

BTI LASER
The Dental Arts Building
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CLINICAL RESEARCH DOCUMENT #44890.

Affiliates
Biogenic Dental Corporation
BTI LASER · Biogenic Dental Laboratories, Inc
CONFIDENTIAL-CRD # 44890

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CLINICAL RESEARCH DOCUMENT #44890.

Clinical Study # 44890: Laser Welding Performance & Economics of Laser Wire Alloy Selection.
Clinical Study Location: BTI Laser Technical Instruction
Performed By: 253 Dental Laser Welding Technicians
Monitored By: Paul Giovannone.CDT & MLT and Roger Surman, MLT
Data: Approved by Paul Giovannone and Roger Surman.
Cases: 74 Specific Case Studies.
Results: See Report.
Orientation: CONFIDENTIAL For Dental laser Laboratory technicians.



Attention: Dental Lab owner / Dental Laser Technician:

“Yes. It’s true... Over 250 Lab Technicians Reveal PROOF without a doubt that **YOU** can use Universal, Parent Metal, laser wire that produces much better results while saving **YOU** a FORTUNE in wire cost & Inventory. OWNERS, Technicians and manufacturers are **SHOCKED!**”

Consider what we have found...

Every day, more and more dental laboratories are entering the laser welding market. With this constant influx come massive marketing campaigns from dental vendors and consumable suppliers. Although these campaigns do represent necessary materials, a lot of misinformation is being attached to the products. One major example of this is the laser wire being used by dental laboratories for laser welding. In the beginning, companies were not sure how to market it, and dental laboratories were not sure what they needed. So, to try and simplify things, laser wire was created from every alloy available on the market. This was thought to be the solution since successful welding required parent metals to bond between wire and work piece. What the alloy companies didn’t factor in was one very important issue

“If YOU are starting with a difficult alloy to weld such as silver palladium, using a silver palladium laser wire is only going to MAKE MATTERS WORSE...as well as cause mass confusion when inventorying Laser wire!”

BTI LASER Recognized this problem almost immediately due to the amount of welding we do, and in turn, began the journey into researching more universal alloys that contained the inherent metallurgical qualities necessary for successful welding.

Through a great deal of trial and error, much was learned:

- High noble alloys are always successful when welded to less noble however, not vice-versa.
- A high fusing (87% au) yellow ceramic wire can be used for low fusing full cast gold crowns (unless a more gold looking wire is necessary for aesthetics).
- A high fusing (80% au) white ceramic wire can be used for almost all white alloy welding.
- CoCr Laser wire can be used for ALL of YOUR RPD repair & reconstructions
- Most non-precious welding applications can successfully be achieved with a NiCr wire.
- Titanium will **ONLY** weld to titanium.

Our clinical testing has **proven** that a universal (parent metal) laser wire will increase **YOUR** success rate simply by giving the laser technician the opportunity to weld more types of cases with fewer types of wire. It has also increased the confidence of the laser technician in knowing there is less risk of using an inferior alloy on a case.

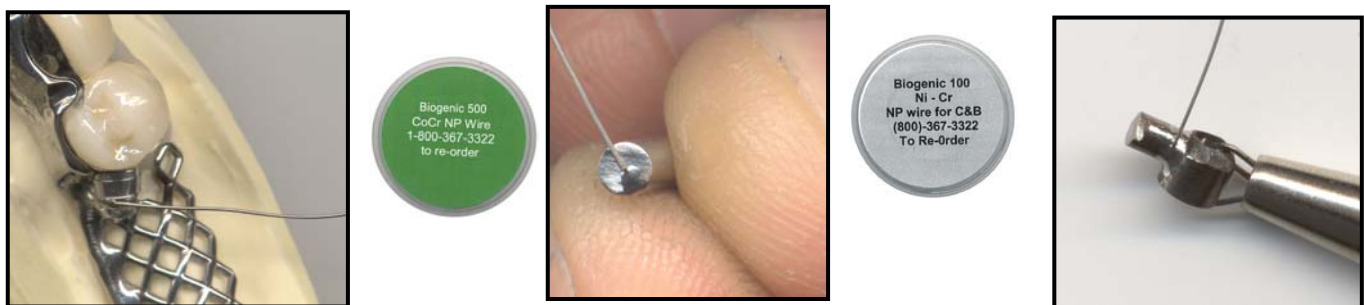
Precious

Much of the welding knowledge we have today was based not on using practical cases as guinea pigs, but on trying to reduce remakes by fixing internal problems before they go out the door. As most of us know, much of this happens in crown and bridge. Whether it's knocking off a margin, over-finishing and creating a hole, or poor casting resulting in a "rocky" bridge, we all know what the internal nightmare can be. Simply stated, any gold case (high fusing or low fusing) can be welded with the (87% au) Biogenic 4500 laser wire, and any white alloy case (silver palladium or white ceramic alloy) can be welded with the (80% au) Biogenic 2000 laser wire, both with extremely high success rates. A type III gold wire can also be used if the customer requests a more aesthetic looking gold for full cast crowns.



Non-Precious

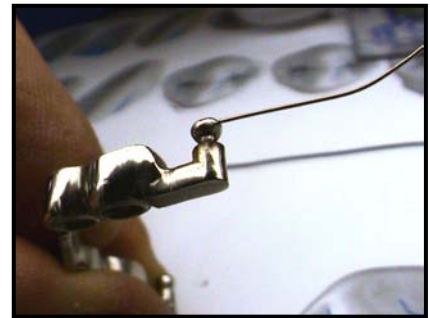
With partial repairs being such an incredible profit center with laser welding, non-precious laser wire has had quite an impact on the market as well. Although CoCr laser wire is the most common, many variations are still flooding the market. Throughout our research, what we have found is that CoCr laser wire can successfully weld almost any kind of non-precious metal you might be using to cast your partials. In our own affiliated laboratory, our material costs for laser welding partial repairs is so nominal, it's almost immeasurable. In addition to CoCr for NP partials, we offer a NiCr NP wire for all of the NP crown & bridge work your laboratory might do. With this combination of NP laser wire, your laboratory is sure to see a positive difference in the quality of welding, and cost of inventory.



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Titanium

Nowadays, one of the most sought after welding procedures is laser assembled titanium implant sub and superstructures. One of the obvious reasons is the time saved by laser welding versus casting, investing and deinvesting. Like welding bridge connections, implant laser welding requires laser wire to build the connection up. The only alloy that will weld to titanium is titanium. Although some manufacturers claim differently, stating that you can weld stainless steel attachments to a titanium frame, these claims are simply not true. The only truly successful way to fabricate and reconstruct titanium implant work is to use titanium laser wire. Take our word for it, we do it everyday.



Although you may want to have a wire for every alloy your laboratory uses, it's important to know is that you don't have to. Our affiliated full service laboratory (Biogenic Dental Corporation) has been using this wire for a little over seven years now, **and** it has been time tested and proven in over 250 dental laboratories across North America. With the proper training and practice, your laboratory too could reduce laser wire inventory, and increase productivity and profits. At BTI Laser, we constantly strive to provide dental laboratories with the most up to date information regarding laser welding, and hope that the information is utilized to its fullest extent. We are committed to the success of your laboratory, and will always remain a constant source of information and support.

Call me right away at **1.800.367.3322** or email me at Bob@btilaser.com
Ask me for special **"Get Wired"** pricing!!!
Thank –You & I look forward to HELPING YOU achieve success!

BTI LASER

Handwritten signature of Bob Belouin.

Bob Belouin
Laser Training Coordinator.

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BTI Laser ~ Laser Welding Wire – Product Descriptions



Biogenic 4500 high fusing yellow ceramic alloy laser wire.

- All yellow gold alloy welding (ceramic or non-ceramic) i.e. bridge connections, implant bars, attachments, margin additions, holes as well as a rich gold color for adding contacts and cusp tips. This is a high quality ceramic alloy formulated specifically for laser welding.
- **Main Content Formula = 85% Gold – 7.4% Platinum – 3% Palladium**
- This material matches the coefficient of expansion rates of almost all noble & high noble ceramic alloys and porcelain systems available.
- Biogenic 4500 is .3mm in diameter and 5 grams per spool



Biogenic 2000 high fusing white ceramic alloy laser wire.

- All white precious alloy welding (ceramic or non-ceramic) i.e. bridge connections, implant bars, attachments, margin additions, holes as well as adding contacts and cusp tips. This is a high quality ceramic alloy formulated specifically for laser welding.
- **Main Content Formula = 80% Gold – 4% Platinum – 13.5% Palladium**
- This material matches the coefficient of expansion rates of almost all noble & high noble ceramic alloys and porcelain systems available.
- Biogenic 2000 is .3mm in diameter and 5 grams per spool



Biogenic 3000 type III gold low fusing non-ceramic laser wire.

- Great for low fusing (non-ceramic), full cast gold crowns and bridges. A lower gold content, but a more aesthetic yellow gold look.
- THIS MATERIAL CANNOT BE USED FOR CERAMIC ALLOY BRIDGE CONNECTIONS AND DOES NOT MATCH THE COEFFICEINTS OF EXPANSION FOR CERAMIC ALLOYS
- **Main Content Formula = 70% Gold – 3.9% Platinum – 2% Palladium—13% Silver**
- Biogenic 3000 is .3mm in diameter and 4.5 grams per spool

BTI Laser Biogenic 4500 and Biogenic 2000 high quality welding wire materials are designed to be used universally to laser weld hundreds of different “brand name” precious metals and alloys produced for the fabrication of porcelain fused to metal crowns and bridges. These laser welding wires are fabricated using high quality gold / platinum / palladium formulas which will match the coefficient of expansion rates for virtually all noble and high noble metal PFM systems available. Biogenic 3000 Type III gold laser welding wire cannot be used to join PFM type bridges.



Biogenic 500 Co/Cr Cobalt Chromium non-precious laser wire.

- Used for all cast partial denture repairs and reconstructions. Also can be used for all nickel free non-precious crown & bridge alloys including non-precious alloys with small amounts of titanium such as Tilite™. Biogenic 500 is a carbon free material ideal for laser welding.
- **Main Content Formula = 65% Cobalt – 28% Chromium – 5.4% Molybdenum**
- This material matches the coefficient of expansion rate for all non-precious/base formula PFM alloys and porcelain systems.
- Biogenic 500 is .35mm in diameter and 12 feet per spool



Biogenic 100 Nickel Chrome non-precious laser wire.

- Used for non-precious nickel based crown & bridge and partial denture laser welding applications i.e. cast partial repairs and reconstructions bridge connections, fixing holes, adding margins, adding contacts, and adding cusp tips. Biogenic 100 is a carbon free laser welding material.
- **Main Content Formula = 65% Nickel – 22% Chromium – 8.6% Molybdenum**
- This material matches the coefficient of expansion rate for all non-precious/base formula PFM alloys and porcelain systems.
- Biogenic 100 is .35mm in diameter and 12 feet per spool



Biogenic Titanium Alloy laser wire.

- Great for ALL titanium laser assembled implant prosthetics. Also used for titanium abutment modification and repair. This medical grade (ELI) titanium alloy is made from the exact same material as dental/medical implant devices and implant prosthetic components.
- **Main Content Formula = 90% Titanium – 6% Aluminum—4% Vanadium**
- Titanium will only weld to titanium. You cannot weld titanium dental appliances with any other laser wire materials, and you cannot laser weld any other dental alloy or metals including non-precious materials with Biogenic Titanium Laser Wire.
- Biogenic TI is .25mm in diameter and 12 feet per spool

The BTILASER **ULTRA FINE** line of laser wires



Biogenic 4500 Ultra Fine high fusing yellow ceramic alloy laser wire.

- All yellow gold alloy welding (ceramic or non-ceramic) i.e. bridge connections, implant bars, attachments, margin additions, holes as well as a rich gold color for adding contacts and cusp tips. This is a high quality ceramic alloy formulated specifically for laser welding.
- **Main Content Formula = 85% Gold – 7.4% Platinum – 3% Palladium**
- This material matches the coefficient of expansion rates of almost all noble & high noble ceramic alloys and porcelain systems available.
- **Biogenic 4500 UF is .25mm in diameter and 4 grams per spool**



Biogenic 2000 Ultra Fine high fusing white ceramic alloy laser wire.

- All white precious alloy welding (ceramic or non-ceramic) i.e. bridge connections, implant bars, attachments, margin additions, holes as well as adding contacts and cusp tips. This is a high quality ceramic alloy formulated specifically for laser welding.
- **Main Content Formula = 80% Gold – 4% Platinum – 13.5% Palladium**
- This material matches the coefficient of expansion rates of almost all noble & high noble ceramic alloys and porcelain systems available.
- **Biogenic 2000 UF is .25mm in diameter and 3.8 grams per spool**



Biogenic 3000 Ultra Fine gold low fusing non-ceramic laser wire.

- Great for low fusing (non-ceramic), full cast gold crowns and bridges. A lower gold content, but a more aesthetic yellow gold look.
- THIS MATERIAL CANNOT BE USED FOR CERAMIC ALLOY BRIDGE CONNECTIONS AND DOES NOT MATCH THE COEFFICIENTS OF EXPANSION FOR CERAMIC ALLOY
- **Main Content Formula = 70% Gold – 3.9% Platinum – 2% Palladium -13% Silver**
- **Biogenic 3000 UF is .25mm in diameter and 3.3 grams per spool**



Biogenic 500 Ultra Fine Cobalt Chrome laser wire.

- Used for all cast partial denture repairs and reconstructions. Also can be used for all nickel free non-precious crown & bridge alloys including non-precious alloys with small amounts of titanium such as Tilitite™. Biogenic 500 is a carbon free material ideal for laser welding.
- **Main Content Formula = 65% Cobalt – 28% Chromium – 5.4% Molybdenum**
- This material matches the coefficient of expansion rate for all non- precious/base formula PFM alloys and porcelain systems.
- **Biogenic 500 is .25mm in diameter and 12 feet per spool**

Our precious and semi-precious alloys have been pulled to a .25mm diameter from a .3mm diameter. This “Ultra Fine” laser wire has proven to be more easy to use in almost every aspect of laser welding. Contact a BTI Laser representative today to find out more information about this amazing new line of wire, and to request a free sample.

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**“Why Would YOU Wait? Try Our Premium Alloy Laser Wire Right Now!
If YOU Are NOT 100% Satisfied. We Will Refund Your Money Immediately”!**
(Complete Simple Order Form...Fax Or Email To Number & Contact below)

Laboratory Name: _____

Address: _____

Phone: _____ **Fax:** _____

Email: _____

YOUR / Contact Name _____ **# Of Laser Welders** _____



5 gram
spool .35 mm
approx 12'



5 gram
spool .35 mm
approx 12'



4.5 gram
spool .35 mm
approx 12'



.35 mm
12' spool



.35 mm
12' spool



.25 mm
12' spool

Attention: Notice Laser Wire Length (Aprox. 12') Compared To pricing. Great Value is Sometimes Obvious...Isn't it??)

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I would like to Begin Saving \$\$\$ On laser Wire While Getting Better Results...

Please Send me The Following:

___ spools of Biogenic 4500 high fusing yellow ceramic laser wire

___ spools of Biogenic 4500 Ultra Fine yellow ceramic laser wire

___ spools of Biogenic 2000 high fusing white ceramic laser wire

___ spools of Biogenic 2000 Ultra Fine white ceramic laser wire

___ spools of Biogenic 3000 type III gold laser wire

___ spools of Biogenic 3000 Ultra Fine Type III gold laser wire

___ spools of Biogenic 500 CoCr laser wire

___ spools of Biogenic 500 Ultra Fine CoCr laser wire

___ spools of Biogenic 100 NiCr NP laser wire

___ spools of Biogenic Titanium laser wire

***“Yes. It’s true... Over 250 Lab
Technicians Reveal PROOF...
See Report Inside”!***

**Fax Order to 315.797.6165
Email order to matt@btilaser.com
Call Matt at 1.800.367.3322
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Contact our customer service representative, Matt Giovannone at 800-367-3322 to place your laser wire order today. Matt is standing by to assist you with any of your laser wire needs.

“All of our laser welding products have gone through rigorous application testing to create the best formulas for the largest volume of metal and alloys used in the dental laboratory industry worldwide. Our testing has shown that only the highest quality formulas will work universally with large categories of alloys. BTI Laser strives to supply the most cost efficient methods and materials for laser welding dental laboratories. Material Safety Data Sheets are available upon request.”



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