye Penetrant Testing | • Helium Leak Testing |
| | • Hydrostatic Testing |



Fabricated Products

Materials / Products Offered

Tricor Metals has decades of experience in the design and fabrication of a large variety of corrosion resistant alloys including:

- Titanium
- Tantalum
- Zirconium 702
- Niobium
- Hastelloy C®
- Hastelloy B®
- Nickel
- Inconel®
- Monel®
- Super Duplex Stainless Steel
- Duplex Stainless Steel
- Austenitic Stainless Steel
- Explosion Clad

Equipment Offered:

- Pressure Vessels
- Tanks
- Columns
- Heat Exchangers
- Condensers
- Falling Film Evaporators
- Vaporizers
- Pipe Spooling
- Ducts
- Dip Pipes
- Build To Print Fabrications
- Reactors
- Crystallizers
- Strippers
- Scrubbers

Construction Types Offered:

- Solid
- Loose Lined
- Explosion Clad
- Weld Overlay



TITANIUM GRADE 1 EXPLOSION CLAD REACTOR



TITANIUM GRADE 12 SLURRY PIPE



316 L STAINLESS STEEL TUBE BUNDLE



TITANIUM GRADE 2 PIPE / FITTINGS



ZIRCONIUM 702 HEAT EXCHANGER



TITANIUM GRADE 2 STORAGE TANKS



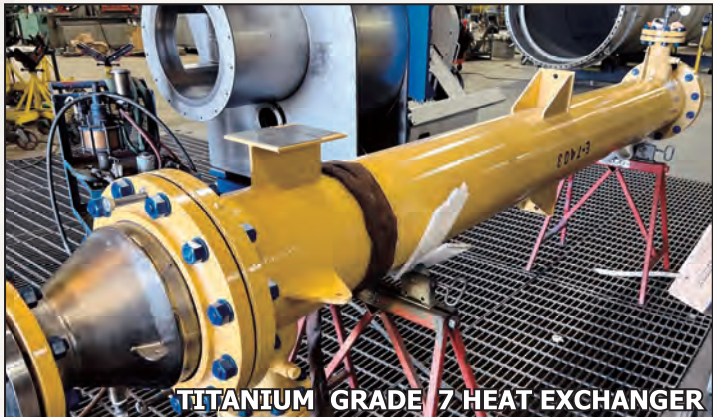
TANTALUM HEAT EXCHANGER



TANTALUM BAYONET HEAT EXCHANGERS



316L STAINLESS STEEL COLUMN



TITANIUM GRADE 7 HEAT EXCHANGER



ALLOY C HALF PIPE JACKET REACTOR

Fabricated Products

Build To Print Manufacturing

Tricor Metals lends it materials and fabrication expertise to many globally recognized technology and OEM equipment suppliers in manufacturing their products in the materials that we specialize in. Some of the products that we fabricate regularly are listed below:

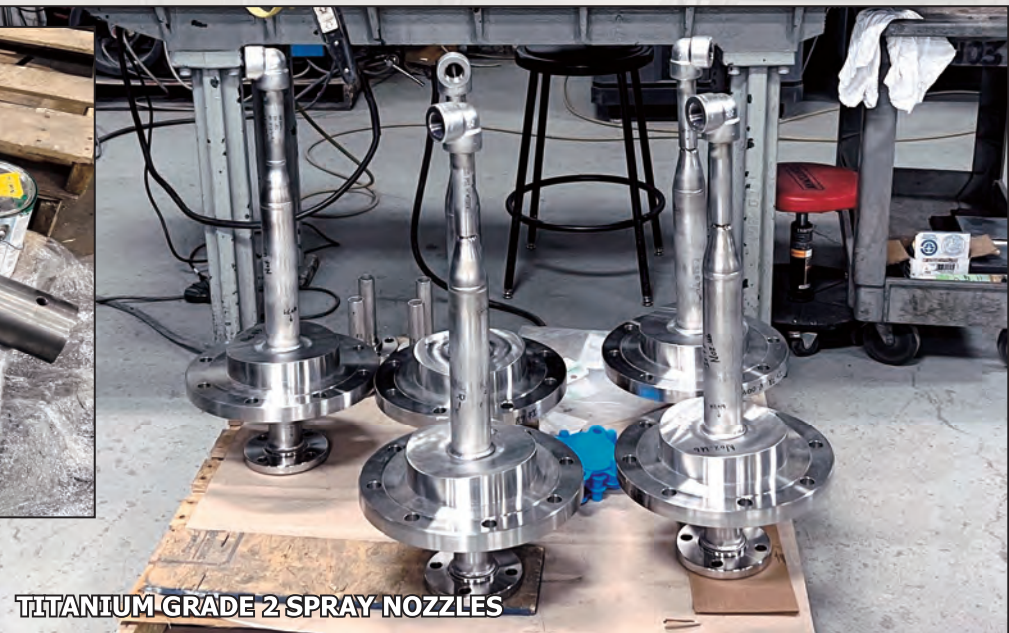
- Dip Pipes
- Gas Spargers
- Spray Nozzles
- Acid Feed Lances
- Mixing Pipes
- Static Mixers
- Fan Wheels
- Filter Housings
- Venturi Mixers
- Liquid Distributors
- Column Internals
- Nozzle Liners
- Coils
- Augers
- Agitators
- Autoclave Internals



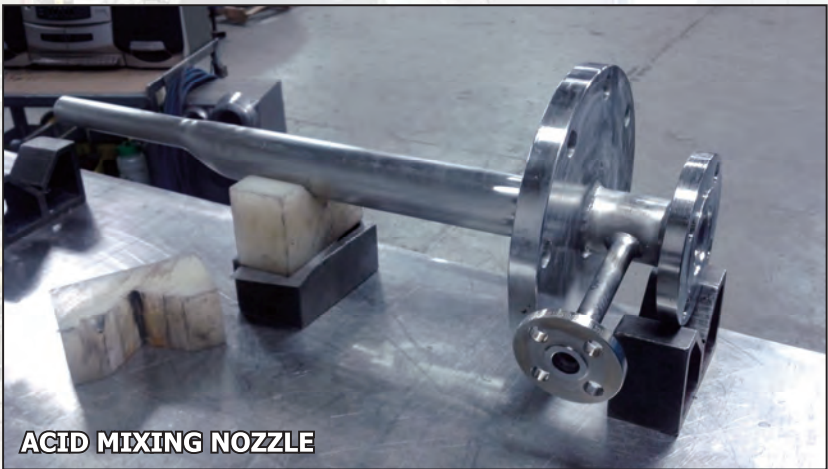
TITANIUM GRADE 2 FAN WHEEL



TITANIUM GRADE 2 DIP PIPES



TITANIUM GRADE 2 SPRAY NOZZLES



ACID MIXING NOZZLE



TITANIUM GRADE 2 SEGMENTED WALL



316L STAINLESS STEEL REACTOR MANWAY COVERS



TITANIUM AGITATOR HUB ASSEMBLY



ALLOY C-22 LIQUID DISTRIBUTOR



TITANIUM AUTOCLAVE WALLS

Site / Shop Services

Repair / Alteration / Field Builds

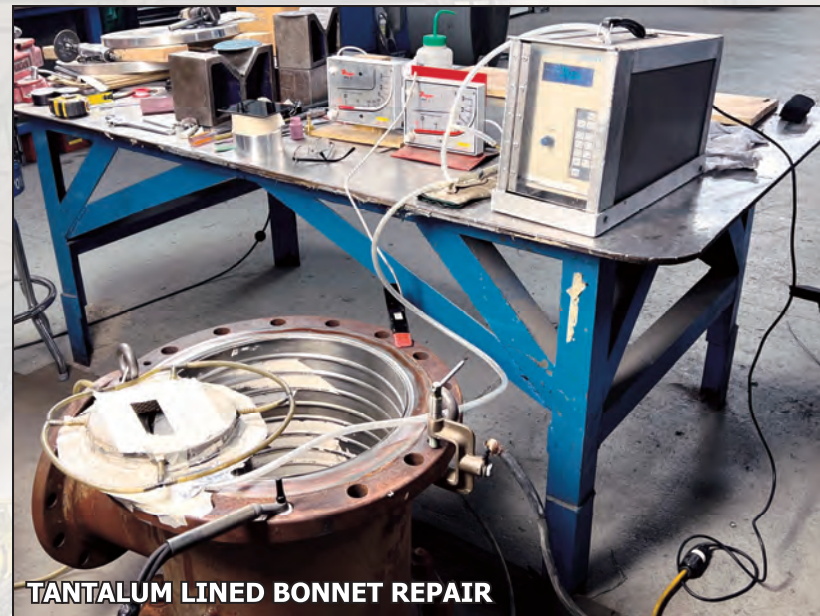
Tricor Metals offers a full range of shop and field repair, alteration and fabrication services. Tricor Metals has a dedicated field crew ready to perform those critical tasks, 24 hours a day, 7 days a week regardless of the original manufacturer. Our crew is available for projects anywhere in the world.

Services commonly offered:

- Repairs / Alterations of Solid, Lined and Explosion Clad Pressure Vessels
- Repair / Alterations of Mining Autoclaves
- Heat Exchanger Cleaning / Refurbishment
- Field Fabricated Tanks
- Field Welding of Piping



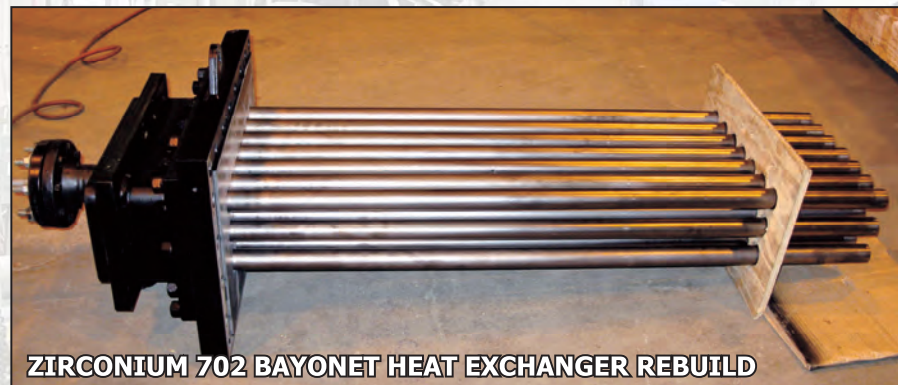
ZIRCONIUM LINED PRESSURE VESSEL REPAIR



TANTALUM LINED BONNET REPAIR



TITANIUM GRADE 2 STORAGE TANKS



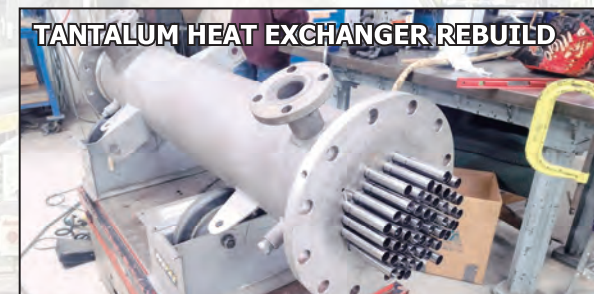
ZIRCONIUM 702 BAYONET HEAT EXCHANGER REBUILD



TANTALUM HEAT EXCHANGER REBUILD



TANTALUM LINED CARBON STEEL DIP PIPE REPAIR



TANTALUM HEAT EXCHANGER REBUILD



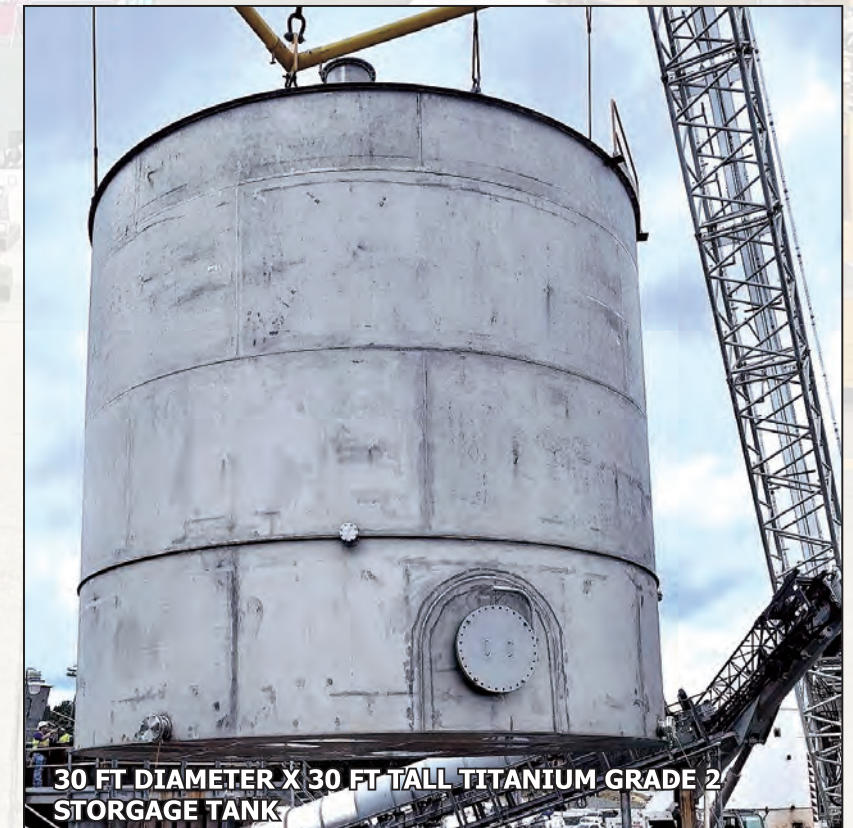
TANTALUM HEAT EXCHANGERS FOR CLEANING AND REFINISHMENT



TANTALUM LINED BONNET REPAIR



ZIRCONIUM LINED PRESSURE VESSEL REPAIR



30 FT DIAMETER X 30 FT TALL TITANIUM GRADE 2 STORAGE TANK

Fabricated Products

Plate & Frame Heat Exchangers

Tricor Metals designs and builds bolted and gasketed plate heat exchangers (PHEs) for many industries including Chemical, Refinery, Power Generation, Metal Processing, Lube Oil Cooling, and many more.

We stock components including SS316 and Titanium plates for speedy PHE build and fulfillment. Our goal is to be the most responsive PHE supplier for you.

We offer spare parts and refurbishing services for nearly all brands of PHEs. Contact us to learn more our plate and frame heat exchanger offerings.

Plate Materials:

- SS316
- SS304
- Titanium
- 254SMO
- Others Upon Request

Gasket Materials:

- NBR
- EPDM
- Viton

Industries Served:

- Power Generation
- Food / Dairy
- Hydraulic Oil Coolers
- Chemical
- HVAC
- Pulp & Paper
- Pharmaceutical
- Refinery
- Off-Shore Technology
- Water Purification
- Food & Beverage Industry
- Water Treatment



Astrolite Alloys

High Performance welding wire for aerospace, power, commercial applications

AMS	AWS	OMAT	ALLOY
4180	A5.10 ER1100		Astrolite® 1100 Aluminum
4181	A5.10 R-A356.0		Astrolite® 356 & 4008 Aluminum
4184	A5.10 ER4145	337	Astrolite® 4145 Aluminum
4189	A5.10 ER4643		Astrolite® 4643 Aluminum
4190	A5.10 ER4043	310	Astrolite® 4043 Aluminum
4191	A5.10 ER2319	3/264	Astrolite® 2319 Aluminum
4246	A5.10 R-A 357.0		Astrolite® 357 & 4011 Aluminum
4395	A5.19 ER AZ92A	308	Astrolite® AZ92A Magnesium
4396	A5.19 EREZ33A		Astrolite® EZ33A Magnesium
4951	A5.16 ERTI-1		Astrolite® CP Ti - ERTI 1
4952	A5.16 ERTI-2	366	Astrolite® CP Ti - ERTI 2
4954	A5.16 ERTI-7	3/250	Astrolite® Ti 6-2-4-2
4956	A5.16 ERTI-5	3/145	Astrolite® TiPd - ERTI 7
5680	A5.24 ER2R2		Astrolite® Ti 6AL-4V
5683	A5.9 ER347		Astrolite® Ti 6AL-4V ELI
5687			Astrolite® Ti 15-3-3-3 (BMS7-331)
5689			Astrolite® ZR 702
5690			Astrolite® 347 Stainless
5694	A5.9 ER316		Astrolite® Alloy 42
5697	A5.9 ER316L		Astrolite® Alloy I-600
5776	A5.9 ER308		Astrolite® 321 Stainless
5778	A5.9 ER308L		Astrolite® 316 Stainless
5784	A5.9 ER310	3/104	Astrolite® 316L Stainless
5786	A5.9 ER410		Astrolite® 308 Stainless
5789			Astrolite® 308L Stainless
5794			Astrolite® 310 Stainless
5796			Astrolite® 304 Stainless
5798			Astrolite® 410 Stainless
5800			Astrolite® Alloy 69/X750
5801			Astrolite® 312 Stainless (29-9)
5804			Astrolite® Alloy H-W
5817			Astrolite® Alloy 31
5821			Astrolite® Alloy N-155 (Multimet)
5823			Astrolite® Alloy L-605 (H-25)
5825			Astrolite® Alloy H-X
5828			Astrolite® Rene 41
5832			Astrolite® H-188
5836	A5.14 ERNCRMO-2	3/165	Astrolite® A286 Stainless (STD)
5837			Astrolite® Greek Ascology
5838			Astrolite® 410 MOD
5839			Astrolite® Jethete M190
5966			Astrolite® 17-4 Stainless
6457			Astrolite® Waspaloy
6458			Astrolite® Alloy 718
			ATI 718Plus®
			Astrolite® Alloy 82
			Astrolite® Alloy 625
			Astrolite® H-S
			Astrolite® Alloy 230W
			Astrolite® C-263
			Haynes® 282® alloy
			Astrolite® 4130VM
			Astrolite® 17-22VM
			Astrolite® Nickel 200
			Astrolite® Nickel 61
			Astrolite® 430 Stainless
			Astrolite® Alloy 694

Corrosion Alloys Available		
---	AWS A5.14 ERNIMO-10	Haynes® B-3
---	AWS A5.14 ERNCRMO-10	Haynes® C-22
---	AWS A5.14 ERNCRMO-4	Haynes® C-276
---	AWS A5.14 ERNCRMO-17	Haynes® C-2000
---	AWS A5.14 ERNCRMO-11	Haynes® G-30
---	AWS A5.14 ERNCRCOMO-1	Astrolite® Alloy 617

New Alloys		
---	ATI718Plus®	
---	Haynes®282®	
---	MS20995C & ASTM A580	Alloy 694
---	MS20995N & AMS 5687	302/304 Lockwire
---	MS9226	I-600 Lockwire
---	MS20995NC & AMS 4730	Oxidized 600 Lockwire
---	Alloy M-400 Lockwire	

Straight lengths, spools, special identifications, DFARS-compliant, exclusive Astrolite® cleaning and packaging options are available for the highest commercial cleanliness standards available for welding wire.

Thermoelectric testing, PMI & XRF testing, with precise processing to insure our welding wires are accurate each time and every time.

ISO 9001:2008 QUALITY MANAGEMENT SYSTEM REG TM OF HAYNES INT'L REG TM OF ATI



www.tricormetals.com

www.astrolite.com

www.tricoralloys.com

MILL PRODUCTS / FABRICATED PRODUCTS / SHOP & FIELD REPAIR / PLATE & FRAME HEAT EXCHANGERS



**TITANIUM / TANTALUM / ZIRCONIUM / HASTELLOY® / INCONEL® / MONEL®
NICKEL / DUPLEX STAINLESS STEEL / AUSTENITIC STAINLESS STEEL**

Our Locations

Tricor Metals - Ohio Division Headquarters

3225 West Old Lincoln Way
Wooster, OH 44691

Toll Free: 1-800-421-5141
www.tricormetals.com

Tricor Metals Texas Division

3517 North Loop 336 West
Conroe, TX 77304

Toll Free: 1-888-987-4267
www.tricormetals.com

Tricor Metals Michigan Division

44696 Helm Street
Plymouth, MI

Toll Free: 1-800-421-5141
www.tricormetals.com

Tricor Alloys / Astrolite Alloys

201 Bernoulli Circle
Unit B & C
Oxnard, CA 93030

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